Task Force +Health Care
Dutch platform for the life sciences & health sector

Netherlands Enterprise Agency

Norway

Market study 2021

Matching Dutch Solutions to Nordic Challenges for Future-Proof Healthcare

EXECUTIVE SUMMARY

The Norwegian healthcare system has public universalized healthcare access, with options for private coverage. The healthcare expenditure was in 2018 10.05% of its GDP. The Norwegian oil revenues are the basis for financing the economy, and per capita spending on healthcare is among the highest in the world.

The healthcare system is described as semi-decentralized due to the divided responsibility between the national government, the regional health authorities, and the municipalities. The national government is responsible for overseeing the quality of healthcare and social services and allocates funds, the regions are responsible for specialized care and hospital care and the municipalities are responsible for the provision of primary and social care services. In 2019, a local governance reform was implemented, and some municipalities and regions have been/are in the process of being merged into larger entities. The GP is the first point of entry in the Norwegian health system. The role of the private healthcare sector in Norway is limited, the share of the Norwegian population with a private health insurance is 10%, mainly to gain quicker access to and greater choice of private providers.

There is no plan in place to close or specialize hospitals in Norway. The authorities are committed to maintaining smaller hospitals to service rural populations. There will be done investments of 9.3 billion euro's in constructing and upgrading hospitals in Norway from 2020-2024. The investments will focus on upgrading and updating the current hospital buildings, including medical technology and ICT solutions. There are also opportunities for Dutch companies in sustainable hospital build, as the sector in Norway is also greening.

Early action and a unified approach by a Norwegian health care system that features universal care and a single public player contributed to successes in dealing with the COVID-19 pandemic. By exposing gaps and highlighting the importance of digitalization on a local and national scale, the pandemic has driven forward initiatives encouraging the use of digital platforms and artificial intelligence to benefit the healthcare sector.

One major challenge in the system is the provision of services for the rural population in Norway. There are demands for digital tools this group can access, including tools of self-management for chronic patients.

In the field of Biotech and Biopharma, the generic pharmaceuticals market has grown significantly. There is a growing demand for innovative gene therapies. A national strategy for personalized medicine is in place.

Lastly, in the field of mobility and vitality, Norway too, faces an increase in its elderly population while there is a growing shortage of caregivers. There are several programs operated in Norway that focus on new living concepts involving the elderly population in the country, and Norway looks with interest towards Dutch solutions.

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I. TOP 10 REASONS – WHY NORWAY IS INTERESTING FOR THE DUTCH LIFE SCIENCES AND HEALTH SECTOR

1. **Health is the new oil:** The Norwegian oil sector underpins the economy. Healthcare spending is amongst the highest in the world with 8,239 euros spent annually per capita, presenting ample opportunities for Dutch companies on the Norwegian market. See Chapter 4 for more opportunities.
2. **Sustainability in hospitals:** A trend that is visible in the construction industry in Norway, as well as in the other Nordic countries, is the sustainability of hospital buildings. The need to make the healthcare sector more sustainable is increasingly felt throughout the country and provides options for those companies which have invested in providing more sustainable solutions or working with cleaner materials. See Section 4.3.
3. **Transparent centralized procurement:** Norway has established several national public companies responsible for purchases in different sectors of the healthcare system.
    a. **For eHealth**: Helsenett purchases and provides eHealth services to Norwegian regions and municipalities. See Section 4.2.
    b. **For Hospital Construction:** Sykehusbygg is responsible for all stages of hospital construction projects, including tenders. See Section 4.3.
    c. **For Major Supplies and Equipment for Hospitals:** In 2016 Sykehusinnkjøp was founded as national procurement body for all major supplies and equipment for all (public) Norwegian hospitals. See Section 4.6.
4. **eHealth is a national priority:** The Norwegian eHealth sector has become more connected over the years. The Directorate of eHealth emerged in 2016 to address eHealth challenges in Norway. ePrescription and Summary Care Reports (Kjernejournal) are used nationally at the level of the GP, whereas hospitals and nursing homes have electronic health records. Today, all healthcare institutions and professionals are linked to the national Norwegian Health Network. See Section 4.2.
5. **Genetic therapies:** The generic pharmaceuticals market has grown significant in recent years and accounts for 49% of total pharmaceutical market. There is a growing demand for innovative gene therapies. A national strategy for personalized medicine is in place. See Section 4.4.
6. **If successful in Sweden and/or Denmark:** Norway has traditionally adopted health innovation after being proven successful in Sweden and Denmark. Innovation and medical technology hubs, incubators, and test beds are growing in the country. Possible entry points for Dutch companies. See Chapter 3 and 4.
7. **Tools for self-management:** In Norway, there is a shortage of caregivers and GPs in the remote areas of the country. Therefore, there are demands for tools for self-management to monitor the health status of mostly chronic patients. See Section 4.2.
8. **Standardized Procurement:** As a member of European Free Trade Association, Norway operates under European Union procurement directives. This makes Norway relatively easy to navigate and accustomed to collaboration within European Union regulations. See Chapter 3.
9. **Elderly living facilities:** Norway too, faces an increase in its elderly population while there is a growing shortage of caregivers. There are several programs operated in Norway that focus on new living concepts involving the elderly population in the country, and Norway looks with interest towards Dutch solutions. See Section 4.1.
10. **Hospital upgrading and building;:** Investments of 9.3 billion euros will be made in constructing and upgrading hospitals in Norway from 2020-2024. The investments will focus on upgrading and updating the current hospital buildings, including medical technology and ICT solutions. See Section 4.3.

II. SNAPSHOT: NORWAY COMPARED TO SWEDEN AND DENMARK

Norway, Sweden, and Denmark are similar in many ways, including shared cultures, similar languages, and societal structures based on a welfare state. To understand the nuanced differences between these Scandinavian countries, this section provides a comparative snapshot of the healthcare markets and opportunities (see also **Table 1**). To learn more on communication in this region, review the document provided by the Embassies of the Netherlands in the Nordics.

What Makes Norway Different? Norway is a wealthy nation with a small population spread across a large country. In comparison to Sweden and Denmark, Norway has the highest per capita healthcare expenditure amounting to 8,239.10 euros per capita. This figure makes Norway the 2nd largest spender on health. With such wealth, Norwegian citizens have disposable income, which has strengthened the Norwegian consumer market in the health sector. In the healthcare sector, Norway's centralized Hospital Group Purchasing Organization (Sykehusinnkjøp) provides a transparent procurement opportunity for Dutch companies to enter the tendering process on a national scale. With money at hand, Norway presents opportunities for Dutch companies to enter the healthcare sector market from the bottom-up – through consumers – and from the top-down – through centralized purchasing agencies.

Unique Opportunities in Norway: As a country with a disperse population, Norway is ever more dependent on telemedicine solutions to contain costs and provide quality care. A shortage of GPs in the northern areas of the country is also fueling this demand. Like Sweden, the vast landscape caters to opportunities for Dutch eHealth and telemedicine companies. In hospital construction, Norway has several large hospital construction opportunities. According to the Nasjonal Helse- og Sykehusplan 2020-2023, significant investments on upgrading and updating the current hospital buildings, including medical technology and ICT solutions will be done until 2024. Unlike Denmark where there is a national hospital plan, Norwegian hospital construction is sporadic. However, the Norwegian advantage is a centralized hospital build agency (Sykehusbygg) that makes it easy for Dutch companies to identify opportunities and follow the tendering process. Also in Norway, hospitals are working towards more sustainability.

Overall, the three Nordic countries are eager to adopt new innovative solutions and share sophisticated ecosystems for research and innovation. Compared to Sweden and Denmark, Norway's life science sector is in its infancy. This creates a cooperative entry point for Dutch expertise in product development and healthcare innovation.

The Clichés (are always true): Dutch companies should consider building partnerships, fostering collaborations, and seeking guidance from cluster organizations such as Oslo Medtech and Medtek Norge. Like Sweden and Denmark, Dutch companies looking to enter Norway should establish a long-term strategy, network with local

partners, master the language, and understand the business culture. Most of all, through Norway's centralized agencies for hospital construction and medical supplies, Dutch companies can procure national contracts and swiftly enter the Norwegian healthcare market.

COVID-19: The Scandinavian response to COVID-19 has revealed two differing approaches. Denmark and Norway decided to take preventive measures at a very early stage to stop the virus from spreading in their countries. Sweden, on the other hand, took a much less restrictive approach and did not impose widespread lockdown measures on the population nor closed shops and public places.

III. COUNTRY COMPARISON

	Denmark	Norway	Sweden	Netherlands
Land Size (km²) (2018)	40,000	365,107.8	407,310	33,670
Population (2019)	5,818,553	5,347,896	10,285,453	17,332,850
annual growth (% (2019))	0.4	0.7	1.1	0.6
Population density (people per sq. km of land) (2018)	145	15	25	512
65 years and older (%) (2019)	20	17	20	20
expected in 2050 (%)	24.4	23.6	24.4	27.7
Maternal Mortality Rate (per 100 000 births) (2016)	3	3	3	3
Life Expectancy at Birth (2018)	81	83	83	82
Healthy Life Expectancy (years, 2019)	71.0	71.4	71.9	71.4
Probability of dying between 15-60 years (per 1.000) (2017)	71	58	54	58
Life Expectancy Global Rank	34	13	17	25
Economic Context				
GDP total (2019, USD millions)	350,104	403,336	530,884	907,051
annual growth rate (%) (2019)	2.8	1.2	1.3	1.7
GDP per capita (2019. USD)	60,170.3	75,419.6	51,615.0	52,331.3
annual growth rate (%) (2019)	2.4	0.5	0.2	1.1
(Health) Business Context				
Ease of Doing Business Rank (2019)	4	9	10	42
Projected Pharmaceutical Market 2021 (USD mln)	3.1	3,190	4,950	6,660
expected annual growth 2016-2021 in USD (%)	0.4	2.9	3.0	0.2

Projected Medical Device Market 2020 (USD mln)	1,674.6	1,593.6	2,836.3	3,952.1
expected annual growth 2016-2021 in USD (%)	2.9	4.5	4.5	2.8
Medical Device Import from the Netherlands (2019. USD millions)	493	84	775	-
Medical Device Export to the Netherlands (2019, USD millions)	117	88	367	-
Health System				
Type of Health System	Public decentralized UHC system with private options	Public decentralized UHC system with private options	Public decentralized UHC system with private options	Dual-level system with universal social health insurance
HAQ-score (2016)	92.1	96.6	95.5	96.1
Health Expenditure % of GDP (2018)	10.07	10.05	10.90	9.97
per Capita (USD) (2018)	6,216.77	8,239.10	5,981.71	5,306.53
Private health expenditure as % of total HE (2018)	16.12	14.68	14.91	35.06
Out-of-pocket expenditure as % of total HE (2018)	13.77	14.31	13.78	10.80
Domestic general government as % of total HE (2018)	83.88	85.32	85.09	64.92
Hospital beds per 1 000 population (2018)	2.4	3.5	2.1	3.2
Physicians per 1 000 population (2016)	4.0	2.7	4.0	3.5
Nurses and Midwives per 1 000 (2016)	10.3	18.0	11.8	10.9
Responsible entity for specialized care	Regions	Regions	Regions	
Responsible entity for primary care	Municipalities	Municipalities	Regions	
Responsible entity for long-term care	Municipalities	Municipalities	Municipalities	

Table 1. *Country Comparison. Accumulated data from: World Bank Data, BMI Medical Devices reports (2017), UN Comtrade Data, OECD Health at Glance 2017 Report.*

IV. GLOSSARY OF TERMS

EU	European Union
GDP	Gross Domestic Product
SME	Small and Medium Enterprises
TFHC	Task Force Health Care
LSH	Life Science and Health
RBD	Regional Business Development team, Nordic and Baltic countries

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1. INTRODUCTION

1.1. An Introduction to Norway

The Kingdom of Norway is a high-income country in Northern Europe. Norway is a constitutional monarchy with state power divided between the parliament, the cabinet, and the supreme court. The country is divided politically and administratively between counties and municipalities. The economy is primarily driven by exports of crude oil, natural gas, minerals, ships and oil platforms and seafood (Statistisk sentralbyrå (Statistics Norway), 2021).

Norway has a population of 5.4 million people in 2021. **Figure 1** presents the population distribution in 2021, **Table 2** presents population statistics for Norway, Denmark and Sweden. By 2031, the population of Norway is expected to reach 6 million people. The total fertility rate is 1.48 children per women in 2020. Life expectancy at birth for males is 81.5 years in 2020. Life expectancy at birth for females is 84.9 years in 2020 (Statistics Norway, 2021). Today, just over one in nine people in Norway are aged 70 years or over. This percentage is set to increase. In the medium alternative, roughly every fifth person in Norway will be aged 70 or over by 2060. The share of elderly will see a particular increase when the post-war baby boomers are elderly. Although Norway is aging, the aging population in Norway will be far smaller than in many other countries. This is because Norway has had a less negative fertility development and relatively high immigration compared with other countries in Europe and the west in general. Today, the net immigration has a greater bearing on the population growth than the excess of births.

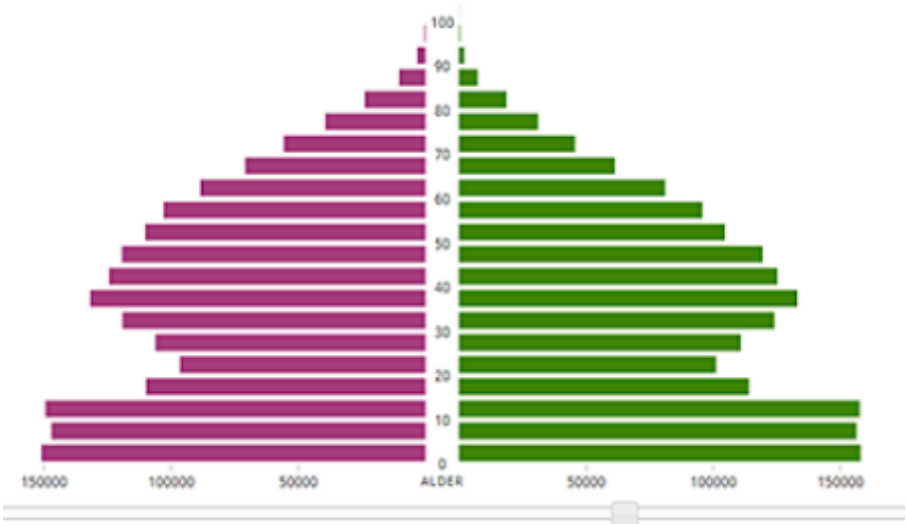

Figure 1. *Population distribution in Norway (Statistics Norway, 2021)*

	Denmark	Norway	Sweden
Total Population, 2019	5,818,553	5,347,896	10,285,453
Population growth (annual %) 2019	0.4	0.7	1.1
Population density (people per sq. km of land area)	145	15	25
Population ages 0-14 (% of total) 2019	16	17	18
Population ages 15-64 (% of total) 2019	64	65	62
Population age 65 and above (% of total) 2019	20	17	20
Urban population (% of total) 2019	88	83	88

Table 2. *Population statistics for Denmark, Sweden and Norway (The World Bank, 2019)*

1.2. About this study

This report was prepared by Task Force Health Care (TFHC) for the Regional Business Development team (RBD) for the Nordic and Baltic countries on behalf of the Netherlands Enterprise Agency and the Ministry of Foreign Affairs. The report is an updated version of the study published in 2017 by TFHC on the LSH sector in Norway and reflects the current reality, including the effect of COVID-19 and the scientific insights obtained from the pandemic. This report highlights priorities, opportunities, and challenges of the Norwegian healthcare market. In addition, the study provides information on trends, financial considerations, and practical information for companies interested in the Norwegian market.

Parallel to this updated report for Norway, similar updates of the 2017 reports have been completed for Denmark and Sweden. The snapshot included in this report gives a brief overview and comparison of the healthcare sector in all three countries. The complete reports for Denmark and Sweden are also available upon request.

1.3. Methodology

In order to make this report as complete and relevant as possible for the Dutch Life Sciences & Health sector, information was obtained through different sources including desk study and expert interviews. This methodology was applied for every updated report, i.e. for Norway, Denmark and Sweden.

Desk research

The study uses secondary data including government documents, reports, and academic articles. For the statistics mentioned in the report, the latest available data have been used. The information obtained through this desk research was validated at the meetings during the expert interviews.

Expert interviews

Due to the situation regarding travel restrictions and the COVID-19 pandemic at the time of preparing this report, in person meetings were not possible. Instead expert interviews were conducted to gather valuable information. The meetings were used to cross check previously obtained data to provide a report that is as objective and realistic as possible.

2. THE NORWEGIAN HEALTHCARE SECTOR

2.1. Historical Background

Prior to the 19th century, healthcare in Norway was decentralized with municipalities acting as healthcare providers (Ringard, Sagan, Saunes, & Lindahl, 2013). Medical personnel were primarily accessible to wealthy urban populations. Industrialization in the 19th century brought about significant reforms in healthcare. The Practitioners Act of 1912 provided citizens with equal access to physicians' services, regardless of their level of income or residency (Ringard, Sagan, Saunes, & Lindahl, 2013). The number of primary medical officers doubled in both municipal and rural districts (Hubbard, 2006). The Ministry of Social Affairs was developed and each county was assigned a medical officer (Hubbard, 2006). The movement aimed to standardize care in the counties, districts, and nation (Hubbard, 2006).

After 1945 the Norwegian welfare state began to take shape under the leadership of the social democratic labor party (Hubbard, 2006). In the following three decades, legislation was introduced that brought forward comprehensive health and welfare services. Legislation included universal sick leave benefit (1956), medical services in schools (1957), disability benefits (1960), universal social security benefit (1966), and hospitals (1969) (Hubbard, 2006). These systems were centrally managed by professional medical experts under the Norwegian Directorate of Health.

The reforms of the 1980s aimed to decentralize the responsibilities of the Norwegian Directorate of Health after criticism for being a centralized technocracy. The communal health law of 1982 transferred responsibility for all health services from the national level to the municipalities (5). Hospital ownership was transferred from the state to 19 municipalities (Grønlie, 2006). In the 1990s the responsibilities of the Directorate of Health were reduced. Despite these systemic changes, the sector continued to grow and expand. Between 1980 and 2000 the public health expenditure doubled from 4 million euros to over 7 million euros (Hubbard, 2006).

The most significant change to the Norwegian health care system was introduced in 2002 with the Norwegian Hospital Reform. The reform transferred responsibility for the hospitals from the counties to five Regional Health Authorities (Ringard, Sagan, Saunes, & Lindahl, 2013; Grønlie, 2006). Today, there are 4 Regional Health Authorities in Norway. From 2005 to 2015 a national strategy was introduced to improve quality of healthcare and social services in Norway. The strategy focused on "efficacy, safety, efficiency, patient centered care, care coordination, and continuity and equality in access to health care" (The Commonwealth Fund, 2021). Under this strategy, the Health Directorate developed and published several evidence-based guidelines for specific diseases. The 2012 Coordination Reform addressed three major challenges of the Norwegian healthcare system: poor care coordination for individual patients, lack of preventive care, and the shifting illness profile of the aging population.

In 2019, a local governance reform was implemented, and some municipalities and regions have been/are in the process of being merged into larger entities. 'Healthcare Communities,' a new partnership between hospitals and their surrounding municipalities, have been established to improve the local planning and development of services, as well as contribute to national planning. However, improving coordination between primary and specialist services may prove challenging, notably due to the way in which they are governed (Saunes, Sagan, & Karanikolos, 2020).

2.2. The Norwegian Healthcare System

The Norwegian healthcare system is a well-functioning system centered on universal coverage and equal access. The healthcare system is described as semi decentralized due to the divided responsibility between the national government, the regional health authorities, and the municipalities.

On the national level, the Ministry of Health and Care Services ('The Ministry') is responsible for ensuring quality of healthcare and social services. The Ministry develops national health policies, oversees legislation, determines the allocation of health sector funds, and implements health policy through other institutions. The Ministry owns the four Regional Health Authorities ('The Authorities'). The Authorities are responsible for specialized care and hospital care in Norway. The organization of the health system in Norway is illustrated in **Figure 2**. The Authorities include the Central Norway Regional Health Authority (Helse Midt-Norge), the Northern Norway Regional Health Authority (Helse Nord), the South Eastern Norway Regional Health Authority (Helse Sør-Øst), and Western Norway Regional Health Authority (Helse Vest). **Figure 3** presents The Authorities on the map of Norway.

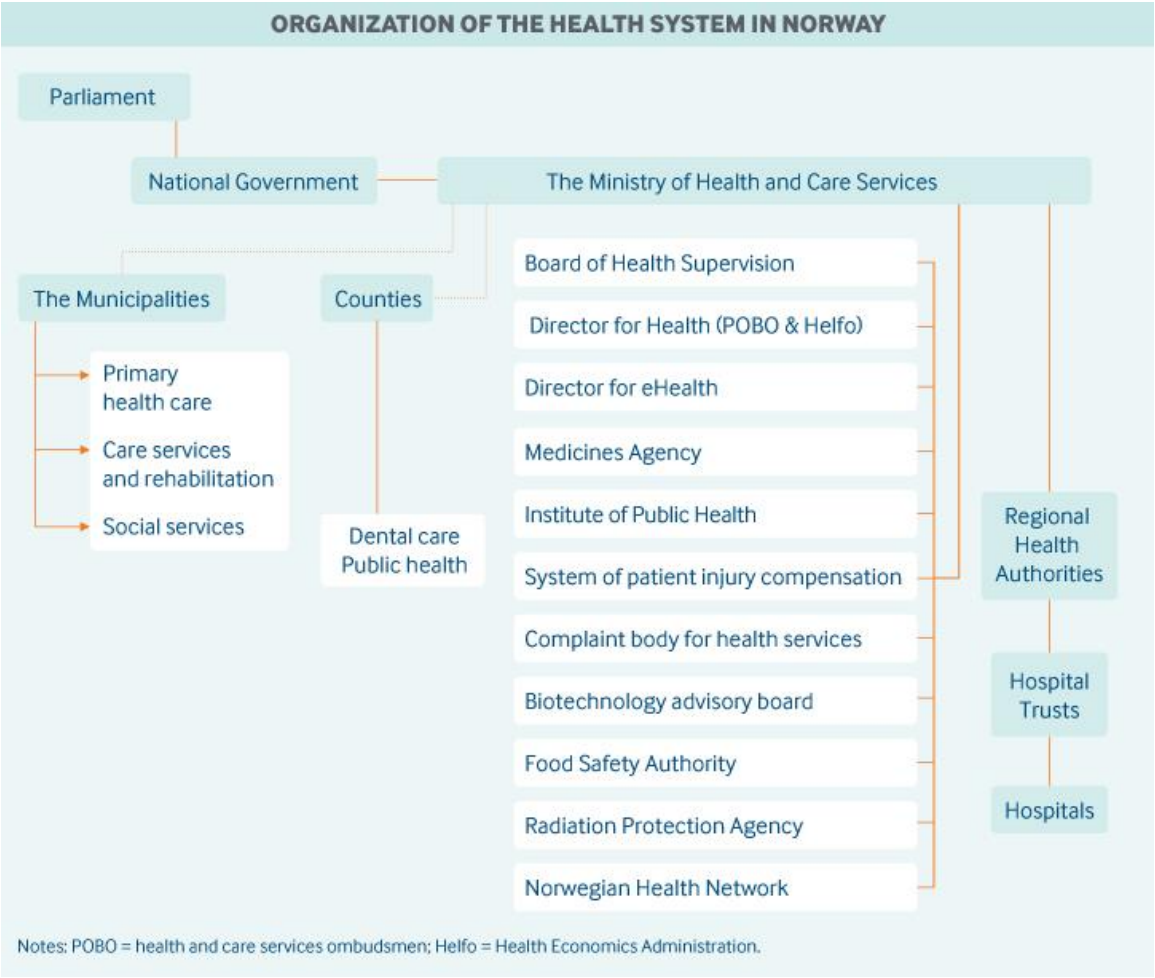

Figure 2. *Overview of Norwegian healthcare system on national, regional and municipal levels*

The South-Eastern Norway (Helse Sør-Øst) Regional Health Authority is the largest of the four regional health authorities in Norway and serves 2.9 million people (57% of the population), including the Norwegian capital Oslo (South-Eastern Norway Regional Health Authority, 2021). Each Authority owns health trusts that are responsible for specialized health services including hospitals, mental health institutions, and laboratory services. In total, there are 28 health trusts. Of these health trusts, 20 are hospitals (National Health and Hospital Plan 2020-2023, 2020), All public hospitals are governed as publicly owned corporations. Privately owned hospitals provide less than 1% of the healthcare services in Norway. Appendix A presents a list of university hospitals in Norway and their geographic spread.

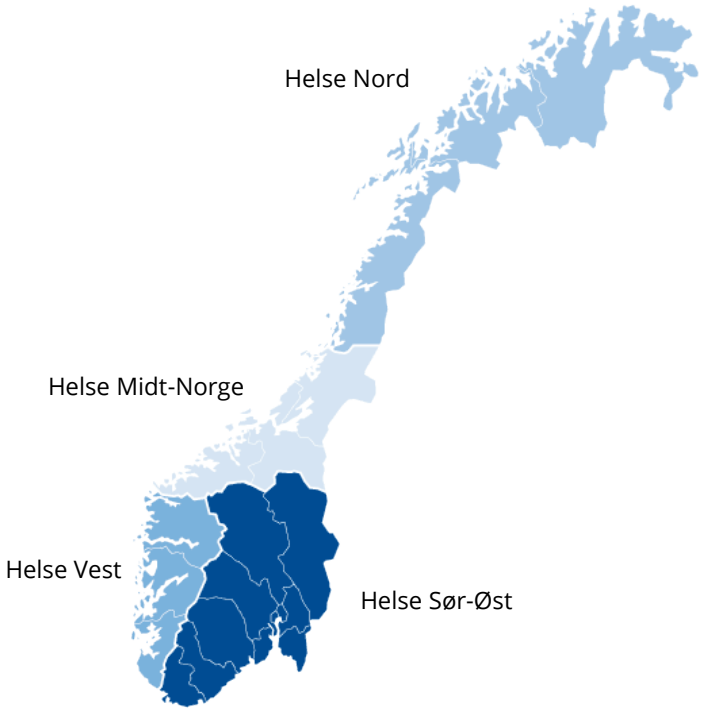

Figure 3. *The Norwegian Health Authorities*

In October 2019, 19 Healthcare Communities (*helsefellesskap*) were established as an organizational solution to address challenges such as the division of responsibility over the financing and organization of care. Each Healthcare Community consists of a partnership between a health trust and the municipalities within the region covered by this health trust. Healthcare Communities are responsible for ensuring a common understanding of targets and expectations from the central government for the municipalities it covers, and for joint planning between these municipalities and between municipalities and health trusts to achieve these targets. As such, Healthcare Communities report to their RHAs, which in turn report to the central government (Saunes, Sagan, & Karanikolos, 2020)

Counties serve a limited role in the provision of healthcare services in Norway. Primarily, they are responsible for providing dental care. Counties also share a limited responsibility for addressing public health.

There are 356 municipalities in Norway (Local government reforms in Norway, 2020). Ongoing reforms aim to continue to reduce the number of municipalities in Norway (Norsk Helsenett, 2017). The municipalities are responsible for the provision of primary and social care services. These services include general practice, pregnancy and antenatal care, rehabilitation, physiotherapy, nursing, late-night emergency services, and a range of preventative public health measures (Ringard, Sagan, Saunes, & Lindahl, 2013; Norwegian Directorate of Health, 2012). The municipalities are required to provide long-term care and care for elderly individuals. When a patient is discharged from the hospital, the municipality decides if the patient receives at home care, short term care, rehabilitation, or long-term care (Lilleborg Health House, 2017). Municipalities pay fees to hospitals if they are unable to accommodate patients after discharge from a hospital. The fee system is similar in Sweden. If the patient is transferred to a health center, the municipality is responsible for determining how long patients will stay there.

The 2002 healthcare reforms gave patients the right to choose one general practitioner as a family doctor (Romøren, Torjesen, & Landmark, 2011). Today, 99% of all individuals in Norway are registered with a general practitioner. Most general practitioners are self-employed. General practitioners are contracted by the

municipalities. Their services are paid for by the municipalities (35%), by the Norwegian Health Economics Administration (Helfo) (35%), and by out-of-pocket payments (30%) (The Commonwealth Fund, 2021). General practitioners generally work at group practices housing one to six physicians and employ lab technicians, nurses, and secretaries.

General practitioners in Norway are the first point of contact in the healthcare system. They are gatekeepers to specialized care. Once a person obtains a specialist referral, the patient has the right to choose a specialist from any municipality. The availability of specialists varies by geographic region and is limited in rural areas.

The role of the private healthcare sector in Norway is limited. While most general practitioners are self-employed, the 2002 reforms fully embedded these practitioners into the public sector. Not-for-profit private hospitals, which have tender agreements with RHAs, accounted for 5 percent of overnight hospital stays in 2017. The for-profit hospital sector, which is small, covered 6.5 percent of daytime stays, mostly outpatient surgeries. For-profit hospitals do not offer acute care or a full range of services. Some services in private hospitals may receive public funding, but the proportion varies, from almost none to 85 percent (The Commonwealth Fund, 2021)

2.3. Healthcare Expenditure and Financing

Historically, the share of GDP spent on healthcare in Norway has been amongst the highest in the world. Since its peak in the early 2000s, Norway has spent a smaller share of its GDP on healthcare than Denmark and Sweden (The World Bank, 2018). Per capita expenditure was estimated at 8,238 euros. 85 percent of healthcare expenditure came from public sources. **Table 3** presents an overview of the Norwegian healthcare expenditure compared to expenditure in Denmark and Sweden.

	Denmark	Norway	Sweden
Total Healthcare Expenditure per capita (USD) 2018	6,216.77	8,239.10	5,981.71
Total Healthcare Expenditure (% of GDP) 2018	10.07	10.05	10.90
Domestic general government expenditure on health (% of total HE) 2018	83.88	85.32	85.09
Private expenditure on health (% of total HE) 2018	16.12	14.68	13.78
Out-of-pocket payments (% of total HE) 2018	13.77	14.31	13.78

Table 3. *Danish, Norwegian and Swedish healthcare expenditure, 2018 (The World Bank, 2019)*

Norway has universal health coverage, funded primarily by general taxes and by payroll contributions shared by employers and employees. Every Norwegian resident partakes in the National Insurance Scheme. Approximately 8.2% of an employee's income tax goes to the National Insurance Scheme (Norwegian Minstry of Labour and Social Affairs, 2019). In 2020, the average income tax was 38.2% (Trading Economics, 2020). The national insurance scheme includes primary, ambulatory, mental health, and hospital care, as well as select outpatient prescription drugs. Patients make copayments for some services and products, with caps on out-of-pocket contributions for most services. The share of the Norwegian population with a private health insurance is 10%, mainly to gain quicker access to and greater choice of private providers. (The Commonwealth Fund, 2021).

The split between public and private funding has been stable for the past 20 years. Public sources consist of transfers from national and municipal taxes, representing 76 percent, and contributions form state and payroll taxes, representing 11 percent. Out-of-pocket payments account for 14.3 percent of health expenditures. Copayments for services are regulated. For instance, the standard copayment for a consultation with a regular GP is 15 euros. The total annual copayment cap for visits to your regular GP, prescription medication and other healthcare services covered by the scheme is approximately 240 euros per patient (European Commission, 2021). Long-term care and certain prescription drugs do not qualify under the cap. Once the annual out-of-pocket cost is reached, Helfo makes direct payments to the providers (The Commonwealth Fund, 2021). Helfo falls under the Norwegian Directorate of Health. The Helfo administration is responsible for direct payments to health service providers as well as the partial payments to general practitioners under the general practitioner scheme (The Norwegian Health Economics Administration, 2021).

Figure 4 presents an overview of the financial flows in the Norwegian healthcare system. The Norwegian parliament approves the national budget every December. The Ministry of Finance (Finansdepartementet) allocates budget resources to the Ministry of Health. The Ministry of Health then distributes its budget between The Authorities, the municipalities, the counties and Helfo (The Commonwealth Fund, 2021).

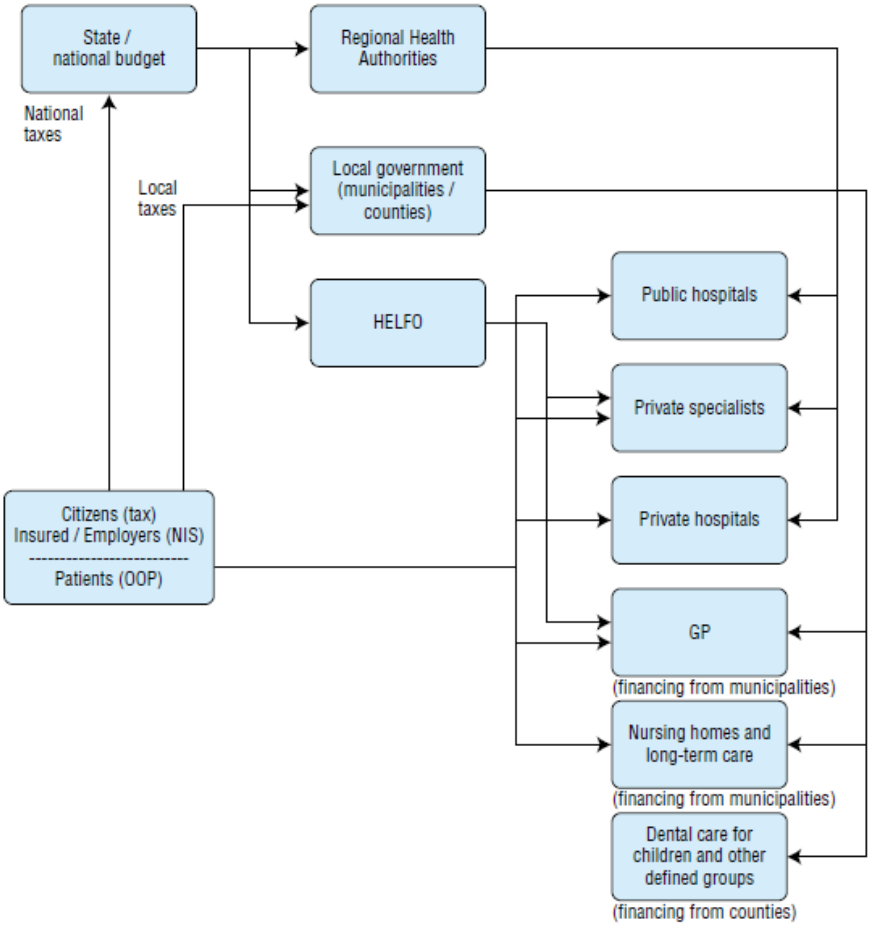

Figure 4. *Overview of financial flows in the Norwegian healthcare system (Ringard, Sagan, Saunes, & Lindahl, 2013)*

Since 1997, there has been a transition to a mixed financing system consisting of block grants and case-based payment, complemented by quality-based financing (Olsen & Brandborg, 2016). All financing for public and private hospitals comes from RHAs, some of which is transferred by the Helfo on behalf of the NIS) and from out-of-pocket payments. Block grants are allocated from the national level to the RHAs based on a number of social, health and demographic indicators in each municipality. Case-based payment is calculated through the Diagnosis-Related Group (DRG) system. A small share of funding (0.5 percent) is quality-based funding. The RHAs are entitled to allocate funding according to their own priorities – this is mainly done by shifting money within the grant funding (The Health Systems and Policy Monitor, 2020). The state employs public health personnel. Salaries and contracts are negotiated between the state and trade unions. Trade unions include the Norwegian Medical Association (Legeforeningen) for physicians and the Norwegian Nurses Organisation (Norsk Sykepleierforbund) for nurses.

	2000	2005	2009	2015	2018
Total number of hospital beds per 1.000 people	3.8	5.2	4.3	3.8	3.5

Table 4. *Total number of hospital beds per 1.000 people in Norway, 2000-2019 (World Bank, 2019)*

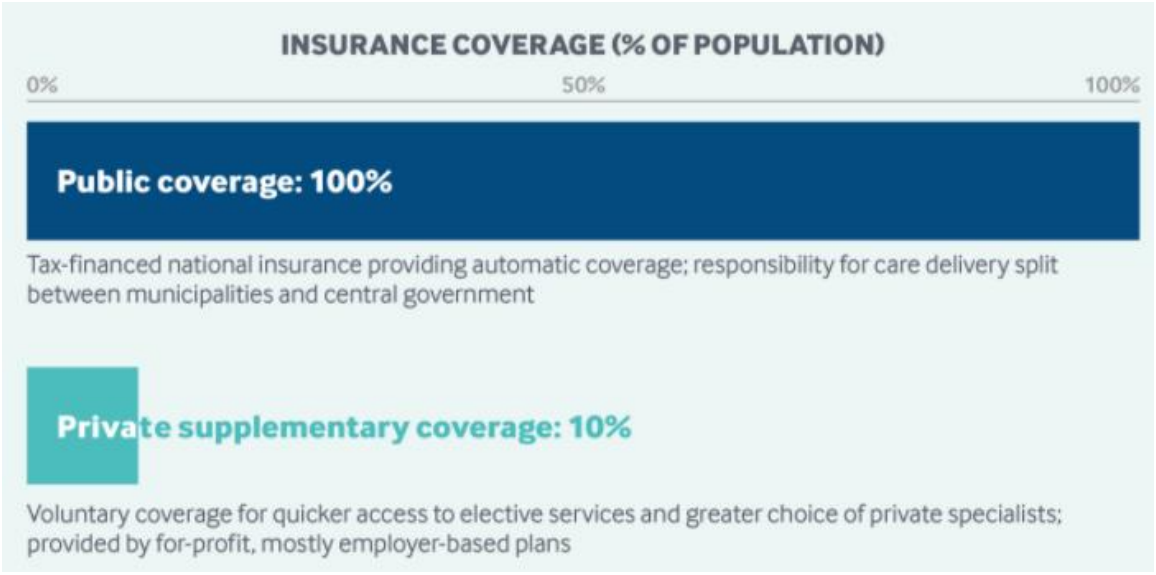

Figure 5. *Insurance coverage (% of Norwegian population) (The Commonwealth Fund, 2021)*

2.4. Healthcare infrastructure

Norway has an estimated 16,000 healthcare facilities. In total, there are 28 health trusts in the 4 regional health authorities. There is at least one university hospital in each authority. There is no plan in place to close or specialize hospitals in Norway. The authorities are committed to maintaining smaller hospitals to service rural populations.

Since the 1980s, the number of hospital beds in Norway has steadily declined. **Table 4** presents the trends in bed numbers per 1,000 of people. As of 2018, Norway has approximately 3.5 beds per 1,000 inhabitants (World Bank, 2019). **Table 5** presents an overview of specialized care beds and beds in care services in Norway. The average time spent in hospitals is also on the decline, primarily due to new technologies and treatment options. Long-term care is provided in the patient's home, nursing homes, or sheltered homes, which are run by the municipalities. In total, Norway has approximately 40,000 beds in nursing homes. The official policy of Norway is to encourage home based care.

Specialized care	
Number of people treated in hospital	1.9 million
Number of beds	18,281
Beds per 1000 people (2018)	3.5
Average length of stay in hospital (2019)	5.9 days
Nursing and care services	
Number of people that received assistance at home	32,094
Number of people that received nursing at home	102,883
Number of people that received both assistance and nursing at home	62,761
Number of residents in short term rehabilitation	9,090
Number of residents in long-term rehabilitation	31,981
Number of beds in care institutions	39,241
Percentage of private beds	8,8

Table 5. *Infrastructure in specialized care and care services, 2020 (Statistik Sentralbyrå, 2020) (World Bank, 2018) (OECD, 2019)*

2.5. Healthcare professionals

According to The World Bank, Norway has approximately 2.9 physicians and 18.2 nurses and midwives per 1,000 people (The World Bank, 2018). In total, 452,000 people with a healthcare education were employed in Norway in 2020 (Statistisk sentralbyrå (Statistics Norway), 2020), which has increased significantly from the 398,000 employed in 2015. Norway has experienced a shortage of healthcare professionals to service the one million people living in rural areas in Norway (The World Bank, 2017). Establishing a medical school in the northern city of Tromsø, internship programs in the northern regions, and specialist training in family health and public health has resulted in some progress.

Norwegian labor costs are high compared to other European countries. In 2011, the average yearly salary for physicians was 77,000 euros (The Commonwealth Fund, 2016). Labour costs in Norway should be considered before market entry. However, labour costs also present opportunities. If Dutch smart solutions can present smart solutions that cut down the cost of labour, opportunities in the healthcare sector may be available. Sector-specific opportunities are presented in Chapter 4 of this report.

2.6. Health outcomes

The Norwegian population is healthy with one of the highest life expectancies in the world. The disease profile in Norway is dominated by non-communicable diseases. Like Sweden, the leading causes of death in Norway are cardiovascular diseases, Alzheimer disease, and cancers (Institute for Health Metrics and Evaluation, 2019). The most common causes of premature deaths in Norway are coronary heart disease, stroke, Alzheimer's disease, COPD and lung cancer (Institute for Health Metrics and Evaluation, 2019), as can be seen in **Figure 6.** The leading risk factors in Norway are tobacco use, high blood pressure and dietary risks (Institute for Health Metrics and Evaluation, 2019), as shown in **Figure 7**.

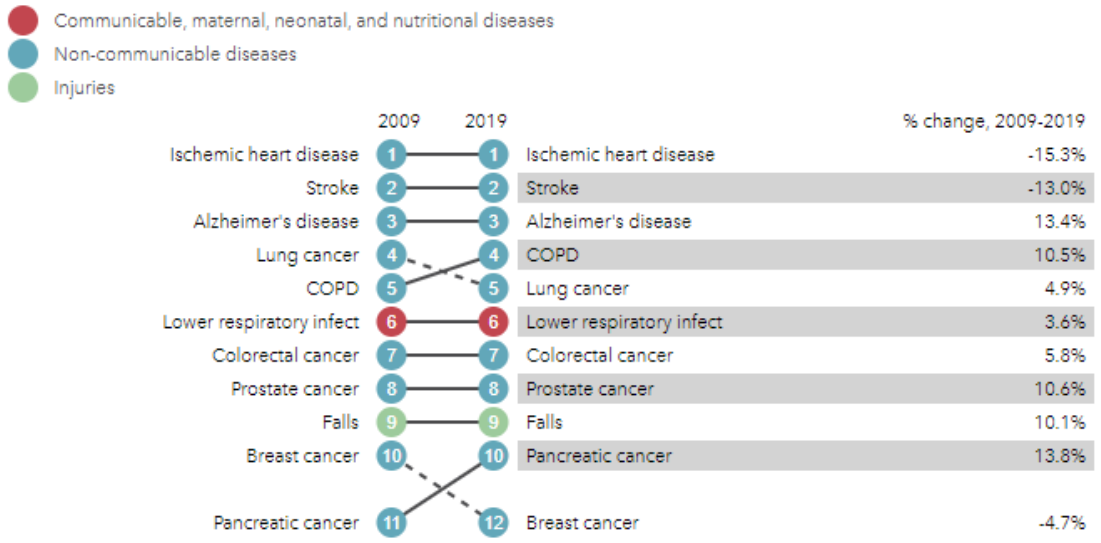

Figure 6. *Top 10 causes of total number of deaths in 2019 and percent change 2009-2019, all ages combined (Institute for Health Metrics and Evaluation, 2019)*

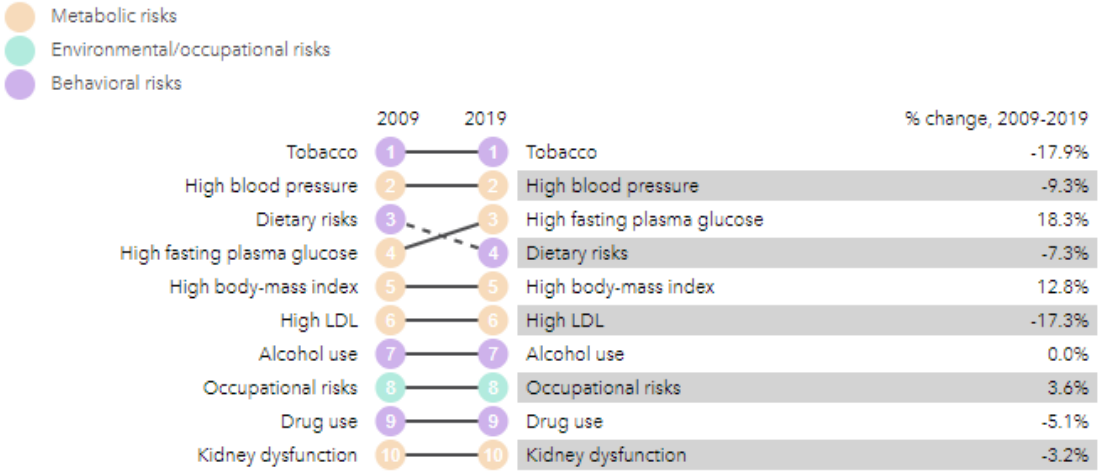

Figure 7. *Top 10 risks contributing to total number of DALYs in 2019 and percent change 2009–2019, all ages combined (Institute for Health Metrics and Evaluation, 2019)*

In 2013, the Norwegian Ministry of Health and Care Services introduced a national strategy to address prevention, diagnosis, treatment and rehabilitation of noncommunicable diseases. The 2013-2017 plan focused on cardiovascular diseases, diabetes, chronic obstructive pulmonary diseases, and cancer (Norwegian Ministry of Health and Care Services, 2013).The main areas for improvement were identified as tobacco, diet, physical activity, and alcohol (Norwegian Ministry of Health and Care Services, 2013). The overall goal was to reduce premature deaths from cardiovascular diseases, diabetes, chronic lung disease, and cancer by 25% by the year 2025 (Norwegian Ministry of Health and Care Services, 2013).

2.7. COVID-19 developments and outcomes

In March 2020, a national lockdown was announced due to COVID-19, whereby schools, fitness centres, hair salons, etc. were closed, initially for two weeks but was then extended in some areas, such as Oslo. Whereas neighboring country Sweden chose to locally impose stricter measures, the Norwegian government followed a strategy focused on fighting and eradicating the novel coronavirus. Early action and a unified approach by a Norwegian health care system that features universal care and a single public player contributed to successes in dealing with the virus. (Mjåset, 2020).

The strength of the Norwegian COVID-19 response seems to be the early decision to pursue a national strategy, to coordinate efforts across regions as well as primary and specialized care, and the general willingness to listen to and trust the health authorities in a time of crisis. This trust has been pointed out to be deeply rooted in Norwegian mentality (Mjåset, 2020). National eHealth solutions provided great value in dealing with the pandemic. By exposing gaps and highlighting the importance of digitalization on a local and national scale, the pandemic has driven forward initiatives encouraging the use of digital platforms and artificial intelligence to benefit the healthcare sector.

Norway has since established solutions such as:

- Helsenorge.no, where residents can find quality-assured information about health and illness, have contact with health personnel, administer their own healthcare and receive digital health and care services.
- Core journals, which give healthcare professionals quick access to important information, thereby supporting their decision-making process.
- Sharing documents in core medical records (pilots in Health South-East and Health North) to provide the opportunity to share patient information with involved health personnel.
- A national management model for eHealth has been established.

To respond to long-term challenges, the Norwegian government has prioritized NOK 189 million for investments in national collaboration solutions, such as the above-mentioned examples. 2021 will also see greater investments being made in data-sharing in the healthcare sector to develop new knowledge and better services. The investments will fund data registers for personnel and enterprises in municipal health and care services, trust services that provide the security to share sensitive patient information, and a national information service for posting laboratory and X-ray responses (Open Access Government, 2021).

Moving forward, the following topics have been found to be emphasized as topics of interest for healthcare stakeholders in the post-COVID era (Accenture, 2020):

- Data-sharing and ensuring security of patient data.
- The strengthening of virtual care provision (primary and secondary care).
- Disease (self) management through the use of mobile devices, apps, and wearables.

3. MARKET STRUCTURE

The following chapter will describe the business climate, market entry opportunities, and procurement procedures in Norway. Insight will be presented on the business culture, the use of the English language, and the tax climate for businesses. For sector-specific opportunities, see **Chapter 4** of this report.

3.1. Business climate

Norway is ranked 9th in The World Bank's Ease of Doing Business index and is ranked 15th in Forbes' Best Countries for Business list (Forbes, 2020; The World Bank, 2020). Norway is not part of the European Union. Norway is a member of the European Free Trade Association, along with Iceland, Liechtenstein and Switzerland. Under the European Economic Association, Norway entered an agreement with the European Union for the freedom of movement of goods, services, persons and capital. Therefore, Norway mostly follows European Union rules and regulations for business. The corporate tax rate is between 22%. Norway has a highly skilled and educated workforce that are comfortable working in English. According to the English Proficiency Index, Norway ranks 5th in the world for English proficiency (Education First, 2020).

Much like Sweden and Denmark, Norwegian business culture is informal and non-hierarchical. Maintaining a work-life balance is important to Norwegians. According to Transparency International, Norway is the 7th least corrupt country in the world (Transparency International, 2021). Openness and freedom of information are core values. Norwegians are humble and bragging is often counterproductive. Success in Norway should be presented modestly and, if possible, shown through evidence-based results. For more information on communicating in the Nordics, please see the document provided by the Embassy of the Netherlands.

3.2. Market Entry

While English is widely used in business, it is beneficial to have a contact who speaks Norwegian. Most business is conducted in Norwegian and many tenders are floated in Norwegian. Some healthcare professionals can be uncomfortable speaking English. There is a close business relationship between the Nordic countries because Scandinavian languages and cultures are similar. Scandinavians can understand one another. Therefore, Sweden, Denmark, and Norway have the benefit of being able to work with one another in their native languages. There is a limited presence of Dutch companies in Norway.

Establishment and market entry in Norway is a long-term commitment. Dutch companies considering entry into the Norwegian market should be prepared to have a three to five year strategy. As with any new venture, it takes considerable time to understand the market, to find opportunities, and build a reputation. Business registration in Norway is completed on the Government portal Altinn. A list of the 500 largest companies by turnover in Norway can be found on the website: http://www.kapital500.no/. Information on opportunities and challenges in specific sectors are presented in **Chapter 4** of this report.

One source of market entry is Invest in Norway. Invest in Norway assists foreign companies to establish their entity and run their business in Norway. Invest in Norway is managed by Innovation Norway. Innovation Norway is a government organization for innovation and development owned by the Ministry of Trade, Industry and Fisheries (51%) and The Authorities (49%). For advice on market entry in Oslo, Oslo Business Region is a good source. Oslo Business Region is a limited company fully owned by the city of Oslo Department of Business

Development and Public Ownership. Oslo Business Region provides similar services as Invest in Norway, but focuses primarily on startups. Invest in Bergen is the local Investment Promotion Agency (IPA) in Greater Bergen. Invest in Bergen has a good network in the region, and access to key industries and business clusters. In addition, attending trade shows or conferences in Norway can provide invaluable insight to the sector. A list of relevant trade fairs and events is provided in **Appendix B.**

Useful organizations that for market entry and information on the Dutch side include RVO (Netherlands Enterprise Agency) and Regional Business Developers based in Denmark and Sweden. In addition, the Netherlands Embassy in Oslo provides a good point of entry. Also, Task Force Health Care's relevant contacts and activities within the country can help you to expand your knowledge, network and business.

3.3. Procurement

The total procurement value of goods and services for the public sector amounts to around 50 billion euros per year. The Norwegian legislation for public procurement applies to purchases of goods and services within most industries, and span from major construction projects to the purchase of the smallest specialized healthcare equipment (Magnus Legal, 2021). As a general principle all contracts for supply, works or service contracts with an estimated value above the national threshold of 120,000 euros must be made public in the Norwegian database Doffin. The Norwegian transparency threshold is lower than the European Union (EU) rules. This entails that Norwegian regions and municipalities must publish contracts above EU-threshold values on the EU tenders website Tenders Electronic Daily.

If a Dutch company chooses to export goods and services to Norway there are several important procedures to understand. When importing to Norway, an Authorised Economic Operator must be used. Norwegian Customs provides a list of approved Authorised Economic Operators here. Most goods are covered under the EEA and EFTA trade agreements. For instance, medical devices that are CE marked in another European country can be sold on the Norwegian market. Specific government rules and guidelines for imports to Norway can be found on http://www.toll.no/. Another strategy to import to Norway is through a distributor. A non-exhaustive list of medical supply and equipment distributors is presented in **Appendix C**. Many of the companies in **Appendix C** work in Norway, Sweden, and Denmark, providing entry opportunities to all three countries. Specific information and opportunities in the medical device sector is presented in **Section 4.6**.

4. ALIGNING DUTCH SMART SOLUTIONS TO NORWEGIAN OPPORTUNITIES

The following chapter presents information and opportunities in specific healthcare sectors in Norway, including the areas of: healthy living & ageing, digital transformation, hospital design and build, biotechnology and biopharma, public health and innovative MedTech solutions. Below, you will find a brief summary of the Dutch strengths per healthcare sector. A more extensive analysis can be found in Appendix D.

4.1. Healthy living and ageing

The Netherlands is active in several areas to foster healthy living and ageing. Dutch organizations are active in healthy ageing, but also mobility & vitality, prevention and lifestyle solutions that help people live and age healthily are present. Elderly play a significant role in the Netherlands and have therefore drawn attention from many research institutes, companies and government. The life expectancy in the Netherlands is one of the highest in the world and continues to increase every year. Demographic developments have forced the Netherlands to become engaged in mental care and wellbeing, with a specific expertise in dementia.

The strengths of the Dutch Mobility & Vitality subsector can be categorized as follows:

- **Promoting independence through self-management**: solutions that enable people to live longer independently in their home environment include care robots and tools that increase physical mobility and help regain function and freedom or aid with medication.
- **Social inclusion & mental care**: through solutions that foster physical and mental interaction or digital solutions that (re-)connect people to relatives
- **Nutrition & active lifestyle**: special diets, nutrition and specialized exercise areas for elderly or people with a physical or mental impairment.
- **Long-term and senior care models**: care models in the Netherlands are process-based and manage long-term and senior care by reducing the costs of care, while ensuring the quality of care for patients.
- **Research and education**: in the Netherlands, high-level research is conducted in the field of healthy ageing and elderly care.

Opportunities in Health Ageing and Healthy Living

Elderly living facilities

As in Denmark, there are several programmes operated in Norway that focus on new living concepts involving the elderly population in the country. Norway too, faces an increase in its elderly population while there is a growing shortage of caregivers. The primary objective is for Norwegian inhabitants to live as long as possible in their homes with a high quality of life. To achieve this objective, there is an interest in Dutch innovative living concepts, such as the Hogeweyk model. Lessons learned from such Dutch designs have been implemented in, for example, Oslo. Although the market for private healthcare is minimal in Norway, the number of available beds in private elderly care facilities is growing.

Almas Hus

Almas hus is a showcase for welfare technology and assistive devices. The solutions showcase dementia friendly design, assistive technology for the home, support for easy adaptation, and use of lighting to maintain comfort levels for the elderly. The showcase presents welfare technology solutions to health personnel, decision-makers, and the public. Almas hus exemplifies the growing interest and opportunities for mobility and vitality solutions in Norway.

4.2. Accelerating digital transformation: Connected Care and Artificial Intelligence

Dutch solutions relevant for the digital transformation in healthcare have several unique characteristics. They are renowned for their simplicity, consistency, and flexibility, while being developed through shared decision-making. The solutions have a patient-centered view. There are two subcategories in eHealth in the Dutch landscape: Connected Care and Artificial Intelligence.

Within the subcategory Connected Care, there are several strengths and focus areas:

- **Remote care applications**: the major aspect is the exchange of data between and amongst patients, healthcare professionals and (informal) caregivers.
- **Safe, secure and interoperable apps and platforms**: many information systems, devices and applications need to connect within and across organizations, including Electronic Health Records and Hospital Information Management Systems. Dutch solutions enable access, exchange, integration and organize safe use of health data within and across organizational and national boundaries.
- **Research on patient empowerment:** Dutch research has focused on self-management of patients.

Strengths and focus areas within the subcategory Analytical & Artificial Intelligence include:

- **Improving efficiency**: by collecting and analyzing data, workflows, processes and teamwork among nursing staff, doctors, or other healthcare providers can be improved.
- **Clinical decision support solutions**: this includes solutions that are used for gathering and analyzing (actionable) data, automating tasks, providing insights and guidance for health professionals

Opportunities in Connected Care

Digitalization during the pandemic

Digitalization of healthcare is the most prominent trend in the Norwegian healthcare system. There was a rapid increase of digitalization in the first half year after the COVID-19 pandemic started, from approximately March 2020 until September 2020. The trend stagnated after this first half year. Digitalization accelerated mostly at the level of the municipalities in healthcare.

Tools for self-management and prevention

In Norway, there is a shortage of caregivers and GPs in the remote areas of the country, a trend that is – up until now - not developing in a positive way. Digital health solutions can be part of the solution to cope with this shortage in remote areas.

Another part of the solution for this problem is believed to be the self-management of patients and an increased focus on prevention of illness. For example, chronic patients are a target group for such self-management solutions. Tools for self-management however are not always feasible, as reimbursement for these solutions are generally not yet available in Norway. Currently, funding does not flow into these types of innovations, but rather the day-to-day operations of the healthcare system.

Public framework for eHealth

The Directorate of eHealth (Direktoratet for e-helse) was established in 2016 as the government agency responsible for the development and administration of standards in electronic collaboration for health and care services in Norway. ePrescription and Summary Care Reports (Kjernejournal) are used nationally at the level of the GP, whereas hospitals and nursing homes have electronic health records. All healthcare institutions and professionals are linked to the national Norwegian Health Network. Patients can gain insights in their Kjernejournal via helsenorge.org, and some GPs are connected to the portal as well.

Opportunities in Artificial Intelligence

Norwegian Health Network (Norsk helsenett)

The Norwegian Health Network is a public company owned by The Authorities and works under the Directorate of eHealth to deliver eHealth solutions and ensure interoperability between eHealth systems. The Norwegian Health Network sells services to over 5,000 members, which ensures coverage to all municipalities, all counties, all pharmacies, all general practitioners, and all public and private hospitals. The Norwegian Health Network procures their eHealth solutions, software, and services from other companies. Companies are hired through standard EU procurement procedures. With the procurement of eHealth services from third parties, this present excellent opportunities for the Dutch eHealth sector to enter the Norwegian market.

IKT-Norge

IKT-Norge is an interest group for the Norwegian ICT industry. The organization has a strong political influence and is widely recognized in Norway. Through membership, Dutch companies could assume positive recognition and trust from consumers. IKT-Norge also provides market insight to members through reports and discounts on certain contractual agreements and insurances.

4.3. Hospital Design and Build

The Netherlands has expertise ranging from the initial design phase to the eventual maintenance and operations phase, with organizations having executed projects all around the globe. Dutch organizations widely acknowledge that all these hospital's components are connected, and therefore have experience along the whole trajectory. Special expertise is centred around offering turnkey projects, thereby offering total solutions that unburden customers in the complexity of creating health care facilities.

The strengths of the Dutch Hospital Design and Build subsector can be categorized as follows:

- **Turn-key projects;** total projects, reaching from planning, architecture and design, to building, furnishing and operations.
- **Design, architecture & engineering;** planning, feasibility, design, architecture' of health care facilities.
- **Sub-construction & (integrated) parts;** components integrated in the construction or bigger detachable parts.
- **Furnishing, equipping & operations;** furniture, smaller equipment and solutions needed to manage health care facilities.

Opportunities in Hospital Design and Build

Digitalization and interconnectivity

The rapid rate of digitalization in the healthcare sector due to the pandemic, has also influenced the sector of hospital design and build. Inpatient treatment was replaced as much as possible by outpatient treatment, and digital consultations replaced day visits. The biggest challenge in implementing this new trend was the exchange of information between Norwegian healthcare institutions. Systems were not able to exchange information with each other. The Norwegian system needs to start working across silos, of which interconnectivity is an important part. This provides opportunities for Dutch companies offering solutions in interoperability, safe data transfer, integrated systems and similar solutions.

Sustainable hospitals

A trend that is visible in the construction industry in Norway, as well as in the other Nordic countries, is the sustainability of hospital buildings. This includes not only new constructions, but also renovations to older institution buildings.

For instance, the new hospital that is being built in Hammerfest, Northern Norway, with a total estimated value of 287.3 million euros will be a green hospital and it will be built according to the passive house standards that decreases the energy use and costs related to heating of the building. In addition, this hospital project follows an environmental program including emission accounting. It is estimated that the project will be finished in 2024. The need to make the healthcare sector more sustainable is increasingly felt throughout the country and provides options for those companies which have invested in providing more sustainable solutions or working with cleaner materials.

New hospital upgrading and building

The Norwegian Hospital Construction Agency (Sykehusbygg) is the official government entity for hospital construction and planning. The agency is owned by the four Authorities. The Norwegian Hospital Construction Agency is responsible for oversight of all hospital construction projects.

The Norwegian health regions and hospitals have calculated that during 2020-2024 the total sum of investments needed will be around 9.3 billion euros, according to the Nasjonal Helse- og Sykehusplan 2020-2023. The investments will focus on upgrading and updating the current hospital buildings, including medical technology and ICT solutions. Some of the investments include for instance the new hospital in Drammen, a new children's hospital in Bergen, a new hospital in Stavanger and a new proton building in Bergen. Here you can find all hospital projects per region. A summary of the hospital plan 2020-2023 can be found here in English.

The Norwegian Hospital Construction Agency is responsible for the procurement of each hospital construction project. The agency follows standard EU procurement procedures to find architects and construction companies for each project. Generally, The Norwegian Hospital Construction Agency receives 5 to 7 bids for each hospital project. Each bid is submitted by collaborative company teams specializing in hospital construction, construction standards, and architectural design. There are many strong Nordic partners already established in Norway. Some of the largest building companies working in Norway include NCC (Sweden), Skanska (Sweden), AF (Norway), and Peab (Sweden).

The role of non-Scandinavian construction companies is limited in Norway. One deterrent for hospital construction in Norway may be the strict environmental safety requirements. Also, the Norwegian Hospital Construction Agency prefers to use standardized solutions. This entails that building supplies should be adjusted to comply with Norwegian regulations. Although contracts may allow for new materials and supplies, regulatory approval may be needed.

4.4. Biotech and Biopharma

Biotech & Biopharma encompasses a broad area of pharmaceutical and biotech innovations and solutions to prevent and treat diseases in an early stage in order to boost a healthy, sustainable and prosperous future. Organizations within this strength offer solutions in areas such as drug development, diagnostics, vaccines and therapies tailored to the needs of the patient. According to the Dutch Life Sciences Trend Analysis 2020, there are currently 469 Biotech companies and 42 BioPharma companies active within the Dutch Life Science industry.

The Netherlands is particularly strong in the following fields:

- **Oncology**
- **Neurology**
- **Infectious diseases**

Opportunities for Biotech and Biopharma

Genetic therapies

The generic pharmaceuticals market has grown significant in recent years and accounts for 49% of total pharmaceutical market. The introduction of the "step price scheme" in Norway, that aimed at further reducing the price of generic medicines, this is a trend set to continue. There is growing demand for innovative gene therapies.

Norwegian Strategy for Personalized Medicine in Healthcare 2017-2021

In January 2015, the Ministry of Health and Care Services asked the Directorate of Health to develop a national strategy for implementation of personalized medicine in public healthcare. The strategy is meant to support and form a basis for the healthcare service in the development and implementation of personalized medicine. A summary of the strategy in English can be found here.

Nordic Proof

Nordic Proof is a network of partners from renowned health institutions and testing hubs in healthcare in the Nordics. The consortium offers easy access to renowned institutes and testing hubs in Norway. It is an initiative that allows other companies from abroad to become familiar with the Nordic market. The Nordic Proof network offers one initial entry point for contact with the test facility partners. Once your inquiry has been received, Nordic Proof will assign projects to the relevant facility(ies) depending on the type of service(s) you are looking for. The testing will take place at the most suitable site, and further contract will be made directly between the two parties.

4.5. Public Health

Dutch organizations are focused on translating policy into practice. The strength Public Health consists of the following expertises:

- **System Management;** entails 'organizations involved in changing the foundations of health systems'.
- **Capacity Building**; consist of 'organizations that help to enhance the competences and capabilities of actors in the health care system',

Opportunities for Public Health

Risk management and pandemic preparedness

The Norwegian Institute of Public Health (Folkehelseinstituttet) is the institute responsible for national competency in public health under the Ministry of Health and Care Services. After the pandemic, there has been an increased interest of the Folkehelseninstituttet in more adequate risk management and pandemic preparedness. This is especially in enhancing and optimizing healthcare capacity and supply chains.

National health registers

Like Sweden and Denmark, Norway collects data in national health registers. Every individual in Norway has a personal identification number that is used in the healthcare system to collect health information for the registers. There are 16 mandatory national health registers and 47 national clinic registries for specific diseases (Norwegian Institute of Public Health, 2016; The Commonwealth Fund, 2021). **Appendix E** presents a list of the mandatory national health registries. More information on accessing the registry data can be found on the Norwegian Institute of Public Health website. National health registers present unique opportunities for Dutch researchers to conduct population studies with data on risk factors, performance, and health outcomes. In addition to the national registries, there are over forty regional and hospital-based registries on specific illnesses.

4.6. Innovative MedTech solutions to improve quality, accessibility and affordability

Dutch medical devices are developed in the Netherlands' managed competition health system, a system in which high quality and cost-effectiveness are fostered. These medical devices are the product of human-centred design, which leads to cutting-edge innovation which add value to the quality of care and patient experience and lower the cost of healthcare services.

Dutch solutions contribute to the quality, accessibility and affordability of healthcare services in the following medical specialties:

- **Mother-child care;**
- **Oncology;**
- **Orthopedics:** orthopedic rehabilitation;
- **Neurology:** neurological rehabilitation.
- **Assistive technologies**: technology and tools to increase, maintain or improve the functional capabilities of the work force.
- **Research on non-invasive diagnostics**: developing rapid and low-cost diagnostics using biochips, to detect cancer and other medical conditions.

In general, research is done on techniques that reduce the demand for care by developing technology that lower costs and the deployment of care personnel.

Opportunities in Medical Technology

Reliance on imports

Norway is, like Denmark and to a lesser degree Sweden, reliant on medical device imports due to limited national manufacturing. All medical devices in Norway are monitored by the Norwegian Directorate of Health. Medical device manufacturers must register in the Medical Device Database (Utstyrsregisteret). Under the EEA Agreement, Norway has the same rights and obligations as EU Member States. Medical devices that are CE marked in one EU country can be put on the market in Norway. **Appendix F** presents a non-exhaustive list of national and multinational medical product companies that are present in Norway.
Over 95% of medical devices and supplies are purchased by the Norwegian public sector (Business Monitor International Ltd, 2016). The National Hospital Group Purchasing Organization (Sykehusinnkjøp) is owned by the four Authorities with the responsibility of purchasing medical supplies and equipment for Norwegian hospitals. In the procurement process, The Authorities determine the level of execution (i.e., If goods will be purchased locally, regionally, or nationally), determine the strategy for procurement, and award the contract. The National Hospital Group Purchasing Organization manages the procurement processes with a team of specialists (Sykehusinnkjøp, 2017).

C3 – Center for Connected Care

The C3 – Center for Connected Care - was established in 2015 to accelerate the adoption of integrated patient-centric services to create health value to municipalities, hospitals and companies and reduce health care costs. C3 emerged from Oslo University Hospital (OUS). C3 studies how hospital treatment and home care can be provided efficiently and scaled to reach more patients, while at the same time improving the patient experience. They develop and use our innovation tools, laboratories and education programs to explore the needs of users, optimize patient flows, assess health benefit and find out how high-quality health solutions can be successfully scaled.

4.7 General trends for opportunities

Stagnated outsourcing

A trend that is visible in the manufacturing sector of health-related products, is a stagnation of outsourcing. Production is more often based in Norway itself, and generally, production and storage of products is done closer to the end users of the products. This may make the importance of working with a local partner – which is already advised – even more important but could also be a factor in deciding whether or not open a local office in Norway or the region.

Where to go from now?

Below, you can find a list of useful organizations that can help you to further identify and utilize your opportunities in the Norwegian life sciences and health sector.

Mobility and Vitality

- Almas Hus

eHealth

- NCE Norway Health Tech
- Cluster for Applied AI
- C3 - Center for Connected Care
- Norwegian Health Network (Norsk Helsenett)
- Medtek Norge
- IKT-Norge

Hospital design and build

- Construction City Cluster
- National Hospital Construction Trust (Sykehusbygg)

Biotech and Biopharma

- Oslo Cancer Cluster
- Norwegian Cancer Society
- Nordic Proof

Public Health

- Nursing Profession Organisation (Norsk Sykepleierforbund)
- Norwegian Medical Association (NMA)
- The Norwegian Institute of Public Health (Folkehelseinstituttet)

MedTech

- National Healthcare Purchasing Trust (Sykehussinkjop)

General

- Oslo Business Region
- Invest in Bergen
- Aleap; Norway's community for health start-ups
- InnoMed: Innovation in Norway's health sector
- Innovation Norway
- Inven2; technology transfer office for the University of Oslo and the South-Eastern Norway Regional Health Authority
- The Life Science Cluster

5. CONCLUSIONS

This report has highlighted the Top 10 Reasons for Dutch companies to be interested in the Norwegian healthcare market. The report has also presented concrete information and opportunities in six specific healthcare sectors in Norway, including the areas of: healthy living & ageing, digital transformation, hospital design and build, biotechnology and biopharma, public health and innovative MedTech solutions.

In long-term care and mobility will need to adapt to the growing elderly population. With a strategy of remaining the elderly in their own secure environment for as long as possible, Norway is looking for new living concepts involving elderly people. A decreasing workforce in this sector requires solutions like home support services, sensors and remote monitoring.

The geography of Norway presents large challenges for rural health provision, especially in the Northern parts. There is a shortage of caregivers and GPs in the remote areas of the country. Therefore, there are demands for tools for self-management to monitor the health status of mostly chronic patients.

The Norwegian eHealth sector has become more connected over the years. The Directorate of eHealth emerged in 2016 to address eHealth challenges in Norway. ePrescription and Summary Care Reports are used nationally at the level of the GP, whereas hospitals and nursing homes have electronic health records. Today, all healthcare institutions and professionals are linked to the national Norwegian Health Network.

There will be done investments of 9.3 billion euro's in constructing and upgrading hospitals in Norway from 2020-2024. The investments will focus on upgrading and updating the current hospital buildings, including medical technology and ICT solutions.
A trend that is visible in the construction industry in Norway, as well as in the other Nordic countries, is the sustainability of hospital buildings. The need to make the healthcare sector more sustainable is increasingly felt throughout the country and provides options for those companies which have invested in providing more sustainable solutions or working with cleaner materials

In the sector of Biotech and Biopharma, the generic pharmaceuticals market has grown significant in recent years and accounts for 49% of total pharmaceutical market. There is a growing demand for innovative gene therapies. A national strategy for personalized medicine is in place.

For public health, there are opportunities in the wide variance of national health registers that Norway is continuously updating. This source of information is easily accessible for foreign researchers. Besides, the public health authorities are focusing on risk management and pandemic preparedness, the areas in which there are opportunities for Dutch solutions.

As emphasized in this report, Norway relies on imports of medical devices and hospital supplies. Over 95% of Norwegian medical supplies and devices are purchased by the public sector. The centralized Norwegian Healthcare Purchasing Agency handles this. Public procurement is open and transparent. The centralized agencies and public companies in Norway, such as The National Hospital Purchasing Agency, provide a unique opportunity for Dutch companies to break new ground on a national level.

Various opportunities in the Norwegian healthcare sector are available to Dutch companies. However, companies should be smart in strategizing for market entry. As market entry and establishment can be challenging, Dutch

companies should be prepared to invest 3 to 5 years in Norway. Norway looks to Denmark and Sweden for innovative solutions. Entering the healthcare markets in Denmark or Sweden may provide a gateway into the Norwegian market.

Next steps

This report marks an important step to strengthen the bilateral healthcare relation between Norway and The Netherlands. Together with the RBD team and the Netherlands Embassy in Oslo, future steps and activities will be identified to further connect Norwegian and Dutch healthcare stakeholders and build towards sustainable healthcare relationships. Please get in touch with TFHC or the RBD team.

For information about the programmatic approach to the Nordics and Baltics region and interest in joint cooperation with groups of like-minded companies:

Regional Business Development

- **Hijman van Praag**
  Regional Business Developer Nordics & Baltics
  hijman-van.praag@minbuza.nl
- **Marcus Scoliège**
  Business Developer Scandinavia
  marcus.scoliege@minbuza.nl

For specific trade requests relating to the Nordic countries contact our economic advisers in each embassy:

Embassy of the Netherlands in Norway

osl-ea@minbuza.nl

For information about how we can work with you:

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OUR APPROACH

TASK FORCE HEALTH CARE

IMPROVING HEALTH CARE TOGETHER

Established in 1996, Task Force Health Care (TFHC) is a public-private not-for-profit platform that represents and supports the Dutch Life Sciences & Health (LSH) sector. Our platform has a reach of 1,200 LSH organisations in the Netherlands, with 130 dedicated and diverse partners. Our partners include government, industry, knowledge institutes, NGOs, and healthcare providers.

Our core mission is to improve health care and well-being internationally and in a sustainable and demand-driven manner, with the use of Dutch expertise. We are currently actively engaged with over 20 countries to stimulate and facilitate relationships on government-, knowledge- and business levels. Our partners are active around the world and provide innovative and sustainable solutions relevant to both global and local health care challenges.

A PROGRAMMATIC APPROACH

- Bridging Knowledge, Aligning Interests and Identifying Opportunities
- Fostering and Strengthening Networks
- Facilitating Dialogues on Health Themes and Opportunities to Collaborate

OUR FOCUS

- Mutual Interests and Benefits
- Developing Sustainable and Long-Term Approaches
- Demand-Driven and Context Specific

REFERENCES

Accenture. (2020). *Sustaining the Growth of Digital Health: Norway Findings.*

Amundsen, B. (2020). *Very low mortality rate from coronavirus in Norway compared to other countries*. Retrieved from Science Norway: https://sciencenorway.no/covid19-crisis-epidemic/very-low-mortality-rate-from-coronavirus-in-norway-compared-to-other-countries/1661751

Business Monitor International Ltd. (2016). *Norway Medical Devices Report.* BMI Research.

(2018). *Current health expenditure (% of GDP) - Norway.* The World Bank.

Directorate for Health. (2016). *Nøkkeltall for helse - och omsorgssektoren.* Oslo: Norwegian Directorate for Health. Retrieved from https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/1177/N%C3%B8kkeltall%202016%20IS-2464.pdf

Education First. (2020). *The world's largest ranking of countries by English skills*. Retrieved March 2017, from EF EPI: https://www.ef.co.uk/epi/regions/europe/norway/

European Commission. (2021). *Norway - Healthcare services.*

Forbes. (2020). *Best Countries for Business*. Retrieved 2017, from https://www.forbes.com/best-countries-for-business/list/#tab:overall

Grønlie, T. (2006). Norwegian General Hospitals, 1970-2002: County Ownership - An Interlude between Welfare Localism and State Direction. *50*(p. 189-208).

Hubbard, W. H. (2006). Public Health in Norway 1603-2003.

IHME. (2019). *Denmark*. Retrieved from Institute for Health Metrics and Evaluation : http://www.healthdata.org/denmark

Institute for Health Metrics and Evaluation. (2019). *Norway*. Retrieved 2017, from Health Data: http://www.healthdata.org/norway

Lilleborg Health House. (2017). Health House: Center for rehabilitation and short term care. Oslo.

(2020). *Local government reforms in Norway.*

Magnus Legal. (2021). *Public procurement in Norway*. Retrieved from https://www.magnuslegal.no/en/public-procurement-in-norway/

Magnus Legal. (2021). *Tender for public contracts in Norway*. Retrieved from https://blogg.magnuslegal.no/en/tender-for-public-contracts-in-norway

Mjåset, C. (2020). *On Having a National Strategy in a Time of Crisis: Covid-19 Lessons from Norway.* New England Journal of Medicine.

(2020). *National Health and Hospital Plan 2020-2023.* Norwgian Ministry of Health and Care Services.

NOMESCO. (2015). *Health Statistics for the Nordic Countries 2015.* Copenhagen: Nordic Medico-Statistical Committee. Retrieved from http://norden.diva-portal.org/smash/get/diva2:874109/FULLTEXT01.pdf

Norsk Helsenett. (2017). Norsk Helsenett: Presentation for ACCESS Health International. Oslo: Håkon Grimstad.

Norwegian Directorate of Health. (2012). *Norway and Health. An Introduction.* Oslo: Norwegian Directorate of Health. Retrieved from https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/302/Norway-and-health-an-introduction-IS-1730E.pdf

Norwegian Institute of Public Health. (2016). *Overview of the national health registries*. Retrieved 2017, from Research & Access to data: https://www.fhi.no/en/more/research--access-to-data/about-the-national-health-registries/

Norwegian Ministry of Health and Care Services. (2013). *NCD-Strategy 2013-2017: For the prevention, diagnosis, treatment and rehabilitation of four noncommunicable diseases - cardiovascular disease, diabetes, COPD, and cancer.* Oslo: Norwegian Ministry of Health and Care Services. Retrieved from https://www.regjeringen.no/contentassets/e62aa5018afa4557ac5e9f5e7800891f/ncd_strategy_060913.pdf

Norwegian Minstry of Labour and Social Affairs. (2019). *The Norwegian Social Insurance Scheme.*

Norwegian Office of the Auditor General. (2011). *Investigation into property management in health trusts and regional health authorities.* Oslo: The Office of the Auditor General. Retrieved from https://www.riksrevisjonen.no/Rapporter/Documents/2010-2011/Dokument%203/Dokumentbase_3_11_2010_2011.pdf

OECD. (2015). *Length of hospital stay*. Retrieved 2017, from OECD Data: https://data.oecd.org/healthcare/length-of-hospital-stay.htm

OECD. (2015). *OECD Data*. (OECD) Retrieved March 2017, from Household disposable income, Net annual growth rate: https://data.oecd.org/hha/household-disposable-income.htm

OECD. (2019). *Length of hospital stay*. Retrieved from https://data.oecd.org/healthcare/length-of-hospital-stay.htm

Olsen, C. B., & Brandborg, G. (2016). *Quality-Based Financing in Norway.*

Open Access Government. (2021). *Norway's healthcare sector: prioritising digital solutions in 2021*. Retrieved from https://www.openaccessgovernment.org/norways-healthcare-sector-prioritising-digital-solutions-in-2021/108255/

Oslo Municipality. (2017). Innovation The Department of Primary Health and Social Services. Oslo: Nancy Lyons Sletmo.

Ringard, Å., Sagan, A., Saunes, I. S., & Lindahl, A. K. (2013). *Norway: Health system review.* Health Systems in Transition.

Romøren, T. I., Torjesen, D. O., & Landmark, B. (2011). *Promoting coordination in Norwegian health care.* NCBI.

Saunes, I. S., Sagan, A., & Karanikolos, M. (2020). *Norway's Healthcare Communities are Set Up to Build Bridges Between Hospitals and Primary Care.* Eurohealth Systems and Practices.

(2021). *South-Eastern Norway Regional Health Authority.* Helse Sor-Ost.

Statistics Norway. (2021, June 14). *Key figures for the population*. Retrieved from https://www.ssb.no/en/befolkning/nokkeltall/population

Statistics Sentralbyrå. (2020). *Health*. Retrieved from https://www.ssb.no/en/helse

Statistik Sentralbyrå. (2020). *Specialist health services*. Retrieved from https://www.ssb.no/en/helse/helsetjenester/statistikk/spesialisthelsetjenesten

Statistik Sentralbyrå Care Services. (2020). *Care Services*. Retrieved from https://www.ssb.no/en/helse/helsetjenester/statistikk/sjukeheimar-heimetenester-og-andre-omsorgstenester

Statistisk sentralbyrå (Statisics Norway). (2017). *Population Projections, 2016-2100*. Retrieved January 2017, from Statistics: https://www.ssb.no/en/befolkning/statistikker/folkfram/aar/2016-06-21

Statistisk sentralbyrå (Statistics Norway). (2015). *Nursing and care services, 2015*. Retrieved 2017, from Statistics: https://www.ssb.no/en/helse/statistikker/pleie

Statistisk sentralbyrå (Statistics Norway). (2016, June). *Health care personnel, 2015, 4th quarter*. Retrieved 2017, from Statistics.: https://www.ssb.no/en/arbeid-og-lonn/statistikker/hesospers/aar/2016-06-27#content

Statistisk sentralbyrå (Statistics Norway). (2017). *Births, 2015*. Retrieved from Statistics: https://www.ssb.no/en/befolkning/statistikker/fodte/aar/2016-03-09

Statistisk sentralbyrå (Statistics Norway). (2017). *Population pyramid 2017*. Retrieved 2017, from https://www.ssb.no/en/befolkning/befolkningspyramide

Statistisk sentralbyrå (Statistics Norway). (2020). *Health accounts, 2016*. Retrieved 2017, from Statistics: http://www.ssb.no/en/helsesat

Statistisk sentralbyrå (Statistics Norway). (2020). *Health care personnel 2020*. Retrieved 2017, from Statistics.: https://www.ssb.no/en/arbeid-og-lonn/sysselsetting/statistikk/helse-og-sosialpersonell

Statistisk sentralbyrå (Statistics Norway). (2021, July 9). *External trade in goods, July 2021, preliminary figures*. Retrieved 2017, from Statistics: http://www.ssb.no/en/utenriksokonomi/statistikker/muh

Statistisk sentralbyrå (Statsitcs Norway). (2015). *Specialist health service, 2015*. Retrieved 2017, from Statistics: https://www.ssb.no/en/helse/statistikker/speshelse

Sykehusinnkjøp. (2017). Health procurement in Norway. Oslo: Harald I. Johnsen.

The Commonwealth Fund. (2016). *2015 International Profiles of Helath Care Systems.* New York City: The Commonwealth Fund.

The Commonwealth Fund. (2021). *2020 International Profiles of Helath Care Systems.* New York City: The Commonwealth Fund.

The Health Systems and Policy Monitor. (2020). *Health Systems in Transition profile of Norway.*

The Norwegian Health Economics Administration. (2021). *About Helfo*. Retrieved 2017, from Helfo.no: https://helfo.no/english/about-helfo

The World Bank. (2017). *Rural Population (% of total population)*. Retrieved from World Bank Open Data: http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS

The World Bank. (2018). *Nurses and midwives (per 1,000 people)*. Retrieved from World Bank Open Data: http://data.worldbank.org/indicator/SH.MED.NUMW.P3

The World Bank. (2018). *Physicians (per 1,000 people)*. Retrieved from World Bank Open Data: http://data.worldbank.org/indicator/SH.MED.PHYS.ZS

The World Bank. (2018). *World Bank Data*. Retrieved February 2017, from World Bank Data: http://data.worldbank.org/

The World Bank. (2019). *Data for Sweden, Norway, Denmark*. Retrieved from World Bank Data: https://data.worldbank.org/?locations=SE-NO-DK

The World Bank. (2020). Retrieved 2017, from Doing Business: www.doingbusiness.org

Trading Economics. (2020). *Norway Personal Income Tax Rate*. Retrieved 2017, from Trading Economics: http://www.tradingeconomics.com/norway/personal-income-tax-rate

Transparency International. (2021, January). *Corruption Perceptions Index 2020*. Retrieved March 2017, from Surveys: https://www.transparency.org/en/countries/norway

Visma. (2014). *HOw to tender and win contracts with Norwegian public authorities*. Retrieved 2017, from Visma Corporate Blog: https://www.visma.com/blog/tender-win-contracts-norwegian-public-authorities/

World Bank. (2018). *Hospital beds (per 1,000 people) - Norway*. Retrieved from https://data.worldbank.org/indicator/SH.MED.BEDS.ZS?locations=NO

World Bank. (2019). *Total hospital beds per 1.000 people*. Retrieved from World Bank Data: https://data.worldbank.org/indicator/SH.MED.BEDS.ZS?locations=DK

Zanaboni, P., & Wootton, R. (2016). Adoption of routine telemedince in Norwegian hospitals: progress over 5 years. *15*(496).

APPENDICES

Appendix A: Geographic spread of university hospitals

Region	Hospital	Affiliated University	Website
South Eastern Regional Health Authority			
	Oslo University Hospital including: - Aker University Hospital - Gaustad Hospital - Rikshopsitalet - Ullevål University Hospital	University of Oslo	https://oslo-universitetssykehus.no/
Central Norway Regional Health Authority			
	St. Olafs University Hospital	Norwegian University of Science and Technology	https://stolav.no/
Western Norway Regional Health Authority			
	Stavanger University Hospital	University of Stavanger	https://helse-stavanger.no/
	Haukeland University Hospital	University of Bergen	https://helse-bergen.no/
Northern Norway Regional Health Authority			
	University Hospital of Norther Norway	University of Tromsø	https://unn.no/

Appendix B: List of relevant trade fairs and events

- The Norwegian Health Conference
- eHealth in Norway
- Os!o Innovation Week
- National Health Preparedness Conference
- Nordic Public Health Conference
- Norwegian Hospital Build Conference (Konferanse om sykehusutbygging)

Appendix C: List of medical device distributors in Norway

- AH Diagnostics
- AkuMed
- Avalon Medical AS
- Fisher Scientific
- ILS NORWAY AS
- Medic24
- Meloria Medtech
- Novakemi ab
- Saveen & Werner AS
- Scan-Med AS
- Sigma-Aldrich Norway AS
- Vingmed AS
- VWR International AS

Appendix D: Overview of Dutch strengths per healthcare sector

Healthy Living and Healthy Ageing

The Netherlands is active in several areas to foster healthy living and ageing. Dutch organizations are active in healthy ageing, but also mobility & vitality, prevention and lifestyle solutions that help people live and age healthily are present. Elderly play a significant role in the Netherlands and have therefore drawn attention from many research institutes, companies and government. The life expectancy in the Netherlands is one of the highest in the world and continues to increase every year. Demographic developments have forced the Netherlands to become engaged in mental care and wellbeing, with a specific expertise in dementia.

The strengths of the Dutch Mobility & Vitality subsector can be categorized as follows:

- **Promoting independence through self-management**: solutions that enable people to live longer independently in their home environment include care robots and tools that increase physical mobility and help regain function and freedom or aid with medication.
- **Social inclusion & mental care**: through solutions that foster physical and mental interaction or digital solutions that (re-)connect people to relatives
- **Nutrition & active lifestyle**: special diets, nutrition and specialized exercise areas for elderly or people with a physical or mental impairment.
- **Long-term and senior care models**: care models in the Netherlands are process-based and manage long-term and senior care by reducing the costs of care, while ensuring the quality of care for patients.
- **Research and education**: in the Netherlands, high-level research is conducted in the field of healthy ageing and elderly care.

Accelerating digital transformation: Connected Care and Artificial Intelligence

Dutch solutions relevant for the digital transformation in healthcare have several unique characteristics. They are renowned for their simplicity, consistency, and flexibility, while being developed through shared decision-making. The solutions have a patient-centered view. There are two subcategories in eHealth in the Dutch landscape: Connected Care and Artificial Intelligence.

Within the subcategory Connected Care, there are several strengths and focus areas:

- **Remote care applications**: the major aspect is the exchange of data between and amongst patients, healthcare professionals and (informal) caregivers.
- **Safe, secure and interoperable apps and platforms**: many information systems, devices and applications need to connect within and across organizations, including Electronic Health Records and Hospital Information Management Systems. Dutch solutions enable access, exchange, integration and organise safe use of health data within and across organizational and national boundaries.
- **Research on patient empowerment:** Dutch research has focused on self-management of patients.

Strengths and focus areas within the subcategory Analytical & Artificial Intelligence include:

- **Improving efficiency**: by collecting and analyzing data, workflows, processes and teamwork among nursing staff, doctors, or other healthcare providers can be improved.
- **Clinical decision support solutions**: this includes solutions that are used for gathering and analyzing (actionable) data, automating tasks, providing insights and guidance for health professionals

Hospital Design and Build

The Netherlands has expertise ranging from the initial design phase to the eventual maintenance and operations phase, with organizations having executed projects all around the globe. Dutch organizations widely acknowledge that all these hospital's components are connected, and therefore have experience along the whole trajectory. Special expertise is centred around offering turnkey projects, thereby offering total solutions that unburden customers in the complexity of creating health care facilities.

The strengths of the Dutch Hospital Design and Build subsector can be categorized as follows:

- **Turn-key projects;** total projects, reaching from planning, architecture and design, to building, furnishing and operations.
- **Design, architecture & engineering;** planning, feasibility, design, architecture' of health care facilities.
- **Sub-construction & (integrated) parts;** components integrated in the construction or bigger detachable parts.
- **Furnishing, equipping & operations;** furniture, smaller equipment and solutions needed to manage health care facilities.

Biotech and Biopharma

Biotech & Biopharma encompasses a broad area of pharmaceutical and biotech innovations and solutions to prevent and treat diseases in an early stage in order to boost a healthy, sustainable and prosperous future. Organizations within this strength offer solutions in areas such as drug development, diagnostics, vaccines and therapies tailored to the needs of the patient. According to the Dutch Life Sciences Trend Analysis 2020, there are currently 469 Biotech companies and 42 BioPharma companies active within the Dutch Life Science industry.

The Netherlands is particularly strong in the following fields:

- **Oncology**
- **Neurology**
- **Infectious diseases**

Public Health

Dutch organizations are focused on translating policy into practice. This also relates to the experimental and innovative nature of the Netherlands, what is often needed to induce real change in health systems. The Netherlands and its organizations are engaged in a broad area of Public Health. However, there are specific areas in which the Dutch have developed an international reputation, like multi-drug and antibiotic resistance, and sexual & reproductive health rights. The Dutch feel strongly about shared values like the principle of equality, which is manifested in the Netherlands through gender equality.

The strength Public Health consists of the following expertises:

- **System Management;** entails 'organizations involved in changing the foundations of health systems'.
- **Capacity Building**; consist of 'organizations that help to enhance the competences and capabilities of actors in the health care system'.

Innovative MedTech solutions to improve quality, accessibility & affordability

Dutch medical devices are developed in the Netherlands' managed competition health system, a system in which high quality and cost-effectiveness are fostered. These medical devices are the product of human-centred design, which leads to cutting-edge innovation which add value to the quality of care and patient experience and lower the cost of healthcare services.

Dutch solutions contribute to the quality, accessibility and affordability of healthcare services in the following medical specialties:

- **Mother-child care;**
- **Oncology;**
- **Orthopedics:** orthopedic rehabilitation;
- **Neurology:** neurological rehabilitation.
- **Assistive technologies**: technology and tools to increase, maintain or improve the functional capabilities of the work force.
- **Research on non-invasive diagnostics**: developing rapid and low-cost diagnostics using biochips, to detect cancer and other medical conditions.

In general, research is done on techniques that reduce the demand for care by developing technology that lower costs and the deployment of care personnel.

Appendix E: List of national health registries in Norway

- The Medical Birth Registry of Norway
- The Norwegian Cause of Death Registry
- The Norwegian Registry of Pregnancy Termination
- The Norwegian Surveillance System for Communicable Diseases
- The Childhood Vaccination Register
- The Norwegian Surveillance System for Infections in Hospitals
- The Norwegian Surveillance System for Antimicrobial Drug Resistance
- Norwegian Cardiovascular Disease Registry
- Norwegian Prescription Database
- The Norwegian Surveillance System for Virus Resistance
- The Cancer Registry of Norway
- Norwegian Patient Registry
- The Norwegian Information System for the Nursing and Care Sector
- Health Archive Registry
- Genetic Screening of Newborns
- The Registry of the Norwegian Armed Forces Medical Services

Appendix F: National and multinational medical product companies in Norway

National companies with manufacturing in Norway

- Alu Rehab
- ConceptoMed
- Glamox
- Handicare
- Heger
- Laerdal
- Norgesplaster
- Normeca
- Otivio
- Sero
- Snogg

Multinational companies with manufacturing in Norway

- GE Healthcare

Multinational companies *without* manufacturing in Norway

- Baxter
- B.Braun
- Becton Dickinson
- Boston Scientific
- Fresenius
- Johnson & Johnson
- Medtronic
- Philips
- Siemens Healthineers
- Smith & Nephew
- Stryker