Creating value through (re)organization

An applied approach to integrated patient pathways between primary and secondary care

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Abstract

Patients in need of primary care services upon discharge from the hospital often experience a bottleneck in quality care delivery in the Norwegian healthcare system. Services are fragmented and the sectors are largely disconnected in their perspectives, organization, provision, and goals. This has adverse effects for patients in terms of unnecessary fragmentation of service from (too) many providers, creating a system that is difficult to navigate and/or understand. This fragmentation also has consequences for care providers as they often lack a clear route and capacity for information sharing. Healthcare institutions have experienced unnecessary penal fees and high, avoidable readmission rates, resulting in each organization focusing on their own outcomes in their "fragmented silos". There has been, and is, what Michael Porter calls zero-sum competition, i.e. self-serving patient and cost shifting.

There is a broad spectrum of literature addressing these problems, and several good initiatives to ensure safe discharge from secondary to primary care in Oslo have been identified; however, they fail to address the need for integration and only provide suggestions on how to organize care within the current delivery system. My research explores how primary and secondary care providers can integrate their provision of services to a greater extent to create more value for the patients and the organizations. My empirical research draws on semi-structured interviews with eleven clinical and administrative informants working in both sectors (primary and secondary care) in the Diakonhjemmet sector in Oslo. The data was analyzed through the use of a thematic framework. Four major themes where identified: Coordination, Cooperation, Quality, and Economy. A solution put forward in this thesis is the integration of services for my population of interest, emphasizing on patient-centered healthcare delivery throughout the entire care pathway. Introduction of bundled payments for an episode of care and one cross-sectoral electronic patient record, are also discussed. My normative suggestions are based on the healthcare delivery theories of Michael Porter and Clayton Christensen. I suggest how Diakonhjemmet hospital and its boroughs can address their immediate problems on a short-term basis, while they wait for national legislation on integrative initiatives. This study also provides a basis for further work in this field.

Keywords: *integrated care; healthcare delivery; health system reform; cross-sectoral collaboration*

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1 Introduction

1.1 Background

Improved social and economic conditions, better public health, and advances in medical diagnostics and treatment has led to a substantial lengthening and improved quality of life in the course of the last century or so, in all Western countries (Blank, Burau, & Kuhlmann, 2017; Fisher, Wicks, & Babar, 2016; Lameire, Joffe, & Wiedemann, 1999; Mossialos, Wenzl, Osborn, & Sarnak, 2016; OECD, 2017). Yet, all countries also struggle with severe problems in the clinical sector of the healthcare system (Hagist & Kotlikoff, 2005). These problems are largely associated with access, especially to many specialized services, with uneven quality and with efficacy (Christensen, Grossman, & Hwang, 2009; Porter & Teisberg, 2006). Thus, the value created – ease of access and quality of services provided relative to costs – is (much) less than it could have been. Much has been tried over the last generation or so to tackle these growing issues within the healthcare sector and some actors have succeeded in increasing value generation substantially. However, these actors are exceptions. About a decade and a half ago two American professors at Harvard Business School, Michael E. Porter and Clayton M. Christensen, presented their plans to "fix," as Porter called it, the problems troubling the healthcare system (Christensen et al., 2009; Porter & Teisberg, 2006).

Porter proposed to redefine healthcare by creating value-based competition on results, and Christensen argued that business models in healthcare needed to be better aligned with the nature of the clinical processes, that is, whether they are intuitive, probabilistic, or precise (Christensen et al., 2009; Porter & Teisberg, 2006). Both talked in radical terms. Porter developed the concept of Value Based Healthcare and proposed to organize clinical processes as a new type of clinical organization, the Integrated Practice Unit, and to let such units compete based on "final," carefully measured, and publicized outcomes – i.e. benefits divided by costs. Christensen proposed to organize clinical activities in "Solution Shops," "Value-Adding Process Businesses," and "Facilitated Networks" (or shops, chains, and networks), based on the nature of the clinical work (Christensen et al., 2009). Porter believed that the transformation to value-based healthcare could be carried out from inside the old organizations; he was not a consistent "revolutionary." Christensen argued that change primarily would have to come from outside the existing organizations: The system had to be "disrupted." Old organizations had to be replaced by new ones. He was, and is, the most “revolutionary” of the two, to some extent disagreeing and “competing,” colleagues.

There are substantial problems with access, quality and efficiency in the Norwegian, mostly public, healthcare system. Sick patients often wait in long queues to receive care, especially when specialized care is required, and sometimes even for conditions that are fairly acute in nature (Helsedirektoratet, 2018a). Patients may also have to wait “inside” the clinic, that is, wait to proceed to the next stage in the (often-fragmented) diagnostic, therapeutic, and rehabilitative process. Once admitted, patients are not guaranteed that up-to-date services will be provided in an excellent, error-free way. As a rule, patients also have little overview of the costs associated with the care they receive, other than the moderate co-payment requirement, and perhaps the time-related costs, they incur. Thus, patients’ evaluation of the value they receive is somewhat fragmented: Patients are primarily concerned with the benefit side – but since they lack comparative outcome data (results), that concern also tends to be superficial. Provider organizations and ultimately public authorities take care of the cost evaluation – but to some degree also the benefit side, at least at the statistical level. In 2016, Norway spent 10.5 percent of its GDP on healthcare, the fourth highest among OECD countries (Blank et al., 2017; OECD, 2017)

The World Health Organization’s sustainable goal 3.4 is aimed at decreasing deaths caused by non-communicable diseases (NCDs) by 25 percent by the year 2030. Such deaths are currently estimated to account for 87 percent of all deaths in Norway (World Health Organization, 2018). At the same time, the elderly population, aged 67 or older, will almost double between the years of 2000 and 2050, and is estimated to reach 1 million by the year of 2030 (Meld. St. 15 (2017-2018), 2018). This population is at a particularly high risk for developing NCDs, or chronic conditions, such as cardiovascular disease, chronic respiratory disease, diabetes, and cancer to name a few (Wolff, Starfield, & Anderson, 2002). Projections estimate that the future workforce in the primary care sector, depending on the sector’s ability to use new technological innovations, could increase by 75 percent, from 400 000 in 2016 to 700 000 in 2035 (Meld. St. 15 (2017-2018), 2018). Improving access and efficiency, decreasing unnecessary spending, and providing better integrated clinical pathways to healthcare services is essential for this population and the sustainability of the Norwegian healthcare system.

In this study I will explore how a particular group of patients, those who are in need of community healthcare services from the municipality after discharge from a local hospital in

Oslo (Diakonhjemmet sykehus), are taken care of by the hospital and the municipality, from a value perspective. I will describe the situation as it is now and discuss how the patient pathways can be improved. I will also elaborate on how the two sectors, the primary and secondary care sectors, can improve their coordination, seen from the perspective of Michael Porter and Clayton Christensen. These suggestions will also be derived from the empirical data I have collected and analyzed.

1.2 Research question

My objective is to critically review how healthcare delivery theories can be applied to the local Oslo hospital, Diakonhjemmet. To achieve this, I will divide my thesis into two parts, one diagnostic and one applied part.

1) The diagnostic part will be based on empirical data provided from the hospital and through public databases. I will analyze the current patient volume, patient pathways, and resource spending. I will interview central stakeholders on how they perceive the patient pathways and the system delivery as it is today. By collecting this data, I assume to demonstrate areas of unrealized potential that can be exploited to benefit the organization.
2) In my discussion, I will suggest potential solutions to the findings from my diagnostic research. I will examine the findings and suggest how they can be utilized in Diakonhjemmets case to efficiently create more value for patients and providers.

Following this, my research questions will be:

> How are Diakonhjemmet hospital and its associated boroughs (in the municipality) coordinating cross-sectoral provision of services for patients in need of care after discharge from the hospital?
>
> How can Diakonhjemmet hospital achieve better patient pathways across primary and secondary care for their patients?
>
> How can organizational theory be implemented to Diakonhjemmet hospital's reality in order to create value?

1.1 An introduction to the Norwegian healthcare system

The Norwegian healthcare system is a tax-based system, partly organized after the British NHS (National Health Service) model: It is publicly owned and largely publicly funded (Westin, 2011). It is a low-threshold system where patients have to pay a moderate sum for outpatient services, in the form of co-payments. Like the NHS, the Norwegian system is bifurcated; primary care is provided under the auspices of the municipalities and specialist care is provided by state health enterprises. (Hagen & Kaarboe, 2006). The two sectors are loosely integrated; the primary means of this integration is the so-called coordination reform, implemented from 2012. In Britain, on the other hand, these two sectors are in principle parts of the same organization, the state-owned NHS, and have gradually become more integrated, especially after the introduction of the clinical commissioning groups in 2012 (Checkland, McDermott, Coleman, & Perkins, 2016).

In Figure 1, I have given a schematic overview of the organization and financing of the bi-sectorial Norwegian healthcare system.

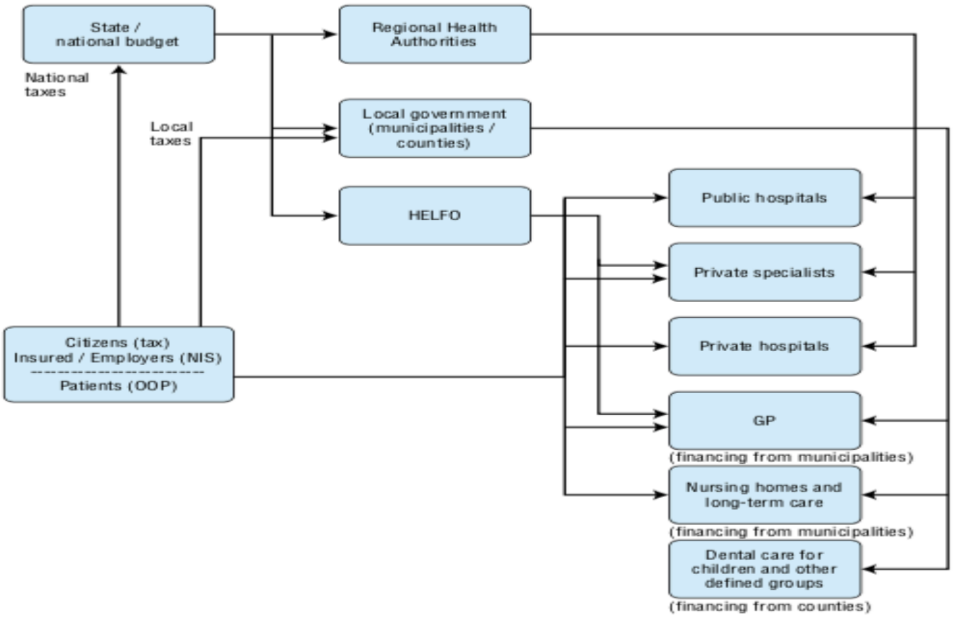


Figure 1. Financing flows in the Norwegian health care system (Ringard et al., 2013).

In Norway, a plan was enacted in 1975 that called for a re-structuring of the healthcare system based on degree of specialization; i.e. into primary, secondary, tertiary services (Meld. St. Nr 9 (1974-75)). The municipalities were to be responsible for primary services and the counties for (most of) the higher-level services, but so that tertiary and higher-level services were to be offered at larger hospitals, called central and regional hospitals. Local hospitals were only to offer secondary services. After years of attempts on the part of the state to bring (especially) the counties into line with the plan, the state in 2001 decided to take over responsibility itself for the specialized services. The new hospital plan was implemented from 2002 with The Hospital Reform (Ot.prp. nr. 66 (2000-2001), 2001). This transfer of hospital ownership from local governments to the central state introduced a more business-oriented approach to tackling the long waiting times for many specialized services (improve access), the quality differences that had come forward and thus cost containment and efficiency problems that had long existed. At first, the reform contained pro-competitive elements, but gradually become increasingly detailed and hierarchically steered, though based on principles taken from business administration (Meld. St. 15 (2017-2018), 2018; Meld. St. 26 (2014-2015), 2014; Meld. St. Nr 9 (2012-2013), 2012; Meld. St. Nr 47 (2008-2009), 2013; Ot.prp. nr. 66 (2000-2001), 2001). The focus on shifting the responsibility for secondary care services to the regional health authorities from the counties, shifted the then decentralized-model to a semi-centralized, more hierarchical model (Hagen & Kaarboe, 2006; Ringard, Sagan, Sperre Saunes, & Lindahl, 2013). This plan meant that the interests of the state basically were to be taken care of through five, later four (in 2007) regional health authorities. The regional authorities were to manage "local" hospital enterprises. Gradually, as part of the new managerial regime, the regional authorities managed to merge its hospitals into larger and larger, cross-local, enterprises. However, this elicited, and is still eliciting, local political reactions. The scale-oriented regional authorities have therefore had to proceed cautiously with its specialization-based, managed-care merger strategy (Rohde, Torvatn, Magnussen, & Kalseth, 2015).

Although the primary care sector continued to be the responsibility of the municipalities, the municipalities gradually began to adapt to what was happening in the specialist sector, and indeed in all public sectors that operated in competitive markets (commodity or service markets). The state had also forced the municipalities to accept that primary care physicians, through the personal doctor system introduced in 2001, became contract doctors (Godager, Iversen, & Lurås, 2009). Also, other publicly paid healthcare providers, like psychologists and physical therapists, became contractors. Increasingly, municipalities also put home health services and nursing home care out to tender. However, even if the two sectors were made more similar in the way they were organized and managed, coordination continued to be less than good.

As a response to this, a new reform, the so-called Coordination reform, was announced in 2008 and introduced in 2012 (Meld. St. Nr 47 (2008-2009), 2013), as I have already mentioned.

According to Nylenna (2014) and Ringard et al. (2013) the reform focused on solving three primary challenges in the provision and coordination of health services:

1. Patients' needs for coordinated care were not being adequately met.
2. There was not enough focus on preventative care.
3. Changing demographics and the range of illness in the population challenged the goals of cost containment and efficiency.

According to this reform municipalities and the health enterprises were to be co-responsible, both clinically and economically, for patients who had clinical care pathways that cut across the sectoral gap (Meld. St. Nr 47 (2008-2009), 2013). Through this reform, the government hoped to create better integrated, and thus also qualitatively better, care, greater cost control, and also higher cost-effeciency. Following the implementation of this reform, several national strategies and white papers have been prepared and presented (Helse- og omsorgsdepartementet, 2015; Meld. St. 15 (2017-2018), 2018; Meld. St. 26 (2014-2015), 2014; Meld. St. Nr 9 (2012-2013), 2012), many of which emphasize the provision of primary care today and tomorrow. The white paper "One patient- one medical record" (Meld. St. Nr 9 (2012-2013), 2012) points out the need for more integrated medical record solutions throughout the entire system (i.e. primary and secondary care). The paper states that one medical record should accompany the patient throughout his/her medical career. This reform should also lead to more real-time clinical decision support and thus ensure seamless access between different care providers. Through this IT system data should also be made accessible for research, quality improvement, etc. It should in this way create a more fundamental learning system.

Another important part of this reform was to make the primary care sector to some extent economically responsible for patients when they had been formally discharged from hospitals. Municipalities that were unable to admit patients for care when they were ready for discharge from hospitals had to be pay penalty fees (Lovdata, 2016). The reform also included the introduction of municipal acute bed units (KAD) and municipal financing of 20 percent of rehabilitation costs received in hospitals (Monkerud & Tjerbo, 2016). The reform received wide support from parliament, though opposition parties also argued that the changes would impose too heavy burdens for small municipalities (Ringard et al., 2013).

Following this reform, the government decided to move NOK 4.7 billion from the state budget for secondary care to the municipal block grant to make up for the increased responsibility for patients discharged from hospitals that the municipalities were given as part of the

Coordination reform (Meld. St. Nr 47 (2008-2009)). With this transfer of funds, the municipalities also took over the financial responsibility for patients ready for discharge from hospital from day one (previously it was one week). This was done to incentivize municipalities to transfer patients more quickly between institutions and ensure fast follow-ups for patients in their local environment. The financial penalty for the so-called "over-stayers" is NOK 4885 per day for 2019 (Helsedirektoratet, 2018b). These elements of the reform shall ensure that patients are taken care of at the lowest, and therefore cheapest, possible *effective* level.

After World War II and into the early 1980s medicine was transformed; it experienced a technical-diagnostic revolution with the rapid development of new/better medicines and procedures (Berg, 2017). This revolution led to a dramatic development of specializations and sub-specializations of medicine. This again created longer, and more fragmented clinical pathways. It was only now that the word "pathway" was used in medicine, inspired by the manufacturing industries' assembly lines (Coffey et al., 2005). The clinical pathway became a virtual "assembly line." The patient starts with a medical condition and the goal is to end up with as little pathology as possible. But specialization did not only create a longer and more chopped-up service line, it also made for a more complex, "ping-pong" type service line. Specialization and the development of new types of interventions led to care cycle sessions with an important element of parallel working, such as in multi-professional diagnostic consultations and discussions, in surgical interventions, in combined surgical and radiological procedures, and in multi-professional rehabilitation services (Berg, 2017). Knowledge development, with specialization and more use of sophisticated technology, thus gave rise to a growing number of service lines. Since they often intersect, one result has become more errors and mistakes, another a very low level of efficiency.

As mentioned, the Norwegian Coordination reform reflects the "patient pathway logic". In the course of the last decade, it has acquired a prominent place in the country's healthcare policy, especially for patients with severe and chronic conditions. Thus, from 2015 a set of so-called "cancer care package pathways" were launched, and in 2019 the pathway idea was also introduced for patients with psychiatric and addiction-related conditions (Helsedirektoratet, 2015a, 2015b). These pathways resemble Porter's Integrated Practice Units, but are not true such units, since they are not organized as separate organizations.

The pathway idea fits different medical problems in varying degrees. Clayton Christensen says that much of medicine is still intuitive, and for such medicine the "right" organization is the “solution shop”, not the chain (“value adding process business”) (Christensen et al., 2009). Norway experiences this: Hospitals and most general practices are mixing different types of medical processes. Thus, it cannot, Christensen would say, achieve great results medically, but especially, economically. As medicine has developed, and its different specialties are becoming more diverse in terms of precision, its value creating problems have grown. Christensen would say, to some extent unlike Porter, that this is going to continue to be the case unless one organizes and finances healthcare based on the nature of the supply.

From the 1970s and throughout the following decades, several different financing systems have been explored, from the old, physician-dominated financing system to the block grants system; these systems have resulted in long, drawn out “zero-sum competitions” over costs between the state and the counties (Helsedirektoratet, 2018b; Ringard et al., 2013). Even if part of the financing of hospital care became activity-based (ABF) in 1997 (30 percent at first, and now 50 percent), the financing system is still primarily a global budgeting system, since the total budget (ABF + budget appropriation) is supposed to be fixed. However, since 2006 the new hospital owner, the state, has been able, through the regional health authorities, to impose a stricter budget discipline on the hospitals (Hagen & Kaarboe, 2006; Magnussen, Hagen, & Kaarboe, 2007). This has not ended the competition on costs, though. That competition is partly a competition between hospitals and municipalities, partly between different departments and forms of treatment within hospitals (purchases of new, costly technology, the introduction of expensive new medicines) and partly between healthcare, public health measures, social care and other types of publicly financed goods and services. It is also a competition between public and private financiers. Co-payment fees have increased over time, and the continued existence of long waiting times for many specialized services have led to a slow, but not insignificant increase in the private payment of health services (Helsedirektoratet, 2016). The financing system has been used almost entirely to contain costs. The introduction in 2014 of a quality-based financing element has not changed this situation much. Neither has political “signals” about the setting of other priorities; for example, the “order” to give psychiatry higher priority (Meld. St. 10 (2012–2013), 2013).

The total healthcare budget for secondary care for 2019, including both somatic and psychiatric services, is estimated to NOK 216 billion (Prop. 1 S (2018-2019)). Somatic hospitals continue to be financed fifty percent through risk-adjusted capitation and fifty percent through activity-based financing (Helsedirektoratet, 2018b; Ringard et al., 2013). Out of pocket (OOP) payments are not required for in-patient services, but are required for most outpatient treatments/consultations (Ringard et al., 2013). The ABF system in Norway is divided into two groups, diagnostic related groups (DRG) and special-case groups (STG). The DRG system is a sophisticated system that estimates the expected average cost (direct and indirect) for a given (inpatient) treatment by allocating a reimbursement weight to each diagnostic group classified in the International Classification of Diseases, the ICD-10 (Helsedirektoratet, 2018b). Hospitals in Norway will only be reimbursed for one DRG-weight, the highest yielding per admission, even though the patient is undergoing various activities throughout his or her hospital stay (Helsedirektoratet, 2018e). The STG-groups are also based on the ICD-10 classification, but they are not contact-focused (i.e. not based on admissions). This is due to the often long-lasting and non-synchronic nature of the treatments, such as home dialysis treatment or patient-administered home medications (Helsedirektoratet, 2018b). These STG groups are pathway-oriented and thus focus on treatments per month or year as cost-drivers. In 2018 the STG-system was expanded to also include financing of epileptic patients based on Patient Reported Outcomes and tele medical follow-ups of patients using pacemakers (Helsedirektoratet, 2018e). This ABF system is continuously developing to incorporate more treatments that are taking place on an outpatient basis and is also experimenting with the inclusion of elective day surgery (Helsedirektoratet, 2018b, 2018e). This new approach can consider either the entire, or a part of the patient/disease pathway and thereby introduces a new way of calculating the activity in which the admission is not the only cost driver. This system will now also be introduced for DRG-groups, as today's model can result in unnecessary breaks in the disease pathway. Examples of this new initiative include the cancer package, i.e. an integrated patient pathway for cancer patients across institutions and over a longer time period (Helsedirektoratet, 2015b).

The Directorate of Health points out a few core challenges with the current reimbursement model (Helsedirektoratet, 2018e): Lack of incentives for innovation; incentives for frequent contact between patient and provider; equal treatment in primary and secondary care is not reimbursed equally. The government wants the healthcare system to deliver patient-oriented, integrated health and care services. To achieve this, it is vitally important that care is integrated across the levels of care. The government realizes that this coordination often is less than good. (Helsedirektoratet, 2018e).

Norway has a sophisticated income tax equalization system that ensures equitable distribution to all municipalities (Borge; Idsø, Årethun, & Bhatta, 2018). This zero-sum tax equalization system reduces the differences in tax revenue per capita among municipalities by allocating tax revenue from richer to poorer municipalities, and thereby works to stabilize the revenue and the continuum of welfare programs for all municipalities (Idsø et al., 2018). The national health insurance scheme is very comprehensive, and the basic benefit package covers most necessary healthcare services (Mossialos et al., 2016; Nylenna, 2014; Ringard et al., 2013). It also covers the expenses for some medications, nutritional supplements, and medical equipment that are required for the treatment of chronic conditions.

In primary clinical care (i.e. a general practitioner's (GP) practice), expenses are divided between municipalities (per patient subsidy), the state reimbursement agency (HELFO) and the patient ("co-payment," user fee) (Ipsos, 2018; Ringard et al., 2013). In municipalities with fewer than 5000 citizens, GPs are entitled to an additional lump sum if the average patient lists have fewer than 1200 patients, and municipalities with recruiting issues can receive an additional funding from the Directorate of Health (Ipsos, 2018). Figure 2 shows the funding for 2017.

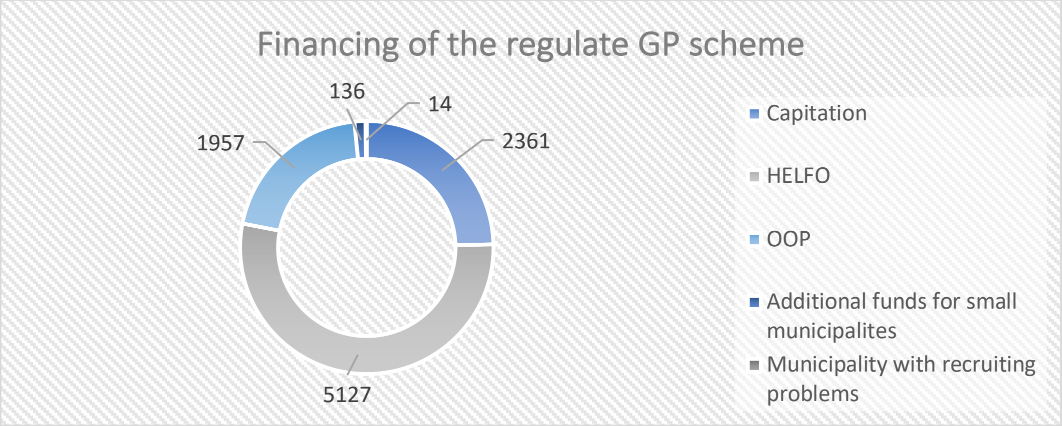


Figure 2. Financing of the GPs for 2017 in million NOK (Ipsos, 2018). Own representation.

Municipalities are also responsible for nursing homes and home care, social care, and local public health measures. The allocation of costs is a function of negotiations between state authorities, local authorities (their organization) and personnel organizations, like the medical association. Cost competition characterizes these negotiations. Nursing homes and long-term care, for example, are partially subsidized under the basic package, but require a substantial co-payment (Ringard et al., 2013). From a value point of view, these negotiations are mostly cost-oriented, but access concerns also play a role. An example of the latter is the annual private expenditure ceiling (co-payment ceiling caps).

From a value point of view, Porter states that it is important that information about intermediate, but primarily “final” outcomes are collected and made generally available (Porter & Teisberg, 2006). Porter says that the result measures should be based on medical conditions, not institution, or department or function. Only in this way can patients make rational choices about where to get medical help and referring physicians can make rational decisions regarding where to send their patients. In Norway, such information is limited to the many registries the country has, and much of this information is only accessible through the Ministry of Health or other central health agencies (which are responsible for research and development).

The medical record is now becoming electronic. The relevant governmental agency has worked hard since 2012 to develop a format for this record (Helse Midt-Norge, 2019; Meld. St. Nr 9 (2012-2013), 2012). Personal integrity concerns and technical problems have delayed this work. Christensen stresses that the medical record, as a *personal patient* record*,* should be the primary means of coordinating patient care in the future (Christensen et al., 2009). No single care provider, he says, can keep track of the medical “fate” of the patient. Both he and Porter, therefore, have extensive demands regarding the organization of the medical record. Although these demands have not been fully met, the information systems used in the Norwegian healthcare sector are vast. The electronic patient record (EPR) provider DIPS ASA is the biggest supplier of EPR to secondary care in Norway, with a total share of 80 percent of the Norwegian market ("DIPS Electronic Patient Record," 2019). In primary care, there are several information systems in use, with Gerica, Profil and CosDoc being the most common (Helsedirektoratet, 2014). In 2004 the Norwegian Health Network was established to give all Norwegian health enterprises the opportunity to use a common platform to communicate and share patient data in a safe and legal way (Norsk Helsenett SF, 2019). This intranet is monitored and safeguarded through the HelseCERT center, a Computer Emergency Response Team that ensures a safe “highway of information” for the various stakeholders in the healthcare sector. The information flow between the hospital and the municipality (primary and secondary care) for patients who are in need of services after discharge, is regulated by law. This is developed from the original regulation that came as a result of the coordination reform in 2011 (Lovdata, 2016). It clarifies and dictates how the proper flow of communication ought to be between the sectors. The hospitals in Oslo (OUS, Diakonhjemmet, Lovisenberg and Aker) are all following a set procedure that has been developed to ensure safe discharges, and clarity with regards to actions taken in this “information pathway” (Lovdata, 2016). Figure 3 illustrates the current electronic information flow between the hospital and the municipality.

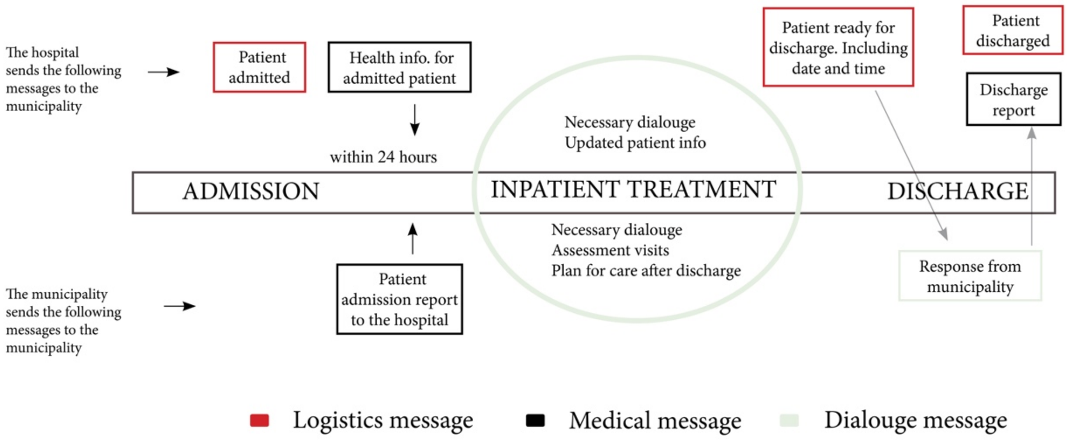


Figure 3. Electronic dialogue between hospital and municipality. Adapted from the original figure by OUS (Oslo Universitetessykehus, 2019)

The next stage of developing better information pathways is now being developed in Helse Midt-Norge, an RHA, as a pilot region for a new integrated information system encompassing both primary and secondary care (Helse Midt-Norge, 2019). This pilot is a result of the white paper “one citizen- one patient record” (Meld. St. Nr 9 (2012-2013), 2012). Implementation of this record is expected to begin later this year.

1.3.1 Diakonhjemmet hospital

Norway has had a number of diaconal hospitals since the second half of the 19th century; Diakonhjemmet Diaconal Hospital was established in 1890 (Diakonhjemmet Sykehus, 2018a). These hospitals functioned basically as private hospitals until well after World War II. At first, they received most of their revenue from charitable donations and patient payments, but after the introduction of public sickness insurance in 1911 they received a gradually increasing share of their revenue from this source (Grønlie, 2006). In 1956 sickness insurance became universal, and a vital source of income for the diaconal hospitals. With the introduction of geographically determined block grant financing for publicly financed hospitals from 1980 the diaconal hospitals’ dependence on public financing became almost complete. Step by step, they now became integrated into the public planning and management system. From 2002, they became part of the gradually more detailed planning system established through the hospital reform. From then on, these hospitals have, in many ways, functioned as public hospitals, though they formally remain private. They are now organized as non-profit, private limited companies. Diakonhjemmet hospital is owned by the Diakonhjemmet trust. This and the other diaconal hospitals now live at the mercy of the state and its regional health authorities. They do what they can to “please” the state agencies.

The Diakonhjemmet hospital is a local hospital which has responsibility for secondary care services for the 140 000 inhabitants in the three Western (relatively affluent) Oslo boroughs, Frogner, Ullern and Vestre Aker (Diakonhjemmet Sykehus, 2019). Together these boroughs form the Diakonhjemmet sector/region. In addition, the hospital provides certain secondary services for patients in other boroughs of Oslo and tertiary services, e.g. in rheumatology and psychiatry, for patients from a wider area. The hospital is also free to compete for patients from all over the country in areas where they have special expertise under the system of free hospital choice (Helse Sør-Øst, 2019). Thus, though the hospital is under strict hierarchic management by the South-East Regional Health Authority it can also appeal to the national patient market. For some hospitals, like Diakonhjemmet, doing so has become an increasingly attractive option (in some specialty areas). The hospital is organized through three levels of management; top (CEO), middle (head of departments), and clinical level (unit leaders). It is organized into ten clinical departments and five administrative units (support), with a workforce of 1650 employees (Diakonhjemmet Sykehus, 2019). The hospital's strategic goals for 2014-2019 are summarized in Table 2.

Table 1. Diakonhjemmet Hospital strategy 2014-2019 (Diakonhjemmet Sykehus, 2013)

Overall goal	The hospital is a preferred hospital where the patient needs are meet with holistic solutions and innovative strength.
Objective 1	*Achieve excellence through systematic patient safety efforts, and by strengthening and develop relations with the patients*
Objective 2	*The hospital improves the quality of the patient treatment through innovation and research*
Objective 3	*The hospital expands its geographical reach in Oslo and thus secures a sustainable development*

Due to the changes in the funding of primary and secondary care following the Coordination Reform, the hospital has encountered some financial difficulties and now needs to cut expenses by 150 million NOK in the period 2018-2020 *(Diakonhjemmet Sykehus, 2018b).* The hospital's main priority for 2019 is therefore to re-organize and improve its services to ensure its economic sustainability as quickly as possible (Diakonhjemmet Sykehus, 2013, 2018b). Table 3 provides an overview of the financial objectives of the hospital.

Table 2. Objectives identified to ensure economic sustainability (Diakonhjemmet Sykehus, 2018b).

Staffing	***Salary***	***Economies of scale***	***Functions and tasks***	***Productivity***
Reduce with 100 man-years by 2021	Align work tasks and salaries with other comparable hospitals	Organize "robust" departments and units	Resource usage on special functions	Increase activity and reduce costs
		Reorganize the outpatient clinic	Consider reduction and outsourcing of services	Operations
				Overhead costs

The RHA receives a set of annual missions/tasks/targets from the Directorate of Health for its region. These goals and tasks are forwarded to each hospital and serve as the overall steering "mechanisms" and important guidelines for the current operations of each hospital (Helse- og omsorgsdepartementet, 2018). Every quarter the hospital reports back to the RHA on quality indicators. To the Directorate of Health, it does so on a monthly basis. These reports are then published on helsenorge.no (Helse Sør-Øst, 2019).

The RHA has set the following goals for quality improvement and patient safety, and managerial tools for the local hospitals for 2019 (Helse Sør-Øst, 2019):

- Introduce coordinated patient pathways between the hospital and other healthcare institutions. This should include rehabilitation and a good information flow.
- Improve the communication and coordination with primary care. This builds on the National Audit Office´s report on the lack of quality in the information the hospitals exchange with primary care providers, and the lack of control in assuring that the hospitals employees know the regulations and commitments they have towards the primary care sector in this process (Riksrevisjonen, 2017).
- Continue to develop the ICT infrastructure and to develop digitalized services to enable patients to be treated and followed up remotely.
- New DRG reimbursements pilot, where the hospital gets reimbursed for every registered patient independent of treatment location.
- A new valuable tool, the instruction on leadership and quality improvement in the healthcare sector, is available and should enable leaders and the board in their work.

1.3.2 The Municipality of Oslo

With the objective of minimizing inpatient time in hospitals, municipalities have taken over many responsibilities in providing healthcare services (Meld. St. Nr 47 (2008-2009), 2013). Oslo's city councils' goals for 2019 emphasize on integrated healthcare services for their citizens and, if possible, to treat them at home (Oslo Kommune, 2018). 55.6 percent of the municipality's total budget is allocated to the Elderly, Health and Labor (EHA) division, and from this, 50 percent is budgeted toward healthcare. The total net budget for the EHA is NOK 27 billion, thus the expenditures allocated to healthcare is NOK 13,5 billion for the year of 2019 (Oslo Kommune, 2018). Table 4 presents the main goal for 2018, in which goals 1-3 are relevant for this thesis as they focus on integration of services.

Table 3. City councils' identified goals for the EHA division for 2018 (Oslo Kommune, 2018.)

Services are delivered by professionals with the adequate competence and sufficient time.
More should be able to live independent lives, at home
More should experience good health and be able to master their own lives
Increase the employment rate in the municipality of Oslo
Reduce the differences in living conditions among the citizens
The citizens should have the opportunity to participate, contribute and be included in sodality.

Measures that will be introduced to achieve these goals (Oslo Kommune, 2018):

- The citizens should have access to integrated and available services delivered by professionals with the adequate competence and sufficient time.
- Introduce standards that ensure evidence-based and connected services.
- Introduce a "What is important for you?" approach for those who need services.
- 500 new man-years for the home nursing services, and 100 new man-years to the public nursing homes. This will enable elderly to live longer at home while receiving better rehabilitative and preventative services, emphasizing on using welfare technology and digitalization of services. Also, this will contribute to stronger social networks, participation in activities and a stronghold that will lift the quality of their daily life and enable them to be more independent.
- Ensure integrated patient pathways through collaboration between the municipality, the agency for health, the agency for nursing homes, and the secondary care.
- Start a competency program, competency demands and learning programs for employees that work in the municipal healthcare institutions to ensure adequate knowledge and competencies in the increasingly complex patient cases that are being transferred to the primary care.

2 Theoretical framework

2.1 Value-based healthcare

Michael Porter developed the theoretical concept of value-based health care (VBHC) and discussed its main concepts in his book Redefining Healthcare, which was co-authored with Elisabeth Teisberg (2006). I base my theoretical framework largely on this work. The authors focus on what they see as the underlying problems in the healthcare sector in the United States; huge gaps in quality, frequent medical errors, slow diffusion of medical knowledge, and unnecessary administrative spending. Furthermore, they emphasize the importance of identifying the root causes of these problems, which include failed competition, full service models with low volumes of patients, lack of transparency, and the fear of comparison and accountability. Porter and Teisberg (2006) further discuss the lack of quality measurements within the sector. For example, a given treatment yields the same DRG reimbursement regardless of the patient's outcome, and therefore, there is an incentive for the hospital to discharge patients quickly, and no incentive to ensure the level of quality of the total cycle of care, which is what counts for the patient. The situation is in important respects the same in the Norwegian system.

This is what VBHC delivery addresses, how to move from a zero-sum competition model (where you do not create value, but only win what another loses) to different approaches that create value for the patient, defined as health outcomes over dollars spent. Porter and Teisberg (2006) challenged the (lack of) competition in the healthcare sector and established principles of competition on how the healthcare system can, and must, be organized more efficiently to maximize patient value (see table 5).

Table 4. Principles of value-based competition (Porter & Teisberg, 2006).

- Competition must be based on results
- Competition should center on medical conditions over the full cycle of care
- Value must be driven by provider experience, scale, and learning at the medical condition level
- Competition should be regional and national, not just local
- Results information to support value-based competition must be widely available
- Innovations that increase value must be strongly rewarded

To incorporate these principles successfully, outcome measurements must be introduced and made public. This is the only way to measure value throughout the full care cycle, they claim.

A tangible approach in transforming to VBHC delivery is to use the conceptual organizational framework of the Integrated Practice Unit (IPU). This implies to organize smaller, condition-specific units in a service line, and not after a functional structure model, i.e. to change to a customer-oriented structure (Porter & Teisberg, 2006). Figure 4 illustrates the care delivery value chain (CDVC) of an IPU. The value chain is a tool that Porter developed as a generic framework for any business that delivers a service or a product, and the extent to which these activities are integrated also determines how well a company can create value within its organization (Porter & Teisberg, 2006). The CDVC is adapted to the healthcare sector. This is the first, and most important, enabler in the transformation to an IPU (Porter & Teisberg, 2006). The chain begins with *monitoring* and *preventing,* and the care pathway continues through *diagnosing, preparing, intervening, recovering* and *monitoring.* This framework is based on patient care, thus overhead costs and other support activities are not included. All steps in the care pathway are followed by three cross-cutting activities: *Accessing* (how patients can gain access to various services), *Measuring* (the patients' medical circumstances), and *Informing* (activities involving educating and coaching the patients). The four arrows underneath the model (figure 4) illustrate feedback loops, which are a method to monitor and evaluate the "steps". I will provide an example and further elaborate on this in the discussion chapter. The authors emphasize that delineating the activities will reveal inconsistencies and that this, a systematic analysis of the services compared with best practices, is needed to improve the patient value in this chain (Porter & Teisberg, 2006).

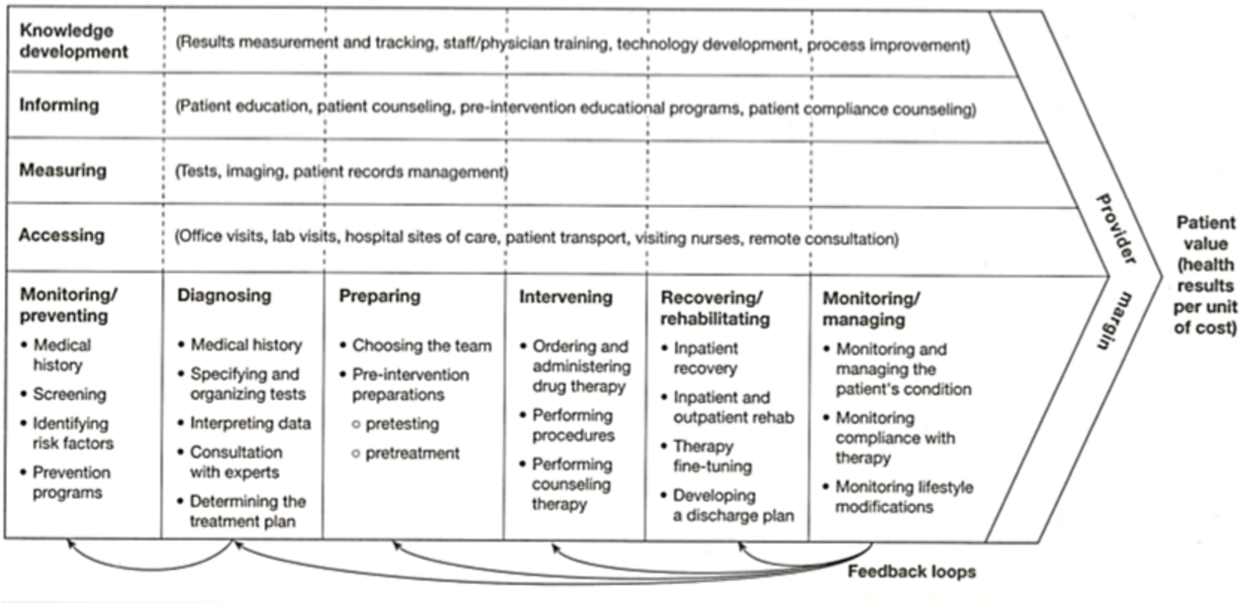


Figure 4. The care delivery value chain of an IPU (Porter & Teisberg, 2006)

The second enabler Porter (2006) mentions, is the power of information technology. Each "step" in the CDVC can be improved and made more efficient by information technology, remote medicine, EMRs, and electronic prescribing, to name a few. Along with the integration of activities in the care pathways, the collecting and sharing of information through IT systems plays a crucial role in creating value. Such an enhancing IT-platform should be patient-centered and follow patients throughout their entire cycle of care. This implies that the data is aggregated around patients and not departments or locations. Furthermore, all types of patient data are included here, such as physician notes, lab tests, images etc., and all parties (that take part of the cycle) should have access to this data. Porter also emphasizes that the system should include templates and "expert systems" for each medical condition, and that the system's architecture should make extraction of information easy (Porter & Lee, 2013). In Norway much is being done with regard to this: electronic (renewable) prescriptions that come as part of an integrated service, ready to pick up at any pharmacy; a digital health record, helsenorge.no for example, where you can see your appointments, referrals, vaccines, and other information regarding your access to healthcare services (Direktoratet for e-helse, 2018). However, electronic information services are mostly used on a patient-provider level, and therefore lacks information sharing between primary and secondary care providers. This thesis argues that there is a greater need for vertical (and horizontal to some extent) integration of IT services between the various providers.

Systematizing knowledge development is the last enabler (Porter & Teisberg, 2006). Here, efforts to systematically improve the processes and activities in the patient pathway are the focus. Best practice guidelines and evidence-based staff training are important measures. A study from 2002 showed that in 66 percent of cases, less than ¾ of relevant guidelines are actually implemented. A study on adherence to medical regimes shows similar results (Aitken & Gorokhovich, 2012).

Porter illustrates the relationship between quality and costs using the possibility productivity frontier model (Figure 5). This shows the potential improvement in quality and reduction in cost that could be achieved by implementing best practices (Porter & Teisberg, 2006). A local hospital such as Diakonhjemmet could benefit greatly by following leading examples of implementing such best practice guidelines. An example is Intermountain Health Care, a non-profit hospital group in the US that innovates, shares, and implements best-practice guidelines by always emphasizing quality and safety improvements (Porter & Teisberg, 2006).

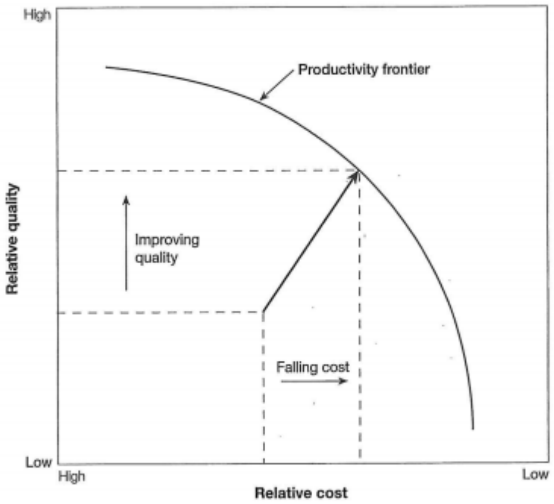


Figure 5: Productivity Frontier- Operational effectiveness vs. strategic positioning (Porter & Teisberg, 2006).

The ideas of Integrated Practice Units (IPUs) and the value-based competition principles have later been developed into in a 6-step best practice strategy (see figure 6) for organizations that pursue value transformation (Porter & Lee, 2013).

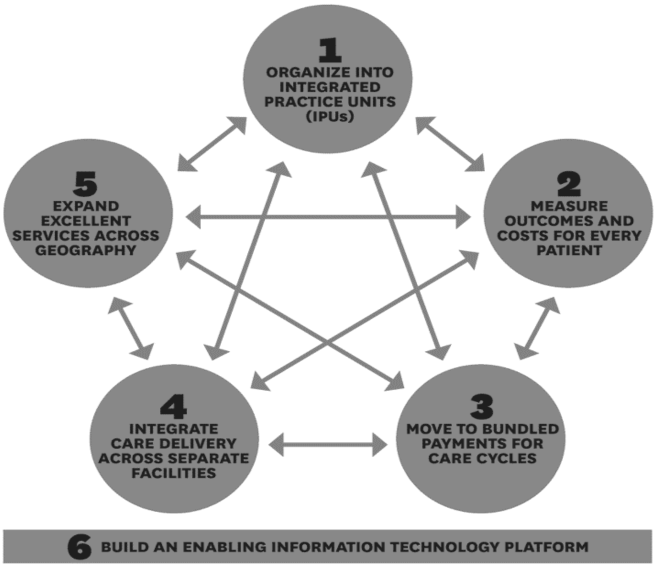


Figure 6. Integrated Practice Units (Porter & Lee, 2013)

The first step is to organize into IPUs, which focus on one specific condition and include all necessary resources, such as education, counselling and other preventative and informational support needed to tackle all aspects of the disease (Porter & Lee, 2013). The Shouldice Clinic in Toronto serves as a good example of an IPU. They focus solely on hernia repair, and due to the homogeneous scope of their practice and large quantity of patients, they have become a world-renowned institute of excellence in their field (Chan & Chan, 2006).

Measuring outcomes and costs for every patient is the essence of the second step in this model. To do this, Porter (2010) suggests a three-tier measurement model (see figure 7). The first tier, health status achieved or retained, covers dimensions of the health status and should be measured over periods. This can be mortality/survival rates (in time-t) and degree of recovery. Examples include functional measures such as quality-adjusted life years (QALYs), which are dependent on the condition, stage in life, and personal preference (M. E. Porter, 2010). The second tier relates to the cycle of care and time of recovery, and includes variables such as medical errors, patients' discomfort, delays, and unnecessary adverse effects. The third tier involves the sustainability of health, recurrences of disease, and long-term consequences. Porter stresses that measuring the outcomes that matters to the patients is the most important step in achieving better value for the patients. Current systems for measuring the cost of healthcare are department-based, but providers should strive to measure the full cost at the patient-level for a medical condition over the full cycle of care to get an accurate, holistic overview of the patient costs (Porter & Lee, 2013).

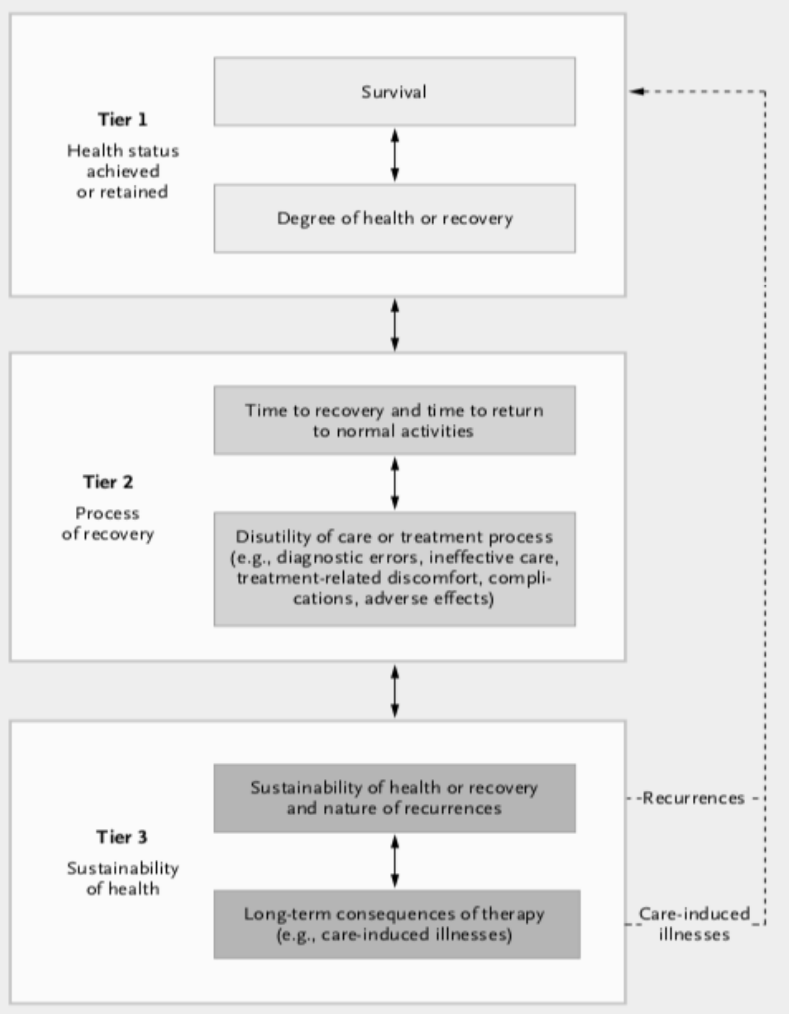


Figure 7.Three tier measurement model (M. E. Porter, 2010)

Moving to bundled payments for care cycles is the next step in the 6-step best practice strategy for IPUs. Bundled payments cover the full cycle of care and encourage teamwork and high value healthcare at the patient level (Porter & Lee, 2013). Other payment options, such as fee-for-service or capitation, give providers incentives to either increase or decrease volume of services, but do not give incentives to optimize outcomes or value. The payments should also include the overall care of the patients and be linked to factors that the team can control. Introducing a pay for performance model further benefits the providers that are improving efficiency while maintaining or improving outcomes. In Norway, the DRG system has introduced bundled payments for certain disease packages (i.e. cancer). However, this is on a provider level, and the patient still has to pay OOP payments for follow-ups at the outpatient clinic or for consultants with their GP.

To Integrate the IPUs delivery of care across separate facilities and geographic expansion are the four and fifth steps in this strategy. Multi-site healthcare delivery organizations provide a continuously larger proportion of healthcare services (Porter & Lee, 2013). As it is today, most multi-site organizations are not true delivery systems but rather a group of largely individual units that often duplicate services. The authors discuss that in order to reduce the duplication of services and to become a true VBHC delivery system there is a need to define the scope of services, to reduce the number of locations and concentrate the number of procurers, to match the skill and the need to the complexity of the services, and to integrate care across the locations. The latter means that the care cycle can move across locations but remain within one integrated pathway. It also means that there should be one bill for the whole cycle. Geographic expansion takes two principle forms, the hub-and-spoke model and the clinical affiliation model. However, the key is that superior providers need to serve more patients (such as in the Shouldice clinic). In the hub-and-spoke model, patients receive their initial evaluation at the hub, but most of the care takes place in locations that are more convenient. In the clinical affiliation model, the IPU uses a community provider's local facilities and provides some additional staff as well as oversight for clinical care.

All of the steps mentioned here require an enabling information technology platform that I have discussed in detail earlier in this chapter.

2.2 Principles of disruptive innovations

Another Harvard professor, Clayton Christensen, has also contributed greatly to the research on healthcare delivery. He uses a different approach than his fellow “superstar” professor Michael Porter, but shares similar views on the healthcare system in the United States; the system is in a critical condition (Christensen et al., 2009). Christensen’s views on the healthcare sector (in the United States) is that it is too specialized and too expensive, and the only reason that we (they) can access healthcare is due to the government´s and employer’s willingness to pay for it. Christensen et al. (2009) say that major changes are necessary to make the system function properly. What is required, he and his colleagues maintain, are disruptive innovations. Such innovations arise from the bottom of a market when “agents of transformation” allow it. It is when these agents of transformation, *technological enablers, business model innovations, and value networks,* develop/evolve that disruptive innovations succeed (see Figure 8).

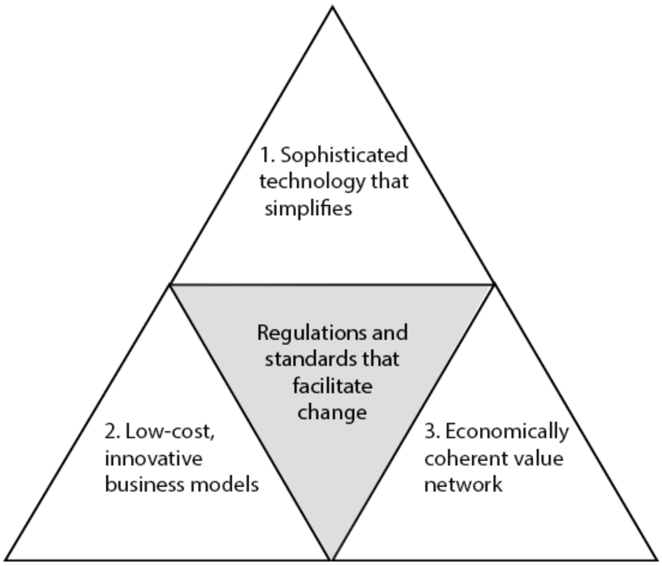


Figure 8: The agent of transformation triangle (Christensen et al., 2009)

In the healthcare sector, *sophisticated technology that simplifies* (i.e. technological enablers of disruption), is technology that is used to precisely diagnose a condition, such as in molecular diagnostics and diagnostic imaging (Christensen et al., 2009). This technology can now differentiate between different bacteria and viruses, and with precision, predict the most effective therapy. This disruptive enabler also reduces the need for expertise-intensive labor (i.e. medical specialists) and results in patients being cared for by less resource-demanding healthcare professionals, such as nurses, in clinics outside hospitals.

The second enabler, *low-cost innovative business models*, has not sufficiently capitalized on the potential from the technological enablers. Christensen et al. (2009) states that the way the system is constructed and the staggering prices (in the US) of healthcare are reasons for the lack of development and disruption of current business models. To disrupt this system successfully, the entire value chain/industry must act together and create a new value network where different businesses in the industry can disrupt together. Christensen uses the framework developed by Stabell and Fjeldstad (1998) on job-focused business models to explain three healthcare system configurations: the solution shop, the value-adding process business and, the facilitated network.

- The *solution shop* is an ad-hoc business model that concentrates on treating each case individually (Christensen et al., 2009). Its value derives from the expertise within the company and its ability to diagnose and solve unstructured problems (like in consulting- and law firms and traditional clinics). Usually, this kind of model operates on a fee-for-service basis, as uncertainty is relatively high and the experts use hypotheses to test their diagnoses.

- While the solution shop focus on creating value through unique handling of each case*, the value-adding process business* (VAPB) is a model that focuses on standardized processes, and the value produced in this model comes from adding value through excellent processes and equipment (Christensen et al., 2009). In this case, treatment based on a definitive diagnosis can often be delivered through standardized processes (like in hernia repair). Payment is based on results. Prices can normally be posted in advance and the results guaranteed.

- The last business model addressed by Christensen et al. (2009) is the *facilitated network* model. This model relies heavily on the size and composition of the network, meaning that the value of this model comes from the members/users of the facilitated networks, such as banks, where the value comes from the members making deposits and paying annual fees for membership. Patient-organized disease groups, especially where behavioral changes are needed, have proven to be much better suited to help its members than the solution shop GP practices.

The third enabler in the agents of transformation model is the *economically coherent value network*. Christensen states that the system of delivery (i.e. the value network) needs to be changed from being dominated by a few heavily regulated hierarchically organized "gatekeeper" industries, to a loose network with many independent care providers (Christensen et al., 2009). Christensen emphasizes the need for collective, simultaneous disruption by both the insurance industry and the medical providers in order to reap the full reward of cost reduction and increased accessibility. However, without the appropriate regulations and standards that permit disruption, many of the disruptions will stall. Thus, medical professionals, lawmakers, and regulatory bodies need to collectively stimulate the system to allow for the disruptions that seem imminent in this current, non-sustainable system of expertise-intensive labor (Christensen et al., 2009).

Expertise-intensive labor has been a requirement in many industries (especially in the start-up phase) where new technology is developed and high expertise is required to produce outcomes, e.g. the start of the computer industry (Christensen et al., 2009). It has also meant the collapse for many companies that did not evolve and/or disrupt when transformative opportunities arose. Figure 9 illustrates the dilemma of disruption. The dotted lines represent the performance that customers are willing to pay for, and the solid arrows are the trajectory of the sustaining innovation and the disruptive innovation. Here lies the dilemma; should you, as the owner of a company, invest in sustaining innovations and focus entirely on the high end of the market (the most profitable) or should you challenge the disruptive innovators that target the lower-end of the same market you operate within. Christensen argues that while the big, dominant players focus on unnecessary improvement of their current products, their resources could have been used more efficiently by investing in cheap, low-cost business models for the low-end part of the market (Christensen, Bohmer, & Kenagy, 2000).

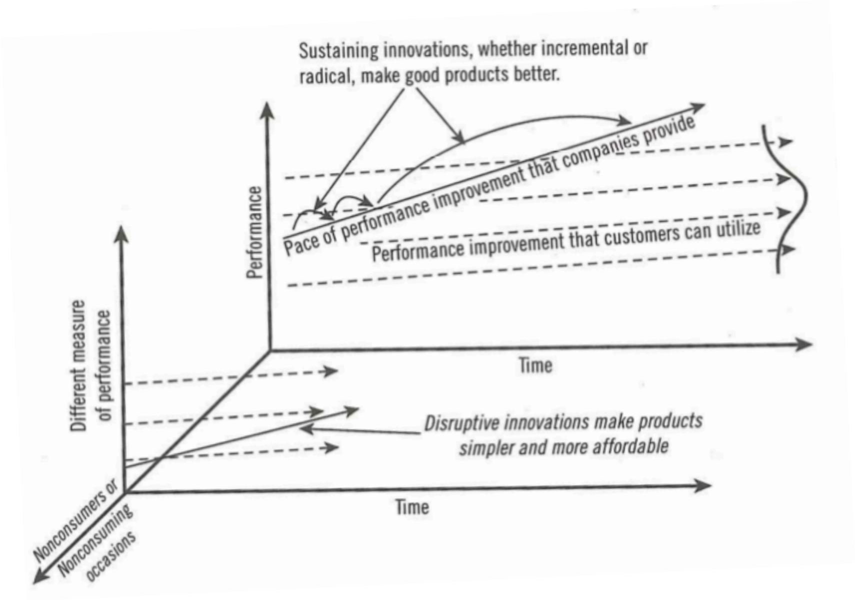


Figure 9. The dilemma of disruption (Christensen et al., 2009)

Today, general hospitals aim to be both solution shops and a value adding process businesses (VAPB), with one payment method to serve both models (Christensen et al., 2009). Hospitals should instead, create new individual organizations, or organizations within organizations, that unify around one single business model. This would, for example, make it possible to create therapeutic VAPB clinics that would achieve better health outcomes than in today’s general hospitals and would reduce overhead costs (as much as 40-60%). Creating shielded diagnostic solution shops, like Mayo clinic has done, would also improve both the quality and the efficiency of the diagnostic work.

Christensen and Porter agree, despite their different approaches and general lack of collaboration or referencing to each other’s work, that the industry must reveal the full price of services in order to let market mechanisms adjust the price to the value the outcome represents (Porter & Teisberg, 2006). However, Christensen states that this is difficult to achieve with today's hospital model, i.e. a model that is comprised of both solution shops and VAPB clinics.

The care of chronic diseases, which often require behavioral changes and coherence to strict medical regimes, is also due for disruption, as this group consumes a large portion of healthcare spending and resources (Christensen et al., 2009). Here, the problem lies within the design of the reimbursement system, where providers are payed for treating sick patients, as opposed to for keeping them healthy. There is a significant difference between *intuitive chronic diseases*, where we lack research and insight in both diagnostics and treatment, and *rule-based chronic diseases*, where physicians can singlehandedly diagnose and prescribe the appropriate therapy. Many of the rule-based chronic disease diagnostics and therapies are so precise that handing this off to less resource demanding personnel, i.e. to nurse practitioners, can be done without any loss in outcome. Additionally, Christensen states that GPs can take over some of what specialists are now doing, as this has also become part of rule-based medicine.

For patients with chronic diseases, the diagnosis is often the beginning of a lifetime of medical attention. That attention consists just as much of patient management as of technical interventions. Figure 10 shows what Christensen calls the chronic quadrangle, an illustration of the degree of required behavioral change on the part of the patients and patients' degree of motivation to comply with best known therapy (Christensen et al., 2009).

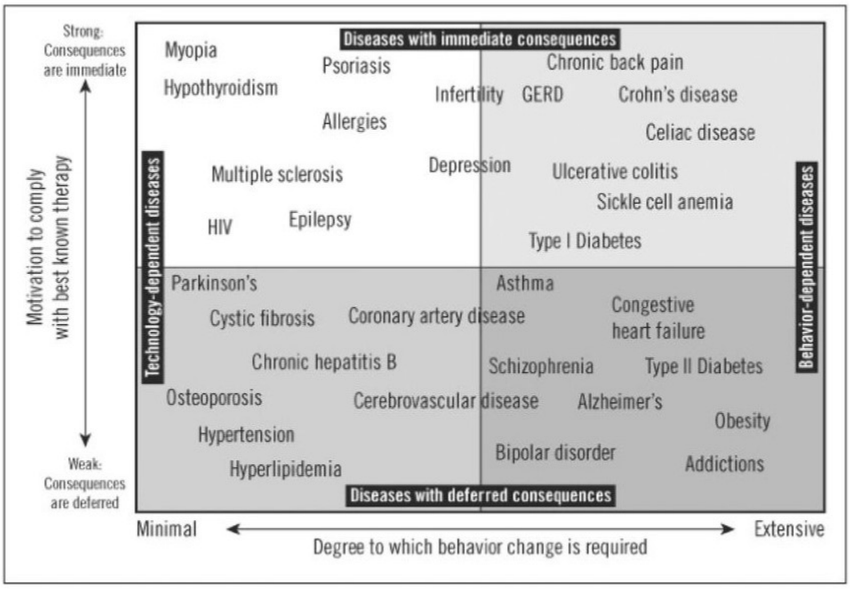


Figure 10. The Chronic quadrangle: (Christensen et al., 2009).

Independent of the type of disease, it is evident that behavior-dependent conditions require that care is based on strong motivation on the part of patients, patient-reminders, and repeated informing of patients as to the importance of adhering to the prescribed regime. The value in this business model should derive from keeping patients as well as possible, not by accessing more resource demanding care, such as specialist treatment in a hospital. This is not compatible with the solution shop model for intuitive chronic diseases or the VAP clinic model for precision-based chronic disease diagnostics (Christensen et al., 2009). The solution must be two (or three) separate models. One (or two) that diagnose and prescribe the best evidence-based therapy available, reimbursed through fee-for-service (and fee for outcome). The other model, a value network, should then be introduced to help patients manage their lives and live with their disease as advised by the care providers. Financing a business model like this through a prospective capitation system will give the providers incentives to keep their patients healthy. Thus, businesses disrupt through a new value network.

In order to battle the enduring and staggering healthcare expenditure increase, we need to disrupt the whole value network of how healthcare, from healthcare institutions to healthcare professions, are delivered (Christensen et al., 2000). With time, innovations will disrupt naturally (e.g. the case of angioplasty), but many potential disruptions are stalling because of the resistance by the established value networks and professions. Disruptions of the healthcare professions is part of this development. We must, says Christensen, disrupt the hegemonies that professionals represent and protect. Less resource demanding professionals can take over many of the tasks that more expensive professionals perform today; thus, nurse practitioners can take over much of what the general physicians do today (Christensen et al., 2000).

Who will deliver the disruptive value system that we need? In a country like Norway, where the government "is" the healthcare system, the government must be the chief disrupter. The government must coordinate and launch a disruptive "wave" of companies that together will build a new value network (Christensen et al., 2009). Nevertheless, we often rely on the pharmaceutical market and medical device companies to provide the technological enablers, allowing the rest of the "disruptive triangle" to start developing. The regulatory body of the country of interest, Norway in this case, is of high importance to how a disruption of the healthcare sector takes place. Christensen states that in the public sector, the regulation of industries usually undergoes a three-step process:

1. It subsidizes the foundation of the industry (i.e. public funding of research).

2. It stabilizes and strengthens the companies involved by setting standards on outcomes, labor, and access to products (i.e. regulation of access, price setting).
3. It encourage competition to lower prices (i.e. stimulate the market so companies can enter).

Christensen et al., (2009) emphasize that both private systems, where you pay for what you want to consume, and public systems, where bureaucrats decide for you, have done a fairly poor job in delivering affordable care to its citizens/patients. To orchestrate innovation and disruption, tools of cooperation are critical. In my discussion chapter I will elaborate further on how my organizations of interest ought to proceed to achieve the desired outcomes for their organizations and patients.

2.3 Integrated initiatives in other countries

The trend of more business-oriented approaches to tackle the increasing need and demand in healthcare delivery has been implemented in various countries such as Sweden, the UK, United States, Spain, Germany and the Netherlands (Ahgren & Axelsson, 2011; Baillie et al., 2014; Centre for Health Policy, 2015; M. Porter & Gluth, 2012; Ribera Salud Grupo, 2016; Strandberg-Larsen, Schiøtz, & Frølich, 2007; Valentijn, Schepman, Opheij, & Bruijnzeels, 2013). In Norway, the demand from the government to achieve the goals put forward in the Coordination Reform have also resulted in more integrated, value-based approaches in recent years (Bergmo, Berntsen, Dalbakk, & Rumpsfeld, 2015; Dahl, Steinsbekk, Jenssen, & Johnsen, 2014; Helse Midt-Norge, 2019; Utviklingssenter for sykehjem og hjemmetjenesten, 2018). The following two examples are initiatives that I find especially interesting with regard to this thesis:

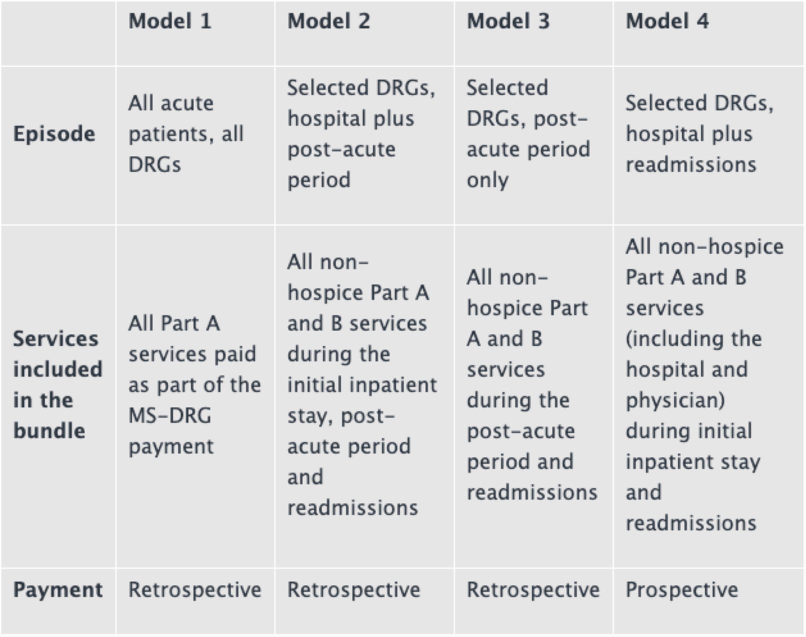
The Ribera Salud is an integrated healthcare organization that was founded in 1997. This private-public partnership (PPP) between the Spanish government and private investors is built on a capitation-based business model where the organization is responsible for all medical treatments for the entire population in a region in Valencia, Almira (Ribera Salud Grupo, 2016). This PPP initially committed the two parties to a 10-year contract, with the private partner promising to deliver care to the 245 000 citizens/patients and to build a hospital which would be funded on the bases of capitation. In 2003 the PPP was further expanded, and now also includes the primary care sector, with a 15-year contract extension. The organization is based on "*assistance and promoting the population's health through innovative clinical strategies, recognition of the important role of the professional team, and a constant investment* *in technology"* (Ribera Salud Grupo, 2016, p. 11). Through this, they offer a network of services that are all coordinated through a common information system and bundled payment plan, allowing the citizens to access one system for all medical enquires, which is heavily focused on outcome measurements. This business model is what Clayton Christensen would call a value network. The population pays a "membership-fee" of 690 Euro per year (Centre for Health Policy, 2015). The profit formula focuses on keeping the population healthy, however, profits exceeding 7,5 % is returned to the government of Spain.

In 2012 they introduced a strategic plan to help meet the needs of the elderly and the chronically ill populations in the region: The Complex Care Plan. This included a 24-hour call center, emphasizing on individual needs and remote monitoring, where suitable. The program was evaluated by the Center of Health Policy at Brookings, and Table 6 shows the remarkable results of the intervention.

Table 5. Key statistics after implementing the Complex Care Plan (Centre for Health Policy, 2015).

Measure	Before the inclusion in the Complex Care Plan (2012)	After the inclusion in the Complex Care Plan (2014)	Variation (%)
First outpatient visits	5,688	5,190	-8.76%
Ongoing outpatient visits	15,700	16,122	2.69%
Hospital emergencies	6,752	5,680	-15.88%
Hospital admissions	2,933	2,123	-27.62%
Hospital readmissions	266	197	-25.94%

Another integrated initiative worth mentioning is the Bundled Payments for Care Improvement (BPCI) by Centre for Medicare and Medicaid Services (CMS) in the United States. This innovate bundled payment (reform) initiative aims to change the way payment is rewarded, from quantity of services provided to the quality of care (Centers for Medicare and Medicaid Services, 2015). Organizations that enter into this program encounter financial and performance accountability for *episodes of care*. That is, a time span (commonly 30, 60 or 90 days) for which the organization receives a bundled payment for all medical services provided. An episode is triggered by a hospitalization or discharge (Model 3). There are currently four different models available for the participants (organizations) which are explained in Figure 11 below.



	Model 1	Model 2	Model 3	Model 4
Episode	All acute patients, all DRGs	Selected DRGs, hospital plus post-acute period	Selected DRGs, post-acute period only	Selected DRGs, hospital plus readmissions
Services included in the bundle	All Part A services paid as part of the MS-DRG payment	All non-hospice Part A and B services during the initial inpatient stay, post-acute period and readmissions	All non-hospice Part A and B services during the post-acute period and readmissions	All non-hospice Part A and B services (including the hospital and physician) during initial inpatient stay and readmissions
Payment	Retrospective	Retrospective	Retrospective	Prospective

Figure 11. Four BPCI models of care (Centers for Medicare and Medicaid Services, 2015)

The reimbursement system works by giving organizations the responsibility to deliver all care for a given “episode”, this cost is compared with a benchmarked target. If the organization exceeds the expected costs, they are liable to cover the rest; if they are able to provide cheaper care, they will share the profit relative to their inputs. This program was designed to evaluate if bundled payments would result in reduced costs for Medicare and improved quality of services. Companies such as Optum Health and the Levin group have engaged in this initiative, and companies such as Remedy Partners have been hired to organize care, to analyze bundle payment targets, and to enable all stakeholders to collaborate seamlessly through their software systems (Remedy Partners Inc., 2019). The evaluation of this initiative demonstrates promising results as models 2 and 3 have reduced the fee-for-service payments. However, this reduction is less than the reconciling payments CMS was required to pay to the participants. These payments were linked to technical issues in the initial phase of the initiative, such as successfully implementing and establishing sophisticated and realistic target prices. The new BPCI Advanced, addresses these problems and introduces more risk to the participants. Porter’s ideas on IPUs is evident in this initiative with its integrated patient pathways and episodic bundle payments, organized and measured through an enabling IT system. Each episode resembles mini IPUs organized after the CDVC framework principles. I will elaborate on this in the discussion chapter.

2.4 Integrated care initiatives in Norway

In 2015, the University Hospital of North Norway and the municipality of Tromsø initiated the PACT-project. This Patient Centered Team (PACT) is an interdisciplinary team which aims to deliver a higher quality of care to elderly patients and to reduce healthcare costs. They also developed a "before and after" study of this intervention. Here, they aimed to include 600 patients in the intervention group, and 600 patients in a control group, which were matched according to sex and long-term disease conditions (Bergmo et al., 2015). Their results were divided into primary and secondary outcomes. The primary outcomes were measured through the use of the Short Form Health Survey (SF-36). While the secondary outcomes were based on the Patient Generated Index, the Patient Activation Measure, the Patient Assessment of Chronic Illness Care, and hospitalization and length of stay. They also included a cost-effectiveness study to assess the gained quality-adjusted life-years and other important economic impact measures. The data was collected at baseline, 6 and 12 months. The preliminary results show a 30 percent reduction of inpatient hospital days and halved mortality risk in the 6 months follow-up period (Berntsen GR et al., 2017).

Another integration initiative in Norway was based on the whitepaper "Primærhelsemeldingen," which focused on preparing for tomorrows challenges within the delivery of care services (Meld. St. 26 (2014-2015), 2014). From this, an innovative patient-centered initiative, Primary Healthcare Teams (PHT), was created. These teams consist of physicians, nurses, and administrative personnel. One of the physicians leads these innovatively designed micro-organizations, toward the goal of using the multidisciplinary teams to give the patients a holistic assessment at one location, in the patient's local environment. This pilot-project was initiated on a national level by the Directorate of Health and is currently operating in 10 municipalities and three boroughs in the municipality of Oslo, with a total of 13 GP practices (Helsedirektoratet, 2019b). This project uses normal GP's patient lists, and the goal is to assess if this new way of organization gives the patients a better service than the original structure of GP practices in Norway. It emphasizes on patients with complex needs, both somatic and psychiatric. This idea is imbedded in Michael Porters IPU theories: small, individual, patient-oriented practice units. Geographically, it spreads across the country and gives the participating healthcare providers the opportunity to consult with each other, as well as the project lead, the Directorate of Health. Given the short (3-year) timeframe of the project, and the interest to assess if this can be a solution to meet the challenges of primary care in the future, all outcomes are thoroughly measured. The GP practices choose between the standardized “honorary model” and the “operating adding model”. The first model is a three-way financing system that consists of OOP from patients, activity-based rates from the government, and a capitation payment based on the size of their patient list. The latter is less activity-based (and somewhat resembles a bundle payment) with a preset capitation of 86 percent based on the size of the patient list, and the additional 14 percent is attributed to performance.

3 Research methods

3.1 Background

The background for this thesis was to assess how primary and secondary care coordinate and collaborate with patients that are in need of services after discharge and to provide normative suggestions as to how this could be improved, from an academic perspective. My organizations of focus were a local hospital in Oslo, Diakonhjemmet hospital, and Diakonhjemmet sector (the boroughs Frogner, Ullern and Vestre Aker in the Municipality of Oslo). I assessed how the hospital and municipality (city sector) coordinate and collaborate care for patients who are in need of services after discharge. Following my analytical analysis, I have developed suggestions, rooted in the organizational theories of Clayton Christensen and Michael Porter, as to how this coordination could be organized in a more efficient and value-based way.

This thesis deviates from the more common thesis designs but has given me a valuable learning experience in using applied theory to understand and think normatively about how healthcare is organized and managed. However, writing a thesis where I was dependent on information from stakeholders with different interests and not having a "blueprint" to follow, did not come without challenges. My first thesis proposal was not accepted, and my updated proposal was first accepted three weeks later on February 25th, 2019. The next application deadline at the Regional Ethics Committee (REK) was March 18th. My application was submitted on time, but the next regional meeting (their arena for considering applications) was May 8th with an expected answer from REK three-four weeks later. Simultaneously, the Norwegian center for research data (NSD) informed me that in order to use patient data I had to define my project as a quality project, not as a research project. But as a quality project the project had to be based in the top management of the hospital and be executed by an employee at the hospital if one were to circumvent the need for informed consent from all the patients. By this time, I had already received and analyzed anonymized patient data from the hospital, but further communications indicated that NSD would only allow the project (as a research project) if the data was not sufficiently anonymized according to the GDPR. Given that my topic of interest is integration of healthcare services, I wanted to go ahead with the project assessing and exploring how the situation is today and how it could be improved. I chose, in important respects, to use the original study design regardless of the challenges I had experienced. However, as I no longer had access to patient data, I chose to diverge from my patient level focus to a more organizational level focus. Thus, I collected my descriptive quantitative patient-related data through strategy documents and annual reports from the respective organizations where I conducted my study and added the qualitative data from the interviews.

3.2 Study Design

Quantitative and qualitative research differ from each other in many ways. While quantitative research often uses many units and few specified variables, qualitative research uses few units and many, often poorly specified, “variables.” Quantitative research aims to identify constant associations between independent and dependent variables; it is looking for natural laws and is generalizing (Green & Thorogood, 2014). Whereas, qualitative research tries to identify the uniqueness of a phenomenon; it is individualizing. Quantitative research assumes the relations between variables is external, while qualitative research assumes that relations between “units” but also “variables” are internal. The latter means that they involve conscious or subconscious meaning; they have a logic that those studied can recognize themselves in.

Applied qualitative science is to use the theoretical logic that has been discovered or developed to determine, given a more or less specified purpose, what a particular logic implies. In my case it is, for example, important to find out what the purpose of (good) integration of health care implies for the organization of the care cycle. When I do this, I also have to have a theory of what motivates healthcare personnel and patients.

Through this thesis, I am trying to make sense of the care cycles created through successful coordination of care between the Diakonhjemmet hospital and their three primary care sectors. I am trying to find out what kind of logic characterizes what happens in the various parts of the care cycle. I am also trying to find out how the quality of the cooperation is related to the health outcomes and the cost outcomes of the cycle. Documentary materials, including official statistics, give me much of what I need to give a picture of what is happening. Interviews are conducted to fill out the picture and to test and check some of the conclusions the documentary material has led me to make.

My “units” of analyses are persons, from patients to personnel of various kinds and leaders, but they are also institutions, i.e. collective actors. To some extent persons and institutions may overlap: Persons, especially leaders, often represent institutions, or reflect institutional attachments and identifications, like many healthcare professionals do. In a qualitative/interpretative analysis such double identities can be important. I treat persons in different ways, sometimes as individuals, like the ones I have interviewed, but often also as collectives – like patients, which are described statistically. My interview objects are interviewed both as actors and informants; the information they give is used both to say something about their roles and about the roles others have played.

To describe and characterize the relevant population, I extracted data from the hospital's digital management system, DIALIS (for 2018). I also used public hospital quality indicators and organizational steering documents (documentary material) from both the hospital and the municipality. In my qualitative analysis, characteristics are specified in varying degrees and used in a customized way. My most important data materials, or sources, are the documentary material. The information collected through the interviews are used as complementary material. It is used to check impressions acquired through documents, and to fill out the picture that emerges from the written sources. The interviews were conducted with key participants and informants in the "field." I chose to use group interviews because it allows interviewees to "help" each other to think of relevant information, but also so that they could "correct" each other's memories.

In the literature it is distinguished between four types of group interviews; consensus panel, focus group, natural group, and community interview (Green & Thorogood, 2014). I treated my interviews as formal natural groups, i.e. as persons that already knew each other through a formal connection. Interviews are often categorized based on how much the interviewer structures the interview. Thus, one distinguishes between fully structured, semi-structured, in-depth, narrative or informal interviews. I have used the semi-structured approach. I chose the topic and formulated the questions but encouraged the interviewees to answer my questions as they preferred and followed up questions based on the information the interviewees gave. I did the latter in an active way, conscious of what I needed the help of the interviewees to find out.

Due to the limited number of relevant people working with patient pathways between the hospital and the primary care region, my sampling from the municipality was purposive, or tailor-made. For me it was important that my informants had extensive information about the cooperation between the Diakonhjemmet hospital and Diakonhjemmet sector. For my sampling of participants from the hospital, I used snowball sampling. This is sampling where the participants from the municipality where asked who they would recommend for me to interview from the hospital.

3.2.1 Strength of the study design

By combining the use of documentary materials – including quantitative outcome data, with fairly open, personal interviews with key observers, I was able to draw a “holistic” picture of how the hospital and the municipal sector coordinated their way of treating and following-up patients. I could use the information gathered from the interviews to customize my understanding of the inter-institutional cooperation and how that contributes to creating or not creating value for the patients.

3.2.2 Weakness of the study design

To try to establish a “holistic” picture of the cooperation about the patients in question is an ambitious undertaking, especially when you have a strict time constraint. Basically, I think the study design is sound. The weakness is associated with the time I had available. This especially hurt the interviewing part of the research. I could have interviewed more people, and more people in other parts of the institutions. In this way I could have acquired more information and also have avoided some of the bias associated with the way in which I picked interview objects. That I only was able to interview one hospital physician, is a clear weakness. In the following two sections I say more about the process of selecting interview objects and the conducting of the interviews.

3.3 Interview guide

I developed my first interview guide (Appendix 1) with emphasis on coordination of the patient pathway of COPD patients between the hospital and municipality. My supervisor revised the interview guide and added suggestions. As the focus of my study changed to concentrate on a more general level of coordination between the respective organizations (no longer diagnosis based), I adjusted the interview guide accordingly, prior to my interviews with the case handlers in the municipality (Appendix 2). Qualitative data collection is often a dynamic process and because I conducted, transcribed and (partly) analyzed the municipality interviews first, this allowed me to adjust and (re)-structure the interview guide again before interviewing the hospital staff (Appendix 3). Three of the interviews where adjusted to suit one-to-one questioning as I was not successful in arranging group interviews.

3.4 Choice of objects and recruitment

Ideally, focus group interviews contain 3-12 participants, but as the Diakonhjemmets hospital is a local hospital for only three boroughs of the municipality of Oslo, my population of potential interview objects was narrow. The borough's organizational structures differ slightly from each other, but on average, there are three coordinators/case handlers working with arranging/coordinating primary care services for the patients in need of services from the municipality after discharge from the hospital.

The process of establishing contact with the case handlers in the municipality went well. The aim was group interviews with three participants but given the small population, I had to settle with two participants in each interview. Given my initial intention of three interviews, I will still use the terminology focus group. We agreed on time and date through e-mail correspondence, and I taped each interview with a tape recorder. As stated above, I sent an application to the Norwegian Centre for Research Data (NSD) given my use of tape recorder and storage of data (Appendix 4). NSD approved my application prior to the interviews, and interviewees signed an informed consent sheet after the interviews (Appendix 5).

3.5 Conducting the interviews

The study took place at the Diakonhjemmet hospital, Oslo, Norway and in its three associated boroughs in the municipality of Oslo: Frogner, Ullern and Vestre Aker. I conducted three focus group-interviews with the case handlers from the municipality, but the boroughs have been anonymized according to the agreement with the informants (see table 7).

Table 6. Overview of the informants and their characteristics

Informants	Date of interview	Type of interview	Position	Sector
Participant A1	02.04.19	Focus group	Administrative	Municipality
Participant A2	02.04.19	Focus group	Administrative	Municipality
Participant B1	03.04.19	Focus group	Administrative	Municipality
Participant B2	03.04.19	Focus group	Administrative	Municipality
Participant B3	03.04.19	Focus group	Administrative	Municipality
Participant C[1]	11.04.19	Intended focus group	Administrative	Municipality
Participant D	24.04.19	Focus group	Clinical	Hospital
Participant E	24.04.19	Focus group	Clinical	Hospital
Participant F	25.04.19	Individual interview	Clinical	Municipality
Participant G	09.05.19	Individual interview	Administrative	Hospital
Participant H	31.05.19	Individual interview	Clinical	Hospital

[1] Due to sickness

The interviewees chose the time and place for their interviews and each interview lasted approximately one hour. I was assured from the hospital that finding hospital physicians to participate in the project would not be a problem, and I hoped to conduct a group interview with three specialists. However, this proved to be very difficult and I was only successful in establishing contact with one internal medicine specialist for interviewing.

3.6 Data analysis

I transcribed all the interviews verbatim personally after the interviews. This time-consuming effort was a bigger challenge than anticipated, but it provided valuable information and helped to reiterate the discussions that took place throughout the interviews and gave me many additional clues. I used the transcription software f4 to transcribe the data. I analyzed and coded the transcribed interviews using the NVivo 12 software. My approach of analysis was a thematic content analysis. This is an approach that aims to summarize the participants' views and that aims to classify reoccurring themes in the data set (Green & Thorogood, 2014). The initial codes derived from my first interviews and my qualitative analysis involved further recognition of themes. I used Matrix coding queries to crosscheck the information given by the various participants, which was an important tool in assessing and categorizing the views of the hospital employees versus the municipality employees. The following table shows the framework developed by Braun and Clarke (2006) that was used in conducting my thematic analysis.

Table 7. *Thematic Analysis Framework* (Braun & Clarke, 2006)

Phase	Description of the process
1.Familiarising yourself with your data	Transcribing data (if necessary), reading and rereading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking the themes in relation to the coded extracts and the entire data set. Generate a thematic "map" of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.

6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

3.6.1 Quality criteria

The trustworthiness of my analysis was assured by validity and reliability. Qualitative research validity refers to how appropriate the process, the use of methodology, and the use of data are with regard to answering the research questions, presenting the results and summarizing the final conclusions (Leung, 2015). In my process I discussed my interpretation of the data with the corresponding informant after my analysis. This helped me in the process of validating the information I extracted from the interviews. Moreover, my results were triangulated (i.e. the use of several sources of data) by interviewing both clinical and administrative staff, using available literature and by participating in two conferences where several of my informants where present (i.e. informal data collection).

Reliability in qualitative research refers to the ability to replicate the process and the results of the study (i.e. will the research produce the same results if repeated?) (Leung, 2015). I have thoroughly and consistently repeated the process of analysis to ensure this. In addition, extensive notes taken during interviews and conferences have been kept. Moreover, my extended use of self-made figures and tables assist in ensuring the reliability of this study.

4 Results/Findings

In this thesis my focus has been to assess how integration functions and can be improved for patients in need of services from the municipality (Frogner, Ullern, and Vestre Aker) after discharge from the hospital (Diakonhjemmet). Following a careful analysis of the data by using the framework for thematic analysis (Braun & Clarke, 2006), four major themes were identified (figure 12).

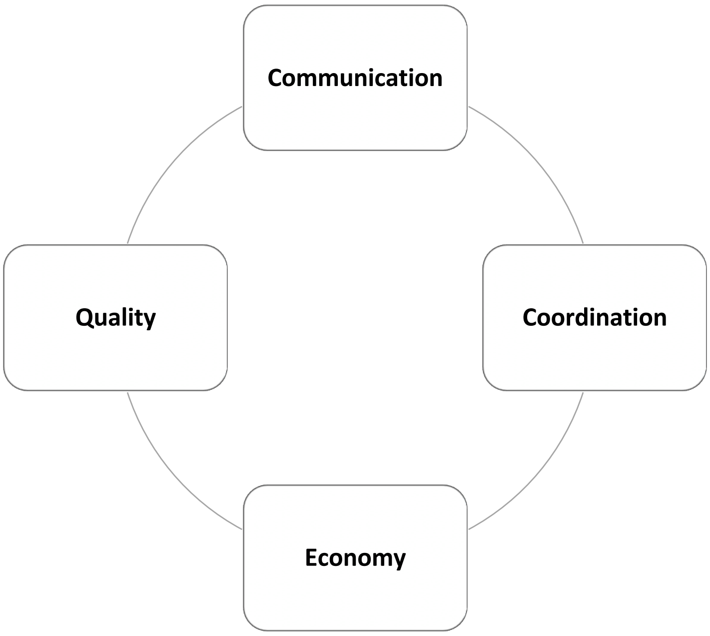


Figure 12. Summarized themes from the conducted interviews.

Each of these themes are grouped together by several sub-categories from my initial coding-process. In this chapter I will present the results from the interviews and in the following chapter I will discuss their implications for cross-sectoral integrated healthcare provision. I have not translated the citations from the participants word-for-word, but I have done it in a way that maintains the context of their expressions as accurately as possible.

4.1 Communication

Overall the coordinators in the municipality expressed that communication with the hospital was good, and significantly better than with other hospitals in the region, such as Oslo University Hospital. They suggested that this was due to the size of and communication structure of the hospital. Table 9 illustrates the sub-categories of the theme *communication*.

Table 8. Summary of the sub-categories of the theme Communication

Sharing information across the sectors
Patient information
Lack of communication between the various stakeholders
Digital communication

One issue that was mentioned several times by all the municipality informants, was the physicians' tendency to exceed their role and (mis)use their authority as physicians to promise patients a specific follow-up regime in the municipality that was not necessarily optimal. One municipal informant described it as follows:

> *"We have addressed this so many times, that they need to stop promising the patients' rehabilitation in short-term nursing homes, on behalf of the municipality."*

The rules and regulations on this topic state that the municipality is the actor that is responsible for choosing the appropriate level of care for the patient when they are discharged to the municipality. However, the hospital can choose to keep the patient in the hospital if they believe that the level of care the municipality has chosen is inadequate. In this case, the municipality cannot be charged according to the "patients ready for discharge" penalty (Lovdata, 2016). With regard to the discharge of patients, and the cases where the hospital chooses to keep the patients in the hospital, all hospital informants expressed that the municipality could and should share more information with the hospital regarding rehabilitation options that the municipality offers. Furthermore, it was a consensus in both organizations that the options for rehabilitation in the municipality have increased significantly over the last years. However, the hospital staff felt that they were not sufficiently informed about the options that are now available in the municipality and thus often kept patients in the hospital, even though there were suitable opportunities for rehabilitation in the municipality.

> *"We are both organizations that continuously try to improve the way we work. They initiate something that has consequences for us, and vice versa. We should include them more in our work, and they should include us more in what they initiate."*
>
> \- Hospital informant

The most important tools in the daily work between the two organizations are their digital communication (electronic patient record – EPR) systems. E-link for the municipality and PLO messages for the hospital. The interviews also reflected this, as this was the most discussed topic among the informants. Overall, the municipality representatives described three areas that should be improved further to increase the quality of the services:

- The timing and distribution of the patient summaries, which should include a full explanation of the treatment/medical history of the patient. Today the summaries are often sent too late, and if the patient is sent home then the case handlers will not receive one at all.
- Sufficient information. Often the municipality receives a PLO message and in the "patient-admitted" section it states, "function failure," but does not include any further information regarding which type of function. A common statement is, "they forget that we don't have access to the rest of the patient record system that the hospital uses".
- Discharge routines. Too many patients are discharged in the afternoon and this often creates problems in the logistics in the municipality.

"It is a barrier since the systems are so different. It would have served us to have more access in DIPS [the EPR-system], and it would have served them to see what type of services they receive at home."

- Municipality informant

Two hospital informants who work in the outpatient clinic shared their frustration over getting hold of home care workers and the fact that they cannot communicate through the PLO system with them. In order to use the PLO system, the patient must be admitted to a bed in the hospital. *"We have no opportunity to communicate through the PLO system; we cannot communicate with the municipality electronically."* Another informant further elaborated on the unused possibilities of the PLO system and its shortcomings with regard to the outpatient clinic and other healthcare providers that take part in the patients' pathways. The informant mentioned that similar communication between hospital physicians and GPs does not exist, but *"it should exist; it would have been great for the communication flow."* Because of the way the PLO system is built, the outpatient clinics can only send messages to the municipality but cannot receive them. This is a technical problem that they have not been able to solve, likely due to other things having a higher priority, explained the informant. Another hospital informant stated that better communication between the outpatient clinic and the municipality would assist in creating appropriate care plans:

> *"Take a patient who has been admitted, discharged, and has a follow-up appointment at the outpatient clinic, for example. You can imagine the importance of the outpatient clinic being able to communicate and update the municipality after the follow up... "He is like this and this" ... Then the municipality could answer back... "You have to take into consideration that the patient has to climb four flight of stairs, etc... "The same goes for wound treatment or, for example, the geriatric outpatient clinic where there are many consultations and [much need for] coordination with the municipality throughout the outpatient-patient pathway..."*

Aside from the above-mentioned limitations of the PLO system, there is generally a broad consensus that the system is sufficient in allowing different actors to communicate with each other. Unfortunately, further development of the system to address the barriers described does not seem to be a priority as of now. Multidisciplinary communication is highly important for an efficient information flow for patients with complex chronic diseases and long disease pathways. A multidisciplinary information system is needed where all updates and communications from the various stakeholders such as nutrition specialists, occupational therapist, physiotherapist, physicians etc. can be gathered.

> *"Just imagine having everything in one system and having the possibility to extract all information from one place. I do not understand why it should be so difficult to fix.*"
>
> \- Hospital informant

All informants agreed that the appropriate content of the messages in the PLO system should be strictly related to patient information. It is a part of the patient personal record and not a channel for disagreements or economic discussions between the providers.

4.2 Coordination

The organizational structure in the three boroughs of interest differ slightly from each other, but the patient pathways from the hospital to the municipality are the same. There are also significant differences in how the boroughs distribute their resources and conduct their daily work. Table 10 illustrates the sub-categories of the theme *coordination.*

Table 9. Summary of the sub-categories of the theme Coordination

Organizational structure
Patient perspectives
Development
Cross sectoral cooperation

All care coordinators expressed their desire to be at the hospital as often as possible during the daytime to assess the patients, but only one of the three coordinators actually achieved this in a consistent matter. One hospital informant said that s/he and his/her colleagues see a big difference in the way the care coordinators work and how often they are present at the hospital. One of the municipality informants elaborated on this:

> *"We really want to do as many assessment visits as possible, but as it is today the working conditions at the hospital are not optimal for us. I can use my computer at the hospital, but it is hard to find a place to sit and work efficiently. If they had a room available connected to the inpatient units, this would reduce the barriers to being able to execute more assessment visits at the hospital."*
>
> \- Municipality informant

The municipality and the hospital have fairly different objectives in patient care/treatment. Hospitals are concerned with the cure of disease, while the municipality is concerned with the care and management of living with the disease (or specific health state), that is, with patients and their way of coping. It is a short-term versus a long-term perspective. In two focus interviews, the informants discussed the fact that the municipality knows the patients best as persons, and that the hospital could benefit from asking and listening to healthcare workers in the municipality regarding the patients' habits and life style choices to ease the patients stay in the hospital (for both the patient and the care providers). The fact that the hospital does not face penalties for avoidable readmissions was also addressed by municipality informants as an important point. One stated that:

> *"They see the patient in bed when he or she is more passive than optimal. They do not have the focus that the patient should get up, get dressed, and walk to the dining area. They get everything served in bed; it seems to me that this happens to a greater extent than before, when I used to work in the hospital. Back then, it was a more holistic thought of maintaining the (patients') function, and that the patients were to live rather normal, even though they were*

staying in the hospital. Of course, we had more time to mobilize the patients then. Today's efficiency in the hospital is also a good thing, but it comes at the cost of holistic thinking. This is especially evident when you look at readmissions and who they are; mainly the elderly frail patients."

The informants shared different views on the development of the cross-sectoral services. One specialist from the hospital expressed that the consultancy role that the hospital takes vis-a-vis the municipality, mainly the family doctors, has resulted in a 20 percent decline in admissions. A general practitioner from the municipality confirmed this. Furthermore, informants from the municipality stated that the reasons for many of the problems/issues they experience in their work comes from the way the systems are organized; with different levels of care, different information systems, and different perspectives. One said that a truly integrated healthcare system would more or less eliminated today's problems. However, even though integration could be improved, there is a broad consensus among informants that there have been large developments/improvements when it comes to cross-sectoral collaboration. Specific examples of this are the introduction of the PLO system, having specialists working in the emergency units, and having shared positions between the municipality and the hospital.

4.3 Economy

Overall, all the informants that are involved in the economic aspect of discharging patients and finding suitable post-hospitalization arrangements expressed that they all knew the legal framework well and that the rules and regulations were clear for all parts. Yet a big discussion and disagreements are common on this topic. Table 11 summarize the two sub-categories of the theme.

Table 10. Summary of the sub-categories of the theme Economy

The price of the patient
Patients ready for discharge

As mentioned earlier, the penalty fee that the municipality is charged for a patient that is ready for discharge, but whom they are unable to accommodate, is NOK 4,885 per day (Helsedirektoratet, 2019c). This quickly adds up. One municipality informant estimated that their department had used almost NOK 500,000 just in the month of March for such fees. This was higher than normal but can easily happen in times when the municipality is experiencing/treating a complicated patient mix. From the hospital's perspective, they expressed that they too often experience that there are economic reasons for deciding the level and place of care after discharge from the hospital. One informant stated:

> *"It is especially in cases where all stakeholders agree that the patient needs a place in an institution after discharge, but there is no capacity before day three. Then often the municipality says that they will place the patient in his/her home until there is capacity available [at a nursing home]. If this patient is old and frail, this this is very unfortunate for the patient's well-being. It is obvious that the decision is based on economic concerns. Everyone agrees that it is a bad solution for the patient; still they choose it because it is cheaper. This happens."*

A problem commonly experienced by the boroughs is capacity. If, due to capacity issues, they are unable to offer the appropriate level of care to a patient ready for discharge, they can "buy" available beds from other boroughs, one informant explained. This solution costs half the price of paying the penalty for leaving the patients in the hospitals until a place becomes available in the borough. One municipality informant explained that they are all healthcare professionals, but they are also in charge of the municipality's economy through this penalty arrangement. Their superiors' measure them on a monthly basis how many "penalty days" they have had. Another informant stated that because of the economic consequences of not finding suitable arrangements in time, they sometimes engaged in "game-playing" with regard to the timing with the hospital. *"I do not want to promise any arrangement to the hospital before I see the UK-message [patient ready for discharge], because if we are showing too much goodwill by offering services then the UK message often comes one or two days before it should just because the hospital feels very safe that the municipality can facilitate the proper level of care,"* the informant explained. This is rooted in the structure of the penalty arrangement, that when the UK message is sent, then the patient can be discharged anytime the next day. This being said, all the participants stated that both sides "give and take" and that the well-being of the patient is the focus, and that this penalty arrangement ensures accountability from both sectors. One hospital informant stated:

> *"Every month we look through all the penalties we have billed to the municipality to see that they are correct. We always find mistakes that they cannot be blamed for such as delayed transportation, the hospital choosing to keep the patient for another day because the paperwork was not done, or that it was very late at night, so we chose to keep them until the morning."*

4.4 Quality

It has now been seven years since the introduction of the Coordination Act, which (indirectly) dictates the mechanisms for coordination between the two sectors: short inpatient stays and increased accountability for the primary care sector. In the area of *quality,* there continues to be a vast need to incorporate holistic approaches and patient-oriented thinking to improve the quality of services and outcomes for both the organizations and the patients. Table 12 summarizes the sub-categories identified through my qualitative analysis.

Table 11. Summary of the sub-categories of the theme Quality

Patients' quality of life
Competencies and tasks
Follow-up and rehabilitation
Innovation

Services and rehabilitation arrangements aim to be patient-centered by focusing on the individual patient's needs; however, the hospital often asks the municipality to conduct seemingly unnecessary home assessments, "just to be sure." The informants from the municipality shared concerns on this topic, stating that even though they have had a dialogue with the patient (and family), the hospital continues to request this additional communication. Many patients do not want unnecessary visits and find such visits very intrusive. One informant explained that the patient's quality of life must always be considered in such circumstances, and they wished that the hospital considered their options more conscientiously.

> *"There are many homes where we do not have full insight into how things are, but we cannot control them. We do not have authority to control a patient in his/her home. This is how it is in the homecare services, as long as the patient can give consent."*
>
> \- Municipality informant

In addition, most of this patient group is elderly and frail -falling at home is common – and many fears this. One informant elaborated that if they were to acquire institution places for everyone that was at risk for falls, they would not have anyone at home. He/she added that:

> *"They fall in short-term nursing homes, they fall in long-term nursing homes, and in*

the hospital as well…sometimes we assess wrongly, but we always try to have a good dialogue with the homecare services and ask them how their last visits were etc. There is also the possibility of admitting patients to short-term nursing homes directly from their home if the level of care is too low. This happens in complex cases, but we all try to do our best"

Family involvement is often crucial to the quality of life of the patient and affects the level of involvement needed from the municipality. All three municipal informants expressed that the involvement of both the patient and the family is very important in facilitating trust and participation. They said that there is a big difference in the need for municipal involvement in care between patients that live alone, far away from family, and those with strong and resourceful families. Diagnoses also matter. Dementia is a particularly important diagnosis. All these factors are additional factors we have to consider, in addition to the functional level of the patient, one informant from the municipality said.

As mentioned briefly earlier, there is a myth in the hospital that the municipality is incompetent in many ways. This was evident in some common statements from the hospital informants. For example, the municipality expressed a desire to have more insight into the hospital's documentation of patient treatment and history, while the (clinical) hospital informant did not see a huge gain in receiving more documentation from the municipality. The latter saw the level of quality of the clinical assessments undertaken by the municipal care providers as too low. Other common statements were *"the municipality is in need of better nurses and physicians; all too often insecure and fresh physicians result in unnecessary admissions to the hospital"*.

4.5 Quantitative findings

The following data was extracted from Diakonhjemmets hospital management system DIALIS and shows their targets and results for 2018.

Table 12. Targets and results. Diakonhjemmet hospital, 2018. Extracted from DIALIS

Area	**Results**	**Target**
Economy- budget difference	40.190	0
Occupation rate	94 %	Not listed
Average inpatient time	3.4 days	3.4 days
Breach of treatment deadline	58 cases	36 cases
Hospital infections	3.9 %	3.0 %

Layovers ready for discharge	2.8 %	3.0 %
Case history (sent within 1 day)	83 %	95 %
Readmissions within 30 days	12.8 %	Not listed

The Institute for Public Health and the Directorate of Health are responsible for publishing quality indicators through the information webpage helsenorge.no. A quality indicator gives an indirect gauge of the quality in a given area of care. This initiative builds on the need for more transparency about patient outcomes from authorities and other organizations that deliver healthcare services(Meld. St. 10 (2012–2013), 2013)The hospital had the following results on probability of being readmitted for elderly patients for 2016 and 2017 (see table 14).

Table 13. Probability of readmissions within 30 days after discharge. (Helsedirektoratet, 2019a)

	Diakonhjemmet hospital		
Readmissions, age > 67	**2016**	**2017**	**National average**
All diseases	19.3	18.3	16.1
COPD/Asthma	39.6	31.9	28.5
Facture	11.5	10.8	9.6
Pneumonia	23.5	21.8	20.6

Even though Diakonhjemmet hospital has been able to reduce readmission rates in all disease categories from 2016 to 2017, they remain above national average.

5 Discussion and Conclusion

The findings from my empirical research highlighted the challenges and opportunities of an integrated patient pathway between primary and secondary care in the western part of Oslo (Diakonhjemmet sector). In this chapter I will discuss how the theories of Clayton Christensen and Michael Porter, along with my empirical data, can serve as a rationale for my research questions:

- How can Diakonhjemmet hospital achieve better patient pathways across primary and secondary care for their patients?
- How can organizational theory be implemented to Diakonhjemmet hospital's reality in order to create value?

My findings suggest that the patients belonging to the Diakonhjemmet sector are lucky: communication between the hospital and municipality is good (relative to bigger hospitals); patients meet engaged professionals at both levels of care, working relentlessly to ensure that the highest attainable services are provided. The motivating work ethic and culture is high and ensures that patients are treated with high integrity within the organization. However, the organization of the primary care sector as we know it today is not built after today's reality. The coordination and the division of work between the primary and secondary care is based on the primary care act (kommunehelsetjenesteloven in Norwegian) from 1984, and therefore does not reflect today's reality well (Meld. St. 26 (2014-2015)). In the pursuit of improved coordination/integration, two fundamental "platforms" need to be established: one information-sharing platform for the entire sector, and bundled payments for the patients in need of services after discharge. This will ensure a more efficient, value-driven, integration between the two levels of care. A successful implementation of these measures requires policy changes on a national level, and therefore is not a realistic solution (as of now) for the Diakonhjemmet sector and hospital. However, as my research questions emphasize how quality improvements from an academic viewpoint can be achieved, I will provide suggestions for specific, patient-directed (partly feasible) initiatives that should be considered in the pursuit of a more value-driven healthcare.

Porter and Christensen are both "revolutionary" in their suggestions of how to "fix" the healthcare system. Both advocate for a market-driven system with emphasis on competition on quality and efficiency. However, as I have described in earlier chapters, their opinions differ greatly in how this can and should be achieved. Porter is less revolutionary and his strategy (that will fix healthcare) is based on improving current organizations and facilitating competition to increase value. Christensen does not settle with this, he wants a healthcare delivery revolution. -Disrupt the "one business model for all problems," introduce separate business models surrounding, what he calls "the jobs the costumers are trying to get done." Knowledge about the condition is key, an IPU such as Porter suggests, is only suitable if the conditions are not too heterogeneous. This is often not the case, says Christensen. Thus, three organizations are needed; one "solution shop," where diagnostic and optimal treatments are determined (intuitive-based medicine); one VAPB clinic, where services are offered to cope with the set diagnosis and where the knowledge-basis is either probabilistic or precise; and a facilitated network, especially for patients with chronic diseases. Berg (2017) discussed this further, emphasizing on the evolution of the clinical business models.

In the case of Diakonhjemmet sector there is an obvious need for better coordination between the organizations. Christensen addresses the importance of disrupting the current value network, from a demand-supply hierarchy between consumer, payer, and provider to a new value network of many individual organizations, each surrounding the consumer/patient. Porter addresses shared resources in his IPU approach and delivery through CDVC, and, to some extent, integration of providers through health plans (insurance companies). However, in my case of cross-sectoral service provision, complications exist due differences in the provision of care, the legal frameworks, and the differing perspectives represented by primary and secondary care. As we have seen, the primary care perspective is "whole person" oriented, while the hospital perspective is condition-oriented.

Figure 16 depicts the communication channels between the central stakeholders in the coordination of care for my population of interest: elderly patients (often living with chronic conditions) who are in need of care services from the municipality after discharge from the hospital. My research confirms the need for an integrated information system. As it is now, the municipality of Oslo uses the EPR Gerica. The hospital in the region uses the DIPS system. The GPs use a variety of different systems, such as WindMD. Communication between the organizations is only possible through the PLO/ELIN-k initiative, a messaging system that allows workers from both organizations to send messages through their own system, to the other, without having access to the patients records (Brattheim, Hellesø, & Melby, 2016; Helsedirektoratet, 2014). A report from the Directorate of Health (2014) shows that due to the late introduction of technology in the care sector (nursing homes, group home etc.) there is a discrepancy between physicians and the rest of the care-givers satisfaction with the current EPR systems in the primary care sector. The physicians are very unsatisfied, while the rest are relatively satisfied (Helsedirektoratet, 2014). This has contributed to the development of multiple EHR systems. They are incompatible with each other and therefore, result in inefficient data collection and sharing. This use of different information-sharing and communication platforms is a root cause of the fragmented provision of care.

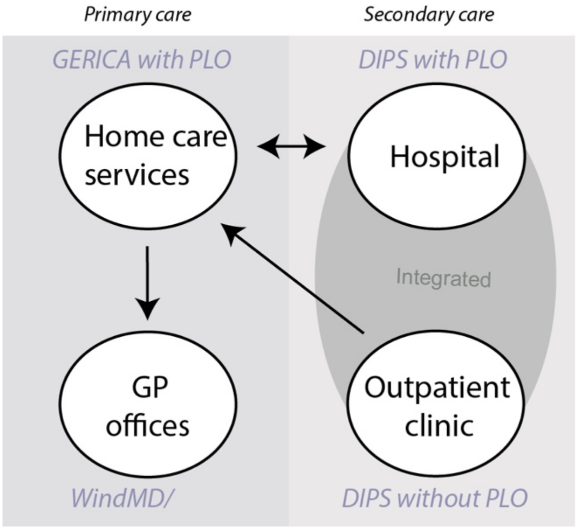


Figure 13. Information pathway between central stakeholders. Own representation

Note: I have excluded other municipality institutions such as KAD, long-term, and short-term care to simplify the model.

As seen in Figure 16, the current system faces many challenges with one-way communication between the various stakeholders, and a lack of integration between primary and secondary care. The various challenges that the interviewees experience as a result of this fragmented communication system, were presented in the results chapter.

Michael Porter and Clayton Christensen both stress the need for a state-of-the-art information system for maximum efficiency. Integrate a common information system for all stakeholders in the disease pathway, says Porter (Porter & Lee, 2013). Christensen sees such a system as an important means to enable disruption (Christensen et al., 2009). One integrated system is also in line with the Directorate of Health’s vision with the coordination act, which aimed to improve integration between primary and secondary care. The pilot project for the RHA Helse-Midt can, and should, become a crucial enterprise to create such a system.

It is not only important to have a well-integrated information system. That system should also contain all relevant information, including information about outcomes. I will say more about that later.

Critics of a fully integrated system point out the vulnerability of having everything connected, with regard to hacking, system failures, and other unwanted adverse possibilities. Empirical examples from Denmark shows that problem of these kinds can happen (Storvik, 2018).

Another potential problem with introducing a new, integrated information system is the willingness of users, especially key healthcare professionals, to use it. Other possible "stumbling blocks" are employers' organizations and local interests. My impression from the interviews was that the willingness and desire to integrate the systems was higher in the municipality than in the hospital, especially as far as the clinical professionals were concerned.

Furthermore, the Directorate of Health stresses that excellent sharing of information between primary and secondary care is essential for the safe follow-up of patients after discharge, and that good coordination can reduce unnecessary readmissions (Helsedirektoratet, 2019a). Diakonhjemmet, as we have seen, falls short of all national averages in this regard. A project focusing on why the Diakonhjemmet hospital experiences higher readmission rates than the national average concluded that there is an immense need to strengthen the coordination and communication with the municipality to reduce readmission rates (Ki, Wong, & Bugjerde Sturm, 2018).

Approaches on how to integrate services at both local and national levels exist. However, in the interviews, it was apparent that both sectors initiated various projects without consulting with each other about the potential consequences they could have for the collaboration/integration between the two parties. In this way, well thought-out initiatives did not reach their potential in regard to integration. Inclusion of all stakeholders in the patient pathways would ensure better success for these initiatives.

I have discussed Michael Porter's Integrated Practice Units six-step strategy thoroughly in chapter two; this could be a suitable option for my group of patients and the Diakonhjemmet sector. The implementation of a private public partnership between the private, ideal hospital Diakonhjemmet and the public primary care would resemble Porter's ideas on IPUs. There are numerous ways this could be effectively implemented, depending on variables such as laws and regulations, composition of patient groups, availability of resources, distribution of responsibility, and type of management. The following suggestions are derived from my empirical research and my intuitive interpretation of what would be a feasible structure in this specific environment. In other words, I am trying to identify what some politically, legally and economically feasible, implications of Porter's model are.

Today, the patient pathway from diagnostic services through hospital interventions to follow-up and rehabilitation entails contact with (at least) three different care providers; the general practitioner, the hospital, and the primary care services. Each of these organizations (care providers) use their own EPR system and operate with different reimbursement models (see table 13).

Table 14. Summary of organizations perspective, interests and problems. Own representation drawn from informants and steering documents.

	Diakonhjemmet Hospital	**Diakonhjemmet Region**	**General Physicians**
EPR	Dips Arena	Gerica	WinMD, Cosmos,
Reimbursement	50 % Capitation 50 % DRG	100% Capitation	1/3 OOP, 1/3 FFS, 1/3 capitation
Perspective	Short term	Long term, BEON principle[1]	Patient, Financial
Interests *(according to the informants)*	Increasing their activity, Reorganize the outpatient clinic, Outsource tasks	Reducing over-stayers	Reduced responsibility in primary care
Problems	High readmission rates, Resource constraints, Information flow	Penalties for over-stayers Information flow	Too many tasks

Note: The BEON (best efficiency care level) derives from the well-established LEON principle introduced to the Norwegian healthcare sector in the 1970s (Meld. St. Nr 9 (1974-75), 1974).

As of today, the organizations have different perspectives, interests, and problems as shown in table 13. These competing interests and perspectives are counter-productive for adding patient value and integrating services. An integrated solution, such as an IPU, has the potential to solve and/or improve these problems, and unify the perspectives of the participating organizations. An IPU with shared responsibility between the hospital and the municipality for patients living with a chronic disease and in need of services after discharge/diagnosis would 1) stimulate the patient-centered view of both providers, 2) increase integration and cooperation between the two levels of care, 3) reduce costs and duplication of services, 4) give accurate measurements of the full care cycle. Figure 14 illustrates the potential patient pathways if an additional geriatric/chronic care unit was established, represented as the Integrated Chronic Care Program (ICCP). Each square represents a choice (the next logical step in the care pathway as determined by the care provider) and the need to use administrative and logistic resources. Administrative and logistic spending is due to the transfer of the patient to another organization, which often is not sufficiently integrated. However, by choosing the ICCP model one would eliminate the next option/choice. The ICCP would become responsible for all subsequent needs within the episode of care – one integrated care pathway.

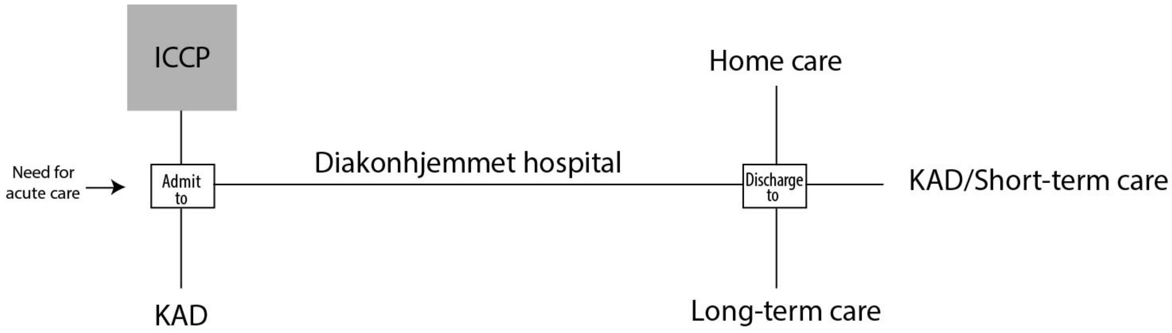
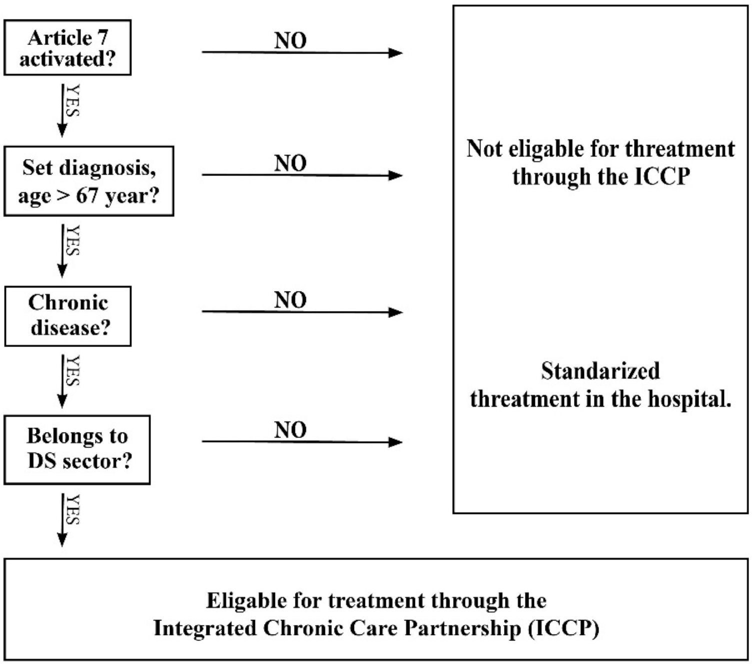


Figure 14. Potential patient pathways in Diakonhjemmet sector. Own representation.

In one of my interviews it was stated that the introduction of "referring" specialists in the emergency department has reduced the admission rate by 20 percent. Given that 5 percent of patients consume approximately 34 percent of the hospital resources in Norway (i.e. those living with demanding chronic conditions), a reduction in admissions for this population of only 2-3 percent could likely result in as much as a 15-20 percent reduction in hospital resource spending (Statistisk Sentralbyrå, 2019). These resources could then be used to stimulate activity in other areas, and patients would receive a more holistic, integrated healthcare experience in the ICCP (rather than experiencing multiple admissions/fragmented care). Similar to the KAD, the ICCP would have an eligibility triage system, which could be used either at the emergency department or at the GPs office. See figure 15. Only patients meeting all eligibility criteria would qualify for treatment at the ICCP.



Note: Article 7 refers to the regulation on penalties for over-stayers

Figure 15. Decision tree for accessibility. Own representation

Although the hospital has an ambition to introduce patient pathways across the levels of care, they are currently experiencing difficulties in areas of safe discharges, rehabilitation, and readmissions (Diakonhjemmet Sykehus, 2018c). With the new guidelines for DRG reimbursements, all equal treatment should yield the same DRG-weights regardless of where the care is delivered (i.e. by introducing the ICCP or other integrated patient pathways), the hospital can improve their identified areas of difficulty. With the new guidelines for DRG reimbursements, all equal treatment should yield the same DRG-weights regardless of where the care is delivered (i.e. from primary or secondary care) (Helsedirektoratet, 2018b). These STG groups are pathway-oriented and therefore focus on treatments per month or year as a cost-driver. This would be the ideal payment method for an ICCP candidate – a so called bundled payment.

A bundled payment can be accommodated within the DRG system. This system uses historical, direct and indirect data, to set a target price, based on the historical average prices for the care in question, but in our case we are talking about the entire episode of care. This target price is used as a baseline for reimbursements and can be compared with national benchmarks (Centers for Medicare and Medicaid Services, 2015). If the organization can deliver the service for a lower price, they experience what is known as a gain share, conversely, they are financially responsible for over-spending. Typically, a third party (an awardee convener) is engaged to organize the episode's administration and to bear the financial risk (such as Remedy Partners). This could be expanded to many disease pathways.

An IPU for patients with chronic conditions (what I have called an ICCP) with bundled payments can help to resolve the hospitals issues with discharges, rehabilitation, and readmissions (figure 16). Additionally, it would work to solve the municipality's problems with having enough available resources for patients ready for discharge – not to mention, reduce the penalty payments to the hospital – and would help to reduce the burden of unwanted tasks for the GPs (i.e. could provide relief to all parties involved).

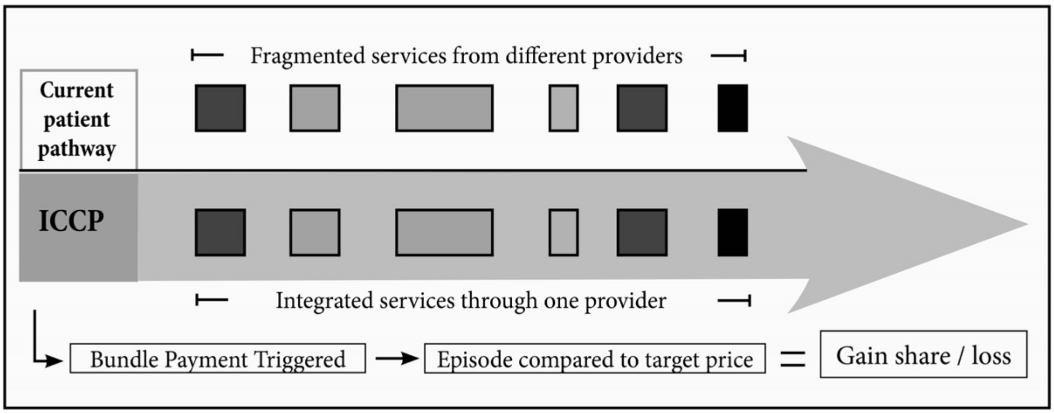


Figure 16. Bundle payment versus normal reimbursement. Own representation

Michael Porter's VBHC approach emphasizes the importance of outcome measurements, in the form of both clinical outcomes and patient reported outcomes (Porter & Teisberg, 2006). Introducing such measurement standards at various points in the care pathway are crucial to stimulate shared decision-making in care plans and clinical interventions, and to monitor the recovery and possible complications as the patient moves forward in their care cycles. My research shows that the hospital does not report and measure outcomes in an adequate manner and, according to my informants, it is also hardly done in the municipality. The hospital, however, is obligated to report and measure specific standards to various national registries. This information, my informants revealed, is used solely for this purpose and not assessed internally for improvement possibilities.

To increase quality for the patients, we need to know what is important to them, by asking them. Patient Reported Measures (PRMs) are divided into two groups; Patient Reported

Outcome Measures (PROMs) and Patient Reported Experience Measures (PREMs) (Kingsley & Patel, 2017; Nilsson, Orwelius, & Kristenson, 2016). PROMs are used to measure the patients' clinical progress and how patients perceive the outcome of clinical interventions. PREMs measure the patients' satisfaction with the services that they receive. Both are important measures for quality improvement and provision of patient-centered services. For my population of interest, the generic Long-Term Condition Questionnaire could be suitable (Potter et al., 2017).

Enhancing quality of life for people living with chronic conditions by monitoring PROM scores is a central goal of health and social care policy in England, as well as in other countries (Potter et al., 2017). In Norway this is only to some degree the case. On an aggregate level there is information available and some initiatives have been taken to include the patients' perspectives, but as of now, this has a limited scope. At the Diakonhjemmet hospital such scoring has not been done at all. Using such questionnaires would be aligned with the government's emphasis on developing national quality indicators, as addressed in a white paper (Meld. St. 10 (2012–2013), 2013).

In today's system, there is a lack of shared responsibility for patient outcomes and sustainability of services. Each organization acts as an independent unit working within its "silo." Responsibilities are often limited to what happens within the organization, and do not extend across the sectors, or curtains as Mintzberg would (Glouberman & Mintzberg, 2001b). In order to achieve integrated services that patients seamlessly follow throughout his/her care cycle, the four worlds of healthcare need to join forces (Glouberman & Mintzberg, 2001a).

According to my informants, both sectors are working to ensure proper disease management for their patients, but usually without consulting with other providers. This results in fragmentation of services, which may negatively impact patient compliance as they receive different information from many different care providers. Patients living with chronic diseases often need lifelong counseling, guidance, and follow-up after (often an acute) diagnosis period. Clayton Christensen talks of value networks, membership-like organizations (networks), focusing on helping patients to live with their diseases. Compliance to suggested treatment is key, but compliance must be handled in a pedagogically creative way. The latter requires that care providers know patients and not only their diagnoses.

Another long-term initiative that can be implemented is the disruption of the physician's hegemony by introducing new roles for healthcare providers – for example, the nurse practitioners (NP). Legislation for this must be enacted on a national level, but there are already indicators that the system is developing in this direction (Helsedirektoratet, 2018c). Thus, if the municipality of Oslo wants to be innovative, it could invest in the education of nurse practitioners. The Directorate of Health suggests that in order to stimulate more nurses to become nurse practitioners, there must be a specialist title associated with this education (i.e. professional recognition and registration), as there is in many other countries (Helsedirektoratet, 2018d). The Directorate of Health is now offering to finance fifty percent of the two-year master-level education for nurse practitioners, called "klinisk avansert sykepleie" in Norwegian, if the municipalities will cover the other fifty percent. By "financing" they mean paying a nurse's salary while he or she is studying (Helsedirektoratet, 2018c). The government justifies this offer by stating the need to strengthen the healthcare services of tomorrow in primary care, as well as, to fulfill the United Nations sustainable development goal 3.4 – to reduce NCDs by 25 percent by 2025 – by increasing competency and re-arranging roles of healthcare providers. Figure 17 illustrates the potential for innovative disruptions in Diakonhjemmet sector, adapted from Christensen's model. With time disruptions will occur naturally, but disruptive enablers, such as NPs in healthcare, will ensure this evolution occurs quickly enough to sustain the needs created by the changing demographics.

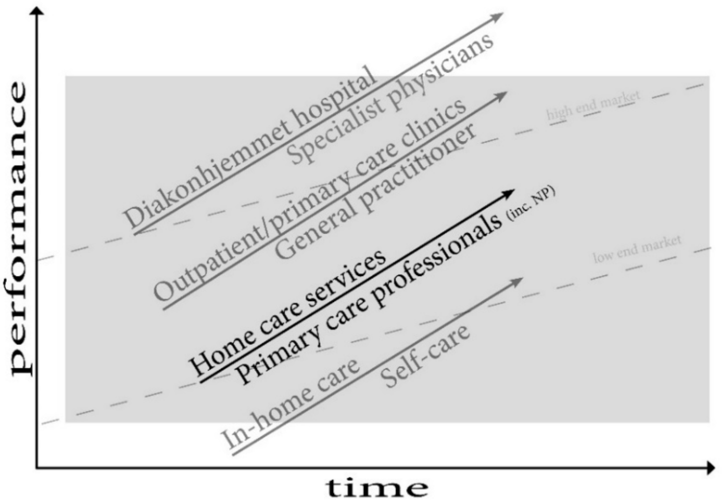
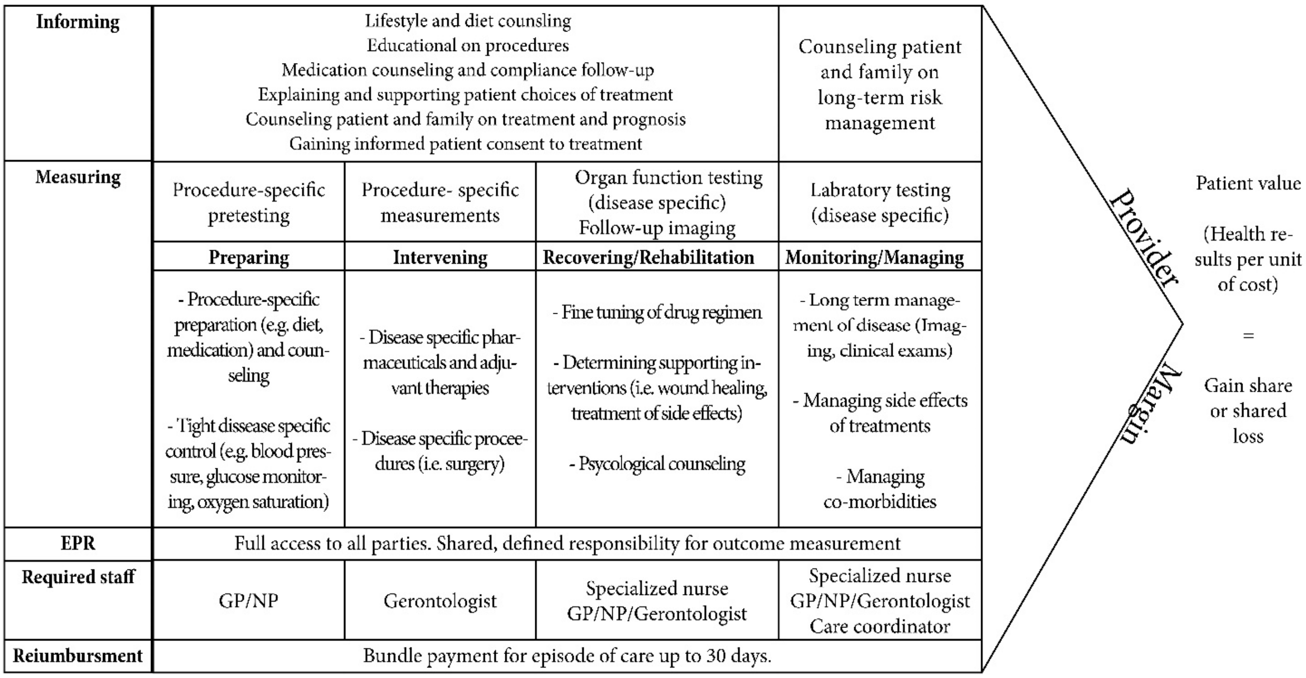


Figure 17. Innovative disruptions of healthcare services and professions. Own representation of Clayton Christensen work (Christensen et al., 2000)

Furthermore, in countries such as Canada, England, and Australia, NPs have authorization to prescribe most medicines. This has been done with great success (Buckley, Cashin, Stuart, Browne, & Dunn, 2013). With the standardized specialist title that the government is currently exploring, authorization to prescribe should also be assessed, and appropriate legislation to allow for this, created. Introduction of this role will reduce resource intensive labor in primary care and will help to relieve the GPs' workload. GPs are, according to my informants, an immensely overworked group.

By using the Norwegian version of nursing practitioners, advanced clinical nurses, in the prevention, care, and cure of people living with chronic illness, and who already have a diagnosis but need frequent contact with healthcare professionals, we could a) reduce the use of expertise intensive labor (i.e. specialists) when it is not needed, b) start the "disruptive innovation" by giving NPs authority to work as autonomous primary-care providers (with rights to prescribe medications), c) work toward a sustainable future by producing services of similar quality for less costs (add value).

Figure 18 incorporates parts of Porters CVDC but excludes the diagnostics section to allow this figure to resemble the VAP models discussed by Christensen. Therefore, I have combined the two preferred models of my theorists, Porter and Christensen, to demonstrate how the ICCP could function in practice for the reality of the Diakonhjemmet sector.



Informing	Lifestyle and diet counsling Educational on procedures Medication counseling and compliance follow-up Explaining and supporting patient choices of treatment Counseling patient and family on treatment and prognosis Gaining informed patient consent to treatment			Counseling patient and family on long-term risk management
Measuring	Procedure-specific pretesting	Procedure- specific measurements	Organ function testing (disease specific) Follow-up imaging	Labratory testing (disease specific)
	Preparing	**Intervening**	**Recovering/Rehabilitation**	**Monitoring/Managing**
	- Procedure-specific preparation (e.g. diet, medication) and counseling - Tight dissease specific control (e.g. blood pressure, glucose monitoring, oxygen saturation)	- Disease specific pharmaceuticals and adjuvant therapies - Disease specific procedures (i.e. surgery)	- Fine tuning of drug regimen - Determining supporting interventions (i.e. wound healing, treatment of side effects) - Psycological counseling	- Long term management of disease (Imaging, clinical exams) - Managing side effects of treatments - Managing co-morbidities
EPR	Full access to all parties. Shared, defined responsibility for outcome measurement			
Required staff	GP/NP	Gerontologist	Specialized nurse GP/NP/Gerontologist	Specialized nurse GP/NP/Gerontologist Care coordinator
Reiumbursment	Bundle payment for episode of care up to 30 days.			

Figure 18. The care delivery value chain for the ICCP. Own representation of the work of Michael Porter (Porter & Teisberg, 2006)

In this ICCP, care will be provided by the lowest-costing care provider without negatively impacting the quality of the services. As elaborated earlier, if the municipality can successfully establish the role of NP, the GP will be greatly relieved (this is seen in the figure as GP/NP). The role of the care coordinator is holistically to assess the needs of the patients for home services upon discharge and to contract this work prior to discharge (this will be included in the 30-pay bundle payment - improving integration). By introducing bundled payments for the episode of care, the hospital will be able to reduce their readmission rates associated with this patient group. This is a favorable outcome at both the micro and macro levels (better quality indicators for the hospital, and lower costs associated with re-admission). Upon successful implementation of the ICCP, the hospital (which looks to expand its activity) could also potentially expand its geographical reach, turning this into a municipal partnership for the whole of Oslo; a highly specialized chronic care team.

An IPU will help the hospital to introduce coordinated patient pathways between the hospital and other healthcare institutions, including rehabilitation, and will ensure a good information flow between these institutions, as demanded in the mission document from the Regional Health Authority (Helse Sør-Øst, 2019; Helse- og omsorgsdepartementet, 2018). The emphasis of the municipality following the BEON (LEON) principle (treating patients at home if possible) came with 500 new man-years for 2019, making this a viable solution. A partnership would create a new legal entity allowing the providers in the partnership to have full access to patient information/history. Today, most coordination between the hospital and the municipality happens at a high, system level, and not at a clinical level. This top-down implementation approach ensures efficiency, but this can also, as my interviews suggest, lead to dissatisfactory conditions for the care providers. Asking the (clinical) professionals (on both "sides") what they believe is the best for the patients and the organization(s) as a whole, will enhance an open relationship within every aspect of the patient pathway.

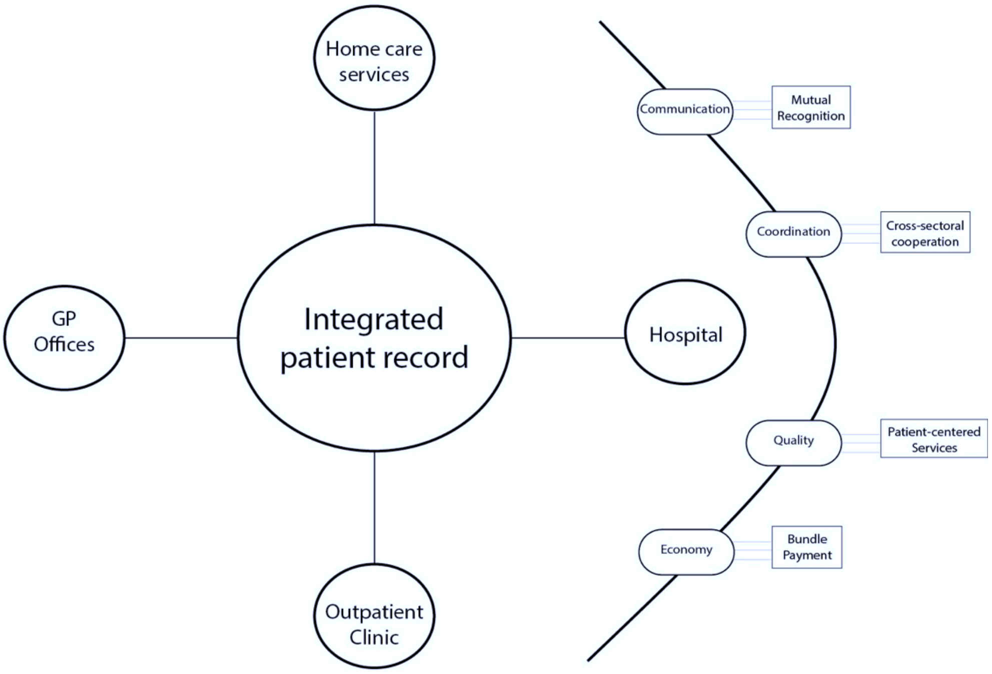


Figure 22. Holistic patient centred care illustration. Drawing on my qualitative data and documents material from my organizations of interest. Own representation.

Based on my analytical and theoretical data, figure 22 demonstrates how information ought to be shared between healthcare institutions using one integrated patient record. All institutions become part of one large organization, collaborating to deliver the healthcare needs of the patient. The ICCP can be used to illustrate a micro version of this integrated system – an interdisciplinary team working together in one place (or within one organization) to provide holistic patient care.

Limitations

This research has several limitations. First, this research is mostly based on qualitative data, some of which has been obtained from a small group of informants, making it difficult to generalize the conclusions for other sectors in Oslo/ Norway. The time constraints and “loss” of data (i.e. small qualitative sample and little quantitative data) reduced the possibility of giving my study a more general relevance.

Second, there is an overrepresentation of administrative informants from the municipality, something that could lead to their views being overrepresented in my analysis. More clinicians should have been included in the study. However, in the municipality it is the case handlers who are the key actors in the cross-sectoral work taking place between the hospital’s cure activities and the municipality sector’s care activities.

Third, this study includes several research limitations with regard to the normative suggestion put forward in this chapter. They are only briefly touched upon. Central questions such as how this should be implemented, who will finance the construction of the IPU (i.e. PPP) and/or should it be a part of an already existing organization (i.e. KAD or within the outpatient clinic), are questions I have not discussed. A more extensive study should aim to investigate these issues.

Conclusion

In this thesis I have discussed how Diakonhjemmet sector can achieve better integrated pathways across primary and secondary care for their patients. I have assessed how Diakonhjemmet hospital and its associated boroughs coordinate cross-sectoral provision of services. By using empirical data that I have collected through documents and interviews with various stakeholders in the sector, and by using organizational theories developed by Clayton Christensen and Michael Porter, I have suggested how the cross-sectoral limitations now existing in this part of the healthcare sector can be reduced. My findings suggest that we ought to move away from a fragmented and "siloed" healthcare system, to an integrated system that seamlessly connects patients and providers through one integrated record and one integrated, more or less formal, organization. Such a system could provide important premises for building a more sustainable, future-oriented system.

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Appendices

Appendix 1: Interview guide 1

1. Hva tror dere er de hyppigste årsakene til innleggelser for KOLS-pasienter?
- Kan dere utdype disse synspunktene?
- Blir pasientene ofte re-innlagt med samme diagnose?
- Hvor gode synes du/dere rutinene sykehuset har er for å ta hånd om denne pasientgruppen?
- Hvordan vurderer dere liggetiden for denne gruppen? Er den for kort, passe eller for lang?
- Hvordan ser dere på sykehusets bruk av ressurser på KOLS pasienter sammenlignet med ressursbruken for andre pasientgrupper?

2. Hvordan samarbeider dere med bydelen om KOLS-pasientene?
- Hvordan bistår dere i oppfølging og behandling utenfor sykehuset?
- Kommer pasientene tilbake med samme diagnose eller komplikasjoner som ved første innleggelse.
- Hva vet dere om oppfølgingen av pasientene fra bydelen etter behandling ved sykehuset?
- Hvor ofte er det uenighet om omsorgsnivå etter utskrivning?
- Hva tenker dere om PLO ordningen?
- Hvordan er kommunikasjonen mellom kommune og sykehus i dag? Er den god nok?

3.A Hvilken rolle spiller pasientene selv for samordningen av forløpene?
-Hvem spiller evt. en aktiv rolle og hvem er mer passive? Har det med tilstand eller evt. ressurser å gjøre?
-Hva gjør sykehuset og evt. bydelene for å mobilisere pasientene som medansvarlige for egne forløp?

3.B Hvilken rolle spiller pasientenes pårørende, spesielt ektefelle og barn, for samordningen av forløpene?
-Hvilke (typer) pårørende er det som spiller en aktiv, evt. en passiv rolle? (Har det med pasientenes tilstand og/eller de pårørendes ressurser å gjøre?)
-Hva gjør sykehuset og evt. bydelene for å mobilisere de pårørende som medansvarlige for slektningenes forløp?

4. I hvilken grad registreres og dokumenteres pasientdata etter behandling?
- Hva registreres? Finnes det pasienttilfredshets-data? (SF-36)
- Hvilken informasjon har dere om pasienter etter utskrivelse? Mortalitet osv.
- I hvilken grad kunne økt registrering av data vært nyttig for pasientgruppen? Og dere?

5. I hvilken grad tror du velferdsteknologi kunne ha hindret behandlinger og innleggelser ved sykehus?
- Har dere noen erfaring med brukere som benytter dette i dag?

6. I hvilken grad er det behov for en ny organisering av forløpet
- Hvordan kunne forløpet vært organisert annerledes?
- Har kommunen kompetanse til å ta over ansvarsoppgaver i dag?

7. Er det noe dere vil legge til?
- Er det noen andre dere synes jeg burde intervjue ifm. denne oppgaven?

Appendix 2. Interview guide 2. Municipality

1. Hvordan samarbeider dere med sykehuset?
- Hvordan bistår dere i oppfølging og behandling?
- Hva vet dere om behandlingen av pasientene ved sykehuset?
- Utskrivning og overliggerdøgn.
- Hvor ofte er det uenighet om omsorgsnivå etter utskrivning?
- Hva tenker dere om PLO/e-link ordningen?
- Hvordan er kommunikasjonen mellom kommune og sykehus i dag? Er den god nok?

2.A Hvilken rolle spiller pasientene selv for samordningen av forløpene?
-Hvem spiller evt. en aktiv rolle og hvem er mer passive? Har det med tilstand eller evt. ressurser å gjøre?
-Hva gjør bydelene for å mobilisere pasientene som medansvarlige for egne forløp?
- Benytter mange av brukerne seg av retten til individuell plan? **§ 2-5.**

2.B Hvilken rolle spiller pasientenes pårørende, spesielt ektefelle og barn, for samordningen av forløpene?
-Hvilke (typer) pårørende er det som spiller en aktiv, evt. en passiv rolle? (Har det med pasientenes tilstand og/eller de pårørendes ressurser å gjøre?)
-Hva gjør bydelene for å mobilisere de pårørende som medansvarlige for slektningenes forløp?

3. I hvilken grad registreres og dokumenteres pasientdata etter behandling?
- Hva registreres? Finnes det pasienttilfredshets-data? (SF-36)
- Hvilken informasjon har dere om pasienter etter utskrivelse? Mortalitet osv.
- I hvilken grad kunne økt registrering av data vært nyttig for pasientgruppen? Og dere?

4. I hvilken grad tror du velferdsteknologi kunne ha hindret behandlinger og innleggelser ved sykehus?
- Har dere noen erfaring med brukere som benytter dette i dag?

5. Er det noe dere vil legge til?
- Er det noen andre dere synes jeg burde intervjue ifm. denne oppgaven?

Appendix 3. Interview guide 3. Hospital

1. **Samarbeid**

- Hvordan samarbeider dere med bydelen?
- Hvordan bistår dere i oppfølging og behandling?
- Hva vet dere om behandlingen av pasientene i bydelen?
- Er det ofte uenighet om omsorgsnivå etter utskrivning? Er det forskjell på bydelene?
- Hva tenker du om bydelens kompetanse til å ta vare på de komplekse pasientene etter utskrivning?

2. **Kommunikasjon**

- Hva tenker dere om PLO ordningen?
- Hvordan er kommunikasjonen mellom kommune og sykehus i dag? Er den god nok?
- Merker sykehuset en forskjell på bydelens organisering og måten de jobber på?

3. **Økonomi**

- I hvilken grad opplever du at økonomi er et fokus i prosessen med utskrivning?
- Hvordan du opplever du bydelens fokus på overliggerdøgn?
- Har sykehusets ansatte tilstrekkelig informasjon straffegebyrene som påløper bydel ved overliggerdøgn? Tenker du at det er

4. **Pasientmedvirkning**

- Hvilken rolle spiller pasientene selv for samordningen av forløpene?
- Hvilken rolle spiller pasientenes pårørende for samordningen av forløpene?
- Har det med tilstand eller evt. ressurser å gjøre?
- Hva gjør sykehuset for å mobilisere pasientene som medansvarlige for egne forløp?

5. **Pasient data**

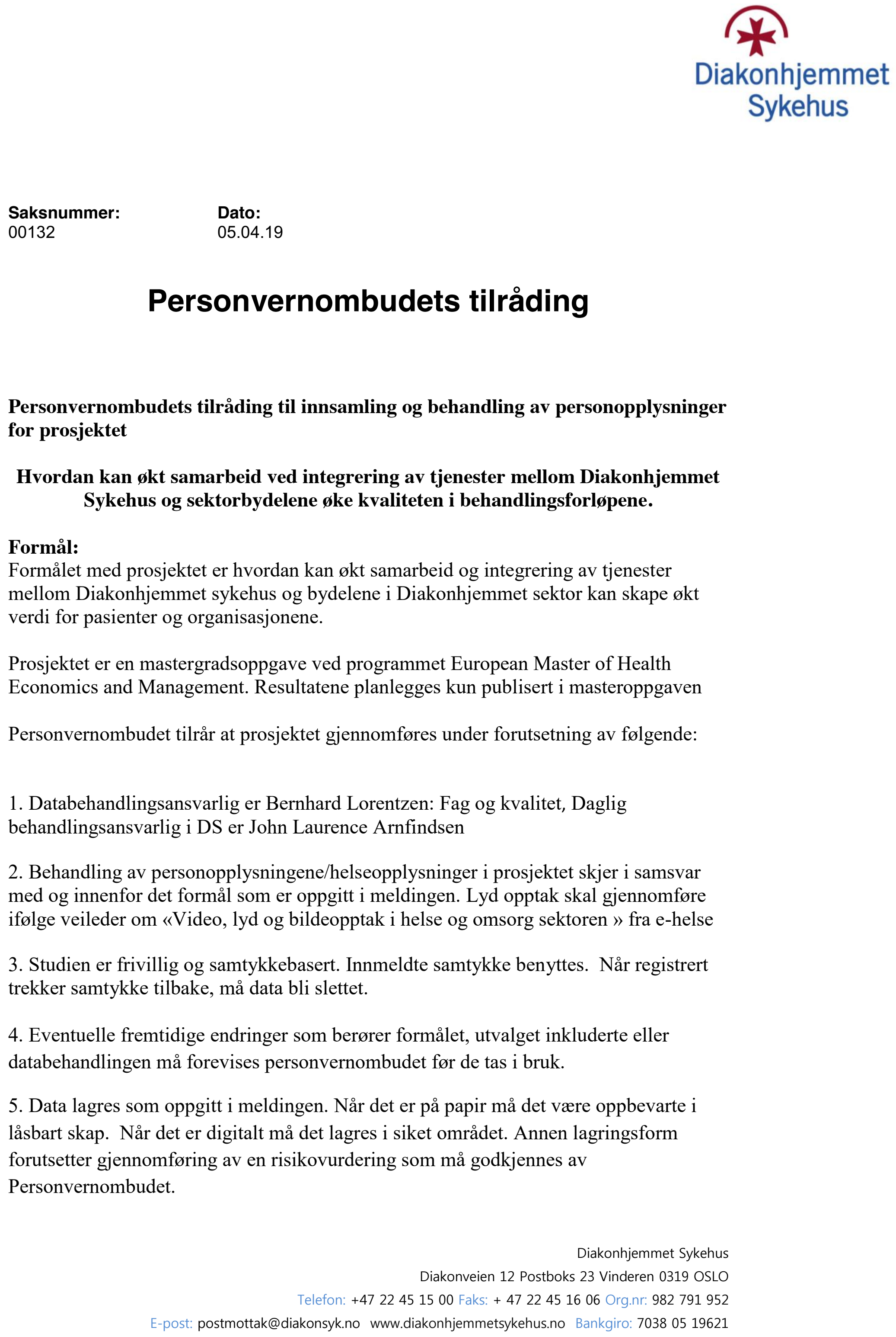
- I hvilken grad registreres og dokumenteres pasientdata etter behandling?
- Hva registreres? Finnes det pasienttilfredshets-data? (SF-36)
- Hvilken informasjon har dere om pasienter etter utskrivelse? Mortalitet osv.
- I hvilken grad kunne økt registrering av data vært nyttig for pasientgruppen? Og dere?

6. **Innovasjon**

- I hvilken grad tenker du at VT kan redusere innleggelser/reinnleggelser ved sykehus?
- Har dere ved sykehuset innsikt i hvilken grad bydelene benytter seg av velferdsteknologi?

7. Er det noe dere vil legge til?

Appendix 4. Project approval from Diakonhjemmet hospital



Saksnummer: 00132

Dato: 05.04.19

Personvernombudets tilråding

Personvernombudets tilråding til innsamling og behandling av personopplysninger for prosjektet

Hvordan kan økt samarbeid ved integrering av tjenester mellom Diakonhjemmet Sykehus og sektorbydelene øke kvaliteten i behandlingsforløpene.

Formål:
Formålet med prosjektet er hvordan kan økt samarbeid og integrering av tjenester mellom Diakonhjemmet sykehus og bydelene i Diakonhjemmet sektor kan skape økt verdi for pasienter og organisasjonene.

Prosjektet er en mastergradsoppgave ved programmet European Master of Health Economics and Management. Resultatene planlegges kun publisert i masteroppgaven

Personvernombudet tilrår at prosjektet gjennomføres under forutsetning av følgende:

1. Databehandlingsansvarlig er Bernhard Lorentzen: Fag og kvalitet, Daglig behandlingsansvarlig i DS er John Laurence Arnfindsen

2. Behandling av personopplysningene/helseopplysninger i prosjektet skjer i samsvar med og innenfor det formål som er oppgitt i meldingen. Lyd opptak skal gjennomføre ifølge veileder om «Video, lyd og bildeopptak i helse og omsorg sektoren » fra e-helse

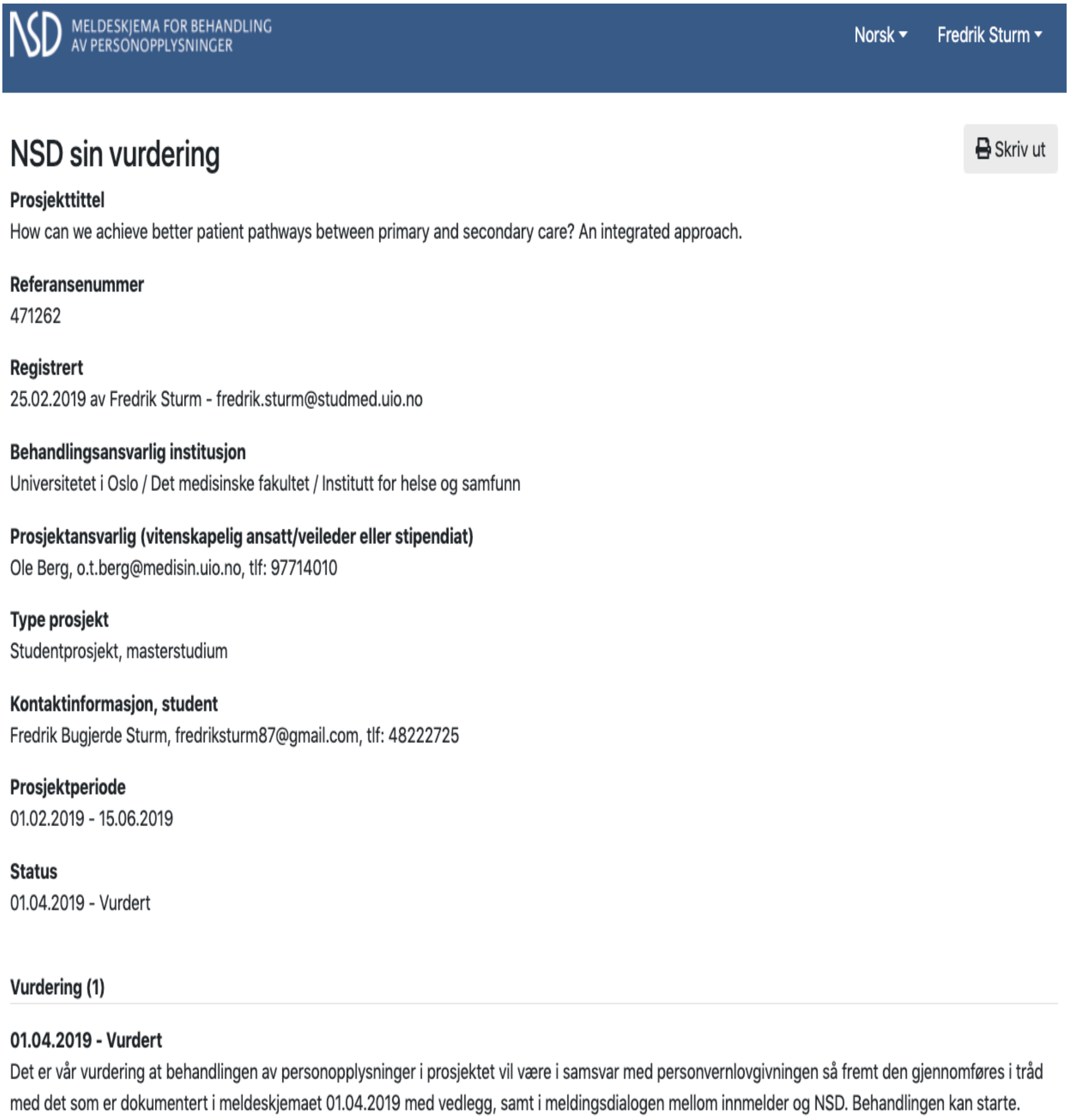
3. Studien er frivillig og samtykkebasert. Innmeldte samtykke benyttes. Når registrert trekker samtykke tilbake, må data bli slettet.

4. Eventuelle fremtidige endringer som berører formålet, utvalget inkluderte eller databehandlingen må forevises personvernombudet før de tas i bruk.

5. Data lagres som oppgitt i meldingen. Når det er på papir må det være oppbevarte i låsbart skap. Når det er digitalt må det lagres i siket området. Annen lagringsform forutsetter gjennomføring av en risikovurdering som må godkjennes av Personvernombudet.

Diakonhjemmet Sykehus
Diakonveien 12 Postboks 23 Vinderen 0319 OSLO
Telefon: +47 22 45 15 00 Faks: + 47 22 45 16 06 Org.nr: 982 791 952
E-post: postmottak@diakonsyk.no www.diakonhjemmetsykehus.no Bankgiro: 7038 05 19621

Appendix 5. Project approval from NSD



NSD sin vurdering

Prosjekttittel
How can we achieve better patient pathways between primary and secondary care? An integrated approach.

Referansenummer
471262

Registrert
25.02.2019 av Fredrik Sturm - fredrik.sturm@studmed.uio.no

Behandlingsansvarlig institusjon
Universitetet i Oslo / Det medisinske fakultet / Institutt for helse og samfunn

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)
Ole Berg, o.t.berg@medisin.uio.no, tlf: 97714010

Type prosjekt
Studentprosjekt, masterstudium

Kontaktinformasjon, student
Fredrik Bugjerde Sturm, fredriksturm87@gmail.com, tlf: 48222725

Prosjektperiode
01.02.2019 - 15.06.2019

Status
01.04.2019 - Vurdert

Vurdering (1)

01.04.2019 - Vurdert
Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 01.04.2019 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

Appendix 6. Informed consent for the interviews

Vil du delta i forskningsprosjektet

Integrerte pasientforløp mellom sykehus og bydel

Formål

Formålet med prosjektet er hvordan kan økt samarbeid og integrering av tjenester mellom Diakonhjemmet sykehus og bydelene i Diakonhjemmet sektor kan skape økt verdi for pasienter og organisasjonene.

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Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet «Hvilke erfaringer har sykepleiere med vurdering og håndtering av smerte hos personer som har afasi etter hjerneslag», og har fått anledning til å stille spørsmål. Jeg samtykker til:

- ☐ å delta i intervju

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet, 15.06 2019

(Signert av prosjektdeltaker, dato)