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Primary Health Care in the Nordic Countries

Comparative Analysis and Identification of Challenges

Arendse Tange Larsen, Morten Bonde Klausen and Betina Højgaard

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e-ISBN: 978-87-7119-836-2

Cover photo: Lars Degnbol/VIVE

Project: 301661

VIVE – The Danish Center for Social Science Research
Herluf Trolles Gade 11, DK-1052 Copenhagen K, Denmark
www.vive.dk

Preface

As part of the joint Danish, Greenlandic and Faroese Presidency of the Nordic Council of Ministers 2020, Denmark will host a conference on the future of the Nordic primary health care systems in November 2020. In preparation for the conference, the National Health Authority in Denmark, on behalf of the Nordic Council, has asked VIVE (The Danish Center for Social Science Research) to conduct a comparative analysis of primary health care in the Nordic countries, including a description of the factors challenging primary health care systems in the Nordic Region.

The main purpose of this report is to provide insights into the challenges witnessed in primary health care and to describe similarities and differences in the organization of primary health care in the Nordic countries. The latter will serve to provide a basis for assessing the feasibility of transferring interventions, organizational frameworks etc. from one health care system to another.

The task is comprehensive given the complexity of national health systems, and it has not been possible (nor intended) in this report to describe every aspect of primary health care in the Nordic countries. In this publication, VIVE has chosen the following areas/domains for analysis:

- The overall structure of the health care system
- The general practitioners (GPs) and organization of general practice
- Home nursing and care for patients with chronic diseases
- After hour services, eHealth and quality monitoring.

The report is funded by the Nordic Council of Ministers and based on desktop research, interviews with informants from the relevant countries and information from publicly available statistics. The report was written by PhD scholar Arendse Tange Larsen, senior research analyst Morten Bonde Klausen and project director Betina Højgaard.

VIVE would like to thank the informants of the Nordic countries who have contributed to the study with information and verification of a draft report. However, it should be pointed out that the responsibility for the content of the report rests solely with VIVE. The report has been reviewed by two external reviewers with special knowledge in the field.

Pia Kürstein Kjellberg
Head of research, VIVE Health
2020

Contents

List of abbreviations 6

Summary 7

1 Introduction 16
- 1.1 Analytical approach to primary health care 16
- 1.2 Scope of the report 17
- 1.3 Structure of the report 18

2 Challenges in primary health care 20
- 2.1 An ageing population 20
- 2.2 Trends in chronic diseases 23
- 2.3 Decreasing length of hospital stays 25
- 2.4 Staff recruitment 27
- 2.5 Concluding remarks 30

3 Geographic and demographic variations 32
- 3.1 Population size 32
- 3.2 Developments in population size 33
- 3.3 Sparsely populated areas 33
- 3.4 Concluding remarks 35

4 Organization of the health care systems 36
- 4.1 Organization and financing 36
- 4.2 Health care expenditure 41
- 4.3 Variations in primary health care organization 42
- 4.4 Concluding remarks 48

5 General practice and the general practitioners (GPs) 51
- 5.1 Gatekeeping 54
- 5.2 GP employment and practice type 55
- 5.3 Ancillary staff and task division 62
- 5.4 Patient affiliation and continuity 65
- 5.5 Concluding remarks 67

6 Home nursing and care for chronic diseases 70
- 6.1 Home nursing 70
- 6.2 Care for patients with chronic diseases 72
- 6.3 Concluding remarks 75

7 After-hours services, eHealth and quality monitoring 77
- 7.1 After hours services 77
- 7.2 Application of eHealth in primary health care 79
- 7.3 How is the quality of primary health care providers monitored 85
- 7.4 Concluding remarks 87

8 Discussion and conclusion 90
8.1 Trends in primary health care 92
8.2 Methodological note 96
References 97
Appendix 1: List of informants 105

List of abbreviations

ACG	Adjusted Clinical Groups
COPD	Chronic Obstructive Pulmonary Disease
DAMD	Danish General Practice Database
ECG	Electrocardiogram
FFS	Fee-For-Service
GDP	Gross Domestic Product
GP	General Practitioner
NCI	Need for Care Index
NDE	Norwegian Directorate of eHealth
P4P	Pay-For-Performance
SOTE	Finland’s social and healthcare system
THS	Talgild Heilsu Skipan
ÅHS	Ålands Hälso- & sjukvård

Summary

This report provides a description of the factors challenging the primary health care systems in the Nordic Region in terms of demography, new treatment opportunities and an altered pattern of disease, and a comparative analysis of the primary health care systems in the Nordic countries. The Nordic countries comprise Denmark, Finland, Iceland, Norway and Sweden and the three self-governing countries of Åland, Greenland and the Faroe Islands. The report is implemented on the initiative of the Danish Presidency 2020 of the Nordic Council of Ministers and funded by the Nordic Council of Ministers. The report will form the basis of a conference on the future of the Nordic primary health care systems to be held in November 2020. It is our hope that this report can contribute to qualified discussions of potential solutions to the challenges witnessed in the Nordic region, by providing an understanding of the overall organization of primary health care in the Nordic Region and a more detailed insight into some of the areas/domains.

Scope and methods

The complexity of primary health care systems as well as the blurred boundaries between health and social care requires a selective approach to the comparative analysis. VIVE has chosen to delimit the scope of the analysis to the following domains of particular relevance of primary health care:

- The overall structure of the health care system
- The general practitioners (GPs) and organization of general practice
- Home nursing and care for patients with chronic diseases
- After hour services, eHealth and quality monitoring.

These domains have been selected based on the considerations that general practice and home nursing are key primary health care providers in the context of a growing number of elderly and multimorbid patients, as well as a trend towards shorter hospital stays and chronic care as being an important and increasingly expanding domain of primary health care. After hour services, eHealth and quality monitoring are topics that have emerged during our research and which seem pivotal in the context of primary health care, as they are either used as potential solutions to some of the challenges experienced (telemedicine) or are deemed essential for the continuous development of the primary health care sector (after hour services, electronic health records and quality monitoring).

The analysis is based on desk research (academic literature, official reports and documents), reviews of descriptive, statistical data and interviews with key professionals representing each of the eight Nordic countries (appointed by the Danish Health Authority and identified through snowball sampling). In total, 13 interviews have been conducted representing professionals from both the national, regional and local levels.

Challenges in primary health care

The Nordic countries are facing a number of the same challenges, which leads to a pressing need for increased primary health care capacity. These challenges include an aging population and an increased prevalence of chronic diseases, decreasing length of hospital stays and difficulty in recruiting health professionals.

The **ageing population** is a result of increased life expectancy and a higher proportion of elderly people in the population. The imbalance of young persons (potential caregivers) and elderly persons (requiring care) challenges the demand and supply ratio and puts a financial pressure on the health care system because elderly people, on average, require more and costly care. Though this phenomenon is most pronounced in rural areas, it is also present in urban areas.

The **increase in prevalence of chronic diseases** is a result of improved technological skills, enabling earlier diagnosis and better treatment opportunities. Chronic diseases on the rise include type 2 diabetes, COPD and hypertension; but an increase in senile dementia is also seen in some of the countries. This development affects primary health care because primary health care plays a key role in the management of these diseases. Furthermore, the burden of mental health problems challenges the primary health care sector and the health care sector in general.

Shorter hospital stays are typically used as an indicator of efficiency in hospitals but at the same time put demands on the primary health care sector, because earlier discharge means that patients are in a more fragile stage when they leave the hospital than was previously the case. As these patients are received in primary health care, the decreasing length of hospital stays puts further demands on the primary health care sector, which is expected and required to handle increasingly more complex patients. Many of these patients require medical treatment and/or continuous care, which can be given in the patient's home (supported by, for instance, home nurses and nurse aides) or in temporary or permanent facilities.

The challenge of **recruiting primary health care personnel** has traditionally been a concern in rural areas, but bigger cities are increasingly facing the same challenge. The challenge particularly concerns GPs but also recruitment of nurses and other health care professionals is seen as a challenge. Some of the countries have endeavoured to cope with the challenge of recruiting GPs by introducing educational (Greenland, Iceland, the Faroe Islands and Sweden) and financial (Denmark, Norway, Sweden, Finland) initiatives. A way to immediately cope with the shortage of GPs is to employ short-term GPs. This is done in the Faroe Islands, Sweden and Norway, for instance. However, this poses a challenge to ensure continuity of care, which is especially a problem in Greenland, where short-term doctors are widely used.

In combination – and further fuelled by an increased specialization of the hospitals and more demanding patients – these challenges place great demands on the primary health care sector across the Nordic countries.

Geographic and demographic variations

Geographic and demographic characteristics of a country play a role in relation to the ability to provide adequate primary health care to that country's population. Both across and within the Nordic countries, geographic and demographic differences – and hence differences in conditions for providing primary health care – exist. These differences relate to characteristics of the population, such as the size, density and degree and pattern of dispersion, age structure, proportion of people living in cities and in rural areas, as well geographic surroundings. Common to the Nordic countries is a trend towards population concentration in the bigger cities and a population decrease in rural areas, which challenges equal conditions for all inhabitants. Iceland and Finland are dominated by large rural areas, and the same is true for Sweden and Norway, both countries being characterized by areas with a low population density. In addition,

specific geographic features such as mountains, fiords and islands, challenge the care delivery in some of the countries (Norway, the Faroe Islands, Åland and Greenland). Though geographic variations also exist in Denmark, they are not as pronounced as in the other Nordic countries. When assessing the feasibility of transferring organizations and interventions from one country to another, it is important to bear in mind that these may not always suit the specific conditions of the country of question.

Organization of the overall and the primary health care systems

Though the health care systems in the Nordic countries have several common characteristics, differences also exist. It is important to be aware of both similarities and differences in order to understand the organization and functioning of the primary health care sector, as well as to assess the feasibility of transferring interventions from one health care system to another. Governance structure differs slightly across the health care systems, some of them being more centralized (the Faroe Islands, Greenland, Åland, Iceland) than others (Sweden, Norway, Finland, Denmark). The centralized system in Åland, Greenland and the Faroe Islands may partly have to do with the limited population sizes. Concerning the **governance structure**, Finland and Sweden have the most decentralized health care system, where the responsibility for all health care services lie with the municipalities (Finland) or the municipalities and regions (Sweden). This means that the local organizational variations may be greater in these two countries compared to the remaining Nordic countries. In Norway and Denmark, the health care systems can be considered more 'semi-decentralized'. In Norway, the state is responsible for specialist care (administered by four regional health authorities) and the municipalities are responsible for primary health care. In Denmark, the five regions are responsible for specialist care, while primary health care is a shared responsibility of the regions and the municipalities. However, in both countries the role of national regulation is relatively strong.

With regard to the **organization of primary health care**, differences exist as to whether the responsibility lies in one administrative level (Finland, Greenland, Iceland, Norway and Åland), or is shared between several levels; in Denmark and Sweden primary health care is a shared responsibility between regions and municipalities; in the Faroe Islands primary health care is a shared responsibility between the state and municipalities. Moreover, in Finland, Sweden, Iceland and Åland the provision of primary health care is anchored in so-called health centres, whereas in Denmark, the Faroe Islands and Norway the provision of primary health care services is distributed among different units. In Greenland, there is no division of primary and secondary health care. Therefore, there is no organization of primary health care as such. Instead, the health care system consists of five different types of institutions, which are typically created on the basis of population numbers.

Division of responsibility among various public levels and entities may challenge the cooperation and coordination between the various providers in the primary health care sector. A hypothesis may be that organization of the primary health care services in a multi-professional health care centre structure supports a higher degree of horizontal integration and care coordination compared to when primary health care services are provided by different institutions. However, it is beyond the scope of this report to analyse such implications, and one should bear in mind that the degree of integration and coordination may also relate to other factors, such as leadership, culture and interpersonal skills, as well large and small countries having different conditions.

The size of the entities responsible for providing primary health care is affected by the degree of decentralization, and may have implications for the ability to provide care across these entities. For instance, the municipalities in Denmark, Finland and Norway vary considerably in size. The large variation in population size and population density means that the municipalities' ability to cover specific patient groups and problems may also differ.

The GP and organization of general practice

In Denmark, Norway and the Faroe Islands, the **GP acts as gatekeeper**, which means that patients need to contact a GP and obtain a referral before they can receive specialist care. In Finland and Åland, specialist services under the public system also require a referral but this can be obtained from any doctor, and also public health nurses can make referrals, though referrals are most often obtained through the GP. In Iceland, patients have direct access to specialist care and thus do not need a formal referral. In Sweden, the regions decide on which specialist services require a referral from the GP. In general virtually no patients are accepted without a referral, and thus the absence of a national gatekeeping policy does not entail that patients generally have direct access to specialist care, but rather is a sign of the decentralized nature of the Swedish health system. Also, while patients do have direct access in some cases, some Swedish regions have introduced lower co-payments for specialist services if the patient has obtained a referral beforehand. It is unclear how and whether the absence of a formal, national gatekeeping policy in Sweden affects the proportion of health services provided by specialists, but in Iceland a significant proportion of primary health care is provided by private specialists due to the absence of a gatekeeping function and referral system.

Employment of GPs, i.e. whether GPs are salaried public employees or self-employed independent professionals varies across the Nordic countries. In Denmark and Norway, GPs are generally self-employed independent entrepreneurs running their own private practices. In both countries, however, a small fraction of GPs work as salaried employees. The GPs in the Faroe Islands consider themselves as self-employed entrepreneurs, as in Denmark and Norway. In Åland, GPs are salaried employees, while in Sweden, Finland and Iceland GPs are mainly salaried employees. The practice type is to a large extent reflected by the GP employment status. In Denmark, Norway and the Faroe Islands, the majority of GPs run their own practice, while all or the majority of GPs work in health centres in Finland, Sweden, Iceland and Åland. In Denmark there is a trend towards an increasing number of (larger) group practices, whereas solo practice is the most common type of GP practice in Norway and the Faroe Islands. The health centres in Finland, Iceland, Sweden and Åland are to varying degrees multidisciplinary However, unlike in the other countries, the health centres in Finland are not located in single buildings but are organizations offering different types of services at different locations.

In terms of **GP payment schemes**, Denmark, the Faroe Islands and Norway apply a combination of Fee-For-Services (FFS) and capitation; Finland and Iceland generally combine FFS and salary; in Åland and Greenland the payment scheme is salary-based; and in Sweden the funding schemes vary but are generally are based on capitation with some FFS. In addition to the payment schemes, user fees may be charged for selected services. User fees exist to varying degrees in all of the Nordic countries. Differentiated capitation has been introduced in Denmark and Iceland and is being discussed in Finland. Sweden and Iceland are the only two of the Nordic countries to have experience with Pay-for-Performance (P4P). In Iceland, Denmark and Norway, special agreements exist on extra subsidies to GPs, for instance, in rural area and areas characterized by recruitment challenges. In Denmark, a bundle payment

scheme has recently been introduced aiming at strengthening the GPs' role in chronic care management. However, similar schemes have not been identified in other countries.

Access to primary health care can also be improved by expanding the competence of and delegating tasks from the GP to other health care staff in general practice/health centres. **Ancillary staff** is used in all the Nordic countries, though to varying degrees. A trend towards increased use of ancillary staff and the use of multidisciplinary and team-based care characterizes most of the countries. This is particularly pronounced in those countries where GP services are provided in or by health care centres. This is partly due to the nature of the health centres employing a broad range of different health care professionals working either in the same building or at least within the same organization. This multidisciplinary approach to delivering primary health care services especially relates to chronic care, and especially nurses seem to play an increasingly larger role in some of the countries; particularly in Sweden where nurses may hold positions as head of a health care centres.

In the Faroe Islands, Norway and Finland, **patients are generally affiliated** with a specific GP, whom they are either assigned to or choose themselves. In Denmark, patients are either affiliated with a specific GP (the case for solo and partnership practices) or a practice (the case for collaborative and sharing practice). In Åland, Sweden and Iceland, patients are affiliated with a health care centre. In Sweden, some centres offer registration with a specific GP, whereas patients are not formally affiliated with a specific GP in the health centres in Finland, Åland and Iceland. However, in practice patients often consult the same GP. While all of the Nordic countries attempt to ensure continuity by assigning a regular GP, general practice or a regular health care centre to the patients, in practice the continuity may be challenged, for instance by the shortage of GPs and the relatively wide use of short-term GPs in some of the countries.

Home nursing and management of chronic diseases

Earlier discharge of patients from hospitals means more and increasingly complex tasks to be taken care of in primary health care. Many of these patients require medical treatment and/or **home nursing services**. Across the Nordic countries, it varies whether home nursing services are provided by separate units (Denmark, the Faroe Islands, Norway, Sweden (except Stockholm) and Iceland) or are part of health care centres that include doctors (Finland and Åland). In Greenland, the capital is the only area with an extended home nursing service with permanent staff. The degree of integration of home nursing and home care and social services vary across countries, and in all countries, except for Finland, home nursing is free of charge. When the number and complexity of patients increases, closer coordination and cooperation between health care providers is needed, particularly between general practice and the health professionals in home nursing. However, the extent of such (formalized) collaboration varies across countries. In this regard, the Covid-19 pandemic has had implications for the workflow, e.g. in Iceland, where home nurses previously had to contact the hospital if they needed medical advice. During the pandemic, this proved unfeasible and therefore they are now able to contact the health care centres. Discussions of whether the organization of these services should be permanently re-designed are now ongoing.

Chronic diseases is a field which is playing an increasingly large role in primary health care. Typically, the management of chronic patients with, for instance, uncomplicated type 2 diabetes, hypertension and COPD take place in health centres or in general practice. GPs are involved but in several of the countries the nurses play an increasingly large role as well, e.g. in Denmark, the Faroe Islands, Finland, Sweden. In Iceland, the authorities are currently in the

process of clarifying the responsibilities of GPs, private specialist clinics and the hospitals, as these have not been very clear. This means that patients with chronic diseases are currently handled in several settings.

After hours services

Another consequence of the increasing scope and complexity of tasks handled in primary health care is the need for an appropriate framework for providing after hours medical services to ensure that patients with urgent medical issues have access to care when their usual health care provider (excluding home nursing) is not available. In most of the countries, GPs play a key role in delivering such after hours services. The GPs might be obliged to engage in after hours service provision (as in Norway) or there might be an economic incentive to do it (as in Finland, Iceland and Denmark). In some of the countries, other health care professionals, e.g. nurses and social and health care assistants, also take part in provision of after hours services. Moreover, phone and online consultations are typically available, and phone triage is being used as a way of limiting the number of (unnecessary) physical appointments (e.g. in Denmark and Finland). Åland is the only country where after hours services are provided at the hospital only.

Increased need of medical assistance outside usual working hours may challenge the continuity of care because the handover of tasks is complicated when, for instance, home nurses have to refer to different GPs inside and outside normal working hours. Another way of improving coordination is by means of electronic information systems, which can facilitate the exchange of clinically relevant information between different health care providers.

eHealth in primary health care

The term *eHealth* refers to various information and communication technologies and digital solutions in health care, which are increasingly being used and are expected to continue to grow in the coming years. In particular, digital solutions for recording and exchanging data as well as providing health care services are currently on the rise. Across all of the Nordic countries, the importance of the former is recognized, as a means to it strengthen coordination and collaboration between different health care providers. This requires an infrastructure that properly supports the exchange of data. All of the Nordic countries have implemented mutual electronic health records, some being more advanced than others. However, challenges still exist with regard to developing proper integration of systems enabling providers in and across the primary and secondary health care sectors to access the same data. The more fragmented the health care system, the greater the need for integration of systems across providers, facilities and sectors.

Digital solutions for providing health care services, e.g. telemedicine, offer an opportunity to improve effectiveness and convenience of care delivery because it allows services to be provided at a distance as opposed to through face-to-face consultations, a development, which has been further reinforced by the Covid-19 pandemic. Moreover, videoconferencing is a way to improve access in rural areas or in areas with shortages of health care personnel, and can also be used to support self-management of chronic conditions and rapid exchange of data between patient and provider or across providers, which facilitates the care process.

Quality monitoring in primary health care

Generally, monitoring of the quality of primary health care provision in the Nordic countries is limited. Sweden stands out in this area, having developed the *Primary Care Quality* system, which is based on data from the health care centres' electronic medical records. The system is run by the Swedish regions, and data are automatically collected and transferred to a national service function, where average values are calculated and returned to the local level for benchmarking and improvement. While the system is primarily used at the regional or local level, the system also supports some national indicators for primary health care made available online at a comprehensive platform for health system data and indicators, though these mainly relate to the secondary sector (www.vardenisiffror.se "health care in numbers"). The *Primary Care Quality* system is not yet fully implemented, currently being based on data from 80% of the health care centres. Although the system is (almost) national in scope, it does not include a national registry for collection of primary health care data. However, the Swedish National Board of Health and Welfare is currently investigating the legal and practical possibilities of collecting patient data from primary health care for a national registry. In Denmark, the Danish General Practice Database was introduced in 2007 but was suspended and later deleted due to legal issues regarding transfer of data to third parties. This case demonstrates the importance of ensuring that the legal requirements of data collection are met, so a sustainable data infrastructure can be developed and maintained. In several countries, registries for monitoring quality and patient outcomes exist, but they primarily concern specialized care or are limited in, for instance, having no systematic recording, not being able to compare data between units and not allowing retrieval of the recorded data. For instance, the health care centres in Finland have databases for recording unintended events etc. to be used by the health care staff, but because recording is not mandatory, data is not systematically recorded. The same applies to the Faroe Islands, where no guidelines or requirements for the GPs' recording of patient data exist. Moreover, the GPs are not able to retrieve data from the record, though there seems to be a strong desire for this. In Iceland, quality control in general practice is partly integrated with the remuneration through P4P, which has recently been introduced in some of the primary health care centres. In Norway, municipal follow-up primarily concerns the organizational quality, whereas knowledge on clinical quality is generally limited. In the recent evaluation of the GP regulation, it is concluded that developing more quality indicators and control mechanisms should be considered to enable the assessment of quality over time and across municipalities. Across the Nordic countries, there seems to be a general desire to develop and improve quality monitoring of primary health care.

Trends and concluding remarks

This report has provided an overall description of the organization of the primary health care sector in the eight Nordic countries (Denmark, Norway, Sweden, Finland, Iceland, the Faroe Islands, Åland and Greenland), which are facing a series of common challenges to delivery of primary health care to their populations. Though the countries and their health care systems share some similarities, differences also exist, and both are essential to understand in order to learn from each other's experiences. In addition to conducting a comparative analysis of the primary health care systems in the Nordic countries, the report has identified a number of common trends in primary health care.

Increased responsibility and **management of chronic diseases** in primary health care seems to receive continued focus, as does **task shifting** – both in terms of the primary health care

sector taking over tasks that have traditionally been performed in hospitals and in terms of new or other professional groups taking over traditional GP tasks. In particular, strengthening the role of nurses – especially in the health care services – is a continued priority. This includes, for instance, expanding the competencies of nurses to prescribing medication.

The general development towards increased responsibility for more tasks and more complex tasks in primary health care stresses the need for adequate **coordination and cooperation** between different health care providers and health care sectors, and this seem to be a focal point in the future. In several of the countries, the Covid-19 pandemic has demonstrated that major organizational changes are not necessarily required to achieve good collaboration and to fulfil the ambitions of a more coherent health care system. The pandemic has also boosted the already ongoing development towards greater use of **telemedicine** for providing health care at a distance.

Moreover, across the Nordic countries there seems to be an increased focus on delivering **mental health services** in the primary health care sector to patients with mild to moderate mental health problems, including requirements of psychological competence in the municipalities (Norway) and employing psychologists in the health care centres (Sweden and Iceland).

All of the Nordic countries acknowledge the importance of data generation and its potential to ensure closer and better collaboration between different health care providers and different health care levels through **data sharing**. (Mutual) electronic health records have been implemented in all of the countries. However, it varies which providers can access the system(s), what features they include, how integrated the systems are across, for instance, general practice and home nurses, primary and secondary health care, whether the patients can access their own record etc.

As for **quality monitoring** of primary health care provision, there seems to be a general consensus on the need for improved monitoring of the quality in primary health care, as this is generally an underdeveloped area in the Nordic countries.

Country-specific movements and focal points include discussion and preparation of **health care reforms** affecting primary health care. In Denmark, a health care reform has been a subject of political discussions for years. Proposed areas of the reform include shifting health care tasks and establishing quality standards to strengthen primary health care. In Finland, a health care reform has also been discussed for over a decade but policy consensus has not yet been reached. The aims of the reform include a closer connection between the health services and social services; to ensure equal and high quality social, health and rescue services by having a larger organizational units than in the current municipal system; and to meet the future challenges linked to the demographic trends. In Greenland, they are working on revising the health care plan to define which health care services should be available at different levels of health care. In Norway, they are currently discussing the implementation of so-called health communities to improve the collaboration across primary and secondary health care in selected areas. In Iceland, the health care act is under revision, including an outlining and definition of which health care services should be delivered at first-level (the primary health centres), second-level (specialist services outside the university hospital) and third-level services (provided by, or in collaboration with, the university hospital). Current efforts to transform primary health care in Sweden are officially described as regionally dispersed initiatives that converge in broader movements from reactive to proactive treatment, from fragmented to coordinated patient pathways and from the patient as passive consumer of health services to an active co-producer of own health. At the national level, it remains a challenge to develop proper methods for following

up on local initiatives to compare and learn across local entities. Efforts to develop such national evaluative methods are ongoing.

Methodological note

Primary health care is comprehensive in scope, and it has neither been possible nor the intention to go into the details of every aspect of primary health care or to analyse implications of different organizational setups and workflows in care delivery across the Nordic countries. The level of detail and elaboration varies across the selected domains. This partly has to do with local and regional variations within the countries, a description of which is beyond the scope of this report. It also has to do with the fact that the approach chosen for this report has led to general practice and GPs receiving more focus than the other chosen domains. It would be interesting to address some of the domains in more detail in further analyses. Moreover, other domains of primary health care would be interesting and relevant to address in future analyses.

We have attempted to obtain descriptive data for each of the countries for comparison. However, this has proved challenging due to, for instance, differences in quantitative assessments across countries and unavailability of data. Therefore, the amount of quantitative comparative data is generally limited.

It is our hope, though, that this report can contribute to qualified discussions of potential solutions to the challenges faced in the Nordic region at the Nordic Council of Ministers' conference on the future of the Nordic primary health care system in November 2020. We also hope that the report will serve as a contribution to discussions on the topic in general by providing an understanding of differences and similarities in the organization of primary health care in the Nordic countries.

1 Introduction

This report presents the results of a comparative analysis of the primary health care systems in the Nordic countries. The report focuses on the fundamental conditions for delivering primary health care, including differences and similarities across the Nordic countries. The report also contains a description of the factors challenging the primary health care systems in the Nordic Region in the form of demography, new treatment opportunities and an altered pattern of disease. The purpose of the report is to provide a basis for the further discussions of possible solutions.

The report is implemented on the initiative of the Danish Presidency 2020 of the Nordic Council of Ministers and is funded by the Nordic Council of Ministers. The report will form the basis of a conference on the future of the Nordic primary health care systems to be held in November 2020. The conference will facilitate a discussion of the designs of and future solutions for the primary health care systems with fellow health professionals and politicians in the Nordic Region. Hereby, the hope is to find inspiration and ideas for new solutions to the challenges faced by the Nordic countries.

The Nordic countries comprise Denmark, Finland, Iceland, Norway and Sweden and the three self-governing countries of Åland, Greenland and the Faroe Islands. The Nordic countries share some fundamental societal features, including a large public sector, high tax levels, free higher education, social security for people with impaired work ability as well as easy and equal access to health care for all inhabitants (universal coverage) (1,2). Other common characteristics of the Nordic countries include a high ranking on gender equality, educational attainment and labour force participation, low income disparity and high gross domestic product (GDP) per capita (2). The common core of the Nordic countries instigates the concept of *the Nordic model* and *the Nordic health care system*.

Despite the Nordic health care system being considered (relatively) well performing, all eight countries are currently facing a number of challenges for delivering primary health care to their populations. Some of these challenges overlap between countries and therefore experiences from other countries can be valuable in the solution of some of the challenges. However, assessing the feasibility of transferring interventions, organizational frameworks etc. from one health care system to another requires an understanding of both similarities and differences between the countries concerned. Similarities and differences can relate to both demography, geography and to the structure of the health care system.

This report provides a description of the factors challenging the primary health care systems in the Nordic Region in terms of demography, new treatment opportunities and an altered pattern of disease as well as a comparative analysis of the primary health care systems in the Nordic countries. The purpose is to form the basis for the further discussions of solutions.

1.1 Analytical approach to primary health care

The term primary health care encompasses different and somewhat contradictory meanings, and therefore taking a conceptual approach to primary health care in the Nordic countries is

difficult. While the term dates further back, 'primary health care' was most famously developed and defined at a WHO conference in 1978 as *"…health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford" (3).* Following this definition, a set of core functions defining primary health care also emerged. Namely that primary health care functions as the **first-point of contact** for new health problems, as **comprehensive** care for the majority of health problems, as **continuous** and **long-term** person-focused care, and as **coordinator of care** across providers (4).

WHO's definition and description of core elements identifies primary health on an abstract level, without attaching importance to which organization or professional group provides the services. There are a number of empirical studies that apply a narrower – and medical – definition. Here primary health care is often defined by the specialty of certain providers, including general practitioner (GP), general paediatricians, general internists and other providers trained as generalists (5). It is the specialist in general medicine (general practitioner/family physician, paediatrician, etc.) who is set up against the specialist in special medicine (e.g. liver diseases, skin diseases, etc.). This definition does not include, for example, private specialists, even though they act as a first-point contact for new health problems in many countries. They also do not include the many other professionals (nurses, theorists, midwives etc.) who are part of the task solution in many countries – including the Nordic countries.

In this report, we take as our point of departure the WHO definition and description of the core features and include, in principle, all the organizations and professions involved in tasks in primary care. We focus on two institutions and professions: general practice and the general practitioners, and home nursing and the home nurses. These have been chosen because they are considered central to solving the challenges facing the Nordic countries with an increasing number of older people – an increasing number of people with chronic illnesses – and a tendency towards shorter discharge processes. For a description of the countries' work with rehabilitation and inclusion of, for instance, physio and occupational therapists in this work, see the research project Context[1], which aims to compare elder care in Norway and Sweden.

1.2 Scope of the report

It follows from the definition and delimitation above that the empirical scope of primary health care is comprehensive, and it has not been possible in this report to describe every aspect of primary health care in the Nordic countries. Instead, VIVE has chosen to focus on the following areas/domains:

- The overall structure of the health care system
- The general practitioner (GPs) and organization of general practice
- Home nursing services and care for people with chronic diseases
- After hour services, eHealth and quality monitoring.

The areas/domains are selected based on the following considerations: The growing number of elderly and multimorbid patients in combination with increasingly short hospital stays (see Chapter 2), which increases the demands placed on non-hospital providers who receive these increasingly complex and fragile patients after discharge and who have to provide care and

[1] For more information on CONTEXT, see https://www.vive.dk/da/undersoegelser/context-et-forskningsprojekt-om-borgercentreret-aeldreomsorg-2979/

long-term treatment outside the hospital. This (particularly) comprises GPs and providers of home nursing services (e.g. home nurses and nursing aides). Moreover, the rising prevalence of chronic diseases across the Nordic countries (see Section 2.2) makes care for chronic diseases an important and increasingly expanding domain of primary health care. It should be emphasized that these areas are not mutually exclusive quantities, i.e. they overlap in terms of providers and patients involved as well as place of service provision.

Other domains of primary health care would also have been interesting and relevant to address more thoroughly (e.g. prevention, rehabilitation and the elderly medical patient). However, the framework of this analysis, the complexity of primary health care and the blurred boundary between health and social care require that a selective choice of domains for analysis is made. According to the elderly medical patient it should be noted that, despite the report not directly including a description of this central patient group, the report includes a description of the organization of the central providers of services to the elderly medical patient in the primary health care sector (GPs and home nurses) and the most common chronic diseases that generally affect the elderly more than the younger persons.

The analysis is based on desk research, reviews of descriptive, statistical data and interviews with key professionals representing each of the eight Nordic countries. The desktop research includes reviewing academic literature as well as official reports and documents either retrieved by VIVE or provided by the professionals participating in the interviews. Relevant professionals for the interviews have been appointed by the Danish Health Authority, and, additionally, snowball sampling has been used where relevant. VIVE has conducted 13 interviews in total, representing professionals from both the national, regional and local levels (see Appendix 1, List of informants).

During our desk research and via our interviews, we have attempted to obtain descriptive data to compare the primary health care systems and services in the Nordic countries. It has been difficult to gain sufficient data for this purpose. For instance, the numbers of GPs are difficult to compare because they can include both short-term and permanently employed GPs. Moreover, what defines a permanently employed GP in terms of working hours may also vary across countries. Furthermore, some data has simply not been available, e.g. the share of GDP spent on primary health care, as primary health care spending can be divided among more public entities or because societal costs are often included in the cost categories. This means that the amount of quantitative comparative data is generally limited.

1.3 Structure of the report

The report is divided into eight chapters. The first chapter, the present one, describes the motivation and scope of the report. The second chapter describes a number of selected challenges experienced in the Nordic countries, all contributing to the increased demands on primary health care. Chapter 3 addresses geographic and demographic variations across and within the Nordic countries; these variations are important to note because they provide different conditions for primary health care delivery. In Chapter 4, the health care system in each of the countries is described in terms of organization, governance and financing. Moreover, the chapter outlines the different ways of organizing the primary health care sector specifically across the Nordic countries. Chapter 5 focuses on the first of the three selected domains of primary health care, namely the GP and organization/management of general practice. Chapter 6 addresses the second and third domains – home nursing services and care for chronic diseases.

Chapter 7 present topics that have emerged during our research and which seem pivotal in the context of primary health care, as they are either used as potential solutions to some of the challenges experienced (telemedicine) or are deemed essential for the continuous development of the primary health care sector (after hours services, electronic health records and quality monitoring). Finally, Chapter 8 rounds off the report by providing a short discussion and conclusion, including a description of observed trends in primary health care (both common and country-specific trends).

2 Challenges in primary health care

The Nordic countries are all encountering the same overall challenges of an aging population and an increased prevalence of chronic diseases, decreasing length of hospital stays, difficulties in recruiting health professionals, and the resulting pressure on primary health care. Many of the challenges are caused by a positive development as a result of better treatment options in hospitals, which has led to less invasive treatment and more outpatient treatment; a longer life span and more people living with one or more chronic diseases. The various challenges combined with the increasing specialization of the hospital sector and more demanding patients with medical as well as social problems give rise to a pressing need for a greater primary health care capacity.

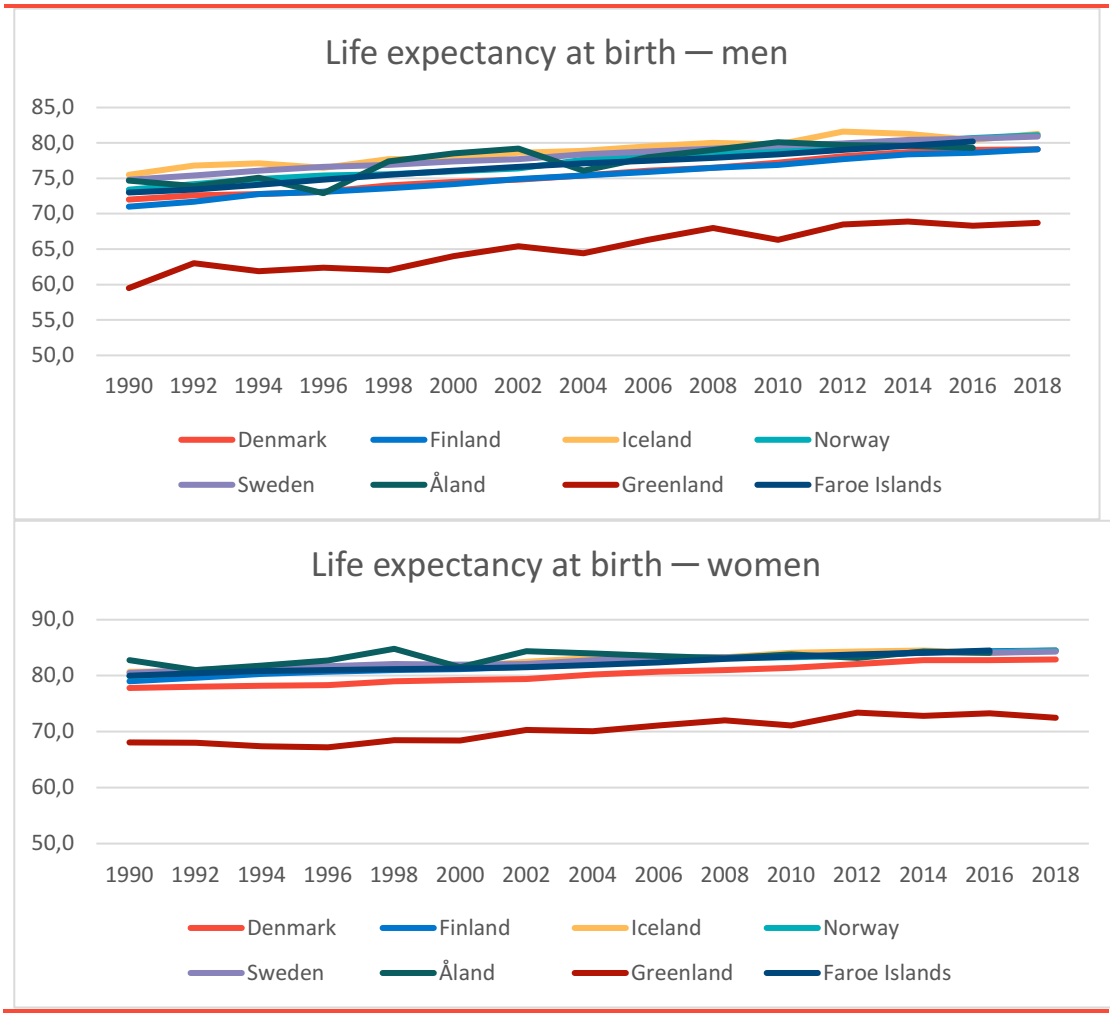
This chapter describes the challenges in primary health care in the form of an aging population, an increased prevalence of chronic diseases, decreasing length of hospital stays, and difficulties in recruiting GPs, nurses, and other health professionals. The chapter also provides examples of how the Nordic countries are trying to solve the challenges in staff recruitment.

2.1 An ageing population

The ageing population is a fundamental challenge in the Nordic welfare systems, including their health care systems. The ageing population is a result of two demographic factors: increasing life expectancy and a greater proportion of elderly people. This gives a shift in the age structure of the population, involving a decreasing proportion of younger people (15 years of age or younger) and a concurrent increase in the proportion of elderly people.

Figure 2.1 illustrates a sustained increase in life expectancy at birth for males and females in all of the eight Nordic countries during the period 1990-2018. **Greenland** has a significantly lower, yet still increasing, life expectancy compared to the rest of the Nordic countries.

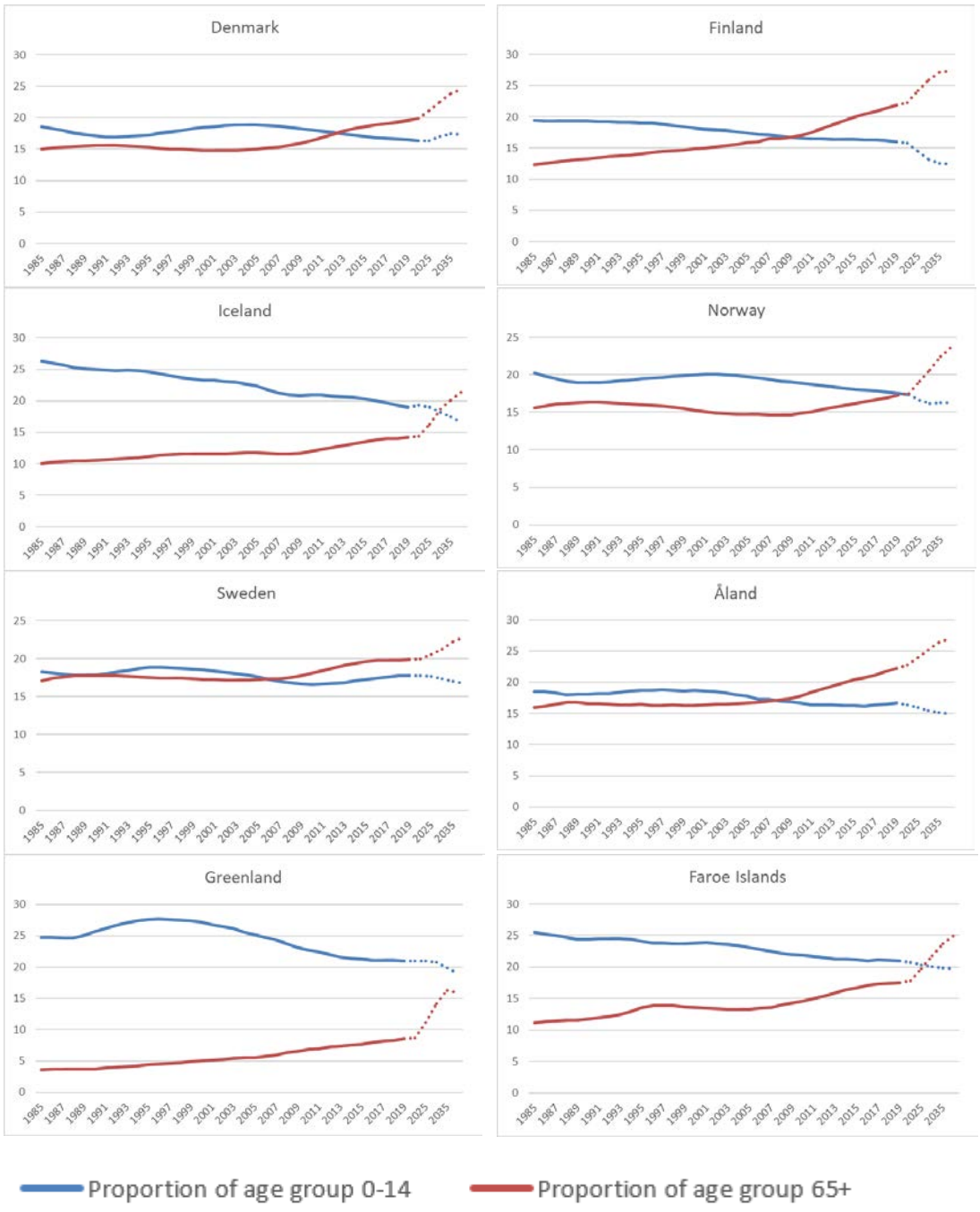
Figure 2.1 Life expectancy at birth for males and females, respectively, 1990-2018



Source: Nordic Statistics, Table LIFE01.

The ageing population is putting financial pressure on the health care system because more elderly people are requiring health care services, while the number of people available for providing these services is declining. Figure 2.2 illustrates the population changes in different age groups from 1985-2018 and the projected changes until 2040. In **Denmark**, **Finland**, **Norway**, **Sweden** and **Åland** the lines have already crossed and common for all, except **Greenland**, is that the proportion of elderly people (65+ years) will exceed the proportion of young people (0-14 years) in the near future. As to **Greenland**, the projections do not indicate the lines crossing before 2040 but the general trend is similar to the rest of the Nordic countries. Furthermore, it should be noted that the populations of Iceland and – in particular – **Greenland** are relatively young in comparison with the other Nordic countries.

Figure 2.2 Population changes in different age groups, shown as the number of children (aged 0-14) and older people (aged 65 and over) as a proportion of the total population, in per cent (projection after 2020)



Source: Nordic Statistics, Table POPU01.

In addition to an unequal distribution of young and elderly persons, the distribution of elderly persons across different municipality types differs. Table 2.1 presents the prospective old-age dependency ratio (POADR) by municipality type in each of the Nordic countries.

POADR is an indicator that compares the number of people in the end of their lives (i.e. have a life expectancy less than 15 years) who have an increasing need for costly care with the

number of people who are younger (i.e. life expectancy of more than 15 years) who have less need for costly care (6).

From the table, it can be seen that rural and sparsely populated municipalities generally have a higher POADR, i.e. in these areas more people require costly care relative to the number of people with less need for costly care.

Table 2.1 Prospective old-age dependency ratio (POADR) 2019, average by country and municipality type (in percentages)

	Urban	Intermediate	Rural	Total
Denmark	17.4	21.1	23.6	21.6
Finland	14.8	20.1	26.0	24.5
Iceland	13.0	10.5	14.2	14.0
Norway	13.8	16.3	19.4	18.6
Sweden	15.2	21.8	25.9	23.3
Åland	-	15.1	19.0	18.7
Greenland	-	-	19.9	19.9
Faroe Islands	-	-	17.2	17.2
Nordic Region	*15.3*	*19.6*	*22.2*	*21.2*

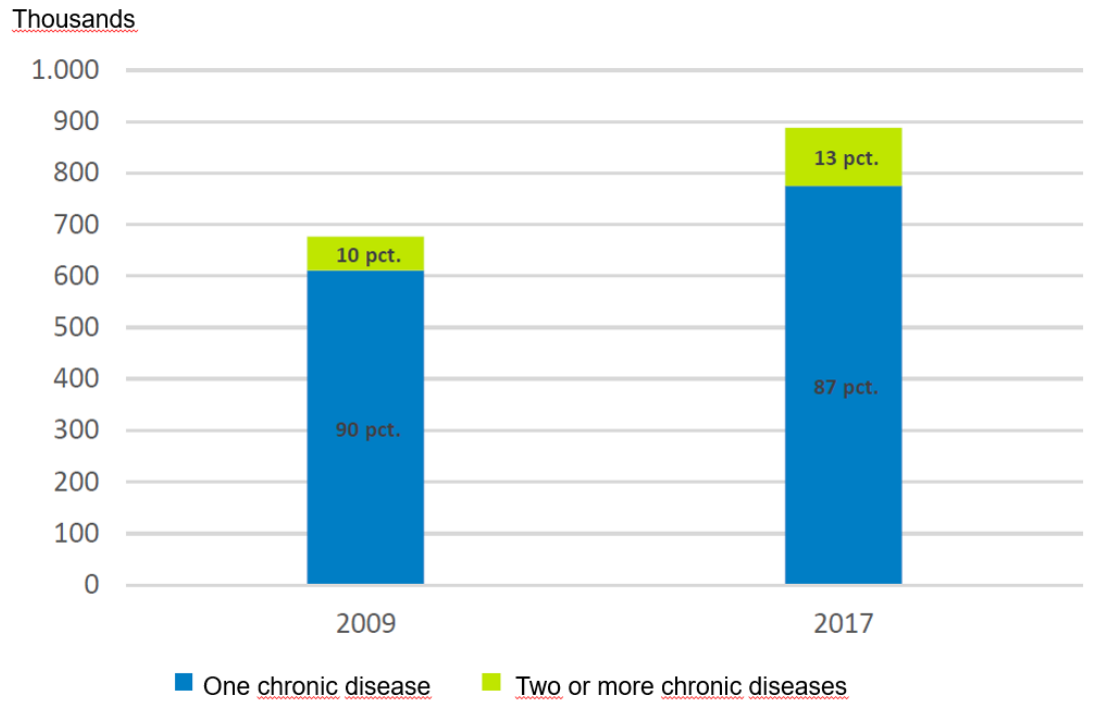
Source: Table 4.1 in (7).

2.2 Trends in chronic diseases

An increased prevalence of chronic diseases is seen worldwide, and thus also in the Nordic countries. This is due to several factors. Firstly, the ageing population means that more people are living with chronic conditions because the prevalence of chronic conditions increases with age, as does the co-occurrence of several chronic conditions (multimorbidity). Secondly, improved diagnostic and treatment skills enable earlier diagnosis and better treatment. The former causes the criteria for illness to change. For instance, the criterion for type 2 diabetes in Denmark has been altered during the last two decades (8). The latter means that once fatal diseases have now become chronic diseases. Moreover, improved treatment options leads to increased probability of survival, which fuels the increase in chronic conditions caused by people living longer. Finally, several chronic conditions are associated with an unhealthy lifestyle, e.g. obesity, smoking and low levels of physical activity, and therefore the increase in some conditions may be attributed to changes in lifestyle.

In **Denmark**, around 20% of the adult population suffer from either chronic obstructive pulmonary disease (COPD), type 1 and type 2 diabetes, cardiovascular diseases, osteoporosis, asthma or rheumatoid arthritis, and the number of people living with these conditions has increased by 31% from 2009 to 2017 (9), see Figure 2.3.

Figure 2.3 Share of adults with selected chronic diseases in 2009 and 2017



Note: The figure includes people aged 18 and over who, at the beginning of 2009 and 2017, had at least one of the six selected chronic diseases (COPD, rheumatoid arthritis, osteoporosis, type 1 and type 2 diabetes and asthma).

Source: (9)

Similarly, in **Sweden** about 5% of the population (500,000 people) were registered in the national diabetes registry during 2017-18. The total number has increased but the number of registered cases varies across regions (10). The variation is not necessarily a direct reflection of diabetes prevalence in the regions, as it may also reflect varying registration systems and habits (informant).

In **Greenland**, the prevalence of, in particular, type 2 diabetes and other lifestyle-related chronic conditions has increased in the past decades. It is estimated that the number of patients with diabetes, COPD and/or hypertension will increase by 43% from 2018-2030, based on prevalence, demography and estimated impact of increased efforts in terms of detection and diagnosis of these diseases (11).

The Norwegian Institute of Public Health published a report on the health status in **Norway** in 2018, which emphasized the impact of cardiovascular disease, cancer, COPD and diabetes on health care use (12). Moreover, the report referred to health studies in Northern Norway indicating an almost two-fold increase in diabetes among 40-79-year-olds from 2007-2008 to 2015-2016 (ibid.). The report also highlighted the high burden of disease attributable to dementia (ibid.); a chronic condition that also receives increasing attention in the other Nordic countries due to an expected increase in the coming years. For instance, in **Sweden**, the number of people with Alzheimer's disease is expected to increase from 7% in 2018 to 9% in 2040 if the age-specific prevalence of dementia remains unchanged (13). In Denmark, a national action plan for dementia was introduced in late 2016, earmarking funds for dementia detection, management, rehabilitation, support etc. to be freed in the following years until 2025 (14). Also in **Iceland**, the government is expecting an increase in dementia incidence towards 2030 (15).

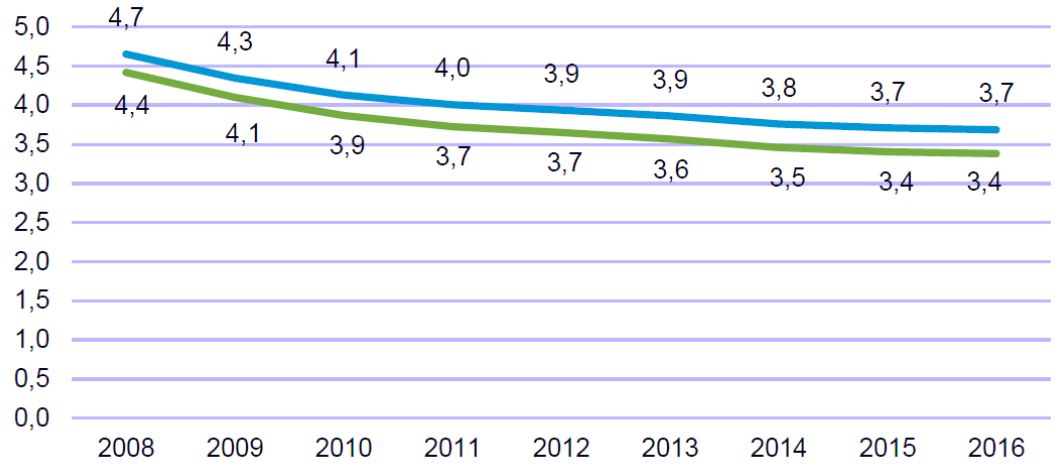
The trends in chronic conditions illustrated above are general trends experienced by the Nordic countries, making this a general challenge in the Nordic health care systems. This development towards more people with chronic diseases and more people with multimorbidity increases the demands on health care. This includes primary health care because primary health care is a key setting for management of chronic conditions. Additionally, the development reinforces the need for coordination between different health care professionals and health care sectors.

Finally, it is worth noting that the burden of mental health problems in EU (including the Nordic Countries) challenges the primary health care sector and the health care sector in general. Mental health problems can be either temporary or chronic and cover a wide range of illnesses, including disorders such as mild or moderate anxiety and depression, drug and alcohol use disorders, and severe disorders such as severe depression, bipolar disorders and schizophrenia (p. 20 in (16)). In the latest edition of Health at a Glance: Europe report (16), it is noted that there are significant gaps in the information on the prevalence of mental health problems across EU countries. However, data indicate that one in six people (or more) in the Nordic countries have a mental health problem (Figure 1.1 in (16)); Finland has the highest estimated prevalence with 18.8% of the population having least one mental health disorder, followed by Norway (18.5%), Sweden (18,3%), Denmark (16.9%) and Iceland (16.7%). The cross-country differences should be interpreted with caution, as the differences may be partly due to differences in the awareness of mental health, as well as easier access to mental health service etc. It should be noted that in **Greenland** a dominant problem is the suicide rate, which is among the world's highest. However, there is a pronounced lack of psychiatric research on the interplay between psychiatric disorders and suicide (17).

2.3 Decreasing length of hospital stays

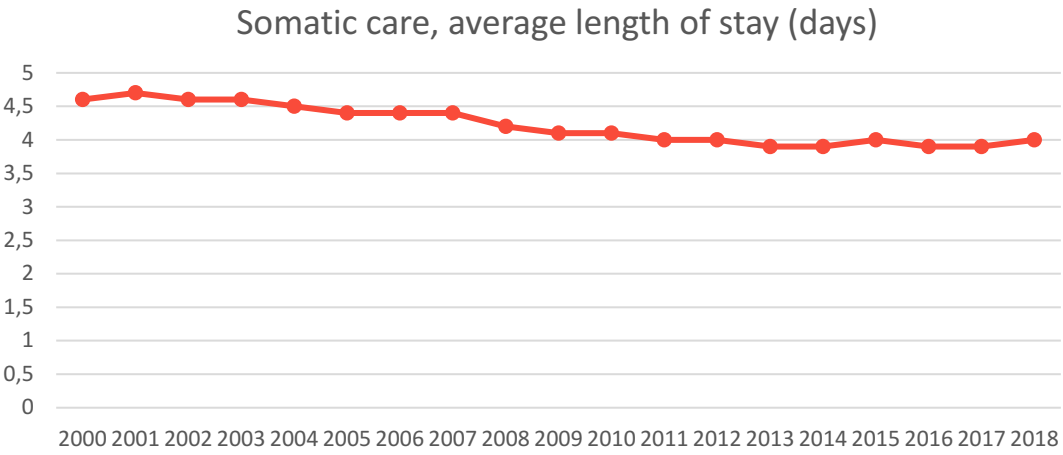
During the past decades, hospitals have been under pressure to increase productivity and efficiency. Combined with cutbacks this has led to a general development towards shorter hospital stays, a trend which is also seen in the Nordic countries. Figure 2.4 and Figure 2.5 show the development in the average length of stays in somatic inpatient care in **Denmark** and **Finland**, respectively. Figure 2.4 shows the development in **Denmark** in the period 2009-2015, and Figure 2.5 the development in **Finland** during the period 2000-2009. The graphs reflect a trend of decreasing average length of stays in somatic care.

Figure 2.4 Development in the average length of stay (days) in specialized somatic inpatient care in Denmark, 2008-2016 (Blue: discharged same day = 1 day, green discharged same day = 0 days)



Source: (18)

Figure 2.5 Development in the average length of stay (days) in specialized somatic inpatient care in Finland, 2000-2018



Source: The Finnish Institute of Health & Welfare (https://sotkanet.fi/sotkanet/en/taulukko/?indicator=s85yjjcBAA==&region=s07MBAA=&year=sy5ztM7W0zUEAA==&gender=t&abs=f&color=f&buildVersion=3.0-SNAPSHOT&buildTimestamp=201911131146)

It has not been possible to obtain estimates for the remaining countries, but the overall trend seems to be the same.

While the average length of stay is typically used as an indicator of efficiency at the hospital level, earlier discharge also places considerable demands on the primary health care sector. Earlier discharge often implies that patients are more fragile and therefore require more medical support than previously, as well as an increased need for rehabilitation and care. The competencies and skills in primary health care must therefore be sufficient to receive these patients and provide the care and assistance they need. Moreover, this issue emphasizes the need for coordination and communication between health care professionals across the health care

system; both between the primary and secondary health care sector and between different institutions in the primary health care sector.

2.4 Staff recruitment

The challenge of recruiting health care personnel appears to be particularly pronounced in the primary health care sector, and especially recruitment of GPs has been highlighted as a major challenge in the interviews. Another health profession subject to shortages is nurses. For instance, in **Finland**, the shortage of nurses is an increasing concern. This was highlighted as early as 2014 by the Ministry of Employment and the Economy, which considered the shortage of nurses "a serious problem and a difficult one compared with other work areas" (p. 34 in (19)). Also **Iceland** considers nurses to be a profession subject to increased competition, leading to shortages in the primary health care sector (informant). Nurse shortages are also present in **Denmark**, **Sweden** and **Norway**, where strategies have been implemented to having more personnel working full time (or just increasing their weekly working hours) instead of working part time (this is addressed further below).

In **Greenland**, shortage of health care personnel in general is a fundamental challenge and this applies to both health and social care. Generally, too few Greenlanders are sufficiently trained to meet the demands and needs of the population. The challenge is particularly pronounced outside Nuuk, which is therefore characterized by extensive use of substitute doctors. Moreover, there is a general competition for health care staff, reinforced by Greenlanders' access to health education being too low (20).

Initially, the recruitment challenge has been related primarily to geography, i.e. recruiting health care personnel has first and foremost been a problem in rural and remote areas. However, larger cities are increasingly encountering the same challenge – this is the case in **Denmark** and **Norway**, for instance (informant and (21)).

However, geography still seems to play a key role in the recruitment challenge in most of the Nordic countries. In **Iceland**, video consultations managed by physicians located in Reykjavik have been used as a means of handling the problem of shortage of GPs in rural areas (22). One proposed solution to the shortage of primary health care physicians in **Finland** is the digitalization of health care service delivery, which is currently a national focal point. The government/Ministry is currently in the process of making funds specifically for improving the area of digitalization available for the municipalities (informant).

In other countries, financial incentives have been used to attract GPs to rural areas. In **Sweden**, for instance, a shortage of GPs in remote locations have led to higher salaries to attract physicians to work there (23). Some remote locations are more attractive than others, so the effectiveness of these arrangements might differ accordingly. In many cases, it is necessary to hire GPs on short-term contracts, which are more costly (informant). This also indicates that while economic incentives in the form of higher salaries may have some effect, it is not a complete and permanent solution to the problem of GP shortages in rural areas. The same has been attempted in **Finland**, where some municipalities have endeavoured to attract physicians to rural areas by offering flexible work hours and favourable salaries, but this does not seem to have any clear effect (informant). The reluctance to move to rural areas may also have to do with difficulties in finding suitable work for the health care personnel's spouses (informant). In

Denmark, a differentiated capitation and remuneration system based on list patient characteristics (age, gender and morbidity) was introduced in 2018 to improve recruitment and maintenance of GPs in areas challenged by insufficient GP coverage (24).

Also in **Norway**, the recruitment challenges have (partly) been handled by the implementation of subsidy schemes. Municipalities with less than 5,000 residents must provide subsidies for GPs, if the average list size in the municipality is lower than an agreed reference size (informant). As part of the action plan for general practice (in Norwegian: *Handlingsplan for allmennlegetjenesten*) published by the Norwegian Ministry of Health and Care Services in May 2020, further subsidy schemes are proposed. According to the ministry, reluctance to become a GP is (partly) due to the time lag from establishing a practice to receiving sufficient income, particularly in case of few list patients. Therefore, the ministry suggest offering a temporary subsidy to GPs with less than 500 patients on their list (25). Also, the ministry proposes a change in the capitation scheme involving higher per capita payment for lists with less than 1,000 patients. In this way, the GPs incentive to have large lists (which has been a problem) is reduced (ibid.) (see more about remuneration of GPs in Section 5.2.1). Moreover, municipalities with recruitment challenges provide subsidies to GPs in specialization (informant), and according to the action plan for general practice, the use of this type of agreement (in Norwegian: *ALIS-avtaler*) will be increased during the coming four years (25).

Some of the Nordic countries have also taken educational initiatives to promote the education and training of primary health care personnel. In **Iceland**, for instance, the number of training sites in primary health care medicine were increased from 33 in 2000 to 53 in 2016, and incentives have been introduced to encourage more physicians to choose primary health care (22). Moreover, in the **Faroe Islands** changes in the educational systems have been made – e.g. making the specialist training in general medicine available in the Faroe Islands – which means that medical students spend the first years of their studies in Denmark and then have the opportunity to move to the Faroe Islands to do their basic clinical training (in Danish: *Klinisk Basisuddannelse*, KBU) as well as specialist training in general medicine. Furthermore, the Faroese sites for basic clinical training are now reserved for Faroese medical students. Both initiatives were intended to increase the probability of medical students developing an affiliation with the Faroe Islands and thus staying after graduation (informant). In **Greenland**, a similar agreement on the specialist training in general medicine exists. In general, the recruitment in **Greenland**, the **Faroe Islands** and **Åland** are challenged by the inhabitants having to study aboard. Also in **Sweden**, educational initiatives to attract people to certain health care professions have been implemented, and investments have been made in specializing the existing workforce. In 2019, the Swedish government decided to set up a National Council for Health Competence with representatives from universities, regions, municipalities, the National Board of Health and Welfare and the Swedish Higher Education Authority (informant). The purpose is to identify problems and possible solutions for a proper supply of healthcare workers and competencies.

In addition to financial and educational initiatives, some countries are currently trying to solve the shortages of primary health care personnel by having more people in the municipal workforce, including primary health care personnel, working full-time. In **Denmark**, Local Government Denmark (KL) and the Collective Negotiation Community (in Danish: *Forhandlingsfællesskabet*) are working to increase the number of full-time employees in the municipalities; an initiative which began in the summer of 2020 (26). Similar initiatives have been implemented in **Norway** and **Sweden**, concerning both the regional and municipal workforce (27).

While financial incentives and educational initiatives are ways of prospectively attracting GPs to rural areas rather than the cities, the use of short-term GPs is an immediate way to cope with the shortage of GPs. Short-term GPs are particularly used in **Norway**, the **Faroe Islands** and **Sweden**. In **Norway**, the use of short-term GPs has a long tradition, and in recent years (2016-2018) the number of GP practices occupied by short-term GPs has increased (28). The reasons for this are not known. In the second quarter of 2018, around 20% of GP practices were occupied by short-term GPs and not permanent GPs (28). Conversely, in the **Faroe Islands** the number of permanent GPs has increased in recent years, but around 25% of GP practices are still occupied by short-term GPs. In 2017, there were 33 positions for GPs, but only 14 of them were occupied by permanent GPs (29). Today, there are 34 positions and only nine of these are occupied by short-term GPs (informant). It has not been possible to obtain estimates for **Sweden**, but as mentioned above it is often necessary to employ short-term GPs in areas with shortages of GPs. The extensive use of short-term GPs, and the resulting high turnover rate, challenges the continuity of care, which is the cornerstone of the GP/family doctor setup.

Besides geography, greater popularity of specialist care compared to primary care seems to be a reason why some of the Nordic countries face challenges in recruiting primary health care personnel in particular. For instance, in **Finland**, there is a tendency for newly graduated physicians to prefer working in specialist care rather than primary health care. Training to become a specialist requires working in primary health care for some time, but the municipalities experience difficulties in retaining young physicians in primary health care after this period. This leads to a shortage in GPs in the health care centres and to relatively high turnover rates (informant). Popularity also seems to play a role in **Norway**, where the municipalities experience increased competition for nurses because working in the primary health care teams (in Norwegian: *Primære helseteam*) is more attractive due to the more favourable working hours and wages. This, however, comes at the expense of nurses working in home nursing teams or in nursing homes (informant).

Finally, some of the informants mention country-specific reasons for their recruitment challenges.

In **Norway**, the high workload of GPs is mentioned as a reason for the difficulty in recruiting this health care profession in particular, but lack of proper social systems for GPs (in case of absence due to sickness, for instance) and rent increases in the larger cities might also play a role. Surveys show that the average weekly working hours among Norwegian GPs is 55.6 hours, though they vary considerably. 10% of the GPs work more than 75 hours per week, and 25% work more than 62 hours (28). The increasingly high workload can probably be (partly) explained by the increase in tasks carried out by GPs caused by, among other things, the Norwegian Coordination Reform in 2012, including tasks related to the follow-up on patients' chronic conditions (28). This has recently been addressed by the Ministry of Health and Care Services, as mentioned above. Moreover, the ministry wishes to expand the GP regulations (*fastlegeforskriften*) to determine which certificates should be mandatory for the GP to issue and which certificates patients cannot receive (25). As concerns social systems for GPs, the action plan for general practice also propose a strengthening of the current health care and pension scheme (ibid.).

In **Iceland**, there is increasing competition for both doctors and nurses. This means that some Icelandic health care workers choose to work part-time or full-time in other Nordic countries with a high demand for these professions. Because physicians who wish to work in another

country are mostly required to receive further training in the country in question, this leads to a shortage of physicians in Iceland during the training period. At the same time, it increases the probability of the health care workers deciding to stay and work abroad (informant).

2.5 Concluding remarks

The Nordic countries are facing a number of common challenges, which increases the demands on the countries' primary health care sectors.

Firstly, an aging population is a fundamental challenge caused by increased life expectancy and a higher proportion of elderly people. Though this is a development seen in all of the Nordic countries, there are still some notable differences in the age structure of the different populations. Particularly Greenland has a young population in comparison with the other Nordic countries, but Iceland and the Faroe Island also differ considerable in this regard. The altered age structure leads to an unequal distribution of young people (potential caregivers) and elderly people (to be taken care of). This imbalance challenges the demand and supply ratio and puts financial pressure on the health care system because elderly people on average require more and more costly care. The imbalance is particularly pronounced in rural areas, but urban areas are not exempt from the challenge.

Secondly, the technological development enables earlier diagnosis and improved treatment, leading to more people surviving once fatal diseases. Combined with increasingly more elderly people, this leads to an increased incidence and prevalence of chronic diseases, e.g. type 2 diabetes, COPD and hypertension. Also an increase of dementia incidence is seen in some countries. Primary health care plays a key role in treatment and management of elderly people and people with chronic conditions. Therefore, the increased number of people living with one or more chronic diseases leads to a pressing need for increased primary health care capacity. Furthermore, the burden of mental health problems challenges the primary health care sector and the health care sector in general.

Thirdly, the Nordic countries are witnessing a development towards shorter hospital stays, meaning that patients are discharged earlier and are therefore in a more fragile stage than previously. As these patients are received in the primary health care sector, the decreasing length of hospital stays puts further demands on the primary health care sector, which is expected and required to handle increasingly more complex patients. Many of these patients require medical treatment and/or continuous care, which can be provided in the patient's home (supported by home nurses and nurse aides, for instance) or in temporary or permanent facilities. Besides medical treatment and care, some patients have an increased need for rehabilitation, often immediately after discharge. All this emphasizes the need to strengthen the coordination across health care professionals in the primary health care sector; across primary and secondary health care sector; and between health professionals and the patients in the case of self-care.

Fourthly, difficulties in recruiting primary health care personnel, particularly GPs and to some extent nurses and other health care professionals, exist in all of the Nordic countries. Generally, the recruitment challenge is most pronounced in rural areas, but larger cities are increasingly experiencing the same challenge. Moreover, specialist care has traditionally enjoyed greater popularity than primary health care, and this seems (to some extent) still to be the case in some of the Nordic countries. Some of the countries have implemented educational and financial incentives to attract GPs to areas characterized by shortages, e.g. by offering higher salaries

and flexible working hours. In the Faroe Islands, Sweden and Norway, short-term GPs are used as an immediate way to cope with the shortage of GPs. However, this poses a challenge to ensuring continuity of care. The challenge of continuity is particularly pronounced in Greenland as they have extensive use of substitute doctors due to a general shortage of doctors (and health care personnel in general).

Taken together – and further fuelled by an increased specialization of the hospitals – these four challenges place increasing demands of the primary health care sector. The pressing need for increased capacity in the primary health care sector is accompanied by a financial pressure, which is particularly challenging in countries where different administrative levels are responsible for primary and secondary health care (see Chapter 4).

3 Geographic and demographic variations

Geographic and demographic variations across the Nordic countries give rise to different opportunities to provide primary health care. Common for the Nordic countries is a trend towards population concentration in the larger cities and a population decrease in rural areas. The combination of depopulation and a higher proportion of elderly people in certain areas constitute a threat to ensuring equal conditions for all inhabitants. This is further exacerbated by the difficulty in recruiting (primary health care) personnel to these areas in particular.

The ability to develop the primary health care sector and to ensure equal access to services depends on the population base; the more residents, the better are the conditions for a well-developed primary health care sector. Therefore, geography and the size and distribution of the population play a role as to the ability to provide (adequate) primary health care.

3.1 Population size

Table 3.1 presents the population size and density in each of the Nordic countries. **Sweden** has significantly more inhabitants than the other countries, whereas the **Faroe Islands**, **Åland** and **Greenland** all have very small populations. **Norway**, **Finland** and **Denmark** are similar with regard to population size, but in **Norway** and **Finland** the population is distributed across a considerably larger area.

Table 3.1 The population size and density of the Nordic countries, 2020*

Country	Total inhabitants, 2020*	Total area (square kilometres)	Inhabitants per square kilometre
Denmark	5,822,763	42,926	136
Faroe Islands	52,154	1,396	37
Greenland	56,081	2,137,007	0.03
Finland	5,525,292	338,430	16
Åland	29,884	1,583	19
Iceland	364,134	103,497	4
Norway	5,367,580	323,808	17
Sweden	10,327,589	447,426	23

Note: * Population on 1 January 2020 (Finland, Sweden and Åland population on 31 December 2019 the previous year.)

Source: Nordic Statistics database: POPU01: Population on 1 January by reporting country, age, sex and time and AREA02: Land use, square kilometres by reporting country, use and time; and authors' calculations

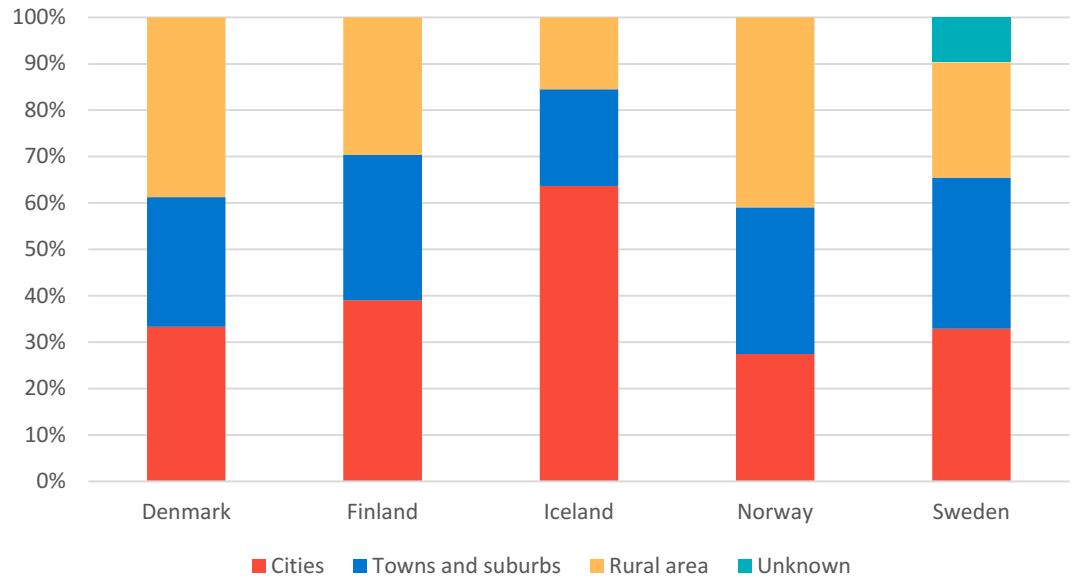
As indicated in Table 3.1, there are notable differences in the population density of the Nordic countries and thus different conditions for providing health services in the different countries. **Denmark** and **Greenland** stand out by having the highest and lowest population density, respectively, and only a small part of **Greenland** is populated.

3.2 Developments in population size

Most of the Nordic countries have experienced an increase in total population growth over the past two decades caused by natural increase (i.e. more births than deaths) and net migration (i.e. more immigrants than emigrants). Though the primary cause (natural increase vs. net migration) varies across countries, the general trend is a positive population change, except for **Greenland**, which has had a relatively stable population (7).

At the regional and municipal level, there is a trend towards population increase in urban areas as opposed to rural areas; a trend that is expected to continue (ibid.). Figure 3.1 shows the distribution of population by degree of urbanization in 2019 in five of the Nordic countries. The figure illustrates how the majority of the population in all countries is located in cities, towns and suburbs.

Figure 3.1 Distribution of population by degrees of urbanization (% of population), 2019



Source: Nordic Statistics database: POPU09: Population by unit, reporting country, degree of urbanisation and time.

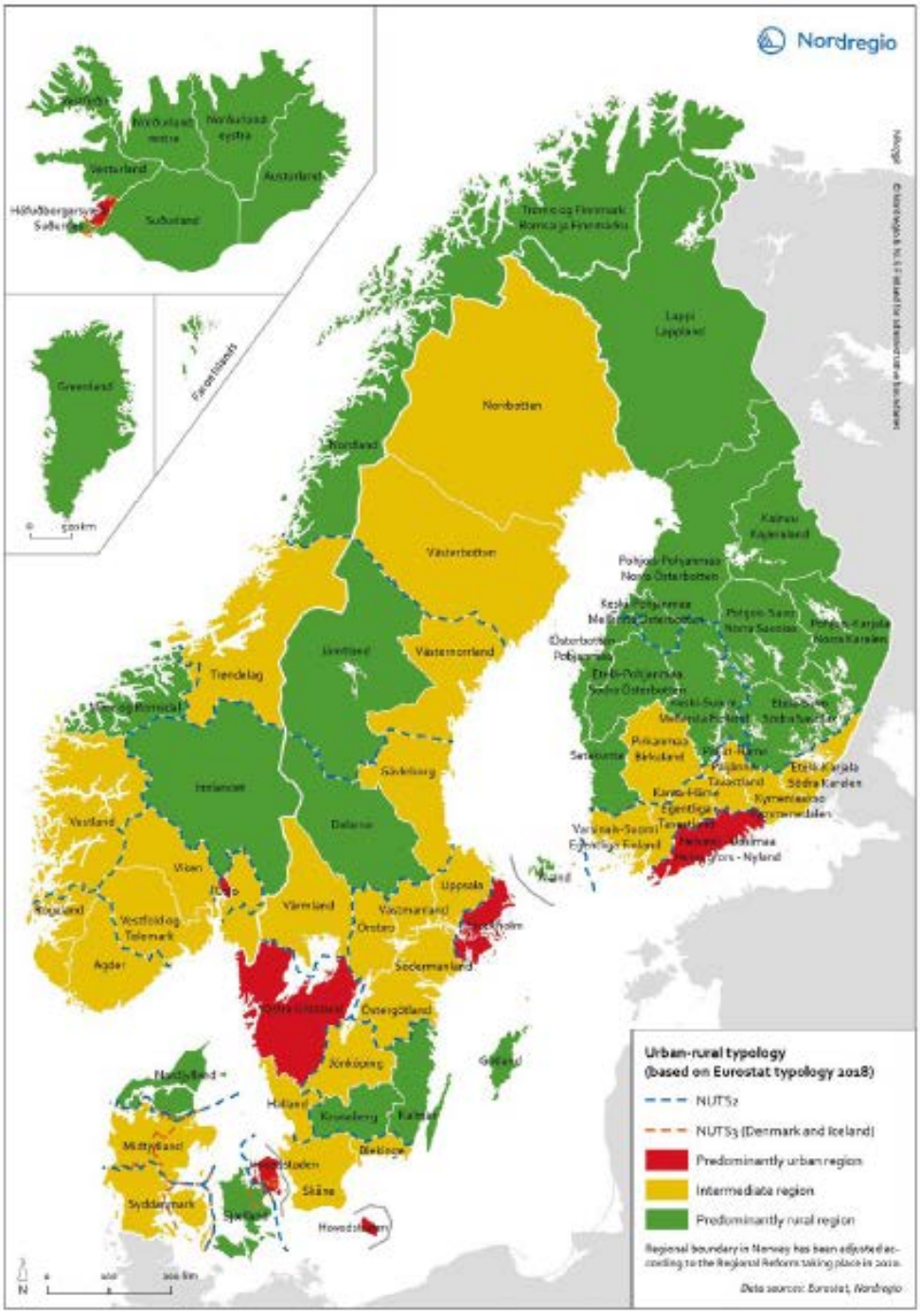
3.3 Sparsely populated areas

Different geographic and demographic features give different conditions for the provision of primary health care service. The influence of these features have several aspects. On one hand, large rural service areas make it difficult to provide primary health care services to the residents. On the other hand, long distances to specialist services can cause the GPs in rural areas to provide more types of services. The latter is the case in **Iceland**, where the GPs outside Reykjavik take care of more diverse problems than GPs in Reykjavik; in Reykjavik it is easier to send the patient to a specialist instead of treating them in general practice (informant).

Providing care is generally more challenging in sparsely populated areas, which are more prevalent in some of the Nordic countries than in others. Figure 3.2 shows the proportion of urban, intermediate and rural regions in the Nordic countries. From the figure it can be seen that **Greenland**, the **Faroe Islands**, **Åland** and **Iceland** are all characterized by more or less rural

areas only. But also **Finland**, **Norway** and **Sweden** have some large areas with sparse population, which challenges the provision of primary health care.

Figure 3.2 Urban-rural typology of the Nordic regions



Source: Figure 1.1 in (7).

The proportion of inhabitants living in the capital cities also vary greatly across the countries. In **Denmark**, **Finland**, **Norway** and **Sweden** around 20-24% of the population lives in the capital cities (30-37). By way of comparison, the proportions in **Greenland** and **Åland** are 33%

and 39%, respectively; and in the **Faroe Islands** and **Iceland** 56% and 61% of the population, respectively, lives in the capital cities (38).

Also other demographic and country specific characters affect the provision of primary health care services.

The population of **Greenland** is distributed across 78 cities and settlements (in Danish *bygder*, meaning small towns), primarily on the west coast (Greenland Statistic Bank Table BEESTK4). The number of residents in cities and settlements differs considerably, with the capital city (Nuuk) having 18,512 residents and around 20 settlements having 51-100 inhabitants (ibid.). All cities and settlements are isolated; there are no road connections between them, which means that air transportation is necessary. During the summer, transportation by sea is also possible. Hence, access to health care services is also partly determined by weather conditions.

Moreover, the **Faroe Islands** are challenged by being an island community comprising 18 islands (one of them is uninhabited). This means that some patients must travel long distances (by sea) to visit their health care provider. In addition, the number of residents varies considerably across the 29 municipalities. The largest municipality (Thorshavn) has 22,115 residents, whereas the smallest municipality only has 37 residents (informant). Similarly, **Åland** consists of several municipalities and islands, which poses a challenge as health care delivery. Health care is operated on the main island and on five island municipalities (out of 16 municipalities in total) (informant).

3.4 Concluding remarks

Differences in the geographic and demographic features lead to different conditions for primary health care provision, both across the Nordic countries and within each country. Such features include characteristics of the population, such as size, density, degree and pattern of dispersion, age structure (cf. Table 2.1) and the proportion of people living in cities and in rural areas, respectively, but also the geographic surroundings. For instance, parts of **Norway** are characterized by several mountains and fiords, which challenges primary health care delivery. Likewise, the **Faroe Islands** and **Åland** both consist of various islands; and also **Greenland** is characterized by a challenging geography (further addressed in Chapter 4). Moreover, both the **Faroe Islands**, **Åland** and **Greenland** have a very limited population. In this way, the three self-governing countries have some exceptional conditions for providing health care compared to the other Nordic countries.

However, the remaining countries also have some features that affect health care delivery. **Iceland** and **Finland** are dominated by large rural areas, and the same is true for **Sweden** and **Norway**, being characterized by areas with a low population density. Hence, these countries are also characterized by large demographic and geographic variations. In **Denmark**, variations also exist, though they are less pronounced compared to the remaining Nordic countries.

Overall, it can be concluded that the local geographic and demographic conditions vary across the Nordic countries but also within each country. This means that each country needs to organize their health care system, including their primary health care sector, in a way that suits its specific conditions. This also means that specific organizational features may stem from local conditions and thereby may not necessarily be feasible elsewhere.

4 Organization of the health care systems

The health care systems of the Nordic countries share some characteristics that motivate the term *the Nordic health care system*; they are all rooted in the welfare state doctrine, based on taxation and benefits depending on need (the so-called Beveridge model) and strive for equal and easy access for all residents. However, some differences still exist as to how health care is organized and financed, e.g. how responsibilities for delivering health care are distributed across political and administrative levels. Moreover, there are some health care services that are placed under the primary health care sector in all of the Nordic countries. However, there are also a number of services that are placed under the primary health care sector in some countries and under the secondary health care sector in others.

This chapter describes similarities and differences of the different Nordic health care systems in terms of general organization and financing. Understanding these similarities and differences is essential to an understanding of the organization and functioning of the primary health care sector specifically and in assessing the feasibility of transferring interventions from one health care system to another.

The description of the organization of the health care system particularly focuses on primary health care; the description is based on the countries' own definitions of secondary and primary health care.

4.1 Organization and financing

Significant commonalities across the health care systems can be traced back to the importance of the welfare state in all the Nordic countries, along with the emphasis on equal and easy access to high-quality health care for the entire population; public administration as the main system of governance subject to political decisions by locally elected bodies with the authority to tax; (primarily) public tax-based financing of health care; decentralization (though the degree of decentralization differs); and provision of inpatient care primarily by salaried physicians employed in public hospitals (39).

Table 4.1 provides an overview of the organization of the health care systems in the Nordic countries, including the responsibilities of different (political and/or administrative) levels. The table is followed by a description of each country's health care system in terms of organization and financing.

Table 4.1 Organization of the health care systems

Country	Responsibility of hospitals	Decentralized political regulation of hospitals	Responsibility of primary health care	Role of the national level in the governance of health care
Denmark	Regions (5)	Through regions	Shared responsibility between the regions (5) and the municipalities (98).	**Relatively strong** – the state is responsible for: policy, financing (is based on annual financial agreements between the government, regions and municipalities, where the parties agree on a set of objectives for the level of health care expenditure for the coming year), planning (e.g. central planning of hospital specialist functions, while the regions are responsible for the planning of standard hospital services) and regulation. However, the municipalities are relatively free to organize health care services (more *may do* tasks than *must do* tasks).
Faroe Islands	State	None	Primarily the State	**Strong** – the state is responsible for policy, financing, planning and regulation.
Finland	Hospital districts (20) owned and funded by member municipalities (310)	Through municipalities/hospital districts	Municipalities, though private companies also exist	**Weak** – the municipalities organize and finance primary and secondary health care. Legislation and general policy guidelines are prepared at the national level. However, the municipalities and hospital districts enjoy a large degree of freedom in the organization of their services.
Greenland	State	None	State, though health care is not divided into primary and secondary health care	**Strong –** the state is responsible for policy, financing, planning and regulation. The five health regions have no administrative authority or separate revenue streams.
Iceland	State/The Ministry of Health	Through local health districts (7) with limited responsibility	State/The Ministry of Health	**Strong** – the state is responsible for policy, financing, planning and regulation. The seven regions have no administrative authority or separate revenue streams.
Norway	Regional health authorities ('helseforetak') (4)	Deconcentration through regional health authorities	Municipalities (356)	**Relatively strong** – the state is responsible for specialist care, while the municipalities are relatively free to organize primary health care services based on the legislation and budget prepared by the state.
Sweden	Regions (21)	Through regions	Shared responsibility between the regions (21) and municipalities (290)	**Weak** – the provision of health care services are both politically and administratively decentralized to the regions and municipalities. The funding is mainly based on regional/municipal taxation, but block grants from the State is also a funding source. Sweden has a long tradition of decentralization with strong formal power of the regions and municipalities.
Åland Islands	State	None	State	**Strong** – the State of the Province is responsible for managing the provision of health care services

Source: (40), (41), (42), (43), (44).

Denmark has a long tradition of political and administrative decentralization at the local level (the regions and municipalities). At the national level, the government is responsible for regulation (e.g. through national guidelines and licensing systems for health care professionals), supervision, general planning and quality monitoring of the health care system. Supervision is carried out by the Danish Health Authority, which is a board under the auspice of the Ministry of Health. The Danish Health Authority also carries out tasks such as advising ministries, regions and municipalities and establishing guidelines for the training of specialist doctors and

other health professionals (40,45). The implementation and provision of health care services is decentralized to the five regions and the 98 municipalities. The regions are responsible for the secondary health care sector (hospitals), whereas primary health care provision is a shared responsibility between the regions and the municipalities (46). Health care is primarily financed by general taxes and block grants and is generally free of charge for all Danish residents (co-payment applies to, for example, dental care, prescription medicine and physiotherapy treatment). The municipalities are financed by income taxes and block grants from the state, and the regions are financed by the state (through taxes) and the municipalities. The Ministry of Health, the Ministry of Finance and the regional and municipal councils (Danish Regions and Local Government Denmark) take part in an annual national budget negotiation, where legally binding targets for health care expenditure are set (40). Voluntary private health insurance is available for the population and is being increasingly purchased (47).

In the **Faroe Islands**, the state is responsible for both primary and secondary health care and all institutions and facilities providing health care refer to the Ministry of Health. Until January 2018, the Faroe Islands had three independent hospitals, which are now merged under one organization and mutually managed. While management and administration of health care are carried out by the country itself, authorization of health care professionals is operated from Denmark. In 2010, the Faroese Health Insurance (Heilsutrygd) was established. Heilsutrygd covers all residents in the Faroe Islands and defrays expenses of some health care services. For instance, Heilsutrygd is responsible for the employment and remuneration of GPs. The state defrays all expenditure on operation and maintenance of hospital services. Also, in the Faroe Islands, health care is generally free for all and financed through taxes. Private sources include user fees, which are limited to services such as dental care and physiotherapy (informant and (48))

In **Finland**, the responsibility for primary as well as secondary health care lies with the 310 municipalities. However, the municipalities are required by law to act together in hospital districts; there are currently 20 hospital districts, with the number of member municipalities varying from six to 35 (43). Originally, the hospital districts were provider networks for inpatient care, but several districts have transformed hospital districts into joint regional health and social authorities in recent years (ibid.) In addition to the public municipal system, private and occupational health care services exist. Occupational health care covers employees and comprises different kind of services depending on the specific agreement signed by the employer and the health care provider(s) (see Section 4.3). Moreover, university students and students at other institutions of higher education may be covered by the Finnish Student Health Services, which is a non-profit organization providing primary health care services (e.g. mental and oral health services) (ibid.)

While legislation and general policy are prepared on the national level, the municipalities have relatively large autonomy in decision-making (ibid.). Municipalities are responsible for the financing of their health care services, but they may choose to transfer the service arrangement to another municipality or to enter into a joint municipal agreement – around 20% choose to do this. The majority (~60%) of municipalities organize primary health care services on their own (ibid.). Integrating health and social care has been and still is a priority in the Finnish system. During the last decades, attempts have been made to increase the size of the service provision units. Most recently a draft reform has been launched in June 2020 (49). According to the draft, Finland is to be divided into 21 SOTE regions[2], which will take on those social and healthcare tasks currently handled by the municipalities (49). Health care spending are derived from public

[2] Finland's social and healthcare system is named SOTE

sources, accounting for ~75% in 2017 while private sources account for the remaining ~25% (50). The municipalities, being responsible for both primary health care and hospital care, are funded by municipal taxation, state grants (approx. 25% but the share varies across municipalities) and user fees. Private health care services are partly refunded by the national health insurance (informant).

Greenland is characterized by a centralized health care system; the health management (in Danish: *Sundhedsledelsen*) responsible for the health care system refers directly to the Department of Health. The small and geographically dispersed population of Greenland means that the production of health care services is more expensive compared to countries with greater population density. An economic government analysis from 2019 shows that the health care system in Greenland is financially challenged, which is also reflected in lower health care spending per capita compared to the other Nordic countries (20). In Greenland health care is not divided into primary and secondary health care, and therefore the organization of health care in Greenland is described separately in Box 4.1. The financing of health care services is primarily public (99%).

The health care system in **Norway** is semi-decentralized; the state is responsible for specialist care, which is administered by four regional health authorities (in Norwegian: *helseforetak*), while the responsibility for primary health care lies with the 356 municipalities, which are relatively free to organize health care services based on the legislation and budget prepared by the state (51). In this regard, the state has a stronger steering position in specialist care compared to primary health care. Regulation and supervision is carried out by the state (the Ministry of Health) through the Norwegian Directorate of Health (42).The Directorate of Health formulate guidelines for the distribution of tasks and functions in the hospitals and between the hospital and the primary health care sector. Moreover, the directorate determines standards for health care services, levels of services etc. (52). The Norwegian health care system is primarily publicly funded through general taxes and insurance contributions to the national insurance scheme. Private sources primarily comprise out-of-pocket payments. Voluntary private health insurance is available but plays a limited role (51).

In **Sweden**, the funding and provision of health care services are decentralized to the 21 regions and 290 municipalities. The regions are responsible for both primary and secondary health care, whereas the municipalities are in charge of elderly care, care for disabled people as well as rehabilitation services, school health care, home care and social care (41). The financing of health care services derives from taxes levied by the regions and the municipalities, which are supplemented by block grants from the State and user fees (ibid.). Purchasing voluntary health insurance is becoming increasingly popular among Swedish residents but still only accounts for only 1% of health spending (13).

Compared to Denmark, Finland, Norway and Sweden, **Iceland** is characterized by a more centralized health care system, where the state is responsible for decisions and management of both primary health care and hospital care (53,54). However, as to primary health care, the governance system is slowly undergoing a decentralization, where the management of primary health care is decentralized to the regions (22). Nevertheless, the decentralization seems to have induced institutional merges and increased cooperation within areas rather than having assigned power to the regions. The delivery of health care services takes place in primary health care centres, at hospitals and in health institutions (primary health care centres jointly run with smaller hospitals) distributed across seven health regions. Primary health care centres are operated by health care organizations, which are planning and coordination authorities,

and led by the CEO of the health region. The legislation stipulates what services must be provided in the health district, but the CEO's of the health districts have clear mandates in terms of how this should be operationalized. Four times a year, the Ministry meets with the CEOs of the health districts to coordinate their work, and the CEOs typically also work together without ministerial involvement. All residents in Iceland are covered by the national health insurance, which defrays all or part of the costs of health care services. Health financing is primarily derived from taxes and grants specified in the annual national budget. Private sources primarily comprise out-of-pocket payments (22).

Åland is also characterized by a centralized health care system, where the State of the Province is responsible for managing the provision of health care services. Health care services are operated by *Ålands hälso- & sjukvård* (ÅHS) and are provided at the hospital, in the two health centres and in health clinics. ÅHS is concentrated in the capital area but is represented across the country by one health centre and health clinics in most of the municipalities. At the hospital level, ÅHS cooperates with hospitals in Helsingfors, Åbo and Uppsala (44). Supervision is carried out by the Board of Environment and Health, and, as in Finland, private health care services in Åland are partly refunded by the National Health Insurance, since they have the same state insurance fund (Ännu) (informant). The health care system in Åland is primarily publicly funded through general taxes and private sources, primarily comprise by out-of-pocket payments.

4.1 Organization of health care in Greenland

The State is responsible for health care in Greenland. Five health regions – coinciding with the country's five municipalities[1] – operate as organizational and planning bodies with limited administrative responsibilities locally.

Greenland's geography and settlement pattern set some very special conditions and challenges in terms of ensuring citizens' access to health care. This means that the health service in Greenland is not divided in a primary and a secondary health care sector, but instead consists of five different types of institutions, which are typically established on the basis of population numbers:

1. **Settlement Consultations** (≤ 200 inhabitants)
   In settlements with < 50 inhabitants, the consultation is served by a single health worker. The majority of the health workers are educated as settlement health care workers or unskilled staff trained at the nearest regional hospital or health centre. There is a single emergency bed for stabilization[2]. Two to four times per year, there are visits from professionals from the health centre/regional hospital (physician, nurse, health visitor, health care assistant or pharmaceutical manager) handling primary health care services**.** Furthermore, settlements with 50-200 inhabitants have access to telemedicine consultation via Pipaluk (see Section 7.2.2 for further description).

2. **Health Stations** (200-500 inhabitants)
   Villages or settlements with 200-500 inhabitants have a health station staffed by a nurse or a health assistant. In addition, a health assistant or a health worker is affiliated and the station is staffed during the day. There are emergency beds for stabilization and they receive visits from health professionals handling primary health care services four-eight times a year.

3. **Health Centres** (>500 inhabitants)
   Smaller health centres (500 to about 1,200 inhabitants, including related settlements) have no permanent medical doctors and instead receive medical visits 8-12 times per year. The permanent staff consists of a nurse, health assistants and porters (staffed from 8am to

4pm on weekdays). Furthermore, specialist doctors (secondary health care) visit two-four times per year. The facilities include one or more emergency beds for stabilization.

Larger health centres (> 1,200 population) are staffed by a physician (preferably GPs, but not always possible), nurses, health care assistants and porters) and are accessible 24/7. In addition, specialists visit the health centres approximately twice a year to handle secondary health care services.

4. **Regional Hospitals**
   There is a regional hospital in each health regions – four regional hospitals and Dr. Ingrid's Hospital in Nuuk. The regional hospitals handle day-to-day work and only to a very limited extent specialized health care tasks. Specialized health care (secondary health care) is primarily handled by Dr. Ingrid's Hospital. Patients with more complicated treatment needs are referred to treatment by specialists in Denmark. The hospital in a region is located in the city with the most inhabitants. The regional hospitals must employ doctors, nurses, health care assistants, midwives, home nurses, physiotherapists, bio analysts and porters.

5. **Dental clinic** (one or more clinics in cities with more than 500 inhabitants)
   One or more dentists, dental hygienists and assistants as well as dental technicians staff the dental clinics. Dental clinics also have school dentistry. Every village, except the smallest one, receives at least one visit from the dental clinic to which they belong each year.

In total, there are 56 settlement consultations and health stations, 12 health centres and five regional hospitals in Greenland (only Dr. Ingrid's hospital handling specialized health care (secondary health care)). As mentioned above, physicians are affiliated to Dr. Ingrid's hospital, region hospitals and health centres, whereas health stations and settlements consultations are operated via telemedicine and specialist visits at varying intervals. In Nuuk, there is a health care centre (named Dr. Sundhedscenter) in connection with Dr. Ingrid's hospital, which covers the entire population of Nuuk and which is comparable to a GP practice.

Physiotherapists and occupational therapists are primarily employed at the regional hospitals. Due to the special conditions in Greenland, there is a high degree of flexibility in the performance of the tasks among the health care personnel groups, and which implies that nurses and health assistants form a significant part of health service outside Nuuk.

In general, there is a larger flow of nurses and doctors employed for a shorter period. The large staff turnover is reflected in the fact that, on May 1, 2020, the number of short-term doctors and nurses (contract of less than 12 months) in Greenland was 50 and 98, respectively, while 259 short-term and 327 nurses had left positions in the past year. Hence, it is a major challenge in Greenland to provide permanent staff and thereby ensure continuity in staff coverage.

Note: [1]The five health regions coincide with the country's five municipalities, except for the settlement Arsuk. [2]In this context, stabilizing means to prepare a patient for a transport, so the patient's condition does not deteriorate during transport.
References: (11,55).

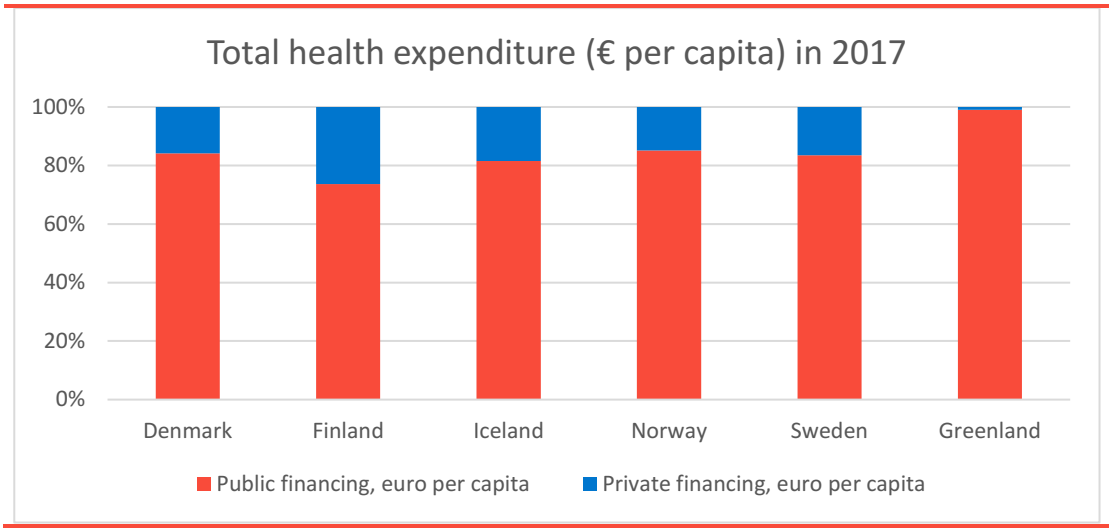
4.2 Health care expenditure

As to health care expenditure, **Denmark**, **Norway** and **Sweden** are the three Nordic countries that spend most on health care relative to GDP (10.1%, 10.0% and 10.9%, respectively) (56). In **Finland**, the total health care expenditure is 9.0% of GDP (ibid.). **Iceland** and **Greenland** spend more or less the same (8.5% (ibid.) and 8.4% of GDP[3] (informant), respectively), while **Åland** spend significantly less (6.12% in 2017 (informant). It has not been possible to obtain recent estimate for the Faroe Islands.

[3] In 2017, health care expenditure accounted for 6.4% of available GNI (Gross National Income) (informant).

As previously mentioned, one of the similarities between the Nordic health care systems is the fact that these are mainly publicly financed, see Figure 4.1. In **Denmark**, **Iceland**, **Norway** and **Sweden**, more than 80% of the health care spending comes from public sources (13,22,51,57). In **Finland**, public funding accounts for around 75% of the total health care spending (50). In **Greenland**, private sources are minimal as it is estimated that public funding accounts for 99% of the total health care spending (informant). For example, all medicine is free, with a few exceptions (e.g. out-of-pocket payment to malaria pills in connection with travelling (informant)). In addition, **Greenland** stands out by spending a large proportion of the health care budget on travels (11%) (20). It has not been possible to obtain recent estimates for the **Faroe Islands** and **Åland**.

Figure 4.1 Total health expenditure (€ per capita) in 2017 divided into public and private financing



Source (Denmark, Finland, Iceland, Norway, and Sweden): Nordic Statistics: Table HEAL12: Health care expenditure by expenditure, reporting country and time.

Source (Greenland): Informant.

We have attempted to obtain estimates for the proportion of tax-financed health expenditure spent on primary health care for each country. However, this has not been possible, as primary health care spending can be divided among more public entities or because societal costs are often included in the cost categories. Furthermore, the abovementioned differences in health care expenditure and share of private public financing must be interpreted with caution, since the method of calculation and reporting of health care expenditure may differ between countries (58). For example, the difference is partly due to different subdivisions of social and health care services expenditures, which implies, for instance, that expenditures on home help services and residential care services are included in the health care expenditures in some countries and not in others.

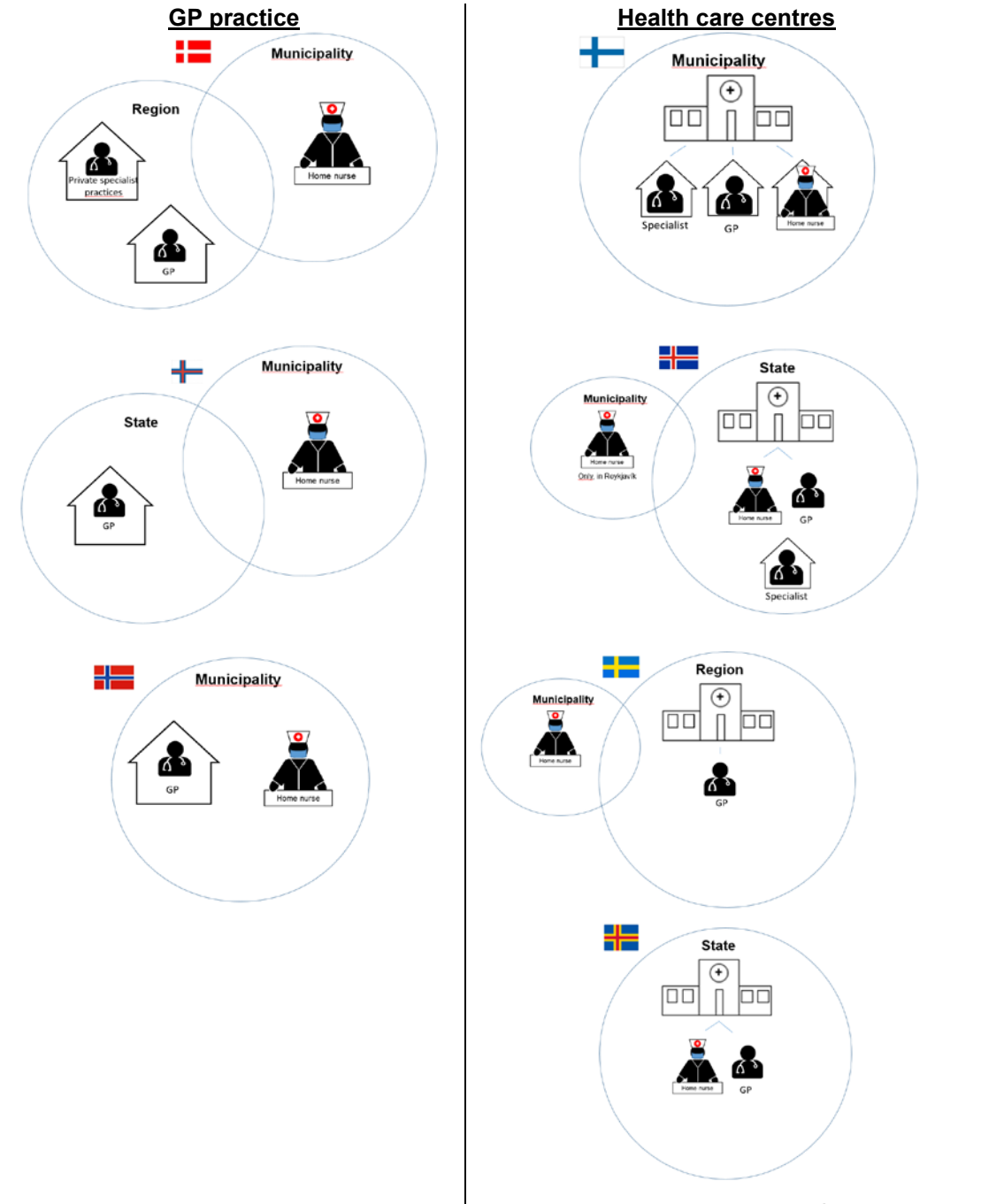
4.3 Variations in primary health care organization

The Nordic countries share many basic similarities in how their primary health care systems are organized. However, our analysis also points to two overall and significant variations. Firstly, differences exist as to whether the responsibility for primary health care is centred around one or more political/administrative levels (e.g. regions and municipalities). Secondly, it varies whether primary health care provision is concentrated in health centres delivering all

or most of the primary health care services, as in **Finland**, **Sweden**, **Iceland** and **Åland**, or whether primary health care provision is distributed among different organizations delivering separate parts of primary health care, which is the case in **Denmark**, the **Faroe Islands** and **Norway**. **Greenland** is not part of this section, as health care is not divided into primary and secondary health care in Greenland. For a further description of Greenland, see Box 4.1 above.

Figure 4.2 gives a simplified illustration of the variations in primary health care organization across the Nordic countries. It is beyond the scope of this report to give a precise detailed description of how each of the Nordic countries defines their primary health care sector (e.g. in terms of institutions and health professionals included in primary health care). Instead, the subsequent section elaborates on central characteristics identified for each of the countries.

Figure 4.2 Simplified illustration of the primary health care sector in the Nordic countries (except Greenland). Included herein is general practice/health care centres, home nursing and specialist practice (if they are part of the primary health care sector).



Source: Authors' own figure.

In **Denmark**, the responsibility for primary health care services is divided between the regions and the municipalities. The regions are responsible for: 1) general practice, which is delivered in private – but tax-financed – GP practices, and 2) other private practicing health care professionals, such as dentists, physiotherapists and psychologists, the services of which are delivered in private practices, but are also (partly) tax-financed. The municipalities are responsible for home nursing, health promotion and prevention, (re)habilitation, treatment of alcohol and substance abuse, maternity care and health care in schools. In addition, the municipalities are responsible for elder care, though elder care is provided under the Act on Social Services §83 (59), and therefore does not fall within the definition of primary health care in Denmark. The same applies to the social services for mentally ill people.

The organization of primary health care in the **Faroe Islands** is very similar to the one of Denmark, with the exception that the specialist practice sector is almost non-existent (only one specialist, a specialist in plastic surgery); the school nurses and health visitors are employed by the Healthcare Insurance (Heilsutrygd) and not the municipalities; and out-of-hospital physiotherapy treatment is provided exclusively by private physiotherapist clinics with government grants. Moreover, elder care, e.g. home nursing, and rehabilitation have fairly recently been assigned to the municipalities (informant).

In **Finland**, public primary health care services are to a large extent provided by municipal health centres. The health centres are multidisciplinary organizations (not located in single buildings) that offer different types of services. Differences exist as to what health care personnel is employed and what services are offered, depending on the size of the municipality. In general, health care centres in larger cities have a broader variety of services compared to centres in smaller municipalities. This particularly applies to specialized services, such as services provided by, for instance, gynaecologists, ophthalmologist, surgeons, care in inpatient wards (typically in larger cities and often referred to as GP-run hospitals), neurologists and paediatricians (informant). The health centres can cope with most health needs; estimates indicate that only about 5% of visits to the health centres lead to referrals to specialized care (p. 34 in (19)).

The services provided by the health care centres are organized at various locations; this can be in so-called health stations or health clinics, or it can be in the patient's own home (43). The Health Care Act does not stipulate what exact professions should be employed in the health care centres, it only stipulates that the municipalities must provide the services that its population need. The only profession mentioned in the Act is the chief medical officer who is in charge of administration and quality of care (informant). Professions typically employed in the health care centres include GPs, nurses, public health nurses, midwives, social workers, dentists, physiotherapists, psychologists, nutritionists, speech and language therapists and occupational therapists (43). In the health centres, the health professionals work together, and there is an increased use of team-based care (e.g. in relation to chronic care). Teams usually consist of a doctor/GP, nurses, physiotherapists, occupational therapists, psychologists and preferably also a social worker (informant). Generally, public services are provided by the centres, but some are bought from private practitioners, e.g. eye disease treatment. In 2017, 50 health stations were covered by privately provided services (43). In general, the Finnish health care centres seem to provide more comprehensive services than the health care centres in the other countries. For instance, the health care centres in some of the larger municipalities may also provide larger facilities offering simple elective surgeries and treatments, as well as mammography and ultrasound (ibid.). The centres vary considerably in size, with the smallest having less than 1,000 patients affiliated and the largest having more than 100,000 patients affiliated

(informant). Home nursing is also a primary health care service provided by the health centres, and this includes home help services, which was originally perceived as part of the social sector. The joint provision of home nursing and home help services is referred to as 'home care' (43). In general, greater integration of health and social care has been a priority in Finland for several years (see also Section 8.1).

In addition to the public health care centres, private primary health care providers exist. These providers offer services to people who are eligible for occupational care and people who can either pay themselves or have a private health insurance. Compared the other Nordic countries, occupational health care plays a large role in Finland. Employers are obliged to arrange occupational health care services for their employees. Therefore, these services are only available for employed people and the services included depend on the specific agreement(s) signed by the employer and the private provider(s). Typically, occupational health care services include preventive services provided by physicians, nurses, psychologists and physiotherapist, but other types of services (e.g. specialist services) may also be available (informant). The services are free of charge at the point of use. In 2017, occupational care reimbursed by the National Health Insurance covered 87.6% of the workforce (43). Henceforth, the current report will focus on primary health care delivered by the public municipal system, i.e. the health care centres, which offer a broad range of services for all Finnish citizens.

In **Iceland**, primary health care services are provided by public and private primary health centres and a few GP practices (5 in 2020), specialists in privately run clinics, private physiotherapist clinics (the treatment is paid by the state) and home nurses. According to law, the primary health centres are assigned a large role in the provision of health services to the people of Iceland and they are supposed to be the entrance to the health system. The health centres provide general medical treatment, psychological services, nursing, home nursing (except in Reykjavik[4]), rehabilitation, emergency care, child immunization, school health care, health promotion care and preventive care (15,22). The primary health care centres can also offer specialist care, social work, occupational therapy, physiotherapy and nutrition advice (22). Home social services such as home care for the elderly is provided by the municipalities but is not part of the primary health care sector in Iceland.

In **Norway** the municipalities are responsible for primary health care, and primary health care is primarily provided by independent providers, including GPs. GPs operate mainly in solo practices with limited use of ancillary staff and also fall under the responsibility of the municipalities (see also Section 5.2). So-called health clinics (*helsestasjoner*) take care of health care for school-aged children. The scope of these clinics is systematic follow-up on school-aged children, including immunization and follow-up on children with special problems etc. The health clinics have both doctors, nurses and physiotherapists affiliated. According to the legislation, the municipalities are also responsible for preventive and health promotion care, maternity care, emergency care, rehabilitation and daytime activities for people with dementia living at home (60). The legislation also stipulates that the municipalities are in charge of home nursing, home care and nursing homes, which also is considered part of primary health care (informant and (60)). Rehabilitation is a shared responsibility between the regions and the municipalities (informant).

In **Sweden**, primary health care is provided in public or private health care centres offering a broad scope of primary health care services. Most health care centres are public (60%), but

[4] In 2009, home nursing in Reykjavik was moved from primary health care to the municipality to combine it to the social service in Reykjavik (informant).

the market-oriented *PHC Choice Reform* from 2010 has led to an increase in the number of private health care centres. The health care centres are the responsibility of the 21 regions, and private and public centres operate on equal terms. The health care centres vary in size and professional composition, but typically they include four-seven GPs, the same number of nurses, including various specialist nurses, and physiotherapists, psychologists, occupational therapists and midwives. The 290 municipalities are responsible for home nursing, rehabilitation[5] and elder care. The Swedish municipalities have, to a large extent, the same set of professions as in the health care centres (except for the GPs), e.g. nurses, physiotherapists and occupational therapists. Hence, there is a significant overlap in primary health care professions between primary health care centres and the municipalities. Working agreements between primary health care centres and municipalities vary by region, but in general municipalities are responsible for providing personal care for the body at home or in nursing homes, and the tendency is that the health care provided by municipalities is increasingly advanced (informant).

In terms of public/private providers, Sweden stands out from the other countries with the 60/40% mix of public and private health care centres. The increase in private providers, is underpinned by the 2010 reform, which gave providers the free right to establish and patients the free choice of provider. A scoping review on the effects of this reform has found that private health centres are mainly established in urban areas, and that the reform has led to an increased number of visits to health care centres, but particularly among affluent groups with lower health care needs (61). The study concludes that, contrary to the goals of the Swedish system, the reform has made resource allocation more dependent on provider location and patient choice than on health care needs (ibid.).

The primary health care sector in **Åland** includes two health care centres staffed by GPs, nurses, a psychologist and physical therapists. In most municipalities, smaller health care clinics are staffed by nurses and receive visits by a GP from the health care centre with varying frequency, depending on the demography. Furthermore, the healthcare centres are responsible for preventive work and home nursing.

4.3.1 Outpatient specialist services

When primary health care is defined as the first point of contact, direct access to specialist services can also be considered part of the primary health care system. Whether and to what extent direct access to specialist services exists differs among the countries.

In **Iceland** the private specialist practices are part of the primary health care sector, in the sense that patients have direct access without referral. The number of private specialists is relatively large in Iceland. The large scale of private specialists can be traced back to previous wage negotiations with doctors at hospitals; the state and doctors were unable to agree on the increase in wages, as the state was fearing the pressure from the remaining hospital staff. Instead, an agreement was reached that the doctors could establish private clinics and hereby receive a higher salary (informant). Hence, the large scale of private specialists in **Iceland** is not a result of a political organizational decision. In **Denmark**, private specialist practices are part of the primary health care sector, despite the patients only having direct access without referral to some of the private specialist practices (dentists, ophthalmologists and ear, nose and throat specialists).

[5] One exception is the Stockholm Region, where responsibility for rehabilitation lies with the region.

The health care centres in **Finland** have specialist doctors (e.g. gynaecologists, paediatricians, diabetes doctors and psychiatrists) employed to varying degrees. It is not mandatory to have specialists employed, but there seems to be a development towards having more specialist doctors in the health care centres than previously (informant).

Norway has private specialists, but they are part of the secondary health sector. In **Sweden** patients are not always formally required to obtain a referral to gain access to specialist services, but in practice most patients do obtain a referral. In most cases, the specialist services are provided in the hospital ambulatory setting, but private specialist practices also exist. The **Faroe Islands** previously had a specialist practice sector. However, the specialist services have been moved to the hospitals, which means that there is only one specialist practice (plastic surgery) left. Likewise, in **Åland** specialist services are provided by the hospital.

4.4 Concluding remarks

The governance structure in the various Nordic countries have different configurations. **Finland** and **Sweden** have the most decentralized health care systems with the responsibility for all services delivered resting with the municipalities in **Finland** and with the municipalities and regions in **Sweden**. In contrast, as a natural consequence of the limited population of the three self-governing countries **Åland**, **Greenland** and the **Faroe Islands** these countries have central steering of the health care system, i.e. the state is responsible for policy, financing, planning and regulation of the system. This is also the situation in **Iceland**, where the seven health regions have no administrative authority or separate revenue streams. Between these two "extremes" are **Denmark** and **Norway**, where the national role of regulation is relatively strong. In **Norway**, the state is responsible for specialist care, which is administered by four regional health authorities, while the municipalities are responsible for primary health care. In **Denmark**, the regions are responsible for secondary care, and the regions and the municipalities have a shared responsibility for primary health care. Despite the administrative decentralization on regional and municipal levels, the state has a relatively strong role in **Denmark**, being in control of planning and regulation through, for instance, the annual financial agreements between the governments, regions and municipalities. Thus, due to the high degree of local governance in the regions and municipalities in **Sweden** and the municipalities in **Finland** there is greater variation in the organization of primary health care in these countries compared to the other Nordic countries. Consequently, descriptions of primary health care at the national level in these countries may shadow significant regional and local variations.

There are two significant differences between the Nordic countries when it comes to the organization of primary health care. Firstly, in **Denmark** and **Sweden** responsibilities of primary health care are shared between regions and municipalities and in the **Faroe Islands** primary health care is shared between the state and the municipalities, while in the rest of the countries (mainly) one administrative level is responsible. Secondly, in **Finland**, **Sweden**, **Iceland** and **Åland** primary health care is operated by health centres delivering all or most of the primary health care services, while in **Denmark**, the **Faroe Islands** and **Norway** primary health care provision is distributed among different units delivering separate parts of primary health care. In **Greenland**, there is no organization of primary health care as such, since health care is not divided into a primary and secondary health care sector, but instead is delivered by five different types of institutions, which are typically created on the basis of population numbers.

Division of responsibility among various public levels and entities may challenge the cooperation/coordination between the various providers in the primary health care sector. Challenges may relate to silo thinking caused by separate budgets and political responsibilities. It is beyond the scope of this report to analyse the implications of such a division of responsibility among several levels and entities. Moreover, we cannot report on the consequences of having one or another organization of general practice specifically, i.e. having GPs working as part of multi-professional health centres versus in independent GP practices. However, a hypothesis may be that organization of the primary health care services in a multi-professional health care centre structure supports a higher degree of horizontal integration and care coordination compared to primary care services being provided by different institutions. In this context, it should be noted that the degree of multi-professionalism and the range of services delivered by the health centres differ between countries, with **Finland** having the most extensive health care centre structure. However, one must remember that how and to what extent certain organizational structures actually lead to higher degrees of integration and care coordination will always be an empirical question, and that other factors, e.g. leadership, culture and interpersonal skills, may be equally or more important factors.

In **Iceland** and **Sweden** patients have direct access to specialist care and thus do not require a formal referral. However, in **Sweden** most patients do obtain a referral (see Section 5.1 for further discussion). Another difference in the organizations of primary health care concerns whether outpatient specialists operate privately outside the hospitals (**Denmark**, **Iceland**, **Norway** and **Sweden**), in the health care centres (**Finland**) or as part of the hospital exclusively (the **Faroe Island** and **Åland**). In this context, it should be noted that private specialist practices are part of the primary health care sector in **Denmark** and **Iceland**, while they are not part of the primary health care sector in **Norway** and **Sweden**. In **Sweden**, the specialist services are mostly provided in the ambulatory hospital setting.

The rationale behind decentralization is that smaller entities – if properly structured and steered – are inherently more agile and accountable than larger entities (62). However, the degree of decentralization affects the size of the responsible public entities, not only between the countries but also within the respective countries. For example, the municipalities in **Denmark**, **Finland** and **Norway** vary considerably in size. This is illustrated in Table 4.2, showing the variation in population size across the municipalities ranging from less than 1,000 to more than half a million inhabitants.

Table 4.2 The size of the municipalities in Denmark, Finland and Norway

Country	Denmark (2020)[1]	Finland (2019)[2]	Norway (2020)[3]
Mean number of inhabitants in the municipalities	58,816 (min. 12,445*- max. 632,340)	About 18,000 (median size 6,000)	15,078 (min. 198- max. 693,494, median size about 1,550)

Note: *Except 5 small island municipalities

Source: [1]Statistics Denmark, [2](63), [3]Statistics Norway, 01222: Population and changes during the quarter, by region, contents and quarter.

The large variation in population size and population density (data not shown) means that the municipalities' ability to cover specific patient groups and problems may differ considerably. To overcome this problem, the government of **Finland** has forced small municipalities to organize primary health care services in administrative units that cover a population of at least 20,000

inhabitants (p. 76 in (64)). Similarly, in **Denmark** there are examples of smaller municipalities working together on, for instance, interventions for specific patient groups. However, these municipal collaborations can only compensate to a certain extent for the small volumes of patients in each municipality, and this gives rise to an increased need to coordinate and align expectations.

Primary health care is comprehensive in scope but can generally be said to comprise: GP, maternity care, school health services, health promotion and prevention, home nursing, dental care, mental health services for patients with mild (to moderate) mental health problems. Additionally, in some countries services such as rehabilitation, outpatient specialist services and treatment of alcohol and substance abuse are also placed under primary health care. The large variety in services delivered in the primary health care sector means that a broad range of health profession groups are also represented (e.g. GPs, specialist doctors, (specialist) nurses, dentists, home nurses, nursing aides, psychologists, physiotherapists and occupational therapists).

Due to the comprehensive scope of primary health, this report has been delimited to focus on three specific areas/domains of primary health care (GP, home nursing and care for chronic diseases), and these will be elucidated in the following two chapters. After these chapters, Chapter 7 present topics that have emerged during our research and which seem pivotal in the context of primary health care, as they are either used as potential solutions to some of the challenges experienced (telemedicine) or are deemed essential for the continuous development of the primary health care sector (after hours services, electronic health records and quality monitoring).

5 General practice and the general practitioners (GPs)

General practice plays a key role in primary health care. The GP is often the patient's first point of contact and is greatly involved in the coordination of care across different health care providers and sectors. However, characteristics of general practice vary across the Nordic countries, e.g. whether the GP has a gatekeeping function, how and where GPs are employed and remunerated, and whether and to what extent they have ancillary staff working with them. Though differences exist, there seems to be a general trend towards increased use of ancillary staff and multidisciplinary and team-based care across the countries.

This chapter focuses on the organization of general practice in the Nordic countries. As described in Section 4.3, a major difference in the organizational structure of primary health care across the Nordic countries lies in whether general practice is an integrated part of a health care centre or the GPs work an independent actors. Table 5.1 provides an overview of the organizational traits of GPs in the Nordic countries and outlines similarities and differences. **Greenland** is not included in the table; the organization of the health care system in Greenland differs from the traditional organization in which the health care system is divided into primary and secondary health care, cf. Box 4.1. Because of the atypical organization of its health care system, Greenland is not included in this chapter. Table 5.1 is followed by four sections elaborating on some of these characteristics of general practice: 1) gatekeeping, 2) GP employment practice type and remuneration, 3) ancillary staff and 4) patient affiliation.

Table 5.1 Organization and characteristics of general practice

	N	GPs per 100,000 citizens*	Number of GPs (as % of total number of physicians)	The average age of GPs	GP employment	Patient affiliation	Gate-keeping (non-acute illness)	Practice characteristics	Ancillary staff
Denmark	3,326 (2020)[1]	57.1	~ 19 (2018) [1]	51.5 (2020) [1]	Mostly self-employed	Patients listed with a general practice, 0.3% are not listed (insured under group 2) [1]	For most specialties. Patients can contact ophthalmologists and ear nose and throat specialists directly.	58% of the GPS share practice with other GPs (2020)[1]	Nurses and medical secretaries. May also include social and health assistants, midwives, pharmaconomists and medical laboratory technologists.
Finland	3,950 (2016)[2] (92% public and 8% private)	72.1	~ 19 (2016) [3]	43 (2016)[2]	Mostly employees in public health centres (~ 80%)	Patient affiliation with health centres and specific GP	Referral is needed for specialist consultations through the public health system. Self-paying patients can contact all private specialists directly	Working in health stations or in private GP clinics	Typically nurses but physiotherapists, psychologists, diabetes nurses and mental health workers can also work in health stations.
Iceland	114.5 full-time positions in the Capital area[3]	50 in the Capital area (68 for medical doctors + GPs)[3]	15.9 (2018)[4]	-	Employed in public primary care centres or in private primary care centres or self-employed in private GP clinics	Affiliated with one health centres but allowed to visit others	No	Either working in public or private primary care centres or in private GP clinics	GPs in primary care centres can have nurses, midwives, physiotherapists, psychologists and psychiatrists working with them.
Norway	4,753 (2018)[5]	88.6	16.5 (2018)[4]	48 (2019)[6]	Mostly self-employed	All inhabitants are assigned to or choose a regular GP	For all specialties	Typically two-three GPs share a practice but do not work together.	Typically 2-3 people. Educational background can vary. Tasks include scheduling consultations, answering the phone, taking ECGs and doing some laboratory work.

	N	GPs per 100,000 citizens*	Number of GPs (as % of total number of physicians)	The average age of GPs	GP employment	Patient affiliation	Gate-keeping (non-acute illness)	Practice characteristics	Ancillary staff
Sweden	6,028 (2017) (most working part-time)[2]	58.4 (including GPs working part-time)	14.9% (2017)[4]	-	Mostly employees in public (60%) or private health centres.	In most regions it is mandatory for patients to register with a primary care centre of their own choosing. Some centres offer registering with a specific GP.	Gatekeeping policies vary by region. The Regions decide which specialist services require a referral. In most cases, referrals are needed[2]	With very few exceptions GPs work in group practices alongside other professions. The sizes vary, but a typical PHC employs four-six GPs. Private PHC's tend to have fewer GP's.	PHCs are interdisciplinary, employing nurses (typically the same number as GPs), physiotherapists, occupational therapists and psychologists.
Åland Islands	15 (2020)[3]	50.2	19.5% (2020)[3]	-	Employed in public health centres.	The patients are affiliated with one of the two health centres.	Referral is needed for specialist consultations through the public health system.	GPs work in health care centres.	Nurses, home nurses, psychologists and physiotherapists work in the health care centres as well.
Faroe Islands	34 (2020)	65.2	-	-	Publicly employed by the Health Insurance.	Patients listed with a GP.	For all specialties.	Typically solo practices.	Nurses and medical secretaries. Tasks vary across practices.

General note: We have attempted to obtain data from all countries, though this was not possible (missing data shown by "-" in the table)

Note: *Authors' calculations.

Source: [1](65), [2]Statistics on physicians and the health care system, Finland [3]Informant,[4]OECD Statistics, Table: Health care resources: Physicians by categories, [5](66) [6]Tabel 1 in (67)

5.1 Gatekeeping

While the GPs in some of the Nordic countries act as **gatekeeper** to inpatient and/or specialist care, other countries do not have this gatekeeping function, i.e. patients are allowed to contact a specialist directly without referral. Gatekeeping is used to limit the demand for specialized services, as specialist health care is viewed as a limited commodity and is more costly in cases were primary health care can handle the problem equally effective. Using gatekeeping, this commodity is believed to be more accurately distributed to those most in need (68). Furthermore, a well-defined GP gatekeeping function is a way of strengthening the GPs' position in the health care system, and hereby the position of primary health care. In this context, it should be noted that gatekeeping is only one way of regulating the use of specialized care; regulation can also be achieved by financial incentives (e.g. increased co-payment for specialist treatment for patients without a referral from a GP).

In **Denmark**, **Norway** and the **Faroe Islands** the GP acts as gatekeeper, which means that patients need to contact a GP and obtain a referral before receiving specialist care.

In **Finland** and **Åland**, specialist services contained by the public system also require a referral but this does not have to be obtained from a GP (informants). Public health nurses can also make referrals, especially in maternity care (e.g. regarding abnormal foetus growth or high blood pressure). If specialists are employed in the health care centre, they too can make referrals. Despite more health professionals having the authority to make referrals, referrals are usually obtained from the GP (informant). Self-paying patients can contact private specialists directly (43).

In **Iceland**, on the other hand, patients have direct access to specialist care and thus do not require a formal referral. In **Sweden**, access to specialist services vary by region, as the regions decide which specialist services require referral (informant). While these rules vary regionally, the general tendency is that very few patients will be accepted without referral (informant). Furthermore, in cases where referral is not mandatory, some Swedish regions reduce the co-payments for specialist care if the patient has obtained a referral, thereby incentivizing patients to visit primary health care before contacting a specialist. Thus, some restrictions on the access to specialist care exist, and generally GPs or district nurses are the first point of contact (23). It is still unclear how and whether the absence of formal gatekeeping in Sweden affects the proportion of health services provided by specialists. On that topic, the case of **Iceland** is clearer. Iceland has a relatively high number of doctors (and nurses) compared to the EU average, and (like Sweden) a small share of doctors are GPs (16.5%) (22). In Iceland, however, the low number of GPs and the absence of a gatekeeping function and referral system causes a significant proportion of primary health care to be provided by private specialists (ibid. and confirmed by informant). This is further reinforced by the GPs being unevenly distributed across the Icelandic regions; primary health care centres in the Eastern Region employ considerably more GPs per 100,000 inhabitants compared to the capital and south-west regions. This results in residents of the capital and south-west Regions more frequently seeking private medical specialists as the first point of contact (22).

In a report from 2017, the National Audit Office in **Iceland** expresses its concern over a potential overuse of medical specialist services, reinforced by the remuneration of specialists (payment per patient treated), which constitutes a financial incentive to provide more and more frequent services. The same criticism has been raised in previous reports (15).

According to official policy, the primary health care centres are supposed to be the first point of contact in health-related matters in **Iceland**. In order to facilitate and support this, various strategies have been made; e.g. increasing the number of professional groups employed and increasing their interdisciplinary cooperation in order to meet the broad spectrum of patient needs and to promote continuous and integrated services (15). Moreover, a referral system has been introduced for children, which implies that children having obtained a referral can receive health care services free of charge. For children without a referral, the charge is 30% up to a certain max (informant). From a national level, they are working on outlining in the legislation that primary health care should be provided by primary health care personnel and not by specialists.

5.2 GP employment and practice type

Employment of GPs varies across the Nordic countries, i.e. whether GPs are salaried public employees payed a fixed salary based on hours worked or self-employed independent professionals reimbursed by various types of contracting methods (further discussed in Section 5.2.1).

In **Denmark**, the vast majority of GPs run their own practice – either alone or in collaboration with others. The content, terms and conditions etc. for the service provision in general practice is formulated in an agreement signed by the Danish Organization of General Practitioners (PLO) and the Board for Wages and Tariffs of the Regions. When there are no GPs to buy a practice, the region may choose to tender the job or even run it through regional clinics with salaried doctors. The first tender and regional clinics were established in 2011, and the number of clinics has increased annually. However, as per January 2020 only 83 GPs were employed in either a tender or region clinic (65). This is equivalent to 139,211 patients being affiliated with a region clinic, corresponding to 2.4% of the total capacity (ibid.). In total, there are 3,326 GPs in Denmark, distributed across 1,666 GP practices (2020) (ibid.). Different types of GP practices exist: solo practices, partnership practices (in Danish: *samarbejdspraksis*), collaborative practices (in Danish: *kompagniskabspraksis*) and sharing practices[6] (in Danish: *delepraksis*). In recent years, the general practice sector has been characterized by a trend towards an increasing number of collaborative practices. A collaborative practice is run by two or more full-time GPs with a shared patient list, economy, ancillary staff and facilities (69). From 2000 to 2020, the number of collaborative practices have increased by 29% and now make up 58% of GP practices (65). Some of the solo practices are so-called partnership practices. This means, for example, that doctors have chosen to separate the individual doctors' finances, but share facilities, IT equipment or staff and thus collaborate on a nearly equal footing with physicians organized in collaborative practices. In 2018, more than four out of 10 solo practices were partnership practices, and the number is increasing slightly (ibid.) The average number of GPs per practice is two (authors' calculation based on (65)).

In the **Faroe Islands**, GPs are formally employed and (partly) remunerated by the Healthcare Insurance (*Heilsutrygd*) based on an agreement similar to the Danish agreement. However, the GPs employ health care staff themselves and therefore also have employer responsibility. Moreover, they work in independent GP practices, typically solo practices. Hence, the GPs

[6] In special cases where the doctor needs reduced working hours, a sharing practice can be established, which means that an additional physician is admitted as a sharing companion or as an employee in practice in relation to the assigned medical capacity(/-ies). A sharing practice may be obtained if the clinic is located in a medical coverage-threatened area or a practitioner in the clinic has personal circumstances that may result in a permit for sharing a practice: 1) chronic or serious illness in the family, 2) teaching, consulting or professional politics work for a minimum of 10 hours per week (Section 22 in the General Practice Agreement 2018).

consider themselves as self-employed entrepreneurs, like in Denmark and Norway. There are 34 GP positions in the Faroe Islands, of which 25 are permanently employed and nine are occupied by substitute doctors (36%) (informant).

In **Norway**, the GP scheme is based on a formal collaboration between the municipalities and the Norwegian Medical Association. The state is also somewhat involved as they contribute to the financing of the GPs through the state agreement (66). The GPs are primarily self-employed and work according to individual agreements signed by the municipality and the GP. A few GPs are employed by the municipality and work on a fixed salary. Moreover, some GPs enter into so-called 8.2 agreements with the municipalities (see Section 5.2.1). GPs who work as salaried employees are subject to direct municipal administrative management (ibid.). In 2018, there were 4,753 GPs in Norway (ibid.). Typically, two-four GPs share a practice but work solo and are responsible for their own patient list. The number of GPs sharing a practice, however, varies across municipalities (informant).

In **Finland**, the vast majority of GPs work as public employees in the health care centres (around 80%). However, some work in private GP clinics but no independent public GP clinics exist. The health care centres are multidisciplinary organizations providing health care services from different clinics. The number of GPs in one centre differs according to the size of the centre and the municipality in which it is located. GP services are provided in so-called health stations where GPs typically work in pairs with nurses; either one GP and one nurse, or one GP and two nurses. Moreover, physiotherapists, psychologists, diabetes nurses and mental health personnel may work in these health stations. GPs working in the same health station usually share laboratories and some devices but have separate rooms for consultations (informant). In 2016, there were 3,950 GPs in Finland (Statistics on physicians and the health care system, Finland).

In **Iceland**, GPs are employed either in public primary care centres, private primary care centres or in private GP clinics. As opposed to Finland, the centres in Iceland are physical buildings that patients can visit. The number of private GP clinics is gradually decreasing; currently only 5 self-employed GPs are left with 5,538 registered patients. In 2020, Iceland has 49 public primary care centres and 4 private primary care centres. Private GP clinics and private primary care centres only exist in the Capital area. The private health centres have 25% of registered patient in the Capital area, and they offers all the same service as the public primary care centres (informant). In the capital area, the number of GP employed in the health care centres ranges from five to 12.1 with an average of 8.13 (informant). It has not been possible to obtain data for rural areas.

In **Sweden** most GPs work as salaried employees in public health centres, although the number of private health care centres is increasing. This is partly due to national regulations since 2010, which promote freedom of establishment for private providers, stimulate competition between providers within primary health care and strengthen patient choice (13). The private health care centres are constructed in different ways, some are owned by international venture capital firms, and thus these GPs also work as salaried employees, rather than independent entrepreneurs (informant). Many GPs choose to work part time, in order to reduce the workload (informant). Team-based units, where GPs work alongside other professions is the main type of practice. On average, there are four-five GPs in a health care centre (23), and generally the public health care centres are larger, employing more GPs than the private ones. The private health care centres vary in terms of ownership as some are established and owned by a few GPs, whereas others belong to corporate chains of health care centres across the country.

In **Åland**, GPs are employed in one of the two health care centres. There are 15 GP positions in **Åland** of which nine are permanently employed and six positions are occupied by substitute doctors (in May 2020). Besides doctors, a health centre is staffed by nurses, home nurses and a psychologist (informant).

5.2.1 Remuneration for GP services

Different employment (described above) and remuneration conditions provide various incentives; including incentives for referral, collaborations, ensuring continuity in health care and flexibility in task shifting etc. In addition, the remuneration schemes can be seen as one of several instruments to manage some of the challenges in primary health care; for example by using financial incentives to support the management of patients with chronic diseases in the primary health care sector and ensure availability of GP services in rural areas.

The Nordic countries have adopted different types of contracting methods for remunerating GPs. Traditional contracting methods comprise fee-for-service (FFS), salary and capitation. FFS refers to the provider being paid per service provided; salary means a fixed amount of money being paid regularly (typically every month); and capitation refers to a fixed periodic payment per patient affiliated. In practice, hybrid funding schemes are often applied, e.g. a combination of FFS and capitation. In addition to the traditional funding schemes, new payment systems have been developed, such as pay-for-performance (P4P), which involves a financial incentive to improve quality as the provider will receive a 'bonus' for meeting certain quality goals. Furthermore, global budgeting is used prospectively to set caps on the total spending on GP services.

Table 5.2 provides a summary of the payment schemes and other incentives applied to GP services, and the subsequent section describes central aspects of the applied remuneration schemes in each of the countries.

Table 5.2 Payment schemes and other incentives according to GP

	Remuneration of GP services (FFS, capitation, salary)	Patient co-payment	Risk-adjusted remuneration	Special payment for rural or scarcely populated areas	Differences in payment for list patients and non-list patients	Ceilings of payments, kinks in payment schemes or other mechanisms for cost containment	Specific fees to target prioritized activities	Use of P4P	Integrated care
Denmark	FFS, capitation	No co-payment (group 2-insured pay part of the fee and have free choice of GP). Co-payment for prescription costs and dental care.	Yes	A few local agreements exist concerning GP services on small islands, and a few regional GP clinics are managed by the region.	Yes (0,3% non-listed)[1]	Yes, national ceiling introduced In 2011. Collective punishment.	Yes many	None	Local projects in a few municipalities.
Finland	Health care centres FFS, salary	Co-payment for adults >= 18 years in public health centres.	No	Payments locally negotiated.	None	None	None	None	Local projects in some regions.
Iceland	Primary care centres Capitation (80%) in the Capital area since 2017. Expanded to rural areas in 2021. Self-employed GPs Salary, FFS	Co-payment for adults >= 18 years. No charge for patients < 18 years or > 67 years or people with disabilities.	Combination of age, gender, ACG-weighted population and socioeconomic factors	Yes (see text for clarification).	Yes Listed patients pay 700 ISK for visit, while non-listed pay 1,200 ISK.	None	Some, e.g. for establishing lifestyle modification outpatients' reception for specific pt. groups (see text for clarification).	Some (see text for clarification)	No
Norway	FFS, capitation	Co-payment for adults >= 16 years.	No	Yes (see text for clarification)	Yes – some differences in co-payments.	None	Some	None	No

	Remuneration of GP services (FFS, capitation, salary)	Patient co-payment	Risk-adjusted remuneration	Special payment for rural or scarcely populated areas	Differences in payment for list patients and non-list patients	Ceilings of payments, kinks in payment schemes or other mechanisms for cost containment	Specific fees to target prioritized activities	Use of P4P	Integrated care
Sweden	Health care centres Varies but in general capitation with some fee-for-service and P4P.	Adult patients pay a fee for consultation at health care centres. The fee varies across regions, but there is a nationally defined limit on annual co-payment. Consultations with children are free in all regions.	Varies but usually a combination of sex, age, socioeconomy, ACG and geography	Yes, in some regions.	Yes, fee for service or agreements between practices if not registered.	The budget for primary health care is fixed in each region, and if the budget is exceeded the funding per unit is decreased. In most regions 80% or more is capitation. Stockholm had ceilings of FFS component.	Some	0-3%[2]	Some regions have special payment for integrated services
Åland	Salary	Co-payment[a]	No	No	No	None	No	No	No
Faroe Islands	FFS, capitation	Co-payment for prescription costs and dental care (dental examination free of charge for people < 23 years).	-	-	-	-	-	No	-

General note: The table is inspired by Table 1 in (54). We have attempted to obtain data from all countries, which was not possible, however (marked by "-" in the table).

Note: FFS: Fee-For-Service, P4P: Pay-For-Performance, [a]The limit for co-payment is EUR 475 per calendar year. However, the limit is lower for the following groups: 1) low income, ≥ 75 years and full-time or invalidity pensioners

, 2) children and adolescents up to the calendar year they turn 20 years (70).

Source: Informants, [1](65), [2](23).

In **Denmark**, GPs are remunerated by capitation (approximately 30%) and FFS (approximately 70%), which is paid by the region. The capitation and FFS component is based on tariffs agreed on by the Danish Organization of General Practitioners and the Board for Wages and Tariffs of the Regions (65). User fees in general practice are very limited and concern travel vaccinations and health certificates only.

The combination of FFS and capitation reflects an incentive to treat the patients in general practice (rather than unnecessarily referring patients to the hospital), while at the same time securing a sufficient income and a compensation for services not covered by fees. In 2012, a cap on FFS expenditures was introduced, triggered by an increase in FFS expenditures. The cap on FFS implies that a deduction is made in the subsequent year's settlement, if FFS spending is exceeded by more than 0.6% (71).

In 2018, Denmark introduced differentiated capitation aiming at i) improving recruitment and maintenance of GPs in areas challenged by insufficient GP coverage and ii) remuneration based on list patient characteristics (age, gender, morbidity) (24). Furthermore, a bundle payment scheme for patients with type 2 diabetes and COPD was introduced in 2018. This involves the GPs having population responsibility for type 2 diabetes and COPD patients (not requiring specialist services), and thus also the treatment responsibility, with limited options for referrals. The GPs receive a fixed fee per patient with type 2 diabetes/COPD per quarter regardless of the GP's number of contacts and consultations. There is no requirement that consultations and annual checks should be performed by the GPs; this can also be done by clinical staff. The motivation behind introducing this scheme was a desire to assign the GPs a larger role in the treatment of chronic patients and to shift the check-ups of these patient groups from the hospital to the GP (71). The bundle payment scheme for chronic patients has been criticized for potentially leading to a low level of activity because of the lack of direct financial incentives for the GPs to provide services (72,73) and cream skimming (73).However, the scheme has not yet been evaluated.

GPs in the **Faroe Islands** are employed by the national health service, and remunerated by the public health insurance scheme, which pays them i) a fixed monthly fee, ii) a basic grant (capitation) and iii) tariff-based fees (FFS). The tariff-based financing follows the Danish agreement between the Danish Organization of General Practitioners and the Board for Wages and Tariffs of the Regions and accounts for 65-75% of the payment (informant). The GP bears the expenses for ancillary staff and the municipalities are in charge of the facility and operating costs.

Since 2008, permanently employed GPs have received a specific fee for postponing their retirement. If a GP chooses to retire at the age of 67, he/she receives a fee equivalent to 50% of the yearly basic fee. If a GP chooses to retire at the age of 70, the fee corresponds to the total yearly fee (informant). The GPs are also paid fees for services related to social care (ibid.). User fees apply to the same services as in Denmark.

As to substitute doctors in the Faroe Islands, the conditions are somewhat different. Substitute doctors are also employed by the national health service but the remuneration differ. As opposed to permanently employed GPs, substitute doctors are guaranteed weekly earnings of minimum at least DKK 20,000 in addition to the basic grant (capitation) and the tariff-based grants (FFS). Additionally, the National Health Insurance pays for nurses employed in the practice, housing and vehicle and travel expenses, if the substitute doctor lives outside the Faroe Islands. For permanently employed GPs, the municipality bears the facility and operating costs (informant).

The remuneration scheme in **Norway** has not undergone any significant changes in recent years, but proposed changes seem to be in the pipeline, cf. (25). The GPs receive i) a basic grant based on the number of patients affiliated, which is paid monthly, and ii) an activity-based grant comprising tariff-based financing from the state and user fees paid by the patients. Co-payments apply to people above 16 years of age only.[7] When the GP scheme was introduced in 2001, it was decided that the basic grant should account for 30% and the activity-based grant for 70% of the total earnings (66). Moreover, the municipality and the GP can enter into so-called 8.2 agreements. These agreements can vary in detail but generally involve the municipality paying the operating costs such as rent, employment of ancillary staff, service on equipment etc. The municipality then keeps the basic grant (payment per patient) and the GP receives the activity-based grants based on tariffs and user fees. Such agreements are very popular in Norway (informant). In areas with less than 5,000 residents, GPs receive subsidies if the average list size is below an agreed reference size (informant). Moreover, subsidies are provided for GPs in areas characterized by recruitment challenges (informant).

In **Finland**, the GPs working in the health centres are paid monthly salaries by the municipalities in addition to some FFS. For instance, GPs receive a fee for working on call hours. In the private sector, on the other hand, FFS accounts for the largest proportion of the GPs' remuneration (informant). In recent years, introducing a risk-adjusted capitation payment scheme has been discussed and some local projects have been piloted in which the remuneration scheme has applied to the health care centre as a whole rather than to specific providers employed in the centre (informant). User fees are present and involve a range of different services.[8]

In 2017, the Capital Region in **Iceland** introduced a new payment scheme for primary health centres called the Need for Care Index (NCI), which will be expanded to also include rural areas in 2021. The NCI replaces the previous salary-based funding scheme in the primary health centres. The aim of the NCI is to introduce professional and financial incentives to facilitate services of a higher quality, more economical operations and support the primary care centres in being the first point of contact in the health care system (15). The new scheme is a hybrid funding scheme including both (risk-adjusted) capitation and financial incentives to provide certain services, including a P4P element. About 80% of the funding is based on ACG (adjusted clinical group) weighted population and a cost index based on age and sex (capital model). Furthermore, the capitation funding includes funding earmarked for certain projects. For example, in 2020 there is a special funding for lifestyle modification reception for vulnerable groups (hypertension, obesity, type 2 diabetes, heart disease, elderly persons) at the primary health centres. In 2017 and 2018, special funding was provided to establish more electronic communication aiming at promoting this type of communication for scheduling appointments and making inquiries. By now, all centres offer electronic communication and the funding has changed to payment per communication. Approximately 3% of the funding relates to some sort of P4P based on assessment of nine quality measures in the funding scheme. For example, the centres receive payment if they have 95% coverage in immunization for children up to four years old. They get paid if they measure blood pressure in certain groups, immunization for influenza in certain groups etc. The centres must have a certain coverage to get the payment; 40-60%

[7] Annual caps on patient payments exist for doctor consultations, outpatient specialist consultations, pharmaceuticals, laboratory tests and medical imaging. Once the annual cap (approximately € 236) is reached, the patient is exempted from further co-payment and care is free of charge. The same applies to physiotherapy, dental care for specific chronic dental conditions, treatment abroad and some rehabilitation treatments but with a slightly lower cap (approximately € 208) (51)

[8] However, to avoid excessive co-payments caps on annual payments and exemptions exist. Only adults from 18 years and up are charged with co-payment, and exemptions also apply for specific services such as certain infectious diseases, immunizations, maternity and child health clinics etc. (50). Moreover, municipalities may decide to lower specific user fees at their own discretion. This applies to all primary health care services, not only services provided by the GPs. There is a ceiling of € 683 per year for public primary health care services.

to receive 50% funding; 60-75% to receive 75% funding; and >75% to receive 100% funding (informant). About 10 % of the funding of the primary health centres is related to specific services (psychology services, interpreting service, school nursing, and prescribed physical activity) (informant).

For primary care centres in rural areas, various supplementary funding to offset the extra operating costs exist. Firstly, many of the primary health centres in the rural areas are small with less than 1,200 registered patients; the centres receive extra payments per person up to 1,200 patients. Secondly, school nursing, home visits of medical doctors and nurses are affected by travel distances, which are generally longer in rural areas; primary health centres in these areas receive special payments to cover such expenses based on distance and travel time. Thirdly, many of the primary health centres in the rural areas have branches in towns with long distances to the main centre; to compensate for this, funding is provided to cover fixed costs of these branches.

The remuneration scheme in **Sweden** varies across regions but is mainly based on capitation with some FFS. In remote areas, additional payments are added to the capitation. Moreover, Sweden has experience with both risk-adjusted capitation and P4P. The budget for primary health care is fixed in each region, and if production exceeds the budget, the funding per unit is reduced accordingly. As a means to avoid oversupply of services, some of the regions have introduced ceilings on FFS. Regarding risk-adjusted capitation, this introduces an incentive to register as many diagnoses as possible on each patient, consequently hampering the comparability of disease burdens between regions with and without risk adjusted capitation (informant). Private and public health care centres are under the same remuneration scheme. Adult patients pay a fixed fee for standard consultations, whereas child consultations are free. The fee for adults varies regionally and in 2018 was in the range of 150-300 SEK (14–28 EUR), except for one region where primary health care visits were free. There is a nationwide ceiling on the annual co-payment for primary care visits and specialist consultations, which in 2018 was SEK 1100 (105 euros) (23).

The introduction of digital solutions for after hours video consultations with GPs (described in Chapter 7) has implications for the health care centres' remuneration. These consultations are offered by doctors not necessarily associated with the health care centre where the patient is registered, but the consultation includes a fee of 50 euros, which in some cases is covered by the patient's health care centre (informant).

5.3 Ancillary staff and task division

Common for all the Nordic countries is that the GPs do not work completely alone; either they have ancillary staff employed in their practice or they work in larger health centres or clinics with other kinds of health care professionals. However, differences exist as to what role ancillary staff plays and how collaboration and task division is organized.

In **Denmark**, besides GPs the largest health care professional groups in general practice are nurses and medical secretaries. According to the Danish Nurses Association and member survey of the Danish General Practitioners Organization, respectively, 2,114 nurses (65) and 912 medical secretaries (FTEs) (74) were employed in general practice in 2018 and 2017). Nurses have come to play a bigger role in the treatment of chronic diseases, but it may vary from clinic to clinic to which degree the treatment of chronic diseases is delegated from GPs to nurses. In the latest agreement (71), it was decided to allow (74) nurses to take responsibility for the

annual follow-up visit and adjustment of the treatment plan for chronic patients. This means that nurses in some cases have the full responsibility for treatment, prescription and adjustment of medicine of some (uncomplicated) chronic patients. Other professions employed in general practice include social and health care assistants, medical laboratory technologists, midwives and pharmaconomists. In some cases, social and health care assistants perform tasks similar to the nurses in the treatment of chronic diseases (69). Additional tasks which may be carried out by nurses in general practice include taking blood tests, conducting preventive conversations and performing pulmonary function tests (75).

In the **Faroe Islands**, besides GPs the nurses and medical secretaries make up the vast majority of health care professions working in general practice. Most practices have nurses employed. A few practices also employ social and health care assistants. Health care staff in the practices work on reduced time, typically equivalent to 0.5-0.8 positions (informant). Because the GPs employ their own staff, there is no regulation or control as to what qualifications an employee possesses. Therefore, the tasks carried out by nurses in general practice vary depending on their medical skills. This challenges the provision of uniform services across different GP practices. However, the nurses are typically involved in the care of chronic patients.

In the health care centres in **Finland**, the GPs have formalized collaborations with different health care professions in the same centre, including nurses, public health nurses and physiotherapists. GPs, nurses, public health nurses and physiotherapists usually work together in a formalized manner. An example of such collaborative approaches is treatment of patients with lower back pain; the patient first books an appointment with a physiotherapist, who then refers the patient to the GP if necessary. This kind of approach is also being developed for some psychiatric disorders, e.g. mild depression and anxiety. In these cases, the patient's first appointment(s) is with a specialized nurse or psychologist followed by an appointment with a doctor (informant).

Additionally, initiatives to delegate tasks from GPs to nurses in collaborative arrangements are currently running. This implies the GP and the nurses working close together in the care of patients with common chronic diseases, such as hypertension and non-complicated type 2 diabetes, enabling the nurse to easily consult the GP if necessary. This type of collaboration is partly caused by the shortage of GPs in some areas. Chronic care is an area in which the role of the nurses has generally been strengthened, including management of chronic conditions and patient consultations (50). In recent years, increasingly more electronic consultations have been held – these are typically handled by nurses (43).

Furthermore, since 2010 a number of the health care centres have attempted to increase access to primary health care by expanding the competence of the nurses in the centres. This implies the competence to make referrals, interpret x-rays and prescribe (some) medication (50). This competence to prescribe requires employment in a public health centre, at least three years of work experience and a postgraduate qualification as well as being registered as a prescriber (ibid.).

In **Iceland**, nurses are playing an increasingly large role in delivering primary health care, which is reflected in increased task sharing and task shifting between nurses and doctors (22). The new tasks of the nurses vary in complexity. Some primary health care services in Iceland are operated in nurse-led ambulatory clinics, which are responsible for patients with lung problems, children and adolescents with diabetes, and pre-dialysis patients. However, this development of advancing the role of the nurses is still at an early stage both in primary and specialist health care (ibid). In the Capital area, the average number of positions of nurses and midwives per

1,000 registered patients is 0.62, compared to 0.68 positions of medical doctors per 1,000 registered patients (informant).

In addition to nurses and medical doctors, other groups of personnel working in the primary care centres include midwives, psychologists and in some case psychiatrists and physiotherapists. The physiotherapists provide exercises in their consultations with referral from the GP. In some cases, the physiotherapist also sees patients with musculoskeletal problems. All centres offer psychological service for their patients. Each centre must provide one psychologist position per 9,000 registered patients (informant).

According to the Icelandic Ministry of Health, improved teamwork and interdisciplinary collaboration within the health centres is considered a priority (15). In practice, this means that a number of health care tasks that were previously considered a pivotal task for the physicians could just as well be undertaken by other employees, e.g. diabetes care (ibid.). Moreover, mental health is receiving increasing attention and the primary care centres are increasingly taking over mental health problems, which would previously have been considered a specialist care task. In the capital area, there are three mental health teams. One team consists of around 12 health care professionals, including both psychiatrists, psychologists and nurses, and services about 80,000 people. The implementation of these team-based mental health services in the primary care centres requires close collaboration with hospitals and specialist clinics; this work is expected to begin in autumn of 2020 (informant).

The self-employed GPs do not have nurses or other groups of health care personnel working in their practices. Therefore, they do not provide maternity care, infant care or health care in schools or school nursing. Instead, patients can receive these services at the nearest primary health centre (informant).

In **Norway**, the use of ancillary staff in the provision of health care services is relatively limited. The GPs typically have two-three people working as ancillary staff; these people can have different educational backgrounds and they carry out tasks such as secretary work (scheduling consultations, answering the phone etc.), taking ECGs and doing some laboratory work. The ancillary staff support all GPs working in the same practice (informant). In recent years, team-based, multidisciplinary care provision has generally been considered a way to improve the management and follow-up on, in particular, patients with chronic conditions with the intention of reducing hospitalization or the need to move into nursing homes (51). In 2018, three new approaches to ensuring more coordinated and team-based care with/in general practice were initiated. These initiatives comprise primary health care teams, follow-up teams and medical remote follow-up (66). Primary health care teams are GP-led teams consisting of both nurses (one full-time nurse per three GPs) and medical secretaries focusing on patients with complex care needs. The aim of this new organization is to offer better medical services to patients with the greatest need. In these primary health care teams, the nurses are responsible for coordinating care under the leadership of a GP (51,66,76). Initially, 13 practices participated in the project. In June 2019, it was decided to expand the pilot project by three-five more practices and to extend the project period by two years until the end of March 2023 (76). Also, in the ministry's action plan for general practice team-based care in general practice is mentioned. The ministry points to other countries where GPs work with a broader range of health professionals as inspiration for the Norwegian GP scheme. Based on the evaluation of the pilot project and international experiences with team-based care, the ministry wishes to strengthen the collaboration between GPs and other health care professionals in Norway (25). Moreover, the

ministry wishes to introduce (voluntary) so-called group agreements (in Norwegian: *gruppeavtaler*) with the intention of strengthening management in the GP practices by establishing groups of GPs in the same practice, who can share tasks and ancillary staff etc. Group agreements involve the GP practice entering into an agreement with the municipality, which assigns the group a shared responsibility for the practice. The GPs in the practice will still have individual patient lists (ibid.).

In **Sweden** the role of the nurses has also been strengthened through setting up nurse consultations (instead of GP consultations), expanding the competence to prescription of certain medicines and delegating diabetes care tasks to specialist nurses, including the support of the patients' self-management of their condition (13). The number of advanced practice nurses and specialist nurses, however, is limited and does not seem to increase provisionally, as the number of new graduates with an advanced nursing degree and specialty trained has decreased during the last 15 years (ibid.). In the beginning of 2019, educating more advanced practice and specialist nurses was emphasized as a key focal point by the government (ibid.).

In **Åland,** the health care centres have formalized collaborations with different health care professions in the same centre, including nurses, home nurses, a psychologist and physiotherapist. The Type-2 Diabetes Control Programme is an example of nurses in the health care centre carrying out general practice services, as the programme implies that a diabetes nurse is responsible for the primary follow-up of patients with type 2 diabetes, including medication adjustment (the patient has an annual medical check-up visit to the GP). Furthermore, since May 2018 nurses have been able to refer patient directly to physiotherapy treatment at the health centre based on telephone triage by the nurse (informant).

5.4 Patient affiliation and continuity

Depending on the organization of general practice, patients may be affiliated with either a GP or a centre. The affiliation can be based on the patients' own choice or be by automatic assignment. Depending on the setup, continuity may be more or less realized. Continuity is by definition a core element of primary health care (4) and also an area of concern in the Nordic countries. It should be stressed that the question of continuity is multidimensional and complex and is therefore related to a broad range of elements, patient affiliation being one of them.

In the **Faroe Islands**, **Norway** and **Finland**, patients are generally affiliated with a specific GP, whom they are either assigned to or choose themselves. In **Denmark** patients are either affiliated with a specific GP (the case for solo and partnerships practices) or a practice (the case for collaborative and sharing practice). In **Sweden**, most patients are affiliated with a health care centre of their own choosing, and it is up to the health care centre how and to which degree they assign individual patients to specific GPs. The health care centres are not allowed to close access for new patients (informant). In **Denmark** and the **Faroe Islands** the freedom to choose a GP is based on geographical location. In **Denmark**, patients are free to choose a GP within a radius of 15 km from their residence. For group practices, patients do not choose a specific GP but are affiliated with the practice and can see all GPs working in this practice. GPs in Denmark have 1,737 patients listed, on average, though this varies considerably across regions; from 1,567 to 2,054. In **Denmark**, the GPs are entitled to close access for new patients if the patient list exceeds 1,600 patients (71)). By March 2020, 62% of all GPs had closed access for new patients. This is a significant increase compared to just four years earlier, when the share was 38% (65). The share of GPs with access closed for new patients varies across

regions. In the capital region, more than 74% of GP practices are closed for new patients. This means that the free choice in practice is greatly limited (ibid.).

GPs in **the Faroe Islands** are divided into nine "GP areas" (in Danish: *lægekredse*), which vary in terms of number of GPs, number of residents and geography. The number of GPs in the areas ranges from 2 to 13 and the number of residents from approximately 1,240 to 21,000. Also the size of the individual patient lists vary; from 620 patients listed in the smallest GP practice to around 2,300 patients listed in the largest practice (informant). Patients are usually affiliated with the same GP for many years and often all family members have the same GP – particularly in small GP areas – thereby realizing the family doctor concept. In GP areas with few GPs, some might enter into informal collaborations entailing a merging of the individual patient lists if needed. In such a case, the patients will then, in practice, be affiliated with more than one GP. Because having small GP areas in practice somewhat limit the free choice of GP, reorganizing the GP areas to improve the freedom of choice has been discussed (informant).

In **Finland**, patients in some areas are assigned a health care centre and a GP based on geography, whereas patients in other areas are allowed to choose a health care centre themselves and subsequently choose what specific GP in this centre they want to have (informant). If they do not choose a centre themselves, they will be assigned the centre closest to their residence (43). Since 2014, it has been possible to choose a health care centre, and thus a GP, outside the municipal boundary. However, patients are usually affiliated with a centre close to their residence (ibid.).

In **Norway**, there are no criteria for choosing a GP. According to the GP scheme in **Norway**, the maximum number of patients per GP is 2,500 and the minimum is 500 (66). Since 2004, there has been a gradual decrease in the average list size of the Norwegian GPs. At the end of 2018, the average list size was 1,100 patients (28). Decreasing the list size is considered a way to tackle some of the challenges in general practice, e.g. the high workload experienced by the GPs (ibid.). From 2017 and 2018, only Oslo and Aust-Agder experienced an increase in average list size, and generally large and central municipalities have longer patient lists than small and less central municipalities (ibid.). The aim of the current GP scheme (*fastlegeordningen*) in Norway was originally to improve the quality of care in general practice by providing a regular and thus familiar GP to each patient. The GP scheme was intended to facilitate continuity in primary health care, which is particularly important for people with chronic conditions or mental disorders as well as disabled people and people in rehabilitation (66). Though GPs do not formally work together in the practices, some GPs decide to informally share their lists unofficially in order to decrease their workload. Such unofficial collaborations between GPs in the same practice is accepted by the municipalities but in practice it dilutes the concept of one regular GP, i.e. the intention of the GP regulations (ibid.). Moreover, this is reinforced by the shortage of GPs causing some practices to employ substitute doctors who (by definition) do not stay for a long time.

In both **Denmark**, **Norway**, **Finland** and **the Faroe Islands**, more or less all inhabitants are listed with a GP practice. In **Denmark**, only 0.3% is not; these patients belong to the so-called group 2-insured (0.2%) and other insurance groups (65) By June 2018, 1.9% of the population in Norway did not have a GP assigned, which corresponds to 58,850 persons not being affiliated with a GP (28). According to a survey from 2016 there is a significant association between the centrality of a municipality and the probability of that municipality having residents who are

not affiliated with a GP. The same association was not found to exist with the size of the municipality (28). In **the Faroe Islands**, all residents are affiliated with a GP, the GP being either a permanent or a substitute GP.

In **Åland**, **Sweden** and **Iceland**, patients are affiliated with a health/primary care centre. In **Iceland**, patients are not formally affiliated with a specific GP, but in practice patients often consult the same GP. In **Åland** patients are assigned to one of the two heath centres based on geographical distance but not with a specific GP. However, they strive to ensure that patients see the same GP in the same course of treatment. In the capital area of **Iceland**, the average list size per GP is 1,493. The smallest patient list has 1,218 patients and the largest 1,985 (informant). We have not been able to obtain data for rural areas. In **Sweden**, most people register with a healthcare centre. Patients are free to register with any private or public health care centre, and since the health care centres are primarily paid via capitation there is competition among the health care centres to have patients registered. However, the health care centres cannot compete on price and co-payment, as fixed fees are defined at the regional level ((23).

5.5 Concluding remarks

Having a well-defined gatekeeping function is a way to regulate the access to specialist and hospital services. Furthermore, it can be seen as a way of strengthening of GPs' position in the health care system, and hereby the position of primary health care. The **Danish**, **the Faroese, Finnish** and **Norwegian** systems all rely on gatekeeping through the GPs. In **Finland** and **Åland**, not only GPs but also public health nurses and specialists employed in the health care centre can make referrals. However, referrals are usually obtained from the GP. In **Iceland**, on the other hand, patients generally have direct access to specialist care and thus do not require a formal referral. In **Sweden** the regions decide on which specialist services require a referral. In general, almost no patients are accepted without a referral, and thus the absence of a national gatekeeping policy does not entail that patients generally have direct access to specialist care, but rather is a sign of the decentralized character of the Swedish health system. Moreover, while patients do have direct access in some cases, some **Swedish** regions have introduced lower co-payments for specialist services if the patient has obtained a referral beforehand. It is unclear how and whether the absence of nationwide formal gatekeeping in Sweden affects the proportion of health services provided by specialists. In **Iceland**, a combination of a low number of GPs and the absence of a gatekeeping function and referral system causes a significant proportion of primary health care to be provided by private specialists (22). A current focus in **Iceland** is to ensure that patients receive services at an appropriate service level and that the primary health centres are the first point of contact (15).

Different employment and remuneration conditions provide various incentives, including incentives for referral, collaborations, ensuring continuity in health care and flexibility in task shifting etc. In **Åland** GPs work as salaried employees in public health centres, and this is also the case for most GPs in **Finland**, **Sweden** and **Iceland**. Conversely, the GPs in **Denmark** and **Norway** are primarily self-employed and work on individual agreements. In **Norway**, this agreement is signed by the municipality and the GP and is based on a framework agreement, while in **Denmark** the agreement is signed by the Danish Organization of General Practitioners and the regions. In the **Faroe Islands**, GPs are formally employed and (partly) remunerated by the Healthcare Insurance (*Heilsutrygd*) based on an agreement similar to the Danish agreement. However, the GPs consider themselves as self-employed entrepreneurs, as in Denmark and

Norway, since they have employer responsibility. The hypothesis regarding the effect of the various employment statuses is moderately obvious; salaried physicians are hypothesized to have lower levels of activity but offer a high degree of budget control for the authorities (54). Conversely, it could be hypothesized that the salaried GPs have a greater willingness to collaborate with other sectors and institutions than private GPs who are paid by fee-for-service (FFS). The empirical evidence on the above hypothesis seems to be relatively limited (54). However, it is beyond the scope of this paper to provide a literature review of the empirical literature.

The Nordic countries have adopted different types of contracting methods for remunerating GPs. In **Denmark** and **Norway**, GPs are remunerated by capitation (approximately 30%) and FFS (approximately 70%). Since 2018, the capitation fee in **Denmark** has been differentiated on the basis of i) areas challenged by insufficient GP coverage and ii) list patient characteristics (age, gender, morbidity). In addition, there is an annual cap on FFS. The GPs in **the Faroe Islands** receive i) a fixed monthly fee, ii) a basic grant (capitation) and iii) tariff-based fees (FFS); FFS accounts for 65-75% of the payment. In 2017, a new payment scheme for primary care centres (called NCI) was introduced in the Capital Region of **Iceland** and it will be expanded to also include rural areas in 2021 (the current funding scheme in the rural area is salary based). NCI is a hybrid funding scheme including risk-adjusted capitation (80%), P4P (approximately 3%) and incentives to provide certain services (approximately 7%), and about 10% of the funding of the primary health centres is related to specific services (psychology services, interpreting service, school nursing and prescribed physical activity). The health care centres in **Åland** and **Finland** are financed by fixed budgets. The remuneration scheme in **Sweden** varies across regions but is mainly based on capitation with some FFS (approximately 0-3%). Furthermore, in **Iceland** and **Norway** special agreements on extra subsidies exist for GPs in, for instance, rural areas or areas characterized by recruitment challenges. Additionally, user fees with an annual cap are present in some of the countries (**Finland**, **Åland** and **Sweden** (free in one region)), with certain patient groups, e.g. children and elderly, being exempt. Overall, it can be concluded that the Nordic countries, except for **Finland** and **Åland**, use financial incentives to regulate primary health care.

In general, the primary health care centres employ a higher number of GPs compared to the individual general practices. Different types of general practice (solo, partnership, collaborative and sharing) exist in **Denmark**, but there is a trend towards an increasing number of collaborative practices; the average number of GPs per practice is two. In **Norway,** the GPs typically work solo (i.e. they have responsibility for their own patient list) but usually two-four GPs share a practice. Typically, the GPs in **the Faroe Islands** also work as independent solo practices. The number of GPs in health care centres varies according to the size of the centre, but in general the number is significantly higher compared to the number of GPs employed in individual practices in Denmark, Norway and the Faroe Islands**.** For instance, in the capital area of **Iceland**[9] the number of GPs employed in the health care centres ranges from 5 to 21.1 with an average of 8.13, and in **Sweden** the average number of GPs in the health centres is 4-5.

As a natural consequence of being organized as a health care centre (either as a single physical location or an organizational unit) employing various health care professionals, collaboration between different professions and team-based care is more frequent in these settings compared to in the individual practices (**Denmark**, **the Faroe Islands** and **Norway**). However, there seems to be a general trend towards increased task shifting and collaboration between

[9] It has not been possible to obtain data for rural areas.

the GPs and ancillary staff across the countries. In particular, nurses seem to play an increasingly bigger role in care delivery, e.g. in chronic care. In **Sweden**, nurses seem to have an even more extensive role. For instance, nurses may hold positions as head of a health care facility (77). In 2005 approximately 40% of primary care health centres were run by registered nurses (ibid.). The general trend of task delegation and multidisciplinary care is further addressed in Section 8.1.

Continuity is by definition a core element of primary health care (4) and also an area of concern in the Nordic countries. Having patients affiliated with specific GPs, a practice or a health centre is a way of (endeavouring to) ensuring continuity. In the **Faroe Islands**, **Norway** and **Finland**, patients generally have a specific GP whom they are either assigned to or choose themselves. In **Denmark** patients either have a specific GP (the case for solo and partnership practices) or a practice (the case for collaborative and sharing practice). In **Denmark** and the **Faroe Islands**, the freedom to choose a GP is geographically bounded. However, due to the shortage of GPs in Denmark, the free choice is more or less limited in practice. In **Sweden**, most patients are affiliated with a health care centre and it is up to the health care centre how and to which degree they assign individual patients to specific GPs. Also in **Åland** and **Iceland** patients are affiliated with a health care centre. In **Iceland**, patients are not formally affiliated with a specific GP but in practice, patients often consult the same GP. While all of the Nordic countries attempt to ensure continuity by assigning patients to a regular GP, practice or a regular health care centre, in practice the continuity may be challenged, e.g. by the shortage of GPs and the relatively wide use of short-term GPs in some of the countries (see Section 2.4).

6 Home nursing and care for chronic diseases

Earlier discharge of patients from hospitals entails increased task shifting from hospital to primary health care. This involves more tasks and increasingly more complex tasks to be managed by health professionals in home nursing. Moreover, the management of chronic diseases is being increasingly shifted to the primary health care sector, which requires strengthened coordination between different health care professionals and health care sectors.

This chapter describes the organization and outlines distinctive features of home nursing and care for chronic diseases in the Nordic countries. As compared to the previous chapter, the level of detail and elaboration is limited. This is partly due to local and regional variations in organization, as well as it being beyond the scope of this report to provide a thorough description of these variations. It also has to do with the fact that the approach chosen for this report has led to the organization of general practice and GPs receiving more focus than home nursing and care for chronic diseases.

6.1 Home nursing

Inspired by the Danish perception of the purpose of home nursing, the general purpose of home nursing in the Nordic Countries can be said to be to prevent illness, support health promotion and provide nursing and treatment, rehabilitation and palliation to patients in need. Hence, home nursing is provided to patients of all ages in cases of acute or chronic illness where nursing care is required. The goal is to enable the patient to stay in his/her own home (or nursing home) (78). In all of the Nordic countries, except **Finland**, home nursing is provided free of charge for the patients.

In **Denmark**, the municipalities are responsible for the provision of home nursing services. According to the Health Act, Section 138, all Danish citizens are entitled to home nursing when it is prescribed by a medical doctor, based on an assessment of individual need. The municipalities are also responsible for home care services, including practical help (e.g. cleaning and laundering) and personal care (e.g. bathing and shaving). These services are regulated by the Social Service Act, Section 83, and are thus not a part of the Health Act. There is considerable variation in the organization of home nursing services across the municipalities in terms of integration between home care and home nursing (79)**.** A survey of 51 of the 89 municipalities in June 2014 showed that home nursing was integrated with home care in only half (51%) of the municipalities (ibid.).

The services to be provided in home nursing are described in the Guide to the Act (80). As concerns quality standards of home nursing, such standards only exist for municipal emergency functions (81). There is no legal requirement for municipalities to provide an emergency function in home nursing, but if they choose to do so they must fulfil the quality standards described by the Danish Health Authority. The knowledge on scope and organization of emergency functions in home nursing is limited. However, there seems to be relatively large variation across countries (82).[10] The quality standards for municipal emergency functions in home

[10] In a report currently in preparation, VIVE is investigating the organization of the acute care area in 15 municipalities (82)

nursing contain requirements for the municipalities in terms of organization, target group, interventions, skills, equipment and quality assurance (81). The standards are binding and they are the first initiative in this field to provide a common framework for all municipalities. Furthermore, the quality standards contain recommendations for cooperation between sectors. The lack of quality standards for general home nursing means that there is some variation in services and quality across the 98 municipalities.

The coordination between home nursing (and municipality care services in general), the GP and the hospital is described in the mandatory health care agreements entered into by the municipalities and the regions, which are updated at least once every four years.

In the **Faroe Islands**, home nursing has previously been a task under the responsibility of the state but has recently been assigned to the municipalities. There is no formalized collaboration between the GPs and the home nurses but local initiatives exist. Because the health care professionals themselves are behind these initiatives, it varies across the country whether collaboration exists and how this works (informant).

In **Finland**, the responsibility of home nursing in general lies with the health care centres. However, the GP is responsible for his/her individual patients and patients need a referral from their GP to receive home nursing (83). Home nurses carry out tasks such as checking the patient's status, taking daily measurements, dispensing medication, taking care of wounds etc. (informant). Because the municipalities have recently had financial difficulties, home nurses are generally responsible for more patients than previously. This has led to an experience of having too much to do in too little time (informant). Home nursing is generally not free of charge; either a monthly fee is charged, or the patient is charged per visit, depending on the frequency of home nursing visits (informant). As previously mentioned (Section 4.3), home nursing includes home help services, and the joint provision of home nursing and home help services are referred to as 'home care' (43). In Finland, there are no specific requirements for the municipalities in terms of making acute care beds available as such. However, the health care centres may have inpatient wards for chronic care patients (informant).

In **Greenland**, the state is responsible for home nursing. However, Nuuk is the only area that has an extended and permanently staffed home nursing service. Nuuk has four home nurses who cover the capital's approx. 18,000 citizens. In the four other health regions, the regional hospitals (Aasiaat, Sisimiut, Ilulissat and Qaqortoq) are, in principle, responsible for home nursing (informant). However, what it is possible to provide in practice depends on the current resources on site, as no specific resources are allocated to this function. The need for home nursing in health centres and in settlement consultations is addressed in different ways: either by using existing staff from the health centre, through relatives or in collaboration with the municipality's home-helpers. In the smaller settlements, it is not possible to offer home nursing visits. Instead, non-health professionals, such as family or relatives, act as caregivers (informant).

In **Norway**, home nursing has been the responsibility of the municipalities since the mid-1970s (84). The home nurses take care of medication, nursing care such as wound care and taking relevant measurements (85). Home nursing is assigned by the municipalities based on assessment of individual needs. Home care, too, is the responsibility of the municipalities and includes practical assistance (e.g. cleaning and grocery shopping). As opposed to home nursing, home care is not free of charge, neither is it subject to a ceiling for cost-sharing (42). Since 2016, the municipalities in Norway have been required to make acute care beds available; these beds are used as an alternative to being hospital admission (86).They are primarily used for patients

with known conditions who are not expected to require more than three days of care (informant).

In **Iceland**, the home nursing is part of the primary health care system (i.e. under the responsibility of the state) with the exception of Reykjavik, where the municipality has been responsible for the provision of home nursing services since 2009. Typically, home nurses work as special units but in smaller cities, home nurses may be employed in the primary care centres. The reason for moving home nursing from primary health care to the municipality in Reykjavik was an ambition to integrate it with the social service, so that home nursing services and home social services are run together (informant).

No medical doctors are formally affiliated or collaborate with the home nursing services. Prior to the Covid-19 pandemic, this meant that home nurses would have to call the hospital if a medical opinion was needed during a home visit. However, during the pandemic this proved unfeasible and therefore it became possible for the home nurses to contact the health centres (or after hours clinics) during home visits (informant). Discussions of whether the organization of these services should be permanently re-designed are now ongoing. Though there has not been any formalized collaboration previously, local informal collaborations between GPs and home nurses do exist. Generally, it seems that there is a desire for closer collaboration between GP/primary care centres and the home nurses; in the primary care centres nurses are increasingly assuming new roles as contact persons and facilitators for the home care nurses (informant).

Home nursing tasks have not undergone any dramatic changes in recent years, but phone or online appointments are playing an increasingly bigger role. However, physical home visits still constitute the majority of appointments with home nurses. There are no requirements for the municipalities to provide acute care beds for patients being discharged from the hospital, but the municipalities have a few short-stay beds available (informant).

Home nursing in **Sweden** used to be a part of the health centres' responsibility, but has now moved to the municipalities (except for Stockholm where it is still provided by the regions' health care centres). This change reflects a general movement in Sweden towards having municipalities take on more primary health care tasks, and for home nursing this includes, in particular, care for people after discharge (informant). More generally, home nursing in Sweden is provided both at home and in nursing homes, and besides general nursing care it also includes specialist nursing care in areas such as dementia, social psychiatry, elderly care and chronic diseases. Home nursing in the municipalities thereby mirrors the nursing competencies found in the health centres. There is no national framework or agreement for collaboration between the municipalities' and the regions' health care centres when it comes to home nursing (informant).

Home nursing in **Åland** is provided by the country's two health care centres.

6.2 Care for patients with chronic diseases

In **Denmark**, the handling of chronic diseases is primarily coordinated at the regional level. The Danish Health Authority has developed a generic model for disease management programmes for chronic diseases (in Danish: *Forløbsprogrammer for kronisk sygdom – den generiske model*) (87). The generic model provides an overall framework and consistent systematic con-

tent of the disease management programmes that can help facilitate the preparation and implementation of programmes and allows comparison of efforts in different parts of the country. However, the specific content of disease management programmes for the different chronic diseases is coordinated in regional health care agreements between the region, the municipalities in the region and private practitioners. The agreement must be approved by the Danish Health Authority. An overview from early 2019 shows that all regions have prepared and implemented programmes for type 2 diabetes, COPD, cardiovascular diseases and lower back pain (88).

The purpose of the disease management programmes is to ensure treatment in accordance with the scientific evidence and the patients' preferences and with consideration of organization and resources. Among other issues, the regional disease management programmes describe the distribution of tasks between the hospital, the GP and the municipality. The clinical content of the disease management programmes for chronic diseases is expected to be relatively uniform across regions, as it is based on existing national clinical guidelines and visitation guidelines, as well as national recommendations and guides. Conversely, a larger variation in the organizational part of the programmes across the regions is expected (ibid.). The monitoring of the programmes is carried out on a regional/municipality level and to varying degrees. Consequently, it is not possible to collect overall quality indicators for the programmes.

Traditionally, patients with chronic diseases such as COPD and type 2 diabetes have, to a large extent, been managed in outpatient hospital care by physicians and to a lesser extent by GPs. However, in recent years there has been an increased focus on assigning the GPs a larger role in the treatment of chronic diseases and letting nurses in general practices take over part of the health care of the chronic patients. This development has been supported by financial incentives for the GPs (see Section 5.2.1 for further description) and the regions. In 2019 a new governance model for the regions was introduced (in Danish referred to as *nærhedsfinansiering*), under which approximately 2% of the financing of the somatic hospitals is conditional on whether the regions meet specific criteria. However, due to challenges in the implementation process of an updated national patient registry, the finance model has not been realized for 2019 and 2020, but in 2021 one of the four criteria is reduction in hospital activity per patient with chronic diseases (COPD and diabetes) (p. 9-10 in (89)).

As previously mentioned (Section 5.3), nurses are playing an increasingly large role in care of chronic diseases in general practice, though the complexity of tasks varies across practices; in some cases nurses now takes full responsibility for treatment, prescription and adjustment of medicine of some (uncomplicated) chronic patients.

In **Greenland**, the health centres are the main provider of chronic care services. The prevalence of, in particular, type 2 diabetes and other lifestyle-related chronic conditions has been on the rise in the last decades and the number is expected to increase significantly in the coming years, as described in Section 2.2. In November 2018, the Naalakkersuisut (Government of the Greenland) and the Novo Nordisk Foundation adopted a joint endeavour to strengthen diabetes and lifestyle interventions in the country with the establishment of Steno Diabetes Centre Greenland (SDCG)[11]. The aim of SDCG is to give a substantial boost to the treatment access and quality, as well as to research and development of diabetes and lifestyle interventions. Furthermore, the ambition of SDCG is to improve the treatment of patients with COPD and hypertension (11). SDCG was established by a donation of DDK 382 mill. from the

[11] Similarly, the Novo Nordisk Foundation has, in cooperation with each of the five Danish regions, established five outpatient diabetes centres in Denmark. The centres are called Steno Diabetes Centre Copenhagen, Steno Diabetes Centre Aarhus, Steno Diabetes Centre Odense, Steno Diabetes Centre North Jutland and Steno Diabetes Centre Zealand.

Novo Nordisk Foundation covering the period July 2020 to July 2030. Included in the donation is a grant for the construction of a building in Nuuk, were SDCG will be located. In addition to the donation from the Novo Nordisk Foundation, SDCG will be run by resources from the state (90).

In **Iceland**, the distinction between the task responsibility of the GPs and the private specialist physicians is generally not very clear and this also concerns the responsibility for chronic care. This means that patients with chronic conditions are being taken care of by both GPs and by private specialist physicians, particularly severe or complex chronic conditions (informant). Insulin-requiring diabetes patients are mainly managed in specialist clinics and not by the GP (informant). Currently, initiatives are being developed aiming at clarifying the responsibilities at different care levels, i.e. general practice, specialist clinics and hospitals (15).

Sweden has had a focus on moving the treatment and follow-up on people with chronic diseases from the hospitals to the health care centres in the primary health care sector for several years. Therefore, in practice chronic diseases in Sweden is primarily the responsibility of the health care centres, and there are typically specialist nurses who monitor, follow-up on and work out treatment plans for patients with key chronic diseases, such as type 2 diabetes, COPD and asthma. Most (80%) of the health care centres in Sweden are connected to a national quality system for primary health care, called *PrimärvardsKvalitet* (Primary Care Quality), allowing data and treatment plans for the individual patient to be supplemented with tools for real time, aggregated data analysis and benchmarking of chronic care.

In **Norway**, following up on patients with chronic conditions takes up a large part of the work of the GPs – as previously mentioned (Section 5.2.1), probably (partly) triggered by the Norwegian Coordination Reform in 2012. The aim of implementing the current GP scheme (*fastlegeordningen*) was to improve continuity of care, particularly for specific patient groups, e.g. people with chronic conditions (66). The responsibility of chronic care is not stipulated anywhere as such, but according to the GP regulation (*Fastlegeforskriften*) the GP is responsible for all patients on his/her list, i.e. also chronic patients. In the evaluation of the GP scheme from 2019, however, it is concluded that the GPs experience challenges as to providing proper services for chronic patients due to the increased workload (ibid.). The Health Directorate, the Norwegian Association of Local and Regional Authorities and the regional health authorities have formulated guidelines and standards for the management and coordination of care of chronic patients between the hospital and primary health care sector. Moreover, national clinical guidelines for chronic conditions such as type 2 diabetes, COPD and cardiovascular disease have been prepared, but the effects of these guidelines have not been evaluated (informant).

In **Finland**, coordination of care for chronic patients is a shared responsibility between hospital districts and the municipalities (91). However, there is a long tradition of the health care centres (i.e. the municipalities) being the main providers of chronic care services and the GP being in charge of diagnosis and deciding upon treatment. Finland has both national guidelines for a number of chronic diseases and local care pathways (informant). As addressed in Section 5.4, initiatives to strengthen the collaboration between GPs and nurses in chronic care are currently ongoing. These primarily concern chronic conditions such as hypertension and non-complicated type 2 diabetes. In order to ensure coordination of care of elderly medical patients, the municipalities in a hospital district must prepare a plan for the collaboration between the municipal health care providers and the emergency departments at the hospitals (52).

It has not been possible to obtain detailed information on the field of chronic care in the **Faroe Islands**. However, type 2 diabetes is an example of a condition that has previously been managed in ambulatories but have now been shifted to the GPs due to capacity issues. Shifting this task to the GP involved educating nurses and offering guidance by a specialist physician, who visited the GP practice. In general, both GPs and nurses in general practice are involved in the care of chronic patients (informant).

In **Åland**, the responsibility for chronic care lies with the health care centres, which take care of these patients.

6.3 Concluding remarks

Home nursing and care for chronic diseases are two domains of primary health care of increasing importance and scope, due to some of the challenges previously described in Section 2.2.

In some countries, home nursing services are part of the health care centres (**Finland** and **Åland**), while in others they are provided by separate units (**Denmark**, the **Faroe Islands**, **Norway**, **Sweden** (except in Stockholm) and **Iceland**). In **Greenland**, Nuuk stands out as it is the only areas having an extended home nursing service with permanent staff. In all of the countries except for **Finland**, home nursing is free of charge. The integration of home nursing and home care and social services varies across countries.

The increased number and complexity of patients in need of home care stresses the importance of coordination and collaboration between health care providers, particularly the GP and the health professionals in home nursing. However, the extent of (formalized) collaboration varies. For instance, in **Denmark** coordination of home nursing services is set out and described in the mandatory health care agreements entered into by the municipalities and the regions, whereas collaborations in the **Faroe Islands** are locally initiated when needed. In **Iceland**, the Covid-19 pandemic has triggered a change in workflow, which means that home nurses on home visits, during this period, have been able to contact the primary care centre if needed. Prior to the pandemic, the home nurses would have to contact the hospital to receive medical advice.

The use of acute beds in municipalities/health centres seems to be an area in development in (some of) the Nordic countries. It has not been possible to provide a detailed description of this area in the current report, but this is an obvious area for future analyses.

Care of chronic diseases is also an expanding field in primary health care in all of the Nordic countries. Typically, the management of chronic patients with, for instance, uncomplicated type 2 diabetes, hypertension and COPD takes place in health centres or in general practice. GPs are involved, but in several of the countries the nurses play an increasingly large role as well (e.g. in **Denmark**, the **Faroe Islands**, **Finland**, **Sweden**). In **Iceland**, the boundaries between the responsibility of the GP and the private specialist physicians are not very clear, meaning that chronic patients are handled in both settings. However, a clarification of the responsibilities of GPs, private specialist clinics and the hospitals, respectively, is currently in progress.

Due to the complexity and long duration of chronic diseases, several health care professionals in different settings and in different sectors will usually be involved in some stages of the disease course. Therefore, division of tasks and responsibilities among relevant actors is a relevant consideration when organizing the care for chronic diseases. Likewise, well-established

systems for measuring and monitoring quality indicators can support improvement in care delivery. In this regard, Sweden stands out as the majority of health care centres – which take care of chronic patients – are connected to a national quality system for primary health care, enabling benchmarking of chronic care. The subject of systems for monitoring quality is further addressed in Section 7.3.

7 After-hours services, eHealth and quality monitoring

Traditionally, the primary health care sector has been characterized by providing health care services in the usual working hours (excluding home nursing). However, as the scope and complexity of tasks handled in primary health care increases, so does the need for an appropriate framework for providing after hours medical services.

In the Nordic countries, digital solutions for recording and exchanging data, as well as providing health care services, are receiving increasing attention. The former is aiming at facilitating coordination and continuity of care. However, challenges still exist to developing proper integration of systems enabling providers across the primary health care sector to access the same data. The latter particularly includes the use of digital alternatives to physical consultations – a development that has been further reinforced by the Covid-19 pandemic.

Monitoring of the quality of the primary health care services is relatively underdeveloped in the Nordic countries, in comparison to the specialized areas. With the prospect of primary health care taking on a greater part of the health care services, systematic collection of quality data for monitoring and improving the primary health care services is pertinent.

This chapter describes topics which have emerged during our research and which seem pivotal in the context of primary health care, as they are either used as potential solutions to some of the challenges experienced (telemedicine) or are deemed essential for the continuous development of the primary health care sector (after hours services, electronic health records and quality monitoring).

7.1 After hours services

In the context of shorter hospital stays and the increasing complexity of health care tasks in primary health care, patients treated in this setting may be more acute than previously, increasing the need for availability of medical care 24/7. None of the Nordic countries offer 24/7 services in either general practice or the primary health care centres. Therefore, different arrangements are needed outside the usual working hours. Though medical after hours services are organized differently across the Nordic countries, common features exist. For instance, GPs are typically involved in the provision of after-hours services. This chapter describes the organization and provision of after hours medical services (excluding home nursing) in the Nordic countries.

In **Denmark**, duty doctor services have been the responsibility of the regions since 1992. Until 2014, all five regions had an agreement with the Danish Organization of General Practitioners

on duty doctor services, including consultations by phone, home visits and face-to-face consultations at the doctors on call (92). In 2014, the Capital Region chose to purchase the service which is now provided by 'the emergency phone' 1813. 1813 provides consultations by phone and home visits. Moreover, a referral for an outpatient appointment at the hospital can be obtained, as the service does not cover face-to-face consultations (ibid.). One region (the Region of Zealand) has two parallel after hours services; one for illnesses and one for injuries. Health care personnel providing after hours services vary depending on the specific service and across regions. In all regions, home visits are carried out by doctors only; face-to-face consultations are provided by doctors and sometimes other regional health care personnel; and consultations by phone are provided by doctors and/or nurses. Doctors providing after hours services can be either GPs or doctors with a license for after hours service provision (ibid.). In some of the regions, other staff, such as social and health care assistants and medical secretaries, are used for various tasks as well (ibid). The GPs can choose the amount of work in after hours services as they wish and will receive (higher) payment accordingly (93)

In the **Faroe Islands**, one duty service covers the whole country. The services are provided at three different locations (one at the main hospital and two in the north and the south, respectively), or patients can receive medical advice by phone. The services are run by GPs (in addition to their work in general practice) employed by the national health service and hospital-employed nurses. However, the duty roster is made by the trades union. This organization is considered somewhat confusing by some actors. Hence, discussions about re-organizing the provision of after hours services are ongoing (informant).

The primary care centres in **Iceland** are typically open from 8-18 on weekdays and in some areas also from 9-12 on Saturdays. Most of the health care centres in the cities have standby services for a couple of hours after the typical opening hours (94). Alternatively, the centres have a doctor or a nurse on call who can be contacted online or by phone after hours. To improve after hours services in rural areas, regions are encouraged to support the development of health centre networks in these communities (22). *Læknavaktin* is an after-hours clinic in the Capital area where the patients do not need an appointment. This clinic is privately operated under a contract between the Icelandic Health Insurance and GPs working in the primary care centres (95). GPs receive service fees for providing after hours work in addition to their general work.

The municipalities in **Norway** are responsible for after hours services and the intention is that these services are provided by the GPs. However, in some places, especially larger cities, other health care personnel may contribute to providing after hours services. According to the GP regulation (*fastlegeforskriften)*, the GP is required to participate in municipal after hours services in addition to his/her other tasks (96). The municipality can exempt GPs from after hours services on request on the grounds of health-related or social reasons. Moreover, GPs are eligible for exemption when they reach 60 years of age (ibid.). Contributing to after hours services does not seem to decrease the weekly working hours; GPs providing after hours services actually work more than GPs not participating in these services and the after hours services account for 19.5 hours per week (28). Because after hours services constitute a large workload for GPs, the Norwegian Ministry of Health and Care Services plans to gain increased insight into this area, including experiences with different ways of organizing these services (25).

From 2018 to 2021 a project is being piloted in two geographical areas in Norway, which includes establishing an inter-municipal duty doctor service. One GP will be appointed responsible for the coordinating and quality of after hours services and, so-called duty doctor satellites will be introduced in rural areas of sparse populations (66).

In **Finland**, in the other hand, GPs are not obliged to participate in the provision of after hours services but are paid extra if they choose to work outside normal working hours. In general, the opening hours of the health stations are weekdays from 8-16 but some centres also offer services during the weekends. The responsibility for after hours services lies with the hospital district. Acute treatment during after hours or weekends are provided at emergency clinics. Duty doctor services are usually provided at specific hospital departments or in separate on-call centres. Health care professionals involved in after hours services include GPs (who might be working in the local health centre) and triage nurses employed at the hospital, whose job it is to check the patients before they see the doctor. In the on-call centres, they have a 'GP lane' and a 'specialist lane' intended for different patients, depending on their condition and needs. From the national level, however, there is a wish for the health care centres to extend their working hours (informant).

In **Sweden**, after hours services are the regions' responsibility. The specific organization and opening hours may vary from region to region. GPs are on duty in call centres covering an area of two-three municipalities in a region and offering phone consultations and home visits when necessary. Moreover, digital solutions for after hours video consultations have been introduced. If home visits are needed but not feasible due to the supply/demand ratio, the patient must go to the emergency unit (informant and (23)). However, to reduce after hours emergency department utilization, urgent health care centres are open evenings and weekends in most areas, typically until 10:00 pm (informant).

The two health centres in **Åland** are open from 8-16 on weekdays and from 9-15.30 in weekends and during public holidays. To receive medical advice or assistance outside the health centres' opening hours, patients have to consult the hospital (informant).

7.2 Application of eHealth in primary health care

Information and communication technologies and digital solutions in health care, often referred to as *eHealth*, are increasingly being used, a development that is expected to continue in the years ahead. This application of eHealth can facilitate communication and cooperation by making relevant patient data available for health care actors across the sector, e.g. through mutual electronic health records. Moreover, digital solutions such as telemedicine and home-monitoring technologies can support patients in managing their own health, improve access to care (97) and function as a substitute for doctor shortage in rural areas. This chapter focuses on the use of electronic health records and telemedicine at the primary health care level across the Nordic countries.

7.2.1 Electronic Health Records

In 2003, **Denmark** launched the public, internet-based portal *sundhed.dk* at the initiative of the Association of County Councils in Denmark, the Ministry of Interior and Health and other actors. The portal contains quality assured health information, provides access to medical records and medication and offers an overview of the Danish healthcare system. All Danish citizens can access the portal and are assigned a personal page, allowing retrieval of information about

treatments and diagnoses from the hospital record, renewal of prescriptions, monitoring of drug compliance, booking of appointments with the GP etc. Though the portal is accessible to all types of health care professionals, its focus has, until now, been on tools for the GPs; a class of health care professionals constituting a group of very frequent users (98). In addition to the public portal *sundhed.dk*, electronic medical record systems exist at hospital and GP level, respectively. At the GP level (and hospital level), several electronic medical record system exist, and the GPs can therefore choose whatever supplier they like – generally the system contains the same features. This system is being used in all GP practices, and all prescriptions and referrals are digital (93). Each of the municipalities has municipal care journals (in Danish: *kommunale omsorgsjournaler (EOJ)*); these registries contain information on health care provided by the municipalities (99). The electronic communication infrastructure between GPs, municipalities and hospitals are facilitated by MedCom standards. MedCom[12] is developing standards and profiles for the exchange of health care related data throughout the entire Danish health care sector. The MedCom standards define what information should be sent in a specific message or shared between health care professionals. The standards make communication possible between different information technologies systems and across different sectors (100). The standards concern, for instance, prescription forms, discharge letters from hospitals, referrals from general practice to hospitals, notifications from hospitals to municipalities about admissions and discharges etc. In general, there is a widespread use of electronic communication in the health care sector in Denmark. Despite this, lack of proper infrastructure and legal barriers for exchange of data still prevent a proper integration of the municipal system, the system used in general practice and the system used in hospitals (101).

In **Finland**, increased use of eHealth in the health care system is a current focal point at the ministerial level, with the aim of promoting greater care coordination. *The National Patient Data Repository* is a nationwide electronic patient record that includes all public and private health care providers, enabling electronic drug prescriptions and providing clinical information accessible for both health care professionals and the patients themselves (informant). Access to a patient's medical record is, in principle, limited to health care professionals in the patient's health care centre, but providers at the hospital level can access the record with permission from the patient. Most often, patients allow this. Some access restrictions exist in relation to mental health treatment etc., which is not always visible for health care professionals within somatic care (informant). Though the system is in use and has covered the entire Finnish population since 2016, it is not expected to be fully operative until 2023 (50).

The electronic patient record in the **Faroe Islands** is called *Talgild Heilsu Skipan* (THS) and has gradually been expanded since its introduction 10-15 years ago. Every citizen is registered at birth, and from then on his/her medical history is tracked in the record (informant). Currently, the system is only accessible to health care professionals at the hospital and GP. As in Finland, there are some access restrictions with regard to the patient's mental health medical history. The municipal health care providers and the patients themselves do not have access to the records. However, discussions of expanding the access to also include the patients are ongoing, inspired by the Danish portal *sundhed.dk* (informant). Moreover, a project is currently being piloted involving expansion of the access to some nursing homes. If the project turns out to be successful, the plan is to roll out the system in all nursing homes. The THS is the primary platform for communication between health care professionals and also serves as an electronic referral system. In primary health care, the registration of data is not systematic as there is no

[12] MedCom is financed and owned by The Ministry of Health, Danish Regions and Local Government Denmark.

guideline or procedure to be followed. Moreover, the GPs are not able to retrieve data from the system themselves (informant) (see also Section 7.3).

There is a shared electronic patient record system for health services in **Greenland** called Cosmic. Cosmic is available on all health units in Greenland, including settlement consultations. Cosmic is a "traditional" journal, but the system also includes a shared booking system. In addition, all health data is recorded and collected in Cosmic (11).

In **Iceland**, the electronic medical record system includes specialist care providers and primary care centres but does not integrate both public and private clinics. Moreover, the system is not uniform across the seven health regions, i.e. several electronic medical record systems exist. However, prescription medicine and a number of clinical test results are accessible across sectors and health regions. A fully shared and interconnected medical record system is currently under development (informant). All national eHealth projects in Iceland are overseen by the Directorate of Health. Focal points in the Directorate's current eHealth strategies are ensuring seamless access to the patients' medical history for both health care professionals and patients themselves, ensuring security and quality of the clinical information contained in the records, and to enhance data retrieval from the records (22). According to the Ministry of Health, there is still room for improvement in terms of facilitating data registration and simplifying the use of the system (15).

In 2016, the Norwegian Directorate of eHealth (NDE) was established as an institution under the Ministry of Health and Care Services in **Norway** (51). The objective of the NDE is to develop national eHealth policies, to coordinate initiatives between regional health authorities, municipalities and other health care actors, and to launch services to improve health system efficiency (ibid.). Currently, the independent health care providers have their own systems for documentation, patient administration etc., and these systems are being developed by a number of different providers (informant). In selected areas, national eHealth solutions also exist, e.g. platforms facilitating electronic prescriptions, referrals, exchange of test results etc. (informant). Moreover, all Norwegian citizens can access personal health information, electronic drug prescriptions, referrals and scheduled appointments in an online platform (*helsenorge.no*) (informant and (51)). *Kjernejournal* is a platform used by more or less all general practices, which contains clinically important patient information. In December 2019, the first nursing home implemented this platform, and currently six municipalities are in the process of implementing *Kjernejournal*. In June 2018, the NDE delivered a report assessing possible concepts of a national record system for municipal health and social care services. This report suggests the development of a national patient record and collaboration solution for all municipal health care actors (66). According to the Ministry of Health and Care Services, *helsenorge.no* and *Kjernejournal* are examples of digital solutionsthat should be further developed and implemented across the entire health care system to improve coordination between different health care actors (25). The process of with developing a national solution for the municipal health and social services as well as a national solution for combining different systems has been named *Akson* (ibid.).

In **Sweden**, national electronic health records were introduced in 2009 (13). Electronic health records are used for administration and for follow-up on patients. Moreover, data are transferred to the national system *Primary Care Quality* for quality improvement in primary health care (ibid.). Health care centres in one region can either have the same or different systems – this varies across regions (informant). Moreover, regional variations exist as to the level of integration between systems at the hospital level and the health care centre level, respectively.

This means that in some regions health care centres and hospital have access to the same patient data, whereas this is not the case in other regions (informant).

The health care system in **Åland** has a shared electronic medical record system. In addition, parts of the electronic medical record system are compatible with the electronic home care record system (social services), which means that they have access to the same medical record list and thus can see when there are changes (informant).

7.2.2 Telemedicine

Telemedicine is a collective term for electronic solutions for communicating, diagnosing, treating, etc., patients remotely, e.g. by videoconferencing or through different types of (online) applications for measuring or sharing data between patient and provider. Though this chapter focuses on the application of telemedicine in primary health care, telemedical solutions also facilitate hospital treatment at home supported by primary health care personnel, e.g. the home nurse. For instance, persons with chronic diseases can be remotely monitored by means of measuring devices that send data via a secure internet connection. This saves time for the patients, who do not need to see their own doctor, nurse or the hospital, and the healthcare staff can spend the time thus saved on other patients.

In all of the Nordic countries, telemedicine is recognized as a means to achieve effectiveness and convenience in care delivery. The increased use of telemedicine has been further reinforced by the Covid-19 pandemic. In Denmark, for instance, the Covid-19 pandemic has triggered a peak in the use of video consultations in general practice using the existing app "My Doctor" (in Danish: *MinLæge*).

In **Denmark**, a national action plan for the further distribution of telemedicine solutions was introduced in 2012 by the Danish government, Danish regions and Local Governments (102). The goal of the plan was first of all to increase the use of telemedicine in the health care sector. Furthermore, the plan operates with five specific telemedicine initiatives to be used as a basis for decision on a possible national use of telemedicine, including establishing a national infrastructure for telemedicine (which is still under development). One of the initiatives *telemedical wound assessment* (in Danish: Telemedicinsk sårvurdering) has now been now implemented in all municipalities and regions (103). The result is the web-based system, *care.net* (in Danish: Pleje.net), which supports the cross-sectoral and telemedicine collaboration on patients with wounds. In this system, the information flow starts in the municipality when a trained wound nurse creates a patient in *care.net*. A patient is created when the wound nurse assesses that the wound is severe enough to be assessed by other health care professionals. The nurse takes pictures of the wound based on predefined guidelines and subsequently sends the pictures and a text description of the wound to the GP. If the GP chooses to refer the patient to the hospital, the collaboration between the hospital and the municipality will continue in *care.net*. In this way, wounds are monitored and documented in text and images in *care.net* with the purpose of optimizing wound care (ibid.).

Another initiative of the Danish national action plan was telemedical in-home monitoring of COPD patients. It has subsequently been decided to disseminate this to all relevant patients in Denmark by the end of 2019 (104,105). However, this decision has not yet materialized. With the telemedical support of patients with COPD, the patients measure their oxygen saturation, heart rate, weight, symptom score, chair test and blood pressure – if deemed medically relevant – at home once every 14 days. Moreover, the patients answer questions about their illness,

and via a tablet, all data is sent to health care professionals in their municipality or at the hospital (106). The municipality or the hospital follows up on the measurements, and if any values change significantly the staff can contact the patient. The purpose of telemedical home monitoring of COPD patients is to support self-management of their diseases. Furthermore, a national distribution of telemedicine to citizens with heart failure was agreed upon by the Danish government, Danish regions and Local Governments with the finance agreement of 2021 (89,107); the final date for nationwide dissemination of the offer will be agreed with the finance agreement of 2022.

In **Sweden**, the use of digital tools for providing primary health care has increased, e.g. in the use of video conferences and text messages. During 2017, the number of digital contacts in primary health care doubled, and 99% of all medical prescriptions are currently given online (European Commission 2019). Video consultations are offered in the regions by both public and private health care centres. Besides this, a number of private companies operate outside the regional framework, offering after hours digital consultations with a range of professions, including GPs, midwives, physiotherapists, and psychologists. The health care professionals offering their services in these companies may have daily jobs at health care centres or hospitals, or they may work solely for the company (informant). Although the private companies operate outside the regional system, their services are still financed by the regions. The costs of these online, app-based consultation services are measured in single fees and are taken from the regional budgets for primary health care, and in some cases directly from the individual health care centre where the patient is registered, in which case the health care centre loses some control of the budget (informant). Currently, the government is examining strategies to improve equity, e.g. by using digital health care (13).

In 2008, **Greenland** introduced the telemedical store-and-forward solution *Pipaluk (108)*. Pipaluk is a computer that contains special software designed for use by people with scarce health education and limited IT skills, and therefore it includes checklists to support the health care professionals. The system was developed to make an easily accessible health care service available for inhabitants in smaller villages and settlements. The development of *Pipaluk* was motivated by the large distances to GP clinics and hospitals in Greenland, and the aim is to improve access to consultations by using videoconferencing instead of physical consultations (11). *Pipaluk* makes it possible to measure blood pressure, carry out saturation, take ECGs etc. Moreover, the system provides certain evaluation forms and can assist pulmonary function tests *(108)*. However, the software is no longer serviced and *Pipaluk* will be phased out within a few years. Therefore, the health care system will need to implement a new telemedical tool to ensure equal access to health care services (11). An important focus area for the first years of the newly established Steno Diabetes Centre Greenland (see Section 6.2 for further description) is to strengthen and develop the telemedicine infrastructure in Greenland, and herby implement new telemedicine solutions throughout the country (ibid.). In addition to Pipaluk, other forms of telemedicine are also used in Greenland. In particular, Skype is widely used (informant).

In **Norway**, GPs are increasingly offering digital services such as e-consultations, renewal of prescriptions, scheduling of appointments and electronic contact to the GP's office through *Helsenorge.no* (109). Electronic consultations can be in the form of either text messages or video conferencing. Who takes the initiative to use electronic communication varies across primary and specialist health care. At the GP level, the patient himself decides whether the consultation should be conducted by video, text or physical attendance. At the hospital level, on the other hand, this decision is made by the clinician (110). The Covid-19 pandemic has

triggered a rapid and significant increase in the use of videoconferencing for consultations in general practice. Before the Covid-19 crisis, 1,400 out of the ~ 5,000 Norwegian GPs offered digital communication. In June 2020, this was offered by more or less all GPs (ibid.). Increased use of digital consultations is also mentioned in the action plan for general practice, which also states that digital solutions in general should be an integrated part of the patient pathway in the future, e.g. in the form of digital follow-up on patients in their own homes (25).

In recent years, **Finland** too has witnessed an increase in electronic consultation letters and teleconsultations through videoconferencing (111). As to teleconsultations, a survey conducted by the Finnish Institute of Health and Welfare in 2018, 67% of hospital districts reported using videoconferencing in 2014, but by 2017 this proportion had increased to 86%. The same survey showed that 39% of the health care centres used teleconsultation services; an increase by 6 percentage points from 33% in 2014 (112). Psychiatry and neurology were the primary specialties that made use of teleconsultations. As to the private health care providers, five out of 26 reported using teleconsultations, compared to three in 2014 (ibid.).

Also the use of electronic referrals has increased in the past decade. Videoconferencing is not only used for communication between provider and patients but also for communication between different health care professionals. Though team-based care is often provided at one location – i.e. the health care professionals providing the treatment are located in the same building – videoconferencing allows health professionals to work together as a team in spite of having different locations (informant).

Finally, as previously mentioned in Section 2.4, the Finnish government is currently in the process of freeing funds for improving the area of digitalization, with the intention of improving access to care (informant).

In **Iceland**, the use of telemedicine is increasingly being used to improve access to primary health care in sparsely-populated areas and in areas characterized by shortage of GPs; a development expected to continue in the years ahead (informant and (15,22)). One example of telemedicine in Iceland is the Klaustur (rural village) project initiated in 2013, which provides digital services for consultations and medical guidance in southern Iceland (22). In this project, a doctor visits a telemedicine clinic in Klaustur twice a month. In his/her absence, the GP instead supports a nurse via phone or computer in managing primary health care matters. Currently, the Klaustur project has been expanded and includes nine clinics in total, located in the Southern and Eastern Regions (ibid.). Another project has been initiated by the company Siminn, which provides telecommunication services for patients at sea. This involves retrieving and adding data from the patient's electronic health record, while communicating electronically with the patient (ibid.).

Until now, the use of telemedicine in Iceland has not been organized as such, i.e. health care providers have been using the technologies to varying degrees depending on their own interest. This also means that different services for facilitating telemedicine exist. The medical director in the regions sets criteria for choosing a system (e.g. relating to security), and then the providers are free to choose the supplier themselves. Also in Iceland, digital communication has increased during the Covid-19 pandemic in the form of video consultations.

The use of telemedicine is relatively limited in **Åland**, where it is used in relation to psychological treatment (informant). It has not been possible to obtain information on the use of telemedicine in the **Faroe Islands**.

7.3 How is the quality of primary health care providers monitored

Generally, there is limited monitoring of the quality of primary health care provision in the Nordic countries. Sweden is the only one of the eight countries that systematically monitors primary health care quality by automatically collecting and transferring data from regional and health care centre level to a national database. In the remaining countries, different registers and databases may exist but these are limited by, for instance, having no systematic recording, not allowing comparison of data between units and not allowing retrieval of the recorded data. Due to the limited monitoring of quality in the Nordic countries, not all countries are included in the following section.

In **Denmark**, various registries for monitoring quality and patient outcomes exist but they primarily concern specialized rather than primary health care. In 2007, the database DAMD (Danish General Practice Database) was introduced with the purpose of aiding quality assurance and improvement at the primary health care level. DAMD was initially limited to the diagnosis of diabetes, but within a few years DAMD was expanded to include all ICPC diagnosis data from general practice and contained data on all citizens who had visited their GP (113,114). However, the expansion of DAMD did not align with the Danish health care act, which stipulates that GPs are allowed to transfer data to a third party without consent from the patients but only if this concerns *limited groups of patients*. For this reason, DAMD was suspended and later deleted (113). On the one hand, the case of DAMD demonstrated the values of a national system for quality assurance *and* improvement – it benefitted health care providers by making it easy for them to work statistically with quality improvement on patient populations and share data for better coordination across sectors (115). On the other hand, the case also demonstrated how ensuring that the legal requirements of data collection are met is necessary for a sustainable data infrastructure. Current initiatives in Denmark on data and quality are characterized by a focus on clearly distinguishing purposes of local quality improvement from centralized quality control. This is reflected in the initiative to replace accreditation in GP practices with local quality clusters, where GPs convene for data-driven quality improvement in areas of their own choosing (71). The Danish cluster model is therefore not a platform for national quality monitoring, but it is worthy of mention here as a reminder that data collection might be experienced by professionals as control and a threat to professional autonomy. Especially because many GPs in Denmark operate as solo-practices, the fear of “public shaming” may weigh extra heavily on the individual, because public display of poor quality performance is the responsibility of a single privately operating GP and not the responsibility of a professional collective of publicly employed professionals, as would be the case in Finland and Sweden (although for Sweden only within a region, as single health care centres cannot be identified in the aggregated data, used at the national level).

Over the past eight years, **Sweden** has developed a nationwide system for monitoring and improving quality in primary health care. This is done via the *Primary Care Quality* system, which is run by the regions and based on data from the health care centres’ electronic medical records. These data are automatically collected and transferred to a national service function, where average values are calculated and returned to the local level for benchmarking and improvement. Sweden has learned from the experiences in Denmark, i.e. the importance of legal and privacy rights. Therefore, data are aggregated before being sent to the national level, making it impossible to identify individual patients. The system contains around 150 indicators and is most developed at the regional level and at primary care centre level, where it supports quality improvement and research in a number of ways. Indicators are either diagnosis-specific, supporting, for instance, follow-up on individual patients, or they are comprehensive indicators

for broader aims and tasks for primary health care, including indicators of continuity, comorbidity, lifestyle, pharmaceuticals and frail elderly people. The latter indicators are used in some cases at the regional level in relation to dialogue with the health care centres in the region about the challenges, aims and strategies for improving primary health care. Data-based interactions between regions and health care centres are still relatively new, and, depending on the actual use of the regional monitoring, some health care centres may fear that regional quality monitoring would be used for control purposes (informant). At the national level, some indicators for primary health care have been introduced, in June 2020, on the website www.vardenisiffror.se ("health care in numbers"). This website contains a rich collection of indicators of the Swedish health care system, though primarily relating to the secondary sector. The recently introduced indicators for primary health care include prevalence of dementia, COPD, type 2 diabetes 2 and the use of antibiotics nationally and across regions (116).

The *Primary Care Quality* system does not have full coverage, including data from 80% of the health care centres. It is up to the regional councils to decide to connect to the system, and it varies across regions how a decision to connect is then implemented. The regions have to invest in technical solutions and software to connect to the system. In some regions, it is made mandatory for the health care centres to connect to the system, while in other regions it is offered as a choice. In some regions, the health care centres have to pay a license to connect, in others it is free (informant).

While supporting the aforementioned national indicators, the *Primary Care Quality* system is not based on a national registry. However, The Swedish National Board of Health and Welfare has been given the task of investigating the legal and practical possibilities of collecting patient data from primary health care to a national registry. This work is in progress and final reporting of the project is due in February 2021. Closely related to this, the National Board of Health and Welfare is also conducting an analysis of the preconditions for collecting primary health care result information from the regions and municipalities at an aggregate level for monitoring of the Government's primary health care reform. So far, this assignment has presented a first preliminary proposal of indicators and a review of the legal preconditions for collecting aggregate result information. The conclusion is that the current legal framework permits the collection of data from private primary health care providers to a limited extent only (informant).

Monitoring of the health care system in **Finland** mainly relates to patient safety in specialist care. Currently, there are no national monitoring mechanisms in place. In 2018, the Finnish Parliament granted funding of € 1.5 million to the National Institute of Health and Welfare to promote the development of nationally unified quality registries. Some local and regional quality registries exist, but these registries do not enable comparison across different regions and providers in different regions (117). Many of the health care centres have some kind of database for recording unintended events etc. The registrations are done by the health care personnel, but this is not mandatory. The cases recorded in the databases can be discussed in the specific unit for learning purposes. In spring of 2019, the Finnish parliament also passed an act on secondary use of health and social care data, which aims to encourage the use of registry data in medical research and development initiatives (118). Moreover, a national centre for patient safety is under development but has not yet been officially established.

Ensuring persistent and/or increased performance, knowledge and skills among GPs is endeavoured through participation in the *Continuing Medical Education programme*. Furthermore, regular renewal/updating of GP licenses has been discussed, i.e. whether it should be

mandatory for GPs to somehow keep updated in order to retain their license to work as a GP (informant).

In the **Faroe Islands**, supervision of authorized health care providers is carried out by Landslægen on behalf of the Danish Patient Safety Authority, but no formal monitoring schemes exist. The GPs do record data in the electronic patient record (see Section 7.2.1), however, but this is not done in a systematic matter as there are no guidelines or requirements as to either the frequency or content of the registration. Moreover, providers are not able to retrieve data from the record, though a strong desire for this has been expressed by the GPs. Also, GPs have requested some kind of bonus scheme involving rewards for meeting predefined quality criteria.

In **Iceland**, the Icelandic Health Insurance and the Medical Director are responsible for the quality control and the collection of quality indicators, e.g. relating to access, vaccination and monitoring of high blood pressure. The collection of quality indicators is usually carried out every month. As to GP services, quality control is partly integrated in the remuneration through P4P, which has recently been introduced in some of the primary care centres.

National indicators of the quality of specialist care is monitored in **Norway** and recorded in 53 national quality registries (51). However, when it comes to the quality of services provided in primary health care, no formal monitoring is in place. According to the GP regulation (*Fastlegeforskriften*), the municipalities are responsible for ensuring adequate GP services "where predefined quality and function requirements are met" (96). This involves working systematically with quality improvement and patient safety (ibid.). Moreover, the GP is required to provide services "according to the requirements laid down by law, updated knowledge and national guidelines" (ibid.). In practice, however, knowledge on clinical quality in general practice and in primary health care in general is sparse. Municipal follow-up on clinical quality in general practice is generally limited compared to the organizational quality (e.g. opening hours, waiting times and complaints) (66). In the Evaluation of the GP regulation (2019), it is concluded that developing more quality indicators and control mechanisms should be considered, to enable the assessment of quality over time and across municipalities (ibid.). And in the action plan for general practice May 2020, the Ministry of Health and Care Services declares that the Health Directorate will be commissioned to assess how a national system for systematic work with quality improvement and patient safety in general practice (25). In general practice specifically, recorded data primarily comprise data linked to financing, e.g. the number of consultations, number of yearly controls etc. Norway has previously had an educational programme for GPs to ensure continuous knowledge updating. However, as this programme seen as discriminating between specialties, it has been repealed. Currently, the Norwegian Electronic Medical Handbook (NEL) is used as clinical decision support among GPs.

7.4 Concluding remarks

An appropriate framework for after hours services is essential, to ensure that patients with urgent medical issues have access to care when their usual health care provider is not available. The increasing complexity of health care tasks to be handled in primary health care further underline that adequate medical services should be made available outside the typical working hours. Among the Nordic countries, it seems that the GPs are generally perceived as a relevant actor in this regard. The provision of after hours services by the GPs is encouraged in different ways; in some countries GPs are required to provide after hours services (e.g. in Norway),

whereas in other countries GPs are paid extra for being available outside the usual working hours (e.g. in Iceland). Several countries also employ other clinical staff, such as nurses, medical secretaries and other types of doctors, to support the provision of after hours services. Moreover, phone and online consultations are typically available, and phone triage is used as a way of limiting the number of (unnecessary) physical appointments (e.g. in Denmark and Finland). Åland is the only country where after hours services are provided at the hospital only.

The increased complexity of the patients in primary health care expands the need of medical assistance outside the usual working hours, which may simultaneously challenge the continuity of care – particularly with regard to home nursing, where home nurses will need to refer to different GPs in and outside usual working hours. This complicates the handover of tasks, which is problematic in relation to ensuring continuity of care, especially care of very complex patients. A way of improving coordination is to use electronic information systems that can facilitate the exchange of clinically relevant information between different health care providers, e.g. mutual electronic health records.

In the Nordic countries, eHealth is generally recognized as a way to strengthen coordination and collaboration between different health care providers, and in this regard, a proper infrastructure for exchange of data is considered essential. Moreover, eHealth offers an opportunity to improve effectiveness and convenience of care delivery because it enables services to be provided at a distance. Hence, eHealth is a growing field across the Nordic countries and a field that has been further reinforced by the Covid-19 pandemic.

Though the use of telemedical solutions in primary health care (particularly videoconferencing) was already increasing prior to the Covid-19 pandemic, most of the countries have seen a considerable peak during the pandemic, which has made many physical consultations, examinations etc. impossible. Time will show whether this trend will continue beyond the crisis.

Videoconferencing offers convenience for the patient, who does not need to show up physically, but is also a way to improve access in rural areas or in areas with shortages of health care personnel. Besides providing an opportunity for remote consultations, telemedical solutions can support self-management of chronic conditions and rapid exchange of data between patient and provider or across providers, easing the care process.

In terms of recording patient data, all of the Nordic countries have implemented mutual electronic health records – some more advanced than others. These mutual electronic health records form a basis for exchange of patient data and communication between different health care providers in different health care settings. However, in practice it varies which providers can access which systems. The more fragmented the health care system, the greater is the need for integration of systems across providers, facilities and sectors. This facilitates communication and handover of health care tasks, hereby improving the coordination, collaboration and continuity in care. Moreover, well-established systems and systematic recording of data is a necessity for monitoring the quality in care delivery.

Quality monitoring is relatively underdeveloped in the Nordic primary health care sectors. Developing the monitoring of primary health care services involves a broad spectrum of data relevant for collection and areas to be monitored, and it involves different ways of defining and operationalizing quality via indicators. Also, the *interpreted* purpose of data collection may range from supporting learning and improvement at the local level to supporting centralized control and sanctions. Finally, experience from **Denmark** shows that legal aspects of data collection need to be in place for monitoring systems to be sustainable. Thus, developing systems

for monitoring quality of primary health care poses many critical challenges, but the lack of quality monitoring is just as critical, especially given the high expectations to primary health care as key to addressing the structural challenges for the Nordic health systems. **Sweden** stands out among the Nordic countries with a promising system run by the regions, which is based on real-time and easily accessible data. The system supports quality improvement and monitoring mainly at a local and regional level, but at a national level a few indicators of primary health care have recently been introduced. As a quality monitoring system for primary health care, the system is still relatively new, and the experiences from **Sweden** will therefore be interesting to follow in the coming years. The system does not include a national registry for primary health care data, but the Swedish National Board of Health and Welfare is currently investigating the legal and practical possibilities of developing such a registry.

8 Discussion and conclusion

The eight Nordic countries (Denmark, Norway, Sweden, Finland, Iceland, the Faroe Islands, Åland and Greenland) are experiencing a number of challenges to delivering primary health care to their populations. These challenges comprise an ageing population, increased prevalence of chronic diseases and shorter hospital stays – all resulting in increasingly more complex patients received and handled in primary health care – as well as challenges in recruiting (in particular) primary health care personnel. The latter challenge is primarily pronounced in rural areas, though larger cities are increasingly experiencing the same challenge in several of the countries. Altogether, these developments increase the demands on the primary health care sector, including a growing need for capacity and strengthened collaboration and coordination, both in primary health care and between primary and secondary health care.

The ability to provide (adequate) primary health care is partly influenced by geographic and demographic characteristics of the countries concerned, including the size and density of the population; the age structure; the degree and pattern of dispersion; the proportion of people living in cities and in rural areas, respectively; and the geographical surroundings. In this regard, the Nordic countries are characterized by relatively large variation, leading to different conditions for primary health care provision both across the Nordic countries and within each country. Some of the Nordic countries have some very unique features (e.g. the Faroe Islands, Åland and Greenland being characterized by very small populations, several isolated cities and a challenging geography), but generally all of the Nordic countries are, to a greater or lesser extent, characterized by areas with sparse population, which may challenge health care delivery. Common for all of the countries is a trend towards population concentration in the larger cities and a population decrease in rural areas. In combination with the challenges of an ageing population, as well of recruiting health care personnel, this poses a threat to ensuring equity in primary health care. The geographic and demographic variations require that each country organize its health care sector in a way that is suitable for the specific conditions of the country concerned.

As to the overall organization, governance and financing of the Nordic health care systems, both similarities and differences exist. In all of the countries, the health care system is rooted in the welfare state doctrine, involving (primarily) public tax-based financing and a large emphasis on equal and easy access to high quality health care for all inhabitants. However, the governance structure differs slightly across the health care systems, some of them being more centralized (the Faroe Islands, Greenland, Åland, Iceland) than others (Sweden, Norway, Finland, Denmark).

When it comes to the overall organization of primary health care, two variations stand out across the Nordic countries. Firstly, it varies whether the responsibility for primary health care is placed on one or more political and administrative levels. In some countries, the municipalities are responsible for both primary and secondary health care (e.g. Finland), while others have divided or shared responsibilities between municipalities and regions (Denmark and Sweden) and the state and municipalities (the Faroe Islands). Secondly, it varies among the countries to which extent primary health care services are concentrated in one or distributed across several provider organizations. In some countries, primary health care is provided by health centres, who provide all or most of the primary health care services (Finland, Sweden, Iceland and Åland), while in other countries primary health care provision is shared by various units delivering separate parts of primary health care (Denmark, the Faroe Islands and Norway). In

one country (Greenland) there is no division into primary and secondary health care. These two fundamental organizational variables (distribution of responsibility across political and administrative levels and distribution/concentration of primary health care provider organizations) are essential to assessing the feasibility of transferring interventions from one health care system to another. Furthermore, the distribution/concentration of primary health care provider organizations may have implications for integration and collaboration across different health care providers, though it is beyond the scope of this report to analyse such potential implications of the organizational setup. However, it should be emphasized that beyond organizational structures a broad range of other factors, such as leadership, culture and interpersonal skills, may be equally or more important factors affecting the degree of integration and/or collaboration.

General practice plays a key role in primary health care. The Danish, the Faroese, Finnish, Norwegian, and Ålandic systems all rely on gatekeeping through the GPs. In Iceland, on the other hand, patients have direct access to specialist care and, thus, do not require a formal referral. In Sweden, the regions decide which specialist services require a referral, and while patients in some cases have direct access a referral is usually required to access specialist services. Furthermore, in some Swedish regions, patients are economically incentivized to obtain a referral if this is not formally required. Employment of GPs varies across the Nordic countries, i.e. whether GPs are primarily salaried public employees (Iceland, Finland, Sweden and Åland) or self-employed independent professionals (Denmark and Norway). The GPs in the Faroe Islands consider themselves as self-employed entrepreneurs, as in Denmark and Norway. In terms of GP payment schemes, Denmark, the Faroe Islands and Norway apply a combination of FFS and capitation; Finland and Iceland generally combine FFS and salary; Åland and Greenland have a salary-based payment scheme; and in Sweden the funding schemes vary, but generally a combination of capitation, FFS and in some cases P4P is applied. In addition to the payment schemes, user fees may apply for selected services.

Continuity is an area of concern in the Nordic countries. Having patients affiliated with specific GPs, general practices or health centres is a way of (endeavouring to) ensuring continuity. In the Faroe Islands, Norway and Finland patients are generally affiliated with a specific GP, whom they are either assigned to or choose themselves. In Denmark, the patients are either affiliated with a specific GP or a practice. In Åland, Sweden and Iceland, patients are affiliated with a health/primary care centre. In Sweden some centres offer registration with a specific GP, whereas patients are not formally affiliated with a specific GP in Åland and Iceland. However, in practice, patients often consult the same GP.

The increased number and complexity of patients received in the primary health care sector leads to more tasks for the health professionals in home nursing. At the same time, care for chronic diseases is increasingly being shifted to primary health care in all of the Nordic countries. Both developments require increased coordination and collaboration between different health care professionals, facilities and sectors. In the Nordic countries, home nursing is either provided as part of the services offered in the health care centres (Finland and Åland), or it may be provided by separate units (Denmark, the Faroe Islands, Norway, Sweden (except Stockholm) and Iceland). In Greenland, only Nuuk has a permanently staffed home nursing service. The extent of collaboration between health professionals in and outside home nursing varies considerably across the Nordic countries, and so does the extent of integration with home care/social care services. It has not been possible to provide a detailed account of these both local and national variations. Chronic care is provided in either health care centres or in general practice. In general, the GP plays a key role in chronic care but in several of the countries, nurses are also increasingly involved.

Though this report has a strong focus on organizational features and setups, it should be noted that re-organizing the (primary) health care system is not necessarily the best or the only solution to the challenges experienced in the Nordic countries. Some of these challenges may be managed within the existing organizational framework in the countries concerned. The Covid-19 pandemic has shown that collaboration and coordination across sectors and providers can be strengthened without organizational changes. Time will show whether the pandemic has paved the way for change in future workflows.

8.1 Trends in primary health care

The current report has identified some common trends in primary health care among the Nordic countries: increased responsibility of patients with chronic diseases; task shifting, both in terms of the primary health care sector taking over tasks that have traditionally been performed in the secondary health care sector and in terms of new/other professional groups taking over traditional GP services; increased focus on mental health; increased focus on telemedicine; and a desire to strengthen data sharing across different health care actors and sectors.

In all of the Nordic countries, **chronic disease management** in and **task shifting** to the primary health care sector has been a focus for several years. Thus, the observed attention on increasing the handling of chronic diseases in the primary health care sector across the Nordic countries is not a new trend, but rather a movement with a continued focus on managing and strengthening this area, including an ongoing expansion of targeted conditions. Likewise, strengthening the role of nurses in care delivery and coordination in general practices and in health centres is not a new trend. Rather, this has received continuous focus for years, especially in health centres as they have a longer tradition of multidisciplinary teamwork. Particularly Finland has a long tradition of advanced practice roles for nurses, starting at the beginning of the 21st century when the shortage of physicians became critical and task shifting between physicians and nurses emerged as a major part of the solution (19). In many ways, it can be said that, in terms of chronic disease management and task shifting, there has been a movement in recent years from local projects to operation. Furthermore, increasing the competence of nurses to prescribe medication seems to be an area of development in terms of task shifting. Increased task shifting is not exclusive to nurses but also concerns other types of ancillary staff.

A consequence of the shorter hospitalizations, the technological development and the general focus on task shifting from the secondary to the primary health care sector is that the primary health care sector takes responsibility for more tasks and more complex tasks. This also means that increasingly sicker and more complex patients are taken care of by, for example, the home nurses, and that the patients are moved from a hospital system, where the organization supports continuous medical coverage 24/7, to a more fragmented system. Cf. Section 7.1 – none of the Nordic countries offer 24/7 services in general practices or in health centres, which means that other arrangements are needed outside the usual working hours.

Consequently, increasing integration and coordination between the various parts of the primary health care system and collaboration between the primary and secondary health care sector seems to be a focal point in the future; particularly in countries with organizational division of, for instance, general practice and home nursing (e.g. Denmark, the Faeroe Islands and Norway). However, in several of the Nordic countries the current Covid-19 pandemic has shown examples of good collaboration across sectors and providers, and hereby paved the way for future changes in workflow. Also, the pandemic has shown that a major reorganization is not

required to fulfil the ambitions of a more coherent health care system. Furthermore, the Covid-19 pandemic has increased the focus on **telemedicine** and pushed the development of telemedicine solutions further. In addition, telemedicine is used as part of the solution of recruitment and geographical challenges, for example in Greenland and Iceland, as well as being used as a tool for home hospital care in Norway.

Moreover, across the Nordic countries there seems to be an increased focus on delivering **mental health services** in the primary health care sector to patients with mild to moderate mental health problems. For instance, since January 2020 psychological competence has been a requirement for the municipalities in Norway; in Iceland 1 phycologist per 9,000 registered patients in the health care centres is required; Åland are in the process of moving the non-specialized mental health services from the hospital to the health care centres; in Norway patients with severe mental health problems are highlighted as a patient group in need of improved coordination (see below regarding health communities in Norway); and in Sweden, there is generally an increased focus on mental health in the primary health care sector, which is seen in, for instance, the health care centres sometimes having psychologists employed.

All of the Nordic countries acknowledge the importance of data generation and its potential to ensure closer and better collaboration between different health care providers and different health care levels by **data sharing**. All of the countries have implemented (to some extent) mutual electronic health records in various health care settings. However, it varies which providers can access the system(s), what features the systems include, how integrated the systems are across, for instance, primary and secondary health care, the health and social sector, whether the patients can access their own record etc.

Measuring and monitoring the quality of care in primary health care is a way to improve and develop primary health care. However, quality information in primary health care is an underdeveloped area in the Nordic countries, and the use of data collection for quality monitoring purposes is generally limited. The Swedish regions stand out in this area, having recently developed a nationwide system for data-supported benchmarking and improvement at a regional level, and with some national indicators for primary health care made accessible at an online platform. However, there seems to be a general consensus, also in Sweden, on the need for improved national monitoring of the quality in primary health care, particularly as tasks are continuously being shifted to the primary health care sector. Quality monitoring in primary health care might be controversial, not only in relation to legal rights and privacy issues on the patient side but also in light of many GPs operating traditionally as professionally self-governing actors and communities, meaning that quality monitoring may be viewed as external control of the profession.

The trends described above are common to all of the Nordic countries and related to these are some country-specific movements and focal points that deserve attention. These are described in the following.

In **Denmark**, a health care reform has been subject to political discussions for years. The main purpose of the health care reform is to strengthen the primary health care sector and hereby address some of the challenges highlighted in the present report, e.g. an ageing population and rising trends in chronic diseases. The health care parties have expressed a desire for a larger portion of health care to be provided by municipalities, general practice, specialist practices and regional functions in the patient's own home via digital solutions (119). Further important topics in the reform are to ensure coordination between the different levels of care as well establishing quality standards and a financial model that supports the strengthening of the

primary health care sector (ibid). The current status of the health reform is that the Health Minister has promised a proposal for a reform before the next election, i.e. before June 2023 (120). Moreover, it should be mentioned that the role of GPs (including practice nurses) has been strengthened in the treatment of chronic patients, cf. Section 5.3.

During the past years, follow-up visits of patients with type 2 diabetes have been shifted from the hospital to the GPs in the **Faroe Islands.** Among the management in health care there is a desire for further task shifting from hospitals to GPs. However, this is challenged by the relatively extensive use of temporary GPs leading to a high turnover, which causes problems in relation to ensuring that uniform services are offered across practices.

A social and healthcare reform has been discussed for over a decade in **Finland**, but reaching a feasible policy consensus has been challenging (43). A new draft reform (known as the SOTE plan) was launched in June 2020, and municipalities and cities will have until the end of September to register comments, questions or complaints about the draft (49). According to the draft, Finland will be divided into 21 SOTE regions, which will take on the social and health care tasks that are currently carried out by the municipalities. In addition, the main responsibility for providing all health care services will fall to the public sector. The aims of the reform include a closer connection between health and social services; ensuring equal and high quality social, health and rescue services by having a larger organizational units than in the current municipal system; and to meet the future challenges imposed by the demographic trends.

Greenland is working on a revision of the health care plan, which will replace the current service catalogue (121) describing what health care services the various health care institutions in a region can offer. The revision of the plan aims to define which health care services are assumed to be available at different levels of health care, including a description of how and where selected tasks can be handled at an adequate professional level in the future. The rationale behind revising the health care plan is a desire to improve the effectiveness of the health care spending under the given structural conditions and the associated challenges of recruitment (20). Furthermore, expectations are high for the establishment of SDCG with regard to the management of patients with chronic diseases and lifestyle interventions, as well as strengthening and developing the infrastructure of telemedicine in Greenland (see Section 6.2).

The current focus in **Iceland** is to make a clear distinction between first-level (the primary health centres), second-level (specialist services outside the university hospital) and third-level services (provided by, or in collaboration with, the university hospital), hereby ensuring that patients receive services at an appropriate service level and that the primary health centres are the first point of contact (15). Currently, the health care act is under revision, which includes outlining which health services should be defined as first-, second- and third-level services.

In **Norway**, a relocation of tasks has been ongoing for several years, where the municipalities are expected to take on increasingly more tasks, particularly related to more complex patients in need of multidisciplinary follow-up. One reason for this is the Coordination Reform in 2012, which did not lead to a legal responsibility shift but in practice resulted in more tasks for the municipalities; and enhanced by the demographic changes and reduction in hospital stays.

Also in Norway, there is a general acknowledgement of the need for close collaboration and multidisciplinary care, but this is challenged by a relatively fragmented health care system. Traditionally, health care services placed under the municipalities have been organized as independent services with different financing schemes, which challenges easy communication,

coordination and collaboration between different providers. Moreover, the coordination and collaboration between primary and secondary health care has received attention for several years and still does.

In autumn of 2019, the Norwegian government and the Norwegian Association of Local and Regional Authorities (*kommunesektorens organisasjon*, KS) entered into an agreement on the so-called health communities (In Norwegian: *helsefellesskaper*) with the aim of improving the collaboration on selected patient groups: children and adolescents, patients with severe mental health problems and substance abuse, fragile elderly people and patients with multiple chronic conditions (122). These communities are each to comprise one regional health authority and representatives from hospitals, municipalities, general practice, patients etc. and the intention is to improve coordination and collaboration across primary and specialist health care (25). The initiative has not yet been fully implemented due to the Covid-19 pandemic and because some health communities have progressed more rapidly than others (informant).

As described in this report, the health system in **Sweden** is characterized by a high level of political and administrative decentralization. Consequently, strategies to develop primary health care at the national level are characterized by 'soft' indirect approaches rather than direct regulation. This is reflected in governmental investigations in which overall directions for change towards an improved primary health care sector are proposed, but left open for regions and municipalities to follow (123). The current efforts to transform primary health care in Sweden are officially described as regionally dispersed initiatives that converge in broader movements from reactionary to proactive treatment, from fragmented to coordinated patient pathways and from the patient as passive consumer of health services to an active co-producer of own health (ibid.). The cross-regional and municipal organization SALAR support regions and municipalities in developing primary health care towards these ends. Concrete examples that underpin some of these goals are the use of 'mobile teams' in municipalities where primary health care professionals proactively seek out frail, elderly patients at home with the aim of preventing the need for hospital admission; or some regions' use of personal patient coordinators, who help patients with severe health care needs and many contacts with different parts of the health system to achieve a better coordination between different providers (ibid.). At the national level, a challenge remains in developing evaluative methods and indicators to follow up on local initiatives in ways that are comparable and allow for cross-regional learning and development of best practice that can apply to the whole country. Efforts to develop such national evaluative methods are ongoing (10,124) and have also resulted in a first set of national data-supported indicators for primary health care, as described in Section 7.3.

Despite the decentralized nature of the Swedish system, nationwide commitment to new health policies is still possible. This is exemplified by a newly updated patient guarantee of access to primary health care: A former patient guarantee giving the citizens' the right to see a GP within seven days, has been changed to a right to see a primary health care professional within three days. The change from 'a right to see a GP' to the 'right to see a primary health care professional' reflects an interesting movement away from assuming GPs to be the natural first point of contact in primary health care. Also, depending on how the actual health care centres operated prior to the updated guarantee, the update might hold a potential for a better and more efficient use of the interdisciplinary resources in health care centres, but only insofar as a critical volume of patients at first contact present health problems that can be properly addressed by professionals other than GPs. That is, the demand side must to a certain level correspond to the mixed composition on the delivery side.

In **Åland**, there is a desire to increase the centralization of some of the functions in the primary health care sector (e.g. in terms of prevention and child welfare activities). Furthermore, there is a focus on developing the management of patients with lifestyle diseases (e.g. more patient responsibility and use of mobile and digital solutions), and delegating more tasks to nurses in the health centres.

8.2 Methodological note

This report has provided an overall description of the organization of the primary health care sector in the eight Nordic countries and has pointed to current trends in primary health care (delivery). We have attempted to obtain quantitative comparative data on the primary health care systems. However, this has been a challenging task, which means that comparative data in the analysis are not very comprehensive. It would indeed be interesting to conduct further comparative analyses of, for instance, the use of resources (costs) in primary health care; the volume of the various primary health care services; the number of different health care professionals working in primary health care (e.g. GPs, nurses, nurses assistants, therapists etc.); or the volume of the population that each GP is responsible for. However, these types of analyses have been shown to be complicated due to different estimation methods and definitions across countries, as well as lack of data. For instance, the number of GPs can be reported as the total number or the number converted to full time-positions; a definition which also differs between the countries. Moreover, basic numbers such as the list sizes of GPs can be difficult to compare because GPs in some countries may also be responsible for other tasks, such as child counselling, eldercare etc. Similarly, comparison of the number of home nurses across countries requires that they are defined equally across the countries. The number of home nurses is an example of data that were unavailable in a comparable format.

Moreover, it has not been possible to go into the details of every aspect of the primary health care sector and to analyse implications of different organizational setups and workflows in care delivery across the Nordic countries. The level of detail and elaboration varies across the selected domains. This partly has to do with local and regional variations within the countries, a thorough description of which is beyond the scope of this report. It also has to do with the fact that the approach chosen for this report has meant that general practice and GPs have received more focus than the other chosen domains. It would be interesting to address some of the domains in more detail in further analyses. Moreover, other domains of primary health care would be interesting and relevant to address in future analyses. Suggested areas for future analyses include an overview of which specific tasks are carried out in the primary health care sector and by which professions, including a quantitative assessment of the numbers and the range of health care professionals employed and working in the primary health care sector. Likewise, the use of acute beds in municipalities/health centres seems to be an area in development in (some of) the Nordic countries and thus an area for future analysis.

It is our hope that this report can contribute to qualified discussions of potential solutions to the challenges witnessed in the Nordic region at the Nordic Council of Ministers' conference on the future of the Nordic primary health care system by November 2020. We also hope that the report will serve as a contribution to discussions on the topic in general by providing an understanding of the differences and similarities in the organization of primary health care in the Nordic countries.

References

(1) Alexandersen N, Anell A, Kaarboe O, Lehto J, Tynkkynen L, Vrangbæk K. The development of voluntary private health insurance in the Nordic countries. Nordic Journal of Health Economics 2016;4(1):68-83.

(2) Nordic Burden of Disease Collaborators. Life expectancy and disease burden in Nordic Countries: results from the Global Burden of Diseases, Injuring, and Risk Factor Study. Lancet Public Health 2019;4(12):658-669.

(3) World Health Organization. WHO - Declaration of Alma-Ata. Genève: WHO; 1978.

(4) Starfield B. Is primary care essential? The Lancet 1994;344(8930):1129-1133.

(5) Friedberg MW, Hussey PS, Schneider EC. Primary Care: A Critical Review Of The Evidence On Quality And Costs Of Health Care. Health Affairs 2010;29(5):766-772.

(6) Sanderson WC, Scherboy S. A new perspective on population ageing. Demographic Research 2007;16:27-58.

(7) Nordic Council of Ministers. State of the Nordic Region 2020. København: Nordic Co-operation; 2020.

(8) Højgaard B, Kjellberg J. Fem megatrends der udfordrer fremtidens sundhedsvæsen. København: KORA - Det Nationale Institut for Kommuners og Regioners Analyse og Forskning; 2017.

(9) Sundhedsdatastyrelsen. Borgere med multisygdom: Borgere med kroniske sygdomme i 2017. København: Sundhedsdatastyrelsen; 2020.

(10) Sveriges Kommuner och Landsting. Hälso- och sjukvårdsrapporten 2019: Öppna jämförelser. Stockholm: Sveriges Kommuner och Landsting; 2019.

(11) Naalakkersuisut & Novo Nordisk Fonden. En styrket diabetes- og livsstilsindsats i Grønland: Etablering af Steno Diabetes Center Grønland - Inuunerissaavik. Drejebog for etablering af Steno Diabetes Center Grønland. Nuuk: Naalakkersuisut; 2020.

(12) Norwegian Institute of Public Health. Public Health Report - Short version: Health Status in Norway 2018. Oslo: Norwegian Institute of Public Health; 2018.

(13) OECD/European Observatory on Health Systems and Policies. Sweden: Country Health Profile 2019: State of Health in the EU. Paris: OECD Publishing; 2019.

(14) Regeringen, Socialdemogratiet, Dansk Folkeparti, Alternativet, Radikale Venstre & Socialistisk Folkeparti. Aftale om den nationale demenshandlingsplan 2025. København: Regeringen; 2016.

(15) Government of Iceland, Ministry of Health. Health Policy: A policy for Iceland's health services until 2030. Reykjavík: The Icelandic Ministry of Health; 2019.

(16) OECD/EU. Health at a Glance: Europe 2018: State of Health in the EU Cycle. Paris: OECD Publishing; 2018.

(17) Olano FA, Rasmussen J. Psykiatriske lidelser i Grønland. Ugeskrift for Læger 2019;181(12):V06190345.

(18) Hansen BH. Udvikling i indlæggelsesvarighed for somatiske indlæggelser: Analysenotat. København: KL - Kommunernes Landsforening; 2017.

(19) Ensio A, Lammintakanen J, Härkönen M, Kinnunen J. Finland. In: Rafferty AM, Busse R, Zander-Jentsch B, Sermeus W, Bruyneel L, editors. Strengthening health systems through nursing Evidence from 14 European countries. Health Policy Series 52 ed.: World Health Organization; 2019.

(20) Naalakkersuisut. Udgiftsanalyse af sundhedsvæsenet: Styrelsen for Sundhed og Forebyggelse. December. Nuuk: Naalakkersuisut; 2019.

(21) Eide TB. General practitioners' and patients' experiences and expectations. A cross-sectional study from Norwegian and Nordic general practice. Dissertation for the degree Ph.D. at the University of Oslo. Oslo: Department of General Practice, Institute of Health and Society, University of Oslo; 2019.

(22) OECD/European Observatory on Health Systems and Policies. Iceland: Country Health Profile 2019: State of Health in the EU. Paris: OECD Publishing; 2019.

(23) Glenngård AH. International Health Care System Profiles: Sweden. 2020; Available at: https://www.commonwealthfund.org/international-health-policy-center/countries/sweden.

(24) Praktiserende Lægers Organisation (PLO). Differentieret basishonorar i OK18 - FAQ. 2018; Available at: https://www.laeger.dk/differentieret-basishonorar-i-ok18-faq. Accessed 07/07, 2020.

(25) Helse- og omsorgsdepartementet. Handlingsplan for allmennlegetjenesten: Attraktiv, kvalitetssikker og teambasert. 2020-2024. Oslo: Helse- og omsorgsdepartementet; 2020.

(26) Andersen BR. Nyt fokus på fuldtid i kommunerne: lokale løsninger skal bane vejen. 2020; Available at: https://vpt.dk/med-samarbejde/nyt-fokus-pa-fuldtid-i-kommunerne-lokale-losninger-skal-bane-vejen. Accessed 04/06, 2020.

(27) Andersen BR. De nordiske erfaringer med fuldtid. 2020; Available at: https://vpt.dk/de-nordiske-erfaringer-med-fuldtid. Accessed 15/06, 2020.

(28) Helsedirektoratet. Leger i kommune- og spesialisthelsetjenesten: Rapport 2018. Oslo: Helsedirektoratet; 2018.

(29) Bundgaard B. Optræk til konflikt på Færøerne. Ugeskriftet.dk 2017.

(30) Kronvall A. Fakta om Åland. 2018; Available at: https://www.norden.org/da/information/fakta-om-aaland. Accessed 06/01, 2020.

(31) Kronvall A. Fakta om Danmark. 2019; Available at: https://www.norden.org/da/information/fakta-om-danmark. Accessed 06/01, 2020.

(32) Kronvall A. Fakta om Færøerne. 2019; Available at: https://www.norden.org/da/information/fakta-om-faeroeerne. Accessed 06/01, 2020.

(33) Kronvall A. Fakta om Finland. 2019; Available at: https://www.norden.org/da/information/fakta-om-finland. Accessed 06/01, 2020.

(34) Kronvall A. Fakta om Grønland. 2018; Available at: https://www.norden.org/da/information/fakta-om-groenland. Accessed 06/01, 2020.

(35) Kronvall A. Fakta om Island. 2019; Available at: https://www.norden.org/da/information/fakta-om-island. Accessed 06/01, 2020.

(36) Kronvall A. Fakta om Norge. 2019; Available at: https://www.norden.org/da/information/fakta-om-norge. Accessed 06/01, 2020.

(37) Kronvall A. Fakta om Sverige. 2019; Available at: https://www.norden.org/da/information/fakta-om-sverige. Accessed 06/01, 2020.

(38) Nordisk Samarbejde. Fakta om de nordiske lande. Available at: https://www.norden.org/da/information/fakta-om-de-nordiske-lande.

(39) Lyttkens CH, Christiansen T, Häkkinen U, Kaarboe O, Sutton M, Welander A. The core of the Nordic health care system is not empty. Nordic Journal of Health Economics 2016;4(1):7-27.

(40) Olejaz M, Nielsen AJ, Rudkjøbing A, Okkels Birk H, Krasnik A, Hernández-Quevedo C. Denmark: Health system review. Health Systems in Transition 2012;14(2):1-192.

(41) Anell A, Glenngård AH, Merkur S. Sweden: Health system review. Health Systems in Transition, 2012;14(5):1-159.

(42) Sperre Saunes I, Karanikolos M, Sagan A. Norway: Health system review. Health systems in Transition 2020;22(1):i-163.

(43) Keskimäki I, Tynkkynen LK, Reissell E, Koivusalo M, Syrjä V, Vuorenkoski L, Rechel B, Karanikolos M. Finland: Health system review. Health Systems in Transition 2019;21(2):1-166.

(44) Ålands hälso- och sjukvård. Om ÅHS. 2020; Available at: https://www.ahs.ax/om-ahs. Accessed 07/07, 2020.

(45) Danish Health Authority. History. 2020; Available at: https://www.sst.dk/en/English/About-us/Strategy-and-aims/History. Accessed 07/07, 2020.

(46) Retsinformation. Bekendtgørelse af sundhedsloven. København: Sundheds- og Ældreministeriet; 2019.

(47) Nilsen JB, Kjærsgaard LB. Sundhedsforsikringer. 2019; Available at: https://www.forsikringogpension.dk/statistik/sundhedsforsikringer/. Accessed 06/01, 2020.

(48) Ministry of Health. Healthcare in the Faroe Islands. Available at: https://www.hmr.fo/en/what-we-do/health-and-prevention/healthcare-in-the-faroe-islands/. Accessed 07/01, 2020.

(49) News Now Staff. Domestic Latest sote healthcare reform proposals move to next phase. News Now Finland 2020;6(15).

(50) OECD/European Observatory on Health Systems and Policies. Finland: Country Health Profile 2019: State of Health in the EU. Paris: OECD Publishing; 2019.

(51) OECD/European Observatory on Health Systems and Policies. Norway: Country Health Profile 2019: State of Health in the EU. Paris: OECD Publishing; 2019.

(52) Hansen PE. Det nære sundhedsvæsen i et internationalt perspektiv. In: Pedersen BM, Petersen SR, editors. Det kommunale sundhedsvæsen København: Hans Reitzels Forlag; 2014.

(53) Iversen T, Anell A, Häkkinen U, Kronborg C, Ólafsdóttir T. Coordination of health care in the Nordic countries. Nordic Journal of Health Economics 2016;4(1):41-55.

(54) Olsen KR, Anell A, Häkkinen U, Iversen T, Ólafsdóttir T, Sutton M. General practice in the Nordic countries. Nordic Journal of Health Economics 2016;4(1):56-67.

(55) Det Grønlandske Sundhedsvæsen. Eksisterende faciliteter og funktioner i Det Grønlandske Sundhedsvæsen: Sundhedsplanlægningen (udkast 06-03-2020). Nuuk: Det Grønlandske Sundhedsvæsen; 2020.

(56) OECD. OECD Statistics, 2018, dataset: Health expenditure & financing. Paris: OECD.

(57) The Ministry of Health. Healthcare in Denmark: An Overview. København: Sundheds- og Ældreministeriet; 2017.

(58) Søgaard J. Hvor høje er sundhedsudgifterne i Danmark? København: Søgaard Advice; 2014.

(59) Retsinformation. Bekendtgørelse af lov om social service. København: Børne- og Socialministeriet; 2018.

(60) Lovdata. Lov om kommunale helse- og omsorgstjenester m.m. (helse- og omsorgstjenesteloven). Oslo: Helse- og omsorgsdepartementet; 2011.

(61) Burström B, Burström K, Nilsson G, Tomson G, Whitehead M, Winblad U. Equity aspects of the primary health care choice reform in Sweden–a scoping review. International Journal for Equity in Health 2017;16(1):29.

(62) Saltman RB, Bankauskaite V, Vrangbæk K. Decentralization in Health Care: Strategies and outcomes. London: Open University Press; 2007.

(63) Tynkkynen LK, Keskimäki I, Reissell E, Koivusalo M, Syrjä V, Vuorenkoski L, et al. Centralising health care administration in Finland - an inevetiable path? Eurohealth 2019;25(4):29-33.

(64) Winell,K.,Dedeu,T. Finland. In: Kringos,D.S,Boerma,W.G.W,Hutchinson,A.,Saltman,R.B, editor. Building primary care in a changing Europe - Case studies United Kingdom: European Observatory on Health Systems and Policies; 2015. p. 67-76.

(65) Praktiserende Lægers Organisation (PLO). PLO faktaark. København: Praktiserende Lægers Organisation (PLO); 2020.

(66) EY & Vista Analyse. Evaluering av fastlegeordningen. Oslo: EY & Vista Analyse; 2019.

(67) Gaardsrud PØ. Styringsdata for fastlegeordningen, 4 kvartal 2019. Oslo: Avdeling Finansiering, Helsedirektoratet; 2020.

(68) Rehnberg C, Magnusen J, Luoma K. Maintaining fiscal sustainability in the Nordic countriesd. In: Magnusen J, Vranbæk K, Saltman RB, editors. Nordic Helath care Systems. Recent Reforms and Current Policy Challenges.: The McGraw-Hill Comanies; 2009. p. 180--197.

(69) Fredslund EK, Larsen AT, Klausen MB, Topholm EH, Rasmussen HK. Almen praksis' rolle i forhold til borgere med kroniske lidelser: En analyse af almen praksis med fokus på forebyggelse af sygehuskontakter hos KOL- og diabetespatienter. København: VIVE – Det Nationale Forsknings- og Analysecenter for Velfærd; 2020.

(70) Ålands Landskapsregering. Landskapslag (2007:23) om grunderna för avgifter till Ålands hälso- och sjukvård. Mariehamn: Ålands Landskapsregering; 2007.

(71) Regionernes Lønnings- og Takstnævn & Praktiserende Lægers Organisation (PLO). Overenskomst om almen praksis. København: RLTN - Danske Regioner; 2018.

(72) Oxholm AS. Forskerklummen: Kronikerhonoraret kan være dårligt nyt for kroniske patienter i almen praksis. Altinget 2019;6. september.

(73) Olsen KR. Lektor: Kronikerhonorar og nærhedsfinansiering sikrer ikke fokus på patienter med størst behov. Altinget Sundhed 2018;14. juni.

(74) Praktiserende Lægers Organisation (PLO). PLO Analyse. Ansatte i almen praksis. København: Praktiserende Lægers Organisation; 2017.

(75) Petersen N. Almen praksis har det højeste antal personale i 12 år. Dagens Medicin 2020;6. maj.

(76) Helsedirektoratet. Primærhelseteam - pilotprosjekt. 2019; Available at: https://www.helsedirektoratet.no/om-oss/forsoksordninger-og-prosjekter/primaerhelseteam-pilotprosjekt. Accessed 07/07, 2020.

(77) Alenius LS, Lindquist R, Tishelman C. Sweden. In: Rafferty AM, Busse R, Zander-Jentsch B, Sermeus W, Bruyneel L, editors. Strengthening health systems through nursing Evidence from 14 European countries: World Health Organization; 2019. p. 143-149.

(78) Sundheds- og Ældreministeriet. Hjemmesygepleje. 2015; Available at: https://sum.dk/Sundhed/Sundhedsvaesnet/Kommunale-sundhedsopgaver/Hjemmesygepleje.aspx. Accessed 05/28, 2020.

(79) KL - Kommunernes Landsforening. Styring af hjemmesygeplejen. Inspirationsnotat. København: KL - Kommunernes Landsforening; 2014.

(80) Dons AM. Vejledning om hjemmesygepleje. Vej.nr. 1022 af 11/12/2006. København: Sundheds- og Ældreministeriet; 2006.

(81) Sundhedsstyrelsen. Kvalitetsstandarder for kommunale akutfunktioner i hjemmesygeplejen: Krav og anbefalinger til varetagelse af særlige sygeplejeindsatse. København: Sundhedsstyrelsen; 2017.

(82) Vinge S, Buch MS. Det kommunale akutområde i udvikling: Perspektiver fra 15 kommuner. København: VIVE - Det Nationale Forsknings- og Analysecenter for Velfærd; In press.

(83) City of Helsingki. Home Care. 2019; Available at: https://www.hel.fi/helsinki/en/socia-health/elderly/home/. Accessed 07/01, 2020.

(84) Det Kongelige Helse- og Omsorgsdepartement. Meld. St. 26 (2014–2015). Melding til Stortinget. Fremtidens primærhelsetjeneste – nærhet og helhet. Oslo: Det Kongelige Helse- og Omsorgsdepartement; 2015.

(85) Helsenorge. Home Nursing and other health care services in the home. 2019; Available at: https://helsenorge.no/other-languages/english/home-nursing-and-other-healthcare-services-in-the-home?redirect=false. Accessed 07/01, 2020.

(86) Forskningsrådet. Evaluering av samhandlingsreformen. Sluttrappor fra Styringsgruppen for forskningsbasert følgeevaluering av samandlingsreformen (EVASAM). Oslo: Norges Forskningsråd; 2016.

(87) Sundhedsstyrelsen. Forløbsprogrammer for kronisk sygdom - den generiske model. København: Sundhedsstyrelsen; 2012.

(88) Sundhedsstyrelsen. Status på forløbsprogrammer 12-07-2019 (sagsnr. 4-1611-148). København: Sundhedsstyrelsen.

(89) Regeringen & Danske Regioner. Aftale om regionernes økonomi for 2021. København: Regeringen & Danske Regioner; 2020.

(90) Naalakkersuisut. Novo Nordisk Fonden bevilger 382 millioner kroner til kampen mod diabetes og andre livsstilsrelaterede sygdomme i Grønland. (pressemeddelelse) Sagsnr. 2019-22783. Nuuk: Naalakkersuisut; 2020.

(91) Ministry of Social Affairs and Health. Act on the Status and Rights of Patient. No 785/1992. Issued in Helsinki on 17th august 1992 (NB unoffical translation). Helsinki: Ministry of Social Affairs and Health; 1992.

(92) Vinge S, Rasmussen SR. Regionale lægevagter og Akuttelefonen 1813. En kortlægning med fokus på organisering, aktivitet og økonomi. København: VIVE – Viden til Velfærd Det Nationale Forsknings- og Analysecenter for Velfærd; 2018.

(93) OECD/European Observatory on Health Systems and Policies. Denmark: Country Health Profile 2019: State of Health in the EU. Paris: OECD Publishing; 2019.

(94) Registers Iceland. Illness - seeking medical assistance. Available at: https://vefur.island.is/en/health/emergency_and_healthcare/illness_seeking_medical_assistance/. Accessed 07/07, 2020.

(95) Sigurgeirsdóttir S, Waagfjörð J, Maresso A. Iceland: Health system review. Health Systems in Transition 2014;16(6):1-182.

(96) Lovdata. Forskrift om fastlegeordning i kommunene. Oslo: Helse- og omsorgsdepartementet; 2012.

(97) Danish Ministry of Health, Danish Regions & Local Government Denmark. eHealth in Denmark: eHealth as a part of a coherent Danish health care system. København: Sundheds- og Ældreministeriet; 2012.

(98) Sundhed.dk. Background. 2016; Available at: https://www.sundhed.dk/borger/service/om-sundheddk/ehealth-in-denmark/background/. Accessed 08/19, 2020.

(99) Retsinformation. Forslag til Lov om ændring af sundhedsloven. København: Indenrigs- og Sundhedsministeriet; 2011.

(100) Medcom. FAQ. Available at: https://www.medcom.dk/opslag/faq. Accessed 08/15, 2020.

(101) Praksisplanudvalget i Region Syddanmark. Praksisplan for almen praksis 2020- 2023. Vejle: Region Syddanmark; 2019.

(102) Danske Regioner, Kommunernes Landsforening, Ministeriet for Sundhed og Forebyggelse, Social- og Integrationsministeriet, Erhvers- og Vækstministeriet, Økonomi- og Indenrigsministeriet & Finansministeriet. National handlingsplan for udbredelsen af telemedicin. København: Fonden for Velfærdsteknologi; 2012.

(103) Region Nordjylland. Telemedicinsk sårvurdering. 6. april 2020; Available at: https://rn.dk/sundhed/til-sundhedsfaglige-og-samarbejdspartnere/national-og-tvaersektoriel-it/telemedicinsk-saarvurdering. Accessed 06/08, 2020.

(104) Regeringen & Danske Regioner. Aftale om regionernes økonomi for 2016. København: Regeringen & Danske Regioner; 2015.

(105) Regeringen & KL - Kommunernes Landsforening. Kommunernes økonomiske ramme for 2016. København: Regeringen & KL - Kommunernes Landsforening; 2015.

(106) Sundhedsstyrelsen. Telemedicinsk understøttelse af behandlingstilbud til mennesker med KOL. København: Sundhedsstyrelsen; 2017.

(107) Regeringen & KL - Kommunernes Landsforening. Aftale om kommunernes økonomi for 2021. København: Regeringen & KL - Kommunernes Landsforening; 2020.

(108) Nielsen LO, Hounsgaard L. Telemedicin i Grønland - borgernes pespektiv. BestPractice 2018.

(109) Fagerlund AJ. Nettkontakt med legekontoret korter ned pasientkøen. 08.06.2019; Available at: https://ehealthresearch.no/nyheter/2019/nettkontakt-med-legekontoret-korter-ned-pasientkoen. Accessed 08/10, 2020.

(110) Laukli R. Coronavirus made the GP go digital. 2020; Available at: https://partner.sciencenorway.no/digital-services-e-health-research-health/coronavirus-made-the-gp-go-digital/1693232. Accessed 08/10, 2020.

(111) Reponen,J.,Kangas,M,Hämäläinen,P.,Haverinen,J., Kevänen N. Avilability and use of e-health in Finland11. In: Vehko,T.,Ruotsolainen,S.,Hyppöned,H, editor. E-health and e-welfare of Finland. Check Point 2018 Helsinki, Finland: National Institute for Health and Welfare; 2019.

(112) Vehko,T.,Ruotsolainen,S.,Hyppöned,H. E-health and e-welfare of Finland: Check point 2018. Helsinki: National Institute for Health and Welfare; 2019.

(113) Lund J. Denmark plans to preserve illegally collected medical data. 2015; Available at: https://edri.org/denmark-plans-preserve-illegally-collected-medical-data/.

(114) Henriksen L. DAMD-skandalen: Politisk rænkespil om sundhedsdata. DenOffentlige.dk 2015;20. april.

(115) Brøcker,A,Chrstensen,IE. Datafangst, patientpopulationer og datadeling på tværs af sektorer. En fremadrettet evaluering af Projekt Kronikerdata. København: KORA - Det Nationale Institut for Kommuners og Regioners Analyse og Forskning; 2014.

(116) Sveriges Kommuner och Regioner. PrimärvårdsKvalitet 2020 (juni). Stockholm: Sveriges Kommuner och Regioner; 2020.

(117) Oinunen L. THL promotoes the development of national healthcare quality registers. 2018; Available at: https://futurecarefinland.fi/en/2018/08/thl-promotes-the-development-of-national-healthcare-quality-registers/.

(118) Rossum M. A new act will streamline the secondary use of Finnish health and social care data. 2019; Available at: https://www.helsinkibusinesshub.fi/a-new-act-will-streamline-the-secondary-use-of-finnish-health-and-social-care-data/.

(119) Lose,S,Bundsgaard,J,Freitag,C, Christensen,G,Lintz,L,Schultz,H,Hollmann,TK,Roed,L. En politisk retning for udvikling af sundhedsvæsenet. København: Danske Regioner, FOA, KL, HK Kommunal, Overlægeforeningen, PLO,Sundhedskartellet & Yngre Læger; 2020.

(120) Bundsgaard J. Debatindlæg: Alle venter på sundhedsreformen. Politiken Sundhed 2020;27. februar.

(121) Sundhedsledelsen. Katalog over sundhedsfaglige ydelser i Regionerne - Ydelseskataloget. Nuuk: Departementet for Sundhed; 2015.

(122) Regjeringen.no. Avtale mellom regjeringen og KS: etablere 19 helsefelleskap. 2019; Available at: https://www.regjeringen.no/no/aktuelt/avtale-mellom-regjeringen-og-ks-etablerer-19-helsefelleskap/id2674825/.

(123) Statens Offentliga Utredningar. God och nära vård. En primärvårdsreform. Delbetänkande av udredninga. Samordnad utveckling för god ock nära vård. SOU 2018:39. Stockholm: Statens Offentliga Utredningar; 2018.

(124) Sveriges Kommuner och Regioner. Att följa omställningen till Nära vård: En översikt av måll och indikator. Stockholm: Sveriges Kommuner och Regioner; 2019.

Appendix 1: List of informants

Country	Function/ job title	Institution
Denmark	Head of Centre	Centre for Health and Care, Helsingør Municipality
The Faroe Islands	Head of Section	Ministry of Health
	General practitioner	General practice
Finland	Senior Ministerial Advisor	Department of Clients and Services in Healthcare and Social Welfare, Ministry of Social Affairs and Health
	Ministerial Advisor*	Ministry of Social Affairs and Health
	Chief Administrative Medical Officer *	The Regional State Administrative Agency of Lapland
Greenland	Head of Division	Ministry of Social Affairs and Justice
	Deputy Minister	Ministry of Health
Iceland	Permanent Secretary	Ministry of Health
	Director	Icelandic Health Insurance
	Head of Department, Healthcare and training, Insurance Department*	Icelandic Health Insurance
	Director/CEO	The Capital Area Health Care
Norway	General Director	Department of Primary Health, the Ministry of Health and Care Services
Sweden	Senior Public Health Official	The National Board of Health and Welfare
	GP, PhD and researcher in PHC in Sweden	Member of the SALARs working group on quality in primary health care.
Åland Islands	Head of the primary care clinic	Åland Healthcare (Ålands hälso- & sjukvård)

Note: Interviews were conducted via Skype, unless otherwise stated. *Not directly interviewed, but has answered specific questions in writing.

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