

# **Unveiling the Steps of Cancer Patient Pathways**

## **On managing coordination in complex health care processes**



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*Series of dissertations submitted to the  
Faculty of Medicine, University of Oslo*

ISBN 978-82-348-0116-7

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Print production: Graphics Center, University of Oslo.

## **Acknowledgements**

Several institutions, experiences, and persons deserve my gratitude for supporting and inspiring me, in different ways, to initiate, conduct, and complete the research project leading to this thesis and the articles on which it is based.

First, I thank the Research Council of Norway for granting me a scholarship from their program targeted at public-sector employees with the ambition to research topics related to their own work experiences. I highly recommend that other social scientists seize this opportunity. It offers a chance to improve knowledge-based practice in the public sector, to strengthen networks between academic institutions and the field of practice, and to advance the abilities of scientific societies to develop research approaches with potential benefits for the management of core institutions in society.

This project would never been accomplished if it had not been for the active support and collaboration of two close colleagues at Oslo University Hospital. From my first idea of applying for a grant and through the whole process, Professor Sigbjørn Smeland, my boss and head of the Division of Cancer Medicine and of the Cancer Center Board, encouraged me and even participated in the work as a co-author in all four articles. The other close collaborator, almost from the beginning, has been Ingrid Kristine Small Hanto. The two of us are the only sociologists at the Division of Cancer Medicine. The countless and continuous conversations we have had about this research, connecting it to our joint daily experiences, have been of immense value.

My academic affiliation in this work has been with the Department of Health and Society (HELSAM) at the University of Oslo (UiO). This was a natural choice because of the institute's proximity in the issues studied and because of its location close to my hospital office. Specifically, I want to thank my supervisor at HELSAM, Associate Professor Trond Tjerbo. I am also grateful for the cooperation with my second supervisor Professor Bjørn Erik Mørk at Norwegian Business School, Department of Strategy and Entrepreneurship. Together, they have given me valuable advice regarding both small and large choices during the research process and acted as discussion partners, stimulating me to develop my arguments further.

In all four published papers, I have had the pleasure to involve and cooperate with resourceful partners as co-authors. In addition to the persons mentioned, the following have been on the author list: Professor Erna Håland, Associate Professor Senada Hajdarevic, Dr. Rikke Aarhus,

and Victoria Simensen, M.D. They all complemented me at different points of these studies and contributed to crucial improvements in our jointly created written work.

During this project, I enjoyed presenting and discussing my ideas, analyses, and findings with many persons in my professional and private networks. The insights I gained through these talks—be they short or long, single or recurring, connected to broad or restricted issues—have been of utmost importance for the direction and further development of my thoughts and for my belief in the ideas emerging from my work. In relation to this, I specifically want to mention, in alphabetical order by their first names: Anne Heyerdahl, Arild Bryde, Calvin Morill, Erhardt Friedberg, Eyvind Ellingsen, Fredrik Engelstad, Geir Falkenberg, Gunnar Sæter, Ingvild Reymert, Irene Engelstad, Kirsti Aas, Ola Lømo Ellingsen, Ole Trond Berg, Maja Flåtå, Marit Unstad, Marte Mangset, Morten Tandberg Eriksen, Ola Lømo Ellingsen, Ole-Jacob Norum, Patrick Castel, Stein Kvaløy, Tian Sørhaug, Thorleif Thorleifson, Øyvind Bruland, and Åsmund Bredeli.

The three work environments where I had my offices during these four years deserve special thanks. First, thanks go to my colleagues at the staff of the main divisions in the Comprehensive Cancer Center of Oslo University Hospital. Second, my gratitude is directed at colleagues at the Department of Health Management and Health Economics at UiO. The third office community from which I benefited during this period was Centre de Sociologie des Organizations at Sciences Po in Paris. My determination to finish this work would have withered without the strong, comfortable feeling during my daily presence in each of these locations, and without enjoying small chats, engaging in lunch conversations, or simply having fun.

Special thanks should be directed to my informants in the cases I have studied. Almost all the informants I wanted to include accepted my invitation to participate in the project. A special thank you goes to my three contact persons at three of the hospitals I studied: August Bakke, Kristine Lindhjem, and Trine Hunsjør Vingsnes.

Comments from anonymous reviewers provided a valuable contribution to all four articles published in three different journals. I also want to mention that I have appreciated the possibility of presenting various parts of my work during several stages in seminars located in four countries in addition to Norway: Sweden, Denmark, France, and USA. The comments and discussions I received on each of these occasions have provided me with useful input.

The support from the librarians at the University of Oslo Library at Rikshospitalet has been of great value. On several occasions, they gave me valuable assistance through advice related to the application of EndNote and they provided me with books and articles that I otherwise would not have access to.

Last but not least, a warm and heartfelt thanks to my wife, Beate, who—having completed her Ph.D. the year before I started mine—accepted that now it was my turn. Without her supportive energy, I doubt that I would have endured these four years with this project while simultaneously carrying out my challenging duties at the hospital cancer center. My appreciation also goes to my three children, Marte, Øyvind and Yngvild and their families for their engagement in and patience during this work.

Oslo, March 2022

Per Magnus Mæhle

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## **Abbreviations**

<b>CCC</b>	Comprehensive Cancer Center
<b>CPP</b>	Cancer patient pathways
<b>HOD</b>	Ministry of Health and Care Services
<b>ICP</b>	Integrated care pathways
<b>MD</b>	Medical doctor
<b>OUH</b>	Oslo University Hospital
<b>NFR</b>	The Research Council of Norway
<b>RCT</b>	Randomized clinical trials

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## Norsk sammendrag

Kreft er den vanligste dødsårsaken i Norge. I 2020 var det rundt 35.000 ny krefttilfeller. Samtidig har det gjennom de siste tiårene vært en betydelig bedring i relativ overlevelse for de fleste diagnoser. En følge av det er at flere mennesker lever lenger med kreft. Både framskrittene oppnådd fram til nå og videre framskritt bygger på mer presis diagnostisk kunnskap og behandling, og er materialisert i mer spesialisert teknologi, prosedyrer og kompetanseområder. Men gjennom den utviklingen vi har lagt bak oss og den vi ser framover, skjer det en funksjonell og organisatorisk fragmentering som fører til komplekse strukturer og prosesser der det er betydelige gjensidige avhengigheter. For å kunne utløse full effekt av framskrittene innen kreftrelatert biologi, teknologi, medisin er vi dermed avhengig av å lykkes med krevende koordinering for å sikre sammenheng mellom ulike separate kunnskapselementer og prosedyrer. Det må skje en samordning i tid, i rom og mellom ulike organisatoriske nivå som involverer politiske rammebetingelser, administrative og faglige systemer, ulike profesjonelle spesialiteter og pasienter. Prosessene med å skape en godt koordinert og helhetlig sammenheng mellom alt fra politiske ambisjoner til administrativ og faglig atferd på den ene siden og samordnet virksomhet i pasientforløp på den andre, utgjør den tematiske rammen for dette forskningsprosjektet og denne avhandlingen.

Min tilnærming til etablering og praktisering av koordinering for å skape integrerte pasientforløp innen kreftområdet har skjedd gjennom to ulike studier. Den første studien var en sammenlignende undersøkelse av beslutningsprosess og implementering av det som ble kalt standardiserte pasientforløp for kreft i de tre skandinaviske landene. En observasjon her som jeg ble opptatt av å forfølge, var hvor raskt det på et tidspunkt ble tatt nasjonale politiske beslutninger på et område som i utgangspunktet var relativt komplekst og der tiltak var avhengig av tilslutning fra et sammensatt sett av instanser. I artikkel 1 er det denne prosessen undersøkt. Gjennom dette arbeidet gjorde vi oss også en annen observasjon: Hvordan kan vi forklare at en implementering av en reform i helsevesenet som forutsetter endring av systemer og atferd på gulvplanet i sykehusene framstår som så vellykket? Dette forsøkte vi så å svare på i artikkel 2.

I den andre studien undersøkte jeg praktisering av koordinerende prosesser i pasientforløp for kreft. Dette gjorde jeg med utgangspunkt i tre diagnoser (brystkreft, eggstokkreft og tykk- og endetarmskreft) og fire sykehus (to universitetssykehus og to lokalsykehus). En observasjon som lå bak denne studien var: Hvordan kan det ha seg at nødvendig koordinering faktisk skjer

på tross av at den i betydelig grad går på tvers av de grunnleggende ansvarlinjer i sykehusene? I forlengelse av dette lå det også en undring knyttet til å forstå forhold som åpenbart skapte ulike betingelser for gjennomføring av nødvendig koordinering. Artikkel 3 dekket den første observasjonen, mens artikkel 4 konsentrerer seg om den andre.

Det er gjort mye forskning knyttet til integrerte pasientforløp og også til slike forløp innen kreftområdet spesielt. Mye av den er imidlertid mangelfull når det gjelder å anerkjenne kompleksiteten i utvikling og praktisering av slike forløp som en organisatorisk intervensjon. Forskning på pasientforløp preges også av at sosiale og organisatoriske konteksten er fraværende i analysene. Basert på noen av de observasjonene som særlig vekket nysgjerrigheten min og de begrensningene jeg fant i eksisterende forskning om pasientforløp, formulerte jeg dette forskningsspørsmålet som grunnlag for denne avhandlingen: Hvordan kan vi forklare koordinering av politikk og praksis knyttet til pasientforløp for kreft? Dette overordnede spørsmålet ble så utviklet gjennom to utfyllende spørsmål: Gjennom hva slags mekanismer blir denne koordineringen gjennomført og hvilken betydning har den konteksten som dette skjer innenfor?

Jeg gjennomførte begge mine studier som kvalitative, sammenlignende case-studier der jeg anvendte en abduktiv metodisk tilnærming. Dette innebar et fortløpende og gjensidig samspill mellom det å definere empiriske kategorier, det å velge og kombinere metoder for datainnsamling og dataanalyse, det å følge flere samtidige begrepsretninger som kunne gi meg analytiske verktøy egnet til å belyse feltet jeg studerte og samtidig definere og å forstå betydningen av den kontekstuelle innrammingen. Denne metodiske tilnærmingen viste seg egnet til å få tak på kompleksiteten i det feltet jeg studerte samtidig som den ga en fleksibilitet som tillot meg å gjøre tilpasninger i løpet av undersøkelsens gang.

Basert på min abduktive metodologiske tilnærming og oppmuntret av forskere som har studert tilknyttede tema, valgte jeg å bygge analysen min på en kombinasjon av flere ulike tematiske forskningstradisjoner når jeg studerte hvordan kreftforløp ble etablert og praktisert. For det første argumenterer jeg for at begrepet institusjonelle logikker er nyttig for å utforske drivkreftene og interessene som er tilstede i koordineringsprosessene. For det andre kan ikke behovet for og dynamikken bak koordinering bli forstått uten å studere utfordringene med å kontrollere og forutsi samspillet mellom omgivelsene og den veien som implementering av og praktisering av pasientforløpene passerer gjennom. Det er derfor nødvendig å analysere disse prosessene med utgangspunkt i begrepene kompleksitet og usikkerhet. For det tredje er det nødvendig å forstå selve begrepet koordinering og hvordan dette utspiller når denne prosessen

skjer innenfor rammer av betydelig kompleksitet og usikkerhet. For det fjerde er det slik at det er en sammenheng mellom struktureringen av den organisatoriske innrammingen og hvordan koordinering gjennomføres. Derfor er det et sentralt spørsmål å forstå hvordan dette samspillet virker. Det femte teoretiske sporet jeg bygger på, knytter seg opp mot diskusjonene om hvordan intensjonal handling utspiller seg innen et samfunnsområde som er sterkt institusjonalisert. Dette er viktig for å forstå aktørenes handlingsrom og rommet for entreprenørskap både innenfor daglig, løpende ledelse, men også knyttet til mer strategiske situasjoner og hendelser. Jeg kombinerer elementer fra disse fem områdene og kopler det mot analyser av samspillet mellom to sentrale koordineringsmekanismer som er i virksomhet knyttet til pasientforløp for kreftpasienter: standardisering og improvisasjon.

Med utgangspunkt i dette forskningsarbeidet er det mulig å trekke flere konklusjoner og gi noen anbefalinger. Koordinering av implementering og praksis av denne typen sammensatte tiltak innen en kompleks organisasjonsvirkelighet forutsetter ledelse som også er i stand til å håndtere samspillet mellom de ulike institusjonelle logikkene som er tilstede. Dette har å gjøre både med de delvis forskjellige perspektivene som hver logikk er bærer av og med hvordan en bestemt organisasjonsstruktur påvirker samspillet mellom logikker, nivåer og aktører. Det skjer gjennom regulering av samhandling mellom dem ut fra ulike prinsipper (direkte kontroll, forhandlinger, krav til konsensus og rådgivning). Det å organisere dette på en vellykket måte avhenger av evnen til å skape en riktig sammensetning av ordinære, formelle, hierarkiske organisasjonslinjer og strukturer som gir større fleksibilitet, bygger forbindelser over grenser og gir rom for tilpasning styrt av dem som direkte er de utførende nøkkelaktørene i prosessene. Dessuten finner jeg at når koordinering i denne typen prosesser virker, skjer det gjennom et gjensidig samspill mellom standardisering og improvisasjon. Jeg finner også at det i prosessene skapes handlingsrom og et rom for aktiv påvirkning fra aktører gjerne gjennom utøvelse av en form for hybridroller. Dette betyr at dersom en ønsker å fremme utvikling av denne typen koordinerende prosesser er det viktig å skaffe seg en presis forståelse av det aktuelle samspillet mellom de mekanismene og rollene som er involvert. Dette bygger på at det ikke er slik at én bestemt løsning på samspillet mellom standardisering og improvisasjon vil fungere for alle typer diagnoser, pasientforløp, sykehus og helsevesen.

Jeg argumenterer for at innsikten som springer ut av dette prosjektet burde legges til grunn for utvikling og praktisering av pasientforløp for kreftpasienter. Det vil være viktig dersom vi skal være i stand til å forløse potensialet knyttet til den omfattende utviklingen som fortsatt skjer med utgangspunkt både i den biologiske og teknologiske plattformen for

kreftbehandling. Samtidig påstår jeg at min analyse og mine funn har generell relevans for ledelse og utvikling av en mer helhetlig og sammenhengende helsetjeneste som også framover vil bli stadig mer kompleks.

## Summary

Cancer is the most common cause of death in Norway. In 2020 we had approximately 35,000 new cancer cases. However, during the last decades there has been a significant increase in the relative survival for most cancer diagnoses. As a consequence, more people live longer with cancer. This development relates to health care in two ways. First, because the improvements in outcomes are linked to an extensive degree of research in both diagnostics and treatment options, competences among professionals employed in cancer care have been highly specialized. Second, further advances in the precision of cancer diagnostics and treatment, and thus also in outcomes and quality of life for cancer patients, depend on the continued development of technology and procedures, and on the precise knowledge of the biological pathway of cancer diseases. These developments are, thus, characterized by functional and organizational fragmentation resulting in complex structures and processes that are closely interdependent. Thus, to bring about the effects of these advances, we rely on demanding processes of coordination to connect the mutually dependent steps—interacting in time, in space, and across organizational borders between linked specialists and entities and between several organizational levels—that involve politics, administration, professionals, and patients. These coordination processes aiming to integrate policy goals with actual professional and administrative behavior, on the one hand, and activity along comprehensive patient pathways, on the other hand, form the thematic framework of this research project and thesis.

I approached the issue of establishing and practicing integrated cancer pathways through two studies. The first study was a comparative investigation into the launch and implementation of cancer pathway reforms in the three Scandinavian countries. The inspiring puzzles here emerged from the observation that a national political decision could be reached efficiently on a matter stemming from such a composite phenomenon and dependent on support from completely divergent bodies. Article 1 developed from studying this puzzle, which in turn extended into another puzzle that was based on the question: How can we explain the perceived successful implementation of a health care reform that was apparently imposed from above and that was simultaneously dependent on the adjustment of behaviors and systems on the hospital-floor level? This paved the way to article 2.

The second study examined the practice of coordination in cancer pathways and included three diagnoses (mammary cancer, colorectal cancer, and ovarian cancer) and four hospitals (two university hospitals and two community hospitals). The puzzle triggering this study was:

how could it be that coordination was actually accomplished in spite of the misalignment between formal organizations and pathway processes? Further, what characteristics of diagnoses, pathways, and hospitals make a difference in the accomplishment of the pathway coordination? Article 3 covers the former part of this puzzle, while article 4 concentrates on the latter.

A lot of research is published on integrated care pathways and on cancer pathways specifically. Much of it, however, is deficient when it comes to acknowledging the complexity of a cancer pathway as an organizational intervention or to integrating the social and organizational context into the analysis of the conditions for practicing cancer pathways. Based on the puzzles emerging from the field during the initial phase of my research and from the identified shortcomings of existing research, I formulated an overarching research question for this thesis: How can we explain the coordination of politics and of practice related to cancer pathways? This main question was further elaborated into these two sub-questions: Through what mechanisms is this coordination accomplished? What is the impact of contextual framing?

I performed both my studies as qualitative comparative case studies, applying an abductive methodological approach. This implied a continuous and concurrent interplay between defining the empirical categories, choosing and combining methods for data-sampling and data-analysis, following several possible existing research tracks that might provide me with analytical tools illuminating the fields, and defining contextual framings of empirical categories that can make sense in answering the research question. This combined approach proved suitable for capturing the complexity of the field and the puzzles studied, and flexible enough to make it possible to adapt to emerging insights achieved through the research process.

Based on my abductive methodology, and encouraged by scholars studying related topics, I took advantage of drawing on a bundle of different research tracks and theoretical approaches. First, I argue that the concept of institutional logics is useful for examining the driving forces and interests present in these coordinating processes. Second, the need for, and the dynamics of, coordination cannot be grasped without attention to the challenges of controlling and predicting the interactions between the surroundings and the steps of implementation and practice of cancer pathways. Analysis directed at complexity and uncertainty, therefore, is necessary. Third, the content of the process of coordination itself has to be precisely understood, not least in the light of the presence of several logics and considerable



complexity. Fourth, the structuring of the organizational context interferes with the way coordination is accomplished. Therefore, it is crucial to elaborate on how this contextual framing interacts with the accomplishment of coordination. The fifth theoretical track I followed connects to the discussions of agency in highly institutionalized fields. This relates to the need to understand the presence of, and room for, agency and entrepreneurship in conducting coordination on a daily basis and even on crucial, so-called field-configuring, events. With reference to, and the combined application of, these five conceptual topics, I then elaborated on the interaction between two major coordinating mechanisms present in cancer patient pathways: standardization and improvisation.

Several conclusions and propositions can be drawn from this overall analysis. Coordination in this kind of complex implementation process and complex organizational context depends on managing the alignment of the legitimate institutional logics present. This has an impact related both to managing the partly divergent perspectives carried by each logic and to the structuring organizational contexts of the pathways that influence the interaction between logics, organizational levels, and actors through different rules of conduct (direct control, negotiation, consensus processes, and consultation). Organizing this successfully depends on creating the arenas for coordination consisting of a combined set of formal and emerging structures. When the processes of coordination in these cases seem to work, they are characterized by a certain mixture and iterative interaction between standardization and improvisation. In addition, this framing influences the room for agency and the architecture of combined and hybrid roles of actors performing the actual coordinating work. In line with the analysis I have delivered, a precise understanding of this mixture and interaction is crucial. This should be performed based on the recognition of that one size does not fit all—whether it is patients, diagnoses, pathways, hospitals, or health care systems.

I argue that the insights from this project should contribute to the governance and practice of cancer patient pathways—and, thus, benefit many patients by unleashing potentials in the still extensive developments taking place in the biological and technological platform for cancer care. Simultaneously, I claim that my analysis and findings have relevance for the management of integrated care more generally and in other areas of health care. Finally, I argue that my combined conceptual model has the prerequisites for supporting the analysis of several other forms of coordination in complex health care processes.

## Articles in this thesis

**Mæhle, P.M.**, Hajdarevic, S., Håland, E., Aarhus, R., Smeland, S. & Mørk, B.E. (2021). Exploring the triggering processes of a cancer care reform in three Scandinavian countries. *International Journal of Health Planning and Management*, 2021-11, Vol.36 (6), p.2231-2247. doi: <https://doi.org/10.1002/hpm.3278>

**Mæhle, P.M.**, & Smeland, S. (2021). Implementing cancer patient pathways in Scandinavia: How structuring might affect acceptance of a politically imposed reform, *Health Policy*, 125 (2021) 1340–1350. doi: <https://doi.org/10.1016/j.healthpol.2021.08.008>

**Mæhle, P.M.**, Hanto, I.K.S., & Smeland, S (2020). Practicing Integrated Care Pathways in Norwegian Hospitals: Coordination through Industrialized Standardization, Value Chains, and Quality Management or an Organizational Equivalent to Improvised Jazz Standards. *International Journal of Environmental Research and Public Health*, 17(24), p.1-32, 9199. doi: <https://doi.org/10.3390/ijerph17249199>

**Mæhle, P.M.**, Hanto, I.K.S., Simensen, V.C., & Smeland, S. (2021). Mind the differences: How diagnoses and hospital characteristics influence coordination in cancer patient pathways, *International Journal of Environmental Research and Public Health* 17, p.1-26, 9199. doi: <https://doi.org/10.3390/ijerph17249199>

# 1 Introduction

## 1.1 Setting the stage

*“Overall the specialized nature of organizing in health care creates a need for (often highly complex) integration and coordination processes, highlighting the importance of research on teamwork, cooperation, and the structures that support these behaviors.” (p.558) (Mayo et al., 2021)*

In his analysis of complexity and the social sciences, David Byrne (1998) has a chapter focusing on the complex character of health and illness. He reminds us that progress in popular health achieved during the past couple of centuries was not caused primarily by medical progress but by social organization of society. Improving social and physical organization of work and life space in rural and urban areas, combined with public welfare policy measures, has significantly reduced health threats caused by infectious diseases and accidents. We still need to understand better whether that is also the case with non-contagious diseases in general, and what role social organization may have for the processes of cure and care taking place inside our health care systems. I will argue that cancer care is a setting in which these aspects are particularly relevant. We know that preventive efforts, spreading knowledge and introducing socioeconomic incitement mechanisms, have considerable influence on the incidence and prevalence of several types of cancer. However, what do we know about the mechanisms and significance of the social organization of cancer care? Usually, progress in cancer care, when highlighted in media or at scientific congresses, deals with advances made in medications or diagnostic procedures with underlying research-based translational developments in natural sciences. Studying cancer care and its patient pathways through a social science lens might contribute to knowledge also having major impact on the success of cancer care. This possibility expresses the challenge and the ambitious perspective that have inspired this thesis.

Cancer care depends on an organizational field that is becoming more and more complex, embedded in a constellation of diagnostics and treatment processes that grow composite by virtue of multifaceted contexts and changing surroundings. Cancer is also characterized by incidence, prevalence, and patient flows that, to a limited degree, are predictable. This creates substantial challenges to the accomplishment of the necessary coordination work. To counter these challenges, in general, complexity and uncertainty in organizational processes are met with two different strategies. The first is to adapt the formal organizations to fit the processes

to be coordinated, and to combine this with establishing rules and standards. The second strategy is, alternatively, to acknowledge and encourage emergent organizational expressions and to provide them with room for creativity and improvisation. In studies of implementing policy reforms, the two positions are illustrated by, on the one hand, the classical study of policy implementation made by Pressman and Wildavsky (1973), which evaluates an implementation based on its interpretation as a process of rational planning; and, on the other hand, the recent study of policy implementation made by Castelnovo et al. (2018), which shows how a policy implementation in a complex field rests on room for self-organizing and improvised processes. I will identify the same dichotomy in approaches, reported so far, that are directed at studying patient pathways. While lots of studies are based on interpreting integrated patient pathways as a rational, pre-planned organizational intervention (Bragato and Jacobs, 2003, Whittle and Hewison, 2007), others consider patient pathway to be a situated measure that should be adapted to the specific organization, diagnosis, and situation at hand (Zuiderent-Jerak, 2015). However, in a couple of studies of patient pathways, a combination of the two approaches is indicated. One such study is performed by Gittel (2002), who shows that a combined strategy seemed to be present in a relative elective orthopedic care pathway. Faraj and Xiao (2006) scrutinize care processes marked by a high degree of urgency, following the work done in an emergency department. They similarly conclude that the processes at hand combine strict rule-following and improvisation.

Cancer care is considered a mixture of treatment, of both chronic illness and emergency. It may be argued that, to a varying degree, it is characterized by both predictability and uncertainty, or by designable processes and mutually dependent complexities. In addition, this feature of cancer care has been implemented into a strict bureaucratic and hierarchical system, even as it depends on active acceptance and participation from those on the ground level who are expected to deliver the predetermined outcome. I argue that cancer care—both during the implementation of standardized patient pathways and during the current practice of integrated care pathways in hospitals—consists of a varying blend of a predictable and planned process, on the one hand, and of acuteness and emergency, on the other. It is, then, crucial to develop a precise understanding of the point of balance and interaction between these two foundations. This knowledge, moreover, should influence the combination of the two in organizing change and development, in structural and managerial facilitation as much as in daily coordination.

Cancer care involves a large group of diseases. Coordinating the development and practice of cancer patient pathways is a complex intervention into a complex system. The success of

cancer care in the future lies in a precise understanding of which models of coordination processes should be applied under which circumstances. This knowledge, in turn, is important for several other organizational interventions of this kind as well.

## 1.2 My relation to the field of research and the topic

### 1.2.1 My compound motivation for doing this research

For a long time, having cancer and talking about cancer was a taboo. The reason was probably connected to the fear precipitating from the lack of understanding of the disease and the lack of treatment. Since there has been a revolution in scientific understanding of the causes and pathways of the disease, and thus a broad development in treatment options and—for lots of cancer diagnoses—a significant improvement in survival, an acceptance of talking about cancer has also emerged. Indicators of this shift is the frequency of the occurrence of the Norwegian word for cancer, “kreft”, in literature published in Norway. In figure 1, the relative occurrence of “kreft” in all types of books published in Norway is shown. While in the figure 2, I show the development of the absolute number of occurrence of the word “kreft” in fiction literature. In the first case, there is a significant increase in relative occurrence during from the mid 70ties to the mid 80ties. When restricting data to literary fiction we recognized a significant increase in the occurrence of “kreft” during the 80ties and 90ties. The latter is probably a stronger indicator of the development of the general attitudes towards “publicly talking about cancer”.

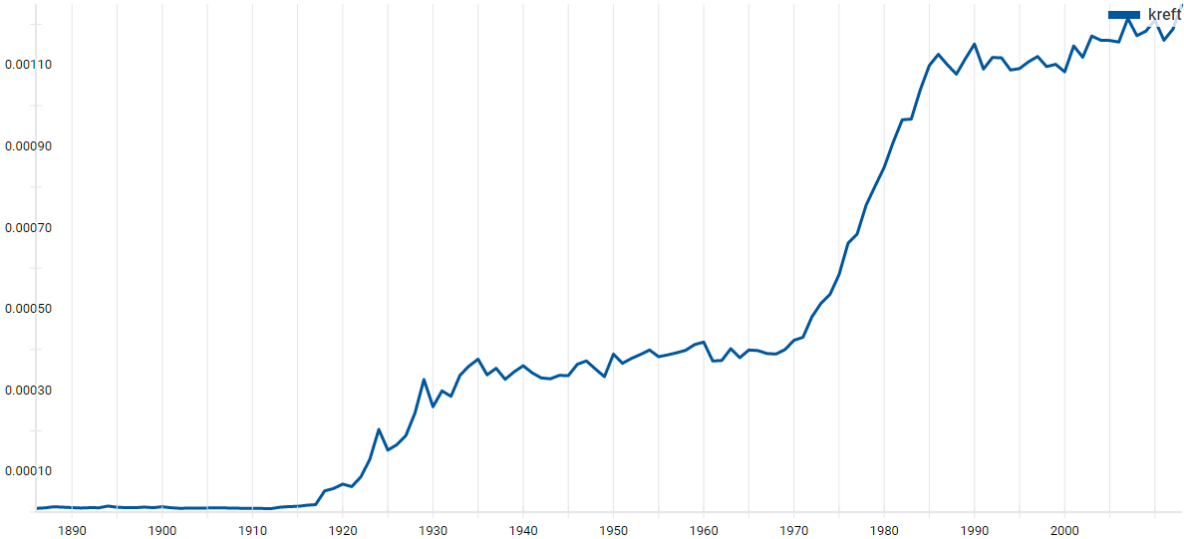


Figure 1: Development of relative occurrence of the word “kreft” (cancer in Norwegian) compared to all words in books published in Norway (National Library of Norway, 2022b)

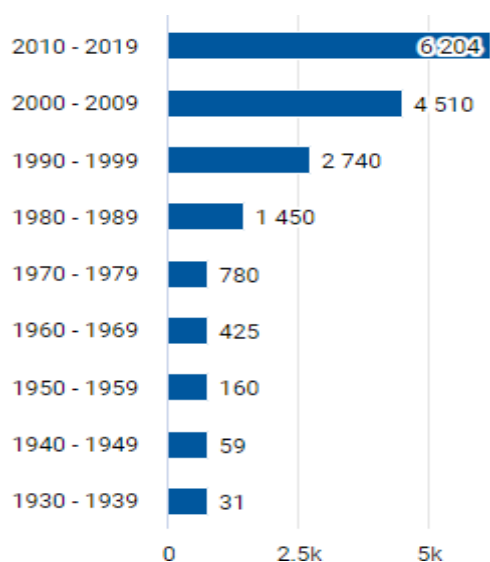


Figure 2: Absolute occurrence of the word “krefte” in books of literary fiction books published in Norway (National Library of Norway, 2022a)

The incidence of cancer is still high and, in Norway, it has now surpassed cardiovascular diseases as the major cause of death (Norwegian Institute of Public Health, 2021). Because of improved survival and increased life expectancy, more people than ever are living with cancer, with the long-term side-effects of having had cancer, or with the fear of reoccurrence. Improvements in the natural sciences (especially genetics and molecular biology), technology, and medicine have delivered results and, not least, hope. At the same time, however, all elements of cancer care—such as diagnostics, treatment, and follow-up procedures—have become specialized and, thus, contribute to the challenge of a growing fragmentation. This development brings the processes of coordination profoundly to the forefront, which is to say that the outcome of the processes will not depend only on the proper selection of techniques and remedies, or on the quality and skillfulness of the performance of procedures. The way the path of actions is integrated and organized will be an independent element in the creation of both the perceived and the measured outcomes of a patient’s entire journey. In the struggle for further progress in cancer care, therefore, the dimension of organizing should be given considerable attention also in research.

Oslo University Hospital (OUH), where I had my professional affiliation for 15 years, has a vast portfolio in cancer-related research, from basic research to translational and clinical research. Studying the processes of coordination, however, is not a technology, a natural science, or medicine but a social science. When, with my social science background, I started working in the field of cancer care at the hospital, I recognized the conspicuous absence of

research covering the organizational dimensions of cancer care. This was also a source of inspiration and contributed to my application for doing this research.

My motivation for doing social science is triggered by the desire to understand more of the world I am surrounded by. It is about the satisfaction of discovering the patterns that are there, just around my daily life, but that I do not readily see or recognize through the lenses of my immediate experiences. Though I am a sociologist by education, I did not necessarily grasp the patterns and mechanisms of my surroundings through my daily practice at the hospital. Through this project, I got the possibility of penetrating the surface of the daily experiences and discovering the driving forces, the matrixes of influence, the rooms for action, and the explanations of outcomes. In the course of my research, I had a continuous curiosity for experiences from parts of life outside my research that might contribute to the framing of the phenomena I observed in my empirical field. Several times, I discovered such sources in the experience of fiction. This source has previously been explored both in organizational studies specifically and in social science in general, and it is treated by several scholars as generative for new ideas and angles (Savage et al., 2018), as a foundation for complex and nuanced presentation of theory without oversimplification (Whiteman and Phillips, 2006), or as a source of theoretical imagination (Beer, 2016).

For example, my associations turn to the movie *Soul*. Here, at the end, the lead actor, Joe Gardner, reaches a peak experience during his first performance with a jazz quartet. Upon leaving that night, he turns to the bandleader, asking “what’s next?” She replies “We’ll meet tomorrow night and play the same pieces.” In response, he looks a bit disappointed. Then she continues: “I once heard a story about a young fish that swam up to an elder fish saying, I am searching for something called The Ocean. The ocean, the elder fish replied, that’s where you are just now.” “This,” the young one replies, “this is just water. What I want to do is swim in the ocean.” The association from the story of *Soul* not only links to the process of rediscovering what I see. It is also a reminder to appreciate both all the small and stepwise and the more breakthrough moments as enjoyable parts of the long, and sometimes tedious, research process.

Health care today encompasses complex and carefully designed structures of responsibility and decisions, from high administrative and political levels down to the daily performance of clinical practice. Reality, however, is seldom as it is designed in documents. The art of social research is to unveil the patterns and interactions emerging in these real processes. The intended world, however, might be useful as a mirror and contrast for catching what should be

explained, as it occurs in praxis. In an early scene of a film adaptation of Agatha Christie's novel *Murder on the Orient Express*, the detective, Poirot, is challenged to contribute to solving a crime in Jerusalem. Having done this, he is questioned by a police officer how he was able to accomplish it so fast. His answer is "I have the advantage that I only see the world like it should be and, when the imperfections stand out like a nose in the face, it makes most of life unbearable. But it is useful in detection of crime." The same could be said about research. The process of real life, moreover, is far more complex, complicated, and colorful than either prescribed order or rational assumptions indicate. This is cleverly illustrated in Graham Greene's novel *The Human Factor* (1978). Here, in an early section, the lead character meets a doctor who later turns out to be an MI6 agent. The doctor takes him to an art exhibition, showing him an abstract painting by Ben Nicholson filled with trigonometric figures. He explains that the painting could be interpreted as a symbol of the organized world where everyone should have one's place and perform one's duties without being tempted to bother about what happens in other quadrants. During the story, we experience that this is not how the world actually is. This, in turn, connects back to the final scene of *Murder on the Orient Express* (Branagh et al., 2017), where Poirot acknowledges the limits of rational order and balance in the system as he presents the solution of the case: "I have worked to believe that man is rational and civilized. My very existence depends on this hope and the order and the grey cells. But now I am asked to listen instead to my heart. In this case ... I must learn for once to live with this unbalance."<sup>1</sup> Social science, social engineering, and management that search for balance and social order will probably understand neither the complexity nor the tensions present in the cases they work on or contribute to solutions that, like in the *Orient Express*, have prerequisites for delivering proposals and solutions that will be perceived as viable by the participants. As James March (2006) points out, contributions from art, like poetry, never hide the ambiguities and paradoxes of real life.

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<sup>1</sup> I will argue that the three brief excerpts from a book and two films, according to theory of literary fiction, should be designated as "mise en abyme." That is an episode or a quotation which expresses, in a concentrated form, the idea of the particular literary work. It is statements that may be interpreted as expressions of the theory of a main actor or even the author. It is like the core message in a condensed form, or a manifestation of the general message penetrating the entire story. Articulating such a condensed, overriding message is close to the process of theorizing in qualitative social science research (Ridderstrøm, 2020).





*Figure 3: Ben Nicholson's painting "Still life" (1946)*

More generally speaking, in social sciences sometimes a useful sources to sense making related to phenomenon we study emerge through introducing a metaphor. A metaphor means just to introduce experiences from quite another field (Hadida et al., 2015). My application in this research of concept of improvisation borrowing it from jazz music is an expression of this.

### **1.2.2 The plurality of my roles**

In medicine, and especially at university hospitals, it is not exceptional for ordinary consultants to be engaged in research. At my hospital, in cancer care it is even expected that physicians have part-time engagements in clinical and, in some cases, even translational research. For social scientists working in public administration or in other types of institutions, however, this is rare. Except for the program in the Research Council of Norway (NFR) supporting this project, there are hardly any arrangements supporting engagement in research by practitioners, and never in issues related to their primary job affiliations. People with a social science background have to choose between a career in what we may call the field of applied science<sup>2</sup> or a career in research.<sup>3</sup> My project gave me the unique opportunity to do research in parallel with fulfilling my administrative duties at the hospital. The issues for my research project emerged, so to speak, from my practice. First, several experiences from different positions in industries and sectors of society other than health care provided me with insights on similar processes and contextual structures, which then turned out to be

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<sup>2</sup> Though employees educated in a social science discipline hardly perceive practicing their scientific discipline as applied science.

<sup>3</sup> The extent of those passing a Ph.D. now seems to exceed what the labor market of social science research can absorb.

valuable for investigating political, administrative, and organizational processes of coordination in hospitals. Second, my primary employment at the internal Cancer Centre Board of the hospital had given me a lot of information and access to networks that could be applied to my research. I hoped that the insights I created could improve my performance as well as that of my collaborators.

During my research, I sometimes identified myself as being in a role similar to that of a clinical physician doing a part-time research study on some cases attached to my field of praxis. However, on one point my situation diverges from the research-active clinician. While such a clinician considers herself separated from the case she is studying (often designed as a randomized controlled trial [RCT], or as another type of experiment), in my case I could not deny having a personal relation to the cases I was studying. From a natural-science perspective, this should create an obvious challenge. Since I was surrounded by colleagues doing research based on the methodology of natural science, in an initial phase I found myself repeatedly arguing with and customizing my research design towards the standards of natural sciences, as if the aim of my research were to prove some simple connections between intervention and outcome. At the same time as I freed myself from this pressure, I acknowledged how this closeness and, then, the visible contrast to the world of the natural sciences made me more aware of the specific characteristics of my research design and research praxis that contributed to the process of knowledge building.

### **1.3 From the puzzles catching my attention to the overall research question**

In several previous jobs, I was in charge of large organizational development projects dealing with organizational design<sup>4</sup>. One of these experiences resulted in a draft paper on the design of hospital organizations. This experience and the insights I gained became a foundation of knowledge I could build upon when I started working with cancer care at the hospital. I started in this work area just after Norway made a politically-initiated reform introducing a mandatory system and praxis of integrated care pathways in cancer care. Parallel to this, our hospital had started the application process to become a Comprehensive Cancer Centre (CCC). Among the requirements was the presence of well-organized, standardized cancer

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<sup>4</sup> Specifically my experiences from being Vice President of business strategy and development in a large Norwegian food industry group, being director of organizational issues in the Norwegian National Railway company, being HR-director in a regional Health Authority, and acted as internal consultant during a major merger of hospital trusts.

pathways in every major cancer diagnosis. I then recognized that the organizational model of our Norwegian hospitals was, for the most part, not aligned with the way entities comprising the pathways were structured. In monitoring the waiting times for patients along the cancer pathways, it was easy to imagine that it was the misfit between the formal organization of the hospital and the pathway processes that created challenges for realizing smooth pathways in accordance with predetermined indicators and patients' expectations. My initial motivation for this project was, then, to investigate this puzzle of misalignment between formal organization and the targeted pathway concept. This approach is similar to a question Chandler (1962) addresses in his groundbreaking book: If strategy is supposed to define structure, why do we often recognize that changes in strategy are not accompanied by supporting reorganization? However, my understanding of what was the main puzzle attracting the interest of the researcher adjusted during the process. I suppose this is not an unusual experience—at least, it was so in my case. Instead of dwelling on formal organization, I was gradually fascinated by another way of addressing the same phenomenon: instead of focusing on the tension and mismatch between design premises, I grew curious as to why the pathway process worked pretty well after all. I was also struck by the significant differences among several of the existing pathways, patients, diagnoses, and hospitals and I was drawn to finding out how these differences might influence the context and premises for practicing and managing effective pathways. I identified one underlying puzzle: How should the standardization of pathways be interpreted and implemented when one size does not fit all?

Just before I started my research project, in late autumn of 2017 I participated in a Scandinavian seminar on cancer patient pathways. The background for this seminar was that a rather similar reform on cancer patient pathways had been implemented in all three countries. The discussions there, combined with advice from my supervisor, encouraged me to broaden the scope of my research to encompass also the political and administrative processes of implementing this reform. On this occasion, too, my focus was initially drawn to the challenges of accomplishing a successful reform. Early on in the data collection process, the puzzle that caught my attention was the pace of, and the support for, both the decision and the implementation of the reform. How could this be explained, when the reform required adjustments in the behavior and systems practiced at the hospital floor level? This happened in an institutional field characterized by strong professional communities and by complex

organizational contexts, where simple hierarchical means of commanding do not necessarily work. I decided to begin my investigation with this revised puzzle.

Through this process, a puzzle connected to how to manage coordination across organizational levels and boundaries emerged as a common issue in the two separate studies of my project. I anticipated that addressing puzzles that emerged, on one hand, through the vertical development and decision processes regarding the deployment of CPP and, on the other, through the horizontal paths of patients' travels through hospital entities would, together, deliver comprehensive knowledge on why and how CPPs work. I translated this into a more specific research question that ties together the themes and the findings of the two studies.

- *How can we explain the coordination of politics and of practice related to cancer pathways?*

This question then also leads to two sub-questions:

- *Through what mechanisms is this coordination accomplished?*
- *What is the impact of contextual framing?*

## **1.5 Contributions**

### **1.5.1 Theoretical contributions**

I base the synthesizing of the research on which this thesis is based on the combined applications of several traditions. Some of these traditions contribute to the basic contextual understanding of the processes in the field of health care in general and in cancer care specifically. This includes work on the theoretical areas of institutional logics, uncertainty and complexity, organizational design, and agency and entrepreneurship in an institutional context. Another research tradition I connect to is coordination—an issue at the core of the processes thematized in the research question. I argue that these contextual theoretical themes, especially when combined, make sense into the unfolding of coordination. In addition, I connect to two mechanisms through which coordination is accomplished, standardization and improvisation. This thesis does not claim to be developing a new theory on any of the analytical approaches applied or to be developing an existing theory into new areas or directions. I will argue, however, that it contributes to building knowledge on an analytical and conceptual level, accomplishing theorizing processes that combine and connect several

theoretical approaches and research traditions. In terms of theory, its novelty lies in establishing this interaction between theoretical domains and applying these combined sets of analytical concepts and tools to the fields studied. I will argue that this synergetic conceptual exercise contributes to a theoretical configuration suited for analyzing similar processes of managing coordination in complex health care processes. To my knowledge, the combined totality of this theoretical framing has not been successfully deployed before.

The exploration and application of the interaction between different streams of research are the prerequisites for formulating the general managerial proposition and research proposals I am launching in the last part of this thesis. These propositions are all based on the theorizing that emerges from studying coordination through mixtures of various types of standardization and improvisation in the presence of contextual and processual unpredictability and complexity, influenced by two or more institutional logics and influenced by specific characteristics of organizational context and room for agency. I thus claim that the knowledge on interaction among these dimensions contributes to theory on the conditions for coordinating complex action that crosses institutional and organizational borders and that is targeted at complex health care organizations.

#### **1.4.2 Contributions to practice**

Modern hospitals are, in themselves, probably among the most fascinating organizations to study for an organizational researcher. A hospital is a conglomerate of specialists, professions, complex mutual dependencies, and internal and external interest groups woven into lots of systems, research-based knowledge, and structures based on several principles—all under high public and political scrutiny. This creates a lot of ambiguity and tension that can be recognized and felt by participants.<sup>5</sup> At the same time, it is not necessarily well understood what kind of processes are actually taking place there and, thus, how they should be properly managed. Instead, hospital management may be perceived as a matter of identifying and drawing the right borders and making sure that these borders are not blurred. In commenting on Greene's *The Human Factor* (1978), Peter Kemp proposes that a core topic of the novel is crossing borders: borders of responsibility, borders of what a civil servant should care about,

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<sup>5</sup> The use of the concept of ambiguity in organizational studies is, to a large extent, related to the work of James March (together with Olsen and Cohen) (March et al., 1979, Cohen et al., 1986) focusing on decision making. "Decisions are stage for many dramas. The dramatic complexity is further elaborated by the pervasiveness of ambiguity" (March et al., 1979). Ambiguity, they continue, signifies four types of opaqueness. The fourth is organizational opaqueness, caused by the varying attention of individuals creating uncertainty and instability in their pattern of participation.

borders between black and white people, and borders of the Cold War. Through the novel, one may feel ambiguity of crossing these borders. Concurrently, there is both a warning against, and a necessity of, doing this. Several paths across these borders are shown. This resembles the process of me working on cancer patient pathways, as I move from the political processes to implementation and, finally, daily practice. Thus, the process of creating the cancer patient pathways and of practicing them interferes with its context and contributes to a still more exciting organizational world to study. The interplay between official and emerging pathways both clarifies the characteristics of the initial organizational context and may modify them, making the stage of organizational life at hospitals all the more engaging to study.

The journey through the cases I have been studying contains several tensions and ambiguities, which are experienced through ambiguity between total central control, on the one hand, and slack allowing for playing around and letting things happen<sup>6</sup>, on the other. Or it may be ambiguity between managing health care based on total predictability and standardization of behavior, on the one hand, and plenty of room for improvisation, on the other. Further, the tensions and ambiguities are expressed both by strictly defined formal structures and by emerging structures with dynamic, blurred borders. Tensions such as these will manifest through precisely defined roles and responsibilities combined with overlapping, dynamic, and hybrid roles. Ambiguities are articulated either through communication based on mutually shared, distinct, defined languages or, on the contrary, through communication dependent on an extensive capacity to translate concepts from one context to another. Finally, I point to tensions between transactions defined on predetermined hierarchical lines of command or, alternately, on negotiation and rational discourse among peers. The insight I provide by following the paths through these contradictions will hardly contribute to dissolving the tensions—but, hopefully, it will build a platform to help us cope with them. I have struggled to unveil the real paths as practiced in the confusing landscape of health politics and hospital life and I hope I can present a path through some processes that are hardly possible to capture on a map concept—though the latter is the illusion we are almost seduced into. The excursion to unveil the cancer pathways, then, ought to provide us with a perception that is also relevant to areas other than cancer care and hospitals, thus helping us navigate skillfully through the tensions and ambiguities of real paths. Transcending the ambiguities may lead us to a level of

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<sup>6</sup> The expression used here is inspired by an article by Ninna Meier (2011) elaborating on coordination in clinical managerial practice.

practicing a kind of mature management in hospitals and health care, which would be characterized by being occupied by at least two horizons simultaneously (in Norwegian: “tvisyn”<sup>7</sup>). The knowledge provided by this thesis aims to deliver a useful basis for such mature cancer management, both in politics and in administrative and professional practice. The incidence and prevalence of cancer disease, together with the burdens it creates for a lot of people and the rippling effects on their surroundings, suggests that this knowledge may have a significant impact on an important part of society.

## **1.5 The structuring of this thesis**

This research project consists of two studies with two different focuses. Cancer patient pathways is, on one level, the issue uniting them. However, the perspectives in the two studies are different. While one study focuses on the political decision and the orchestration of implementation, the other highlights the practice of cancer patient pathways in three diagnoses at four hospitals, situated in time after the implementation of the reform. These two divergent perspectives still supplement each other through connections. First, they both concern the ways in which urgent, time-focused processes are arranged and coordinated to succeed in complex and highly institutionalized parts of health care. Second, the two studies supplement each other in that one has the standardized solution of a prescribed pathway in focus, not least during implementation, while the other circles around the actual practice of what the standardized solution originally had as an intention. These two studies combined will supplement and contrast each other and, together, lay the foundation for unveiling the steps of cancer pathways—and, thus, for answering my overall research question.

In the second part of this thesis, I will give a broader contextual background for the development of CPP and organizing. I will do this partly by presenting the development of cancer care, with an eye towards its consequences for organizing. I will also give a picture how the organizational development of specialized health care, specifically in Norway, has affected cancer care. Finally, in this part, I will briefly sketch the emergence of cancer politics and cancer pathways in Scandinavian countries.

In part three, I will review the main lines of existing research on patient pathways generally and on cancer specifically and will do this from different angles. This part will, finally,

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<sup>7</sup> The notion of «tvisyn» in Norwegian is created by the Norwegian author Aasmund Olavson Vinje and launched by him in his newspaper “Ferdaminne” in the middle of the 19<sup>th</sup> century (Det norske akademi for språk og litteratur, 2021).

identify some knowledge gaps and show how these supports the appropriateness of my research question.

In part four, I will present and discuss the methodology and methods chosen and practiced in accomplishing this research. In addition to the operational procedures applied, this part goes through my selection and operationalization of comparative case methodology and the abductive analytical approach, and it connects these choices in the context of my field, my topic, and my research question.

In the fifth part, I present and discuss what I have identified as the analytical concepts that emerge through, and penetrate at least to some extent, both of the studies and all four articles—and, thus, my entire project. These include the five conceptual approaches I am deploying and combining in order to interpret the processual patterns in the field studied. In addition, this part explains the two entwined coordination mechanisms, standardization and improvisation, which unfold under the described contextual regime. In line with the chosen abductive analytical approach, I integrate a more detailed elaboration of the analytical framing I deployed into the discussion and conclusion of this part.

The sixth part is a brief summary of the main narrative present in each of the four articles on which this thesis is based. I have directed these summaries towards reporting the analyses and findings that are most relevant for the overall research question of the thesis as a whole. The manuscripts are reproduced in their entirety at the end of this book.

In the seventh part, I return to the five contextual analytical concept areas and apply them to the findings across the two studies and the four articles. Not least, I also elaborate on the interaction between them. As announced, this also includes a further examination of the five analytical approaches.

Finally, in part eight, I conclude by discussing the consequences of the previous analysis related to coordinating mechanisms. This part also offers propositions for the management of coordination in cancer care and recommendations for further research.



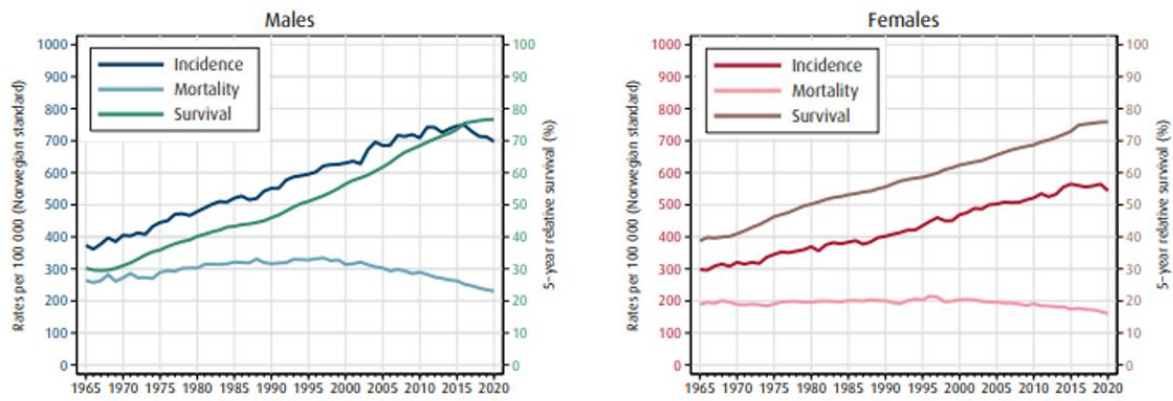
## **2. The context: Hospitals and cancer in Norway – the paths of change**

*“There is much care in good organizing.” — the Steine Commission (Steine, 1997)*

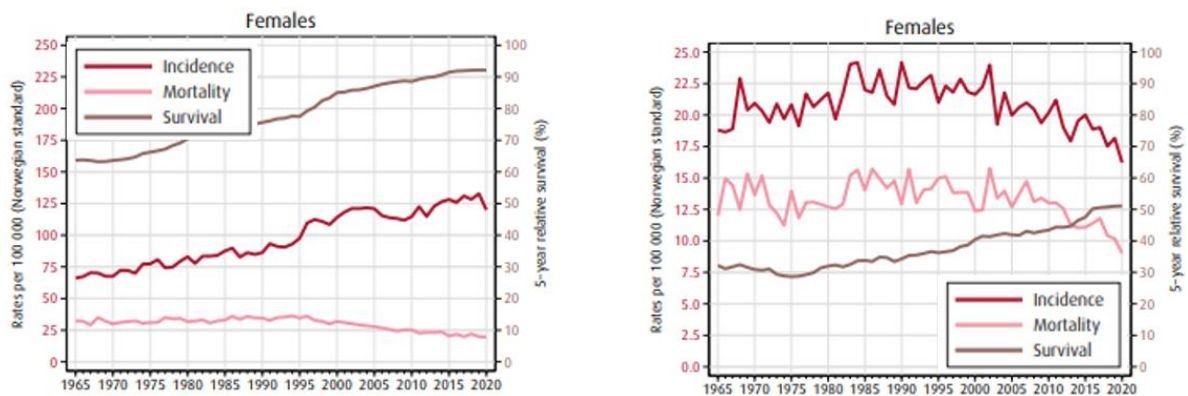
One hundred years ago, cancer was the second-largest cause of death after tuberculosis (Åmås et al., 2008). Both diseases were considered incurable and perceived as menacing. Patients with tuberculosis got their own hospitals and sanatoriums, and contagious diseases filled up major parts of general hospitals. The causes of cancer, moreover, were not understood and there was a widespread fear that cancer too may be contagious. Since then, and especially in the last four decades, there has been an extensive development in the understanding of cancer that has been translated into diagnostic and therapeutic improvements (Mukherjee, 2010). Even with these major improvements, however, cancer is the most common cause of death in Norway today (Norwegian Institute of Public Health, 2021). The main reasons are the reduction in mortality for cardiovascular diseases and the strong increase in cancer incidence. The consistent improvement in relative survival by time (doubled over the last 50 years) together with the increase in incidence have led to a considerable growth in cancer prevalence (Cancer Registry of Norway, 2021) - see Figure 4. According to the Cancer Registry in 2020 there was around 35,000 new cancer cases in Norway (2021). Taken together, these trends mean that developments related to cancer care have had a major impact on resources spent and on hospital organization in the last decade. Nevertheless, at the same time, the immense transformations in medicine and hospitals have also largely influenced cancer care. The emergence and decentralization of cancer care and cancer patient pathways must be understood in this double context.<sup>8</sup>

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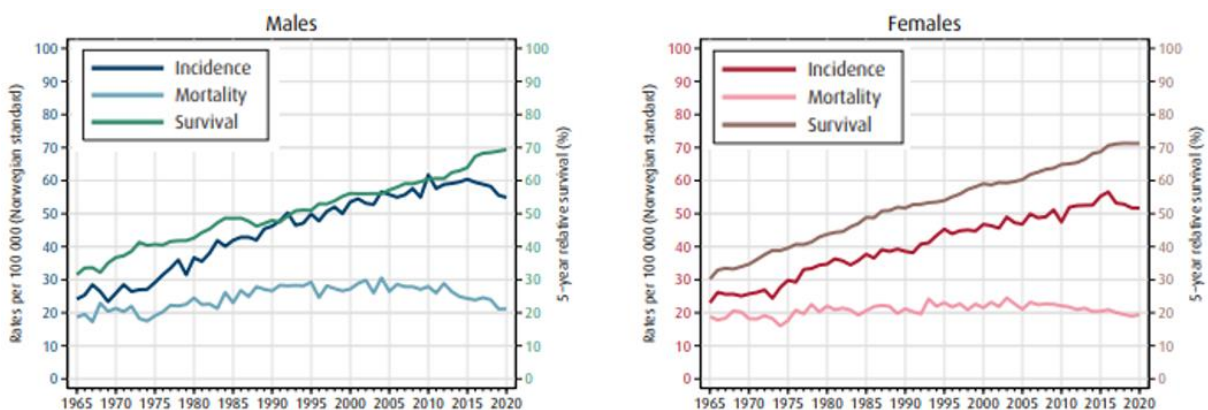
<sup>8</sup> This chapter is built on several conversations and interviews with actors in, or close observers to, the development described and on the study of written and published sources (Åmås et al., 2008, Brustad et al., 2015, Hammerborg et al., 2019, Kerr et al., 2018, Mukherjee, 2010, Keating and Cambrosio, 2012, Cancer Registry of Norway, 2021). When documents are official documents from governmental authorities, the references are stated where they are mentioned in the text.



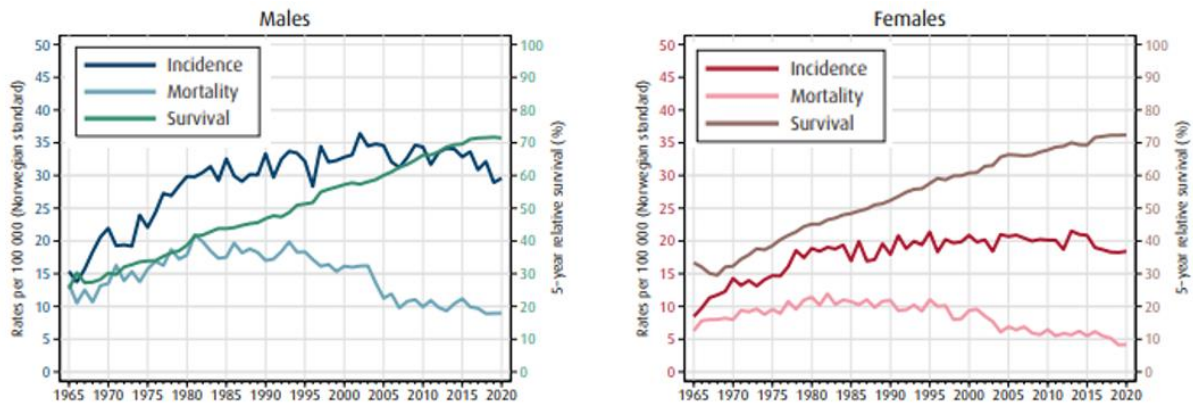
**Figure 4:** Trends in incidence and mortality rates and 5-year relative survival propositions for all cancers combined—adapted from the report *Cancer in Norway* (Cancer Registry of Norway, 2021)



**Figure 5:** Trends in incidence and mortality rates and 5-year relative survival propositions for breast cancers (to the left) and ovarian cancers (to the right)—adapted from the report *Cancer in Norway* (Cancer Registry of Norway, 2021)



**Figure 6:** Trends in incidence and mortality rates and 5-year relative survival propositions for rectum cancers—adapted from the report *Cancer in Norway* (Cancer Registry of Norway, 2021)



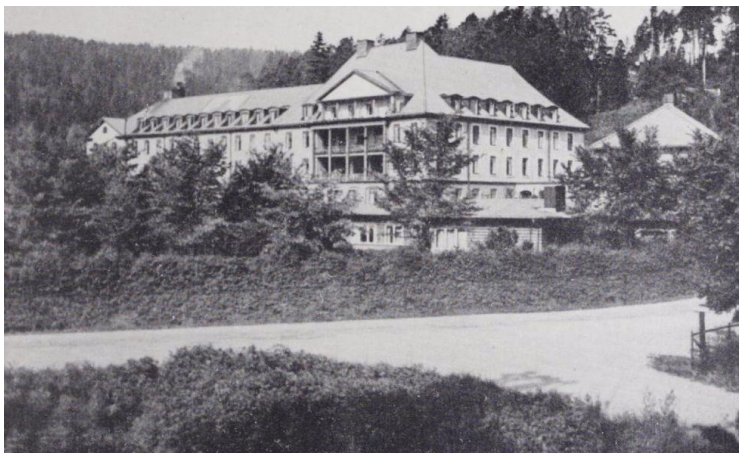
**Figure 7:** Trends in incidence and mortality rates and 5-year relative survival proportions for colon cancers—adapted from the report *Cancer in Norway* (Cancer Registry of Norway, 2021)

## 2.1 The cancer care evolution and its path in Norway

The attempt to heal cancer patients with solid tumors was, historically, a task for surgeons. The tumor could simply be resected. However, it was the introduction of modern anesthesia in the second half of the 19<sup>th</sup> century that first caused a more widespread use of cancer surgery. Surgery was based on the knowledge of anatomy of healthy bodies and, with the discovery of x-rays at the beginning of the 20<sup>th</sup> century, both contributed to progress in cancer surgery. The limited understanding of the biological nature of cancer led to a dominant misunderstanding that surgery should be as radical as possible locally, admittedly leading to devastating damage to more body tissue without improving outcomes. Emerging knowledge of the biology of cancer revealed that the metastatic spread occurred through the blood or lymphatic systems. This then had implications for the performance of cancer surgery and showed the limitation of surgery as the only modality in cancer care. Before this realization was adapted in the medical society, at both smaller local hospitals and university hospitals in Norway and in Europe general surgeons would operate on tumors in several different organs, and resection of solid tumors in localized cancer was perceived to be a general skill practiced by any general surgeon.

The second major step toward the cure of cancer was the introduction of radiation therapy. Ionizing radiation from x-rays or natural radioactivity sources such as Radium, discovered by the Curies in Paris in the late 1890s, was soon shown to affect tumor growth. The advantage of irradiation from Radium was the high energy and the ability of the beam to penetrate deep into the tissue or tumor. A major concern with radiotherapy was the side effect on adjacent normal tissue, which limited the dose that could be delivered to the tumor without causing too

much damage to the surrounding tissue. The discovery of Radium and its treatment potential offered a glimpse of hope, engendering expectations and contributing to a broad national mobilization of support. Marie Curie donated a few grams of Radium to Norway as a foundation for the establishment of a cancer hospital, which was further developed through a social movement involving extensive engagements and donations from civil society organizations, not least the labor movement. The cancer hospital, Radiumhospitalet, became a reality when it opened in 1932 as a national hub for centralized cancer treatment. In its first years, the treatment offered to the patients consisted of implants of radioactive Radium. The cost of the equipment and of Radium itself was so high that a single national center was the only possibility.



**Figure 8:** Image of Radiumshospitalet in 1932 (source: <https://akersposten.no/naboer-matteberoliges-om-at-kreft-ikke-er-smittsomt/19.5716>)

In the aftermath of World War II, the breakthrough in the medical treatment of cancer happened initially in hematological cancer. Cytotoxic drugs reduce white cell counts and, logically, they should be effective in treating a disease like leukemia with pathologically high white cell counts in the blood. Thus, the treatment was empirically based and the mechanism of action was not known in detail. The introduction of medical therapy moved cancer treatment into the domain of internal medicine and specialists of internal medicine prescribed the new medicines. In Norway and the other Scandinavian countries, medical oncology was combined with radiation therapy to form the basis for the establishment of a new medical specialty named oncology or clinical oncology. Oncology as a separate specialty was, until early 1970s, centralized to Oslo. Therefore, as late as in 1968, the director of Radiumhospitalet could declare that the oncological capacity at that hospital should be derived from the national needs in Norway (Eker, 1968). His conclusion on this was to some

extent supported by a white paper from the government to the parliament (Ministry of Social Affairs, 1956).

For some cancer diagnoses as for lung cancer, the relevant specialist in internal medicine covered medical oncology. Investigation of the patient, including biopsy, was and still is undertaken by surgeons or by internal medicine specialists. The previous mentioned governmental white paper from 1956 states that for most patients suspected for having cancer, the diagnostic work up except for some analysis involving tissue samples (pathology), could be accomplished decentralized at the municipal hospitals who had elementary competences and departments in internal medicine, surgery and radiology.

The history of cancer research has been a search for some kind of universal explanation and, based on that explanation, a universal treatment for cancer. Central in this process were the pathologists, due to their role as miners drilling into the tumor tissue to unveil the morphological and biological characteristics of the disease. Thus, because they possessed the keys to understanding the possible behaviors of medical treatment, they led the quest for functional medications. At the Norwegian cancer care hub, Radiumhospitalet, senior pathologists played a decisive role in integrating and developing the diagnostics and ambitious research activities.<sup>9</sup> The oncologists' approach was also based on the assumption that cancer was a homogenous group of diseases. However, in parallel to this approach to cancer as one disease, there was a growing acknowledgment of cancer as several organ-specific diseases, each with different presentations, diagnostic work-ups, and treatment procedures. This was reflected in the fact that all organ-specific cancer diagnoses were distributed to specific groups of internal medicine specialists and organ-specialized surgeons, and later also to sub-specialized groups in pathology, radiology, and oncology.

For several types of cancer cases, it was gradually recognized that multimodal treatment—a combination of surgery, radiotherapy, and medical therapy—offered better tumor control, whether locally or systemically. Chemotherapy was often to follow surgery to prevent metastatic relapse and radiotherapy was to be used to prevent local recurrence. More and more patients received multimodal therapy and even more patients were candidates for different combinations and different orders of therapies. Accordingly, collaboration among

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<sup>9</sup> The two most influential directors of the Radiumhospital, Reidar Eker (from 1947 to 1975) and Jan Vincent Johannessen (from 1983 to 2005), were both pathologists, and the head of the department of pathology was at the same time head of the research institute. The activity of the institute was partially financed through the refunding of pathological tests.

the different specialists involved in each patient became more and more important. Due to this development at Radiumhospitalet after World War II, cancer surgery was included in the larger portfolio of cancer treatment modalities. In the same period, a new radiation technology was introduced, capable of creating high-energy beams that penetrated deep into the body and, therefore, suitable for treating centrally localized tumors. Soon, this technology became dominant and the use of the traditional low-voltage x-rays and Radium implants was reduced. The national hospital in Oslo, Rikshospitalet, argued against the idea that the cancer hospital should carry out surgery. Specialized surgery, they meant, should be centralized to Rikshospitalet. At that time, with the introduction of the new accelerator technology, they had lost the battle over who should be the national hub for radiation therapy. Based on a new wave of cancer donations in the early 1950s, new buildings with operation theatres were built and cancer surgery on several types of solid tumors started up. At the time, cross-disciplinary cooperation was already present and played a major role in the development of both research and clinic based on the close links between oncologists and pathologists.<sup>10</sup> Similar cross-disciplinary cooperation evolved at university hospitals. One expression of this was the first initiatives of so-called multidisciplinary meetings, where several of the specialists involved gathered around a table to combine their considerations on whether a cancer patient's case was curable and which treatment plan should be chosen, and specifically to decide on the appropriate surgical procedure. The more advanced surgery procedures and intensive chemotherapy, from the 1980s, were associated with increased risks of serious complications during and after the intervention. Managing complications depended on cross-disciplinary collaboration with specialists in intensive care and in areas of internal medicine. This was an argument for centralizing these procedures.

For the most part, the combined interventions on patients were organized as series of successive events. However, examples also evolved on closely integrating two treatment procedures, such as surgery and chemotherapy or surgery and radiation therapy. The integration of diagnostic procedures and surgical interventions also emerged for tumors whose clinical presentation was blurred and diagnostic work up complicated. Cross-disciplinarity in cancer care was further encouraged by three areas of cancer care not directly connected to anti-tumor treatment. The first area, palliative care, was directed at reducing the suffering and increasing the quality of life for patients with late-stage disease. The second area, cancer

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<sup>10</sup> The director of Radiumhospitalet, Eker (1968), expressed it like this in 1968: "The developments towards differentiated treatment modalities necessitates that cancer treatment to a greater extent is performed through team-work" (p. 8).

rehabilitation, was an issue lifted to the agenda by the progress in cancer survivorship. Both palliative treatment and cancer rehabilitation were principally defined as cross-disciplinary bundles of action. The third and final area was engagement in cancer prevention and screening, which likewise assumed an extensive involvement of health care specialists from different areas. This cross-disciplinarity implied involvement of an even broader spectrum of institutions and specialists, including epidemiologists, social medicine, and general practitioners.

During the past two decades, the pendulum between interpreting cancer as one disease with one cause and seeing it as several diseases with separate trajectories moved yet again. It was triggered by the breakthrough in understanding cancer that saw the cancerous process as occurring at the molecular level. The key discovery in the 1980s was that mutations in normal genes, critical in controlling proliferation and differentiation and leading so-called oncogenes, were a major cause of cancer and mutation in tumor-suppressor genes controlling the integrity of the DNA. This knowledge opened new doors to treatment strategies by introducing new generations of medications with the purpose of interacting with the biological mechanisms of cancer, in contrast to the empirically based development of cytotoxic drugs and radiotherapy. Consequently, a drug targeting a specific mechanism could be used for different cancer types harboring the same mutation. Based on major technology progress in the last two decades, DNA sequencing has evolved into a standard diagnostic tool for identifying drug targets, but also for helping to avoid prescribing medication that actually has no benefit and, instead, only plagues patients by troublesome side effects. This overall development builds on the recognition that DNA damage is, in some way, a common biological feature of cancer—even as, despite shared mutations, it is expressed in different ways and affects a variety of biological pathways in different cancers. Therefore, in the last decade a pan-cancer perspective arose, tied together by related translational research and research groups, and by common diagnostic equipment and specialized competencies needed, including specialists in molecular biology, bio-informatics, bio-statistics, and cancer genetics.

A part of this transition in the diagnostic processes and available targeted medications, recently is the establishment of a new type of multi-disciplinary teams, called molecular tumor boards, has formed (van der Velden et al., 2017). This process of transforming cancer care has been accompanied by a continuous acknowledgement of successful cancer care with improvement in progression-free and overall survival. Surgery is still the main modality in curing solid cancer, but radiation and medication contribute as indispensable supplements, not

only after but also before surgery. The new generations of radiation technology also contribute to a more precise deployment of radiation beams in time and space. The latest development is using particle radiation rather than photon radiation, which results in targeting the tumor even more efficiently and leaves the patient with less acute and fewer long-term side effects. The close collaboration between oncologists and medical physicists, then, continues to be a cornerstone in several cancer diagnoses. These developments all originate at specialized hospitals that have the research and skills connected to the deployment of the new knowledge, new medications, and new technologies. In Norway, this means the Regional Hospitals. For the treatment of common tumors and for treatment that does not depend on expensive equipment, new technologies are, at the start, distributed to all hospitals or will be within a short time.

To summarize, the development of cancer care in the last century can be interpreted as a movement in two interacting yet contrasting directions. First, the movement towards fragmentation based on organ, specific diagnostic approaches, and more precise and knowledge-based development of new treatment procedures. Second, the struggle of linking knowledge and processes across this fragmentation. The latter has been driven both by the challenges of increased mutual dependencies and interacting complexity and by curiosity of finding synergies and comprehensive insights. Expressed more simply, there has been a transition from, on the one hand, an approach characterized strictly by one organ-based diagnosis, one diagnostic procedure, and one treatment (if any treatment at all), all localized at one hospital; to on the other hand, a more precise classification of the cancer that results from a combined deployment of several diagnostic approaches, and a combined interventional strategy for cure that often includes several therapeutic modalities. In addition, in a lot of cases this process involves active participation of several levels of healthcare services and more than one hospital site. Obviously, these changes have consequences for the organization of cancer care.

## **2.2 The structuring of specialized health care in Norway and implications for cancer care**

Historically, hospitals in Norway were established from two sources. To serve local levels around the country, they were initiated by municipalities and cities or nonprofit organizations. The latter also created specialized hospitals focusing on serving certain diagnoses in line with the purpose of the organization involved. The cancer hospital, Radiumhospitalet, was initially



an example of the latter, as one of the two national cancer unions played a crucial role as its supporter and organizer during the first decades. The second source of initiating and evolving hospitals were universities, for whom the establishments served as teaching hospitals and were connected to the faculties of medicine. This was the case for the national hospital in Norway, Rikshospitalet. Other university hospitals developed through a merger of the two perspectives: on the one hand, built as the major city hospitals in the largest regional cities and, on the other hand, playing the role of teaching hospitals connected to the Medical Faculty.

The local hospitals, mainly serving municipalities and offering the general first line of specialized health care, were usually organized according to two principles. The first was based on the prevalence of two separate hierarchical lines: one medical, with a chief medical doctor in charge, and the other in nursing, with a chief nurse in charge. The second principle was related to the division of activities into three departments, one of surgery, one of internal medicine and one of radiology (Ministry of Social Affairs, 1956). Most patients had their trajectories in one of the two first mentioned departments. To some extent, these hospitals offered cancer care, both surgery and palliative care, and later some medical treatment involving both doctors and nurses. The processes of cancer care were not aligned with the organization of the hospitals. However, this was probably not perceived as a serious problem because the patient was defined early on either as a case of surgery and survival or as a case of medical therapy and palliation. In addition, these hospitals were relatively small compared with the hospitals of today and, therefore, coordinating activities was relatively easy.

In hospitals focusing on one group of diagnoses, all MDs had competences and skills directed towards that particular disease. At the same time, this was generally a collection of various specialists. Radiumhospitalet illustrates this by comprising oncologists, pathologists, radiologists, and several groups of specialized surgeons in addition to some from internal medicine. Here too, however, there was an organizational distinction between medical treatment and surgery and, as already mentioned, pathologists played a major role in integrating the process and driving the attached translational research.

At university hospitals, a multitude of sub-specialties emerged, with the consequence that these hospitals were far larger than municipal hospitals. In addition to Radiumhospitalet, these teaching hospitals (except Rikshospitalet) were the locations where the oncologists were employed. Separate departments of oncology were established during the 1970s, reflecting the fact that high-voltage radiotherapy was centralized exclusively to Radiumhospitalet until early

in that decade. During that period, patients were hospitalized during the diagnostic procedure and treatment, whether it was surgical, radiation-based, or medical. Thus, the increase of incidences and of treatment options resulted in many beds being occupied by cancer patients. However, they were often localized in the department affiliated with the corresponding organ of the primary tumor, either in internal medicine or in surgery. Eventually, separate inpatient units for oncology were established. Since the 1980s, there has been a major turn toward outpatient handling of diagnostic procedures and all the treatment modalities.

In 1997, two governmental reports were released related to the organization of hospitals, one focused on the internal organization of hospitals, named the Steine Commission (1997), and the other focused on the governing structures attached to hospital ownership, named the Hellandsvik Commission (1996). The first report is the only national report in Norway with an ambition to deliver a comprehensive discussion of internal hospital organization. One of the main issues characterizing the report was the need for enhanced coordination capacity in response to increased specialization leading to bottlenecks in the patient trajectories through the hospitals. The report suggested some solutions to the problem, such as streamlining the services offered, co-localizing patient activities that are closely connected in common organizational framing, establishing more cross-disciplinary management groups, and introducing more management levels to increase coordination capacity. However, the report explicitly did not recommend that hospital owners mandatorily prescribe certain reorganizations for the hospitals. It expressed a trust that those closest to the patients were the right ones to decide and develop the appropriate model for their hospital<sup>11</sup>. This commission was clear on the premises that the developments into increased specialization and that the risk of fragmentation could not and should not be stopped. However, it also expressed some concerns about the risk that coordination activities would lead to transaction costs exceeding the achieved gains. The Steine Commission recommended one urgent organizational change to be implemented nationally at every hospital: converting the two-pronged hierarchy of medicine and nursing into one line, with one director being the general manager for all activities and all employees.

The Hellandsvik Commission approached the organizational issue of hospitals from the outside, from the perspective of governance, accountability, and ownership. This reform

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<sup>11</sup> During the recent years the government have launched a white paper to the Norwegian parliament titled National plan for health care and hospitals (Ministry of Health and Care Services, 2015) However, internal organization of hospital is hardly treated. It is simply stated that the hospital the management has considerable freedom to organize its enacted activities and duties.

should be understood as an extension of the previous national hospital reform, implemented in 1969, which transformed responsibility and ownership according to one consistent national model. This was based on the principle that each county was responsible for the specialized health care of its population. All counties had several hospitals, one of which was designated as the main hospital of the county (“sentralsykehuset”) fulfilling some more specialized functions. In addition, the main hospitals for two counties, located in Bergen and Trondheim, had the role of university hospitals. Attached to the parliamentary consideration of the 1969 reform was also a proposal to establish radiation therapy at the university hospitals in Bergen and Trondheim. Admittedly, the regional hospital in Bergen had had a so-called high voltage accelerator (van De Graaff accelerator) since before World War II, but it had not been followed by investments in modern radiation equipment. All investments in modern radiotherapy equipment, including high-voltage accelerators, had been concentrated at Radiumhospitalet in Oslo.

The University of Oslo had four teaching hospitals, with three of them located in Oslo and one in the neighboring county of Akershus. The rule of county ownership had two exceptions: Rikshospitalet, with several national functions, and Radiumhospitalet, under both state ownership and the direct jurisdiction of the Ministry of Health. These two were merged in 2004, which resulted in lung-cancer surgery being moved from Radiumhospitalet to Rikshospitalet. In the aftermath of the merger, tensions between these two medical communities persisted. However, a closer cooperation between some of the communities of surgeons at the two hospital sites also emerged during this period.

The Hellandsvik Commission in 1997 addressed a growing concern about increased costs in specialized health care and unequal accessibility depending on one’s residential address. Models of alternative state governance and ownership were discussed as a reform, potentially delivering an organizational context that would be better suited to deal with the challenges defined. This process continued on the national political level in the following years, resulting in a major reform implemented in 2002, when the ownership of all publicly owned hospitals was moved from the counties to five regional health trusts owned by the government. This structure was based on a legal model close to the legislation of joint stock companies. The Ministry of Health was the acting general assembly of the regional trusts and each hospital had its own board, resembling the corporate structure of a parent company and subsidiary companies.

Some main lines of organizational development since the health care trust reform of 2002 can be described as follows. First, several of the hospital trusts and hospital sites have increased in size. The mirror of this is that there have been mergers between hospital trusts and closures of activities at several hospital sites. These processes also often involved the reorganization of the overall structuring of each hospital trust, along with changes of managing directors. However, the underlying principle of these reorganizations seems to be mostly similar to the original model. That is a structuring of the highest hierarchical levels based on specialties in the medical profession. The huge mergers of the public hospitals in Oslo in 2010 illustrate this. The discussion of main structures involved, to a large extent, the question of which medical specialties should be bundled together across the four hospital sites. There were a few exceptions, triggered by the motive to protect the tightly cross-disciplinary process of some of the highly specialized procedures at Rikshospitalet. Although the principle of a single hierarchical line was fully implemented at the time of the health trust reform, the organizational split between physicians and nurses continued at lower levels of hospital organization.

A second line of organizational development is an immense shift from hospitalization to outpatient-based examination and treatments in nearly all diagnoses. This includes cancer care. Although more intensive treatments are followed by more severe complications, the net effect for most cancer diagnoses has been a decline of hospitalization.

A third development is that the gap between primary care and hospitals has been addressed as an organizational challenge. A national reform to target this challenge was launched in 2009 (Ministry of Health and Care Services, 2009). Its core ingredients were incitements aimed at encouraging closer collaboration between the levels, along with municipal health care services taking on more responsibilities. The reform paid special attention to patients with chronic illnesses. Cancer patients with long trajectories or follow-up processes lasting for years were included, and their prevalence had increased significantly due to the general improvements in survival and the rise in incidence. Parallel to this and sponsored by the Cancer Union, cancer coordinators affiliated with the municipalities had been hired. However, the ownership and governance of primary care and of specialized care were still split between the municipalities and the state.

The general development in hospital organization has contributed to more hospitals having specialized competencies in oncology. Simultaneously, however, more hospitals have come to depend on cooperation with other hospitals for accomplishing a total track of treatment—and,

thus, addressing the demand for a regional structure whose principal mission would be to coordinate cancer care among the hospitals in its regional health trust.

### **2.3 The path to national, politically-imposed cancer care reforms**

In the late 1990s, cancer returned to the national political agenda. An important driver of this was the fear of Norway lagging behind comparable countries in deploying the promising MRI technology in cancer diagnostics and in the capacity to provide radiation therapy nation-wide and to all patient groups for which it had shown a significant effect. A national expert group was politically appointed and, in 1997, it provided the ministry with an expansive report (Søreide, 1997). This was followed by a governmental statement to the Parliament proposing the first national cancer plan in almost twenty years (Ministry of Health and Care Services, 1998)<sup>12</sup>. The main tangible consequence of the cancer plan was the Parliament approving a procurement plan for medical equipment related to cancer diagnostics and treatment.

Moreover, the expert commission delivered a comprehensive review of cancer care, with several of the issues it discussed connected to the organization of cancer care. Some of these marked the introduction of topics that would stay on the national political-administrative agenda for many years to come, including the second national cancer plan launched by the report from a new expert group in 2006 (Ministry of Health and Care Services, 2005).

Four issues related to organizing from these two national cancer plans may be highlighted. First, national standardized and generally accepted guidelines were to be elaborated in relation to major cancer diagnoses. In some diagnoses, voluntary associations of medical specialists had already established this. Now, they advocated for it to be rolled out for all diagnoses. Second, the relation between quality and volume was addressed, specifically in connection to cancer surgery. This marked the initiation of more or less systematic processes, both nationally and regionally, analyzing which types of cancer surgery should be centralized. Parallel to this, the increased investment in advanced medical equipment and its distribution among several community hospitals meant a decentralization in performing procedures for cancer diagnoses and radiation therapy. The implementation of quality-based rules for, and management of, the division of labor in the cancer field was placed at the regional level, which made it a task first at the table of the regional hospitals and then at the regional health trusts newly established in 2002. Third, the challenges of mutual interdependence of various parts of cancer-related procedures were raised as an issue, and the concept of “chains of

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<sup>12</sup> The previous was the report from the Hagen commission (1978).

measures” (“tiltakskjeder”) was introduced. Last, patient influence and patient rights emerged as a hot issue at that time, introduced here as in almost all health policy programs. This was in line with a main focus of the Steine Commission, with Patient First as the title of their report. This patient-centered perspective clearly contributed to the focus on waiting times and deadlines. A deadline of 20 days from receiving a referral to beginning treatment was nationally approved.

The national cancer plan from 1997, on several occasions, explicitly mentioned the importance of organizing and noted that the quality of health care depends on the context of structures and processes. Nevertheless, it also worried about what it called bureaucratization stealing spare time. It underlined the importance of developing structures and processes to facilitate the implementation of the political ambition. The next national cancer plan, moreover, recognized that several ambitions from the previous plan had not been successfully implemented—even as it refused to go into an analysis on the explanations for this.

In 2010, the Norwegian Board of Health Supervision (2010) delivered a report on risk analysis of cancer care. The aim was to identify the most important types of adverse events or conditions in the treatment of cancer in Norway. Of the four types of risks highlighted, three were linked to organizational issues: the organization of investigation diagnostics, leading to late diagnoses; the flow of information; and the lack of continuity in patient care. In 2013, the Board did a follow-up investigation focusing specifically on the lack of improvement in the length of time between referral received at a hospital and the beginning of treatment (Norwegian Board of Health Supervision, 2013). According to the politically-decided ambitions, this time was supposed to be 20 days but, in many cases, this goal was not reached. Parallel to this follow-up report, yet another national cancer plan was released.

The development of national, governmental cancer plans—from the first report in 1956 to the last, launched in 2019—could be interpreted as a stepwise development, from what Berg calls (2020) a focus on up-stream tasks (analyzing and planning the development of capacities and equipment) to a down-stream focus (based on implementation and auditing centered on quality of care). The introduction of the waiting-time reform and CPPs is an expression of the latter.

## **2.4 Waiting times emerging as a main target of phase 2 of cancer reform – the steps to cancer pathways**

It is not possible to present the story of cancer care and organizing without considering the parallel processes of cancer care in Scandinavian and Nordic countries. In Denmark, the first national cancer plan was launched in 2000 (Sundhedsstyrelsen, 2000). A penetrating perspective in this plan was the need to find a solution to what seemed for years to be a Danish destiny: a significantly lower survival rate compared with the Scandinavian neighbors. One question raised in this first Danish plan was: Does Norway organize its cancer care in ways that are more successful? This plan, however, did not leave any comprehensive organizational analysis or measures. As in Norway, it questioned the organization of cancer surgery being too dispersed and too little sheltered in relation to many other purposes of surgery on the same organs. The main measures were to pinpoint the need for increased capacity, actually establishing some overcapacity—especially in MRI and CT. In 2005, the second Danish cancer plan was published (Sundhedsstyrelsen, 2005). It was far more explicit, both in defining problems and in the precision of measures. Cancer patients were subjected to unnecessary waiting. To counter this, unsatisfactory capacities were still addressed. To this, compliance to national standardized clinical guidelines were added; and, inspired by experiments at some hospitals, improvement of cancer care organization through focusing on cancer pathways. More specifically, the plan pointed to a phenomenon called standardized cancer patient pathways (“pakkeforløb”). A major challenge was made explicit: There was an underlying deficiency of coordination among departments and among hospitals. The cancer patient pathways were characterized by establishing a pre-described, default order of procedures and, to a significant extent, having prioritized access to capacities in these procedures. Simultaneously, it was acknowledged that the path from the proposed measures to improved survival was complex. Therefore, results in regard to improvement in the ultimate target, improved survival, could not be guaranteed, at least in the short run. Danish hospitals were encouraged to be inspired by these ideas of cancer pathways built on programs of diagnosis-based clinical guidelines.

However, in the period following the second Danish cancer plan, there was hardly any improvement in compliance with the determined waiting-time guarantee (Sundhedsstyrelsen, 2007). At this time, cancer also emerged as a hot topic on the political stage. A link between waiting times and expected survival was indicated. Scandals of long waiting times before reaching a diagnosis and starting treatment were presented in the media. A serious lack of

alignment of capacities in the patient trajectory was revealed. Patient organizations worked offensively, with the pressure to accept cancer as an acute disease<sup>13</sup>. In the political turmoil following a large administrative reform in the public sector, cancer rose so high on the political agenda that a decision-making ability had to be shown. This governmental decision needed a follow-up measure, and some local initiatives and projects delivered the solution: standardized patient pathways, and not just as a recommended idea but as a mandatory scheme that would be uniformly described on a national level and adapted to several different cancer diagnoses.

Within a decade, all three Scandinavian countries launched new national cancer strategies. The first Swedish cancer strategy was released in 2009 (Socialdepartementet, 2009) and the new Norwegian strategy came out in 2013 (Ministry of Health and Care Services, 2013). They raised similar issues, although their clinical realities varied to some extent. Recurring themes were the need to increase capacity, to reduce social and geographical differences in access to and outcomes of cancer treatment, and to restructure the localization of the supply of treatment procedures in line with volumes necessary to deliver quality and to enhance the patient focus of cancer care. The organizational consequences of the last two points involved both centralization and decentralization. In addition, all countries made organizational adjustments, establishing national and diagnosis-specific entities with mandates to manage implementation on different institutional levels. In general, increased multi-disciplinary approaches were recommended. One expression of this in all three countries was the establishment of national diagnosis-based multidisciplinary groups, with the mandate to develop programs for comprehensive, coherent sets of guidelines covering the care trajectories. As with the establishment of a National Strategy Director for cancer in Norway, extraordinary coordinating units for enhancing national strategic management of cancer were also launched in Denmark (the National Cancer Board and the Cancer Task Force) and Sweden (the Collaboration unit of the Regional Cancer Centers).

Though there were offensive national cancer strategies in all three countries, in Norway and Sweden as in Denmark, the single issue of patient waiting time became a hot public issue during the 2010s. The image of cancer care as it was delivered was one of chaos.

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<sup>13</sup> It is interesting to recognize that the managing director of Radiumhospitalet in Oslo in a report (Eker) from 1968 discussed the unsatisfactory waiting times for cancer patients to be admitted at the hospital after referral. He therefore declares that a diagnosed case of cancer should be treated as an acute disease. However, he bases this only on medical arguments. Admittedly, he towards the end of his report mention that he anticipates that patients in the future also will demand a faster pace in the process of admittance to specialized cancer departments.



Opportunities to access examination and treatment were described as unequal. The waiting times revealed were portrayed as scandalous in the media and by patient organizations. In all three countries, these conditions were also criticized from a medical perspective. The waiting times could lead to a reduced chance for tumors to be curable. Increased expectations of transforming cancer into a curable disease with a high possibility of survival, simultaneous growth in incidence rates, and a general mood amplifying patients' voices: this was the context framing the expression of opinions on cancer care. Competing narratives on how to interpret the challenge existed. In all three countries, the definition of the core problem as that of unsatisfactory waiting times won over. Several strategically placed actors with broad networks intervened, forcing everyone to take a stand to this problem, with the majority of them defining it as a provocative question. A kind of burning platform established at a certain point of time precipitated the need for some kind of action in response to the broadly accepted challenge of improving patient waiting times. Clearly influenced by the Danish case, the answer in Norway and Sweden also involved cancer patient pathways.

In Norway, the cancer strategy launched in 2013 (Ministry of Health and Care Services, 2013), introducing the concept of patient pathways for cancer. This document and the following processes, however, acknowledged that successful practice of smooth pathways was challenged by an organizational complexity and by an extensive need for collaboration and coordination across borders of the entities and specialists involved. The answers to this were supposed to entail designing standardized pathways based on programs of national guidelines, focusing on logistics and access to diagnostic hours reserved for patients with suspected cancers, and establishing a new position of a cancer patient pathway coordinator. In addition, it was proclaimed that there should be organizational structures ensuring the anticipated collaborations.

During the autumn of 2013, Norway had a general election and the previously described escalation of cancer as a hot topic in general opinion, along with the resulting interpretation of waiting time as a crucial problem, entered the stage of the election campaign. There was hardly any disagreement on the recognition of the problem and its importance. However, the political opposition rejected the government's establishment of a universal limit of 20 days to start treatment that would be applied to all cancer diagnoses. In line with the already up and running Danish system, the opposition advocated differentiated time-limits—adopted to each major diagnosis and to several phases of the pathway—as well as a more comprehensive monitoring system.

After the election, the opposition formed a government and the process of implementing a cancer system based on its platform began to be coordinated by a national project organization managed by the Directorate of Health. Elements attached to the standardized pathway system were already present in some hospitals and cancer diagnoses, such as coordinators and multidisciplinary decision meetings. The concept of designing standardized pathways was, to some extent, familiar at some hospitals though mainly attached to diagnoses other than cancer. The connection of standardized pathways to the national programs for diagnosis-based cancer guidelines, and the connection between the pathways and unsatisfactory capacities, contributed to support from the medical community. As in Denmark and later in Sweden, emerging patient interests and representatives in Norway, with increased confidence stimulated by the unanimous slogan of putting patients first, were a driving force both in the decision process and during implementation.

In summary, in Norway as in the other two Scandinavian countries, the increased expectations as to the process and outcomes of cancer treatment were not perceived as fulfilled. This was interpreted and articulated in several ways: from a matter of equal access to specialized care, of handling an overwhelming complexity, and of more optimal deployment of resources to a matter of promoting cancer diagnoses at earlier stages and of solving the waiting-time problem. The latter won as the intrusive matter to be solved. When the ability to act had to be demonstrated, the concept of standardized cancer pathways was the imminent solution. After this measure had showed promising signs that it would deliver improvements to some local Danish hospitals, it was eagerly seized as a core tool in the Danish tool-kit and then exported to Norway and Sweden. Though one way of expressing the core of the challenge—unsatisfactory waiting times—dominated, the measure was sold as a kind of panacea solution to several of the competing definitions of the major problem.

The standardized cancer-patient pathways did not emerge as a single move containing one specific intervention. The tangible traces after the implementation contained a mixture of ingredients with partly new roles (Norwegian Directorate of Health, 2014): first, a national, general, and rough description of the prevalent chain of procedures in the pathway for the majority of cancer patients in each diagnosis; second, a monitoring system with coding at certain events and reporting routines integrated into the governance system of the hospitals; third, introduction of mandatory patient pathway coordinators, connected to each patient and included into a standardized pathway; and fourth, the mandatory institution of multidisciplinary team meetings as an arena for sharing knowledge relevant to the total diagnostic

information and treatment recommendations. In addition to these tangible traces, the reform actually assumed a general shift in collective and individual behavior, focusing more on patient processes and coordinated contributions into medical decisions and aligning systems with overall ambitions in order to deliver the targeted improvements.

As a follow-up to the national cancer strategies, extraordinary organizational structures emerged to support the implementation of the cancer pathways. It is important to note, however, that the reform of cancer patient pathways did not impose any major adjustments to hospital organization in Norway. This was the case despite the fact that maneuvering and coordination of pathways through extremely complex landscapes had been identified as a major contextual cause behind the challenges of waiting times. The need for a broader approach to organizational consequences and adaptations necessary to support the intentions behind cancer pathways was, then, eventually left to the professional communities and the hospital management to specify.

## **2.5 The present landscape of cancer care and its patients' paths**

The concept of standardized cancer patient pathways was implemented into hospitals in Denmark in 2008, in Norway in 2015, and in Sweden in 2016. As mentioned previously, the content of the mandatory measures introduced in the three countries was similar. The implementation process also had many of the same characteristics based on pressure on pace, activating extraordinary organizational structures and building broad mobilization from the medical community, with selectively chosen pilots in charge of both formal and more informal processes of implementation. In all three countries, national documents describing an authorized sequential track of procedures comprising the comprehensive diagnosis-based cancer pathway were developed. These documented work chain diagrams sketching the major sequence of events were the platform for deciding normative waiting times, from received referral for a suspected cancer at the hospital to the start of first treatment. The accepted time frame for this journey was defined by the length of time that is strictly necessary for accomplishing the medical procedures. Hardly any time aside from this was accepted into the normative length of time decided. In Norway, normative standards of time intervals were also introduced within the total framing from received referral to start treatment: the first period being the time from received referral to the start of examination, the second period to a clinical decision, and the last period to the initiation of first treatment. This was supplemented by a monitoring system of throughput times. The introduction of all this depended on specific coding in the electronic patient journal (EPJ), indicating when patients passed each of the

milestones in the pathway—although not all patients with cancer were expected to be involved in this monitoring system. The final ingredient in the official, national CPP system was a list of indicators represented during a clinical presentation that laid the foundation for including patients in the monitored CPPs.

In addition to the prescribed pathways, the politically introduced CPP included two principally separate but mandatory organizing elements. The first of these elements consisted of the pathway coordinators, whose mission was to facilitate patient communication and logistics along each single pathway. All patients included in the CPP system would, at any step on their pathway, be linked to a coordinator at least as long as the pathway was monitored. The majority of these coordinators had a background as nurses, and some were even specialized cancer nurses. The second organizing intervention was the requirement that multidisciplinary team meetings (MDT) should be held as the arena for exchanging views on the diagnostic work-up information and clinical decisions. The several elements that, together, constituted the official CPP system were stepwise, diagnosis by diagnosis, rolled out during a period of two years. In the aftermath of this, it could be ascertained that what received the most attention was the monitoring of throughput times and the comparison of these time indicators among the different diagnoses, hospitals, and regions.

### **3. Previous research related to cancer patient pathways – some paths and one missing**

*“It is a difference between knowing the path and walking the path.”*

— *Morpheus, from the movie Matrix, (Wachowski and Wachowski, 1999)*

The focus on, and the activity of, designing standardized patient pathways in hospitals can be traced back to the 1980s and 1990s in the US. The driving forces reported were the tension between increasing expectations as to quality and outcomes of health care on the one hand and growing expenses related to the operation of the health services on the other hand (Bohmer, 1998). As in commodity production, standardization was perceived as a solution, to keep control of the demand specified to process quality and outcomes while, at the same time, designing the throughput logistics to be as lean as possible, thus keeping control of the cost of production. The reason for extensive growth of costs and challenges to delivering the expected quality were not just the deployment of more expensive technology, equipment, medicines, and personnel but also the increased specialization, fragmentation, and complexity

of the overall processes gathered, especially in the increasing size of hospitals. The ICP was perceived as a possible tool suitable for encountering these challenges. The tension between quality and budget limits was not just in itself a challenge for hospital management. It was also a challenge because of the increased necessity of legitimization. It then fitted well that standardization was associated with documentation and monitoring and, thus, with offering potential proof on how the system delivered what the main interest groups (be it insurance companies, government on different levels, media, or the general public) expected (Allen, 2014, Dourish, 2001, de Luc, 2000).

However, the motives for introducing pathway-oriented work processes into hospitals have often been expressed in several complementary ways that partially deviate from the underlying triggering forces. The arguments expressed for implementing and practicing ICPs have been standing on several legs: First, it is claimed that it is a tool for translating evidence-based medicine into practice (Whittle and Hewison, 2007, Morris et al., 1997). Second, it is argued that it is an instrument for building comprehensiveness and predictability across the increasing presence of specialized silos (Bragato and Jacobs, 2003, Deneckere et al., 2012, Pearson et al., 1995, Parry et al., 2013). Third, ICP is proclaimed to be a major approach for practicing a more patient-centered and customized care (de Luc, 2000). In addition, a widespread, explicitly expressed motive of introducing ICPs is to improve the coordination of care (Bragato and Jacobs, 2003, Deneckere et al., 2012, Pearson et al., 1995, Parry et al., 2013). Some implementations of ICP seem to be leaning towards one of these motives more than towards others.

From the available reports of ICPs and CPPs, the actual content present in their practicing is differing and partly ambiguous (Khan et al., 2017, Ouwens et al., 2005, Lawal et al., 2016). Introducing a streamlined and allegedly evidence-based, and then recommended, sequence of steps of procedures along a timeline seems to be a common core. However, attached to this, there is a variety of other measures reported. It could be employees with specific roles as coordinators, navigators, pathway managers, or patient-responsible physicians. An increased focus on multidisciplinary practice and creating MDT and MDT meetings is often at least associated with ICP. Tools and routines for patient information and communication or patient education have, on some occasions, been presented as an integrated part of ICP. Different types of monitoring systems are also an element occurring frequently in close connection to ICP. However, the type of data central to the monitoring of CPPs differs substantially and

may cover anything from cost targets, patient activities, patient-reported outcomes, complications and deviation reporting to several types of measurements of time use.

The variation connected to ICT also includes the type of process of implementation and management. A basic distinction is between ICP decided and managed from a high level in the organization or, quite opposite, evolving more or less from professional practice at the street level of the hospitals. Both of these approaches are described and discussed in literature (Zuiderent-Jerak, 2015). However, in the majority of cases, as empirically reported, the phenomenon of ICP is presented as a measure imposed on hospital organization as a planned and controlled intervention (Pinder et al., 2005).

The question of whether ICP and CPP are an appropriate model to implement in all diagnoses and pathways is raised and investigated by some reported research (Zuiderent-Jerak, 2015). The answers delivered are not surprising and in line with the core content and definitions. ICPs seem to deliver the expected effects when there are pathway processes that can be managed with a high degree of predictability (Martin et al., 2017, Deneckere et al., 2012, Allen et al., 2009, Dy et al., 2005) and when there are fairly high volumes of patients passing through the paths (Pless et al., 2017, Pearson et al., 1995). This accords with the demands connected to the development of standardized industrial production. However, it is not necessarily quite clear if this should be a prerequisite for implementing and practicing ICP or if it is a consequence to which practicing ICP contributes.

To summarize, there is a variety of driving forces, expressed motives, contents, processes, and management elements behind the seemingly uniform concepts of ICP and CPP. Often, the phenomenon as described during implementation or as practiced covers a combination of several of these elements. Related to organizing, ICP and CPP draw on three dimensions: first, delivering premises for designing the process for work and communication; second, introducing specific structural elements as more or less mandatory and more or less described in detail prior to implementation; third, the ICP/ CPP often are attached to a management system. In addition, it is interesting to note that the organizational concept of ICP/ CPP seems to live relatively independently of the organizational contexts into which they are implemented.

The field of empirically based research connected to cancer patient pathways is compound—especially in cases where this research includes issues of organizing across a fragmented institutional landscape. More directly, the phenomenon of integrated care pathways (ICP) can

be interpreted as a sub-group of research under the umbrella of studies on integrated care. In line with the history of care pathways, the latter research encompasses empirical studies connected to several diagnoses and patient groups other than cancer care. Then, during the last fifteen years, there has been a growing supply of research specifically targeting patient pathways in cancer care. The research on ICP and CPP could be grouped into four. First, there are case studies often describing what happened during the implementation of standardized pathways in specific hospitals and, mainly, in connection to specific diagnoses (Delilovic et al., 2019, Bragato and Jacobs, 2003, Llewellyn et al., 2018, Djulbegovic et al., 2018, Shaw et al., 2017, Allen, 2014, Martin et al., 2017).<sup>14</sup> Second, there are many studies that try to measure the effect of introducing CPP, although they are based on different outcome variables (van Hoeve et al., 2015, Bao et al., 2016, Soria-Aledo et al., 2011, van Dam et al., 2013, Tastan et al., 2012, Morris et al., 1997, Ganz and Hahn, 2008, Atwal and Caldwell, 2002). The design of these is either based on “before and after” measurements or on comparisons with groups, departments, or hospitals without organized ICP or CPPs. Third, there is research discussing and analyzing the concept of standardized patient pathways, often linked to a case study or a review (Pless et al., 2017, Vanhaecht et al., 2006b, Otty et al., 2020, Pinder et al., 2005, Seys et al., 2019, Zuiderent-Jerak, 2015, Checkland et al., 2019, Schrijvers et al., 2012, Allen, 2009, Campbell et al., 1998, Pearson et al., 1995, Panella et al., 2012, de Luc, 2000, Shiell et al., 2008, Vugts et al., 2018, Coffey et al., 2005, Dourish, 2001). And lastly, there are reviews summing up results based on a specific selection of empirical studies. There are reviews focusing both on effects (Allen et al., 2009, Dy et al., 2005, Deneckere et al., 2012, Evans-Lacko et al., 2010), implementation processes (Lemmens et al., 2009) and on the clarification of concepts (Khan et al., 2017, Whittle and Hewison, 2007, Parry et al., 2013, Ouwens et al., 2005). To some extent, these categories are overlapping.

When discussing the organizational impact of CPPs, we may note that the empirical literature covering case studies and evaluating the effect of CPPs is characterized by some common features: First, it concentrates on one pathway or even a part of a pathway. Second, it is limited to the processes in one organization. Third, it does not include into the analysis the impact of the organizational context, whether it involves horizontal or hierarchical structures. Fourth, the existing research confines itself to referring to one or two outcome measurements, and differs in the ingredients that are included into the pathways studied. Some review articles

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<sup>14</sup> Through the review delivered by Khan et al. (2017), it appears that colon-rectal and mammary cancer are the two diagnoses where the prevalence of studying integrated care planning in cancer is highest.

illustrate the size of the published research on ICP/ CPP. The variations, however, limit the ability to build cumulative knowledge on the topic. Some scholars (Vanhaecht et al., 2006a) complain about this, arguing that the ICP/ CPP should be more fiercely standardized by some authority. As my research will indicate, however, the huge variation—expressed through the variations in the deployed concepts of ICP/ CPP in itself—is an indication of two realities: First, the processes behind the emergence, implementation, and practicing of these concepts in the real world actually vary. Researchers cannot and should not strive for standardizing this reality. They should, instead, take advantage of the divergences as an opportunity to do comparative research. Second, the challenges that seem to be present in streamlining ICPs might be a reality mirroring the insight that ICP/ CPP will necessarily vary according to patient groups, diagnoses, and organizational contexts. Again, these variations should encourage comparative research instead of being treated as a deviation that should be controlled and forced into one strict model of practice.

In addition, there seem to be some pervasive limitations that permeate existing effect studies and case studies dealing with ICP/ CPP: they are more focused on the pre-prepared design of ICP/ CPP as an intervention than on analyzing pathway process how they actually unfold in real life. That means they are more concerned by the map than by the mapping or the actual traveling on the ground. Moreover, in addition to being a consequence of a missing comparative approach, there is a shortage of curiosity on how traits of the specific patient groups, technology, and procedures used might influence the practice of ICP/ CPP. Last and not least, there is a striking lack of attention to the organizational context in which the ICP/ CPPs are embedded. These gaps in the body of existing research on the implementation and practicing of ICP/ CPP have both indicated a knowledge gap to be filled and contributed the motivation of my research question: How can we explain the coordination of politics and practice related to cancer pathways? This, then, also leads to the sub-questions: Through which mechanisms is this coordination accomplished and what is the impact of the contextual framing?

## **4. Methodology**

### **4.1 The initial approach to my field, the puzzle and research question**

The emergence of the research design will result from the initial gradual approach to, and definition of, the field to be studied; from the puzzle to be investigated; and from the



formulation of the research question (Braun and Clarke, 2006). Before discussing the actual research design, therefore, I will explain three significant issues related to the initial phase of my research: First, the dynamic of identifying the field that is subject to my research. Second, the dynamic of developing the research puzzle itself, and last, the degree of delimitation or openness in how the research question is articulated.

The first area representing the initial dynamics of the research process had to do with the openness to expanding the relevant field and relevant issues for this research project. I started out with an interest in cancer pathways at Norwegian hospitals. However, as elaborated in the introductory chapter, early on in my preparation for studying these, I was inspired to include a study investigating some of the processes that put cancer pathways on a political agenda and transformed them from there to the implementation on hospital level. Opening for this possibility gave birth to an overall ambition of also connecting macro-level processes to micro-level practice. In this way, comprehensiveness and coordination in implementation and practice might be treated on both levels, and insight might be harvested across the levels.

The second area of dynamic during the research process was related to the work of reinventing the puzzles at play in each of the cases studied. As also stated in the introduction, my expression of a puzzle triggering my curiosity was, initially, the assumed tension between the dominating formal organizational principles of the hospitals and the structures behind pathway processes. During the early phases of establishing field contacts and data collection, I gradually adjusted my perspective of what attracted my attention. I recognized that an overall and penetrating puzzle was the paradox of how implementation and practice of cancer patient pathways actually worked, in spite of the misaligned formal organizational structures. Moreover, how and which types of structural differences were involved might still make some impact on these processes. Allowing this adjustment in formulating the most targetable puzzle to happen, and letting the experience of contacts with the field take decisive control of the expression of research questions, depended on a flexible approach to the research design. The actual research design emerged in this dialogue between, on the one hand, impressions arriving from the fields studied and, on the other hand, an explorative search for a more relevant expression of a puzzle and research questions. Two additional sources served as interpretive references for this dialogue: The parallel search for relevant reference literature and my own professional work experiences in cancer care at a hospital (both will be further elaborated on in this chapter). Linked to the redefinition of the puzzle, a revised precision of the target of my study actually emerged. My profound interest was connected to the patient

pathways as practiced, more than to the ways in which they were ideally described in documents.

The last dimension related to the research questions influencing the research design is the degree of openness in the expression of research questions. In both my studies and in the four published papers based on them, I ended up choosing what could be called a medium degree of openness. It is far from an expression of a precise hypothesis claiming and testing a specific causal relation between two or more variables. At the same time, it is not a totally open, explorative study that is trying to figure out and comprehend some patterns in a field. As I will return to in this chapter, these backdrops of my research have delivered crucial premises for my selection of the methodological approach. In both my studies and in this connecting text, I have chosen research questions pointing at specific processual phenomena, where my research is supposed to contribute to an understanding that can hopefully be received as useful by actors in the field of health care.

## **4.2 Choosing a case study research design**

### **4.2.1 The interaction between case study methodology and my field and research question**

Early on, in planning this research project, I tended in the direction of choosing a case study research design and carrying it out as a comparative study.<sup>15</sup> In outlining and discussing the major distinctions of the methodological traditions of sociology, Ragin and Zaret (1983) place the case study as a core representative of the Weberian tradition as opposed to the tradition emerging from Durkheim. Instead of searching for universally applicable systems and mechanisms of interaction that they attribute to Durkheim, they rely more on Weber's approach of establishing ideal types based on the analysis of cases expressing specific meanings and interpretations, and constituted through their specific historical context. In an extension of the latter position, I argue that, by selecting a comparative case study methodology, I attend to the necessity of using a design with properties that give room for flexibility in the selection of both data and concepts. Simultaneously, this design should be specific enough to provide evidence for identifying patterns in each case. Moreover, it invites to studying the field holistically so that it supports capturing of the complexity and the total

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<sup>15</sup> I have with interest registered that the two basic reference sources organizing the discussion in my second article, Selznick's (1949) book about the TWA and the grass roots and Pressman and Wildawsky's (1973) analysis of the policy implementation process, have been highlighted as classical expressions of case studies in sociology (Eisenhardt, 1989) and political science (Gerring, 2004), respectively.

configurations of interactions present during processes and towards surroundings defined by a specific historical context.

There are several definitions of case studies in social sciences. As a starting point, I will relate to the definition given by Gerring (2004): “for methodological purposes, a case study is best defined as an in-depth study of a single unit (a relatively bounded phenomenon) where scholars aim to elucidate features of a larger class of similar phenomena” (p. 341). Ragin (2004) refers to cases as “meaningful but complex configurations of events and structures” (p. 2). As indirectly expressed through Gerring’s definition, Ragin claims that there will always be a comparative element in case studies—directly or indirectly (2009c). Lijphart (1975), in discussing case study methodology, distinguishes this methodology from comparative studies but, at the same time, also integrates them into what he calls the comparative-cases research strategy.

According to Yin (1999), the size, the complexity, and the dynamic of change combined present in health care make case studies a suitable research design for studying these institutions. Actually, cases representing social instances and circumstances, Byrne states, are nothing but just complex systems (2009c). He and other scholars (Castellani et al., 2012) associated with the research track of complexity science insist that the case study approach is the only method suitable for doing inquiries into complex systems. George and Bennet (2005) consider the capability to contribute to modeling complex interactions to be a crucial advantage of the case study research design. In my focus on coordination process as the central topic, the link to complexity emerged as crucial. The degree and diversity of complexity characterizing the cases and the field has been a core issue in my analysis. The influence of the theme of complexity on the research design was expanded by the fact that complexity is a trait that characterizes several areas of the fields studied. First, we could call patient pathways, as a political and managerial measure, a complex intervention. Second, the field into which they are going to be implemented is characterized by complexity. And last, the measure is deployed into institutions with complex contexts (the use of the concept of complexity will be elaborated later). Then, studying the processes of coordination embedded in several layers of complexity certainly points in the direction of choosing case studies.

The brief review of literature on patient pathways adds to the arguments for the appropriateness of selecting case studies. It does so by indicating that, currently, there are several severe limitations in this literature in its ability to deliver knowledge on how coordination is accomplished through patient pathways. If the stock of available knowledge

had already elaborated comprehensively on this from several angles and if it had thoroughly described the processes and present interactions among structures and actors—so that only narrow, clearly defined knowledge was missing—then one type of research design would be appropriate. If, however, as I claim, the opposite is the reality in these studies, where several contextual and intermediate conditions are omitted, then another and far more explorative research design is called for.

Another trait often considered as an advantage of a case study design (Eisenhardt, 1989) is the flexibility in the selection, combination, and adaption of methodological tools. The emerging knowledge during the research process opens up to adjustments in relation to defining the phenomena being investigated. This has not least to do with the researcher's ability to capture the existence of mechanisms and patterns that might not be readily directly observable (Starke, 2013). This is a relevant argument when, as in these studies, we have a field characterized by both pre-designed, formal, and clearly espoused processes and structures and, simultaneously, a growing awareness of recognizing emerging and semi-formal processes and structures.<sup>16</sup> The ability to capture the latter and the dynamic of interactions taking place had an impact on the research design. I, therefore, had to pay close attention to choosing a methodology capable of capturing not just the processes as they were formally expressed but, not least, also the processes as they were actually practiced, the actions as they were actually orchestrated and motivated, and the effects as they were perceived by the actors. To rephrase this methodological ambition using the language of Argyris and Schön (1996) and Goffman (1971): the research has to reach the theory in practice, not just the espoused theory, and what is going on backstage, not just at the front.

#### **4.2.2 Five topics constituting the conduct of case studies**

Both my own research process and my parallel study of the literature on case methods gradually made me aware of the necessity to relate to five topics that are put on the agenda

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<sup>16</sup> The concept of emerging structures is extensively used in my reporting from this research. The notion is taken both from organizational studies and from organizational complexity science. The core of this designation as a concept is a structure that grows from the ongoing interaction taking place and allowing for processes and actors to unfold and further dynamically develop the processes and interaction patterns (see e.g., Stacey (2011)). Emergent structures should be understood in opposition to formally decided structures with fierce rules of interaction. A pure version of each of these positions should be interpreted as an ideal type of construct. However, I treat these organizational concepts in the real world not to be totally detached from or in opposition to each other. Emergent structures may have formal elements like the MDT meetings. Formally designed structures may have emergent elements or potentials like resource groups appointed during CPP implementation. In addition, structures starting out from one of these positions may develop toward the other, and I will argue that the story of the national multidisciplinary groups illustrate this. The concept of emerging organizations is also specifically treated in Part 7, section titled "Organizational structures as context and response to cancer pathways."

when discussing qualities of this methodological approach and of the choices made in practicing it. All five topics represent different positions that, to a considerable degree, can be recognized within divergent positions in the community of case-based social science researchers and that also partly express the distinctions between case-based research and research not based on case studies.

The first topic is whether research should be directed towards explaining variation or understanding patterns. Some scholars argue (Ragin and Zaret, 1983, Castellani et al., 2012) that there is a methodological dichotomy between variable-based research and case-based research. This, in turn, connects to core issues in social science. Variable-based research in a pure form identifies what is referred to as independent variables and is directed at figuring out how they influence the outcome of certain dependent variables. Finding indicators with seemingly explanatory capability on variations in the dependent variable is the major target. The research is about explaining variation in an outcome, ideally based on quantitative measurements and statistical correlations. Therefore, according to this direction of the case study tradition (Lijphart, 1975), comparative case studies generally are challenged by small N and large number of variables. They then try to apply comparative case studies in a way that increases the Ns as much as possible, and not least reducing the variables included by either defining them as constant (through the sampling process) or excluding them by claiming them to be either contextual and thus stable or irrelevant, by virtue of having marginal impact on the variable studied.<sup>17</sup> The classic objection to this is threefold: first, the correlation in itself is not proof of actual causality; second, it does not say very much in itself about the mechanisms behind causation; and last, it does not produce knowledge about the social meanings and intentions of the sequences of actions studied. The ability to deliver on these dimensions could, however, be claimed to be the advantage of case studies. The variable oriented direction in the case study tradition treats the case study as an approach with the purpose of testing hypotheses, while the latter consider the case study approach to be primarily a tool for building hypotheses.

However, in the tradition of case studies specifically connected to political science and historical sociology, the preoccupation with identifying crucial variables is a core issue too,

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<sup>17</sup> An approach combining case studies with analysis inspired by quantitative research simplifies the values of core variables in the case, applying Boolean algebra and reducing possible values of these variables to binary values (Ragin, 2013). However, this approach is then made still more sophisticated by allowing so called fuzzy set analysis, where values also may occur between 0 and 1. This opens for a phenomenon to in a varying degree be assigned to a certain variable (Ragin, 2009).

not least in selecting cases and in accomplishing comparative analyses of cases. Case selection through identifying deviant cases is an expression of this. This implies that cases for a comparative case study should be purposely chosen to represent an analytical selection of variance (George, 2005) of a few variables anticipated to be crucial for explaining variation in the dependent variable. In contrast to this, other scholars (Munck, 1998, Ragin, 2004) from the case-study approach claim that it is quite appropriate to be guided by the presence of invariance in selecting cases and in comparing them. Even selecting cases with similar outcomes, values on a dependent variable, is legitimate and could create the proper building blocks of a comparative case study. The clue in such a study will be to look for patterns with similar characteristics despite apparent differences that lead to the observed similar outcome, or even for alternative patterns leading to a similar result (Ragin and Zaret, 1983). Though I will not claim my research to be variable-oriented or focused on explaining variation, the issue of variation has still been a crucial element both in the selection of cases and in their analysis. In my first study, I chose the three country-based cases based on the initial impression of relative invariance in contextual structures of health care systems and the contents of the reform processes studied. Next, I searched for and tried to explain and interpret variations still clearly present in the detailed structures, processes, and—presumably—outcomes. In the second study, I intentionally chose the diagnoses and hospital cases to represent a clear variation referring to some core variables. Still, in investigating the immediate variations, I claimed to have found that there was some process feature that seemed to be working similarly. I will describe and argue for my process of case selection in more detail in the next section.

Inherent in the art of case studying is that the focus is not on identifying one single cause or a calculable probability of interference, or on identifying a certain portion of a causal explanation one variable seems to offer. At their best, case studies might transcend the distinction between, on the one hand, simple causalities as a norm borrowed from Newtonian physics and, on the other hand, the search for interpretation of the observed event or actions borrowed from the humanities. Criticism of an approach of searching for simple and direct causalities applied to the social sciences is not least expressed by proponents of complexity science (Cilliers, 2012, Stacey, 2011). The transcendence of this dichotomy lies in the ability of case studies to both identify and build proposals for explanatory mechanisms embedded in socially constructed meaning and interacting with specific structural contexts that, together, might lead to certain outcomes. As expressed by Eisenhardt (1989), the methodology

accounts for the understanding of mechanisms behind the dynamics in a single setting. The case-study approach, then, responds to the objections raised by Berwick (2008) against the methodology of experimentally inspired health care research not being able to catch the mechanisms and contexts in play.

The second topic in the discussion of case-study methods concerns the notions of how the social processes studied actually proceed. The positions related to this issue connect to the positions presented in the previous point. The researcher concerned with variance will also, even when building on an analysis expressed through advanced multivariate statistical analysis, approach social processes as a linear set of events and actions starting at one point and, through several sequential steps, leading to a result measured through the dependent variable. Against this, at least a substantial group in the case-study community will raise objections based on the claim that simple linear sequential relations of events and actions will represent an unsustainable simplification. In the real world of the field studied, the processes we want to describe and explain are complex configurations of patterns based on options for iterative mutual interactions among the elements present over time—rather than modular or loosely coupled entities whose components can be understood in isolation (Fiss, 2007). The processes leading to a specific outcome may have alternative routes (Cilliers, 2012). There might be both self-reinforcing and reactive mechanisms during the trajectory of actions (Mahoney, 2000) as, for example, demonstrated in the study of organizational coordination by Jarzabkowski et al. (2012). Finally, we must base our investigation on the existence of complex interplays between processes on several hierarchical levels of the field (Byrne and Ragin, 2009b, Gerring, 2004, Yin, 1999, Cilliers, 2012). The relations between field macro- and micro-levels, between higher administrative levels and street levels, may represent both the studying of interactions among hierarchical levels in organizational systems and among several levels of abstractions. The complexity of interactions among levels requires, first, that the interactions not be working only top-down and, second, that they not be deterministic. These mutual interactions of processes within and among levels have been a core issue influencing both my research design and the analysis of my cases. Examples of micro- and macro-level cases involve situations of decision-making connected to the single patient's pathway on the micro level and the clusters of simulation streams of patients passing through pathways on the macro level. Another example of including several levels of the field came from my analyzing of the implementation process when I included both processes on societal and political levels parallel and on the hospital ground levels.

Regarding the linear models of explanation, there are, however, nuances in the community of case-study researchers. Byrne (2009c) is one of the major critics of research designs searching for linear causalities. However, he nevertheless launches case studies as a means of identifying trajectories. Case-study proponents in political science have built the methods of path-dependency (Mahoney, 2000) and process tracing (Bennett and Checkel, 2014). The notions in itself represent an image of a kind of timeline. The way they are constructed and the analyses they accomplish still express that they all represent approaches far more sophisticated than simple linear explanation.

The third topic interfering with the construction of case studies relates to the degree of historical or geographical specificity. On the one hand, the cases investigated and compared may be cases of certain historical events or completed processes connected to a certain historical epoch. This type of cases is often used as illustration in the literature on case methods (Byrne and Ragin, 2009a). Alternatively, they might be cases of repeating, reoccurring processes more or less resembling each other in situations and patient cases. My two studies belong one to each group. One study investigates a process of political decision and the orchestration of its implementation, which is a process of analyzing what happens along an actual historical timeline. The second study examines cancer patient pathway processes as practiced in certain hospitals and diagnosis groups. The case is not about a certain stream of pathways at a specific period, but about how they were accomplished in general during the time of the study—while, at the same time, also comparing this practice with previous practices, to some extent. Therefore, although this is a more generic timeline, it is placed in a historical context (as elaborated in the second chapter) and it must then be interpreted accordingly. The research highlighting one specific story line, as in the first study, demands a methodological approach not quite similar to the methodology trying to reach the general patterns and variations in process behavior across many patient cases, as in the second study. Generally, I found process tracing (Bennett and Checkel, 2014) applicable in the first study but not in the second.

The fourth topic that case studies must relate to is the role played by the agency of the individuals present and populating the field where the case is defined. As pointed out by both Goerz and Levy (2007) and Cilliers (2012), case studies handling total interactions are happening in configurations defined through fuzzy borders. It is, per definition, an approach with a supra-individual entity as the unit under investigation (Castellani et al., 2012). Coordination and comprehensiveness of cancer care politics and practice are characteristics of



a field of organizations or of the life in an organization. In all these cases, our aim is to comprehend processes on the institutional level. The unit is a collective entity expressed through the processes and structures connecting the individuals. Nevertheless, understanding the behavior of actors inhabiting certain key roles has been crucial for the interpretations made. The interplay between individuals and institutions is a central part of the analysis and, as later elaborated, it contributes to the understanding of how individual actors take, explore, and exploit their rooms for maneuver and, at the opposite end of the spectrum, how socially and structurally created room for agency may either hamper or precipitate agency. Thus, my research design had to be influenced by the need to capture this relational interaction between individual and institution. For this reason, my informants were both institutional representatives (Miller, 1997) and, on many occasions, also contributors to my material as individual actors with personal backgrounds, attitudes, and behaviors that were interesting to account for in order to create a comprehensive understanding of the processes studied. This understanding of the unit of analysis has consequences for both the mapping of data and the analysis of both interview data and document data. In both cases, and always during interviews, the information we obtained originated from individuals. In addition to being representatives of their institutions and playing certain roles within them, they were simultaneously actors with their personal intentions and skills, as well as the ability to influence and make a difference in the trajectories of the processes and their outcomes. However, in my cases, collective entities are the crucial units of analysis, and the knowledge of these should even be aggregated into variables expressing a higher level of abstraction. There is also the need for several steps leading through a trustworthy path from information expressed by individuals, via data (to be defined as indicators of patterns of interaction), to general variables like processes, actions, contextual structures, and process outcomes.

The fifth topic penetrating the case-study approaches is the interaction between concepts on the one hand and the observations and evidence on the other hand, defined as data and as the case delimitation itself. Understanding this iterative process is crucial for designing cases and managing case analysis. Choosing analytical concepts, on the one hand, interferes with the organization of observations, the conduct of interviews, and the clustering of the data obtained from these sources. On the other hand, the opposite is also true as data emerge and are connected to more general categories through the way they are clustered during the analysis (Gerring, 2004). Thus, in line with Eisenhardt (1989), I will argue that, through the case-study approach, the theory building is intimately tied with evidence. These combined processes then

also show how case studies combine deductive and inductive analytical approaches. A core activity is to search for the proper analytical categories on all analytical levels, from defining what this is the case of and to select and define which detailed concepts should be applied to adding explanatory power to the analysis. The categories, from the case definitions to the more detailed conceptual tools, should not be treated as categories established through absolutely defined borders. The delineation of cases and concepts in use should be treated as a construction that is subject to an emergent constitution of the case and the concepts in use should be characterized by both possible stretching and constriction.

In my research, one point of departure was the lack of generally accepted analytical concepts that would capture the ingredients of the processes of cancer patient pathways. This applies to the concept of patient pathways itself as well as to the concepts necessary to grasp the structures and processes that the pathways are embedded into and that constitute the context of the pathways. This includes the need to explore and develop operational precision even into core concepts of this investigation such as coordination, complexity, uncertainty, institutional logics, and so on and not least the relation among these. The research depends on conceptual tools, which need to be elaborated on as a part of the research process. This leads to another research design compared with one initially operating with defined concepts that also have a clear operational definition.

### **4.3 The specific process of selecting groups of cases in each study**

#### **4.3.1 Two approaches to case selection**

In the first study investigating the decision and implementation of CPP, each case was defined as the processes taking place, in one country, from the early emergence of some problems in cancer care to the orchestration of the implementation being accomplished. There was a fairly similar problem defined in each of the three countries, with similar health care systems and with each ending up by introducing a comparable measure to be implemented. In this study, each of the three cases comprehend a conglomerate of the institutions, actors, events, and processes involved. The study was built around a cluster of three cases encompassing a similar kind of reform, which then gave me a natural occasion to gain knowledge by combining in-depth analysis of each case with a simultaneous comparison of them.

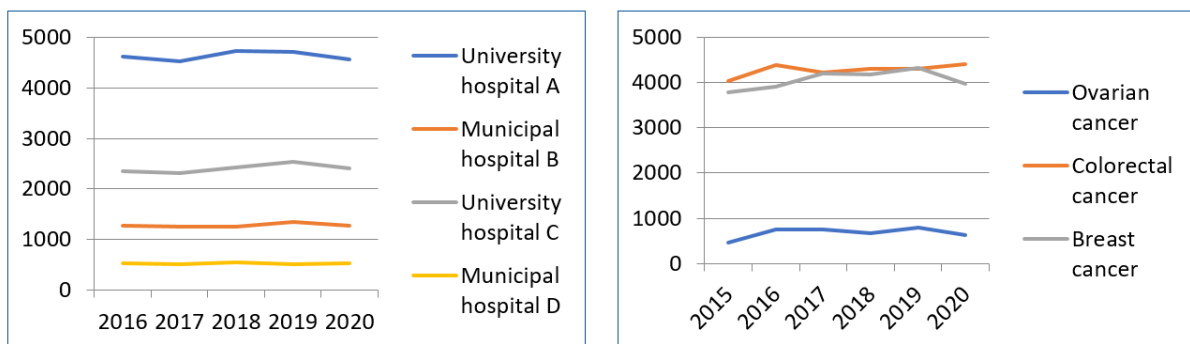
In the second study, there was no predefined, historically-existing case. Investigating the practice of cancer patient pathways was the issue. The unit of analysis, acting as a case, was then defined as patient pathways as they were conducted in a specific diagnosis and hospital.

The time limit for this case was, then, as previously mentioned, not a historical period but a generic timeline starting with a patient with suspected cancer receiving a referral at a hospital. The content of the case comprised all the processes and actors taking part in accomplishing patient pathways, whether on the single-patient level or on the organizational level. In this study, then, I had to actively choose which cases should be included in my research.

Cases in the social sciences are mainly not designed as experiments. They are existing, real-life cases with an existence independent of our research. We chose and defined them as twin, or a cluster of, cases that should be included in our study. The cases should be possible to delimit according to some specified dimensions of space, organization, and time. That said, it is also important to keep in mind the warning in Cilliers (2012) against overemphasizing the boundaries of cases and systems. My cases are open systems with considerable interaction with the surroundings, and the boundaries of the cases will always be socially constructed. The unfolding of the patterns we study in these cases occurs inside a kind of artificial border that creates an arena for transmitting a variable amount of interaction.

Both in the first study, where there were three naturally occurring cases, and in the second study, where the cases had to be actively selected, it was crucial to be aware of the value added by having more than one case. The answer to this should be found in two directions. The first builds on identifying and doing analysis based on similarities between the cases. If we find common characteristics of coordination across the cluster of cases in spite of their differences (between countries in one study and between diagnoses and hospitals in the other study), we argue that these might be explained by the similarities that, after all, exist between the contexts and processes in each case. The second answer to the question of the value added lay in identifying that, parallel to the identified similarities, there might also be noticeable differences in some structural features of the health care systems, cancer care management, and specific structuring of the reform implementation. Expressing and highlighting these variations when comparing the cases may generate assumptions about peculiarities that, in spite of similarities, may affect the outcomes of the processes. In the literature on comparative case studies, this can be classified as a combined most similar cases identifying some equal traits of system context and reform intervention and, at the same time, being a cluster of deviant cases (Lijphart, 1975, George, 2005). The latter results from the unusual outcome of a reform initiated from above managing to gain acceptance and support from professionals at the hospital-floor level.

In the second study, the selection of diagnosis/hospital should then build on assumptions on which variables had a spread that created a relevant variation to search for characteristics that do influence how coordination is performed. Then, simultaneously, the variation is composite enough to be suitable for identifying some traits of coordination that are present across a broad spectrum of patient diagnoses in a broad spectrum of hospitals. Through my own experience and, not least, discussion with my co-author who is a scholar in oncology, I chose three diagnoses showing differences in incidence and then volumes, in how complicated they were, in the clarification of the clinical presentation, and in complexity in diagnostic work-up and presentation. I picked four hospitals, two of which did not have advanced surgical and oncological treatment or highly specialized radiology and which were not teaching hospitals. Treated as a case study, the second study then contains twelve cases by virtue of including three diagnoses in four hospitals. Together, the variations present in the total material provided me with sufficient variation to identify coordination mechanisms that, I will argue, are working across cancer patient pathways. Simultaneously, this gave me an entrance to a discovery of the characteristics that might have an impact on differences in how coordination is accomplished and how these variations affect coordination.



**Figure 9:** Number of newly diagnosed cancer patients per hospital and number of newly diagnosed cancer patients per diagnosis – based on data published on the CPP dashboard website (Norwegian Directorate of Health, 2022)

There could be even more characteristics uniting the cases in a process of reaching a comparative research design set up if governed by the motive of making it excessively complicated by too many variables. In my first study, the fact that the Scandinavian countries belong to basically the same type of health care system (Reibling et al., 2019) and that several of the core traits of the reforms in Norway and Sweden are copied from Denmark adds to this similarity of cases. In my second study, the reference to the same cancer pathways and cancer guideline programs unites the cases of the three diagnoses at the four hospitals. In the first

study, the three cases were already there, present and established as historically finished entities. My alternative was to study the single case of the process in Norway. However, the temptation was strong to include the two others at hand and turn it into a comparative case study. In contrast, in the second study I did an active selection of which diagnoses and hospitals to include. This was based on an assessment of which variables might interfere with the performance of the pathway process. These could be characteristics of patient groups, diagnostic presentations, procedures of diagnostic work-up and treatments, and characteristics of hospitals. The selection was based on creating variation along these variables.

It is obvious to claim that the argumentations delivered above for the selection of cases are building, to a large extent, on a variable-based approach. As already referenced, this is a disputed approach among case-study scholars. Though Charles Ragin (2004) is a clear representative of the case-study community who is critical of the variable approach, he still talks about the case-study design as being characterized by studying parallel phenomena in similar settings. Because of this, it may provide possibilities of building knowledge through comparing and contrasting. This, then, has to be a premise when selecting cases and it does not seem to differ fundamentally from consciously selecting cases by comparing values on some key variables across the cases studied. However, both positions connect to the statement of Seawright and Gerring (2008) that the selection of cases also has analytical implications. I will add that, although I initially approached case sampling through the lens of comparing, interconnecting, and contrasting variable-like categories, the actual accomplishment of a case study such as in my studies remains open to a flexible and even non-linear exploration of the processes that are in play. This shows that the case study approach transcends the dichotomy of variable-based and pattern-exploring methodologies.<sup>18</sup>

Two lessons can be drawn from this. First, inherently in the ambition of comparing there have to be more or less clear categories that constitute the foundation of the processes of comparison. Whether these categories are variables or patterns may, as previously discussed, primarily express the underlying assumptions of how the categories being compared interact. The second lesson is that the research process may in itself reveal that the categories initially used to select or define the case studied actually are not as similar as they initially appeared—or that, on the contrary, variation that at first seemed to be apparent may, through closer investigation, come to appear as a divergent expression of the same phenomenon. Either this

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<sup>18</sup> However, several scholars belonging to the tradition of organizational complexity science claim case-based methods to be a radical departure from variable-based inquiries (Byrne, 1998, Castellani et al., 2012).

may be due to unveiling new information on what are actually the realities in the field or it may result from adjusting the concepts that data analysis was based on. In other words, the foundation for the categories on which the comparison of cases was initially built may change during the research process for either ontological or epistemological reasons. This may be true with respect to the characteristics of the context, the operational processes, or the outcome. As in all science, case methodology also depends on simplifications in all steps of the research process, from the articulation of an initial puzzle, via case-selection criteria and delineation, to the process of analysis and articulation of findings and conclusions. The challenge for the traditional variable-oriented case methodologist is treating categories as stable during this process, in contrast to being dynamic and flexible during the research process. My application of case methodology depends, in line with Starke (2013), on a combined analysis of the case internal processes and the case comparative processes. It is a dynamic between, on one hand, reaching deeper understanding of the complexity of the cases and on the other hand, conceptualized similarities and divergences between the cases compared. I have already illustrated this in my discussion of what makes an interesting puzzle and research question and how the initial similarities and differences between cases are to be defined. I will further describe and explain this in connection to data collection and analysis.

#### **4.3.2 The interactions between cases**

In treating my investigations in both studies as case studies, one important modification is necessary. In either of the studies, the cases exist without being subject to mutual interference. In the study of three policy decision and implementation cases, we point at the clear influence of Denmark on Norway and Sweden and, partly, also of Norway on the reform initiative in Sweden. This was especially clear at some points of the process and the actors identified represented these connections between the processes in the three countries. However, although to some extent we can ascertain the presence of transferring, translation, and mimicking of ideas, as well as of inspiration and solutions, we should also acknowledge that each case had its genuine, national source of experienced problems and specific actors and institutions generating a unique national design of the process or adapting it to the features of their national context.

In the study of practiced cancer pathways, there is a reciprocal dependency between the cases due to the fact that they belong to the same hospital system embedded in the same structures and, partly, competing of the same resources. Moreover, there is one especially strong mutual dependency that stems from parts of the pathways starting at the community hospitals and

continuing at the university hospital. For the patients where this is applied, being included in a case based on one diagnosis at one hospital is then actually continued into the case of the same diagnosis at the university hospital constituting the regional hub. This cross-hospital connection then makes a critical point of coordination for these pathways and is treated as one of the targets, specifically when I analyzed differences in coordination mechanisms.

#### **4.4 The application of existing literature during my research**

I have already mentioned that the development of defining the puzzle, the problem, and the case took place through a dialogue with the field and through interpretations of the cases during data collection. However, my parallel reading of literature also contributed to developing the research puzzle and the research question. Early on, I identified relevant literature belonging to groups of relevant empirically based research. I also searched openly for published research that could offer generally applicable analytical tools and, from this, provide me with angles that would contribute to new interpretations of the phenomena I studied. When doing case studies, Eisenhardt (1989) recommends exploring a wide range of possible tracks of existing research for applicable sources for choosing and developing relevant concepts and categories in the analysis of data emerging from, and in the comparisons across, cases. The mutual interaction between research methods and perspectives given by scholars affiliated with a range of research tracks was crucial in developing my research process and design. It encouraged me to take steps that followed still new paths, both in my empirical material and in my library searches. In the case of several articles reporting on more or less similar studies or presenting relevant review of research, I also reviewed their presentation and discussion of methodological issues (e.g., (Vugts et al., 2018).

This cross-fertilization between approaches to my field and my data, on the one hand, and my investigating tracks in literature, on the other hand, emerged in several areas in the course of my research. This was not least inspired by concluding remarks in several relevant review articles, stating that further research should build on connecting different research traditions and approaches (Schofield, 2001, Mayo et al., 2021). In following that advice, however, I found that it could actually be performed along at least four tracks. First, it is a question of searching for contributions studying the same empirical issues that are, however, studied through the lenses of different research traditions. Examples included investigations of cases of integrated care pathways done from within a health care research tradition (Whittle and Hewison, 2007), from a management research track (Allen et al., 2009), and from a sociological point of departure (Zuiderent-Jerak, 2015). Second, I stretched the boundaries of

the specific topics that might be relevant to associate to my empirical issues. An example of this is my argument that integrated care pathways are special cases of the more general issue of integrated care (Schrijvers et al., 2012). If this is so, I further argue that research-based findings from this broader track should also be taken into consideration.

Third, I have been relating to different concepts taken from different research traditions and, at the same time, arguing that, when applied to my cases, they tend to be expressing the same features. One example of this is the concept of institutional logics (Alford and Friedland, 1985) and the concept of rationalities (Hjern and Porter, 1981). Another example is the concept of value-shop (Stabell and Fjeldstad, 1998) and the concept of problem solving hub (Glouberman and Mintzberg, 2001b), both expressing a similar organizational phenomenon representing an alternative to a value chain or a programmed chain process. By drawing on both as potentially relevant sources of reference for building my analytical design and discussing my research findings, I then expand the field of previously published empirical research and analytical discussions that I might connect to. Fourth, I tried to identify and combine several concepts borrowed from quite different research tracks when I needed to be more precise in filling one seemingly important overarching concept with more specified content. One example is the concept of emergent organizations. I have, here, drawn upon the research traditions of collaborative community (Kolbjørnsrud, 2018, Waters, 1989), network organization (Borgatti and Foster, 2003, de Toni and Nonino, 2010), integrators (Galbraith, 1995) or boundary spanners (Long and Franklin, 2004, Williams, 2019), and social movements (Schneiberg and Lounsbury, 2017). Several scholars have previously connected their research simultaneously to two or more of these research traditions (Wenger, 1998, Borgatti and Foster, 2003, Cross et al., 2013, Gittel and Weiss, 2004). Another example is identifying different relevant categories that express the rules of actions resulting from structural organizing and affecting interaction between institutional logics. Fifth, I have been connecting to quite different research traditions that cover more or less the same types of processes. The most prominent example is approaching the process that followed the decisions on mandatory standardized patient pathways from two parallel perspectives: of research on policy implementation in political science (Pressman and Wildavsky, 1973) and of research on field-level organizational development in sociology, building on the work of Selznick (1949) and onward.

All in all, the combined width of research applied in my work has been deployed into the iterative way of letting it influence my research process on several points. One expression of



this is that the width of research references I have been leaning on encouraged me, in practice, to pursue a richer supply of questions during interviews, of documents that would be relevant, and of angles that would be applicable during the work of analysis. It also provided me with concepts covering different levels of abstraction necessary to reach a deeper understanding of the processes I examined. The combination of research sources from different tracks also gave me access to ideas of inferences, causal explanations, and connections that otherwise would not be obvious. This then contributed to a process of both empirical and theoretical, or analytical, triangulation (Green, 2018, Reay and Jones, 2016). In case of the first, it gave access to relevant research that, I argue, supplements my findings regarding the empirical phenomena I have studied. When it comes to theoretical triangulation, combining and challenging concepts and approaches from different theoretical traditions, and then deploying them on the same material, strengthens the resilience of the more general models and explanations in my discussions and conclusions. As I will return to, this is also an important argument in discussing the external validity of my research.

The practical way of discovering the several sources and traditions to which I have connected this research has passed through a kind of snowballing process. It has been linked both to several of the scholars that I have had the pleasure to come in touch with during the path of my research, guiding and mirroring the development of my research puzzle and questions; and to following reference connections from articles toward those they have built on and, vice versa, those who have built on them. It is always possible to discover new literature links to connect to, thus further developing the relation to a research tradition I am already involved with or building an opening for access to another field or tradition. This process today appears as a potentially never-ending path, with unlimited sets of branches. On some occasions, I got the feeling of being close to a saturation in investigating a research track when the core references in newly discovered articles turned out to be references I was, to a large extent, already acquainted with. This could be confirmed by the presence of review papers or by the content of handbooks focusing on a particular theme. Doing a complete review of any type of relevant research was not an intention of my research. Three checkpoints have then been useful in my entering and investigating into the chosen literature tracks. First, it is important to become acquainted with those considered to be the founding contributors in a tradition. This is because, in the social sciences, these are often still a reference for a lot of later literature. Examples include Alford and Freedland's (1985) launching of the concept of institutional logics, Thompson's (2003) work on organizational theory, and, in methodology,

Sander Peirce's (1960) pioneering work on abduction. Second, it is often appropriate to identify some of the currently central discussions in the research fields I connect to that are relevant to my research questions. Here, the discussions on the room for agency in the field of organizational institutionalism are an example. Last, I have been checking for any quite recently published contributions that might reframe, or deliver new twists on, the discussions and conceptual models in the track I have been connecting to.

#### **4.5 My personal relation to the fields studied**

My empirical research in the two studies I conducted consists of several steps. In this section, each of them will be accounted for and discussed. An initial issue in this is the establishment of my relation to my fields as sites of doing research. The motivation for my project was, as described in the introduction, clearly built on my own experiences in the field of cancer care at the hospital level. Being part of the top management of cancer care in Norway's largest teaching hospital also gave me a proximity to the national political and managerial levels. Previous positions in my career, in top management positions in the regional health care trust and in governmental ministries, reinforced the latter. These positions and background gave me some advantages in approaching the field of my studies. First, I personally already had the network in the field, or else the network to reach the networks. This made it feasible to identify whom to contact first in order to reach the crucial gatekeepers with a necessary overview of the field and with knowledge of data sources, informants, and documents. The combination of my position and background with my contacts with these meta-informants gave legitimacy to my entrance into the field. This platform also provided me with an obvious advantage in preparing and performing interviews. Moreover, it made my previous, parallel practice a kind of participatory observation and a data source in itself. In their discussion of researchers' possible membership roles in the cases they study, Adler and Adler (Adler and Adler, 1987) differentiate three categories: peripheral member, active member, and complete member. In my studies in different circumstances, I appeared in all three of these roles. Methodologically, each of them has both advantages and drawbacks. When relating to their legacy from the Chicago School in the social sciences, Adler and Adler (Patricia and Peter, 1987) connect to the ideal of researchers seeking marginal participatory positions and acknowledge that the actual participatory roles will depend on the researchers' more specific backgrounds and the contexts of participation. During the research process, I may be interpreted to have a strategic position in cancer pathway management in one of the hospitals. Despite this, my personal role may simultaneously be seen as marginal, since I do not have a

health care related education, did not have a career related to hospital or health care practice, and was not involved directly in day-to-day clinical and pathway management. However, I will return to this and to the methodological discussion on the challenges created by this background.<sup>19</sup>

In both studies, my first step after the formal approval of the research by relevant authorities was to establish key cooperative partners at all locations that were part of my cases. Concerning the first study, I searched for key partners in each of the three countries. In Denmark and Sweden, this role was partly filled by researchers from these two countries that I happened to be acquainted with through a Nordic network on research of cancer pathways. In addition to supporting me with information about the field and landscape of actors in each country, they also participated in most of the interviews with informants from their respective countries. In addition, in each of the three countries, I identified a useful informant and connection broker who was also a part of the process of implementing cancer patient pathways. When I started my research, all three still had central positions in cancer care in each country. Concerning the second study, I was dependent on gatekeepers guiding me to the right sources of information and introducing me to the people who we agreed were the essential informants for the data I was acquiring. These meta-informants also provided me with information about each of the organizations and the relations present. The hospital I am employed in constitutes one of the locations of my second study. Here, I had the necessary overview of data sources and did not need a meta-informant or guide to facilitate or legitimate my access to informants connected to the three diagnoses and pathways included in my study.

#### **4.6 The operational methodological steps from theme to published research**

To investigate the puzzle and the research questions, I needed data that could provide me with information on processes happening in defined cases in certain fields. This includes the interaction of structures and processes and the interaction of individuals and groups.

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<sup>19</sup> It is interesting and relevant to discuss my role as also related to actions research, although I have never labeled this project under this notion. Coghlan and Brannick (2010), discussing doing action research in one's own organization, presuppose that the insider is actively defining and intervening during the research project. I did not. There was no direct connection between my research project and my professional activities at the hospital where I was employed. Still, some of the realizations reached during the research process certainly had implications for how experiences were framed and how action was organized. This was supported not least by the fact that two of my closest colleagues at the cancer center also were co-authors on articles from my research. The mutually stimulating, parallel processes are close to the descriptions Dick (2007) makes when discussing the mutual learning between grounded theory-based research and action research. He actually also argues that theorizing from action research is applying abductive methodology.

Information on collective entities and on institutional levels was crucial to collect. Case-based research methods used to be characterized by being flexible and diversified, combining data from different sources and allowing for customizing along the research path (Yin, 1999, Byrne and Ragin, 2009b). This also corresponds to the advice of scholars (Deneckere et al., 2012, Vugts et al., 2018) regarding conducting inquiries, specifically into complex interventions into complex systems such as care pathways and care coordination. In line with this, my sources of data have been threefold. First, individuals participating in the process are a source of data when they report what they experienced, as well as when they offer their explanations and interpretations in addition to delivering their descriptions of what they consider to be the crucial elements of the contexts involved (Miller, 1997). This derives from the fact that the unit of analysis is not the people that I interviewed. However, as previously outlined, I do consider specific individuals also to have a direct impact on the process and outcome. Acknowledging some of them as institutional entrepreneurs is an expression of this. Simultaneously, in line with May et al. (May et al., 2007), in discussing the methodological implications of studying complex interventions in health care, I acknowledge that agency should be interpreted from the collective interactions they are embedded in. Intentions and interactions are constantly influencing each other. The methods used should capture this.

Investigating the room available for action and how it is explored creates a curiosity on data about the individuals as actors concretized through their motives, their roles, and their interactions. Still, I need to underline that I am not looking for the personal stories in themselves but for the information on agency and actors as expressions of collective stories (Belgrave and Charmaz, 2012). To sum up, then, on the one hand, the interviewees fill the role of reporters providing me with information based on their being a part of, or close to, the processes studied. On the other hand, they contribute through the role of an actor providing me with data on personal intentions and information on what is experienced as room for action and on the personal action taken.

In the first study, I performed 26 interviews and, in the second, 66 interviews. Except for one case with two interviewees simultaneously, there was just one informant in each interview. I recorded and transcribed all interviews except two. However, notes from these two were made. Except for four occasions of telephone interviewing, all of the total 92 interviews were conducted as face-to-face interviews. In the hospital-based study, moreover, the vast majority of the interviews were conducted in the informants' natural surroundings at their workplaces. On some occasions, I was then also offered a guided tour through their natural domain,

whether it was a laboratory or an outpatient area. This gave interesting opportunities for small talk, preparing for or following up on issues from the formal interview setting. I also considered the impressions of the physical areas as useful context information. This aspect, then, was close to the method of shadowing (McDonald, 2018).

	<b>University hospital A</b>	<b>University hospital C</b>	<b>Municipal hospital B</b>	<b>Municipal hospital D</b>	
<b>MD treatment</b>	10	8	5	5	28
<b>MD diagnostics</b>	7	4	2	1	16
<b>Others</b>	7	6	5	7	25
<b>Total</b>	24	18	12	13	67

*Table 1: Informants interviewed, distributed by professional background and hospital*

	<b>University hospital A</b>	<b>University hospital C</b>	<b>Municipal hospital B</b>	<b>Municipal hospital D</b>	
<b>Ovary</b>	5	4	2	1	12
<b>Breast</b>	6	4	2	2	13
<b>Colorectal</b>	10	9	4	3	26
<b>All</b>	3	1	4	7	15
<b>Total</b>	24	18	12	13	67

*Table 2: Informants interviewed, distributed by pathway/diagnosis and hospital*

As I have already accounted for, the interviewees were identified partly through the contact persons I was in touch with at each case and location and partly through so-called snowball sampling (Baker, 2013). Some of the informants first interviewed directly or indirectly pointed at positions and specific persons playing important roles (Mosley, 2013). However, behind this apparently accidental selection was a clear idea of doing an analytical sampling. The premises for this was identifying key roles in the cases and processes under examination and then finding a representative of this role or the specific person that inhabited the position,

identified during a crucial period. The sample of informants was guided by representing the phenomena of interest (Beitin, 2012) and the research topic (O'reilly and Parker, 2013). This meant, partly, that some of the same organizational entities should be present in the samples of interviewees in each case, but partly also that the selection was adapted to differences in the field of each case. In the comparative Scandinavian study, there was thus an adaptation of samples according to which organizations and positions had played a major role. The specific sample of interviewees at each hospital partly depended on the organizational model of each hospital. Altogether, a large number of interviews was conducted. Still, however, this does not mean that the material resulting from this process can claim to be representative of a group of some kind. It only claims to represent all major constituencies and roles involved in each case studied.

In both studies, I made a general interview guide (see Appendix 1 and 2), which was sent to the interviewees beforehand along with brief information on the research project (see Appendix 3 and 4). The paths of the interviews most often followed the topics announced in the guide, which means they were closer to what Morse (2012) categorizes as guided interviews than they were to semi structured interviews. The specific path through this varied considerably, for several reasons. This was partly expressed through the variations in length of each interview. The course of the interviews continuously offered me temptations to follow sidetracks and to follow up on issues offered in the course of the conversation. This was triggered by the breadth and depths of each informant's experiences and his or her ability and eagerness to reflect on these experiences (Baker, 2013). I continuously encouraged the interviewees to add to their descriptions of processes and structures, and they were also a source for describing and interpreting the contexts (Hammersley, 2007). When considering the answers given in any single interview, it was important to have information about the role of the person interviewed—meaning, both their role during the process studied and their role at the time of the interview, if these happened to deviate from each other (Hammersley, 2007). The content of interviews in each study also developed through the process of performing the interviews. The wish to follow up and check on information given by previous interviewees was a driving force behind this. I also took the opportunity to test some preliminary assumptions that had emerged either during a previous interview or in the present one (Charmaz, 2007). The questions were a mixture of very broad, so-called grand tour, questions and very specific prompts (Leech, 2002). Repeatedly, I experienced that, in accordance with the literature (Berry, 2002, De Santis, 1980), the outcomes of these types of

guided interviews depended to a large extent upon the interviewer's abilities and skills in conducting a conversation that, to a limited degree, can be preplanned and standardized. The research question, the questions of the interview guide, previous information about the case, the context and emerging analysis of the case, and any points of comparison with the other cases are all references for each specific interview. However, based on these references, the performance is about building trust, precipitating talk on what the interviewee considers to be relevant issues, and guiding the progression of the interview toward issues that seem to have the highest payoff.

The second source of data consists of written documents. Here, I might find information on officially expressed intentions and plans, descriptions of formally decided organizational structures and functions, as well as reports from events and meetings or anecdotal stories expressing what has happened. In investigating historical processes, as I did in my first study, Thies (2002) differentiates between documents filling the role of primary sources (when they are direct artifacts of the process under examination) and documents that are secondary sources (interpreting or commenting on this process). He also underlines that formal documents, which represent manifest events in a process studied, should be supplemented by data revealing latent events that might have a crucial impact on understanding the process. Methodologically, it was a core ambition for me in both studies to catch these latent events and back-stage processes (Goffman, 2005).

Some document sources are impersonal, in the sense that there is no single recognizable individual reporting, while others are to some extent personal reports, delivered by an identifiable individual who is personally responsible for the content. Initially, I did not restrict what types of documents could be of interest in either of the cases. The pile of documents I found contained relevant information varied from official policy documents, formal descriptions of functions, and organizational charts, to guidelines on the local and the national levels, minutes of meetings, and presentations held at relevant occasions and events. In the fourth article, statistics concerning cancer were also drawn upon as data. Except for a few presentations made available for me through the contacts established during interviews, all the documents originate from publicly available sources. The search for and gathering of relevant documents through internet sites started very early, even before any field contacts were established. That information then prepared me to understand the basic structures of the fields, to delimit the cases, and to identify which institutions, positions, and roles would be crucial to sample in selecting the persons for the interviews. Going through the documents I found in

this initial phase, then, also provided me with lots of background information for the performance of the interviews. Next, my contact persons in each field and case were my second sources for identifying the relevant documents and, last, the informants themselves in several cases gave me tips on documents. During an interview, whenever I imagined that there might exist an underlying document of some kind, I raised this as an issue. Even when there was no documentation, this too might be a relevant information. The actual impact and the interpretive quality of the identified documents evolved throughout the research process. In a comparative study like mine, it might well be interesting data to recognize the differences in volume, types of documents, and sender of relevant documents.

Formal political, bureaucratic, and managerial documents have one general weakness as a source of data on political decisions and implementation processes: the role of specific actors is not clearly represented. They will seldom give information about the importance and presence of specific political, administrative, or professional actors and entrepreneurs who are possibly playing a decisive role, and they will not even shed light on the real social interactions leading to, or following from, the documents. Therefore, official documents are hardly sources of knowledge on people interfering with the process in a crucial way—changing their content or direction. They do not provide an understanding of their visions, their energy, their unique role, and the persuasion and negotiation processes through which they accomplish their influence. The texts in these documents are impersonalized in their character and, therefore, do not communicate these dimensions even though they are vital for my research questions. Thus, in my first study, it was after several interviews in two of the Scandinavian countries that I suddenly became acquainted with the crucial role of some entrepreneurs in the issue I am studying. This also had major impact on the emerging analytical model I was working on.

In the case of my research, as already mentioned, my personal affiliations to the field in itself gave me access to relevant data. This happens both through the knowledge I already had prior to the start of the project and through the advantage of having background information, which influenced my ability to notice specific features as relevant that others might not have thought of being significant. I could then follow the suspicion of this in new follow-up questions during interviews. This could even help me trace additional documents that could shed light on phenomena that otherwise would have been lost. Interestingly, there are two ways in which my participant observation revealed information that I could use as information in my research. Through observing lots of events and meetings, listening to what the people I had



been talking to told me, and reading lots of documents, I was a part of the processes I studied either closely or more peripherally. This provided me with the information, knowledge, and backgrounds through which I extracted data useful in the present studies. It created a contextual background that was very useful in interpreting the data I accessed during the research. Dwyer and Buckle (2009) describe this as the effect of inhabiting the space between being an insider and an outsider. There is, however, also a second order of information possibly made available to me through participation through my ordinary hospital job: not just observation but also intervention. My interference into and actions within the systems may have occasionally precipitated some counter-reactions to my interventions into a process or as an actor in a meeting. These reactions may even be emotional. In line with Rivera (2018), I acknowledge these partly emotional responses as forces of reflexivity. These responses, by representatives of institutions in which I participated, in themselves made obvious some general characteristics of the system that, during these studies, gave me valuable data. In addition, there is also a cumulative dimension characterizing the two degrees of information and providing me with data relevant to this research. The more information was reached through these sources, the more additional information could be accessed. During the research process, I wrote an essay summarizing my relevant job experiences and some reflections from these.

## **4.7 The process of analysis - an abductive approach**

### **4.7.1 The theoretical platforms for the analysis**

In all four papers, I claim to build on an abductive analytical approach. This strategy for accomplishing scientific analysis used to be tracked back to the legacy of Sander Pierce (1960) and to his insistence on transcending the usual dichotomy between inductive and deductive analysis. Developing knowledge should neither build on testing and verifying hypotheses based on existing theory nor unconditionally search for possible general patterns and categories in data. The abductive approach takes a pragmatic position regarding these alternatives.<sup>20</sup> Its core characteristic is a continuous recursive process between data, categories, concepts, and theories. This process should be flexible in how to define and group the categories and concepts applied. Abduction seems to have reached an increased application for analysis in social science and is closely related especially to some methods and

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<sup>20</sup> In their reporting of their method, in a paper based on a study on institutional entrepreneurship, Greenwood and Suddaby (2006) appear close to my procedures when they choose to use the notation of opportunistic and still defend the quality of their research performance.

methodologies that have been a source of inspiration for my studies. In addition to case studies, I am referring to grounded theory and thematic analysis.<sup>21</sup> However, all three of these approaches are not unambiguous expressions of abductive analysis. The original grounded theory, as described by Glaser and Strauss (1967), built on a strictly inductive platform. However, one of the two authors, Strauss, developed it into a classical abductive methodological approach (Timmermans and Tavory, 2012, Charmaz, 2007, Reichertz, 2009).

A widespread way of practicing abductive analysis in the legacy of Pierce has some features in common, whether in case studies, grounded theory-based studies,<sup>22</sup> or thematic analysis. Scholars directly or indirectly acknowledge this heritage (Reichertz, 2009, Timmermans and Tavory, 2012, Braun and Clarke, 2006, King and Brooks, 2018, George, 2005). First, they search for patterns across the entire data set. Second, the patterns may be on several levels of abstractions, from immediate descriptions as it appears in the data to latent phenomena emerging through interpretations of what is beyond the immediate surface of the data, through the process of coding, branding, and clustering codes into themes, categories, and patterns that may also be organized according to hierarchical levels. However, there are no absolute and stable borders between description and interpretation. Third, there is, then, a continuous process of stretching and adjusting the analytical categories throughout the research process, from data collection to the final conclusive analysis. Just as important is the contextualization of the emerging themes and patterns. Fourth, the recursive process is not just expressed through an iterative interaction between data and general concepts and patterns. As I have already argued, this is also a continuous recursive process toward studying of a broad range of possibly relevant literature. The purpose is to inspire new angles for organizing the data—an exercise meant to increase the researcher’s sensitivity related to defining possible themes or patterns in the data. In contrast to the initial position in grounded theory, there is little fear of parallel and repeating interpretative linking to existing literature and claiming it to be a source of bias. The normative picture of a researcher approaching a case study without any established theoretical lenses is a self-deception, anyway. Connecting to several traditions in literature may both challenge and supplement any one of those traditions in the course of the

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<sup>21</sup> While grounded theory claims to be a methodology, the tradition for thematic analysis appears more as a toolkit for the analysis of qualitative data in social sciences (King and Brooks, 2018). Still, I will here defend discussing them simultaneously in relation to abduction.

<sup>22</sup> In the work of Glaser and Strauss (1967) where they launched the concept of grounded theory, a topic from hospital life was actually the empirical case they studied (the care of dying people). In addition, I accidentally found that one of the articles that Strauss and Corbin (1997) chose to illustrate the deployment of grounded theory in praxis actually was about cancer; or, more precisely, it was Fujimura (1988), examining how molecular biology conquered cancer research and cancer diagnostics during the 1970s and 1980s.

analysis, in addition to making the external references explicit and making them a transparent subject for evaluation. Abductive analysis may be described as a continuous and iterative process of pattern matching (Sinkovics, 2018), while also comparing and mutually adjusting the patterns created from sources of existing theory and research, on the one hand, and the patterns evolving from data, on the other hand.

In addition to or as a part of the core role of pragmatism,<sup>23</sup> Peirce's abductive approach points at an additional feature. That is the desire to identify and explain what emerges as surprising or as a novelty in the data set and the cases studied (Timmermans and Tavory, 2012, Reichertz, 2009, Peirce et al., 1960, Hansen, 2008). This may be expressed as the puzzle motivating the research. To create an understanding of this puzzle, an innovative mental process is needed. A cognitive logic of discovery has to be applied, as Reichertz (2009) phrases it. The abductive methodology as, for example, expressed in some of the traditions of grounded theory, case-study approaches, and thematic analyses should be well suited to investigating what the researcher sees as a surprising incidence. My reinterpretations of the puzzles were clear expressions of catching sight of more surprising elements in the cases I studied. I have described these processes both in the work of the second paper, dealing with the implementation of the cancer care reform, and of the third paper, investigating the practicing of the cancer patient pathways. The puzzle of the first paper also obviously approaches a dimension of the political process, inspired by the curiosity to explain the unexpected efficiency in the political decision processes.

The analysis of my first study is clearly inspired by the method of process tracing. The core of process tracing is, according to Bennett and Checkel (2014), to explore whether a sequence of intermediate variables deduced from a hypothesis explaining an independent variable finds evidence in data from a case. Doing such an analysis implies a careful description of each step in the sequence of events (Collier, 2011). The analysis should also pay close attention to the very sequence of the independent, dependent, and intervening variables. Initially, process tracing then seems to represent a classical deductive analytical approach. Nevertheless, Bennet and Checkel underline that, during the analysis, inductive insights gained during the process should be considered. The method is, therefore, also profiled as a way of combining a deductive and an inductive research approach. Beach and Pedersen (2016) argue, however,

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<sup>23</sup> Pragmatism is explicitly used as a notion by Corbin and Strauss (1998), when they describes the research techniques and procedures of grounded theory. In this, they claim to build on classical sociology from Mead (Mead and Morris, 1938) elaborated in *The Philosophy of the Act*.

that the method could be used for theory testing, theory building, and outcome explaining. Pouliot (2014) is primarily looking for ways to trace patterns in sequential action built bottom up. From the original “top down”-based process tracing, he wants to transform the analytical perspective starting with the practice rather than with the theory. He argues that social causality is constituted locally within a specific situation and context. He is renaming a purely inductive version of process tracing and prefers to brand this practice tracing. Then from an interpreting-based analysis of causality in a single case, he claims that there might be patterns and contexts similar to those in other cases. Through this, he says, it is possible to argue for generality when travelling across cases. This travel is a journey to find out not whether a generalization is true or false but whether it makes sense. With this twist, the combined process and praxis tracing may also be categorized as abduction. If, then, as I have tried to do, through data and analysis we also pay attention to the context in which we study paths of actions and their effects, it will open for insight regarding different paths of actions and their effects, in line with the arguments of Fiss (2007).

Through the forms of analytical approach I have described, I aim to contribute insights that shed light on the puzzles and answer the research questions applied to the cases I have investigated. Does this, then, claim to have any ambitions of validity beyond the cases analyzed? Does it pretend to contribute to theory? Weick (1995) warns against understanding theory in a binary way, as either delivering a contribution to theory or not. Much research is, actually, theorizing, which contributes to the steps towards new or revised theory. The activities he attaches to theorizing is abstracting, generalizing, relating, selecting, explaining, synthesizing, and idealizing. According to Strauss and Corbin (1998), the development of theory is something that emerges through several steps during the whole research process. Ashworth et al. (2007) make a distinction between theory building and theory elaborating, where the first delivers proposals and the second offers suggestions. They claim the processes of relating empirical research to theory to be a methodological process based on abduction. Contrary to deduction and induction, only the abductive ambition to explain what is interpreted as novel or surprising inferences can contribute to theorizing. This opens the paths to new explanations, to seeing things that otherwise may be taken for granted, and encourages explanatory richness. In line with the indications from the scholars mentioned through this research, I claim to have accomplished theorizing and theory-elaboration by the ways in which I have applied, combined, and adapted existing theoretical work to my cases (see Parts 5, 7, and 8). The path to further substantiate the proposals of valid general insight next goes

through combining abduction with deduction and induction (Ashworth et al., 2019, Hansen, 2008). In the research reported here, there are elements of all three of these steps.

Discussing the relation of analysis to theory building, also must take into consideration the nature of the social sciences as a science that is far from building on one paradigmatic structure or one consistent model of explanation that would encompass all types of phenomena, or that could be used as a platform for deducing consequences and then refining the theory when applying it to new areas. Social sciences are sets of parallel universes of theoretical approaches emerging from several, partly overlapping sub-disciplines that partly complete one another and partly compete with one another, and that may aim to deliver general insight on differing levels of abstraction. The theories that have emerged from this, to a large degree, cover similar phenomena and aspire to be tools for interpreting empirical life within the same parts of society. Theorizing from empirical research, then, may stay faithful to the theoretical tradition and scientific sub-discipline or it may, like the article “The Interdisciplinary Study of Coordination” by Malone and Crowstone (1994), approach the connection to existing theorized knowledge from several research tracks and sub-disciplines on a more pragmatic and synergetic way. The review of organizational studies related to health care made by Mayo et al. (2021), and referred to initially in Part 7, recommends that further research on this field transcend the established segregation into two or three separate research traditions.

I have chosen the pragmatic and synergetic path related to my definition of relevant research literature. The abductive analytical approach also gives support to this. My theorizing is, then, not just a matter of refining or adding some bricks in a well-established research track. Instead, it involves the ambition to deliver actionable insights through combining bricks from several scientific tracks that, directly or indirectly, have covered or are relevant for the phenomena I have studied. Through this, I achieve three aims. First, I claim to be able to deliver a richer description of the same phenomena, bringing up more elements and nuances through a broader supply of concepts. Second, I substantiate the same conclusions by relating to different models and sets of concepts based on empirical studies relevant to my cases. Third, reaching alternative and supplementary concepts that partly challenge one another gives me access to a source encouraging new perspectives and explanations.

#### 4.7.2 The operative procedures of analysis

Through a stepwise and explorative process, I went through the data material and constructed possible ways of operationalizing the concepts or, vice versa, conceptualizing the data. In each process, this started with several readings of the transcribed interviews and the piles of documents defined as data sources. During these processes as in the tradition of grounded theory (Belgrave and Charmaz, 2012, Timmermans and Tavory, 2012, Strauss and Corbin, 1998), I wrote lots of memos and notes elaborating on the data or connecting to and developing analytical concepts. During this process primary experimental categories for analyzing my data evolved. These categories were also, to a large extent, inspired by a lot of discussions with a colleague who also had read the data material. The creation of categories used to analyze the data involved a mixture of approaches. In part, it mirrored different levels of abstraction, ranging from an immediate grouping of data from interviews or documents to organizing according to broader general categories (Ashworth et al., 2019). In practice, it behaved as a combination of what Strauss and Corbin (1998) call open coding and axial coding. Especially for the analysis of data from the first study, the categorization proceeded according to the timeline of the process (Strauss and Corbin, 1998). During the coding process, the same data could be assigned to several categories. This is an expression of the fuzzy nature of the categories applied.<sup>24</sup>

In the first study, the tool used to group citations from interviews and documents was as simple as color pencils. This proved to be flexible in a satisfactory manner. In the next study, the transcribed texts were entered into the text-analyzing support system NVivo. By applying this tool, we explored several possible analytical elements defined as nodes in NVivo. On some occasions, the operation of variables was even defined to be in two levels: a more general category and some more specific one. We then explored and further adapted, developed, and supplemented the application of these in interaction with concepts and models drawn from literature (see Part 5). As we concluded work on the main variables around which we wanted to build the application of data, we worked through all the transcribed material several times and systematically identified citations illustrating and verifying the presence of the variables chosen around which to build the analysis. NVivo then made sure that I could easily put in place an overall presentation of citations of each variable, which made it possible to get a comprehensive overview of citations expressing information on each variable. This

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<sup>24</sup> Methodologically, using a fuzzy set of analytical categories emerges from interpreting organizations principally as entities that cannot be understood in isolations from each other (Fiss, 2007, Sincovics, 2018).

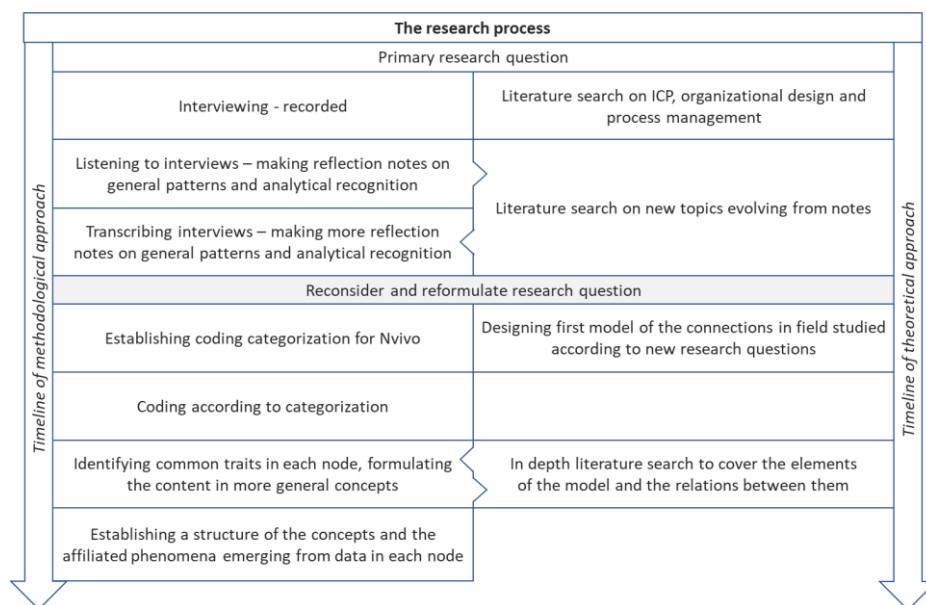
constituted a platform for two further steps: First, making the structured data available made it possible to develop general statements representing points of information related to each applied category, variable, and value. These generalized expressions were used in summary tables in the results chapters in the two papers. These aggregated and synthetic data are presented in tables in articles 3 and 4, and they deliver separate points of information. Taken together, these aggregated data paint a picture of each of the dimensions that the headline of the table represents. Second, the total collection of citations related to specific categories facilitated the extraction of appropriate quotes to be cited explicitly in the papers. The combined use of presentation of aggregated information, based on citations and authentic quotes as my informants expressed them, builds the content that fills the structures of the presentation of my findings. In the fourth paper, even data from documents and statistics were directly utilized and presented in tables through both text and numbers.

My overall clustering of groups of data and then the structuring of the presentation of findings reflects the research question in each of the articles. In the first paper, then, there is a question of delivering a causal explanation for a sequence of factors that, over a timeline, involves a series of events, influenced by specific contextual structures and resulting in an outcome at a certain point. The overall analytical structures in this case emerged through a process tracing revealing the patterns of a path (Bennett and Checkel, 2014) and identifying the crucial conditions and patterns of this process. In the second paper, the research questions raised the ambition to identify common and varying traits of the implementation process that might explain its outcome. The exploration of data here was supported by an initial theoretical triangulation identifying some dimensions that might have an impact to the effect that I would explain. These dimensions, then, organized the analysis and the presentation of the actual features at a given stage and of the ways in which they interacted and influenced the effects.

In the third article, my target was to identify how performance of cancer pathways coordination was conducted across differences in hospitals and diagnoses. The analytical exploration of this was conducted by approaching my data along four relatively generic categories: Identifying the need for coordination, describing the dynamics of coordination, and mapping the existing or missing horizontal and then vertical structures of coordination, respectively. The last paper highlighted the question of explaining variations that interfered with the performance of coordination. The structuring of the analysis, then, was a systematic search for deviations of characteristics in comparing the four hospitals and the three pathways and diagnoses studied. This exploration was guided by the suggestion that differences that

affected the degree of complexity and predictability in a crucial way provide the premises for appropriate means of coordination.

The total process of data collection and analysis is characterized by being cumulative and iterative. It is cumulative because information from one type of source acted as a building block for further examinational paths into new data sources, for new questions that could be followed into the next data sources, or for reconsidering the meaning of existing data. It has been an iterative process because there has been a mutual interaction between several tracks of literature, between literature and data sources, and between several types of data sources. Thus, each knowledge source has been a stepping-stone for continuously exploring my total data and adjusting my analysis and interpretations for my findings, in line with the analytical process called theoretical sampling in the grounded theory tradition (Belgrave and Charmaz, 2012). The practice of this iterative research process based on the abductive approach can be summarized in a figure (slightly modified from the way it was presented in article 2):



**Figure 10:** Simplified description of my practicing of an iterative process between data and literature

Performing the process of analysis was not just an interaction between different sources of data, theory tracks, and previously published research. In accordance to the recommendations of Timmerman and Tavory (2012), a crucial foundation for the development of my analysis also emerged from all the occasions I had to present and discuss my findings and my ideas of how to interpret them. This was about fellow scholars, partly, as they participated in seminars where I presented my work in progress and about individual scholars with whom I had the



opportunity to be acquainted during my work and who read, made comments, and provided me with ideas and proposals. It was also about contacts, feedback, and discussions with people in the fields I had been studying. This applies to people I have interviewed, people who were my contact persons in the fields, and others who were not specifically involved in the cases under my scrutiny but still had relevant experiences and positions. These discussions, corrections, and feedback were of immense value in securing and improving the quality of my final presentations.

## **4.8 Quality issues related to my studies**

### **4.8.1 Quality of data and their presentation**

The issue of the quality of data and data gathering has been an underlying theme of the entire preceding presentation of methodology and methods. In general, there exist several propositions on what should be the indication on relevant data and how they should be presented in qualitative studies. Here, I have chosen two such dimensions. Yin (2018), in discussing the characteristics of exemplary case studies, launches the demand that a data gathering process should be complete. He explains this by pointing at three prerequisites. First, the boundaries of the case should be made clear.<sup>25</sup> Second, the researcher should convince that most relevant evidence is gathered. Then third, there should not be practical restrictions on time or access to the field that would prevent satisfactory evidence from being collected and processed. Ragin and Amoroso's (2011) approach to the quality of data applies the notion of representation and in this he lays both data on the entire image and of the framing of the actual phenomena. Framing, here, is close to the concept of context. Deficient data on context is often a weakness in qualitative research, Pouliot (2008) states. Informants often do not directly report on the contexts in which their daily practice is embedded. In addition, as Halkier (2011) cautions, the contexts involved are immensely complex and dynamic. Covering completeness in a qualitative study, moreover, is challenged by the fact that the empirical elements constituting these phenomena, such as processes, structures, and events, are constructed by a lot of informational data points. The data elements I analyzed are actually aggregated from several separate data combined. Then, the question of completeness is a question of whether I have included so much that it can represent the specific element in a satisfactory way. The interviews could have covered more issues. There could be more people

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<sup>25</sup> Weick (1995) relates this process to the processes of clinical medicine connecting data to symptoms and diagnoses to theory, and linking them through prescriptions as physicians chose treatment resulting from a dialogue between symptoms and diagnoses. Which is per definition not easy—see previous discussion on this.

possible to interview and more documents relevant to include in the files of documents analyzed. Nevertheless, I will argue that several features of how the research process was organized counteracted the danger of compromising completeness. First, although the informants chosen all reported unique and different roles and experiences, those belonging to the same cases all reported on the same story—just from different perspectives. This provided me with a source of confirmation or of need of correction that, in itself, constituted an assurance that the reliability of the descriptions made from combing single data points which originated from interview quotes or document paragraphs. Second, the combined use of data from different data sources, partly expressing information on similar realities, counteracts the danger of losing trustworthiness. Documents describing certain structures and motives were supplemented by quotes from interviews talking about the same processes and even, from my own experience, in some cases covering the same framework of the process. A third contribution to completeness issued from having two persons doing the interviews, so that we supplemented each other and probably, on several occasions, precipitated information from the interviewees that consolidated the reliability of the data created. This was the case in almost all interviews in the first study and in some interviews of the second study.

Another approach to discussing quality related to data gathering and presentation is delivered by Golden-Biddle and Locke (1993), who advocate for a quality dimension they call authenticity. The production of data has to be able to represent the vitality of the life in the field studied. This was tested not least through the feedback I got on several presentations of findings made during the research process also involving an audience of people who, directly or indirectly, were part of my research field.<sup>26</sup>

In my opinion, these two approaches to the quality of data are not competing but, rather, supplementing each other. At the same time, they represent characteristics that differ from the usual way of operationalizing data quality in quantitative research, by accuracy, precision, and correctness.

#### **4.8.2 On generalizing from present research**

The published reports from my two studies raise research questions that have a general impact. Hopefully, they say something credible about the specific cases studied—but do they

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<sup>26</sup> Three citations from feedback I got when actors in the field read the articles covering their case (received in e-mail): “I enjoyed very much to read your articles lots of years afterwards. It made me conscious of what I have been a part of.” “I think you captured what happened in a precise way.” “This is very interesting to read. There is much to learn from this analysis for everyone in health care.”

contribute to knowledge applicable outside the cases analyzed? This is the question of external validity. Again, there is no absolute verdict on this and, as stated by Halkier (2011), there are often some inherent challenges when trying to generalize qualitative studies. This is caused by the necessity of representing the dynamism, ambivalence, conflicts, and complexities expressed through overlapping contexts. It may be exacerbated by a lack of stability in the patterns studied. I will, however, argue for an external validity of my conclusions along four tracks. Again, referring to Halkier, there are arguments that generalizing can be claimed to be valid for more cases under certain circumstances, but this does not equal universalizing.

One argument is linked to the presence of similar findings to those reported in previous research. With respect to many dimensions that emerged and were presented in the findings, similar conditions are presented at certain points of analysis in other empirical case studies reported. This is documented in my articles through references. However, I am arguing that the unique contribution of my research lies in assembling several processual elements into a whole. This applies to both policy decision and implementation (study 1) and CPP practicing (study 2). If these overall pictures were totally identical with previously reported findings, then the only contribution from my research would be that this or that conclusion also was valid in my cases. Thus, I have to add more arguments to support the validity of my special assemblage of elements that, taken together, gives external validity to the analysis of my findings. This is necessary for arguing that, in answering my generally formulated research question, I provide knowledge that is valid beyond the cases studied. There are three ways to solve this.

First, I can argue that the contexts of my cases resemble the contexts of other cases that are not studied. Similarities in core features of context may be an argument that the conditions analyzed in a given context may be transferable to others, as long as these contextual elements are central as constituting framing of the case analyzed. There are other health care systems having close similarities with the Norwegian and the Scandinavian systems, and there are lots of hospitals inside and outside Norway that are structured like the hospitals represented in study 2.

Second, I am claiming that the CPP reforms and the application of CPPs in my cases belongs to types of reforms, health care reforms, and organizational interventions into which other reforms and organizational interventions could also be classified. In this case, it is the category of reform targeted at changing behaviors, systems, and outcomes on the street level

and the kind of organizational intervention aimed at enabling processes along a complex path and across segmented silos. This classification into a typology constitutes an argument for my finding and analytical conclusions being valid also in cases with similar types of reforms or interventions.

In general, I will argue, in line with Halkier (2011), that connecting my specific research to more theoretical concepts established from and applied in previous research on several fields may, in itself, add to the external validity of my findings and conclusions. In the analysis of my cases, I have been connecting to and applying such general concepts as institutional logics, organizational complexity, emerging organization, and organizational interaction. The concepts themselves represent a generalization. Halkier, however, distinguishes three types of generalizing from qualitative research when connecting to general concepts, two of which apply to my research. First, it is by ideal-typologizing, inspired by Weber (1949): selecting and integrating some general abstract traits and establishing an ideal type. I point out that the institutional logics I use belong to this category of conceptual generalizing. Another path to generalizing concepts is what he calls positioning. This refers to identifying and connecting to certain traits of social dynamics. Pointing at interaction processes of coordination activities and labeling them as commanding, negotiation, consensus seeking, or counseling will, then, be examples of this type of positioning-based general categories. Thus, if an inductive process based on analyzing my data material ends in associating certain acts or structures with the same concepts, the lessons drawn from my cases may be applicable to other cases where expressions of the same concepts may occur.

#### **4.8.3 Possible quality challenges caused by my relation to the field studied**

*“A field worker, ... if he has participated in the social life of his subject, then he has been living by his analysis, testing them not only by observation and interview but also by daily living.”* (p. 225) (Glaser and Strauss, 1967)

A group of methodological limitations might lie in my possible personal bias. Did my personal affiliation and relations to the field appear as a problem? This could be so in at least two ways. The first has to do with my relation to my field of investigation. It is easy to think that having a background from the field I studied meant that I had already made up my mind about how things worked and why. My research, then, would be just a way of confirming the view of my world in line with a picture I had already drawn. The second element that might create a research bias is the field's relation to me. When informants knew about or were

acquainted with my background or my position, it influenced what they reported to me. This could entail either underreporting information that they might think would not be appreciated by the Cancer Centre Board (which I represent) or adjusting their presentation to angles that I, through my other affiliation, might be satisfied to hear. These two sources of bias might be more intrusive in the encounter with informants in Norway during my first study and with those from the Oslo University Hospital in the second study.

I think that these possible sources of personal bias in doing research into a field with my background and position can never be totally removed. Therefore, in line with Malterud (2001), I argue that the danger of bias primarily comes from not reflecting on one's relation to the field. In general, by continuously being aware of this challenge, I might reduce the types of temptation and interaction. This is both about how I perform the talking during interviews and about how the field experience shapes my use of the information that I got from the informants. More specifically concerning the first, it is about being conscious that research interviews have rules of conversation other than my usual hospital tasks. The dialogues during the interviews were not about persuading people or providing them with background or information on which I wanted them to act. Neither were they about providing me with information directly supporting my action as a hospital manager. Both were possible targets for conversations during my ordinary hospital work. The research interviews, in contrast, are about getting comprehensive information related to the interviewee's knowledge about the processes they have been a part of in developing or practicing the CPPs. The concern over how I use information from the interviews relates to possible biases through my pattern of behavior. I had to be focused on maintaining confidentiality and on stories the interviewees gave not being reported to others in any identifiable way without their consent.

As I have already argued, I have been conscious about the advantages of being an insider. In line with Dwyer and Buckle (2009), I will argue that, to some extent, being an insider while also being an outsider as a researcher may increase my legitimacy and acceptance within the field studied as well as my access to it. Pouliot (2008) elaborates on the same point by stating that the researcher should be, at the same time, native and alien if he or she is to be able to get hold of the meaning of practice. Moreover, in line with Berwick (2008), I experienced that it creates unique connections to—and information about—the mechanisms and context of my field. In the space recognized between the roles of insiders and outsiders (Dwyer and Buckle, 2009), I experienced room for reflection in line with my abductive approach. I actively and consciously exploit the benefit that springs from this. There are even indications of

simultaneously being able to counteract bias by not being governed by preconceived opinions and interpretations. On several topics in the cases studied, I had the experience of changing my mind about what I had previously considered to be the reality and correcting my previous understanding of the phenomena I studied. The change I described in how the puzzle at hand should be expressed is an example of this. I also experienced the research processes to be open to the influence of impressions, making me curious and encouraging me to explore quite new angles for interpreting the contexts of my hospital work praxis. This, then, also influenced some initiatives and some of the organizing of my work in Cancer Centre management. It seems to be recognized and I have clearly stated that, during the last couple of years, insights from this research have influenced my practice. I will even argue that this contributes to my entire combined work as both researcher and manager. I, thus, express what it means to be willing to act based on the comprehension one is delivering.

## **5. Conceptual and analytical framing: Five analytical categories and their interaction with two entwined coordinating mechanisms**

*“This siloing of attention (particular on topics that seem fundamental to the effective functioning of health care organizations) risks the creation of echo chambers, and could impede the development of more nuanced, robust knowledge that might arise from integrating perspectives on this topic across disciplines.” (p.558) (Mayo et al., 2021)*

Two phenomena connect my two studies and, thus, unite the analytical references applicable to making sense of the cases I have been investigating. One is organizational studies of health care and the other is the intervention of integrated care pathways. Comprehensive analytical and theoretical contributions have been published on both these topics. By following the paths leading from these sources, an analytical framework has emerged, with beneficial insight to add to the understanding of coordination during the implementation and practice of cancer patient pathways.

The traits of studying patient pathways from an organizational perspective can be tracked back to a book published in 1985, *Social Organization of Medical Work*, by Strauss et al. (1985). Here, they introduce the concept of trajectory of illness, defined as the total organization of work done over the course of patient illness, including the impact this has on those involved and on their organizations. The starting point for Strauss et al. was the historic change of dominant types of illnesses in Western societies, which turned from acute diseases

to chronic diseases. Strauss et al. put cancer in the second category. Their claim was that hospitals were structured to handle emergency-like infections and traumas but failed to accomplish the diagnostic and treatment process of chronically ill patients with the same predictability. The explanation for this, they anticipate, lies in the higher complexity emerging from many of the illness trajectories of chronically ill patients. This complexity is created by both the growth in the degree of specialization and the dependency on technical equipment that is central to performing diagnostic and treatment procedures. Strauss et al. even talk about how physicians make a kind of imaginary mapping to figure out the course of procedures, thus making what in effect may be termed trajectory schemes. They claim that illness trajectories pass through several phases and, in this journey, may reach several sequence points where the trajectories may change direction.

According to DiMaggio and Powell (2000), an organizational field is the aggregate of organizations that constitute a recognized area of institutional life. In my situation, the organizational field in one of my studies is the provider of hospital services, while in the other it is the health care system at large. The organizational field in the first instance may be interpreted as a sub-field of the second. By using the concept of an institutional field, I relate to institutional theory in general, based on the comprehension of institutions as cognitive, normative, and regulative structures and activities that provide meaning to social activity. This analytical approach is paramount in the discussion by Scott et al. (1993) on institutional change and health care organizations, where they introduce three institutional components crucial to understanding change processes in health care. First, they borrow the concept of institutional logics from Friedland and Alford (1985), defining it as the belief system and associated practice providing actors with organizing principles. Through the work of Scott et al., it emerges that healthcare may have several parallel existing logics. Second, they claim that the type of governance system influences the change processes and, last, they state that it is the interconnection of the actors that carries, and moreover also creates, the logics. This perspective invites an investigation into how institutional logics may provide us with explanatory force as to how unveil patient pathways.

A basic analytical entrance to my analysis, a pervasive issue in both studies, is coordination. Mintzberg (1980) addresses this in his general work on organization and in his writing on hospitals specifically (Glouberman and Mintzberg, 2001a, Glouberman and Mintzberg, 2001b). He draws a picture of hospitals as a type of organization comprising several of the generic types of coordination that he has described. This encourages an investigation into the

way patient pathways place themselves in this topography of coordination and which kind of contextual structures and process designs determine the coordination dynamic unfolding through the introduction and practice of cancer patient pathways.

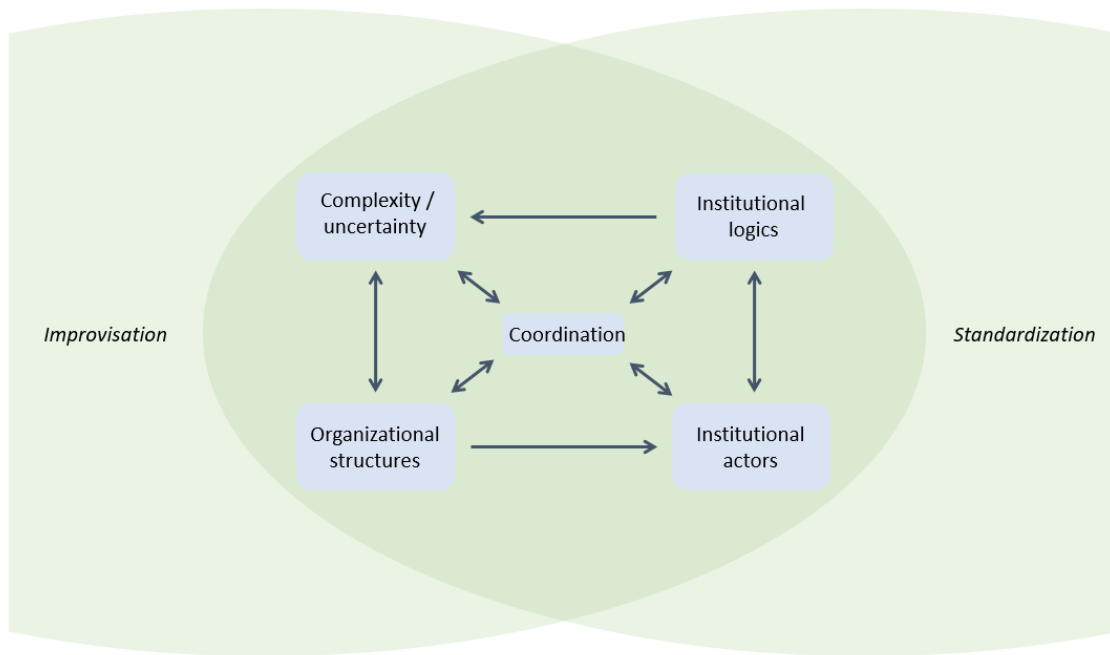
The analytical perspectives introduced so far originate not from the study of health care or hospitals. The study of health care has emerged from previous studies of other areas of private- and public-sector organizations. Still, health care and hospitals have been an attractive field in which to develop and customize general organizational theory about process orientation, institutional change, and coordination. This is expressed through a recent review (Mayo et al., 2021) dealing with 700 articles in a selected sample of journals that are related to organization and health care during the last 10 years. It identifies four major issues. Three of these are close to the three perspectives I present: One is organizational change, focusing on the drivers of change and the mechanisms through which they work. Another major issue is coordination and cooperation. This is an issue that, Mayo et al. state, seems to have reached increased significance during the last decade and that, they argue, is caused by the development in complexity in the system itself, intensified governance processes, and regulatory initiatives. Then, the more specific topics addressed are expressed through the focus on coordination across multiple levels and the search for the drivers of coordination. The third main issue present in organization-related health care research they report falls under the heading of “Teams and other structures.” This seems to be motivated by the link to the previous issue of finding out how structures contribute to coordination and collaboration. Here, they recognize a preoccupation of the interplay between basic structures and informal teams, in addition to an attention to the instability and dynamics of structuring in health care. This constitutes the fourth issue forming the analytical platform of this thesis.

Grol et al. (2007) pay attention to the use of theory in studying improvement in patient care. They recognize that change processes are interventions into complex settings and they argue that, because of the complexity connected to implementing improvements in health care, theoretical and analytical approaches should be taken from several research tracks. This is in line with my approach, in the underlying articles published and in this thesis. However, the selection and adaption of the appropriate structuring of the analytical issues in my studies and cases have emerged through a gradual recognition of the need for improved coordination and creating comprehensiveness to be the core of what cancer pathways are about. Both my studies, in different ways and phases, deal with the challenge of accomplishing coordination in a complex and highly institutionalized and formally structured field that is embedded in



processes and contexts with restricted predictability along several dimensions. In this field, the room for and maneuvering of actors and the structurally imposed rules of interaction will be crucial to understand.

The analytical building blocks for my presentation are organized in relation to five areas. Coordination is the issue at the core of the investigation. The degree and content of the challenges related to coordination result from the state of complexity, the institutional logics present, and the dynamic that unfold between complexity and logics. Further, coordination works through formal and emerging organizational structures and through institutional actors present. However, as I will show, there is an iterative dynamic between these two issues and the three issues previously mentioned. Organizational structures may simultaneously contribute to complexity and be a means of reducing it. It may be an arena of coordination and, at the same time, partly a source of the need to find new tracks for accomplishing coordination. Institutional entrepreneurs may execute praxis with the intention of reducing uncertainty and maintaining stability and predictability, or their agency may in consequence lead to a creative destruction of institutional order (Hardy and Maguire, 2017). The exercise of agency should be explained in the interactions between rational intentions and structural determinants (Battilana et al., 2009, Beckert, 1999). Strategic actors may be creators and carriers of institutional logics (Battilana et al., 2009) and they may be the ones accomplishing coordination through the room for action created by the organizational space present or created by the combined organizational structures. These structures, moreover, may open up and influence interactions between the institutional logics present and, thus, may also influence coordination. The relation between these conceptual domains is illustrated in Figure 8.



**Figure 11:** *The conceptual elements applied in the analysis of my cases*

These connections underpin the need to build on this overall set of analytical tracks. In addition to their sources across several societal fields, all five of them have been extensively studied in health care. However, as pointed out both by Currie et al. (2012) and by Mayo et al. (2021), studies of health care organizations can be related to at least two different traditions. One is connected to the tradition of organizational studies and the other is classified as health care or health policy studies. While the first one is more concerned with organizing, processes, and contexts, the latter focuses on organization and outcome. Both articles addressing the division into two traditions regret this distinction. Mayo et al. reveal that the papers published in one tradition seem to relate mainly to other articles in the same tradition. As a supplement to my general methodological arguments (see Part 4, section on “The application of existing literature during my research”), I have recognized that the argument of Mayo et al. is an encouragement to transcend what they express as echo chambers in relevant literature on the issues I discuss.

Standardization has been considered a means of reducing uncertainty and complexity in organizations, and of directly creating—and indirectly facilitating—coordination.<sup>27</sup> In medicine as in several industries, standardization has been a strategy to approach enhanced

<sup>27</sup> It is a paradox that Timmermans and Berg (1997), in their article from 1997, argue that standardization may contribute to increased organizational complexity by decoupling the description of processes from the medical professionals performing them.

quality: here, it is a tool for implementing evidence-based medicine through clinical protocols and guidelines in clinical practice and then, simultaneously, reducing the risk of quality deviations by being a measure contributing to stability and predictability over time and across borders (Timmermans and Epstein, 2010).

Standardization might be realized through various alternative approaches regarding what is standardized. This is a prevalent perspective when Mintzberg (1980) discusses standardization in organizational coordination and when Timmermans and Berg (1997) discuss medical protocols as coordinating artifacts. As previously mentioned, Mintzberg operates with three types of standardization in organizing. One is standardization of process. Another is standardization of skills and the third is standardization of outcome. Timmerman and Berg (2003) launch a general typology of four possible elements that can be standardized: design standards, terminological standards, performance standards, and procedural standards. Lampland and Star (2009) further add several dimensions related to standards being analytically useful in the cases I have studied. First, standards may be rational in directing behavior related to some tasks and contexts but appear as less rational compared to others. Second, standards may encompass considerable inertia when confronted with historical changes regarding the processes that the standards should be applied to. Third, standards may be decided and managed on different levels of the organizational or field levels. I will add that standards most completely controls the behavior of people in a certain work context either if they are materially externalized and integrating in applied operating technology or when completely internalized and socially taken for granted even unconsciously as a premises for priorities and behavior.

The etymological meaning of improvisation is dealing with something that is not foreseen. When Thompsen and Bates (1957) long ago discussed and compared technology and administration of divergent types of work organizations, they concluded that organizations like hospitals constantly confronted with new resource managements problems necessarily will be characterized by improvisation. Later, several scholars (Faraj and Xiao, 2006, Jarzabkowski et al., 2012) have drawn attention to this concept when analyzing cases of coordination in complex organizational settings characterized by immense uncertainty. The review article on organizational improvisation by Hadida et.al. (2015) relate the presence of improvisational activities to the existence of complexity, unpredictability and turbulence. During the last decades, an interest has emerged in organizational studies to gain knowledge about organizational improvisation specifically by studying improvisation as performed in

musical ensembles, particularly in jazz bands and in the performance of jazz music (Barrett, 1998, Cunha et al., 2016, Harrison, 2017, Moorman and Miner, 1998).<sup>28</sup> Improvisation in these settings is explained as what happens when the time gap between composition and execution narrows and ultimately converges, being dependent on following the impulses of the moment. However, the ability to do so has several prerequisites if the improvisation is to be successful, especially when it is to be accomplished through interaction in a group. The improvisations are based on the presence of a shared decision on a melody, a chord structure, and a beat. Then, on several levels, in the professional community of musicians in general and in a band more specifically, there is a shared tacit and implicit knowledge and some undocumented rules of how to interact and interpret (Baumard, 1999, King and Ranft, 2001). In addition, it builds on previous experiences and implies some individual and collective memory of how interaction should be interpreted, how invitations from others could be exploited, and how some signals could be continued and further explored as possibilities. This is further developed through subtle processes of communication during the performance of the music and it may deposit as a pattern of joint interactions, interpretations, and transitions. However, in each performance, there is an ambiguity in the interpretation and communication of where to go next. This creates a space filled with contentious adaptations and negotiations. The improvisation is thus a portion of automated behavior that then opens up the space for releasing flexibility necessary to reach goals and expectation within the resources actually available.<sup>29</sup> This portion of automated behavior may partly be a kind of routine and partly close to a behavior guided by intuition.<sup>30</sup> The presence of minimal constraints and structures creating a common grounding both delivers the platform for improvising and creates the space that the band may then explore through the process of improvisation.<sup>31</sup> When connecting the

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<sup>28</sup> Interestingly, Zack (2000) is criticizing previous contributions analyzing jazz music as a metaphor and a direct lesson for the practice of improvisation. His point is that these scholars tend to lean their analysis on certain types of jazz, and that jazz in recent decades has evolved into even more radical versions of improvisation. However, both Weick (2007) and Moorman and Miner (1998) do point at the presence of several degrees of improvisation. I argue that this discussion does not undermine my analytical reference here to the application of jazz improvisation. Borrowing analytical inspiration of improvising in music when studying organizational processes is also elegantly accomplished by Tovstiga et al. (2005) applying experiences of improvisation in classical string quartets.

<sup>29</sup> To describe this process of making the best of the situation as it is both in Weick (2007) and in Moorman and Miner (1998), who refers to Levi-Strauss's concept of bricolage.

<sup>30</sup> When Herbert Simon (1987) is discussing the role of intuition in management decisions, he claims that intuition is "simply analysis frozen into habits" (p. 63). Crossnan and Sorrenti (2002), in their contribution to the book about organizational improvisation, define improvisation as intuition guiding action in a spontaneous way.

<sup>31</sup> In line with the concepts used by the teacher of theatre improvisation, Johnstone (2007), these situations arising may be interpreted as an offering of opportunities that the collaborating partners may accept or not accept. To a lesser extent than jazz, improvisation theater has also been applied as a metaphor and reference of the discussion of improvisation in organizations (Gagnon et al., 2012, Vera and Crossan, 2004). Vera and

practice of improvisation in jazz bands, Weick (2007) draws the lines to other work organizations and finds that improvising is far more prevalent than the attention it gets in organizational studies and in management. It represents a phenomenon often made invisible.<sup>32</sup> This point is illustrated through the review article on organizational improvisation by Ciuchta et.al. (2021) showing that research papers applying organizational improvisation as an approach have catastrophes and extreme situations as their case. Rather extreme phenomena also seem to be issue when improvisation is an analytical framing for the study of hospitals. Examples on this are King and Ranft (2001) studying thoracic surgery and Klein et.al. (2006) studying extreme action teams in emergency trauma centers.

Though standardization always results from agency and may even be precipitated and developed through a type of entrepreneurship, in its core it is a process of depersonalization. Decisions are externalized from the individual professional's praxis. However, the presence of improvisation leans the other way, as it presupposes constant original, skilled, and clever agency, both on the individual and—not least—on the collective level. Hadida et.al. (2015) point at this distinction between individual improvisation and improvisation developing through interpersonal interaction. Elements of the latter should be present if applying the concept of organizational improvisation. By referring to different styles in jazz Hadida et.al. also point at an useful distinction relating to whether several band members are actively improvising simultaneously or alternatively improvising consecutively. If the latter is the case of improvising, the members not being the lead improviser still adapts and supports the lead musician and receives impulses to build on when taking over the turn as acting lead improviser<sup>33</sup>.

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Crossan argue that studying improvisation in a theatre context is even more relevant for organization studies since it literally speaking connects to the similar communication languages as in organizations.

<sup>32</sup> One reason for the invisibility of organizational phenomena placed under the designation of emergent structures might be that they, by their nature, are not so easy to conceptualize or impose through political and managerial decisions. If they are going to be sustainable, they are more or less dependent on growing from below. They are also not easy to commodify and, therefore, are not typically products offered by management consultants. Not surprisingly, the notion attributed to emergent structures is self-organizing, which means structures not imposed externally by some designer (Stacey, 2011). Even in research literature Banks et.al. claim (2016) that what they call naturally occurring bottom up coordination is hardly present. The concept of invisible work is introduced and analyzed by Star and Strauss (1999). The processes constituting this type of work is described by Salvato (2009) when unveiling how the organizational capabilities of delivering product developments organizational adaptations may emerge from the combined contribution of myriads of ordinary micro-activities conducted by individuals in different positions.

<sup>33</sup> The process of performing improvisation in a jazz band is to a larger extent than a work process in complex organizations a process protected from interference with the surroundings. However, I will argue that this is a matter of degree more than an absolute distinction between the two processes. This is therefore not objection against a direct application of jazz improvisation as a sense-making metaphor for organizational improvisation.

Here it is timely to add in line with Ciuchta et.al. (2021), that there is a built-in tension in improvisation between institutionalized shared patterns present before the certain process of improvisational practice and the actual performance of improvisation. The improvisation created by actors present builds on that. Ciuchta et.al. even point at research indicating that improvisation elaborating on such patterns seem to be most successful<sup>34</sup>. Meier (2011), though using the notion of ad hoc coordination instead of improvisation when studying the application of standards in hospital work processes, explains the practice of professional actors as local adjustment of standards to make them work in practice in a specific context. In these ways, there is an analytical connection between the fifth leg of my analytical configuration, actors and agency, and the coordinating activities involving standardization and improvisation.

## **6. Summary of the articles**

In this part, I present a review of the four papers. I do so from the perspective of the overall puzzles and research question initially presented in the thesis. The data analysis and the conclusions drawn from them will, then, be the foundation that this thesis tries to connect to and unite in building a synergy and a contribution to knowledge. I claim that the sum of the answers to the separate research questions taken together gives input to answering the overall research question of this thesis: How can we explain the coordination of politics and of practice related to cancer pathways? More specifically: Through which mechanisms is this coordination accomplished and what is the impact of contextual framing? The summaries of the four articles presented here aim to connect them to the research questions of this thesis.

The four articles are generated from two studies, with two articles originating from each study. The difference between the approaches of the papers from the first study lies in the time span or phase of the process that they cover. The first paper analyzes the processes present from a socially acknowledged crisis to the political decision, while the second paper analyzes the first phase of the implementation of the reform. The divergence between the two papers from the second study lies in the perspectives of the approach they are applying. In one article, we search for similarities between the cases of practiced cancer pathways. In the last one, we focus on the examination of what makes them different. The conditions for fulfilling

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<sup>34</sup> This is close to the finding of Gittell (2002) when pointing at the presence of some routines improves the outcome of coordination under increased uncertainty. Routines may be interpreted as a kind of established behavior pattern (Becker, 2004).

the need of comprehensiveness and coordination in patient pathways penetrate the research process, whether I am investigating into the processes at the political and administrative levels or at the hospital floor levels.

## **6.1 Article 1: Exploring the triggering process of cancer care reform in three Scandinavian countries**

In this article, we worked our way back from the point where a cancer patient pathway reform was launched in all three Scandinavian countries. The backdrop for the reform process studied was cancer strategies decided and approved politically during the late 1990s and the first decade of the next century. These strategies addressed the need to be aligned with the technological development in imaging and radiation therapy and to offer cancer treatment on a national level characterized by equality both socially and geographically. The developments in cancer research and technologies increased popular expectations on the effects of cancer treatment. In spite of the fact that the cancer strategies were attempts to create an offensive approach to improving the institutional framings of cancer care, media and interest groups actively promoted certain events, scandals, and research outcomes. This created the opening for the reform process and justified the research question in this paper: How did the need for these reforms emerge as necessary and what created the opportunity for political action?

The first phase of what we might call a national cancer reform process leading to cancer pathways can be summarized by three key conditions that led to a reduced legitimacy of cancer care in general: lack of focus on patients, scarcity of access to new technologies for all patients, and emerging critique of the dominant organizational model. The last was due to the lack of coordination across organizational borders within hospitals and among hospitals, which was not beneficial for cancer patients. These conditions created a dynamic that led to the initiation of specific new cancer-related structures and the emergence of alternative institutional solutions to facilitate change.

Motives and drivers for the emergence of national cancer reforms differed slightly among the three countries. However, when the peak of urgency was reached, there was one dominant narrative behind the call for action: unacceptable waiting times. While this narrative was originally linked to medical outcomes and the prognostic impact of waiting times in Denmark, the first country to roll out a reform, subsequently the focus was overwhelmingly on patients' subjective demands for safety and predictability in all three countries. At a deeper level of the narrative, we discovered a supplementary demand for a change in mindset at the hospital

level. In the prevailing narrative, there was one dominant solution, namely implementing CPPs. This was based on an existing solution that seemed to work.

A situation of urgency and a need to act were created through a combination of medical reports with heavy engagement from media and patient organizations, and a combination of competition with the need for consolidation among relevant organizations and health administration, all skillfully articulated by strategically situated actors. Action was accomplished through the launch of waiting-time reforms in Denmark in 2007, in Norway in 2014, and in Sweden in 2015.

In the analysis of this reform process, we draw on and combine elements from several research traditions. First, we found it useful to apply the concept of institutional logics and argue that three such logics are present and, to a great extent, define the narratives present during the cases. Second, previous studies applying institutional logics also inspired us to understand the driving forces at hand raising the issue to the political and public agenda. Third, we found it useful to relate to research on how the same ideas, measures, and solutions are transformed from one context and customized into another. In this case, it was between different countries, but the translation from one diagnosis to all is also a relevant issue for our cases. Fourth, we were concerned about explaining the triggering point of establishing a new dominant narrative and deciding on a specific solution. Last, research treating the issue of agency and entrepreneurship was brought into the stage. Concepts and analyses based on the previous elements were integrated into the presentation of this issue.

The findings were interpreted in line with these previously mentioned, existing research tracks. We showed how three different institutional logics were present and how they interacted to create joint motivation for change, an urgency to act, and a window of opportunity. We showed how some actors in roles such as social entrepreneurs took advantage of this. Some of them even acted as boundary spanners, transferring and translating narratives, experiences, and solutions from one country to another.

By combining several analytical elements, this article adds to the knowledge of what might happen when political reforms are efficiently placed on the public agenda—in this case, building a complete explanation of why and how the decision of the CPP reform was precipitated. This, then, also contributes to answering the overall research question of the thesis by addressing how it is possible to reach decisions on a field level necessary to provide



support for establishing and exploiting coordination abilities in this complex field of health politics and health care.

## **6.2 Article 2: Implementing cancer patient pathways in Scandinavia: How structuring might affect the acceptance of a politically imposed reform**

The second paper from this study starts where the previous one ends: the establishment of a dominant conceptualization of a prevailing problem in cancer care and one specific solution to this, of establishing CPP on a national level in all main diagnostic cancer areas. The orchestration and the initial phase of the implementation of the reform had the same feature as the definition of the challenge: Time mattered and there was a focus on pace to draft the system and make it available, while the professional behavior adjusted according to it. It was based on a national political decision, and centrally localized bureaucratic authorities governed the detailing and the dissemination of it.

Through the investigations of these cases, we were struck by several indications in all three countries that this change process from above was perceived as a success. This is not in line with the common notion that highly professional organizations such as hospitals often oppose changes that demand adjustments in local behavior, in “their street level practice.”<sup>35</sup> It, therefore, triggered the research questions of this article: How can we explain that this top-down reform, at least in the early launching and initial implementation phase, was well received and that the measures were rapidly effectuated? Can we identify common structural features facilitating the process and, thus, contributing to the outcome? Or, on the contrary, are there simultaneously any structural differences that may lead to divergent practices and outcomes of the reform?

Through our careful investigation of our data-material, we identified conditions that were present ahead of implementation, structural elements that were taken jointly and linked to the space for action, and the rules that were created for interaction, all of which contribute to explaining the perceived effects. A crucial condition reported was the presence of proven models of CPP and diagnosis-based professional communities. Both these conditions secured affiliation from several organizational levels and from professional key actors, providing experiences that contributed to development of legitimacy and implementation of concretized

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<sup>35</sup> The mechanisms of resistance to change imposed from above are thoroughly described by Alford (1975) and by Kellogg (2011). However, the processes of deploying local adaptations as a kind of detached fit to local circumstances, needs, and users is classically described by Lipsky (2010) in his *Street level bureaucracy*.

solution. We pointed at the already-established, unique cancer-related entities as a contributing organizational infrastructure for implementation. In Denmark, there was the National Cancer Board. In Norway, the position of cancer director in the Directorate of Health played this role. In Sweden, there was the establishment of the Regional Cancer Centers (RCC) and the national coordination committee encompassing these as a superstructure. Another unique and cancer-specific type of entities consisted of the national multidisciplinary cancer groups associated with a group of cancer diagnoses. These had already existed when the CPP reform started delivered national cancer guidelines.

In addition to these previously-established structures, we paid attention to several new cancer-specific structures launched in the wake of the decision of the CPP reforms. Examples of these kinds of additional structures created specifically to support implementation were task forces, projects and project leaders, process managers, resource groups, and mass meetings. We then showed the impact that these total levels of emerging cancer- and implantation-specific structures had on the room for maneuvering for possible institutional entrepreneurs. We ended by identifying how specific features of organizational structuring, partly diverging between the three countries, led to differences in the dynamics and, potentially, the outcomes of the processes.

In the analysis and structuring of the findings presented in this article, we placed two research traditions in parallel: one concerning institutional change and one concerning policy implementation. They are both relevant for this case and we show that the concepts and conditions developed and studied in these two traditions support each other and contribute to a plausible interpretation of both what unites and what differs between the cases. As in the first article, institutional logics are drawn upon and supported by the application of different rationalities in the literature on policy implementation. We further point out that discussions on the directions of initiating forces that trigger change and development similarly exist in both traditions. We focus on the tensions and interactions between top-down and bottom-up processes. The two traditions related to our analysis also connect in their interest in grasping the rooms for, and roles of, agency and entrepreneurship in highly institutionalized fields characterized by hierarchical bureaucracies. They provided us with research-based access to role descriptions and actions that provided some actors with the legitimacy, room, and force to act in support of implementation. Key for what we recognized in our material was that the actors already had crucial legitimacy in two or more interest groups representing different logics or rationalities. They had positions characterized by moving easily geographically and

between organizational levels, and partly outside the organizational hierarchy. Taken together, their main affiliations were spatially dispersed through the organizational field and, interestingly, they were mainly not characterized by being heroic actors but more by being backstage facilitators. The room for action in the three implementation cases can be explained by relating to the issues of social movements and social networks, treated in both of the research traditions referred to. We argue that these phenomena grow from the emerging and hybrid structures present on several levels connected to cancer care, and present at least during the implementation process. The lessons drawn from the interplay between structures and agency in the field of cancer care in this article then also contribute to the answers to the overall research question of this thesis.

I argue that the importance of the structural context for understanding the dynamics of the implementation based either on commandment, negotiation, consensus processes or consultation also makes sense as analytical approach to understand the dynamics of coordination in practicing cancer patient pathways. Through this, on an analytical level, there is a connection from the investigation of implementation in the first study to the study of pathways practice in the second. Added into this connection is also the similarity of a dynamic that has the interplay between the three institutional logics as a core content. This, taken together, then contributes to answering the research question of this thesis.

### **6.3 Article 3: Practicing integrated care pathways in Norwegian hospitals: Coordination through industrialized standardization, value chains, and quality management or an organizational equivalent to improvised jazz standards**

In the second study, I turned to the practice of CPP. The entrance to this was partly the CPP reform, which answered the need for enhancing coordination by introducing a measure that appeared to resemble an industry-like standardization of work processes. As described previously, early on in the accomplishment of this study I revised my understanding of the puzzle at hand. My curiosity turned toward what kind of standardization this actually was and whether there were types of structures and processes other than those visible and trackable through the formal line-organization actually present and prevalent as means of coordination. By investigating the practicing of cancer pathways in three different diagnoses and four hospitals diverging considerably in size and task profiles, I hoped to find the answer to the following research question: Can standardized patient pathways for cancer patients be a

satisfactory tool for coordination management in an increasingly complex organizational setting characterized by increasing uncertainty and a corresponding need for more coordination?

A well-accepted prerequisite for standardization of processes is the relative stability of input, output, and throughput flow. To pick apart what was actually going on along the steps of practiced patient pathways, we started by analyzing and questioning the presence of stability. We did that by examining the degree of complexity and uncertainty contextualizing and penetrating the cancer patient pathways. In all our cases, we identify these phenomena present to a considerable degree. We also argued that conditions present along these two variables probably reinforced each other. If, then, some fundamental prerequisites for traditional industrial process standardization were not present, what kind of standardization did actually take place during the practicing of cancer patient pathways? From this, we stated that the process of coordination was based on a type of standards. These, however, are not treated as rules or absolute demands. They are more considered as common frameworks or references for practice. There is continuous negotiation, mutual adaption, and consultation about the interpretation. The standards are treated more like flexible, local routines adjusted according to individual patient needs and circumstances, and based on local sources of alternative authority. We found this to have much in common with improvisation and, through our material, we could then unveil how the presence of improvisation was actually reported to be present during the practicing of pathway coordination.

To understand how the interaction of the standardization and improvisation unfolded, we first searched for a more precise detection of possible ways of grouping the kind of organizational mechanisms that seem to contribute actively to coordination under these circumstances. Through this, we identified and raised four organizing elements. One was the existence of specific coordinator roles. Another prevalent organizational mechanism we described through the alternative notions of collegial groups or professional collaborative communities. The third organizing element was the networks across entities, communities, sites, and locations. The last one was not a social construction in itself but more like a physical condition that seemed to facilitate organized or spontaneous social processes through which coordination occurs. We identified the role of simple physical proximity.

All these organizing elements had in common that they were not part of the primary, baseline organizational structures. This is because, to some extent, they had a formal, visible, and documented role, which could be assigned to the category of hybrid constructions.

Simultaneously, the social interaction they created with an impact on coordination was, to a considerable extent, beyond the formal expressions and often originated from processes that were not planned or designed in detail by any authority higher up in the hierarchy. We thus chose to place them under the heading of emerging structures. Our findings were supported by connecting to literature that both covers each of these organizing elements specifically and considers them together, creating synergies.

#### **6.4 Article 4: Mind the differences: How diagnoses and hospital characteristics influence coordination in cancer patient pathways**

While the first paper from this study focused on identifying some general characteristics of organizing the coordination of cancer patient pathways, the next switches focus to search for differences in coordinating needs and for explanations of these differences. The research question raised was: What traits of cancer diagnoses, patient groups, and hospitals have an impact on cancer patient pathway coordination and how do these differences influence the character of the coordination processes and management requirements? From the analysis conducted in the previous paper, it was natural to suggest that, if the presence of complexity and unpredictability has a major impact on the organizing of coordination in pathways, the presence of variations along these two variables is the source also of variation in how coordination is to be accomplished. We then systematically looked for features related to hospitals, diagnoses, and patient groups associated to variation in complexity and predictability. In this, we involved several types of data: figures working as indicators, descriptions of processes and procedures taken from guidelines, quality documents, and interviews and general interview data supporting and supplementing the picture gleaned from document sources. We organized these data according to some variables that we anticipated influenced variation in complexity and predictability. These groups of variables included volume in activity (both total and degree of stability), degree of urgency, degree of specialized care and dependence on multidisciplinary contributions, the degree of sheltered cancer activity, and organizational characteristics of the context related to the phases or clinical presentation, diagnostic work up, and treatment. In every one of these dimensions, we made a comparison either between hospitals or between diagnoses. In doing this, we also took into consideration that pathways, albeit to a variable degree, also included two hospitals—one local hospital and one university hospital.

In the process of connecting the analyzed data on the selected variables and putting them into a comparative picture, some differences in the types of coordinating tasks and challenges emerged. Briefly summarized, in comparing the conditions for coordination, we argue that there is a tendency indicating the presence of the following connection: Roughly speaking, there are more conditions contributing to complexity and unpredictability along the pathway of ovarian cancer than of the two other cancers, and more so in colorectal cancer than in breast cancer. In line with introductory assumptions, we recognize that we find conditions more adapted to traditional standardization in breast cancer than in colorectal cancer, and more so in colorectal cancer than in ovarian cancer. With the analysis from the first paper of this study in mind, we argue that, along the same gradient, we recognized more coordination characterized by improvisation. However, to support the understanding of the differences in the underlying work process, we also connected to concepts developed from literature differentiating between and identifying the types of work processes present. In cancer pathways, increased complexity and decreased predictability seem to be associated with work processes characterized by consultative hubs and problem-solving webs. These are, then, supplementing the underlying work process of a programmed chain.

## **6.5 Findings from the first study across the last two articles**

Through the two papers based on the second study, there are several links that, taken together, add to the understanding of our overarching research question of this thesis. First, they both provide evidence for the claim that the presence of complexity and uncertainty fundamentally contributes to the conditions of conducting coordination through standardization. Or, probably, it should be phrased as an evidence-based claim that these features, connected both to the contexts of pathways and to the character of the process running through the pathway, thus influence the degree and type of standardization being present.

Second, the outcome of the studies shows that coordination expresses not only a horizontal process but, on several occasions, also requires vertical coordination. In the analysis, respectively, of general similarities and differences between conditions for vertical coordination, both papers connect to the literature on institutional logics. The need to involve higher hierarchical levels to make decisions or adjust framework conditions actualizes the interaction between the economic-administrative logic and the medical-professional logic. In line with the second paper, I argue that the structure of interaction in this coordination influences the character of the coordination conducted. In the case of vertical interaction

facilitating the coordination of pathways, I actually point to a challenge that stems from the absence of institutions and roles acting as channel for the needed coordination.

Third, there seems to be a connection between types of emerging coordinating organizational mechanisms identified as playing a core role in the first paper and the analytical differentiation in three types of work processes deployed in the second paper. In the first paper, we searched for structures enabling coordination in spite of a formal structure that is not aligned with the processes in need of coordination. Connecting to and confirming the presence of four types of emerging structures presented in partly different research tracks gave the answer. In the second paper, we searched for analytical categories of work processes that could help explain the programmed chain being insufficient and partly not giving a comprehensive contribution to understand the dynamic of certain elements of work process in cancer patient pathways. Although taken from different traditions, there is an immediate resemblance between collegiality of professionals and solution hubs and between professional networks and connecting webs. Not surprisingly, the two analyses show that there is an integrated relation between the tools of coordination and the character of the process.

Fourth, in the second paper, we discuss a tendency of conducting cancer patient pathways within an overdetermined framing. This was based on the knowledge from project governance that project tasks, per definition, cannot be solved when strict measures are set on the time, availability of resources, and expectations of specific qualities on outcome. Not all variables available for agency must be locked. There must be slack at least on one of these governing dimensions. This relates closely to the properties of improvisation, launched as a supplementary, modifying element when standardization is the medium through which coordination is accomplished. The role of slack in the success of improvisation even assumes that it contains some standard elements. However, there is a threat of too many variables being locked.

Fifth, the emerging organizing structures and types of work processes alternative to programmed chains in themselves open room for agency. As structures that compensate for the limitations in realizing standardization in an industrial sense, they represent the intrinsic inhibition of separating the governing of work processes from those conducting the work and moving it to some kind of system external to the process itself. Improvisation, with its implications for continuing social interaction, could hardly be imaginable without the presence of distinct agency. Core parts of managing both the governance of professional judgment and patient and resource logistics depend on the performance of skilled

employees—not only as individuals but also as groups and networks. Finally, in both these articles we, therefore, point at the importance of specifying and aligning the leadership skills needed to the kind of work dynamic at hand.

Combined, these five connections between analyses in the two papers supplemented with their analytical legacy to analytical elements emerging from the first study, provided me with the analytical and empirical tools necessary to answer the overall research question of this thesis. In the next part, I discuss the findings in light of the recurring analytical framework from the four articles and summarized in Part 5.

*Table 3: A summary presentation of the four articles*



	<b>Research question</b>	<b>Puzzle</b>	<b>Case definition</b>	<b>Data sources</b>	<b>Findings</b>
<b>Article 1</b> Exploring the triggering process of cancer care reform in three	How did the need for these reforms emerge as necessary and what created the opportunity for political action?	Why did we get a fast-track path to political decisions in the cases of these reforms?	Three national histories of public processes defining the issue and highlighting it on a political agenda.	Total of 26 interviews with key actors. Publicly available documents. Presentations	Decision precipitated by simultaneous, fierce presence of three institutional logics and by paths and arenas
<b>Article 2</b> Implementing cancer patient pathways in Scandinavia: How structuring might affect the acceptance of a politically	How can we explain that this top-down reform, at least in the early launching and initial implementation phase, was well received and that the measures were rapidly effectuated? Can we identify common	Why did this top-down initiative apparently penetrate health care and reach ground level practice?	Three national histories of implementation process, from the political decisions to the start of monitored practice of CPP.	Total of 26 interviews with key actors. Publicly available documents. Journal articles commenting on the process.	Implementation was supported by specific cancer-related entities allowing for room for maneuvering and agency and connecting to initiatives already taken and tested
<b>Article 3</b> Practicing Integrated Care Pathways in Norwegian hospitals: Coordination through industrialized standardization,	Can introducing standardized patient pathways for cancer patients work as a satisfactory tool for coordination management in an increasingly complex organizational setting characterized by	Why is CPP working in spite of the need to cross lots of formal borders? What kind of standardization can it be about?	The practice of CPP in three diagnoses—mammary cancer, ovarian cancer, and colorectal cancer—as it occurred during 2019 in and between four hospitals in two health care regions in Norway.	66 interviews with persons representing all core positions in the CPP. Documents available from public sources. Documents accessed through hospital contacts.	The CPPs are carried by four emerging and partly informal structures. The vertical organization is struggling with the handling of interaction between logics. A core mechanism in operation
<b>Article 4</b> Mind the differences: How diagnoses and hospital characteristics influence coordination in	What traits of cancer diagnoses, patient groups, and hospitals impact cancer patient pathway coordination and how does these differences influence the character of coordination process and	Why does one size not fit all cancer pathways? Why does the kind of work processes present matter?		66 interviews with persons representing all core positions in the CPP. Documents available from public sources. Statistics available from public sources.	Differences between hospitals and diagnoses in complexity and predictability infer with the right balancing of standardization and improvisation. This depends on the

## **7. Discussion**

In this part of the thesis, I will continue to elaborate on the analytical approaches launched in Part 5. I argued that these five approaches are suitable building blocks of my contextual analysis of processes in the field of complex health care. Here, however, these analytical sources are connected to the findings of my two separate studies on cancer patient pathways and discussed as a source of comprehensive insight on coordination in these cancer-related processes. The selected literature sources covering the five topics have provided me with the analytical tools to extract patterns and explanations through the data in the cases defined in my two studies. By extending the review of the core analytical sources, I will also show how these concepts were applied to my data material across the cases and studies.

### **7.1 The underlying logics of patient pathways**

According to Shaw et al. (2017), the concept of institutional logics promises to advance understanding of the development and implementation of integrated care. Indeed, it has been applied by Allen (2014) to analyze the implementation of integrated care pathways. I have earlier introduced the concept of institutional logics, usually considered to have originated from the work of Alford and Friedland (1985) and to have been developed into organizational analysis of healthcare by Scott et al. (2000). They define an institutional logic as consisting of a belief system and related actions. It is connected to the perceived interests of those articulating the belief and conducting the actions that are rational according to the expressed belief system. An institutional logic, according to Thornton and Ocasio (2008) influences the interpretation of the situation at hand and determines which problems get attention and which solutions are considered relevant. The emergence of the concept of institutional logic in the tradition of new institutionalism emphasized that the presence of social institutions contributed to pervasive stability. Institutions principally existing independently of each individual were interpreted as phenomena characterized by inertia and the ability to adapt and adjust upcoming social changes shaping them in an isomorphic way so that they do not radically alter the prevailing belief and action system. Institutional logics still contribute to stability but, simultaneously, through their interacting presence, they also provide room for, and explanation of, change.

Scott et al. (2000) indicate the presence of several logics in healthcare. Physicians, for them, were historically the carriers of the dominant logic, characterized by the pursuit of medical quality. They indicate that this belief system is then challenged by two others: that of the

public, expecting the delivery of increased equity; and an emerging new logic focusing on efficiency, fueled by increased expenditures in health care and a rise in publicly imposed regulations. Since then, several scholars have studied the developments of health care in light of two logics: one designated as a professional or medical logic, and the other designated as a managerial logic (Shaw et al., 2017, Allen, 2014).

Through our work, we have identified three distinct institutional logics to be in play during the reforms. They are present in the initiating processes, in the conceptualization of the problem, in the choice of measures, and at the crucial point of decision making. First, the medical logic is anchored in best medical practice, expressed in documented and scientifically based methods and guidelines, with measurable clinical results as outcome variables and executed through clinical discretion based on experience and scientific reports. The main carrier of this logic is the medical profession at field level, also represented by medical multi-disciplinary groups and medical specialist associations. The influence of this logic is mainly bottom-up.

Second, we identified an economic-administrative logic, connected to effective production through the optimal use of available resources. It is monitored through activity parameters, budget targets, and indicators for the optimal deployment of resources. This logic is primarily represented by the management and by the administrative agencies governing health care. This logic works top-down through a hierarchical executive line and through governance systems.

Third, we identified a patient-related logic. Interestingly, when logics are introduced in analyses of health care institutions, this one is often missing.<sup>36</sup> The patient-related logic has a subjective, emotional, and personalized basis and is anchored in patients' treatment experience. This logic is expressed bottom-up as well as outside-in, by groups and persons who are not part of the institution. For all three Scandinavian countries, we have described an increased focus on the perspectives of patients, whose experiences with the lack of coordination in cancer care led to a demand for improvements.

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<sup>36</sup> In organizational research applying the concept of institutional logics, most often the analysis is limited to the presence of two logics. This is even true for research on health care and hospitals. In connection with this, I notice that Perrow (1965) in his article on hospitals from 1965 notes that hospitals belong to a special class of organizations that attempt, as their primary task, to alter the state of human material. I will argue that this explains why the social logic of the "product" also should be integrated into analysis in these types of organizations.

In line with Weber (1947), scholars consider the notion of institutional logic as an ideal type construction (Thornton and Ocasio, 2008). That means that it is an abstraction and pure cultivation of some traits that can be observed in reality, but it does not necessarily manifest itself empirically in similar forms—the empirical phenomena may be blurred by being infused also by elements not connected to the ideal type. This means that, being an ideal type, institutional logics are socially constructed. It is a question of arguing that we may identify empirically actions and behavior, and structures and meanings that make sense when related to the more abstractly constructed ideal type. Thus, within the same social field, it is possible to argue for several alternative ways of expressing the ideal type present, depending on which elements of the institution studied we want to lift up into a general category or which concepts we want to assign them to. While I have chosen the medical logic as one of the core logics that I am applying, defined by the basic medical way of building and applying knowledge, others have focused on what is expressed as professional logic and attached it to the professionally educated way of exercising discretion (Reay and Hinings, 2009, Olakivi and Niska, 2016, Anderson and Armstead, 1995). Still others distinguish between care and science logics (Dunn and Jones, 2010) or between separate logics of nurses and physicians (Allen, 2014). It might even be fruitful to recognize dynamics in how logic-based processes develop to subsume the consequence of developments or an intervention initiated by or influenced by other logics. One example of this is the monitoring system that is part of the nationally implemented CPP. Though initially expressing also the interests of patient logics and medical logics, in practice—when it is incorporated into the general audit systems—it can be seen as coopted by the economic-administrative logic (Power, 2000). Another example of a logic-immanent dynamic is when situated expressed discretion, admittedly based on best available evidence, develops into general guidelines on local, national, or international validity that are expected to be followed during the practice of the MD.

When institutional logics are considered in analyses of change processes, the tendency is to use the introduction of new logics into a field as an explanation of change or of the way change processes are accomplished. In the analysis of my cases, the historical development of the several institutional logics emerging at hospitals is certainly a backdrop (see Part 2). However, in my approach, when the implementation process of CPPs happens or when the integrated pathways are being practiced, the logics chosen as analytical tools are those already there. What I am concerned about is how their presence influences when and how implementation occurs, and about specific challenges connected to their practice. There are

two crucial illustrations of this in my material. One is the finding that, in all three Scandinavian countries, the point of decision and urgent action of the cancer waiting-time reform and CPP implementation were triggered by reaching a point where the challenge of cancer care was perceived according to all three institutional logics coinciding. Improving waiting time seemed rational and in line with the medical logic, the patient-related logic, and the economic-administrative logic. This created a window of opportunity and a joint enforcement into action. At the other end of the spectrum, scholars have reported instances of reform implementation in health care where the misalignment in joint interpretation of a problem and desired solution led to unsuccessful implementation (Dunn and Jones, 2010, Allen, 2014). In line with this, in the studying of the practice of CPP in hospitals, I identified points related to the managing of the pathways where dialogue between representatives of the medical-professional and the economic-administrative logics was required and was decisive for clarifying appropriate solutions to practicing CPP.

Two core phenomena connected to CPP illustrate the distinctions between what may be perceived as similar according to the three institutional logics present. Nevertheless when looking behind their immediate surface each of these two phenomena actually has separate content when relating them to each of the three logics I argue being present. The first is the concept of time<sup>37</sup> or, more precisely, waiting time. According to the perspective of the medical logic, there is a clinical time related to the development or progress of the tumor and the stage of the disease. In cancer, this varies in relation to the type of cancer and the stage into which it has developed upon discovery. However, for some diagnoses and some conditions of the disease, progression may cause the state of urgency in time. Related to the economic-administrative logic, time is crucial when dealing with the optimization and efficiency of deploying resources. This may be related to exercising the procedures of planning and execution, minimizing supply and lead times. Concerning the patient-related logic, time is connected to subjective experiences and expectations. The latter may be a question of reducing the emotional burden of waiting without knowing, or waiting for treatment and hopefully getting rid of the disease, or having enough time to reflect upon what

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<sup>37</sup> Bluedorn and Denhardt (1988) in their review of literature related to time and organization argue for the recognition of plurality of temporal constructs. Ballard and Sebold (2003), in their theoretical discussion of temporality in organizing, identify ten dimensions of time depending on separation, scheduling, precision, pace, present time perspectives, future time perspectives, flexibility, linearity, scarcity, and urgency. The basic sociological discussions on the concept of time connects to the work of Marx (1967) related to the development of the capitalist mode of production and alienation and the work of Mead (Mead and Morris, 1938) examining the social construction of time. My discussion of time here is also inspired by the comprehensive sociological analysis of time provided by Jaques (1982).

is happening, considering difficult decisions or future perspectives (Sidenius et al., 2020, Sturmberg and Cilliers, 2009). In the decisive points of implementing CPP, and sometimes in demanding logistical situations in practicing CPP at a hospital level that involve several logics, the interpretations of time—and, thus, logics—converge and seem to coincide. Looking at this phenomenon, the apparent coincidence of framing of the problem within each logic is precipitated by the presence of the objective, measurable clock time. However, the clock time is actually socially filled with meaning in different ways related to each of the logics. Nevertheless, time is important for all logics. This is illustrated by Reddy et al. (2006) building on Strauss et al. (1985), who in their concept of illness trajectory also develop the concept of temporal trajectory, representing the timeline of the processes each patient undergoes, and add to it the collective set of all present temporal trajectories, calling them temporal rhythms. One can sense the tensions among these through their argument for flexibility in performing temporal trajectories.

The concept of equality is another example of connection to all three logics. Investigating what is beneath its seemingly uniform surface reveals three differing contents. In the medical logic, equality relates to the argument that all equal cases should be treated equally and in line with the prevailing medical guidelines. In the patient-related logic, equality is about securing equity related to access to necessary health care. In the economic-administrative logic, equality is about reducing variation, which is generally accepted as a means of achieving efficiency.<sup>38</sup>

Analyses that identify two or more institutional logics often present them as competing or successive, with one logic diminishing and a new logic entering the stage, taking over as the dominant one (Thornton and Ocasio, 2008). The institutional field where the competition among logics occurs may then be associated with a battlefield. Several scholars, however, nuance this image by introducing several possible ways for institutional logics to coexist. Expressions used to describe their interaction include blending, assimilation, mutual ambiguity, coalitions, cooptation, and collaboration (Ocasio et al., 2017). The relation may depend on whether there are distinct borders and mutually exclusive definitions and whether they may have content characterized by blurred borders or overlapping content. This relation, moreover, may not be a stable state but may represent a dynamic development. This approach

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<sup>38</sup> In the book *Differences in Medicine*, Berg and Mol (1998) explore the tendency to declare differences penetrating medicine on several areas as a temporary state of affairs. However, they conclude that variation is here to stay and it will take the form of problems in coordination.

has grown to be an important part of analyzing my cases. Situations that create a coincidence of perceived understandings of problem and solution are one way coalitions, albeit unstable, are made. In another instance, I am concerned about identifying how structures embedding the unfolding of logics influence how coexistence manifests itself as either cooption or collaboration. I have paid special attention to the study of Besharov and Smith (2014), which argues that two framework characteristics of institutional logics play a core role in how their interplay is expressed. One is compatibility, expressed through the extent to which two logics imply consistent organizational action. The other is centrality, expressed through the extent to which the logics manifest themselves as central to the functioning of the organization. If two logics present both have high compatibility and centrality, this creates circumstances for coalition and collaboration. This supports my explanation of the force behind the decision and implementation of CPPs in Scandinavia. At the same time, it also helps explain why collaboration in practicing CPPs may be challenging when it depends on interaction among several organizational levels or among several hospitals. However, this may not impede organizational processes and change, and does not mean that logics primarily rooted at the bottom of an organization or even outside, or in the periphery of, an organizational field necessarily being overruled by others situated in centrally in the field. Examples on this are published (Reay et al., 2013). This is important because the logics we are dealing with here will probably always have their main connection to different positions in the field and in the organizations. The medical logic, though containing some professional hierarchies, has its main connection to the bottom level of the hospital organization.

Institutional logics may be carried and expressed by specific groups or roles present in the institutional field and in the organizations involved. However, since a logic is an ideal type of construction, there is seldom a one-to-one relationship between a logic on the one hand and a group or some roles on the other hand. Olakivi and Niska (2016) develop the notion of hybrid roles, referring to roles connected to and representing two logics. MDs in the role of middle managers are a relevant example. Another position connecting logics is individuals who simultaneously have two or more different roles, which gives them a possible legitimacy to bridge the targets, coordinate action, and seize the opportunities opened up by situations of converging perspectives. Actors with present or historical connections to different logics played an important part in explaining the implementation processes of CPP, and the structures that the implementation worked through were even consciously designed to take

advantage of this property. The establishment of pathway management and Cancer Center Board at one of the university hospitals studied is another example of this.

## **7.2 The challenges of being embedded in complexity and uncertainty**

As mentioned, many studies evaluating the effects of instruction on the performance of ICP and CPP have treated it as a single intervention into a simple system. Contrary to this and in line with other scholars (Seys et al., 2019), I will argue that it involves, instead, a complex intervention into a complex system and even has a complex set of aims as targets for the intervention. First, the intervention is complex because it usually entails several elements and interactions among such aims. It might express the demand for alignment with clinical guidelines, a described standardized workflow, applying multidisciplinary teams and meetings, introducing a new role of patient coordinator or navigator, a monitoring system often connected to groups of analysis and a separate modeling element in the governance system, as well as patient information or educations initiatives. They are not always present in the implemented and practiced CPP but, in my cases, most of them are. CPP is associated with the totality of the means constituting the CPP intervention, though several of them might have been introduced separately from one another. Moreover, the measures released as a total package did not add to complexity merely because there was a bunch of measures but, at least as much, because they interfered with the organizational processes at quite different levels and in a set of diverse communities and systems.

Second, the organization where the CPP intervention is introduced may be classified as complex because the measure intends to influence behavior across both horizontal and vertical organizational borders and because it involves such cross-over processes in a highly fragmented organizational system. In a lot of cases, adding to complexity is the need to involve two or more separate organizational entities. In addition, the units involved may differ greatly in size or vary in the organizational principles they are based on.

Third, although in each case or country at a certain time there might be one dominant proclaimed target of the CPP intervention, there are several represented in cases described in literature and several that motivate and legitimate the implementation in Scandinavia, specifically for the practicing of CPP in Norway. The targets mentioned during the processes of introducing CPP in Scandinavia may be, in addition to reducing the waiting time, articulated as increasing patient centeredness and satisfaction, improving survival, creating greater equity, implementing evidence-based medicine, and so on. Measuring these depends



on very different units, operationalization, and time spans. The complexity of possible goals obviously played a part in the precursor to the political decisions on implementing CPPs.

The fact that human beings are the item being processed adds considerably to the complexity. Moreover, it is important to recognize that the complexity in cancer pathways manifests itself both on the individual patient level—what Strauss et al. (1985) called illness trajectories—and on the collective level, through the entire stream of single patients passing through referring to temporary rhythms. Handling these two, combined in situations and over time, enhances complexity as well. Later in this section, I will describe how several of the elements above unfold in practice in the hospitals and diagnoses I have studied. So far and overall, I conclude that this representation of complexity of CPPs shows that an understanding of complexity processes should be central in analyzing the conditions for implementing and practicing CPPs.

From this, then, it will be appropriate to turn briefly to a more general review of how complexity should be assumed.<sup>39</sup> Complexity in social systems occurs when there is an increasing number of interdependent and, simultaneously, partly independent mechanisms, systems, and units present exchanging information, knowledge, and logistics. The complexity, according to Cilliers (2012), lies principally in the interaction itself and not in the components involved in the interaction. He summarizes what characterizes organizational complexity by these keywords: being part of open systems, operating under conditions that are not in equilibrium, consisting of many elements, having possibly different routes to interact, and to some degree consisting of non-linear interactions. Processes on a micro level in complex systems will develop emergent patterns of interaction and structures. The complexity may be explained both ontologically and epistemologically.<sup>40</sup> Connected to Simon's (Dequech, 2001) concept of bounded rationality, the epistemological challenge may be explained by the limitations in intellectual capacity to handle information from the system at hand.<sup>41</sup> In addition, managing complexity is even more affected by its key characteristic of being an organic not a mechanical process (Strauss, 1985). Applied to the phenomenon of CPP practiced in modern hospitals, this means that we cannot fully understand and satisfactorily

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<sup>39</sup> Byrne (2005) defines complexity theory as the interdisciplinary understanding of reality, as composed of complex open systems with emergent properties and transformational potential.

<sup>40</sup> Stacey (2011) in his review of the topic of complexity science claims that his approach to complexity implies that the distinction between ontology and epistemology will dissolve.

<sup>41</sup> Cilliers (2012) argues that complete knowledge of the actual dynamics of complexity is principally not possible to reach (as opposed to some cybernetics and AI proponents that actually operates with restricted complexity (Castellani et al., 2012)). If absolute knowledge of the real complexity is possible at a certain point, we should still assume this a continuously moving target and thus a target that obviously cannot be reached.

describe the social system performing CPPs through the sum of each of the interactions. Interactions and change of the contexts at one point of interaction may also interfere with how the interactions unfold at other points of the pathway process. The organic and complex character of the sum of interactions means that the rules of Newtonian physics cannot be applied (Stacey, 2011, Byrne, 1998). If models from the natural sciences should be applied, it is more appropriate to look for inspiration from thermodynamics, quantum physics, or ecology systems and to seek comparisons less to a closed system in balance than to an open system that is continuously challenged by forces creating imbalance and trying to reestablish some kind of control (Prigogine and Stengers, 1984).

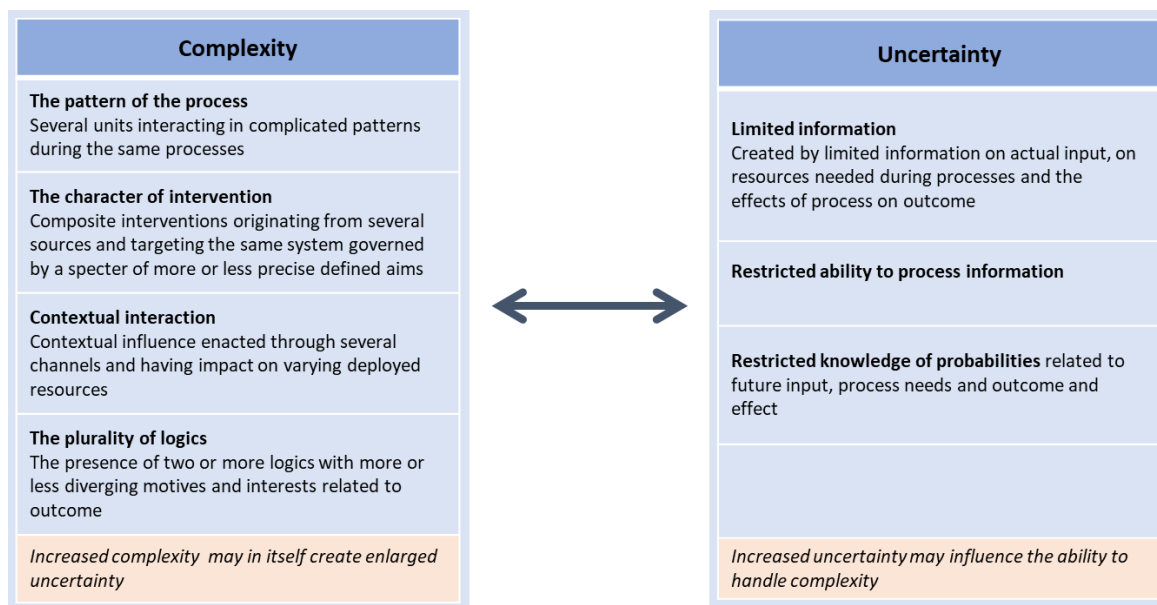
In this analysis, uncertainty and complexity connect to the previous analytical issue of institutional logics. The concept of institutional logics relates to different interests, priority scales, evaluation criteria, and rationality standards that may be present in the social field. Thus, even if we had total insight into all the variables at play, into their interaction at each point of interdependence, and into the iterative processes this was creating, complexity might persist due to the existence of several different logics. The complexity created by the presence of several institutional logics is, according to Greenwood et al. (2011), influenced by their relative positioning within the institutional field, by the degree of divergence and conflict in how they approach a situation or problem, and by the dynamics of their evolution.

Alternatively, phrased in line with Wynne (1992), there may be divergences in the assessment of which parameter should be treated as the most significant. In the previous section, I outlined how this plays out in hospitals and cancer pathways. It is a perspective that also adds considerable complexity to the political decision process and the subsequent implementation.

Cancer as a disease involves losing some of the control mechanisms that ordinarily govern the continuous processes of cell division taking place in the body. The loss of control creates uncertainty. There is a human, emotional uncertainty and there is a medical uncertainty as to the possibilities of predicting the exact pathway of how the disease will evolve and then also of delivering a certain prognosis. CPP, thus, may be interpreted as a measure to regain control, at least apparently by introducing some predictable timelines, professional standards, and connecting structures. In addition to the underlying medical uncertainties brought about by the basic biological properties of the disease, uncertainties related to cancer pathways are caused by more or less predictable characters associated with the development of incidence and prevalence in the actual population, and with the type of interaction related to access to attention in decision processes and access to critical resources.

Through this, I argue that, in addition to complexity, the implementation of CPP should be analyzed in the perspective of uncertainty. As with complexity, scholars have discussed several levels or dimensions of uncertainty. In line with the classical delivery of building distinctions into the concept of uncertainty made by Wynne (1992), I will distinguish degrees of uncertainty, starting with the assumption of the existence of a possible direct inference between two variables, albeit not yet revealed and therefore uncertain. The next step will then be a relation between an intervention and an outcome known by a certain probability. Still another escalation of uncertainty is expressed by a situation where the distribution of outcome is not known. Wynne adds two more categories that are, so to speak, outside the scheme of degrees. One is ignorance. This is described by being a situation we do not know that we do not know. The second category is indeterminacy, which implies that we anticipate that there is some causal chain but we have hardly any information that would make it possible to build any assumptions about it. Applying the differentiation of uncertainty to health care, both Manski (2018) and Han et al. (2011) add still one more category of uncertainty: the category of ambiguity. Ambiguity means being unable to deliver one distinct interpretation of the situation, or of the possible causes and outcomes. In line with the introduction of institutional logics as an element in analyzing complexity, it is natural to think that the presence of several institutional logics could lead to uncertainty characterized as ambiguity.

In my studies on the practicing of CPPs in three diagnoses represented in four Norwegian hospitals, one of my targets was to identify which values on which parameters that contribute to increased complexity and increased uncertainty and unpredictability. I identified two groups of variables contributing to uncertainty: One related to patient flow (the relative size and stability in numbers of new patients) and the other related to the degree of control over core resources (defined through relatively sheltered activities and medical urgency). I further identified three groups of variables contributing to complexity. The first characteristics were related to complexities in the processes of clinical presentation, diagnostic workup, and therapeutic procedures; the second features were related to patient characteristics; and the last was complexity caused by the dependency on interactions between two hospitals. I then pointed at the way the values in these parameters influence the degree of uncertainty and complexity under which cancer pathways are practiced. In Figure 9, I have summarized the elements of complexity and uncertainty that I identified in my studying of the practice of cancer patient pathways.



**Figure 12:** Core dimensions comprising the analytical elements of complexity and uncertainty

Though the issues of complexity and uncertainty belong to two separate research tracks in the social sciences, they are also clearly related to each other, both when dealt with in general and specifically in health care. In the broad field of complexity science and complexity theory, the discussion of uncertainty as a contributor to complexity is present (Stacey, 2011, Byrne, 1998) and, vice versa, in the treatment of uncertainty, complexity is described as a source of uncertainty (Han et al., 2011). In addition to creating a typology of uncertainty based on its source, Han et al. (2011) launch a typology based on issues. These could be roughly linked to each of the three institutional logics present: scientific issues related to the medical logic; practical and system-centered issues of uncertainty associated with the economic-administrative logic; and, lastly, patient-centered issues linked to the patient-related logic.

It is reasonable to claim that standardized CPPs are introduced as a measure meant to reduce complexity and uncertainty and to increase predictability. It is, then, a follow up of the recommendations of Beckert (1996) to build and strengthen an institutional infrastructure as a means of reducing uncertainty; and to enhance organizational structures, path dependencies, norms, habits, and routines. A crucial question remains: Does the implementation of a rigidly designed CPP have a chance of reducing complexity and uncertainty or are the characteristics developed by Wynne (1992) more apt to use? This implies claiming that it is apt to treat CPP as a case of technical precision instruments acting as surrogate of control of social actors and the indeterminacies they imply. Further exploration of the realities behind this knot leads to the next step, which concerns the main activity in handling several, partly and occasionally

divergent, institutional logics present in a field characterized by significant complexity and uncertainty—namely, coordination.

Literature related primarily to the discussion of complexity and that relating primarily to uncertainty both pay attention to the question of what the organizational response should be to the prevalence of these phenomena. The connecting link between complexity and uncertainty, on the one hand, and organizing, on the other, relies on the way these phenomena are understood in health care and then on the strategy that should be applied. Traditionally, the strategies encountering uncertainty have been met by magical rituals (Braithwaite et al., 2018). However, currently it seems to be switching to a belief in reinforced commitment to rational planning, called risk planning (Power, 2007, Brown and Gale, 2018). More bottom-up strategies are also launched (Braithwaite et al., 2018). I will come back to the extensions of these strategies in designing organizational responses.

### **7.3 Coordinating – the core task of the integrated pathways**

As an introduction to the study of the work process in an emergency unit in a hospital, Faraj and Xiao (2006) point at a major challenge caused by the combined situation of complex interdependencies between tasks and roles and the simultaneous presence of input and process uncertainties. They define handling this task as a matter of coordination. In her study of orthopedic pathways, Gittel (2002) underpins the core characteristics of coordination being interactions. She focuses particularly on the processes of building relations specifically in processes characterized by input uncertainty. Jarzabowsky et al. (2012), in their attempt to create a theory of practice coordination, point out that coordination itself might involve change and is, thus, a dynamic activity. They all connect to the legacy of major reference works in organization science delivered by Thomsen (2003) and Galbraith (1973). The entrance of these scholars into an analysis of organizing goes through uncertainty framing organizations and the complexity characterizing their structures and processes. They point at the study of information management as a key process of coordination. Currently, often-cited definitions of coordination in organized fields connect to the management of interdependences (Malone and Crowston, 1994) and the application of strategies and behavior aimed at integrating and aligning actions, knowledge, and objectives of interdependent members (Rico et al., 2008). Creating purposeful interactions in systems with complex interdependences should, then, put coordination at the core of what organizing is about. By virtue of the described complexity and uncertainty that, albeit to a mixed degree, penetrate

cancer pathways, combined with the fragmentation and specialization in roles and entities, coordination should also be a core function of CPP.

To get a precise understanding of the possible dynamics of CPP as a coordination measure, we must grasp the presence of five underlying, possibly divergent dimensions affecting the character of coordination in CPPs. First, the need for coordination in hospitals and health care cannot, as in most other sectors of societies, be understood without the perspective of the development of the general increased specialization combined with more tasks and processes depending on the combined contributions of several specialists (Strauss, 1985, Faraj and Xiao, 2006, Kinston, 1983, Lega and De Pietro, 2005, Scott, 1993). However, this division of labor has also another dimension, the excretion of tasks connected to the planning and governance of work process from accomplishing of them.<sup>42</sup> As Chandler (1962) and Galbraith (1973) point at, there is a need of coordination and integration connected both to the daily operative task and to long-term plans and strategies. This may not be so explicit in health care as it is in traditional industries and, therefore, it may not be considered. The degree of the division of labor on those two dimensions influences the character of the interaction required to accomplish coordination. This appears through my presentation in articles 3 and 4. The fragmentation and division of labor are also visible through the development and status of administrative entities and organizations involved in preparing and implementing health care policy (see Part 2 and articles 1 and 2). This, too, generates a challenging need of coordination.

Second, the coordination process is influenced by how open or sheltered the processes of the relevant organization are. Open systems, in general, increase the complexities of interactions that the organization is nested into, depending on the exchange with the surroundings. They might often simultaneously decrease the ability to control external factors that influence the outcome, thus increasing uncertainties. The more dependent on surroundings and the less sheltered, the more pronounced the need for coordination, which depends both on internal and external processes and, not least, on the combination of these (Gittell and Weiss, 2004). Leutz (1999), in his study of integration between medical and social services, interestingly points at the phenomenon that the optimization of internal integration in a unit might be counterproductive to efficient integration between this unit and others. Several scholars have

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<sup>42</sup> Timmermans and Berg (1997) identify medical standardization as an expression of this externalization of coordination tasks from the medical staff conducting the work processes. I will return to the role of standardization in coordination in the discussion of organizational structures and in the wrapping up, in the final part of the thesis.

investigated the actual coordination activities accomplished through the specific complexities created through the border zones between specialized, mutually dependent entities (Kellogg, 2011, Carlile, 2004). The prevalence of both intra- and inter-organizational coordination is the case in both our studies—albeit to a differing degree, as discussed in a part of article 4, and through differing mechanisms, as discussed in article 2.

Third, coordination challenges depend on whether the coordination is concentrated more or less in one place and time or entails longer, end-to-end processes possibly involving activities at several locations (Jarzabkowski et al., 2012). As I have illustrated in articles 3 and 4, in CPP both are relevant. However, the divergence caused by these time and place framings in pathway coordination may still be important to understand.

Fourth, the accomplishment of coordination may be influenced by the task to be coordinated. Several proposals exist for categorizing the content of what is coordinated. However, I find that the typology introduced by McGrath et al. (1999) makes good sense when applied to my cases and corresponds to the core elements of the definition of coordination proposed by Rico et al. (Rico et al., 2008). McGrath et al. differentiate between coordination of understandings, coordination of action, and coordination of interests. They have more or less overlapping arenas and mechanisms through which they work. In line with Crowstone (1997), the mechanisms of coordination may depend on what is going to be coordinated. The performance in multi-disciplinary team meetings, activities in informal and semi-formal local and regional professional networks, and the work of national multi-disciplinary, diagnosis-specific groups are in my cases expressions of the coordination of knowledge. The work of the cancer pathway coordinator and the project- and resource-groups during the implementation process are examples of the coordination of activities. The last category, the coordination of interests, I am relating to the introduction of different institutional logics during the processes in both my studies.

In the fifth dimension influencing coordination, I return to institutional logics. What complicates coordination, beyond optimization of activities and compilation of understanding, is the presence of potential divergent interests (McGrath et al., 1999), rationalities (Hjern and Porter, 1981), and goals and perspectives (Symon et al., 1996), which I have incorporated under the notion of divergent institutional logics. This phenomenon is present in the analysis of coordination in hospitals delivered by Allen (2018) and Pine and Maizmanian (2017). They argue that facilitating coordination must incorporate the ability to manage the presence of different logics. Through my analysis, I claim that the numbers and divergences of the logics

present in the field of coordinating activities will influence the challenges and solutions for accomplishing coordination. I emphasize that the arrangement for formal and informal structures of interactions influence the mechanisms and the rules of interactions among representatives of different logics. Through this framing, the mechanism of interaction they might be command and control, negotiation, peer consensus, or counseling. In the second article, we show the presence of all these alternatives structuring the coordination of activities, while, in the two articles representing the study from the hospital level, we elaborate on the shortcomings in terms of structures that facilitate vertical coordination in and between hospitals; and we indicate that this inhibits necessary and fruitful clarification in the interaction between the economic-administrative and the professional-medical logic. The challenge created by this deficiency is probably a crucial contributor to the contradiction, described by Alford (1975), between corporate rationalization in health care and the inability of the carriers of that ideology to control all the factors in health production. This, Alford says, “leads to failures of planning and coordination in practice” (p. 205).

Across the five dimensions influencing the conduct of coordination, there is a two-part distinction when it comes to interpreting the work of coordination under circumstances characterized by complexity and unpredictability. On one side, it is possible to accomplish and facilitate coordination by cleverly adjusted formal information and communication systems and by improvements in developing and clarifying appropriate formal roles, rules, and organizational design. The article on coordinating cancer care by Walsh et al. (2011) seems to trust this approach, which is an approach characterized by a belief in the possibility of reducing complexity. Even the review of the contributions of published research to organizational coordination from Okhuysen et al. (2009) leans toward a strategy of improving coordination based on reducing unpredictability and building common understanding. Several scholars (Symon et al., 1996, Faraj and Xiao, 2006, Pine and Mazmanian, 2017, Gittel and Weiss, 2004, Banks et al., 2016), however, have acknowledged in recent years that the ability to make coordination easier through formal structural interventions is limited at least in itself. Instead, they prescribe a path towards managing the increasing challenges of conducting coordination that is characterized by flexibility and informal, situated interactions. This realization is close to what I present in this research and, like these scholars, I am elaborating on studies of how coordination is deployed as an actual social practice (Jarzabkowski et al., 2012).



## **7.4 Organizational structures as context and response to the cancer pathways**

Coordination as a core purpose of the organization has been an affirmed point of departure of organizational analysis for decades (Selznick, 1948, Barnard, 1938). In both Mintzberg's (1980) and Galbraith's (1973) work on organizational design, coordination is a major target in choosing an appropriate model of organizing. They presuppose the process creating a division of labor, which creates the reason for coordination through organizing. Therefore, the organization of work simultaneously generates the need for coordination and then comes to constitute a crucial measure for coordinating. The decision on the most proper design is, first, an effect of how work is fragmented into specialized functions and, second, what types of principles should lead the bundling and combining of specialized tasks. These principles may diverge according to the different needs of coordination of day-to-day operations and coordination of strategic developments (Galbraith, 1973). What is gathered in units and subunits should ideally be those specialized work operations that are most important to coordinate in both these perspectives.

According to both Mintzberg (Mintzberg, 1980, Glouberman and Mintzberg, 2001b) and Galbraith et al. (2002), the structuring of coordination reflects the bundling of tasks in the formal organization. Mintzberg argues that the coordinating mechanisms are embedded in organizing through different versions of standardization. The terminology of Galbraith and Mintzberg differs somewhat but, by combining elements from both of them, I propose that there are three fundamental organizing models relevant to the discussion of hospitals and cancer care. First, it is a structuring based on integrating similar operative functions. The coordination is then facilitating standardization of work procedures. In a hospital, there are several examples where this principle is applied in organizing based on the collection of similar technical processes into units. Mintzberg labels this organizational configuration as machine bureaucracy. Second, it is a structuring based on uniting similar specialized skills. In a hospital, this is expressed through the different professional groups or medical specialists and the coordination is deployed through the standardization of skills and knowledge. The label put on this by Mintzberg is professional bureaucracy. A third structuring principle initiates from assembling based on similar products, solutions, or users. The contribution to coordination here stems from the standardization of outcome or output, and the label put on this type of structure is the divisional form. In hospitals, this may point to several alternative structuring solutions such as structuring around acute care vs. chronic care, structuring around

patient groups, or structuring aligned with the geographical catchment areas of the hospital.<sup>43</sup> The organizational designs aligned with process-orientation are then labeled vertical integration<sup>44</sup> (Thompson, 2003), which, according to Galbraith (2012), has grown in prevalence in the last decades due to the combination of consumers' or users' relative power with an increased demand for products and services customized to users' specific needs and characteristics.

In hospitals, all three principles for combining work processes may be present. However, the second, professional bureaucracy, still has the most profound impact on existing hospitals since their main structuring seems to cluster around medical specialties. The first principles are present, too, not least through several tasks with lower skill requirements than physicians', typically including repetitive laboratory tasks, coding tasks connected to registries, and handling routine exchanges of information. However, this kind of work and its needs for coordination are never taken up as an organizing principle on the higher levels.

It is possible to argue that integrated patient pathways also specifically combine all three of these structuring and coordinating principles. CPPs aim to build on prescribed work procedures. It prescribes the presence of standardized skill and, not least, it is at the core of the concept to integrate the necessary combined skills and procedures connected to each patient. The third organizing principle, the process-orientation, is still probably the novelty that CPPs try to promote in the organizing of hospitals. However, as elaborated in Chapter 2 and in all four articles on which I am building this thesis, these patient-processes have hardly had any impact on the formal organizing of hospital. This is remarkable because, as illustrated in my research, there are signs of an increased influence of, and of the customizing of care to, patients that is similar to that reported in general, regarding users and customers in other areas of society (Galbraith, 2012).

To establish conceptual tools for organizing coordination, I will argue that the three major principles above should be supplemented with conceptual tools with the ability to catch the analytical differentiation between principally different ways of constructing the collaboration

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<sup>43</sup> In his syntheses of structures in 5s from 1980, Mintzberg (1980) in the end asks himself if a sixth structural configuration should be added. This should then be coordination through standardization of norms expressed through the culture in practice. This is further integrated when he analyses the organizing of health care in 2001 (Glouberman and Mintzberg, 2001b). CPP may also be interpreted as an attempt to impose a culture of strengthened focus both on patient's perspectives and on a cooperative spirit.

<sup>44</sup> Here, vertical integration does not mean integration along along a vertical hierarchy of the organization, but it is an expression used to describe the integration along the so-called up-stream or down-stream chain of steps in a production sequence from raw material to final product processed and delivered at the end-market.

between various functions and specialized skills and knowledge. Stabell and Fjeldstad (1998) connect this to the kind of collaborative mechanisms that actually creates value in the work process. Glouberman and Mintzberg (2001b)<sup>45</sup> present an approach to the logics of collaboration close to the one of Stabell and Fjeldstad. Both contributions start with the widespread imagination of interpreting interdependent providers in the work process as a programmed chain of events and participants. However, approaching collaboration as a programmed chain does not always fit with reality. Several actors may be contributing to the work process more or less simultaneously and may be mutually dependent on each other's efforts—and not necessarily in a chronologically separated timeline. To cover these types of collaborative structures, the expressions of consultative webs and decision-making hubs are introduced.<sup>46</sup> As shown in my studies on reform implementation and the practicing of CPP, there are different types of network processes and collaborative communities, both in the performance of action and in decision-making. This is in line with the arguments of O'Toole and Meier (1999) identifying processes of fixing, brokerage and facilitation as decisive for succeeding with coordinating efforts under uncertainty, complexity and structural ambiguous settings. The approach may also be applied to the political processes ahead of the decisions of the waiting time reforms by connecting to the arguments of Ashworth (2007). When analyzing a case of institutional change on macro levels she point at the presence of bargaining between groups and stakeholders expressing different institutional logics.

Though professional bureaucracy seems to be the major premise of the structuring of hospitals, it does not mean that professional matters of medicine dominate the agendas of management at hospitals. Quite the opposite. As the development in Part 2 and the analysis in articles 3 and 4 indicate, the professional-medical matters, representing the medical institutional logic, often remain on the lower levels of departments and sections of hospitals. Level two at hospitals comprises bundles of different constellations of several highly specialized groups of medicine that largely live their separate lives in their medical development and professional medical decisions. In addition, they are involved in a range of separate patient processes as they cooperate with and depend on other professions and specialists that are not necessarily organized close to them. At the national level, the

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<sup>45</sup> They admit that they have borrowed this approach from the work of Lizz Lamothe. However, I found this to be available only in French.

<sup>46</sup> In their discussion of temporality and organizing, Ballard and Seibold (2003) connect to coordination and introduce types of temporalities related to different types of coordination: sequential interdependence, pooled interdependence, and reciprocal interdependence. These seem to be closely related to each of the types of the work process that I refer to here.

coordination of medical work is localized at the Directorate of Health and other governmental agencies subject to the Ministry of Health. These are separated from the general governance line from the Ministry, via the Regional Health Authorities, to each health trust and hospital. The increased focus on economic-administrative accountability through this line, combined with the secession of concerns related to the professional medical topics and medical logic, has strengthened the influence of the economic-administrative logic.<sup>47</sup> As I argue in article 2, due to the structuring of the health care system in large hospitals and in cancer care specifically, this is probably a more prevailing tendency in Norway than it is in Denmark, and especially more than in Sweden.

In the earlier discussion of coordination in this chapter, I have indicated the presence of two main directions in interpreting coordination—approaches that are also present in the literature on organizational design. One of these hinges on formal rules and lines of responsibility related to the manifest hierarchies. This approach leads toward discussing the fit or the mis-fit of formal structuring (Nissen, 2014). The discussion of developments in hospital organization by Lega and DiPietro (2005) is primarily concerned with this, as it recommends redesign as an answer to the challenges of multi-specialty hospitals.<sup>48</sup> They point correctly to the fact that strategic demands and challenges have changed. If, according to the advice of Chandler, strategy should guide structure, then Lega and DiPietro (2005) are right. In his analysis of the organization of US enterprises, Chandler (1962) is in addition concerned about growth in size as an intermediate variable, since a growth in size depicts the change in strategy. Part 2 shows that one of the tracks characterizing the developments in Norwegian hospitals during the last decades is precisely the growth in size of each unit. Paradoxically, however, there has hardly been any change in the basic principles of formal organizational structures.<sup>49</sup> This adds to the question Chandler himself addressed, about why there is no automatic process creating alignment between changes in strategy and change in structure. In the case of hospital organization, the explanation might be found by relating to organizational institutionalism developed by Meyer and Rowan (1977). The formal structures of organizations are defined in

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<sup>47</sup> It is interesting to note that Power (2007), studying the sociology of accounting and auditing, argues that explanations of preserving organizational structures turn from the original motives towards being actually justified by the keeping the stability of structures of the accounting system. The accounting system is constituting the territories of organizations (Miller and Power, 2013).

<sup>48</sup> A caricature representation of this approach to organizing of hospitals is delivered by Glouberman and Mintzberg (2001b), who call it the shuffling of words and boxes on pieces of paper.

<sup>49</sup> It is interesting to recognize that the continuous increase in the size of Norwegian hospitals and legal hospital trusts (see Part 2) can hardly be claimed to be a result of a conscious strategy or master plan of growing in size but is caused by several indirect independent processes.

part by their contribution to efficiency and in part by their contribution to legitimacy. The dominant, functional premises for organizing hospitals deliver, in crucial ways, the expected legitimacy simply by still being the dominant way of organizing. This is what the language of new institutionalism calls isomorphic processes. It builds on the myth that the dominant form must be best. Thus, the mechanisms connected to it may appear as a stabilizing element although in fact they contribute to inertia when it comes to real change.

When, according to Meyer and Rowan (1977), the processes carried out by organizations must be interpreted as delivering both efficiency and legitimacy, a conflict may occur between these targets. They also propose that another source of conflict might be an inconsistency between different institutionalized elements present. As I see it, the presence of several institutional logics may be the reason for that.<sup>50</sup> To solve these tensions between the targets of legitimacy and efficiency, Meyer and Rowan introduce the concept of decoupling. This refers to elements of structures establishing room for working more or less independently from each other and, through this, working out interdependences informally. They anticipate that the room for decoupling makes it possible to coordinate in violation of rules and standards and to vary activities in response to practical considerations. This opens for my approach of analyzing the organization of introducing and practicing the CPPs. This is because these processes cannot be understood based on the formal organization of health care on national and hospital level. In both cases, the existence of supplementary, emergent, semi-formal, and partly self-organizing structures must be acknowledged and analyzed to unveil the steps of these paths. According to scholars, both stable formal organizations and pre-designed, linear workflows are most appropriate as organizational environment when there is a considerable degree of predictability of contexts and processes, at least in the time frames and resources available. In the political and administrative processes that we have analyzed in articles 1 and 2, this was not the case, although, to a limited and divergent degree, it was the case in the practice of cancer patient pathways at the hospital level. As Thomsen (2003), Galbraith (Galbraith, 1973, Galbraith, 2012), and Mintzberg (Mintzberg, 1980, Glouberman and Mintzberg, 2001b) state, a major overall concern of organizing is controlling and

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<sup>50</sup> The article of Meyer and Rowan (1977) is often treated as one of the core contributions in organizational research of sociological new institutionalism. When the idea of institutional logics later emerged from this tradition, it was partly as a result of a critique of the prevailing concept of isomorphism and a search for analytical tools that supported the identification of cultural differentiation and pluralisms (Ocasio et al., 2017). From this perspective, it is interesting to note how Meyer and Rowan, in their contribution from 1977, combine the analytical tools of isomorphism and possible inconsistency between several legitimating elements, which actually may be interpreted as a germ of the concept of institutional logics.

reducing uncertainty. However, as Galbraith argues, uncertainty that is difficult to control will create the need to activate lateral organizational structures and processes in addition to the formal and primary ones, based on some kind of stable, transparent, and predictable conditions.<sup>51</sup>

The emergent, semi-formal, partly self-organizing, and more or less permanent structures that are identified and described in both my studies may be classified as lateral structures (Galbraith, 1973) and as processes manifesting themselves under the concept of adhocracy (Mintzberg and McHugh, 1985). In the cases of policy decision and CPP implementation, several expressions of this are identified, such as the extraordinary national cancer-specific councils, the national multidisciplinary groups, field-configuring events (Lampel and Meyer, 2008) identified both at the hospital and the national level, the implementation infrastructure exploiting project-like structures, and processes inspired by social movements (Schneiberg and Lounsbury, 2017). In practicing CPP in and between hospitals, the crucial role of these emergent structures was highlighted: The professional communities and multi-disciplinary teams, the consultative networks, and the actively connecting coordinators are often supported by the fact of their physical proximity (Hardy and Maguire, 2010, Boschma, 2005). Each of these phenomena has been elaborated in more or less distinct research tracks, whose sources are reviewed in article 3. They may be connected to what is called post-bureaucratic organizational form (Lee and Edmondson, 2017). However, the roots of the notion of professional communities may also be tracked back to Weber's (1947) discussion of the phenomenon of collegiality.

From the cases I have been studying, both on the macro- and the micro-level, these emerging organizing structures have some features in common that distinguish them from the primary, formal line structures present. First, their dynamics do not result from the purpose of performing economic-administrative control, governance, and accountability. They are not means of top-down commanding and bottom-up reporting. They work through one or through

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<sup>51</sup> When discussing complexity and organizing, Galbraith (1973) refers to the law of requisite variety, taken from cybernetics and stating that the structuring of an organization should be designed according to the necessity for enabling it to handle variations in its environment. To apply it meaningfully to the organizing of hospital processes, we should take into account the variations created by external elements, by its methods, and by the population of patients treated (see Part 2 and article 4). This application of the law of requisite variety then supports the necessary presence of complex structuring in processes presented in this chapter and in article 3.

a combination of several of the dynamics of peer-based consensus,<sup>52</sup> negotiation<sup>53</sup>, or counseling.<sup>54</sup> Through these dynamics, they target coordination and joint decisions and actions often characterized by significant time pressure. Second, the structures under this heading are not recognized in the formal organizational charts of the institutions. Third, none of their formal or informal members are superiors of the others. They might have a formal or informal leader but that person is not legally a head of all the others. Fourth, the form and content of these structures seem to be more modifiable than most arenas in the formal line organization. Fifth, these structures and the arenas they constitute are task-oriented, not administrative-oriented. These features, not least taken together, are precisely the source of their ability to seize windows of opportunity and to master the challenges created by more extensive unpredictability and complexity. In line with Cillier (2012), the emerging organizing structures and processes I have raised may be an expression of the type of complex organizational forms that enable the practice of appropriately complex organizational behavior.

Discussing the organization of hospitals in general and of cancer patient pathways in particular in light of the duality of formal and emerging structures is a kind of ideal type construction.<sup>55</sup> The core of an emergent organizational phenomenon is, historically and dynamically, continuously constituted through the interaction among its members and with its surroundings. As I have shown through both my studies, the actual real-life structures might well contain both formal and emergent elements, even though they are not directly part of the formal organizational hierarchy of the hospitals or the health care administrative systems. The reality of structuring, then, is a continuum and a mixture of elements from both ideal types. The mixture may be due to it being an entity with a mandate formally given by a formal authority; or it being a unit consisting of people assigned to it due to their position in a formal organization; or it simply including persons who simultaneously have a position in the formal

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<sup>52</sup> I note that, in 1957, Thompsen and Bates (1957) argue that there is a coherence between the presence of unstandardized technologies in hospitals and the appropriateness of making decisions through agreement and consensus rather than through control.

<sup>53</sup> Negotiation is a phenomenon elaborated on in literature connected to the accomplishment of coordinated work both on micro (e.g. (Freidson, 1976)) and macro level (e.g. (Ashworth et al., 2007)).

<sup>54</sup> In her discussion on patterns of bureaucracy in hospital organization from 1961, Goss (1961) introduces what she calls advisory relationship in professional bureaucracies (in addition to the three types of bureaucracy launched by Gouldner (1954)). The concept of advisory bureaucracy seems to be close to Mintzberg's (1980) concept of professional bureaucracy.

<sup>55</sup> Historically, highlighting informal structures of organizations was connected to the resistance of collectives of employees to the depersonalized traits of bureaucratization (Selznick, 1943). These processes are cleverly analyzed in an industrial setting by the Norwegian sociologist Sverre Lysgaard, in his study *Arbeiderkollektivet* (1961). This analysis of the struggles between what he calls the technical economic system, the human system, and the workers' collective as a buffer between these two systems different logics existed.

organization. In the continuum, there is a variation, from structures close to formal entities like matrix units and hybrid constructions, via resource groups, project units, and task forces, on to informal collegial communities based on, for example, coincident carriers or proximity of location and situated in collaboration on joint problems and tasks. In addition, across the duality of formalized and emergent organizations, there is also a variation in the degree of institutionalization and temporality. Some emerging structures such as professional collaborative communities may have features of being highly institutionalized and, at the same time, may hardly have any connections to the formal line organization. Other forms of emergent organizational phenomena come and vanish, and are generated by—and, at the same time, are generating—the situation where they arise, as in project-like initiatives and initiatives resembling social movement processes (Hodges and Read, 2018). In the paths leading to the practicing of cancer patients pathways, there are examples of emergent structures along the whole continuum of mixtures and temporalities. Cilliers (2012) makes an important clarification concerning emergent organizational forms: this phenomenon will occur not only as a horizontally organizing phenomenon at the bottom of the organizational pyramids but also along hierarchies. It is then expressed through alternative hierarchical routes of communication that, in the end, may lead to the transformation of existing hierarchies. This type of organizing emerging in hierarchies is illustrated by several of the constructions applied during CPP implementation in the Scandinavian countries described in article 3, and by the presence of the Cancer Centre Board in one of the hospitals in the second study.

In discussing explanatory elements of coordination in cancer pathways, I will also relate to the previous point that organizing both creates the need of coordination and is the measure for coordinating. I referred to the nature of work-processes being either a programmed chain, a problem-solving hub, or a consulting web. It is, then, obvious to imagine that there is a connection between the specific needs of coordination provided by each type of process and the coordinating mechanisms of more or less formal communities of professionals or relevant social networks. If, as I argue, the coordination of cancer care processes comprises all three types of work-processes, then actively supporting and creating aligned coordinating structures should be important.

The organizing of coordination should also be interpreted as a structure governing the interaction of the institutional logics present. The processes going through the hierarchical organizational line representing the formal governance structures are primarily concerned



with facilitating the processes connected to the economic-administrative logic, while the others are more or less formal and temporary, acting as facilitating and coordinating arenas that give more room for expressing the two other institutional logics present (Hanlon et al., 2019). The presence of these is crucial to explaining the political decision process, to orchestrating of the implementation, and to the relatively successful practice of CPPs. These successes are not conceivable without structures opening for some access to all three logics. The economic-administrative logic is fully legitimate in a publicly owned and financed hospital system. Some kind of structures and processes facilitating the accountability of this logic are reasonable.<sup>56</sup> However, the politically imposed mission of CPP is, in addition, dependent on the unfolding of the other institutional logics. The challenge, then, is how to accept and even stimulate these types of structures and, not least, how to organize the interaction and relations between the emerging structures necessary to give room for the medical professional and to create mechanisms that contribute to fruitful interaction and balance between the logics in play.

I will argue that it makes sense to connect the argument of Meyer and Rowan (1977) that organizations should be interpreted as systems striving for both efficiency and legitimacy to institutional logics. This implies that institutional logics express themselves through processes that try to provide their contingencies with outcomes delivering both efficiency and legitimacy. I further argue that it is inherited in the construction of the organizing of coordination how specifically the institutional logics are presented in relation each other and how the rules of interaction between the logics unfold—whether it is command and control, negotiation, consensus, or counseling. The necessary integration of both the large or strategic and the small or day-to-day decisions involving several institutional logics may be accomplished either through collaboration (Reay and Hinings, 2009)—which results in compromises, shared decisions, mutual adjustments, or transcending solutions—or through cooptation (Selznick, 1948, Andersson and Liff, 2018). In the case of coopting, some of the arguments or perspectives related to one logic are incorporated into the decision and measure, without necessarily adding anything to the efficiency of outcome related to that logic. This could be said to be the case if the monitoring of CPPs were, initially, motivated as much by the medical as by the patient-related logics. When integrated into the morphology of the

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<sup>56</sup> The distinction between accountability and legitimacy needs a comment: Using the terminology of Meyer and Rowan (1977), I will argue that accountability may result from the creation of both efficiency and legitimacy. An example of this is copying structural forms (isomorphism) that signals legitimate conditions without necessarily saying anything about efficiency of outcome, like aligning with specific procedures of auditing and governance (Power, 2000).

governance system, however, the monitoring of the CPPs is easily in danger of being coopted by the economic-administrative system, which permeates this system. This coopting process will then develop toward isomorphism, meaning that the phenomenon of CPP will be encapsulated in the dominant organizational form through which the economic-administrative logic expresses itself.

## **7.5 Room for maneuvering, agency, and entrepreneurship in implementing and practicing CPP**

Part 2 tells a history of cancer care and hospital development that indicates a process toward a state where comprehensiveness and appropriate coordination cannot be taken for granted; and where they are increasingly challenged by developments towards fragmentation, complexity, and division of labor. The pace of this development, combined with the features of basic inherited organizational structures, does not foster a kind of organically driven compensatory institutional processes taking care of extended needs for comprehensiveness and coordination. Neither is that the case from a macro-level concerning the development of health care systems themselves. Explaining processes facilitating, developing, maintaining, and adjusting the conditions for and practice of integrated patient pathways such as those in cancer care are, therefore, dependent on the presence of intentional actors, on the accomplishment of real change, and on the establishment of situated collaboration—not merely adaptations of existing values, beliefs, and established patterns of practice. Unveiling why and how this occurs, therefore, depends on analyzing what precipitates enactments of change agency, and how the agency present actually unfolds and interacts with the constraints on agency created by the institutional contexts. This is about understanding the actors who perform the steps on the paths leading to cancer pathways.

The concept of institutional entrepreneurship emerged as a reaction to a tendency in neo-institutionalist theory to explain all actions only as a result of adaptations to the needs of adjustments in praxis and in ways of expressing explanations of praxis to be in line with the prevailing ways of legitimizing reality. This grew from what was called the paradox of embedded agency (Clegg, 2010). However, the presence of uncertainty, combined with the complexity of the field where it occurs, in itself reduces the ability to guide action through institutionalized behavior (Beckert, 1999). On a general level, this opens for the need of

agency.<sup>57</sup> Then, the candidates for exploiting the room for intentionally maneuvering may come from either the center of the field or the periphery, and they may be influenced by the position of the facilitating and leading actors and by the characteristics of the field in addition to the interaction of these two (Battilana et al., 2009). That direct access to relevant members of the field through limited intermediaries, made available through social or physical proximity or networks, promotes the exercise of agency and is one relevant characteristic of the position of actors. Scholars argue that characteristics of the field influencing the room of agency are the degree of contradictions in the field (Rao and Giorgi, 2006) and its maturity (Greenwood and Suddaby, 2006).

Defining what constitutes actions worth classifying as forms of institutional entrepreneurship has varied. On one hand, there has been a demand that actions should fundamentally challenge dominant praxis to adopt alternative approaches to solving reoccurring complex situations and problems. Moreover, there has been a shift of focus from the actors toward the processes through which entrepreneurship unfolds (Greenwood and Suddaby, 2006). In this perspective, entrepreneurship might be exercised by a collective, even by a social movement (Schneiberg and Lounsbury, 2017), or by single strategic actors (Beckert, 1999). The latter, however, will often emerge as backstage organizers and facilitators more than clearly visible heroes placed in high-ranking formal positions (Haug et al., 2013).

The existence of simultaneously existing institutional logics and parallel organizational structures gives room for agency in itself (Rao and Giorgi, 2006). Though one logic and a supportive organizational structure may be dominant, the existence of competing, challenging, or collaborating alternative ways of conceptualizing a situation or a process may give room for action combining, battling, balancing, or transcending the tensions between rationales and logics. The structuring of the organizational field further both mediates room for actors' initiatives and constitutes the relationship and interaction between core agents. Thus, there is a crucial iterative relationship between strategic actors and the contextual structures influencing their course of action and the outcome. The entrepreneurship does not lie only in the outcome, such as establishing or adapting a satisfactory patient pathway, but, probably just as

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<sup>57</sup> In his review and discussion of complexity science, Stacey (2011) relates to the issue of agency. He claims that agency and intentional action cannot be interpreted through actors placed externally to the system they act in, as is the assumption, at least indirectly, in dominating parts of management literature. Instead, he argues that agency in complex systems emerges through interaction. Another version of this approach is delivered by Hensmans (2003) when developing a concept of social movement organizations interpret strategic agency as emerging from social boundary processes.

importantly, in the development of the process itself and in the structuring of the framing encompassing the process. So, the structures connecting to the political processes, the enactment of implementation, and the practice of CPP configure the room of action through the way in which they orchestrate the unfolding of present institutional logics. In addition, the actors may themselves create adjustments and alternative structural patterns, thus changing the rules of interplay between logics and developing new room for maneuver and change. The actors both exploit the existing structures and explore new tracks for organizing. A crucial characteristic of structures that might enhance entrepreneurial action is organizing that facilitates connections between actors and resources that can, in turn, be mobilized to realize intended actions and outcome (Battilana et al., 2009). The point where actors create a structure of crucial importance to facilitating entrepreneurship is discussed in literature through the notion of field-configuring events (Lampel and Meyer, 2008).

To make the understanding of actors acting as institutional entrepreneurs more complete in relation to my cases, two more elements must be introduced. First, it is possible for an actor to have a mixed affiliation (Beckert, 1999, Castel and Friedberg, 2010). This involves several aspects that might affect the actor's approval of initiatives and justification of arguments used. Actors may have an attachment to several fields or logics through their career, they may have combined positions, or they may be playing a role connected to two or more logics. Such mixed affiliation may either be a limitation, creating a paralysis of actions, or it may boost action, creating credibility with respect to several logics and giving access to parallel structural arenas. Second, actors may differ in their influence base being either structural or normative (Lockett et al., 2012). Structural means that actors' main source of legitimation of arguments and actions lies in the formal positions they inhabit. Normative means that this source stems from the recognition of their arguments by their peers. Competition between actors with different structural and/or normative affiliations might even be important to recognize in order to understand the development of room for action. Entrepreneurship as collective agency, therefore, might emerge as a combined effect of tensions and dynamics between actors, institutional arrangements, or degrees of institutionalization—and not just as a result of joint action. It may also precipitate through actors who, through the same organizational position, manage to have a combined affiliation and who, thus, execute so-called hybrid praxis (Olakivi and Niska, 2016): having legitimation according to more than one institutional logic or having both structural and normative influence.

According to Battilana et al. (2009), institutional entrepreneurs have to include three dimensions in framing their narrative. The first dimension is diagnostic framing, making explicit the failings of the existing order. Second is prognostic framing, introducing a solution that delivers an outcome superior to both the present state and any alternative solutions. Last, there is motivational framing, with messages that appeal to all major constituencies. Motivational framings may arise from institutional contradictions (Rao and Giorgi, 2006) and may be exploited by actors with suitable organizational positions.<sup>58</sup>

The room for and presence of all the above-mentioned elements of institutional entrepreneurship and agency are illustrated through my present studies. Thus, the previous research contributes to the analysis of our cases, both in relation to national processes and on the field level. The establishment of consensus expressing an urgent need for what was defined as a waiting-time reform, the support for CPP as the solution, and the effective orchestration of its implementation present an example of entrepreneurship that unfolds on a macro field level. The room for action, initially in the political processes that brought cancer care waiting times urgently into the societal agenda, was created by tensions simultaneously emerging with reference to three different institutional logics. Actors from different positions in the field gathered around a narrative that simultaneously had a legitimating diagnostic, prognostic, and motivational framing. Actors with combined legitimacy to different fields, levels, and logics intervened and exploited the room for action. They combined working through ordinary organizational lines, newly established focused arenas, with, simultaneously, creating and exploring new structures designed to be tools directly supporting the delivery of CPPs at hospital level. In addition, the differences in organizing the governance of hospitals and cancer care in the three Scandinavian countries illustrate how structuring, as well as the dynamics of the interface between institutions and levels, influence the rules and room for action during implementation.

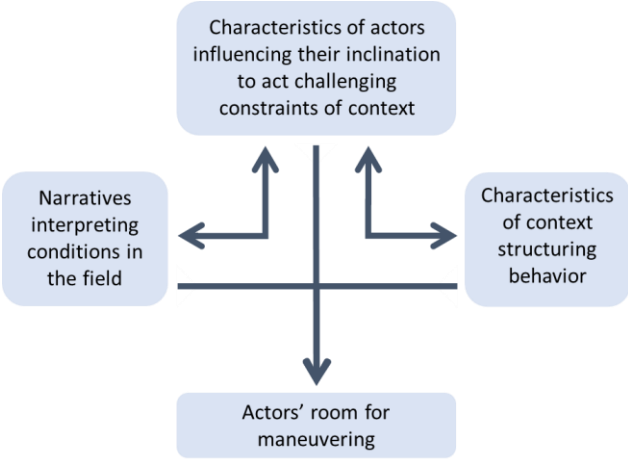
The practice of CPPs at several hospitals presupposes, to a variable degree, entrepreneurship on a micro field level, expressed by actors intentionally crossing the formal borders of organizations. They do so through more or less entrepreneurial action performed through the exploitation and exploration of networks, communities of practice, and boundary spanners to reach satisfying cross-disciplinary professional decisions and resource allocations. In case of

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<sup>58</sup> Central contributors on institutional entrepreneurship (Rao and Giorgi, 2006, Battilana et al., 2009) clearly connect to the change model of Curt Lewin (Burnes, 2004) represented by the circle of de-institutionalization (de-freezing), change, and re-institutionalization (re-freezing).

the latter, we also showed how the existing formal structures within and between hospitals put limits on the ability to practice necessary entrepreneurship. Entrepreneurship on both the macro and micro level involves a combination of minor and major initiatives that partly happen at unique, specific occasions and partly repeatedly reoccur. On the micro level, actors initiate patterns of interventions with the purpose of enabling a more resilient institutional context of the CPPs or resolving complex situations that affect the interaction of pathways acquiring the same resources as well as single pathways in need of solutions beyond established routines.

Through reviewing literature and through my own research analyzing the presence and unfolding of coordinating agency in complex organizations, I also aim to be able to say something about the elements of dynamics that create room for agency and entrepreneurship. Simplified, this is summarized in Figure 10.



**Figure 13:** Core dimensions comprising the analytical elements of agency and entrepreneurship

## 8. Conclusion

*“We are not, in any sense, against standardization – only against society’s romance with it”. (p. 4) (Lampland and Star, 2009)*

*George Harrison: “The difference between me and Eric (Clapton) is that I am just a guitarist who playthings and sometime singing. He can improvise and keep it going.*

*What he does takes on a pattern and gets somewhere and then resolves itself.”*

*Paul McCartney: “But that is trying to do jazz.”*

*—dialogue between two rock musicians in the documentary film Get Back (made available on Disney+ in 2021)*

Through this thesis, I am defending the necessity to identify crucial contextual elements of the performance of cancer politics and cancer patient pathways and to understand thoroughly the impact of politics, administrative implementation, governance, and professional practice on coordination. Briefly introduced in Part 5 but present right beneath the surface of my analysis throughout this work, there have been two elements apparently competing to occupy the stage for coordination expressed through the concepts of standardization and improvisation. They now have to be included to deliver answers to the initial research questions of this thesis: How can we explain the coordination of politics and of practice related to cancer pathways? This, in turn, also leads to the sub-questions: Through which mechanisms is this coordination accomplished and what is the impact of the contextual framing?

Building on the discussion of the five analytical elements in the previous chapter, in this part I will finally summarize and draw some lessons across the findings of my two studies. I will make some propositions for the future development and management of cancer patient pathways, covering both the macro and the micro level of organized health care; and I will launch some suggestions for further research based on the perspectives developed in this thesis. Finally, I will point to a congruence penetrating and uniting the methods and findings of my research, with reference to managing cancer care in complex organizational fields.

### 8.1 Concluding through the lenses of interaction between standardization and improvisation

Cancer is fundamentally about cell division being out of control. The creation of patient pathways expresses the ambition to control at least the processes that patients are supposed to go through to be diagnosed, to have a prescribed follow up, and hopefully to be cured—or, at

least, to receive reliable palliative care. Caused by a biological crisis, cancer leads to a human crisis and is, then, often experienced as an inadequacy of the system that the patients encounter. According to current cancer science, the mechanisms of actions of illness and of possible curation are complex and connected with uncertainties at several points. The processes and systems that the patients encounter are, to varying degrees, also affiliated with complexity and uncertainty. When they were politically implemented, the CPPs were labeled standardized patient pathways. There are certainly elements of standardization, in terms of all the categories elaborated in both Mintzberg (1980) and Timmermanns and Berg (1997). This is expressed through the clinical programs and guidelines that CPPs are supposed to deploy as their building bricks. Standardization also connects to the roughly prescribed processes, nationally described, through the implementation processes of CPP and through some documented recommendations in the quality systems of hospitals and the availability to some pre-booked critical resources for patients belonging to certain patient pathways. CPP appears as a combined attempt at standardizing both medical premises and practice and the structuring of patient logistics.

I have shown that there is still considerable, though varying, degree of complexity and limited predictability that can hardly be removed from the management of CPPs. Introducing a kind of standardization as a measure to resolve this might be counterproductive, both for the path of the single patient and for the total flow of patients through the pathways. This is in line with the general arguments of Timmermans and Almeling (2009) and the findings of Lydixsen et al. (2021) in their study of the implementation of national clinical guidelines in Denmark. These approaches invite a reinterpretation of standards in medical institutions. In a study of implementing oncological clinical guidelines in France, Castel et al. (2009) argue that, if standards are developed and approved through entities and processes to a large extent controlled by the medical society itself, they may function as tools for retaining control of their own work. Castel's description of how the professional oncological community was involved in generating the clinical guidelines largely corresponds to the process I have outlined as being involved in the development of the national cancer programs and CPPs in the Scandinavian countries.

Though the introduction of CPP clearly has the character of standards and though it has standardization as a prerequisite, I had to transcend this concept and, instead, turn to the concept of improvisation to fully explain the role and practice of CPPs in Norwegian hospitals. On an immediate level, there seems to be a contradiction between standardization



and improvisation. Based on an extreme interpretation of both, there certainly is: standardization approaches automation while improvisation approaches innovation. This applies if the process of standardization should be defined as the search for one uniform and homogenous set of procedures and processes, with the ambition to be valid and be implemented as a detailed described practice in a broad range of cases, and if improvisation should be explained as simple spontaneous praxis without any preconditions. I claim that some seem to strive for this interpretation of standardization in applying CPPs. However, as already mentioned, both Timmerman and Berg (1997) and Castel et al. (2009)—in describing and explaining standard-based praxis in health care and the cancer field in particular—argue that these standards give room for local interpretations and adoptions. They also express a state of the art that is often already internalized in the medical communities. The standards are actually references to lateral praxis and will thus tend to express local universality (Timmermans and Berg, 1997). Similarly, in line with scholars' explanations of improvisation, both in music bands and in organizations, working presupposes some shared references that are close to a kind of shared standards. Building on this—at least temporarily—stable common reference, the energy of the group or organization may concentrate on exploiting and exploring the opportunities and challenges of the moment. However, if the common reference develops into a rigid constraint narrowing the room of action and allows the improvisation degenerate into a routine or into a standard operating procedure, it is no longer improvisation.<sup>59</sup>

Interpreted and practiced in this way, there is not necessarily a contradiction between standardization and improvisation. They might complement and presuppose each other as processes carrying out the conduct of coordination. However, this will always be a dynamic interaction that has to be continuously reinvented and that is characterized by ambiguity, both as a process and through its content. This interaction is trying to create and maintain some kind of stability in circumstances of instability and, simultaneously, support the ability to develop the skills to create solutions solving each new situation characterized by some degree of complexity and unpredictability. Actors who want to succeed in key coordinating roles, then, have to master both the management of standards and the exploiting of the space for interaction through improvisation.

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<sup>59</sup> Routines considered more flexible and easier to adapt and adjust according to circumstances are explicit standardized SOPs (Feldman and Pentland, 2003).

In the processes of designing, implementing, and then practicing CPP, elements and ambitions of standardization are clearly present through incorporating clinical guidelines, medical procedures, normative time frames, and diagnosis-specific action programs (Djulbegovic et al., 2018, Hoffer Gittell, 2002). From this, standardization through rigid uniformity could be explained as characterizing the general development of medical labor processes (Harrison, 2002) and a broader McDonaldization of society (Ritzer and Chen, 2015). Opposed to this, and in line with other scholars studying both policy implementation (Castelnuovo and Sorrentino, 2018) and care pathways (Martin et al., 2017), my research shows how improvisation is an active coordination activity facilitated by emerging forms of organizational structures and influenced by the categories of interaction mechanisms present through and between the organizational forms. The characteristics of these previously-described organizational forms support one another in creating an organizational context favorable to improvisation. The specific coordination is, then, accomplished as an integrated part of the primary work processes as it is occurring in the community of collaborating professionals, in the interactions of networks, or along sequences of procedures. The collective transactional memory (Austin, 2003), creating common ground for improvisational group interaction, is amplified through repeated interaction. As in the performance of improvised jazz, there is a critical challenge in how to manage the balance and interaction between the standardized and improvisational elements of the pathway processes. This is true during both horizontal and vertical processes of pathway governance and pathway practice. The question is then: which parts of the pathway are actually suitable to be coordinated through standardization and which are not? In addition, to what degree is standardization appropriate? Next, when there are limitations to standardization being the measure, how should improvisation be facilitated, encouraged, and trained? Moreover, and not least, how should the interactions between these two modes of coordination be organized and managed?

This leads us to the last lesson on the coordination of patient pathways drawn from this research. The interaction and also the tensions between standardization and improvisation are made still more complicated by the presence of several diverging institutional logics. The three that are the focus of this research are all legitimate. In the previous part of this thesis, I have elaborated on how diverging perspectives of the three logics appear through difference approaches to the concept of time. Crossan et.al. (2005) argue that improvisation have the capabilities to act as a mediating and coordinating tool between different qualitative and conflicting time perspectives. It is therefore reasonable to think that this support a conclusion

that might be drawn from my studies: improvisation act as suitable mechanism that coordination between institutional logics is performed through.

There is not any direct logical connection between either of the phenomena of standardization and improvisation on the one hand and any of the three institutional logics on the other. Still, I argue that there is a kind of affiliation between the tendency to apply standardization and the economic-administrative logic. This can be explained by the fact that standards in themselves are a tool for facilitating central control. As referred in Part 2, central authorities' fear of losing control of expenses and their concern with the ability to deliver quality according to expectations was a core motivation for the first developments of cross-organizational patient pathways. Standardization will tend to let the task detach from the performance of professional discretion. Standards, then, become a measure of creating a field that is appropriate for top-down governance and audit processes (Power, 2000, Power, 2007). However, in their study of the implementation of oncological guidelines, Castel et al. (2009) argue that the strong commitment to the process of development and implementation of these standardized guidelines can be explained by the motive to exploit the standardization process as a means of exerting control. With reference to current development of hospitals and administrative systems of health care, I will explain this with reference to defense of the medical logic from not being coopted by the increased influence of the economic-administrative institutional logic.

The structuring of interaction will influence how the interaction between logics is conducted. The questions to be raised are then: Does the formal organization allow the emerging patterns to survive and develop? Moreover, what type of interaction between present logics does the interface create—competition, collaboration, or cooptation? Or is there a lack of interaction, contributing to the absence of available points where each of the logics might borrow legitimate competence from the others in order to accomplish their mission?

I have argued that, today, the economic-administrative logic has a hegemonic position in the governance of hospitals. Simultaneously, the professional-medical logic is still fiercely present on the hospital floor, while the patient-related logic is challenging from the outside. Combined coordination on both macro and micro level of the hospitals that would facilitate a collaborative presence and conversation between these logics in decision-making presupposes an active and conscious management of the interaction between them and the facilitation of standardization and improvisation, respectively. In this context, good management is not about exhibiting external or top-down imposition of certain organizational behavior or

structuring. It is about nourishing and encouraging the unfolding of the interplay between emerging and formalized organizing, both horizontally and vertically, that to some extent is already there, in order to stimulate interaction and coordination across borders aligned with the complexity of the system and the tasks.

Finally, the general perspectives extending from my findings point back to the issues treated in each of the previous chapters of the thesis. First, concerning the future mutual interaction between developments in hospitals and cancer care, elaborated on in Part 2, my perspective should add important insight to societal and political processes whose ambition it is to influence the contexts and actual performance of cancer care in hospitals. Second, my research presented in this thesis and articles addresses and fills some of the gaps in the field of research on ICPs and CPPs, described in Part 3, by providing knowledge on interaction between pathways and context in general, and on the characteristics and influence of organizational structures and interactions specifically. Third, in line with some other scholars invoked in Part 4, I contribute to the methodology and methods appropriate to study this type of complex interventions into complex systems. Finally, in Parts 5 and 7 and here in Part 8, I deliver a theoretical framing that, I claim, potentially gives an understanding of the field of hospitals, health care, and patient pathways that offers an improved platform for management and further improvement and developments.

## **8.2 Propositions for the management of coordination in cancer politics and cancer care and further research**

In extending my analysis and my findings, I will make some propositions regarding both the management of cancer politics and care and the need for further research and development efforts. I will present this point by point.

Propositions regarding the management of cancer care coordination:

Proposition M1: Further development of patient pathways for cancer patients should be developed based on the principle of standard-based improvisation, applied specifically to each pathway, diagnosis, and hospital, and adapted to the presence of complexity and predictability as well as in line with the type of work process that should be practiced.

Proposition M2: Contextual infrastructures, policy tools, and management practice should support and facilitate this approach. This implies nurturing the presence of emerging organizational forms; supporting the sharing of information, knowledge, and experience in

professional collaborative communities and networks; enhancing proximity physically and virtually; and consciously deploying situated and temporal formal and informal organizational initiatives, including the design of so called field-structuring events. Specifically, emphasis should be placed on the creation of appropriate interaction between line management and emergent structures, both on the macro levels of health care administration and politics and on the meso- and micro-level at hospitals, and both within juridical entities and between them.

Proposition M3: Recognize and make clear the presence of the several legitimate institutional logics in the unfolding of cancer care and encourage interplay between them. Develop an increased awareness of the window of opportunities for action that this may create. Properly managing the interaction between these logics implies consciously choosing the structuring mechanisms of boundary interaction, in a proper mixture of command and control, negotiation, consensus, and counseling.

Proposition M4: Promote the space for actors' initiative and entrepreneurship through the way coordination and development are organized and, simultaneously, nurture the skills needed to succeed in such roles. This implies exploiting the potential of actors with hybrid roles and mixed affiliations that may be related both to organizational structures and institutional logics.

In an extension of my research project and my findings, moreover, I will recommend that further research be initiated in several areas. This research would then deliver additional contributions to the narrowing of the research gap related to integrated patient pathways.

These areas are:

Proposition R1: Research on the interplay between the three institutional logics involved in health care during reforms or broad innovation processes depends on support of this field on several levels, emphasizing the processual interaction between representatives of the logics and the process of sense making in the formulation of problem and solution. (Here, studying the broad Norwegian precision cancer medicine initiative could be an interesting case).

Proposition R2: Comparative research on experiences of applying the alternative interaction mechanisms, command and control, negotiation, consensus, and counseling in the implementation of health care initiatives and the management of health care practice.

Proposition R3: Research investigating into the unfolding of several types of emergent organizational forms in hospitals and health care, and specifically comparative research on different experiences of relating these structural types.

Proposition R4: Research on the performance and definitions of hybrid roles, including how they create or hamper agency and how this relates to the skills being aligned with the type of role.

Proposition R5: Research contributing to a more precise understanding of the unfolding of improvisation, integrated in the reference of processual and procedural standards in the course of cross-organizational coordination.

### **8.3 Final remarks**

While working on this thesis, I had a realization about a fascinating congruence between my findings related to the phenomena I have studied on one hand and the methodological approach to studying these phenomena on the other. Both the processes of my research and the processes I studied were characterized by a combination of complexity and reference to some joint structures. Simultaneously, they are opening for the deployment of flexibility and customization, creating room for agency and improvisation. With reference to Ashworth et al. (2019), I would claim that, both in the field I studied and in the way of studying it, there is an interaction and continuous balancing between rigor and richness. Moreover, a symbol of the congruence between the chosen methodological approach and the field studied is that, in both cases, connections to jazz music are made both as a metaphor and as an analytical reference (see earlier in this chapter and in Hansen's (2008) outline of the methodology of abduction). Both in practicing cancer policy and cancer pathways on the one hand and in accomplishing my research design, it is a matter of sticking to some established references and standards and, simultaneously, exploiting and exploring the space for situated action. With relevance to my studies, the congruence between methodology and field studied is also supported by Castelliani et al. (2012), who state that case studies are actually the methodological equivalents of complex systems.

The correspondences between the field studied and the way of studying it, then, leads back to my initial reference to some inspirational sources of fiction. They point to tensions between ideals and realities, and interactions between immediate impressions and pictures of reality that might emerge from beneath this immediate surface. This is what the interpretation of Ben

Nicholson's abstract painting in *The Human Factor* is about, and what the solutions of the mysteries and the anomalies that Poirot faces in *Murder on the Orient Express* represent. The method and insight providing solutions to challenges will, as in the case of my research, hopefully provide us with insights and skills enabling us to practice the lives we strive for. However, as the main character in the movie *Soul* experiences, it is not necessarily a question of innovating and implementing new orders as much as it is a question of exploiting and exploring in new ways the realities and the knowledge we are already swimming in.<sup>60</sup> As mentioned initially, in his foreword to *The Human Factor* Kemp interprets its core issue to be the crossing of borders, which may be close to what the coordination of patients pathways appears to be about. However, in line with Collier's (2011) theorizing on analyzing complex systems, this coordination, as interpreted through my research, may well be explained as the processes that constitute and connect what is bounded.

The main message penetrating this thesis is the importance of acknowledging the prevailing ambiguities along the paths of improving and practicing the organization of cancer care. Ambiguities emerge through the necessary presence of complexity in processes and contexts and through the interaction of the institutional logics present. These ambiguities cannot be denied or solved, and it will never be possible to create organizational solutions and governance systems delivering harmony, or a stable balance, among the institutional logics present. At the end of the stories told in *The Human Factor* and *Murder on the Orient Express*, the lessons are to learn to live with ambiguities. As in the cases I have studied, borders and mutual dependencies should be actively dealt with and managed if we expect to reach the needed coordination and comprehensiveness. I hope that the analysis of my research and the proposals it leads to will contribute to that. This could then help us turn away from the possibly paralyzing and confusing effects of ambiguity toward an ambidextrous approach (Tushman and O'Reilly, 1999), enabling us at the same time to nurture actively two or more different perspectives in exercising cancer policy and cancer pathways.

The renowned scholar in organizational science, James March (2006), was also inspired by fiction and art. In his brief article about William Buster Yeats's poem "1916," March makes a remark that is quite aligned with my perspective: "Effective managers frequently seek to absorb ambiguities and doubts so that they do not spread to others in the organization or

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<sup>60</sup> Interestingly, while working on this, I discovered that Pouliot (2008), when discussing methodological approaches to the study of international relations, uses the same metaphor when he calls for more contextual information. Often, this is not reached thorough interviews because it is "like asking the fish to describe the water in which they swim" (p. 284).

reduce commitments to action. Leaders often makes things simple and unambiguous to mobilize followers (and themselves) for coordinated actions involving substantial personal commitment” (p. 71). Inspired by Yeats’s poem, March then raises the question: “Can managers sustain an awareness of the contradictions, paradoxes, ambiguities, and ambivalences of life (as intelligence, human beauty, and practice require)?” I hope that I have delivered insight that supports answering yes to March’s question.



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## **Appendix 1: Interview guide study 1**

### **Temaliste/intervjuguide for intervju i prosjekt:**

#### **Standardisering av pasientforløp for kreft som en helsereform – hvorfor og hvordan? En sammenlignende studie av innføring av standardiserte pasientforløp for kreft i tre skandinaviske land**

Dette vil være de sentrale spørsmålene som intervjuene struktureres rundt:

- a) Hva var din bakgrunn og rolle i forhold til prosessen med utvikling og implementering av standardiserte pasientforløp for kreft, og hva var din virksomhets rolle i prosessen?
- b) Hvordan vil du beskrive drivkreftene bak det politiske initiativet om å lansere standardiserte pasientforløp for kreft?
- c) Fantes det fra tidligere virksomheter som innføringen av standardiserte pasientforløp for kreft kunne bygge på?
- d) Hva var hovedelementene i den reformen og nasjonale strategien som standardiserte kreftforløp inngikk i, og hvordan var tidslinjene i beslutnings- og gjennomføringsprosessen nasjonalt?
- e) Hva var de uttalte motivasjoner for og formålene med gjennomføring av tiltaket?
- f) Hva var de sentrale virkemidlene som skulle bidra til å innføre reformen generelt og standardiserte pasientforløp konkret, og hvordan ble prosessen med å forberede og gjennomføre tiltaket ble organisert?
- g) Hvordan vil du beskrive beslutningsfatternes forståelse av hvordan mekanismene fra beslutning til gjennomføring og virkning skulle foregå?
- h) Hvordan har prosessen med implementering av standardiserte pasientforløp/pakkeforløp gått om en sammenholder det med intensjonene som ble uttrykt da det ble besluttet?
- i) Er det noe vi ikke har spurt om som du mener vi burde vite rundt dette temaet?



## **Appendix 2: Interview guide study 2**

### **Temaliste/intervjuguide for intervjuer knyttet til delprosjekt om organisering av virksomheten knyttet til pasientforløp for kreft ved sykehus.**

1. Kort om din bakgrunn og rolle på sykehuset  
Raske hovedtrekk i utdanning, karriere og nåværende stilling og ansvar
2. Kort om sykehusets organisering og plassering av din enhet og funksjon inn her
3. Beskrivelse av «ditt» pasientforløpet i forhold til sykehusets organisering
4. Beskrivelse av pasientforløpets samspill i forhold til andre sykehus (der pasienten evt henvises fra eller skal tilbake til)
5. Behov for samordning og koordinering i forløpet for enkeltpasienter og
  - Både faglig (eks MDT) og driftsmessig/logistikkmessig (eks koordinator)
  - Innad på sykehuset og utad mot andre (førstelinje, avtalespesialister og andre sykehus)
6. Behovet for samordning, problemløsning og utvikling av pasientforløpet som system
  - Avhengighet av samarbeid på tvers og hvordan del løses
  - Avhengig av samspill og støtte med ledere og instanser høyere opp
  - Andre rammebetingelser
7. Utfordringer i forhold til å kunne tilrettelegge for enda bedre pasientforløp
8. Hvordan har evt innføring av pakkeforløp påvirket tilrettelegging for gode pasientforløp i «ditt» forløp
9. Hvilke endringer kunne du selv ideelt sett tenkt deg for å tilrettelegge bedre for gode pasientforløp innen «ditt» forløp
10. Hvem andre vil ha relevant informasjon om spørsmål knyttet til organisering av det forløpet vi snakker om?

## **Appendix 3: Information note to informants in study 1**

### **Forespørsel om deltakelse i studie om pasientforløp for kreft i Skandinavia**

#### **Foreløpig tittel på studien:**

Standardisering av pasientforløp for kreft som en helsereform – hvorfor og hvordan? En sammenlignende studie av innføring av standardiserte pasientforløp for kreft i tre skandinaviske land

#### **Bakgrunn og formål**

Dette forskningsprosjektet er en del av et PhD-prosjekt som skal øke forståelsen av organisatoriske rammebetingelser for og konsekvenser av innføring av standardiserte pasientforløp for kreftpasienter. Dette er ikke minst knyttet opp mot innføringen av såkalte pakkeforløp. Prosjektet har tilknytning til Oslo universitetssykehus og Institutt for helse og samfunn, Avdeling for helseledelse og helseøkonomi ved Det medisinske fakultet, Universitetet i Oslo. Dette instituttet er vitenskapelig ansvarlig for gjennomføringen av prosjektet.

Et av delprosjektene i PhD-prosjektet vil studere hva som på et nasjonalt plan politisk og administrativt lå bak denne reformen. Delprosjektet vil gjennomføres som en komparativ studie av Sverige, Danmark og Norge. Offentlig tilgjengelige dokumenter vil utgjøre det sentrale datagrunnlaget. Det er samtidig ønskelig å supplere dette med intervju med et fåtall informanter fra hvert av landene. Det er et ønske å snakke med personer som hadde sentrale roller i prosessen eller på andre måter hadde unik oversikt over og kjennskap til prosessen. Vi ønsker derfor å intervju deg.

I dette delprosjektet er det etablert et samarbeid med en gruppe forskere med utgangspunkt i et nordisk nettverk for forskning på pasientforløp for kreftpasienter. I mange av intervjuene vil det være med to forskere fra denne forskergruppen.

#### **Hva innebærer deltakelse i studien**

Gjennom intervjuene ønsker vi både å få informasjon om følgende forhold: Drivkrefter bak initiativet, motivasjon og formål med reformen, innholdet i tiltakene som skulle iverksettes og virkemidler som ble brukt, organisering av gjennomføringsprosessen og forståelsen av mekanismene fra beslutning via gjennomføring til ønsket virkning. Vi håper også at intervjuet kan bidra med informasjon om hvilke dokumenter som har vært sentrale i beslutnings- og implementeringsprosessen.

#### **Hva skjer med informasjonen om deg?**

Under intervjuene vil vi ta notater av det som kommer til uttrykk i samtalen samtidig som samtalen tas opp på en lydfil. Denne vil bli skrevet ut (transkribert) slik at vi sikrer riktig grunnlag for analyse av innholdet og riktig gjengivelse i eventuell bruk av sitater ved publisering av resultater av studien. Sitater vil bli anonymisert ved eventuell bruk i publisert artikkel. Tekst og lydfiler vil bli lagret på lukkede, passordbeskyttede hjemmeområder på UiO-nettet. De transkriberte intervjuene (og evt. lydfile) vil få tildelt en kode, som lagres i en koblingsnøkkel, og at koblingsnøgkelen vil oppbevares atskilt fra det øvrige materialet. Alle personopplysninger vil bli behandlet konfidensielt. Informasjonen vil bli lagret bare så

lenge det er behov for å få lagret det i tilknytning til arbeidet med prosjektet (planlagt avsluttet 1.5.20122). Det vil deretter bli slettet.

### **Frivillig deltakelse**

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert.

Studien er meldt til Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS.

### **Samtykke til deltakelse i studien**

Jeg har mottatt informasjon om studien, og er villig til å delta

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(Signert av forsker, dato)

## **Appendix 4: Information note to informants in study 2**

### **Forespørsel om deltakelse i studie om organisering av pasientforløp for kreft ved norske sykehus**

#### **Foreløpig tittel på studien:**

Standardisering av pasientforløp for kreft - hvordan utfordrer dette organisering av arbeidsprosesser i og mellom norske sykehus? En sammenlignende studie av standardiserte pasientforløp for kreft i fire sykehus og to kreftdiagnose

#### **Bakgrunn og formål**

Dette forskningsprosjektet er en del av et PhD-prosjekt som skal øke forståelsen av organisatoriske rammebetingelser for og konsekvenser av innføring av standardiserte pasientforløp for kreftpasienter. Dette er ikke minst knyttet opp mot innføringen av såkalte pakkeforløp. Prosjektet har tilknytning til Oslo universitetssykehus og Institutt for helse og samfunn, Avdeling for helseledelse og helseøkonomi ved Det medisinske fakultet, Universitetet i Oslo. Dette instituttet er vitenskapelig ansvarlig for gjennomføringen av prosjektet.

En del av dette prosjektet vil studere hva som skjer innad i sykehus og mellom sykehus når man introduserer standardiserte pasientforløp for kreftpasienter. Det vil undersøke hva slags tverrgående koordineringsmekanismer som virker i disse forløpene, hvordan disse mekanismene samspiller, modifierer eller konkurrerer med eksisterende organisasjonsstruktur i og mellom sykehusene. Prosjektet vil også få fram hva som gjøres for å redusere eventuelle spenninger mellom tradisjonelle organisasjons- og koordineringsmodeller og nye knyttet til standardiserte forløp. Gjennom å fokusere på to forskjellige diagnoser og forløp, vil studien også belys hvilke faktorer som bidrar til forskjeller i hvilke koordineringsutfordringer oppstår og hvordan de løses i ulike typer pasientforløp innen kreftområdet. Datamaterialet i denne studien vil dels være foreliggende dokumentasjon som beskriver organisering, funksjoner, systemer og kvalitetskrav og dels vil det være intervju med nøkkelpersoner fra de to forløpene i fire sykehus valgt fra to regioner – ett universitets- og regionsykehus og ett lokal/områdesykehus i hver region.

#### **Hva innebærer deltakelse i studien?**

De nøkkelpersonene vi ønsker å intervjuer i denne studien vil bli valgt ut i samråd med den/de ansvarlige ledere som sykehuset peker på som kontaktpunkt for prosjektet. De som blir intervjuet får spørsmål som bidrar til å beskrive og vurdere forhold og prosesser knyttet til problemstillingene i prosjektet. Vi håper også at intervjuet kan gi oss kunnskap om tilgjengelige dokumenter som kan belyse problemstillingene. Intervjuene vil vare ca en time og en intervjuguide vil bli tilsendt på forhånd.

#### **Hva skjer med informasjonen om deg?**

Under intervjuene vil vi ta notater av det som kommer til uttrykk i samtalen samtidig som samtalen tas opp på en lydfil. Denne vil bli skrevet ut (transkribert) slik at vi sikrer riktig grunnlag for analyse av innholdet og riktig gjengivelse i eventuell bruk av sitater ved publisering av resultater av studien. Sitater vil bli anonymisert ved eventuell bruk i publisert artikkel. Tekst og lydfiler vil bli lagret på lukkede, passordbeskyttede hjemmeområder på

UiO-nettet. De transkriberte intervjuene (og evt. lydfilene) vil få tildelt en kode, som lagres i en koblingsnøkkel, og at koblingsnøgkelen vil oppbevares atskilt fra det øvrige materialet. Alle personopplysninger vil bli behandlet konfidensielt. Informasjonen vil bli lagret bare så lenge det er behov for å få lagret det i tilknytning til arbeidet med prosjektet (planlagt avsluttet 1.5.20122). Det vil deretter bli slettet.

### **Frivillig deltakelse**

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert.

### **Registrering og godkjenning av studien**

Studien er meldt til Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS uten merknader og til Personvernombudet ved Oslo universitetssykehus. Den er også sendt til vurdering hos REK Helse Sør-Øst og her fått tilbakemelding om at den anses som helsetjenesteforskning som ikke trenger REK godkjenning.

### **Samtykke til deltakelse i studien**

Jeg har mottatt informasjon om studien, og er villig til å delta

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# Exploring the triggering process of a cancer care reform in three Scandinavian countries

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## Funding information

Norges Forskningsråd, Grant/Award Number: 272945

## Abstract

Cancer incidence is increasing, and cancer is a leading cause of death in the Scandinavian countries, and at the same time more efficient but very expensive new treatment options are available. Based on the increasing demand, high expectations and limited resources, crises in public legitimacy of cancer care evolved in the three Scandinavian countries. Similar cancer care reforms were introduced in the period 2007–2015 to address the crisis. In this article we explore processes triggering these reforms in countries with similar and well-developed health care systems. The common objective was the need to reduce time from referral to start treatment, and the tool introduced to accomplish this was integrated care pathways for cancer diagnosis, that is Cancer Patient Pathways. This study investigates the process by drawing on interviews with key actors and public documents. We identified three main logics in play; the economic-administrative, the medical and the patient-related logic and explored how institutional entrepreneurs skillfully aligned these logics. The article contributes by describing the triggering processes on politically initiated similar reforms in the three countries studied and also contributes to a better understanding on the orchestrating of politically

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initiated health care reforms with the intention to change medical practice in hospitals.

#### KEYWORDS

cancer care, health care reform, institutional logics, integrated care pathways, qualitative study, Scandinavia

## 1 | INTRODUCTION

Cancer is among the leading causes of death in the Scandinavian countries that witness an increasing number of patients diagnosed with cancer. Modern cancer diagnostics are more and more complex and treatment is multimodal, that is a combination of surgery, radiotherapy and/or medical therapy. This requires coordination within and between hospitals because in a progressive and potentially deadly disease unnecessary delays are a psychological burden and may worsen the prognosis for the patients. The field of cancer comprises vibrant issues that include a strong and highly professionalised medical community, complex patient trajectories between hospitals and across organisational structures within hospitals, increased expenses and expectations due to new technologies and drugs and a strong patient's voice. The increase in number of patients, treatment opportunities and insufficient coordination all lead to unacceptable waiting times that led to elevated political attention and a need for action to solve the crisis. In Denmark these processes developed through the first decade of this century and in Norway and Sweden emergence can be set to the beginning of the second decade with political decisions made respectively in 2007, 2014 and 2015.

Politically imposed changes in health care involve highly complex processes for changing behaviour at the clinician level in hospitals.<sup>1,2</sup> This makes this domain particularly interesting to study. Some of the measures launched to address these challenges are expressions of international trends. One example is 'integrated care pathways'.<sup>3,4</sup> The concept of integrated care pathways (ICP) developed in the US during the 1980s and 1990s and subsequently evolved in several European countries and in a variety of diagnoses and patient groups.<sup>5-9</sup> ICPs vary in their content, which can include introducing specific roles responsible for patient coordination, developing local standardised processes, establishing recommended monitoring indicators, and designing arenas of cross-disciplinarity in diagnostic work and treatment plans. Moreover, they can be motivated by different factors, ranging from economic considerations to medical and care quality and patient satisfaction. Often an ICP is launched as a panacea solution to several problems and today there is not one dominant way of implementing an ICP.

In addition to their diverse content, ICP processes can be distinguished as either top-down or bottom-up in their development and implementation. Several scholars have investigated this dichotomy.<sup>10-12</sup> Top-down processes are often connected to the implementation of general guidelines from evidence-based medicine, growth in expenditures, the need for increased risk control, or to reduce variation or transaction costs. The bottom-up approach is more often motivated by increased interdependence in decision making, patient logistics, and medical development with the aim of improving medical outcome or as a part of a local quality improvement process. Some scholars interpret ICPs, explicitly<sup>10</sup> or implicitly,<sup>3</sup> as a phenomenon that bridges bottom-up and top-down motives, while others argue that these are basically two different types of processes, which should be distinguished from each other.

Through the period from 2007 to 2015, the governments in the three Scandinavian countries Denmark, Norway and Sweden all introduced similar reforms called cancer patient pathways (CPP), triggered by intolerable waiting times for cancer patients. These pathways reflect the implementation of ICPs in cancer care. In each country CPPs were expressed through documented main patient trajectories for all major cancer diagnoses. CPPs set national standards for the time from referral to the start of treatment for each cancer type, in addition to

establishing mandatory structures and positions for care coordination and multidisciplinary team meetings. Examples of normative time frames from received referral to start first treatment are shown in Table 1 below and the phases of breast cancer CPP are shown in Figure 1.

When examined together, the similar reforms in these three Scandinavian countries with analogous health care systems provide a unique opportunity to elaborate on the mechanisms behind the emergence of politically initiated reforms in this kind of health care system. Previous research has described the cancer care reforms in Denmark and Sweden, respectively.<sup>13-15</sup> This paper will contribute by addressing the following research question: How did the need for these reforms emerge as necessary and what created the opportunity for political action?

## 2 | ANALYTICAL FRAMEWORK

To answer the research question and explore the process behind the triggering of these reforms we looked to concepts and insights from organisation studies. Research linked to institutionalism is relevant for explaining the processes behind the Scandinavian CPP reforms. We will present an analytical framework to shed light on how the driving forces in these cases evolved, how changes were emulated in other national contexts, how the specific situation precipitating action was generated, and created room for crucial roles filled by the various actors.

First, research on institutional logic is relevant for understanding the basic underlying forces and motivational structures driving the reforms. Institutional logics are cultural beliefs and roles that determine how practices and structures are assessed.<sup>16,17</sup> Allen<sup>10</sup> and Shaw et al.<sup>18</sup> consider institutional logics as a useful analytical tool to understand the processes connected to ICP and coordinated care. Allen<sup>10</sup> identified two separate logics in play in ICP processes: the logic of quality improvement and the logic of evidence-based medicine the first working bottom-up and the second top-down. Martin et al.<sup>19</sup> discuss ICP as an expression of combined influence from both professional logic and a managerial logic. Several publications on ICP implementation discuss the diverse perspectives on the phenomenon of institutional logics based on either managerial or professional logics.<sup>3,20-23</sup> ICP is presented as a kind of panacea that dissolves the potential tension between the logics or interests involved. Other contributions underline that whether interests or logics merge or not depends on the context and process of implementation.<sup>9,10,24,25</sup>

Second, the dynamics of the change process may be explained as the interplay between competing institutional logics. Competing logics have been cited as a source of institutional change in institutional theory.<sup>26</sup> Several studies of change processes in health care have applied the concept of several competing institutional logics.<sup>27-30</sup> They have described distinct logics including the professional logic, the logic of care, the political logic and the scientific logic. However, the coexistence of multiple institutional logics does not necessarily imply conflict. According to Besharov,<sup>31</sup> whether the coexistence of several logics causes conflict or change or leads to stability depends upon

**TABLE 1** Cancer patient pathway target times (days)

	Denmark <sup>a</sup>	Norway <sup>b</sup>	Sweden <sup>c</sup>
Breast cancer, surgery	27	27	28
Prostate cancer, surgery	50	66	68
Lung cancer, medical treatment	41	35	40
Head and neck cancer, surgery	28	28	30

<sup>a</sup>[2017\\_aarsrapport-forloebstider.pdf](https://www.cancer.dk/2017_aarsrapport-forloebstider.pdf) (cancer.dk).

<sup>b</sup><https://www.helsedirektoratet.no/produkter?tema=pakkeforlop>.

<sup>c</sup><https://cancercentrum.se/globalassets/vara-uppdrag/kunskapsstyrning/varje-dag-raknas/vardforlopp/kva-koder/sammanstallning-av-angivna-ledtider-for-svf.pdf>.

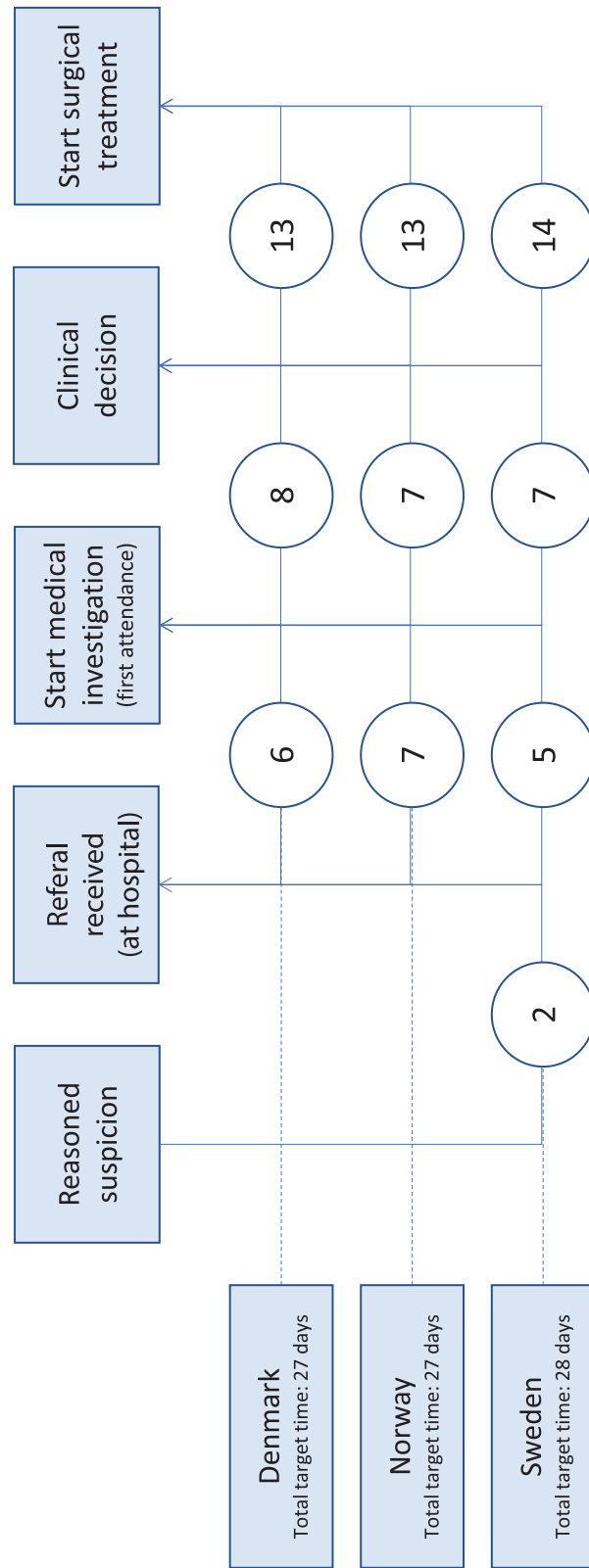


FIGURE 1 Target times for the phases of surgical breast cancer pathway [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

the compatibility and centrality of two or more logics. Compatibility refers to multiple logics causing consistent organisational actions, while centrality implies that logics are connected to core features of an organisation. Thornton and Ocasio<sup>16</sup> identify four mechanisms linking the coexistence of institutional logics to change: institutional entrepreneurs, structural overlap, event sequences, and competition. While Smets et al.<sup>32</sup> provide insight in to how bottom-up based initiatives contribute to institutional change in a situation characterised by novel institutional complexity, urgency to act and serious consequences of not acting.

Third, this is a study of three cases with similar reforms introduced in three Scandinavian countries. The transfer of policy from one country to another is often interpreted as a process of mimicking mediated by the search for successful solutions to a problem.<sup>33</sup> If a solution is a success in one country, it is adapted into a new and somewhat different context to act as a legitimate solution in the second country as well. According to Dobbin,<sup>34</sup> this is a kind of ritualistic process governed by the urge to solve an existing problem. Boxenbaum and Battilana<sup>35</sup> show that this is not just a question of transfer but also of translation. In other words, the original organisational idea needs to be customised to the new local environment. Mur-Weeman et al.<sup>36</sup> show how the concept of integrated care is implemented differently according to the characteristics of specific health care systems. Socio-cultural linkages, similarities in political institutions, ideological positions of central actors and neighbours are more likely to be copied without translation.<sup>34,37</sup> As Obinger points out, in these cases, there is a risk of processes simply being emulated without any mutual learning taking place.

Fourth, explaining the process behind these reforms calls for a conceptual understanding of the triggering mechanisms at the political level. The literature is limited in this respect but Mahoney's<sup>38</sup> work on path dependency analysis and breakpoints is relevant. A breakpoint is defined as the point where a course of action is determined in some way. Along the same lines, Goerz and Levy<sup>39</sup> use the expression 'critical juncture', while Tuohy<sup>40</sup> talks about creating a state of punctuated equilibrium. All of these terms refer to the point at which a window of opportunity is present and specific catalyst factors are active.<sup>41</sup> Exworthy and Powell<sup>42</sup> argue that opportunity must be present simultaneously at central and local levels. Hilgartner and Bosk,<sup>43</sup> underline that claim makers' success in dominating the public arena depends on their ability to frame social problems using both 'facts' and emotional rhetoric and on winning the battle between competing framings.

Fifth, reforms need institutional entrepreneurs as agents, exploiting the uncertainty created by the window of opportunity.<sup>44</sup> Several authors within institutional organisational research have identified key players connected to several organisational logics who are in a position not only to build legitimacy for different interest groups but also to transfer and translate ideas across organisational borders.<sup>35,45-49</sup> They may do so by crisscrossing different institutional arenas.<sup>43</sup> Within this understanding, entrepreneurs are building on processes and concepts that are already present.<sup>47,50</sup> Their scope of action is defined by the rise of a state of uncertainty.<sup>44</sup> By creating a narrative to interpret this uncertainty and the resulting crises, they identify an opportunity to communicate and build support for a particular solution.<sup>46</sup>

### 3 | METHODS

The scope of this empirical study is the politically initiated reform in cancer care enacted in three Scandinavian countries. We consider each country's reform process as a case. According to Ragin<sup>51</sup> 'case-oriented researchers see cases as meaningful but complex configurations of events and structures'. The reform processes we examine comprise a complex set of events and actions on several institutional levels including the national political level, the level of health care actors, and the level of hospitals and general practitioners. Moreover, they took place in a composite structure of processes and organisations. Introducing a similar reform in three countries with health care systems characterised by public ownership, tax-based funding and principally equal and free access gives a unique possibility to identify specific features of such reforms in this type of health policy context.

Our empirical material consists of both documents and interviews with interviews as our primary source of data. This resonates with other studies of institutional logics.<sup>16,52-54</sup> During the data collection process, cross-fertilisation between these two sources allowed us to identify additional relevant documents and additional informants.

The document data consisted of publicly available documents related to the process found at relevant organisations' web sites. Together they constitute the official documents for the political or administrative reform process.<sup>55</sup> Such documents cover the official analyses, rationale and measures of the problem at hand and also represent opinions about the documents.<sup>56</sup> We have not conducted any systematic content analysis or discursive analysis of the official documents since the meanings expressed in the documents are not the primary scope of this study. Other documents such as public presentations given by key players during the process and published research papers served as secondary sources. The information, arguments, and opinions expressed in the documents were a reference for the content of the interviews, as well as a data source for the analyses of each of the phases of the process.

The informants were recruited through purposive snowball sampling.<sup>57</sup> The selection criteria were that they had played a key role in the whole process or in key events. We regarded the informants as institutional actors<sup>56</sup> representing the position and organisation they were connected to during the process. Thus, the positions of the interviewees during the timeline of the investigation mirror the active organisational entities in each country. In total, we conducted 26 interviews in the period May to September 2018, nine in Denmark, eight in Norway, and nine in Sweden. On average the interviews lasted 70 min. The positions of the informants varied: Four represented health ministries, 10 national coordinating units, six patient organisations, five regional/hospital managements, and two were researchers. Several of the informants had held other central positions in cancer care before or after the period in question. The time elapsed between the events studied and the interviews, in particular for the Danish case, is a potential weakness in the quality of the interview data. However, using documents written concurrently with the process or closely afterwards reduce time errors and serve as a context that can actively be used as a reference during the interviews.

In line with an abductive approach, we carried out semi-structured interviews with open-ended questions, allowing flexibility to follow the flow of the conversation and address issues as they arose.<sup>58-60</sup> We developed an interview guide based on the storyline of the process and adjusted it according to country and interviewee profiles. We started analysing of the material during the initial reading of core documents and continued during the interviews and the process of transcribing and coding. A multi-step coding process was used.<sup>58</sup> First, we organised quotes from each country case on the basis of the following groups of topics: Information related to the institutional contexts, information on the staging of a need for reform, information on how a situation of urgency to act was created, information on how the dominant way of conceptualising the problem was defined, and information on how actors were mobilised across institutional and country borders. Second, we started searching for similarities and differences across the three country cases. This allowed us to identify possible interrelations, iterations, causalities, and explanations that seem to be valid across the cases. During the analysis, we followed an iterative approach, going back and forth between the empirical material, inductively based analysis, and the literature. On this basis we have constructed the account of how these processes unfolded presented in this article.

## 4 | RESULTS

### 4.1 | Background

Cancer came onto the national political agenda in the three Scandinavian countries during the 1990s. In Norway, an expert group delivered an official national report on cancer care and plans for improvement in 1996, which was followed by political decisions to put more resources into cancer care.<sup>61,62</sup> In Denmark, the National Cancer Board,

a group appointed by the Danish Health Authority, launched the first national cancer plan in 2000.<sup>63</sup> Discussions of the development of a national cancer plan in Sweden started the following year. Two major underlying forces in all three countries were the shortage of investments in technological equipment, especially MRI and radiotherapy, necessary to meet the increasing number of cancer patients, and the ambition to take an internationally leading position in cancer diagnostics and treatment. The national reports were all comprehensive, addressing topics like prevention, screening, education, centralisation, quality registers, palliative care and clinical trials, in addition to investments in technology. These initiatives were first taken by medical experts and health care administrators but soon transferred to the political level.

Analytically, we have defined the starting point of each reform process as the first national strategic manifestation of an increased focus on cancer pathways. In Denmark, this was the second national cancer plan from 2005,<sup>64</sup> in Sweden, this was the national cancer strategy launched in 2009,<sup>65</sup> while in Norway, this was the third national cancer strategy from 2013.<sup>66</sup>

## 4.2 | The emerging need for reform—separate stories with similarities

In all three countries, the process of reforming cancer care started when the legitimacy of the existing system was questioned. The critique can be summarised into three elements: First, questions were raised about unequal geographical and socio-economic access to best medical care. Access to new drugs and technologies in a situation with increased incidence of disease and restricted budgets was another. The low survival rates compared to other northern/western European countries, including the other Scandinavian countries, presented a specific challenge for Denmark.<sup>67</sup>

Second, there was an emerging concern on the lack of patient focus and patient involvement. Because of this awareness, the national cancer strategies in all three countries, included measures to increase patient involvement in cancer care. A Swedish interviewee explained,

Patient involvement has been a principle on all levels of the RCC (Regional Cancer Center) structure. Thus, their representatives have been present in all arenas where the structure of cancer care has been discussed and redesigned. (SV8)

Third, the ability of the dominant model of hospital organisation to deliver solutions that could give legitimation was questioned.<sup>68</sup> A Danish informant provided the following explanation:

The way hospitals are organized may have the consequence that no one actually feels responsible for the totality and no one has the overview of where the bottlenecks are and who should be responsible for the problem and having the key to the solution. This phenomenon has increased in parallel to the increase in specialization and functional division of labor. This was an even more severe problem in cancer than in other fields like heart diseases. (DK2)

The national cancer strategies were partly a response to the reduced legitimacy of cancer care. Several proposed measures were implemented. Concurrently, national strategies and public focus on cancer also increased the public's expectations. In certain crucial areas, no major improvements occurred. One of the Danish informants described the situation as follows:

As a consequence of the first two cancer plans, lots of resources were allocated to cancer. However, there was a lack of improvement in certain important areas. (DK7)

The lack of expected change illustrated by a Swedish informant:

During the first years after the National Cancer strategy, much development occurred: national treatment programs, quality registers and so on. However, hardly any improvement in processes such as waiting times was reported. (SV3)

To understand the dynamic created by the reduced legitimacy and unfulfilled expectations, two more elements must be addressed. The first is the structure of national multidisciplinary groups connected to each major cancer diagnosis. These groups recruited members from the relevant medical disciplines involved in each specific diagnosis. One Danish informant stated,

The existence of the national multidisciplinary cancer groups was of the utmost importance to the general improvement of quality parameters and the harmonization of quality standards in cancer diagnostics and treatment. (DK6)

The first task of these multidisciplinary groups was to produce a unified action program comprising national guidelines for diagnostics and treatment. In Norway and Sweden, the groups were run and the diagnose-specific action-programs approved by the Norwegian Health Directorate and the Swedish Association of Local Authorities and Regions (SKL), respectively. In Denmark, in contrast, the groups were independent medical non-governmental associations.

The second element contributing to change was the emergence of alternative institutional organisations. In Denmark, innovations in standardised diagnostic processes were developed at some hospitals as a solution to experienced problems caused by ineffective work processes, unjustifiable waiting times, and bottlenecks in cross organisational coordination.<sup>13</sup>

An anecdote told by several of our informants was spread through national media when the stories of the CPP birth should be told. Based on personal experience with an acquaintance with lung cancer, a radiologist at Vejle Hospital introduced a standardised system for delivering predictable slots and standardised waiting times for all lung cancer patients. A Danish informant summed up Vejle's position as a role model:

Vejle Hospital played a major role; not least, they managed to create a culture that expresses the understanding of what this is all about. They were frontrunners and managed to transform the idea into practice. (DK8)

The case of the diagnostic cancer pathways at Vejle Hospital was described in a separate appendix to the Danish 2005 national cancer plan.<sup>65</sup>

Similar problems as in Denmark were experienced in Sweden and Norway, and several informants recount that the Danish model was regarded as a role model in the search for solutions. Politicians and managers from these two countries visited Denmark to learn. Southern Sweden is geographically very close to Denmark, and the existence of a more or less overlapping labour market facilitated the exchange of ideas across the border. Specifically, the RCC of southern Sweden arranged seminars inviting speakers to tell about their experiences in Vejle. In Norway, the national program for hospital leadership development visited Vejle Hospital for several years, partly because of its diagnostic cancer pathway.

Models focussing more on process-oriented work organisation were acknowledged and the recommended direction given in the national cancer strategies in all three countries. As one Norwegian informant explained,



The CPP experimentation and mind-set were already present in some departments and hospitals ahead of the reform. The philosophy of the CPP had started to penetrate into health care. System thinking with the CCP offered a way to address tragic patient cases. (NO1)

The first phase of what we might call a national cancer reform process can be summarised by three key conditions leading to reduced legitimacy of cancer care: lack of patient focus, scarcity of access to new technologies for all patients, and emerging critique of the dominant organisational model. The latter was due to its lack of coordination across organisational borders in hospitals and between hospitals as not being beneficial for cancer patients. These conditions created a dynamic that led to the initiation of specific new cancer-related structures and the emergence of alternative institutional solutions to facilitate change.

### 4.3 | Conceptualisation of the problem and the content of the reform

In Denmark, the lower survival rates and higher incidence of certain cancers had been an underlying driving force behind the national cancer plans. However, given the perceived state of urgency and the great public and political awareness in 2007, this was not the main narrative. The narrative that emerged from a combination of patient stories and statistics was about cancer patients' experiences of not being taken seriously. A Danish informant said,

When the reform was launched, it was not about the relatively poor survival rate. It was about unnecessary waiting times and about immediate action to improve this. This was the political message. This was the driving force and then also the main issue among oncologists and other cancer-related specialists. (DK2)

However, when implementing the first part of the cancer reform, it was not obvious to the actors in the political landscape that the core narrative should be about eliminating delays in diagnosis or time to start treatment. One competing narrative was early diagnosis. Other more complex approaches was differentiating between cancers, cancer stages and diagnostic indications and patients' total medical and personal situation.<sup>69</sup> Patient waiting times during treatment were also an issue, namely the time to diagnosis and to treatment start. This simple message about no delays in diagnosis was chosen as the premise for a solution.<sup>70</sup> At the peak of the political process, the core narrative of the reform coincided across the three countries. The consequences for patient safety and predictability had to be addressed. For Denmark, as the first country to release the reform, these issues were connected to medical arguments about time delay as an adverse prognostic factor. The battle to define cancer as an acute disease was a symbolic expression of this discussion. One Danish informant said,

The news was simply filled with horrible stories about patients waiting for diagnostics and treatment and beneath the pictures was the following sentence: The patient is waiting – the cancer is not! (DK8)

In Norway and Sweden, however, the arguments related to waiting times were more based on patient experiences and putting the patient's perspective in front. The slogan extensively used in Sweden, 'each day counts', 'not one day wasted', evokes the medical impact of time. A Norwegian informant describes the patient perspective as follows:

In spite of a satisfactory relative survival outcome in Norway, politicians were increasingly aware of the waiting times, and voiced patients' experiences in that situation: 'I feel very uncomfortable not knowing'; 'Do I have cancer or not? And what will happen to me if the answer is yes?' So the overall target of the reform was to create a feeling of safety and predictability. (NO5)

The narrative of this phase of cancer reform also put forth an underlying question: what actually has to be changed for waiting times to become acceptable? This part of the narrative critiqued some fundamental conditions of health care and hospitals, calling into question mindsets and work processes. Informants in Denmark talked about the need to change mindsets, as exemplified by this quote:

The doctors had to adopt the mindset that patients shall be served in due time aligned with the CPP and not when the doctor thinks there is an available time for a diagnostic procedure or an outpatient appointment. (DK5)

These deeper narratives of mindset, attitude, and work process are inter-related and connected to waiting times. The more dramatic narrative regarding waiting times was probably needed to initiate change. Thus, in all three countries, the political decision was that waiting times must be improved. In Denmark, possible cancer was to be treated like an acute disease, while Sweden labelled their reform the Waiting Time Reform.<sup>14</sup>

How should the challenge of unacceptable waiting times be managed? Several options flourished on the political battleground. Certain existing models had a major impact on the decision to introduce CPPs because they seemed to give the desired outcome. The model created at Vejle Hospital was one such major source of inspiration for Denmark, and later the Danish reform interpreted as a success functioned as model for Norway and Sweden.<sup>14</sup> One Swedish informant said, 'It was decided to reduce waiting times and we should look to Denmark for the solution'. While Norway and Sweden were able to benefit from close contact with Denmark, Denmark did not follow a comparable cross national translational process.

The content of the CPPs was similar in the three countries: a standardised process defining normative targeted time frames from referral to hospital and to the start of first treatment, the introduction of patient case managers, mandatory multidisciplinary clinical decision meetings in each pathway at every hospital and a standardised referral guide defining reasoned suspicion of cancer. The introduction of CPPs was often perceived as a reform of logistics, although some also saw it as a reform of quality because CPPs built on the clinical action program for each diagnosis and specified the steps to deliver best outcome.

To summarise, even though motives and drivers for the emergence of national cancer reforms differed slightly among the three countries, when the peak of urgency was reached, there was one dominant narrative behind the call for action—unacceptable waiting times. While this narrative was originally linked to medical outcomes and the prognostic impact of waiting times in Denmark, the first country to roll out a reform, subsequently the focus was overwhelmingly on patients' subjective demands for safety and predictability for all three countries. At a deeper level of the narrative, we discovered a supplementary demand for change in mindset at the hospital level. In the prevailing narrative, there was one dominant solution, namely implementing CPPs. This was based on an existing solution that seemed to work.

#### 4.4 | The urgency to act—mobilisation for change

During spring 2007, the situation regarding cancer care in Denmark was marked by an urgent need to act. A Danish informant summarised as follows,

Lots of stories were exposed in the media expressing experiences of terrible waiting times. This was combined with medical research claiming that waiting times in certain cancers might influence survival. This coincided with a general trend addressing the demand for a more patient-focused health care higher up on the agenda of public debate. (DK7)

Findings from several PhD projects supporting the decisive arguments were presented at a crucial meeting of the parliament in March 2007.<sup>71</sup> Another Danish informant told us,

We documented that tumors grew from one stage to another during the patient's waiting time and that a lot of patients had long waiting times. There was one story for the heart and one story for the brain. There was a message that left the heart cold and another escalating the engagement of the brain. (DK3)

In Norway and Sweden, there was hardly any research-based documentation connected to the situation of urgency in cancer care. In both Denmark and Norway, scandals had been uncovered regarding waiting times for cancer patients, and the media played a major role in all three countries by continuously raising this issue, not least through patient cases.<sup>72</sup> A Norwegian informant said,

There were lots of negative stories in the media, especially connected to patients waiting for treatment, people that seemed to be forgotten by the system. Patients got no answer about what was going to happen, living in uncertainty for a long time not knowing whether they had a cancer or not. (NO6)

The research and the media coverage in Denmark evolved partly as a result of a well-organised process between medical researchers in Aarhus and core players in the patient organisation the Danish Cancer Society. Several informants argued that they managed to exploit the situation and that they created alliances. The national multidisciplinary cancer groups and the Cancer Union cooperated to organise the important meeting at the parliament. One Danish informant formulated it like this:

There was this decisive meeting at the parliament in addition to the alliance between the Cancer Union and the doctors. That is an extraordinarily strategic, strong alliance. This was not the triggering cause. Nevertheless, this reform would not have happened without this alliance being present. (DK3)

Involvement and engagement of top-level politicians from the largest parties also played an important role; they served as both agents, constituting the urgency of the situation, and as actors expected to execute action. This happened in 2007 concurrently with a major politically imposed administrative reform in Denmark. The counties were merged into five regions. One argument for this fusion was the need for health care reform. The chair of the umbrella organisation of the regions was from the Labour Party while the government was led by the conservative and liberal parties. Solving what was understood as a crisis in cancer care became a decisive task. The national government and the regions partly competed and partly joined forces to deal with the task. A Danish informant stated that,

The crucial point in this reform process was the decision at a very high political level. People might argue against certain elements or the total reform. However, this was totally overruled by the fact that this was a governmental decision and confirmed by the agreement between the government and the Danish regions. For the enforcement of the implementation, this was a major advantage. (DK2)

In Norway and Sweden, the political situation also contributed to mobilisation for change and a sense of urgency. In both countries' general elections (Norway in 2013, Sweden in 2014), both political sides addressed the crisis in cancer care and possible solutions in their campaigns. Despite agreement about the importance of the problems and the need for action, the politicians disagreed about which tool to use.

At an administrative level, a contribution to action also came from the structuring of health care administration at the national level. The national health agencies had ambitions in terms of playing a role in the development of cancer care. However, in none of the countries did these agencies have an executive line to the hospitals. Coordination between these entities was accomplished through different systems: through the politically elected regional governments in Denmark, through the corporate structure run by regional health authorities in Norway, and by the counties and their coordinating structure of regional cancer centres in Sweden. The need for both the executive structures and health agencies to consolidate and strengthen their position in the strategically important cancer care domain likely encouraged a combined process of competition and cooperation when the situation became urgent.

In Norway and Sweden, there were even challengers among patient societies mobilising for urgently needed rapid change. In Norway, the Cancer Union was challenged by Action 48, a very active group on the Southwest coast, and their demand for a 48-h wait time from referral to diagnosis. In Sweden, the organisation Unified against Cancer emerged alongside the dominant Cancer Fund. Both the new Swedish and Norwegian organisations were inspired in part by Denmark, and they worked closely with politicians, not least on the topic of waiting times. In addition, the newly elected health minister in Norway was inspired by the Danish CPP reform. During this period, the established Norwegian Cancer Union engaged the former president of the Danish Cancer Union as an adviser to support their work influencing politicians regarding cancer waiting times.

Altogether, political mobilisation increased as a result of persistent media focus, systematic documentation,<sup>15</sup> engagement from medical communities and cancer societies, and the demonstration of agency by skilled and well positioned actors in identifying and capitalising on a situation of political and administrative competition. A Danish informant expressed it as follows:

The constituting mechanism of this reform was a mixture of some patient cases, some public dissemination of relevant medical research and the active engagement from central politicians. This was exceptional compared with the traditional way of preparing political reforms in Denmark through huge studies and thorough analysis. The combined input was crystalized into a political initiative that immediately migrated into the system and opened for new ideas. (DK8)

A situation of urgency and a need to act were created through combination of medical reports, heavy engagement from media and patient organisations and a combination of competition and need for consolidation among relevant organizations and health administration, all skillfully articulated by strategically situated actors. Action was accomplished through the launch of waiting time reforms in Denmark in 2007, in Norway in 2014, and in Sweden in 2015.

## 5 | DISCUSSION

This article explores how relatively similar cancer care reforms emerged in three Scandinavian countries with similar health care systems. In our analysis, we identified three distinct institutional logics in play during the reforms. The institutional logics are present in the initiating processes, in the conceptualisation of the problem, in the choice of measures, and at the crucial point of urgent decision making. First, the medical logic is anchored in best medical practice, expressed in scientifically based methods and guidelines, with measurable clinical results as outcome variables. The medical logic is executed through clinical discretion based on experience and scientific reports. The main carrier of this logic is the medical profession at field level, also represented by multidisciplinary groups and medical specialist associations. The influence of this logic is mainly bottom-up.

Second, we identified an economic-administrative logic connected to effective production through optimal use of available resources. It is monitored through activity parameters, budget targets, and indicators for optimal

deployment of resources. This logic is primarily represented by the management and by the administrative agencies governing health care. This logic works top-down through the hierarchical, executive line and governance systems.

Third, we identified the patient-related logic. The patient-related logic has a subjective, emotional and personalised basis and is anchored in their treatment experience. This logic is expressed mainly outside-in, by groups and persons who are not part of the institution. For all three Scandinavian countries, we have described an increased focus on the perspectives of patients, whose experiences with the lack of coordination in cancer care led to a demand for improvements.

Our study indicates that in spite of several years of improvement initiatives and more funding allocated to cancer care, a crisis emerged in all three countries. This crisis was on legitimacy and of outcome versus expectations, and it eventually created a window of opportunity. More resources did not solve the crisis and the origin was traced to the lack of real institutional change at the ground level, change in behaviour, in work processes, and in mindset to manage complex patient pathways. A common conceptualisation of the problem emerges across the three institutional logics in play: unwarranted waiting for treatment, each day counts. This narrative is easy to communicate and creates meaning, and thus legitimacy, in all the three logics. Medically, cancer is a progressive and deadly disease and accordingly there may be a connection between delay to start of treatment and treatment outcome. The reform narrative is connected to the economic-administrative logic through arguments for more optimal deployment of care, including planning and coordination, and more optimal allocation of available resources. In the patient-related logic the reform narrative creates meaning through the effect on experienced safety and predictability in a vulnerable time with a recent possible or confirmed cancer diagnosis. There was a demand for both compatibility and centrality,<sup>31</sup> defining a critical juncture.<sup>39</sup> A window of opportunity evolved<sup>41</sup> through fairly similar causal steps in all three countries. Starting with increased public and political focus on cancer care, several centrally defined measures were launched in parallel with local initiatives at the hospital level. Because growing expectations were not met, and serious dissatisfaction was expressed in the media and medical communities, a crisis of legitimacy and a state of urgency for action emerged. The catalyst factor<sup>41</sup> triggering action is then the coincidence in time and content of the perceived crises, problem definition and solution related to all the three dominant logics and this creates together a situation alternatively termed breaking point,<sup>38</sup> critical juncture<sup>39</sup> or punctured equilibrium.<sup>40</sup> The problem was framed in terms of competing alternatives with the winning message speaking to both the head and the heart.<sup>43</sup>

Agency is clearly present in these reforms. Resonating previous literature,<sup>44,46,47</sup> we can identify several institutional entrepreneurs characterised in previous literature on this topic.<sup>44,46,47</sup> Some of the actors playing a decisive role on the national level had a connection to several distinct institutional fields, either concurrently or over the course of their professional career. They thereby had high legitimacy at least for two of the logics in play and in many ways filled the role of boundary bridging. They were active in taking advantage of the emerging crisis, elaborating how it should be perceived and articulating the urgency to act. The entrepreneurs acting on the public stage used the shared legitimation between the logics as a kind of momentum to initiate immediate action that managed to involve several levels of the institutional field. These reform cases also illustrate how competition between actors primarily representing the same logic may impose a course of action.

By literally crossing the Scandinavian national borders some individuals were important boundary-spanners. This example of mutual cross-country influence recalls arguments from previous research about policy transfer, which conclude that the transfer of specific ideas and measures is more likely to occur between neighbours with similar political and administrative systems.<sup>34,37</sup> As previously outlined, international trends regarding the introduction of ICPs had emerged before the Danish reform process started. Thus the reforms introducing CPPs could be interpreted as part of an isomorphic process mimicking<sup>33</sup> or emulating<sup>37</sup> a measure that had seemed to refute a legitimation crisis internationally. However, each country's reform movement had its own strong and distinctive sources, and though there were clear elements of translation from the Danish to the Norwegian and Swedish cases the reforms in the latter two countries contained distinct features based on their unique political processes and the particular context of their health administrative systems.

ICP-type measures may be imposed from both above and below. Aligned with this dual perspective, previous research have described that institutional change across field levels may be based on a top-down perspective<sup>73</sup> or a bottom-up perspective.<sup>32</sup> The reform processes in the three countries combine these two models. The CPP was a solution to reduce long waiting times not least developed as concept at Vejle Hospital and pushed by groups of clinicians in all three countries. The translation to a field level reform largely followed the elements and dynamics of the model of Smets and colleagues<sup>32</sup> emphasising the bottom-up perspective. Development projects related to patient flow at other Danish hospitals and some Norwegian and Swedish hospitals seem to fit into the same pattern. Hence, the CPP reforms appear to be based on this interplay between bottom-up and top-down institutional change. This finding is in accordance with the more general arguments of Bretton et al.<sup>41</sup> and the empirical findings of Allen.<sup>10</sup> Our contribution, however, is putting all these elements together in a comprehensive puzzle: A similar conceptualising of a problem according to all three institutional logics present, occurring at a critical point when political action grew urgent. And simultaneously there was an window of opportunity seized by actors in the potential position of bridging interpretation of problem and solutions between representatives of the different logics and across the three countries while building on existing models of CPP thus combining processes bottom-up with top-down in triggering the political decision of the CPP reform.

## 6 | CONCLUSION

This study shows that the launching of political reforms in cancer care in three Scandinavian countries, targeted at changing practice at clinic level of hospitals, can be explained by the presence of several elements. First, a causal path of events along a timeline undermined the legitimacy of cancer care in general. During a situation marked by urgency this undermining process was nourished by the national institutional field of cancer care by applicable sources from below, from above, from outside, and from abroad relating to the three institutional logics present at this stage. Second, the series of events originated from the different sources created a window of opportunity for a reform initiative. The specific reform action was precipitated by the articulation of a definition of the problem and a solution that appeared to be simultaneously aligned with all three prevailing logics. The emergence of this seemingly triple aim solution was dependent on the presence of institutional entrepreneurs carrying the discourse that bridged the various logics and had the skill, legitimacy and urge to exploit this window of opportunity. Based on our analysis of three specific cancer reform cases, we suggest on a more general level that reform initiatives in health care might be explained and characterised by a situation of urgency where four dimensions are at least apparently aligned; content of reform, direction of change, interpreting time for action and actor involvement in three prevailing institutional logics. This can therefore be an interesting avenue for further research.

### ACKNOWLEDGEMENTS

We will thank Ingrid Kristine Small Hanto for support in preparing the manuscript. This study is part of a project funded by The Research Council of Norway, project no 272945.

### CONFLICT OF INTERESTS

None.

### ETHICS STATEMENT

This material is the authors' own original work, which has not been previously published and not currently being considered for publication elsewhere. The paper reflects the authors' own research and analysis in a truthful and complete manner. The paper properly credits the meaningful contributions of co-authors and co-researchers. The results are appropriately placed in the context of prior and existing research. All sources used are properly

disclosed (correct citation). All authors have been personally and actively involved in substantial work leading to the paper, and will take public responsibility for its content.

## DATA AVAILABILITY STATEMENT

Interview data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions. Document data that support the findings of this study are available in open sources given in the list of references concerning documents referred to in Result chapter in the article.

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**How to cite this article:** Mæhle PM, Hajdarevic S, Håland E, Aarhus R, Smeland S, Mørk BE. Exploring the triggering process of a cancer care reform in three Scandinavian countries. *Int J Health Plann Mgmt*. 2021;36(6):2231-2247. <https://doi.org/10.1002/hpm.3278>









Review/Comparative article

# Implementing cancer patient pathways in Scandinavia how structuring might affect the acceptance of a politically imposed reform

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## ARTICLE INFO

## Article history:

Received 22 September 2020

Revised 14 July 2021

Accepted 27 August 2021

## Keywords:

Policy implementation  
 Integrated care pathways  
 Cancer patient pathways  
 Scandinavia  
 Health-policy research  
 Cancer care reform

## ABSTRACT

Through political decisions all three Scandinavian countries implemented national reforms in cancer care introducing cancer patient pathways. Though resistance from the professional community is common to top-down initiatives, we recognized positive receptions of this reform in all three countries and professionals immediately contributed in implementing the core measures. The implementation of a similar reform in three countries with a similar health care system created a unique opportunity to look for shared characteristics. Combining analytical framework of institutional theory and research on policy implementation, we identified common patterns of structuring of the initial implementation: The hierarchical processes were combined with supplementary structures located both within and outside the formal management hierarchy. Some had a permanent character while others were more project-like or even resembled social movements. These hybrid structures made it possible for actors from high up in the hierarchy to communicate directly to actors at the operational hospital level. Across the cases, we also identified structural components acting together with the traditional command-control; negotiation, consensus and counseling. However, variations in the presence of these did not seem to have significant impact on processes causing decisions and acceptance. These variations may, however, influence the long-term practice and outcome of cancer-care pathway-reform. Knowledge from our study should be considered when orchestrating future health care reforms and especially top-down politically initiated reforms.

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## 1. Introduction

In the three Scandinavian countries, cancer care was elevated to the national political agenda around the turn of the century, first in Norway and Denmark and then in Sweden. National cancer strategies were launched, and several measures were introduced including prevention, screening, education, quality registers, centralization and clinical trials. Nevertheless, challenges remained, and the situation reached a state of urgency. The problem in each of the three countries was unacceptable waiting times. The common answer was to launch a reform introducing cancer patient pathways (CPP) as a national standard for the sequence of procedures in all major cancer diagnoses and standards for patient waiting times from referral to the start of treatment. The implementation of CPPs implies an ambitious change directed by the Ministry of Health in

a complex field with different levels and logics: a change of attitude, behavior, and system management at the hospital floor level and at the political and higher administrative levels.

In health care, resistance to reforms and change initiated from above is widespread. The presence and dynamic connected to this was treated both theoretically and empirically by Alford in his book from 1975 [1] and several years later by the work of Kellogg [2]. As illustrated in a literature review by Appelbaum and Wohl [3], numerous papers have then been published discussing how to overcome resistance to intended reforms and changes in health care. However, in the cases we studied the reforms seemed to receive acceptance and even commitment and the core formal measures were fast established and filled with activity. This observation inspired our main research questions: How can we explain that this top-down reform at least in the early launching and initial implementation phase were well received and that the measures was rapidly effectuated? Can we identify common structural features facilitating the process and thus contributing to the out-

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come? And on the contrary, are there simultaneously any structural differences that may lead to divergent practice and outcome of the reform?

Several scholars have published comparative case studies investigating the influence of the different European models of health care on the implementation of reforms and changes in health care practice. Overall, studies have concluded that health care structures matter [4–7] and some key features include degree of centralization; degree of professional independence; and impact of top-down governance, including how health care funding is institutionalized. These studies, however, compare a wider variety of health care systems than is found in the three Scandinavian countries, which all have Beveridge-type health care system. In our cases, by combining observations from a fairly similar reform in similar health care system we are given an opportunity to identify what could be structural features that were crucial for the perceived success. Simultaneously, with such a stability in variance we might also recognize structuring mechanisms that could contribute to different tracks and outcomes of the reform process. More specifically we focus on the interplay between ordinary hierarchical bureaucratic structures, matrix structures across institutional borders, and project-based structures established as part of the reform processes. We try to identify which structural elements are present in all three countries, which elements vary and elaborate on how these similarities and variations influence implementation process and thus the outcome of the reform by creating space for agency and interaction between the institutional logics and levels at play.

### 1.1. Analytical references

How the structuring of politically initiated changes influence the dynamic of the implementation process in complex organizational systems and across hierarchical layers has been an important topic for organizational studies in both sociology and political science. Two traditions relevant for this case are the study of policy implementation and of organizational institutionalism. In the current study, we build upon the cross-fertilization of these two approaches. We are inspired by Baret [8], who concludes in her review based on 20 years of implementation research by calling for renewed emphasis on cross-disciplinary work. We follow this trajectory by identifying relevant related concepts and models in research in these two mentioned traditions. We argue that the combined heritage will strengthen the application of them in our analysis. We also recognize that other recent studies of policy implementation in health care fruitfully embark upon a combination of institutional theory and other traditions [9–11].

The works of Phillip Selznick [12] and of Pressman and Wildavsky [13] are particularly influential in organizational institutionalism and policy implementation respectively. Both books deal with the process of translating a political reform from the national level to the local level, although the reforms they discuss probably are more complex than implementing CPPs. The questions addressed in these works and the findings, concepts and models developed by their research have relevance to the current study. Across the two traditions there is a corresponding vocabulary partly expressed in different ways. Building on these corresponding concepts, we constructed a model of core concepts constituting a platform for analyzing our data and further developing the model.

### 1.2. The direction of change

Studies of both institutional change and policy implementation are concerned with the direction and mechanisms of change. The starting point for the tradition of institutionalism is embedded institutional mechanisms to resist change and to remain con-

trol, authority and legitimacy [14]. For policy implementation research on the other hand, the starting point is the limitation to reach out with comprehensive information from the position of the policy maker and the limited ability to identify internal resistance from groups at ground level [15–19]. Both traditions acknowledge the limitations of planned, rational processes initiated from a central core position in the institutional field [20] or a top hierarchical level [18]. To make change within reach and explain a possibly successful change initiative, contributions from both traditions describe cases that combine and orchestrate synergies from top-down and bottom-up. These processes are dependent on two elements: One is room for improvisation, adaption, and exploration at the organizational level. The other is translation between the political-administrative top to the bottom, or from the field level to the practice level [16, 20–24].

The presence of several competing institutional logics has served as a background for several studies of institutional change. Institutional logics was introduced by Friedland and Alford [25] defined as cultural beliefs and roles determining how practice and structures are assessed. In early implementation research, Hjern and Porter [26] identified different rationalities influencing the implementation process. Institutional logics have been presented as both the source of change and the carrier of the change process. Different logics or rationalities might have different sources, originating from the field or central level, the practice or street-level or outside the field or the periphery. One logic might be dominant and challenged by others. In studies of change initiatives in health care, logics have been explained as an analytical tool, especially in the institutional tradition in general [27–30] and in integrated care specifically [31,32] but also in implementation research [33,34].

### 1.3. Agency and entrepreneurship

Agency and entrepreneurship do not have obvious important position as driving forces of change in either strongly institutionalized fields or hierarchal bureaucracies [35]. Beckett [36] argues that entrepreneurship and strategic agency may be present in persons expressing personal authority and not just administrating the change process through bureaucratic authority. Similarly, an important observation in studies on institutional entrepreneurship [37,38] is that entrepreneurship is possible because the entrepreneurs have a legitimate role in several of the affected interest groups. This could be an expression of combining structural and normative legitimacy [39]. The entrepreneurs have space to move between different organizational fields or levels and they have the ability to transfer and translate ideas across borders [40]. In his research on implementation, Sabatier [17] discusses the tensions between top-down and bottom-up. He introduces the role of policy brokers similar to what Sabatier and Mazmanian [41] calls the role of so-called fixers. They describe a role with legitimacy to intervene and access to available resources independent of level. Alternatively, the bridging of levels may be accomplished by managers [20]. Olakivi and Niska [42] argue that some actors may simultaneously influence and be influenced by two logics indicating a hybridity practice. Institutional entrepreneurship may not be a question of heroic action but expressing activity by backstage organizers and facilitators [43] imposed by actors spatially dispersed in the organizational field [44].

### 1.4. Emerging structures

Agency and entrepreneurship might not just be performed through individual actors and entrepreneurs but also through collective action. This can be accomplished through phenomena like social networks and social movements. Both represent a possible

way of cross-circuiting institutional and hierarchical levels and organizational borders. They may act as carriers of new impulses or alternative logics from one level or field to another. Social networks have been studied in relation to both policy implementation [4, 45–47] and institutional change [48]. Similar to networks, social movements might be a means of avoiding the traditional trappings of bureaucracy [49] and failures of hierarchical coordination [50]. Social movements might also create processes within institutions [2,51] or constitute a phase of a change process [10]. Both social networks and social movements express themselves through social relations and structures. Strategic networking is therefore seen as an important policy implementation activity [52,53]. Meeting arenas [43] that function both as a free space for possible alternative practice and discourse and a forum for cognitive and emotional framing [54,55], connecting individuals and the movement and thus specific logics, are central to social movements.

Network structures and arenas that emerge as temporary structures connected to social movements illustrate the role of structures in policy implementation and institutional change. Not only emergent structures but also general and specific formal structures have been a subject of research in both traditions. Though Pressman and Wildavsky [13] in their study of implementation clearly questioned the building of organizational constructions circuiting the ordinary lines of bureaucracy, Hjern and Porter [26] as early followers encouraged looking for less formal and more matrix-shaped structures when investigating implementation processes in multi-organizational clusters. More recently, Peters [33] underlined the need for structural arrangements facilitating coordination and Lindquist [56] discussed the emergence of special units to support implementation. In organizational institutionalism, formal structures and change are approached through studying the phenomenon of institutional infrastructure [14] and hybridity constructions [57,58]. In both traditions, there is an acknowledgement of attempts to orchestrate change through processes of discourse and bargaining [18,33]. The participating individuals and groups represent the involved perspectives, rationalities and logics.

### 1.5. Coordination mechanisms

How might differences in structural arrangements influence the rules of discourse and degree of bargaining? How will the structural context of interplay between logics affect the room for agency? Some studies from the institutional tradition have addressed these questions. Reay and Hinings [59] describe how the relation between competing logics is managed through collaboration; the different logics accept the presence of and contributions from the other logics in certain defined parts of the organizational field. They show how medical decisions are separated from administrative decisions. Nevertheless, there is informal contact creating joint definition and exploration of experimental sites. A second contribution to the discussion, which describes a more complex interplay between institutional logics, is offered by Andersson and Liff [60]. They describe a rivalry between professional and managerial logics based on co-optation mechanisms. Building on Selznick's [12] concept of co-option and using a case study from psychiatric care they show how strategies and measures developed from one logic and its interest group at an individual actor level are integrated into another logic. The coexistence of institutional logics in health care happens through finely grained mechanisms, providing a dynamic, interactive explanation. According to Andersson and Liff [60], co-optation in health care is both a power strategy and a cooperative strategy, not to mention an attempt from one group to increase its legitimacy in health care on a general level. This connects to a conclusion made by Mur-Veeman et al [5] that policy implementation in the case of integrated care depends on the in-

stitutional constellation present influencing the interaction of actors involved.

The two mechanisms described above, collaboration and co-optation, raise the question whether there is a connection between the mode of coexistence between institutional logics and the structural framing of the implementation process and the organizational field in which the reform is going to be implemented. According to Thorntorn and Ocasio [61], a crucial dimension of the structural framing is the type of coordination between actors. They describe the phenomenon of structural overlap as an organizational arrangement influencing the interaction of logics. Hanlon et al [47] refer to two mechanisms structuring the relation between the present logics in a case study for policy implementation in health care. One is consultation, collaboration and relationship building which is in sharp contrast to the mechanisms of command and control. However, the former is not free of tension but represent another way of dealing with it. In the policy implementation literature, organizational process of implementation aiming to bridge gaps contain mechanisms of both negotiation and consensus building, as well as the use of force [62] or, in the words of Hjern and Porter [26], negotiation, consent and persuasion. In a recent work, Tuohy [63] synthesizes how the structuring processes of logics are constituted of control and influence. In her analysis, the three instruments of control are hierarchy, through command, the market, through exchange, and peer control, through persuasion, and the instruments of influence are state, private and professions. While the relevance of Tuohy's work to our study can be disputed, as there is no obvious market element in the health care system in Scandinavia, negotiation is a mechanism that is still highly relevant to the analysis of health care reforms.

## 2. Materials and methods

The empirical scope of this study is the CPP reform in cancer care enacted in three Scandinavian countries. Each reform constitutes a case. The timeframe we have given attention in the cases is the process from the political decision through the initial phase of orchestrating implementation and until the reform measures reached hospital floor level. We then focus on the structuring of these processes from the ministries of health and through the involved parts and levels of the health care system. In studying these cases we did not follow the implementation down to the practical deployment on local health care.

Each country's reform process is considered as a case limited geographically and in time and constituted by a complex configurations of events and structures [64]. Choosing cases can be done according to several principles. One of these is most similar cases [65] where most of both the context variables and independent variables are the same. But if one or a few independent variables differ it is appropriate to study the specific effect of the few independent variables that varies across cases. Choosing most similar cases is then appropriate to explain variance in dependent variable. In this case however, with small variation in outcome we argue that to use similar cases are suitable to search for more general explanations for the rare outcome. Two other principles of case selection are choosing either a deviant case or an extreme case [66]. Such cases are suited for studying outcome of an independent variable that diverge from the majority of cases. With the unique outcome of our cases we also may categorize them as a deviant case.

In line with other case studies and studies of organizational institutionalism and implementation studies [19,61,67–69], our empirical data consists of both documents and interviews. During the data collection process, cross-fertilization between the two sources allowed us to identify additional relevant documents and additional informants.

The documents used as data-source were all publicly available on relevant organizations' web sites. Together they constitute the official documents for the political or administrative reform process [70]. Such documents cover the official analyses, rationale and measures of the problem at hand and also represent opinions about the reform [71]. Other documents, such as public presentations given by key players during the process and published research papers, served as secondary sources. The information, arguments, and opinions expressed in the documents were a reference for the content of the interviews, as well as a data source for the analyses of each of the process phases.

The informants were recruited through purposive snowball sampling [72]. The selection criteria were that they had to have a key position in conducting the implementation of the CPP reform or at some crucial events during the process. The informants were regarded as institutional actors [71] representing their organization. Thus, the positions of the interviewees during the time frame of the investigation correspond to the active organizational entities in each country. In total, we conducted 26 interviews, nine each from Denmark and Sweden, and eight from Norway. The median length of the interviews was one hour. The roles of the informants varied: Four represented health ministries, ten national coordinating units, six patient organizations, and five regional/hospital managements; two were researchers. In the Danish case, time had elapsed between the events studied and the interviews. However, to reduce time errors we referred to documents written at the time of the process as a reference during the interviews.

In line with an abductive approach, we carried out semi-structured interviews with open-ended questions, allowing flexibility in the conversation and in the issues addressed [73–75]. We developed an interview guide based on the time line of the process adjusted according to country and interviewee profiles. Analysis of the data material started during the initial reading of core documents and continued during the interviews and the process of transcribing and coding. We used a multi-step coding process [73]. First, we organized quotes based on topics introduced explicitly by the interviewees. Second, we started searching for similarities and differences across the three cases. During the analysis, we followed an iterative approach [76,77] between the data material, inductively based analysis, and analytical frames based on literature from the two research traditions to identify significant elements across the three cases we compared [78]. We identified a model comprising structural elements and dynamics and applied this model to the analysis of our data material. The comparative element made it possible to trace what seem to be more general patterns and to explain the variance in how reform processes were orchestrated [21].

### 3. Results

The movements that elevated cancer to the national public political agenda in the three Scandinavian countries started during the 1990s. In Norway, an expert group delivered the first national report on challenges in cancer care, along with a plan for improvement, in 1996; this was followed by political decisions to put more resources into cancer care [79,80]. Denmark launched its first national cancer plan in 2000 [81]. The discussion in Sweden started not long thereafter, and a governmental commission was designated in 2007, resulting in a national cancer strategy being approved in 2009 [82]. The national reports were all comprehensive, addressing topics like prevention, screening, education, quality motivated centralization, quality registers, palliative care and clinical trials, in addition to increased investment. However, the combination of the modest improvement, scientifically based potential for more progress, the seriousness of delayed diagnoses and the strong increase in incidence resulted in public expectations not being met.

The core of the problem was identified as unacceptable waiting times. Expressed in this context of urgency the political answer in all three countries was to introduce CPP.

Several of our informants observed that a characteristic of this reform was the strong top-level engagement, which was positively received in the medical and care community at the ground level. This kind of top-down implementation can be high-risk, and as one Norwegian interviewee said, "Trying to change practice at the hospital floor level through the Ministry of Health will always be a risky business. Several attempts have been made to accomplish this, even using laws, but in vain." Several informants considered that the process, though challenging, was a success: "This was probably one of the few initiatives from above that was well received from below." The process even built on local engagement from floor level as summarized by a Norwegian and a Danish informant.

The central experience from this reform process was the involvement of everyone connected to it. It is all about the transformation of the central initiative to practice change at the ground level.

The engagement of the politicians and central officials was crucial to establishing the reform. However, the implementation of the reform was not politically driven. I do question whether it is possible at all to command health care professionals. I think it is almost impossible. They might manage to motivate the professionals, for example by making resources available.

Two papers describing the reform processes in Denmark and Sweden [83,84] confirm this description.

#### 3.1. Key variations in general organizational structures

According to the OECD classification of health care systems, and more sophisticated classification [85], the Scandinavian health care systems are in the same category. Every citizen has the right to access to what is considered as necessary and standard health care, both acute and elective. The financing is provided by governmental budgets. Public authorities own and run the majority of the hospitals

Despite these similarities, however, there are differences between the three countries in the way health care is structured. These differences might affect how cancer care reform is implemented. The following is a summary of some major structural aspects of the three national cases: When the government wants to intervene, in Norway there is a direct executive line from the Minister of Health to the hospital CEOs. This is apparent in the financing, the ownership, and the governance structure. In contrast, the Swedish model is more decentralized to the county level, and national governance and coordination is to some degree taken care of by a membership organization, the Swedish Association of Local Authorities and Regions (SKL), and is dependent on negotiations between SKL and the Ministry of Health [86]. The Danish model falls somewhere in between the more centralized Norwegian model and the more decentralized Swedish model. In Denmark, the fact that the country is divided into only five health regions, and the regions' financial dependence on the government results in a more centralized system than in Sweden. In all three countries, there is a national health agency with assignments issued by the Ministry of Health. However, the ability of these agencies to influence hospital governance is impacted by the relation between national government and hospitals. Here, some cancer specific entities played a crucial role.

#### 3.2. Cancer-specific structures as a playground for implementation

In all three countries, the measures put in place as a part of the national cancer strategy included organizational initiatives. Two



novel types of organizational structures were established to facilitate further change and improvement in cancer care. The first was a national coordinating structure. These structures varied between the countries, but shared common unique organizational characteristics for cancer care. In Denmark, the National Cancer Board was created. This was a body appointed by the National Health Authority. In Norway, the Health Directorate created a position as strategy director for cancer care. In Sweden, Regional Cancer Centers (RCC) was established with a national coordinating committee under the umbrella of SKL [87,88]. The Swedish RCC was constituted as an association between regional entities but changed through a kind of political bargaining process in which both the Ministry of Health and the counties were active. The RCCs were based on an existing coordinating regional structure for quality cancer registers. This regional organization was not directly aligned with an existing administrative structure level of government and was based on the principle of independent counties, which functioned as the basic unit of hospital governance. This structure of on-task cancer-specific coordination implied a larger degree of local variation in the construction and function of each RCC.

The other novel cancer-specific structure was national multidisciplinary groups covering each major cancer diagnosis. These groups recruited members from each specialized medical society involved in diagnosing or treating patients. The first task of the multidisciplinary groups was to produce a unified nation-wide action program comprising guidelines for diagnostics and treatment. In Norway and Sweden, the representatives were appointed by the Health Directorate and by the SKL, respectively, which also approved the programs. In contrast, in Denmark, the multidisciplinary groups were independent, professional non-governmental associations.

### 3.3. New specific structures launched as part of the CPP reform

When the CPP reform was launched in each country it worked its way from the ministries of health through the administrative apparatus. Here we can identify both similarities and differences in how the implementation processes were orchestrated in the three countries. The first major distinction is how the reform was transformed from the government and the ministry of health to the executive level in the hospitals. In Norway, an informant explained how the line of hierarchy influenced the process:

The order to implement the CPPs was given through a traditional governance protocol delivered from the minister to the regional health authorities. From that point on, the issue was high on the agenda at the governance meetings between the ministry and the regional health authorities. From the very beginning, waiting time measures were presented at the meeting.

In Denmark and Sweden, the administrative split between the state and the hospital owners implied that the execution of the reform was dependent on negotiations [89]. The first agreement between the administrative levels was of uttermost importance as it defined the future structure for the annual negotiations.

The newly established cancer-specific organizational constructions played a major role in orchestrating the implementation of the CPP reform [83,84]. One example is the multidisciplinary national cancer groups that were established in all three countries. A Danish informant confirmed that “the existence of these groups after the political initiative was launched was of major importance for the implementation.” Although these multidisciplinary groups were created at the national level, they were made up of senior hospital clinicians who championed bottom-up processes at their hospitals. A Danish informant expressed it this way: “When the national multidisciplinary cancer groups started their work on designing the CPPs it was a terrific example of the medical community at work.”

The recently established cancer-specific national coordinating entities were also given a core role in the implementation process in each country. In all three countries they had a formal role in designing the national processes and were in a position of influence but without executive power. In Denmark, the National Cancer Board was appointed during the process of designing the first national cancer plan in the late 1990s. In the implementation of the CPP reform, the board served as a coordinating national council. Above this entity, a national Cancer Task Force was established with only top regional leaders and leaders from the Ministry of Health and the Danish Health Authority and administrated by the latter. According to an informant, “the newly established national task force gave us an arena which guaranteed involvement of administrative levels that otherwise might have caused major problems in the implementation process.” The Cancer Task Force approved the standardized pathway description delivered by the multi-disciplinary groups, and the idea was that this process balanced several perspectives:

We had to create a model for developing the CCPs that combined what were medically best practice and optimal logistics and feasibility. Therefore, the CPP proposal went through a two-step decision process to make sure that both perspectives were taken into consideration.

In Norway, the position of strategy director for cancer in the Health Directorate was an organizational asset:

“The cancer strategy director, with his extensive national network in the oncology community, played a crucial role in orchestrating the implementation, acting as a link between the several groups and levels that we were dependent on.”

In addition, a specific project manager was appointed in the Norwegian Health Directorate.

In Sweden, the national coordinating group of the six RCCs was in charge of the CPP implementation. As one informant expressed, “We would not have been able to manage this reform if we did not have the small national coordinating unit. With the meetings in our joint national committees of RCC leaders, we managed to drive the process together.” In 2009, the regional RCCs were created as bodies with the mission to implement the national cancer strategy, and the CPP reform was a main task for the RCCs when it was launched in 2014. These regional boards had executive power, the capacity for administrative coordination, and access to relevant competences to support this type of change. By 2015, some of them had already engaged cancer-specific regional process leaders and started working on patient process improvements.

In all three countries, project-like structures emerged on several levels during the implementation. The design and selection of CPP templates for each diagnosis were organized like projects. Communication about the mission and CPP tools was accomplished through campaigns like conferences and meetings. Supportive groups, resource groups, and task forces were established at both the national and regional levels.

To access the executive hospital level, the national health agencies were ordered to support the processes. However, their roles varied. The Norwegian Health Directorate actively organized and supported the designing of the CPP prototypes and the operative implementation. The Danish Health Authority played a major part in organizing the CPP design process and chaired a national implementation plan during the first years. In contrast, the Swedish National Health Board's role was to annually evaluate the reform process and facilitate process learning at a national level. Though the health ministries were not hands-on when the executive processes, they were all close to the process with regular contact with national health agencies and the hospital owners.

In addition to creating the project-like structures and activating new and previously established cancer-specific organizational entities, the hierarchical line of governance also played a part in

orchestrating the implementation. However, several informants, including a Danish and a Norwegian informant, underlined that this was not a one-way, top-down governance process:

We had to involve representatives from the hospitals in the process from the beginning. If we had not, they would not have listened to an order from above, just a new fancy idea from the top bureaucrats in Copenhagen.

Those regions that approached the implementation task with a humble attitude towards the local hospital levels were probably the most successful. Their attitude was, we are dependent on each other, this is innovation, and we have to accomplish it together.

In the Swedish case, there was clearly hierarchical governance working on the county level. However, the RCCs must be distinguished from this:

Since the national and regional RCC networks are working close to the hierarchical executive line, we might look like a hierarchy ourselves. But we were not. The heads of the RCCs have to be aware of that and conduct themselves accordingly.

The organizational picture in orchestrating the reform was then a mixture of project-like constructions, social movement like events, emerging new cancer-specific structures and traditional line management. Although this kind of mixture can create an opportunity space for managing implementation, at the same time it might create tension and obstacles. One tension that might arise is between ordinary line management, on the one hand, and the specific cancer configurations and project-like processes on the other. With reference to the Swedish RCC structures, an informant stated,

Accomplishing this reform process without being a direct part of the hierarchical line organization was an advantage. Of course, both hospital CEOs and process managers might be frustrated along the reform journey. These two positions have to be in dialogue.

With reference to the multidisciplinary groups, a Danish informant expressed the crosscutting problem like this:

The actual driving forces for filling the CPP form with content came from outside of the ordinary line of hierarchy—that is, from the crucial role of the actually not governmentally appointed multidisciplinary groups of professionals who also linked the national and local levels together.

### 3.4. Structures defining the space and rules for agency

The organizational construction created room for entrepreneurial leadership. It gave some actors a unique opportunity to move up and down between the levels of the health care system during the initial implementation process. Some key positions in each country were filled with people that seemed to seize this opportunity. They were able to exploit the possibility of entrepreneurship in part because of the space offered by the situation to move more freely, both horizontally and vertically, within the organizational structures. These actors were insiders from the medical community. A majority of them had long experience from health care and hospitals, in both clinical and managerial positions, from different administrative levels in health care, and from the organizational fields of hospitals, health bureaucracy and research. This provided the process with both the prerequisite for building legitimacy and skills for entrepreneurship. Altogether, this was a set of complex arrangements being aimed at building trust around roles representing different interests and rules for performance.

It was really a challenge to build the trust and mutual acceptance roles between the RCCs, the counties and the hospitals. The RCCs had to communicate their services in a way that built trust and created interest at the counties and hospitals in adopting their ideas and asking for their services. The RCC construction provided an arena to create new experiences.

Properties of the structures defined rules of interaction in the process. We have described the diversity on the specific national constructions of formal hierarchy and lines of direct command. The orchestration of the implementation processes is summarized in Fig. 1

Fig. 1

Other process features include the degree of consensus [84] and the active facilitation of counseling and knowledge management [83]. In Sweden, the national and regional coordination mechanisms were dependent on consensus-based processes; this also appeared to be the case for the national Danish cancer task force. In all three countries, the process in the multidisciplinary cancer groups was also dependent on reaching consensus.

The group that was in charge of designing the CPP was invited to a two days seminar at a hotel. They got a rough draft as a starting point for their discussions. The rule of the game was that the participants had to agree on a final document before leaving.

Informants in Norway cited the facilitation of local processes through counseling as an important activity of the resource groups established at the national and regional levels. In Sweden, the core of the RCC, in addition to being a forum for regional consensus, was a counseling and reference unit facilitating support and providing knowledge for the counties and hospitals in their region. The role of process facilitator might be seen as a special form of counseling:

The RCCs had no direct power. They did not have money. They were not in charge of health care. However, they were facilitating the process that happened to be of uttermost importance.

This statement also reflects the general view of core actors in the implementation in all three countries that this was a tremendously successful process. We summarize the mechanisms at work in Table 1.

An obvious difference in the immediate output of the orchestrating process was that the CPP implementation in Sweden got two billion SEK in direct governmental support released as a part of the national negotiations that end up launching the reform. In Denmark, too, additional financial allocations were available and granted as a result of the negotiations between the government and the Danish regions. In Norway, according to the instructions provided by the government to the regional health authorities, the reform was supposed to be implemented without any extra support.

## 4. Discussion

Our aim in studying the implementation of this reform was to explain why this reform in the early launching phase was well received in hospitals and among professionals and that the measures were rapidly effectuated. To elaborate analytical tools for this, our starting points was the classical works of Selznick [12] and of Pressman and Wildavsky [13] both studying policy implementation initiated nationally but realized locally. In both studies they noticed that a basic challenge is that the level of initial decisions is far from reality and that implementation is challenged by difficulties to predict and control process and outcome. In these processes they describes tensions and dilemmas between different perspectives being present and discuss the experience of alternative organizational solutions to ordinary bureaucratic administrative lines. In our study we connect to the issues they put on the agenda and not least the research legacy following their foot-steps contributing to still more sophisticated insights and analytical elements in respectively in policy implementation research [14] and organizational institutionalism [15,18]. We searched for connections between specific structures and processes present and the room for agency and coordination mechanisms in an implementation where several institutional logics were involved. The challenge was across

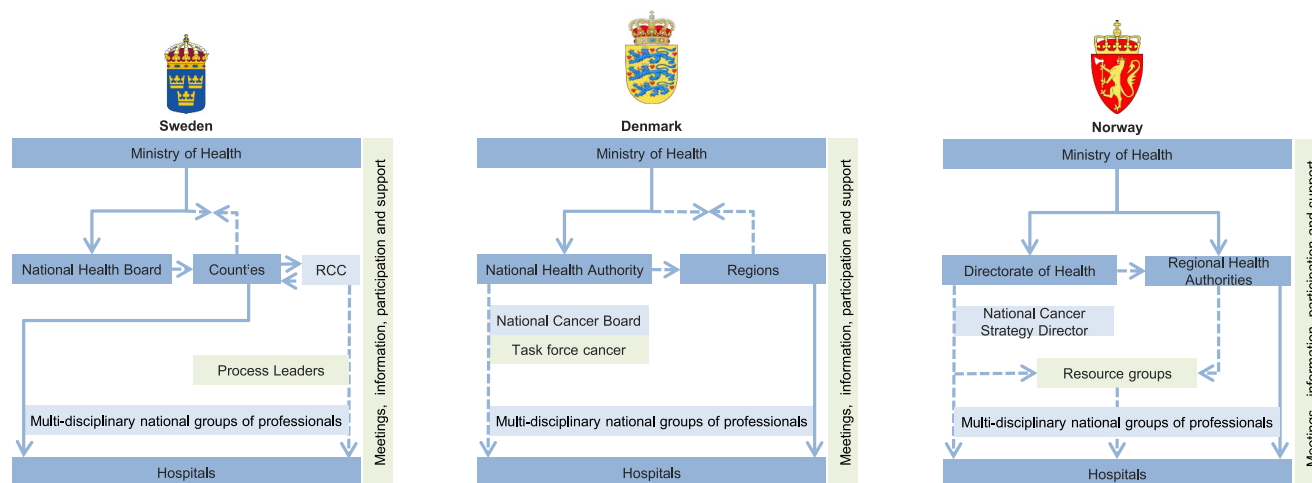


Fig. 1. Orchestration of the implementation processes. Hierarchical multi-layer governance structures, specific cancer related organizational bodies.

Table 1 Structures of organizing implementation.

	Denmark	Norway	Sweden
Hierarchical line of commandment	Accomplished from each region towards hospital management line	Accomplished from the Ministry of Health via the Regional Health Authority to hospital management line	Accomplished from the level of county government towards hospital management line
<b>Negotiations</b>	Between the Ministry of Health and the Danish regions.	No direct negotiation arena during the process.	Between the Ministry of Health and SKL.
<b>Consensus processes</b>	Inside the Danish Regions, in the National Cancer Advisory Board, in the national Task Force and in the multi-disciplinary groups.	In the multidisciplinary groups.	In the RCCs on national and regional level and in the multidisciplinary groups.
<b>Consultation and advisory activities</b>	Performed through regional administration and through experienced hospitals.	Performed through resource groups on the national, regional and local hospital levels.	Performed through the project leaders and the diagnosis-based process managers.

the immediate mixtures of multifaceted structuring elements to identify common structuring features that may explain similarities in outcome and at the same time be aware of crucial structuring differences between the cases that at least in the long run might lead to divergent outcomes.

As described in literature [26,62] in all three countries, there was a mixture of elements characterizing the context structuring the implementation. These had to do with the general design of the health care system, the novel cancer-specific organizational constructions, and the structuring of the implementation process. In all three cases, the general structuring of health care implied that administrative lines of command were in action. However, these were present to a different degree and on different levels. In Norway, the hospitals are organized in regional health trusts and the Minister of Health was able to impose direct instructions at the hospital floor level through the regional trust. In Denmark and Sweden, there was no direct line between the Ministry of Health and the regional and county level respectively. Thus the implementation of a national health policy decided by the national government was dependent on negotiations and agreements.

In all three countries, specific organizational entities established both before and during the reform were active tools in the implementation. These were on two institutional levels: first, the national coordinating bodies like the National Cancer Board and Task Force in Denmark, the cancer strategy director in Norway and the RCC-S in Sweden. Second, the diagnosis-based national multidisciplinary groups were active in all three countries. The ability to decide and deliver in all three countries was based on consensus within the groups. These consensus processes included peer groups or representatives from units not directly hierarchically re-

lated. Thirdly, we observed a structuring of the initial implementation phase. This had clear project-like features. Process managers, project leaders, resource groups and task forces were among the instruments borrowed from the project management toolkit. They arranged large meetings to address marketing and mobilization and for the purpose of dialogue. These events potentially influenced the normative engagement of the involved organizations and added to the process a type of organizational behavior resembling social movements [49,51] in a time where learning from social movements was lifted as a promising tool in executing change in huge health care systems [90]. Both the specific cancer-related entities and the project-like structures facilitated the development of networks. As previously discussed in literature [52,53] these networks created an infrastructure and had the potential to connect the process to local proponents. During these processes, another mechanism was active, namely counseling and advisory activities. This was particularly seen in the Swedish case with the RCCs reaching out to support the implementation process in the hospitals.

The structuring of the implementation process has clear consequences in terms of the room that exists for agency through what Segato and Masella [9] calls participatory communication which they argue correspond to satisfactory implementation. For the politicians in charge, rapid progress was crucial. At the same time, they faced a severe obstacle in the organizational distance between themselves and the operative level in hospitals where change was supposed to happen. Even in Norway, where there was a direct line of command, there was an understanding that the CPP reform could not be imposed through that channel alone. Additional organizational constructions and mechanisms came to the

rescue. The arenas shaped and the networks created by linking key persons from different entities and levels facilitated communication and movement in the total institutional field that were not legitimate according to the ordinary hierarchical governance structure. This opportunity for connection across the field had strong impact and created a space for agency and entrepreneurship for key actors who filled different roles simultaneously and over time. These actors had held positions in several areas of the organizational field that gave them cultural capital, providing them with both the legitimacy and the skills to act in several areas of the institutional field [17,20,37] and combining structural and normative legitimacy [39] or even downplaying their impersonal source of authority [47]. The emergent structures made it possible for actors to travel geographically and make contacts across levels and also to employ colleagues and identify different roles as a platform for action at local level. In all three countries, these key actors took advantage of the space for agency in a way that actively defined the implementation process and acted as institutional entrepreneurs [38] or policy brokers [17].

This entrepreneurship emerged because the reform was launched in a situation of urgency. Pace counts and the presence of alternative structures for action - both top-down and bottom-up - facilitates fast communication and mutual adjustments between levels and interests. This may be prevailing to reach proclaimed targets. However, this room can be perceived as a threat to the decision makers, and handling this tension is crucial for reform implementation.

In addition to the discussed structuring features creating similar kind of mechanisms stimulating participation and acceptance across institutional levels and logics we also identified some structuring elements that regulates the collaborations in significantly different ways. This is connected to structures expressing different coordination mechanism along these values: command, negotiations, consensus, and counseling. They are close to the categories of instruments of influence developed by Tuohy [63] regarding policy development and implementation, namely hierarchy, mutual agreement, and persuasion. These different ways of exerting influence and power were all present in all three countries. The point here is however, that the presence and influence of the interaction mechanisms varied between the countries when comparing how they emerged through the general structuring of health care, cancer-specific structures and novel entities for the implementation process.

The mechanism structuring the coordination process regulates the performance of this coexistence in different ways. In general, top-down processes are most strongly facilitated by hierarchical line management. Negotiations between levels will encourage dialogue about targets and how to reach them and enhance deals related to distribution of influence and the execution across the organizational field. Consensus processes assume that agreement can be reached and are dependent on who defines the rules for the process. Counseling, especially at local levels, presupposes that local adaption of measures is possible and is also to empowering this level. While this combination of mechanisms has the potential to enhance fruitful coexistence and synergies during simultaneous processes from above and below, it can also create unfruitful tensions. In the cases in question, we can recognize both of these effects. This is in line with the general arguments of Bretton et al. [91].

Both the national cancer-related coordinating units and the project arrangement involved representatives from administration and management, medical professionals, and patients. They represent each an institutional logic [27,30,33,34]: the economic administrative, medical, and patient-oriented that guided the structuring of the implementation. Thus, one could argue that the four above mentioned mechanisms regulating the decisions and the content

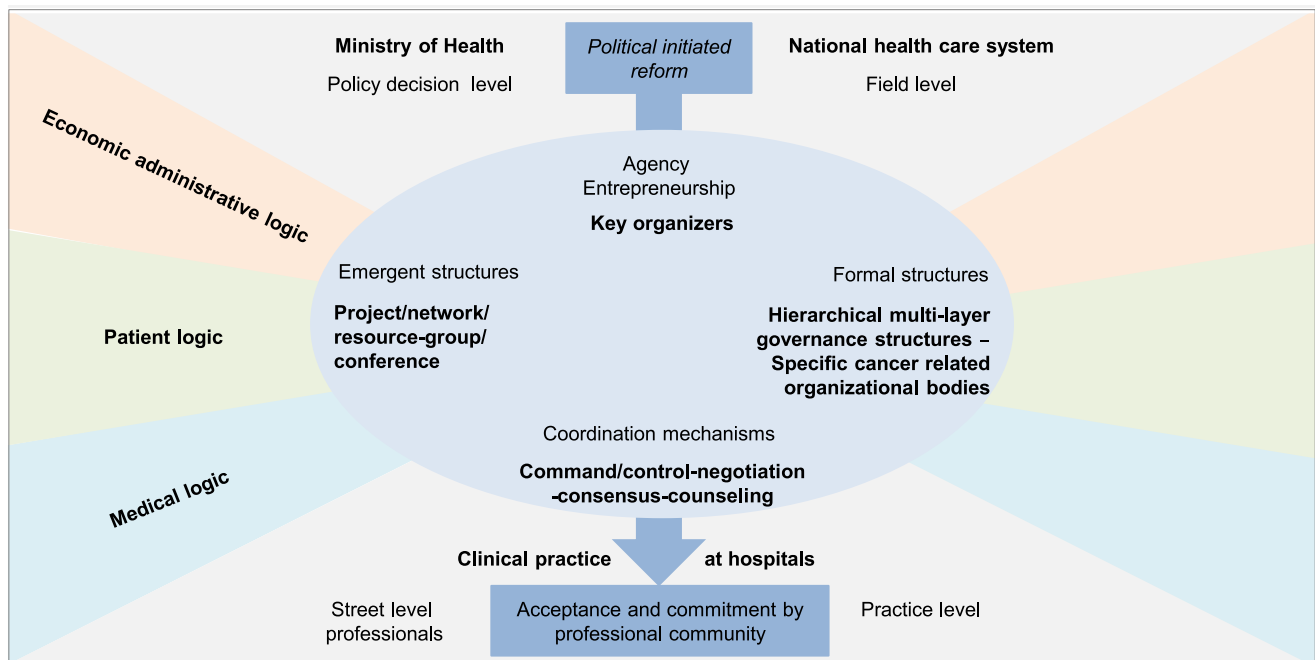
of process and structure also regulate the dynamics between these core logics. They could be interpreted as contractual arrangements [9]. The collaborative pragmatic coexistence of several logics [92] is encouraged by structures building on dialogue and negotiation. The co-optive coexistence [60] of logics is promoted by hierarchical governance based structures. Hanlon et al argue [47] that implementation of health care reforms being dependent on changing behavior in the professional community should chose to structure their processes through collaborative partnership, consultation and dialogue. The three cases can be summarized as follows: The Norwegian model with government owned hospitals has a direct executive line from the political top level to the hospital floor level. However, the implementing cancer care reform was supplemented by structures based on dialogue and counseling, both during the process of designing the CPPs and during the local implementation. The Danish model was based initially on representatives with distinct positions engaging in consensus processes at the national level through the National Cancer Task Force, the National Cancer Board, and national multidisciplinary groups. The carriers of different logics met, and the outcome was a blend of processes mobilizing the three logics. Implementation also had an element of negotiation in the interface between the national and the regional level. Later in the process, however, it was based on hierarchical governance. The Swedish process was first based on negotiation between state and counties. Then, implementation was carried out through a process involving dialogue between and counseling from the national to the local level with the aim of reaching consensus. The study of Granström et al [93] illustrates the performance of the regional counseling roles in Swedish health care acting as a hybrid connecting top-down and bottom-up processes.

Combining the concepts elaborated from the two research traditions we draw upon can be presented as in Fig. 2

Fig. 2

#### 4.1. Limitations and general validity

What we have done through our case studies is to identify how certain combined mechanisms and structures of implementation that might play a decisive role in designing the processes of creating a perceived positive outcome of implementation. Our findings encompasses both similarities across the three national cases and those that might make a difference in process dynamics and possibly in outcome. The discussion on more general validity of these findings then is a discussion on under which circumstances the mechanisms and structures we identified might contribute to understand process and outcome in other cases of health care reform implementations processes. This raises two issues: First, do the results from studying reforms in these three countries have extended validity to every country and any kind of health care system? A core argument for the study-design was three cases with stable and similar context variables of health care system. However, inspired by the discussion on classifications of health care systems presented by Freeman and Frisina [78] we claim that the assessment of the breadth in external validity should be based on which traits of health care system are relevant for the issues treated and not necessarily on a general established classification form. As Freeman and Frisina [78] point out the latter classifications are mainly based on financing and transfer rather than on delivery and regulation of health care services. Because of this and the prevalence of hybrid health care systems [78,94], the classical classification is not fit for capturing the current evolvement of complexities in health care delivery. Since we are dealing with implementation of governmentally decided health care policy a relevant framing of validity might be health care systems where hospitals to a large extent are subjects to public governance. We argue that the patterns we have described across our three national cases



**Fig. 2.** Concepts in use explaining the implementation process. Concepts from policy implementation and organizational institutionalism elaborated and combined supporting explanation of the perceived acceptance of the reform.

then should be relevant also in explaining processes and outcomes of reform implementation in a broad group of countries characterized by this.

Second, can we anticipate that the lessons from this study are valid to all kind of health care reforms? To decide the limits of validity related to this dimension we must identify which category of health care reform this reform belong to. We argue that the core of the particular type of reform we studied can be categorized in line with classical studies of Selznick [12] and Pressman and Wildavsky [13] and later studies in their traditions, as a reform that presupposes advanced change on several levels of health care system, covering both attitudes, behavior and supportive systems. The implementation is dependent on competent and professional labor force and of complex cooperation across organizational borders. We do not claim our findings to be valid in the case of a health care reform whose primary concern is not directly targeting care like a privatization reform, change in financial logic, the ownership structure or changing the technological platform of health care.

## 5. Conclusion

We studied a politically initiated reform in cancer care launching measures characterized by being a complex intervention aiming at changing behavior on several levels in the health care system. We recognized that such ambitions are often received with local resistance and hesitation especially from the medical community. However, in all three countries where a similar reform was put on the agenda, support and even enthusiasm were reported from the professional community and the explicit measures were rapidly put into practice. We searched for explanation by drawing on analytical tools both from institutional research and research on policy implementation with special attention to present and emerging structures. In spite of variations in the specific way they were expressed we found that the ordinary hierarchical processes in all three cases were combined with supplementary structures on several levels. These structures were simultaneously present inside and outside the formal management hierarchy and served as

interaction-arenas for institutional logics present. Some had a permanent character while others were more project-like or even resembled social movements. These hybrid structures made it possible for actors from high up in the hierarchy to communicate directly to actors at the operational hospital level. The advantage of these combined structures allowing for collaborative partnership and dialogue is that they foster compliance by expressing acceptance of different institutional logics present and fostering arenas for dialogue between them. Simultaneously they create a shortcut between levels and groups of actors allowing for unprecedented pace in the process. Based on these findings recognized in all three countries and reform processes, we will encourage searching for a proper design of accomplishing implementation through a combination of ordinary line management and situational created hybrid structures.

Across the cases, we also identified some structural variations generating a crucial mixture of these mechanisms: command-control, negotiation, consensus and counseling. They do not seem to overrule the structural elements causing acceptance, but they might have an impact on the long-term practice and outcome of cancer-care pathway-reform. From this we will, in line with Watson [95], encourage attention to the design of the institutional environment in future preparation for and research on this type of policy initiated reform implementation.

## Declaration of Competing Interest

None.

## Acknowledgements

The authors like to thank prof Erna Håland, assistant prof Senada Hajdarevic, researcher Rikke Aarhus, assistant prof Bjørn Erik Mørk and assistant Prof. Trond Tjerbo for their contributions in interviewing and discussions in connection to the findings in this study. We would also like to thank prof emeritus Erhard Friedberg and prof Patrick Castel at Centre de Sociologie des Organisations, Sciences PO, for providing inspiration and input during the

processes of writing the paper. Finally, we thank Ingrid Kristine Small Hanto for support in preparing the manuscript.

## Funding

This study is a part of a project funded by The Research Council of Norway, project no 272945

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Article

# Practicing Integrated Care Pathways in Norwegian Hospitals: Coordination through Industrialized Standardization, Value Chains, and Quality Management or an Organizational Equivalent to Improvised Jazz Standards

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Received: 30 September 2020; Accepted: 4 December 2020; Published: 9 December 2020



**Abstract:** The goal of coordinating pathways for cancer patients through their diagnostic and treatment journey is often approached by borrowing strategies from traditional industries, including standardization, process redesign, and variation reduction. However, the usefulness of these strategies is sometimes limited in the face of the complexity and uncertainty that characterize these processes over time and the situation at both patient and institutional levels. We found this to be the case when we did an in-depth qualitative study of coordination processes in patient pathways for three diagnoses in four Norwegian hospitals. What allows these hospitals to accomplish coordination is supplementing standardization with improvisation. This improvisation is embedded in four types of emerging semi-formal structures: collegial communities, networks, boundary spanners, and physical proximity. The hierarchical higher administrative levels appear to have a limited ability to manage and support coordination of these emerging structures when needed. We claim that this can be explained by viewing line management as representative of an economic–administrative institutional logic while these emerging structures represent a medical–professional logic that privileges proximity to the variation and complexity in the situations. The challenge is then to find a way for emergent and formal structures to coexist.

**Keywords:** integrated care pathways; cancer care; coordination; uncertainty; complexity standardization; improvisation; professional communities; professional networks; boundary spanners

## 1. Introduction

Integrated cancer pathways (ICP) were introduced as a politically imposed reform in the Scandinavian countries during the period 2008 to 2016. The target was to achieve control on waiting times, improved quality of care, and increased patient satisfaction. The tools was describing a standardized treatment process for twenty six cancer diagnoses, defining normative times from received referral to start treatment and introducing new and mandatory coordinator positions and governance systems. Today, in the Scandinavian countries, cancer is the health field care where ICPs are most prevalent. The role of ICPs in cancer care springs from major developments in the field. Improved understanding of tumor biology, and advances in medical equipment, and information technology have led to more in-depth diagnostics and differentiated treatment, which in turn creates

increased treatment demand and capacity [1–3]. These developments have been accompanied by an increase in expectations for integration and interaction, with relatively limited availability of resources and ability to cope with the fast dynamics of the development itself. Throughout this evolution, we see a tremendous increase in the complexity of structures, processes, and relevant knowledge, and thus increased specialization; meanwhile, more and more cancer patients are receiving or are candidates for multimodal therapy. Thus, a strong need for coordination emerges—coordination that includes continuous adaptation and improvement [4,5]. Cancer care is arguably one of the most challenging medical areas in which to implement organizational principles oriented towards standardized chain-based processes. There is a lot of uncertainty, unpredictability, and complexity, both at the level of each patient and at an organizational level, not to mention the interdependence between the two levels. The problem addressed by our study is then to gain knowledge on by what kind of mechanisms the coordination through ICP is accomplished.

ICPs as a more general phenomenon have been one of the most pervasive phenomena in health care reforms during the last decades [6,7]. The phenomenon is known by several names [5] and specific content and implementation processes vary [8]. ICP is presented as a solution to meet the combined challenge of increased costs and quality demands in hospitals [9] and several studies have illuminated how ICP works [10,11]. Due to their obvious links to industrial management, ICPs have been accused of industrializing hospitals, shifting the emphasis away from professional discretion to cookbook medicine. The debate over the value of ICPs may seem like a struggle between the need for modernization and the defense of the values of medical professionalism [12].

ICPs incorporate three fundamental characteristics of industrial management [13]: standardization [14], value chain processes [7,15,16], and continuous improvement [17,18]. Standardization is seen in the increasing number of clinical guidelines, medical procedures, and diagnosis-specific action programs, all determined by evidence-based medicine's best standard of care [19,20]. Combining guidelines, procedures, and programs into time-sequenced process descriptions, focusing on delivering satisfactory performance and outcomes for the patient and the hospital as an institution, is the equivalent of describing and designing value chains in an industrial analysis [21]. ICPs thus emerge as a kind of health care parallel to scientific management, or scientific–bureaucratic medicine [22]. Attached to the standardized processes are some key performance indicators expected to be the reference for accountability, adaptation, and improvement of those processes. The link to industrially established processes such as lean and total quality management has been established [20,23]. ICPs are tied to a managerial philosophy characterized by the control exercised from the top of the hierarchy and executed through rational analysis, plans, and structural fit to achieve stability and reduce variation. The question is, however, whether this approach to coordination management can work in an increasingly complex organizational setting characterized by increasing uncertainty and a corresponding need for more coordination.

To address this question, we studied how coordination is performed and experienced through ICPs for three cancer diagnoses at four hospitals in Norway. We tried to grasp the naturally occurring processes, not just the formal ones [24], attempting to describe what people actually do [25] as a dynamic social practice [26] and identify how coordination happens regardless of organizational design [27].

In a welfare state model of health care, hospitals largely depend on accountability and rational planning encompassing standardization based on the economic–administrative logic. However, we wanted to explore whether there are also coordination processes that are dependent on other mechanisms than standardization and value chains and inspired by jazz we introduces the concept; the ability to improvise. This concept benefit from more spontaneous structures rooted in a floor level institutional logic. If so, we wanted to explore the interaction and dynamics between the processes and structures displaying standardization and improvisation, respectively. As mentioned previously, several of the elements included in our analyses have been addressed in recent literature about organization and health care: these include complexity, uncertainty, coordination, standardization,

improvisation, organizational structure and design, and institutional logics. However, based on studying coordination practice in cancer pathway, we combine and connect previous insights from studies on these topics to deliver a unique understanding of process coordination in complex hospital structures under varying degrees of uncertainty and we identify through which types for organizational constructions it unfolds and are limited by. We are then contributing to a better understanding of management and organizational dynamics and encourage the development of more efficient ways of providing cancer care, and perhaps of managing other diagnoses as well, by applying the concept of ICPs. Thus, we deliver an insight that is crucial to managing pathway processes successfully and overcoming obstacles and challenges such coordination processes still face. Here, actually, lessons can be drawn from professional organizations outside health care and hospitals, although not from Taylorism in industrial organization.

### *1.1. The Need for Coordination—Division of Labor, Complexity, and Uncertainty*

Division of labor is a core element of the capitalist mode of production [28,29], modern bureaucratic administration [30,31], and professional organizations [32]. The division of labor has a horizontal element with the labor process being split into several specialized operations. In both industry and bureaucracy, the competence and skills of each worker are specified independently and standardized through technology and rules. Such rules and technologies have thus been major tools for achieving the kind of coordination required within a company or a governmental administration. In addition to the horizontal division of labor, there is a vertical axis. The premises of technology, administrative rules, and plans, and agreements and even skills and deployment of discretion are removed from the immediate labor processes, establishing hierarchical levels that are controlling the content of the running coordination.

The classical coordination measures have, however, been tested by growing complexity and uncertainty. If coordination involves interactions to achieve specific goals, complexity implies an increase in the number of those interactions. The amount of interdependence that exists in a complex system may be more than the sum of the individual dependencies in that system, thus challenging each actor's ability to cope with the total information necessary to act rationally. Dequech [33] connects this to Herbert Simon's notion of actors with bounded rationality. He claims that the challenges of complexity may originate from either the real complexity in the system or context at hand or from the actors' restricted ability to cope with this complexity. Accordingly, complexity does not merely stem from how complicated the operational interphase is or how complicated the compilation of necessary knowledge is. Complexity and the need for coordination may also emerge as a result of several interests or logics being present. In a case study of coordination in a hospital [34], conflicting interests played a core role in the analysis of coordination in formal and informal processes. However, in the field of organizational institutionalism, the presence of conflicting logics has been a focus of research and is important for describing the complexity in organizations [35]. Institutional logics refers to a set of cultural rules and cognitive structures that shape the premises for organizational behavior [36]. Actors filling specific positions may represent different logics. In this tradition, change processes in health care have been analyzed through the institutional logics of managerialism and professionalism [37–40].

In addition to the division of labor, the question of how to manage uncertainty has been a central area for research on organizational processes and structures [41–43]. Uncertainty can be described with degrees of uncertainty [33]. This could be understood as a continuum where uncertainty is characterized by a known probability of several possible outcomes or events happening as opposed to a situation with fundamental uncertainty or pervasive unpredictability with no known range of outcomes and no known probabilities [44]. Both Dequech and Becker argue that situations of greater internal and external complexity combined with a higher degree of uncertainty will obviously pose a bigger challenge to traditional mechanisms of successful coordination.

The degree of uncertainty influences the degree of complexity because it affects the degree of predictability in the interaction between the involved actors and processes [45]. The modifying variable in this interaction is the degree of agreement between the actors involved. An agreement in this context is not a formal or juridical agreement but rather an institutionally established practice or a negotiated and mutual acknowledged way of perceiving or doing things at hand should be perceived or done, involving conflicting interests or logics. This is in line with Beckert's [46] assertion that institutionalization reduces uncertainty, or at least reduces the alternatives of thought and action when we are confronted with uncertainty. The presence of institutionalization in organizations thus facilitates coordination by reducing both current alternatives and the variation over time [47], thereby creating stability.

### *1.2. Coordination through Standardization, Organizational Fit, and Reduced Variation*

Institutionalization refers to systems of thought and mechanisms of action externalized from specific human cognition and action. Systems describing standardized action, models of organizational design, and models for analyzing and improving quality are all tools to express institutionalized patterns in organizations. The building block in these organizational tools is the creation of a more or less universal classification [48]. Brunson and Jacobsson [49] emphasize the scientific foundations of modern standardization. They divide standards into two types: standards for what we do and standards for what we have. Similarly, Timmermans and Berg [50] distinguish between four subtypes of standards: design standards, terminological standards, performance standards, and procedural standards. Timmermans and Epstein [51] claim that the strong push for standardization in health comes from evidence-based medicine and the processes whereby professional organizations and regulatory bodies bring scientifically based evidence into practice guidelines, assessment tools, and standardized outcome measures. ICPs are seen as a standardization tool to implement evidence-based medicine [19]. Zuiderent-Jerak [52], however, argue that connecting standardization meaningfully to ICPs must be done in a hybrid fashion. He uses the term situated standardization, a hybridization inspired by city planning based on a specific analysis of what should be given space and what should be standardized.

Organizing can be seen as a way of integrating split and specialized tasks and functions, thereby achieving coordination [42,53]. The different organizing principles result from which dimensions to standardize [54]. Mintzberg identifies three organizing principles of standardization: work processes, skills, and outputs. Deciding which to use is a question of finding the best fit between strategy, technology, product characteristics, and principal or market demands [53,55]. Galbraith [42] notes that there is a general historical development toward organizations designed to fit external requirements. One consequence of this is that structures have been redesigned along value chains [21], with resources bundled to accomplish optimal fit for costumers and users. Implicit in the choice of organizational design is a mode of hierarchical control [56] as it defines a structure for making decisions about the distribution of resources and for accountability related to the deployment of resources. Thus, as Miller and Power [57] note, the standardized system of accounting has to constitute an impact on organizational structuring.

The dominant model of hospital organization is based on the standardization of skills according to medical specialty and the establishment of a design based on the functional principle [58], what has been called a professional bureaucracy [59]. Though ICPs carry elements of organization based on function, product, and skill, they are dominated by an organizational principle of clustering tasks together according to a chain of events that delivers value for patients. The ICPs are constructed from classifications based on one or more diagnoses. The philosophy behind the ICP thus involves building standardized sequences of events, comprising standardized evidence-based medical procedures, supported by processes that continuously seek to reduce variation, thus delivering both optimal coordination and ability to cope with uncertainty and complexity. Coordination may be facilitated by continuous improvement and reduction of variation [26,60]. Variation, as a deviation from a standard,

and improvement, as a mechanical process [24] aiming at reducing variation. One goal of ICPs is then to reduce variation and thus create increased predictability and stability.

### 1.3. The Processes of Coordination

The first obvious question when introducing processes like ICPs in an organization is: Should the coordination challenges be solved by creative redesign of the current formal organization to create a better fit? Several scholars [21,58,61] have discussed the search for re-designs contributing to a better fit. Numerous combination models that incorporate elements from different organizational principles have emerged including hybrids [62], matrixes [63], and front-back models [64]. However, some have questioned the narrative that has led to the search for such a redesign either as part of a theoretical discussion, an empirical case study, or a combination. Based on a case study of a radiology department, Symon [34] identified informal coordinating practices emerging on an operational level in the organization in parallel to formal procedures. Faraj and Xiao [65] analyzed the coordination processes in a hospital trauma department and described work processes that could not be standardized in the way that administrative processes could. Klein et al. [66] conducted a case study of coordination in a trauma unit at a hospital. They found coordination practices that were a combination of some basic rules and procedures and some that they described as dynamic delegation in groups where membership is fleeting and tasks change often. Hoffer Gittell [20] studied how surgical teams doing joint replacement in acute-care hospitals coped with input uncertainty. She confirmed that relational adaptive processes played a major role. Rico et al. [67] discuss how team coordination affects team performance on a general level through what they call implicit coordination. This refers to how team members dynamically change, adjust, and adapt their contributions to attain common goals. Hendriks and Fruitier [68] discuss the possibility of aligning formal organizations with knowledge and point to the basic problem of finding a stable organizational model in fields where the knowledge base evolves quickly. Meier [69] studied coordination practices in three hospital units and found that all three were based on standardized documented work processes. When connecting the findings to the degree of unpredictability in the four cases, she concluded that in the unit with the highest degree of unpredictability, there was also comprehensive ad hoc coordination present. In a more theoretical contribution, Galbraith [64] developed the concept of lateral processes as an expression of cross-functional coordination based on weak direct instructions from the top down and more or less formalized cross-functional groups. Minzberg [54] introduced the concept of adhocracy which describes more or less spontaneous, multi-disciplinary, cross-functional, and informal structures accomplishing tasks or solving problems emerging from a specific situation or challenge. In the review presented by Martin et al. [70] the phenomenon of distributed leadership in networks is identified as decisive tool to accomplish adaptations and manage change. Lee and Edmundson [71] describe a general phenomenon of post-bureaucratic organizations where standardized structures are not predominant. These organizations are characterized by knowledge work and a desire to innovate and to align with opportunities emerging from the surroundings. They create space for networking, encourage team-based work, and have a flat organizational structure. They are evolving dynamically and resemble communities more than hierarchies.

This research all arrives at the following conclusion: In addition to coordination through standardization of structures and processes, complex organizations embedded in a context of uncertainty are characterized by the presence of informal adaptive activities that may directly coordinate tasks assigned by the formal line of management. However, as Stacey [72] makes clear, these systems are mainly self-organizing, non- or semi-hierarchical constructions with no formal borders to cross.

Organizational routines are recurring patterns of collective behavior, action, and interaction [44,73]. If there is a balance between predictability and flexibility to cope with uncertainty and complexity, organizational routines may be a more fruitful concept than standardization. Since organizational routines are embedded in the organizational structure and are practiced by actors with different roles and in different situations and contexts, there will always be an element of interpretation and

customizing. These routines build organizational memory by creating a repertoire of past actions while at the same time remaining adaptable and customizable to fit new circumstances. It then gives legitimacy to a performance that may combine selective retention and necessary variation to cope with change. Routines may be expressed in standardized procedures. However, in practice, they are always developed and performed more or less independently from hierarchical governance and standardized systems.

#### 1.4. Organizational Structures Facilitating Coordination

Routines have a coordinating capacity [44], facilitating social connections between people and groups [74] which in turn create shared understandings. However, most research on organizational routines has not been focused on the structural elements of connections that emerge from the routines. Feldman and Rafaeli [74] argue that social encounters are a relational aspect of routines and that they create ties among participants, producing networks. If organizational routines are useful for understanding how ICPs work as a coordinating instrument, we need to make some assumptions about what type of organizational constructs routines work through. Searching the literature, we identified four semi-formal structural elements.

The first is what is called collaborative communities [56,75] or occupational communities [76]. In the literature on organization, these can be traced back to Weber's [30] concept of collegiality. Waters [77] elaborates on Weber, stating that in modern society collegiality is connected to the ideal of a society of equals specialized in different areas of expertise. Thus, decisions are made collectively in these communities, which exist independently but are still in some way related to the bureaucratic organization. Included in the concept of collaborative communities are communities of practice [78–80]. There are informal, emergent, and voluntary groups of professionals who self-organize to solve specific problems. These may be considered informal teams [24,67] and becoming visible through team meetings [20].

The second structuring element is social networks. Social networks in organizations are connections between individuals based on their position, relations, or shared events [81] or a set of actors connected by a set of ties [82]. Networks in organizations can facilitate transmission of tacit knowledge, simplify coordination, and prevent potential conflicts, and their function is problem-solving, knowledge sharing, or access-opening [83]. To survive, social networks within and between organizations have to be integrated into patterns of actions. They may have an emotional or instrumental function, and is often a mixture, representing personal and formal relations. Social networks are distinguished from groups and communities.

Integrators are the third structuring element. The concept of integrators was introduced by Galbraith [64] and it relates to a more or less formal position managing coordination across boundaries of a formal organization. Integrators are also referred to as brokers or boundary spanners [20,84,85]. To perform their role, integrators must gain the trust from the groups and persons they are bridging. People in this role gain authority by facilitating cooperation between communities and successfully bridging boundaries. Their focus is operational, but they may also work strategically, depending on their impersonal role expectations or personal and entrepreneurial skills.

The fourth structuring element is physical proximity [86]. Physical proximity facilitates coordination by creating arenas for social ties, shared cognition, transfer of knowledge, and the emergence of common routines. Thus, physical proximity may foster low-cost coordination without involving the formal organization.

These four semi-formal structuring features are, at least as ideal types, clearly distinct from each other. However, in reality there is overlap in the spheres that they cover and the coordinating functions they perform. The overlap thus exists on both an ontological and an epistemological level. Networks build connections between communities of practice, bridging boundaries and structural gaps [87,88], and both communities and networks might include roles for boundary spanners and brokers [84,89]. Proximity may facilitate the emergence of communities and the relations that constitute



networks [78,90,91]. Literature on organizational coordination discussing any one of these phenomena often refers to the others [75,79,82–84,92,93].

1.5. Improvising Coordination—A Supplementary Explanatory Approach

These alternative ways of structuring coordination will interplay with the formal structure. However, what all of these elements have in common is that their action and interaction can be standardized only to a limited degree. The processes are neither developed nor implemented top-down. The coordinating processes involve what we may see as the opposite of standardization, namely improvisation and experimentation. The concept of improvisation and its relation to organizational analysis is discussed in the literature, notably using the metaphor of jazz music [94,95]. A fundamental feature of improvisation is the absence of a time gap between planning and execution [96], as when something is created during a performance [97]. Improvisation is not the result of some existing specifications. During a jazz performance, it emerges through impulses and interactions between band members, instruments, and the audience. However, it also connects to the memory of how we used to perform, expressed through preexisting routines, and builds on ties to collective knowledge through networks, proximity, and collegial groups. Proximity facilitates the spontaneous element in joint coordinated action and building community around improvisation [95,98]. ICPs should be a processual learning device rather than a Taylorist device for standardization [52].

The analytical and research-based concepts we have introduced to interpret the performance of coordination through ICP in hospitals are expressed in Figure 1. Uncertainty is framing relatively complex processes embedded in a mixture of several logics. Here the coordination accomplished in ICP unfolds in a combination of standardization and improvisation and through two types of structures—the formal and the emerging elements.

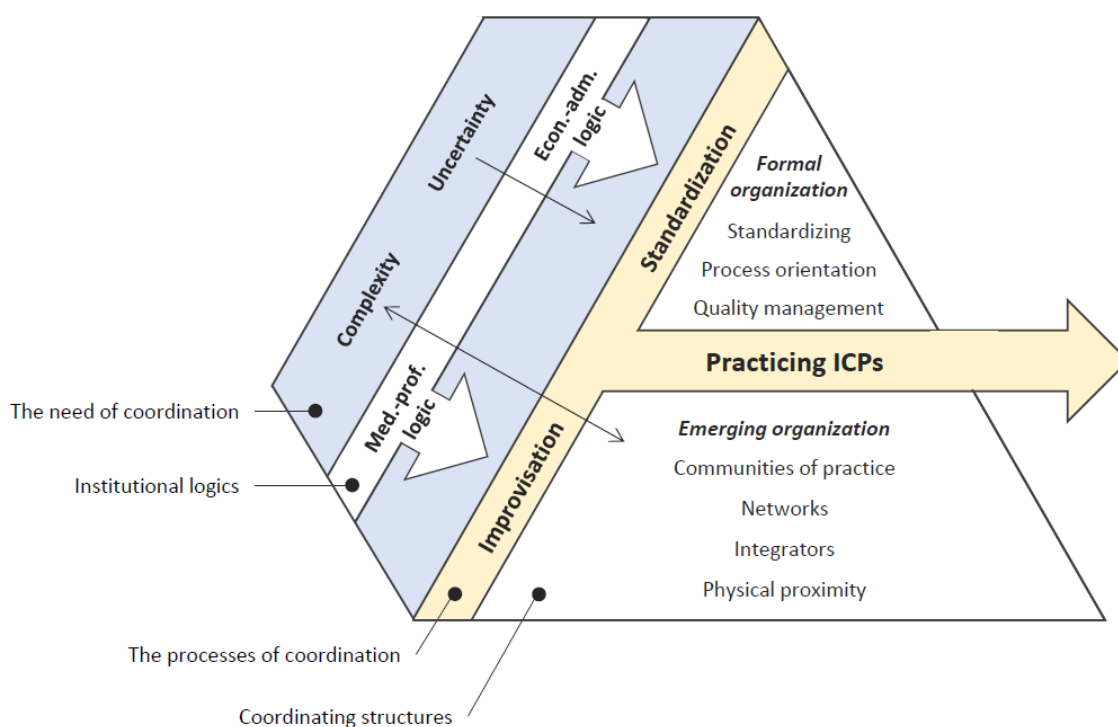


Figure 1. Relation and interaction between concepts.

## 2. Materials and Methods

### 2.1. Description of the Field Studied

We anticipated that the patterns, the degree, and the features of complexity and uncertainty, and thus the need for coordination, will vary between hospitals and diagnoses. Accordingly, for this study we selected four hospitals, both community and university hospitals, and three diagnoses and studied all three diagnoses in all four hospitals to cover variations and common characteristics.

The selected hospitals are from two health regions and include the referral university hospital and a community hospital from each. Compared to the community hospitals, the university hospitals are several times larger measured in terms of patients treated, beds, and number of employees. In addition, their organization is more split into specialized units, their activity is spread over several locations, they have integrated research infrastructure and activity, and they have medical students. When it comes to cancer care, the scientific output is significantly higher at university hospitals, and in addition they perform radiotherapy, specialized centralized surgery, chemotherapy and diagnostics. At the community hospitals, activity is limited to one campus, the medical staff is mostly generalists, organization is less divided, and there are fewer levels from the bottom to the top. However, as university hospitals also serve as community hospitals, they have the same diagnostics and treatments as an integrated part of their activity.

The following variables were used to describe the complexity of and need for coordination in the three ICPs: patient volumes, degree of urgency, existing screening program, fraction of patients receiving multimodal therapy, and whether the surgical activity is separate from emergency activity. There are both general variations between the groups of patients and variations in the specific organization at the hospital level. An additional article will consider and explore the variation in coordination practices between diagnoses and hospitals, as well as the regional coordinating interaction. However, this paper concentrates on common findings regarding descriptions and explanations of the coordinating structures and processes of the ICPs identified across hospitals and cancer diagnoses.

### 2.2. The Data Sources

The object of investigation in this study is ICPs. The main sources of data were qualitative interviews and documents in the hospitals' quality system. In each hospital, we had a contact person who gave us information about the hospital, procured relevant documents, and identified relevant persons to interview. We picked the informants based on these criteria: all key activities for all three pathways should be covered at all four hospitals. This means that we interviewed key medical personnel from outpatient units, surgery, oncology, pathology, and radiology department. Some of these were leaders; others had no formal management position. In addition, we interviewed patient coordinators, the majority of whom were nurses. We also interviewed some department leaders. Some leaders were responsible for more than one of the diagnoses and ICP; this was more seen in the local hospitals. Except for two interviews, all of sixty-six interviews were performed in the interviewee's local environment. A relatively open interview guide was distributed to the interviewees ahead of the interview. Interviews lasted from half an hour to one and a half hours with a median duration of fifty minutes. All the interviews were recorded and transcribed. The distribution of informants is shown in Table 1:

**Table 1.** Number of informants from the participating diagnoses and hospitals.

	Hospital 1	Hospital 2	Hospital 3	Hospital 4	Total
Ovary cancer	5	4	2	1	12
Breast cancer	6	4	2	1	13
Colorectal cancer	10	9	4	3	26
Two or three cancers	3	1	4	7	15
Total	24	18	12	12	66

### 2.3. The Research Process

The initial focus of this study was the ICP phenomenon as a complex yet standardized set of procedures connected to the patients’ pathway through diagnostic and treatment episodes in and between hospitals. In the matrix structure made by the process-oriented ICP and the medical specialty-based line organization, we anticipated a tension between the process orientation and the formal organization. We wanted to describe how this tension was playing out and possibly being resolved. However, in a process that has been previously described in qualitative research [99,100], through careful listening to and analyzing the interviews we gradually had to reconsider what actually happened in the field and reinterpret what practicing ICP was about. We began to question the degree of standardization present and the role it played in accomplishing the coordination we observed. Parallel to this, we also questioned the role formal organizational structures played when dealing with horizontal coordination. At the same time, the coordination challenges between the vertical levels in the matrix were confirmed. However, the key challenge reported was not, as initially assumed, the lack of alignment between the formal organization structure and the horizontal ICP process. Based on this, we had to fundamentally reassess our initial research questions. We decided instead to describe the way ICPs unfold as an interplay between standardization and improvisation. To see how this dynamic played out in the real world, we identified several informal organizing elements and explored how they connected to formal hierarchical hospital structures. This abductive research process [101] is schematically described in Figure 2 and resembles what is labelled flexible pattern matching [102].

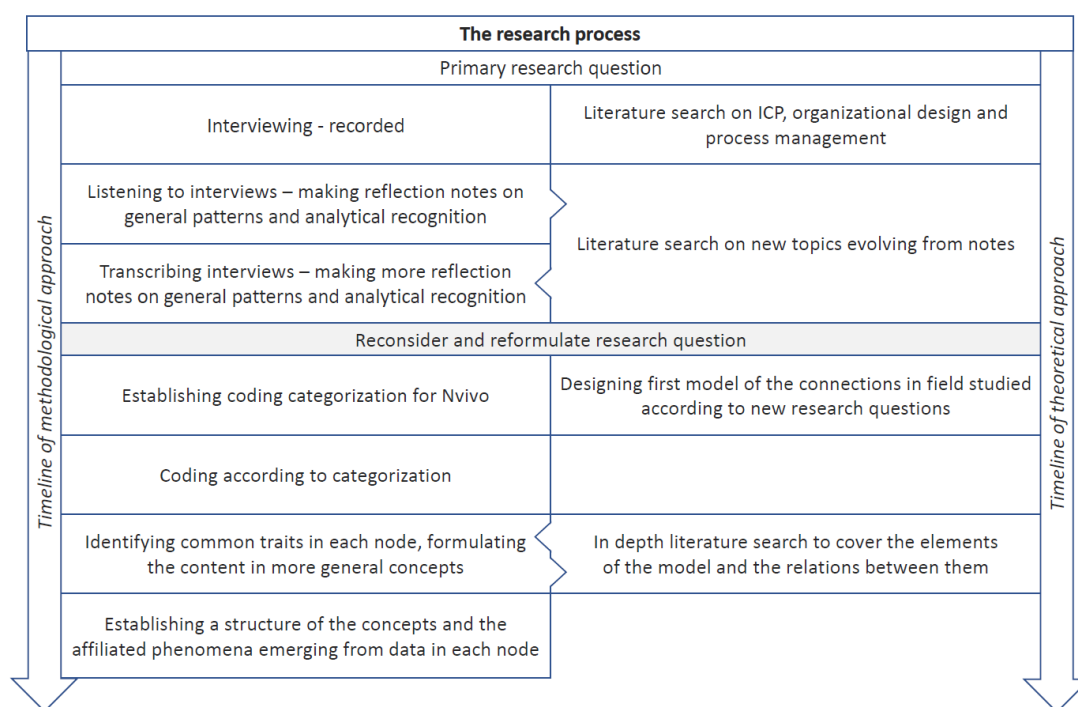


Figure 2. Schematic description of the abductive research process.

A source of knowledge of the field studied originates from the authors having long-term experiences of working with cancer care in university hospitals. This background influenced our general knowledge of field contexts, preparation and conduction of interviews and interpretation of data. Reflections on this were documented in a separate essay during the research process.

Analyzing our interviews involved multiple steps: writing notes about the recorded interviews, transcribing the interviews and making more notes, discussing our reflections with colleagues at the research institute and at the hospital as well as in a focus group of patient representatives. Parallel to

these steps, we searched for relevant literature. In the previous chapter, we reviewed the concepts and contexts from existing literature that contributed to our analysis.

Our revised approach to the research matured gradually through these intertwined processes of analyzing our data and reviewing the literature. Consequently, when it was time to code the interview data in the NVivo system, we adjusted perspective, as mentioned previously. The revised perspectives for this study were operationalized through the step-wise creation of analytical nodes in NVivo. In line with Strauss and Corbin [103], the coding started as open coding and changed to a mixture of axial and selective coding. Each NVivo node was filled with rich citations illustrating the variable focused in each node. In the result chapter our ambition is to combine a presentation of vivid impression of empirical expressions of the analytical concepts with the result of a more synthesized presentation of the concepts. The first is accomplished through selected quotes and the second through a comprehensive set of points abstracted from the data material and presented in table form.

### 3. Results

The patient pathways in Norwegian hospitals emerged through a combination of national initiatives from professional associations and politicians and local efforts to design pathways, establish multidisciplinary meetings and employ patient coordinators. Evidence-based procedures and nationally standardized treatment guidelines for every cancer diagnosis are core elements of the officially approved cancer pathways. A monitoring system for waiting time was established. Cancer care coordinator positions were created and multidisciplinary team-meetings to decide on an individual treatment plan for each patient became mandatory. The ICPs represent a hybrid system containing elements from both the management and the professional level. The hospitals involved in the pathways were audited at the management level while the ICPs themselves were filled with content from a local professional level.

#### 3.1. *The Need for Coordination Work in the Face of Complexity and Uncertainty*

To understand the coordination that takes place to provide an integrated cancer pathway we first identified the drivers lifting coordination on the agenda. The first driver is about complexity. Three of our informants expressed the development of increased complexity like this:

“During my time here, it is obvious that the complexity has skyrocketed. The examinations have become more extensive, even though we do not perform many more examinations in terms of numbers. But every single examination has become much more complicated, both on CT and MRI. And quite clearly there has been an increasingly greater pressure to respond faster.”

“The traditional part is based on either neoadjuvant treatment or treatment given in connection with having undergone surgical interventions, postoperative radiation therapy, hormonal treatment chemotherapy and so on. There is a pretty good, obvious path for each subgroup. It does get more complicated eventually; it is clear that we become more and more specialized. And further, if something happens to the patient, you have to obtain the images. And those images are often not described up against the images that are in our archive.”

“What was previously called breast cancer is now called ten to twelve different variants. So it is also within other organs. And the molecular biology has come into the picture and this with genetic changes. And mutations in the tumors and now for the last ten years the new cancer drugs have appeared. Those that are specific for tumors with this or that mutation.”

More generally our research material indicated that the complexity originated from three sources: medical conditions, logistics, and general hospital management, as seen in Table 2.

Not only the number and alternative kinds of interactions, but also the mutual interdependency and compatibility of information, expectations, and systems influence the total complexity. The fact that time and resources are limited also adds complexity. The presence of different but parallel structures and pathway alternatives connected to the same diagnoses also add to the increase in total complexity.

**Table 2.** Which conditions create complexity with regards to the coordination of the patient pathways?

Medical Conditions	Logistical Conditions	Hospital Management Conditions
Novel sources of diagnostic information and increased in diagnostic sub-classification	Non-compatibility and non-alignment of clinical and administrative data systems and information sources	Diagnoses/conditions include both acute and elective activities and with different patient volumes that all claim priority
Increased interdependency between diagnostic tests and treatment methods	Composite requirements and expectations for communication and involvement of patients and professional partners	Interaction between hospitals with different degrees of specialization and organizational models
More patients candidates for multimodal treatment (i.e., combinations of surgery, radiotherapy, and medical oncology)	Non-congruent principles for organizing and actors in pathway meetings	
Greater interdependence between a wider set of more specialized competences		

A second driver influencing coordination is uncertainty. Variations in key variables are predictable to different degrees, which affects the degree of uncertainty. Variations connected to patients are expressed like this:

"If one of my colleagues has read a referral and read a histological response and seen images and made a plan, and the patient comes to receive adjuvant treatment, then it may well be that everything changes when you see the patient and have talked to them. If they are old and frail and need half an hour in the office and actually have a lot of other diseases that didn't appear in the referral and such, then you just have to change everything."

"There are huge fluctuations, for example when we have very few rectum cancer patients referred here, and then we plan a lot of benign surgery for a period, and suddenly after a week a lot of cancer patients come in with short treatment deadlines. So it is a bit difficult to take the fluctuations into account."

"There is variation, there are different urgency categories based on two conditions. The first is which condition it is, because we have peritoneal metastases from colon and rectal cancer. It is quite urgent. And then we have what is called pseudomyxoma which is a milder disease, which can have a fairly large spread in the abdomen, but is not as urgent because it changes very little over a few months, so it is reflected in how fast we give the patient an operation date. But we do give them a date and call them in for surgery provided that we are satisfied with all the available information, otherwise we must obtain more."

As Table 3 summarizes, the variations are either medical-related, patient-related, or related to organizational conditions.

**Table 3.** More or less predictable variations creating uncertainties affecting patient pathways.

Variation in Medical-Related Conditions	Variation in Patient-Related Conditions	Variation in Organizational-Related Conditions
Assessment of criteria for referral and prioritization	Patients' life situations defining needs and prerequisites for types of treatment and rehabilitation	The roles and areas of practice that the involved professionals and specialists cover
Patients' general medical condition (molecular classification, cancer stage, spread/metastases, aggression, co-morbidity)	Patients' need for information and involvement	Access to infrastructure and shared clinical resources
Degree of medical emergency	Variations in the number of patients referred	Mutual understanding of need for information, competence and procedures
Risk of complications	Patients' choice of hospitals	Administrative urgency due to unsatisfactory monitoring data
Need for supplementary information to make medical assessments	Patients' experienced urgency	Access to information from other parts of the pathway
The sequence of procedures prescribed		Prioritization criteria available

As for complexity, the aggregated unpredictability and uncertainty increases due to independent variations in several internal and external variables on both medical, patient, and system levels. The cumulative variation and uncertainty lead to increased unpredictability.

The overall complexity and uncertainty of cancer pathways creates a need for coordination, both for individual patients and for specific situations in the involved departments, which is connected to cooperation at the system level. For patients, this is experienced as delays and changes in treatment trajectory. Narrow timelines for standardized procedures and sequences with limited and partly unpredictable access to resources, are resulting in limited flexibility and opportunities for adaptation. The need for active coordination is reinforced by scarcity of human and equipment resources combined with challenges created by attempts to optimize allocation of knowledge and skills appropriately according to requirements of the patients. At the system level, the need for coordination depends on the system's ability to manage the sum of the specific variations and complexities and make the necessary adjustments in each situation and case.

### 3.2. Coordination between Standardization and Improvisation

A glimpse from daily coordination is given from these three quotes:

"We work according to the principle that when we receive a referral, the patient will come in reasonably quickly. The patient coordinators reserve hours every single week and distribute them to the doctors and use those hours continuously. If we see that it gets cramped, we try to manage them outside the reserved hours or set up an extra outpatient clinic hour, and if there is fewer patients, then you can spend those hours on other patients. Otherwise we do not take fluctuations into account in a way. And we do have a backup, like when Easter is approaching and you cannot get an outpatient clinic hour, then a makeshift solution is to just admit the patient and start the treatment."

"At least the respect for the logistics and what lies behind that kind of heavy decisions. Because you do not only connect the patient to a time, but plan in the direction of the patient receiving the right therapists, the right competence, you know, put together those teams, but the operation of the operation department are now . . . I have been given a capacity that I will fill, how that capacity is staffed beyond the surgeon, I have nothing to do with."

"Yes, we get patients that either have a high risk disease or who have locally advanced breast cancer where we know the risk of having distant metastases is high. And we need to know that before we start the treatment, whether there is a spread already. Because then it is a completely different situation. Then we go from having a curative treatment to a life-prolonging treatment. And with those we know there is spread of the disease and then we need radiological examinations before we start life-prolonging treatment. And there we have major issues with waiting times to get examinations done. And we have major problems with waiting times to get responses after examinations."

Based on our material a comprehensive picture of coordination activities in patient pathways might be described through: what is the mission, what is coordinated, how and by whom. We summarize this in Table 4.

**Table 4.** Coordination activities in patient pathways.

What is the objective of coordination?	<ul style="list-style-type: none"> <li>• Achieve coherence in efforts/resources to cover the same activity</li> <li>• Align a number of activities (examination, interpretation of diagnostic information, treatment)</li> <li>• Collect all relevant knowledge about the patient before decision making</li> <li>• Provide each patient with specific compiled information according to her/his needs</li> <li>• Harmonize expectations and knowledge on opportunities between actors and interests</li> </ul>
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**Table 4.** *Cont.*

What is coordinated?	<ul style="list-style-type: none"> <li>• Knowledge (formal and informal) about the state of the organization – institution and external collaborators</li> <li>• Knowledge (formal and informal) that may influence the pathway for individual patients</li> <li>• Bridging organizational knowledge and patient knowledge</li> <li>• Bridging medical premises and professional decisions and logistical needs and context</li> <li>• Internally oriented: check-out and mutual adaptation between different contributors</li> <li>• Externally oriented: adaptation to variation and unpredictability from the environment</li> </ul>
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The work of coordination can be summed up as compiling and transforming information between different sources through informal channels based on roles without a hierarchical relation to each other.

Explicit standardization is a coordinating mechanism. Documents and interviews also provided us with information about how standardization is experienced in ICP practice.

“A major change came through the adjustment of the classifications in 2014 when we received the latest WHO book. And this was due to the fact that there was a better molecular understanding of the tumors that we diagnose. So previously it was mainly microscope and some additional methodology that we call immunohistochemistry that looks at protein exposure. What has happened in recent years is that larger genomic studies have led to classifying tumors in a completely different way, and we are thus able to look into the subtypes of the diagnoses we are dealing with.”

“You standardize the treatment of rectal cancer related to how severe it is, so that if it’s a 3, 4B cancer then it should have radiation therapy, but if it is a T3 then you may manage with a simpler treatment and one week instead of five. And then there should be some time before surgery, and it should maybe be performed at [hospital] or it can be local, and if you have liver metastases then you should at some point operate that and have a little chemotherapy afterwards, and if you standardize such a path, then you can sort of build together a sequence where you first give chemotherapy for two months, then give radiation therapy and then you have to figure out what kind, and then since these are smaller than that, then you may want to operate the liver, and then you would like it to take eight weeks to that rectum surgery and then you give chemotherapy afterwards.”

From our material we deduced a more comprehensive picture of standardization connected to cancer pathways summarized in Table 5:

**Table 5.** Standardization in patient pathways.

What is the objective of standardization?	<ul style="list-style-type: none"> <li>• A way to create a common language and framework for coordination by common agreeing on requirements and expectations on content, time and relation</li> <li>• The standard provides legitimacy to specific actions and patterns of action</li> <li>• The standard creates a framework for building trust (but also a basis for mistrust because different ways of interpreting standards may raise questions about the behavior of “others”). The process of developing a standard is therefore important for building trust</li> </ul>
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Table 5. Cont.

What is standardized?	Procedures (how to carry out specific actions) Processes (sequence of procedures, waiting time, organization, decision premises) Classification of disease (inclusion criteria, criteria for stage, grade and prognosis of the tumor) <ul style="list-style-type: none"> <li>• Treatment of disease</li> </ul>
How is standardization expressed?	<ul style="list-style-type: none"> <li>• National documents with approval from central authority</li> <li>• Institutional documents</li> <li>• Clinical trial protocol</li> <li>• No written routines related to processes</li> <li>• IT applications like key target measures, flow charts, guidelines, checklists, templates</li> </ul>
Conditions that lead to variation in the use of standards	Caused by local adaptations <ul style="list-style-type: none"> <li>• How detailed the input of patient information and patient features are in relation to what the standard requires</li> <li>• Local clarifications, interpretations, and adjustments of how national standards are practiced</li> <li>• The degree of knowledge, skills, and ability necessary to enact discretion and the role responsible for this (e.g., translator, leader, facilitator, controller)</li> <li>• Individual patient cases challenging standards if they are considered outliers, or if there are doubt of quality and representativeness of tests (e.g., tumor location, metastasis present, and molecular characteristics)</li> </ul> Caused by acceptance of general standards <ul style="list-style-type: none"> <li>• Disagreement about the evidence for some standards</li> <li>• Ranking and highlighting standards to express that other variables (possibly also with standards) should be subordinated or adjusted to achieve the overarching standard. Possibility of by-passing some standards</li> <li>• Mismatch tension between national standards and local practice: a) formal standard does not fit local circumstances or b) standard is implemented in one part/phase, but not other parts</li> <li>• Failure to update standards on regular basis or local delays in adaption on new standards</li> </ul>

These characteristics provide a general picture: Patient pathways and the coordination process relate to standards. However, they are not treated as rules or absolute demands. They are more like a common framework or reference for practice. There is continuous negotiation, mutual adaptation, and consultation about interpretation. The standards are treated more like flexible, local routines adjusted according to individual patient needs, circumstances, and critique and based on local knowledge and alternative sources of authority. We were struck by the idea that this way of working had much in common with improvisation and thus looked for references to activities that could be classified as such. A few quotes from informants may illuminate this:



“It is often the case that you have to call, beg, ask, remind. Sometimes things go automatically, the physiotherapists come by themselves, but it is clear that in a system where someone thinks a little themselves and do what they want, and has other tasks in addition. I often believe that the surgeon wants to come, but then they get busy. They do have many tasks. So then you have to find other ways to go. Yes, and I think that as I gained a lot of experience, you will learn a little about how to handle different and how to handle the system, where the loopholes are. Where can I go?”

“That hybrid model is very difficult to handle. Because the acute tears down the entire planned structure that a cutting-edge expert need. Unpredictable—have to constantly jump around. All the plans you have made you have to plan again because they did not work. And these challenges we live with on a daily basis.”

“There are many similarities, but if you are thinking that there is a standard in the sense that you know everything about what kind of histological type it is based on, then you do not know. So there is always something to wonder about. Not least if there are patients with peritoneal carcinomatosis where the ovaries are not very prominent, then you will wonder whether it may be a primary ovarian cancer with spread to the peritoneum, or if it may be a primary peritoneal cancer, so it is not always a given that the ovaries are the starting point.”

A more general description of improvisation drawn from statements is summarized in Table 6:

**Table 6.** Improvisation in relation to coordination of patient pathways.

What are the objectives of improvisation?	<ul style="list-style-type: none"> <li>• Find solutions to peaks and bottlenecks in real-time or proactively, in relation to something that needs to be done to be prepared to a situation (individually or institutionally)</li> <li>• Bridge gaps in pathway processes that may require particular arrangements (due to dissimilar systems, relative capacities, competences and organization)</li> <li>• To build professional consensus, which requires interplay of knowledge between different specialties/professions</li> <li>• Adjust logistics and professional choices to particular conditions tied to individual patients (which are covered to lesser extent by standard repertoire)</li> <li>• Adjust procedures to cases that are not representative</li> <li>• Improvisation as a learning process for development further cleverness to improvise, developing perception of the type of particular process/case, and establishing updated experience based routines</li> </ul>
How is improvisation expressed?	<ul style="list-style-type: none"> <li>• Communicated through:               <ul style="list-style-type: none"> <li>○ Electronic channels, including email</li> <li>○ Casual or informal meetings, conversations, etc.</li> <li>○ Formal meetings, such as multidisciplinary team meetings</li> </ul> </li> <li>• Counselling, facilitation and negotiation and leadership role</li> <li>• The entrepreneurial role of some of the involved parties, requiring a combination of maneuvering with overview and detailed knowledge (of variations, loopholes, flexibility, actors, and network) and skills (independence, perseverance, knowledge of common “language,” freedom to move, ability to handle complex information)</li> </ul>

To sum up, improvisational behavior from key actors along the care pathway makes it possible to handle cases, situations, and processes defined by scarcity, ambiguity, complexity, uncertainty, and unpredictability. Improvisation entails, among other things, adjusting the content of communication, form and timing, in tune with partners. Often some kind of improvised behavior is needed to arrive at

the best common solution or conclusion. Improvisation thus also contributes to the development of mutual understanding and expectations which can inform future improvisations.

### 3.3. Structures Connected to Horizontal Coordinating Processes

We now turn to the organizing and structuring elements in which pathway coordination is embedded. At some points and for some procedures during the pathway, two or several organizational units are involved more or less simultaneously. At other times, there is an indirect connection. The outcome of one procedure or event can influence or be continued by another. Both situations depend on coordination. Coordination activities are performed—not perfect, not without ambiguities or tension. However, in lots of cases, situations and processes it does function. To phrase one of our informants:

“It is fantastic that it goes as well as it does, there are always fluctuations and I have to praise the people I work with, there is a great degree of flexibility because it is always, always full, in the outpatient clinic it is almost never free hours, so that they require a careful monitoring and control of all lists here.”

However, our informants reported that this coordination is taken care of to a small degree by the formal organization and by employees in formal management positions. Instead, this coordination is facilitated by four other structures that are present in the hospitals' cancer care facilities: boundary spanners, networks, collegial groups, and physical proximity. These four structural elements are formalized and acknowledged in the performance of coordinating tasks to varying degrees. However, with all four of them, there is considerable room for content that employees involved consider to be appropriate.

First, we discuss the role of patient pathway coordinators, who serve as boundary spanners at and between hospitals. There might be several employees assigned to such a role, including physicians who might have a special medical coordinating role for patients or be assigned to a coordinating role at the institutional level for specific pathways. However, we concentrate on the formal patient pathway coordinators. There should be at least one connected to every cancer pathway at all hospitals. These quotes illustrate how they work, the first from a doctor the two latter from coordinators:

“If there is a need for an extra examination, then the most important thing is that the information reach the hospital and that we are able to process it quickly, and then there are the coordinators who are close to and who know the patient and whom to contact here at the hospital. And instead of trying to call around and try to get hold of a doctor on duty that may not have time to answer straight away, or at least we see the benefit of it going through the coordinator. Then it is mostly a person who responds quickly and knows the system in our hospital and knows where to go next.”

“I call a lot of patients. I can have, for example, patients who call me and ask “I had an emergency surgery because I had such stomach pain, and I wonder what it really shows, because I was supposed to get a check-up in the outpatient clinic.” And then I can see that this lady's biopsy answer shows that it is colon cancer. And then I can do one thing, and that is to offer a quick appointment at the outpatient clinic for a conversation, but if we do not have an appointment before four or five days or six days, that is somehow the closest in time, and the patient will of course also know whether it is cancer or not. And then I try to get hold of a surgeon, preferably an operator to hear whether there is like a possibility, can you call the patient or can you see the patient outside the ordinary outpatient clinic time, because this patient would very much like to know.”

“It can sometimes really tangle, you have so many challenges and you kind of cannot untangle. And suddenly you kind of get like that, when everything loosens up it's like it's fun to be a coordinator. It is in a way when you get help and get answers and it resolves for the patient. Then there is almost a kind of euphoria (haha), it is like its own discipline. I think it is very liberating then, when things work out. You bang your head against the wall a little now and then.”

A more systematic description of this role may be drawn from our material as shown in Table 7.

**Table 7.** Coordination activities by patient pathway coordinators.

What are the manifest objectives of coordination?	<ul style="list-style-type: none"> <li>• Raise awareness of the need for coordinating access to resources and information, and thus logistics, thereby release both doctors and mercantile staff from doing unnecessary work</li> <li>• Fill the role of a nexus—both within the hospital and between hospitals</li> <li>• Create predictability for the patient</li> <li>• Connect events in processes, and establish expectations for fulfillment</li> </ul>
What are the latent objectives of coordination?	<ul style="list-style-type: none"> <li>• Bring non-formalized information about individual patients into decision-making processes</li> <li>• Establish a possible vantage point for system learning and contribute to improvement</li> </ul>
Development of the coordinator role	<ul style="list-style-type: none"> <li>• Great possibility for role adjustment based on situation and context in pathways and the coordinator’s prerequisites</li> <li>• Often performed in cooperation with individual clinicians who perceive the role as an opportunity for both influence and relieve</li> <li>• Some have accumulated data, such as self-developed overviews etc., which ease coordination</li> <li>• Over time, there has been maturation in the deployment of the role in many units and pathways</li> </ul>

Though the role of patient pathway coordinator is mandatory in cancer care, we get an impression of vast variation in how the role is performed and develops in practice. Some of those inhabiting this role in the pathways we studied relied greatly on improvisation in relation to both to cases and situations. They were certainly aware of existing standards but perceived themselves more as a kind of guide, moving patients along and keeping them informed, rather than as auditors and guarding a standard.

The second structure facilitating pathways was networks of professionals. Almost all of the informants talked about the extensive use of networks across the pathways, both within and between hospitals. These networks are clearly associated with certain kinds of formal meetings like multidisciplinary team meetings and regional pathway meetings. At the same time, they clearly exist independently of these formal networking events. Three of our informants expressed it like this:

“I have very consciously focused on creating or establishing this network. Because we are so dependent on cooperating here, so if I was constantly facing opposition in a way that someone would not cooperate or similar then it would have been terribly difficult to work together. So I am very glad to have the network. Also among the oncologists, I have become well acquainted with them over the years. We are the same people who meet every Tuesday. I also have a low threshold for calling them if there is something I do not. or wonder or. Or they call me, for example, and ask, ‘hey I do not quite understand this’ or ‘why did you do it like that’ or yes. So I feel that it is very helpful for me that someone know when I call. Or the other way around, they know they can call me if they would like to add another patient to the rectum meeting or something.”

“They are very easy to call to, the regional hospital. And we often have surgeons come to us for supervision when patients with surgical problems stay with us. So, we talk almost—not daily, but it is very easy to make another phone call. And the radiologists who present findings at the MDT-meetings are the same that describe our evaluation images during the palliative treatment, so we talk to them along the way. So we know each other well.”

“Yes, but I think I have to say that I know everyone who works in gynecological oncology in my region. So I know who I want to have contact with, but then I call and the person is not available that day and then you need to try getting hold of someone else then. We try to have collaboration meetings twice a year, and then we have national competence meetings.”

In Table 8 we summarize a broader picture of this phenomenon as it emerged through our interviews.

**Table 8.** Networks as an organizational framework for coordination of pathways.

What is the manifest objective of networks?	<ul style="list-style-type: none"> <li>• Serve as a framework for obtaining supplemental information or verifying interpretations of information</li> <li>• Provide access to capacity, time and resources of others</li> <li>• Communicate adjusted priorities, progress, and needs</li> <li>• Serve as a basis for mutual reconciliation of needs, requirements, and expectations</li> <li>• Make handling of complex relationships manageable</li> <li>• Provide a channel for accessing areas of knowledge that are only needed in special cases (e.g., anesthesia/pain, internal medicine, physiotherapy, etc.)</li> </ul>
What is the latent objective of networks?	<ul style="list-style-type: none"> <li>• Serve as a framework for dynamic learning</li> <li>• Serve as a framework for inter-disciplinary relations</li> <li>• Compensate for limitations of more formal meetings</li> <li>• Serve as a framework for social knowledge, recognition, and consideration for each other</li> <li>• Compensate for lack of information on particular patient needs or conditions</li> </ul>
How are networks expressed?	<p>Form:</p> <ul style="list-style-type: none"> <li>• Informal in-person chat</li> <li>• Meetings which are initiated for other purposes</li> <li>• Phone call</li> <li>• Ad hoc organized interdisciplinary meetings addressing specific issues, professionally or logistically</li> <li>• Notes enclosed in electronic documentation/communication</li> </ul> <p>Content in network contact:</p> <ul style="list-style-type: none"> <li>• Professional assistance, interpretation, or problem solving</li> <li>• Information and assessment of specific patient cases</li> <li>• Logistics information and clarification</li> <li>• Assessment of systemic and institutional contexts</li> </ul>
Conditions that may affect formation of networks	<ul style="list-style-type: none"> <li>• Physical proximity in the work situation</li> <li>• Size of the organization</li> <li>• Actors' previous careers</li> <li>• Actors' roles and/or personalities</li> <li>• Interaction over time</li> <li>• Proximity to profession</li> <li>• Participation in regular and more formal meetings (e.g., MDT, pathway manager meetings, coordinator meetings, admission meetings, operation plan meetings, visits, etc.)</li> <li>• Courage and ability to act by crossing formal structural boundaries</li> <li>• Interest in spending time on professional-social informal processes</li> </ul>

In addition to this, we got information about the dynamics amplifying coordinating networking. The role networking plays in formal meetings depends on the design of these meetings. Meetings characterized by one-way communication, like radiology presentations, do not contribute to networking in the way multi-disciplinary clinical decision meetings often do. A mutual enforcing effect is often reported between the latter type of meetings, whether formal or informal, and networks that exist independently of these meetings. Links are reinforced on an operational level as members learn more about each other’s knowledge, skills, and opinions. Over time, this contributes to trust, making it possible to build a joint holistic understanding of the pathway and its context. Stability of network membership over time and inclusion of members, not least from the fringes of the network, contribute to preserving and enlarging the network. However, the scope and strength of networks seems to vary depending on several of the factors mentioned.

The third structural element facilitating coordination that we registered was collegial groups or communities. While networks connect people across geographical and organizational distance, usually through more episodic contact, collegial groups emerge from more frequent and stable interactions, often characterized by proximity. They may manifest themselves through informal and semi-formal meetings illustrated like these quotes:

“In the gastro group we usually discuss within these internal groups before we recommend for a new method to be introduced. If there are input from clinicians that we consider not to be well enough founded in international guidelines and such, we are happy to discuss it with them after discussions within the group. So in the gastro group we handle issues internally in the group. In a flat structure, yes. We are also trying to make a plan for how we will do this.”

“The professional judgement is more peer to peer as we daily discuss casus and look up in literature. So if we consider something to be tough, others can have a look at the images. So I do experience a daily flow. That we communicate closely around the professional judgements. There are different groups here, and some are in one group and some in several. It works very well, and then you organize yourself within these. I do not know how others do it, but we have regular meetings and address what is urgent. It has probably been to get some pressure off from the leaders, so that we don’t have to go to the leaders all the time and say, ‘the gynecologists are not sending electronical referrals, can you fix it?’ Now it’s more like we are handling it by talking with the gynecologists, possibly via our leader. So it works well.”

Findings related to collegial groups as an organizational framework for coordination in patient pathways are summarized in Table 9.

**Table 9.** Collegial groups as an organizational framework for coordination in patient pathways.

<p>How do collegial groups arise, how are they constituted, and how do they reproduce?</p>	<ul style="list-style-type: none"> <li>• Groups are constituted around simultaneous work on common tasks and problems or similar issues or direct interaction in the execution of procedures; they work as a unit</li> <li>• Clarification often takes place in processes characterized by consensus, and in this community solutions to problems are sought horizontally before being lifted vertically</li> <li>• Physical proximity is important for creating rich meetings that encourage and maintain collegiality</li> <li>• Social relations develop from professional relations creating an infrastructure for further growth</li> <li>• Shared knowledge and language (cognitive proximity) help to reproduce the group and stimulate effectiveness. This language must be expressed verbally, not just in writing, to allow for interpretation, adjustment, and improvisation. This language also provides implicit access to a holistic understanding</li> </ul>
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Table 9. Cont.

How are collegial groups expressed	<ul style="list-style-type: none"> <li>• Can include professionals from similar or different fields, specialties, and roles, but in a format where they receive equal recognition despite differences (as opposed to pre-visit meetings or radiology meetings, for example)</li> <li>• No formal leadership and often also hard to identify informal leaders</li> <li>• Exist both within and between organizational units and sometimes between institutions</li> </ul>
Conditions that may affect collegial groups	<ul style="list-style-type: none"> <li>• Formal meetings (such as MDT, complication meetings, common bed units, operations, shift teams) can give rise to spin off groups and to some extent presuppose such informal communities in preparations and follow-up. Collegial groups require such communities, which are mostly based on professional issues but sometimes overlap with logistical networks</li> <li>• Semi-formal and self-organized meetings, including meetings to discuss interpretations of preparation or share results from fresh research, interdisciplinary Friday meetings to follow up cases over time, can help build collegial relationships</li> <li>• Collegiality often spreads through informal contact, without meetings or formal referrals (and without the contact necessarily being documented in journals etc.)</li> <li>• A relatively flat structure provides a framework for interpreting more standardized guidelines such as action programs</li> <li>• The context for community in a collegial group can be joint clinical decisions, joint research, shared quality registers, or collaborative pathway processes</li> </ul>

This kind of professional community association is distinct and not congruent with any formal organization. At the lowest level of hospital organization, however, there seems to be some overlap between formal organizational units and informal professional communities. On some occasions there is even overlap between local managerial roles and legitimate leadership of a collegial community.

The fourth structural element was physical proximity. This element, too, appears to have a clear and sometimes strong facilitating effect on coordination activities despite existing organizational borders in the hospitals. One informant expressed it like this:

“We receive images from other hospitals here as well, I think we have to talk about thing together. Discuss with our colleagues and also do quality checking. You must have proper environments and of course you can communicate from a distance, but often there is something about having a colleague, a neighbor and such, ‘Can you just have a brief look, what do you think about this?’ We also work closely with clinicians that come down and talk to us and ask us about things”.

We have summarized the content of this element expressed through our interviews in Table 10.

The effects of physical proximity were highlighted through contrasting descriptions of its opposite: distance. Distance was associated with anonymity, less predictability, poorer overview, and difficulty achieving necessary clarifications and professional reconciliations. However, it can be unrealistic to create proximity between all actual collaborators. Opinions varied concerning who was most important to have close (i.e., collaborating specialties versus members of same specialty, other patient coordinators versus other administrative personnel working with same patient group).

**Table 10.** Physical proximity as a framework for coordination in patient pathways.

What is the manifest objective of physical proximity?	<ul style="list-style-type: none"> <li>• Expressed objectives:               <ul style="list-style-type: none"> <li>○ Strengthen the interaction between collaborating specialties</li> <li>○ Strengthen the coordination between coordinators in the same pathway</li> </ul> </li> <li>• Develop interaction in relation to individual patients</li> </ul>
What is the latent objective of physical proximity?	<ul style="list-style-type: none"> <li>• Provides a low threshold for informal exchange of information between partners who must coordinate their efforts in situations, cases, or over time—professionally and logistically and in collaboration on clinical studies</li> <li>• Allows for common informal and semi-formal physical meeting places, which also constitute a free space on the border between formal structures</li> <li>• Helps establish social relations and mutual respect</li> <li>• Creates room for mutual learning</li> <li>• Permits more meaningful interaction between people than what is registered within formal organizational settings</li> </ul>
What creates physical proximity?	<ul style="list-style-type: none"> <li>• Closeness between offices, shared water coolers, meeting places in common patient areas or patient processes</li> <li>• Smaller overall organization and building size are contexts affecting proximity</li> <li>• Establishment of proximity partly as random and partly as conscious historical processes</li> <li>• Some historically close proximities continue to function—at least after separation for a while</li> </ul>

Multidisciplinary team (MDT) meetings are a particularly interesting phenomenon with a coordinating role. They are mandatory in cancer pathways as part of the process of clinical decision making and treatment planning. The meetings are, however, not visible in the formal organizational structure of the hospital, but have evolved according to the experiences of participants. They are an expression of the professional community at work, nourishing networks outside the meeting room and contributing to synergies with proximity in performing informal coordination as illustrated in a couple of quotes:

“We have our internal MDT meetings where the gastro surgeons participate too. We are very concerned with discussing the patients in a plenary setting and that no decision should be taken in the back room or between just two colleagues. We are obliged to do a joint review of the patients and reach a consensus and then stick to what we agreed upon. This process has its value. Earlier, each doctor determined his own strategy. However, later there has become an increase in both guidelines and joint discussions.”

“As a matter of fact, in my opinion, the professional level experienced in these MDT meetings has been high the whole time. What I have experienced as a clear advantage with the MDT meetings is that the colleagues learn to know each other better. We become buddies. So then there is no fear of calling your neurosurgeon and discuss a patient, or phone my urologist here at the hospital. Through these weekly MDT meetings we have really learned to know each other.

General findings regarding the coordinating role of MDT meetings are summarized in Table 11.

**Table 11.** Coordination in patient pathways via multi-disciplinary team (MDT) meetings.

What are the manifest objectives of coordination?	<ul style="list-style-type: none"> <li>• Compiling knowledge and information that together provide a basis for clinical decisions</li> <li>• Creating a meeting point for coordination of decision information that has an effect in relation to quality and efficiency in content and in logistics</li> <li>• Increasing trust in decisions due to the shared decision making involving all relevant professional colleagues</li> </ul>
What are the latent objectives of coordination?	<ul style="list-style-type: none"> <li>• Encouraging increased precision in referring and agreement on mutual expectations to content of decision basis</li> <li>• Building transverse common understandings and mutual expectations over time (applicable to both clinicians' requirements and diagnosticians' expectations and, conversely, diagnosticians' understandings of how their own feedback may influence treatment)</li> </ul>

Our informants confirmed that MDT meetings are important events in cancer pathways. National recommendations and standards of medical judgment and alternative routes of process served as common points of reference. Overlapping and supplementary competencies are often present. Joint experiences, routines, and patterns from previous cases serve as a common memory. In addition, discussions about cases can include tangents, expressions of doubt, and critique. Decisions are ideally made through consensus in a spirit of joint responsibility. In several of the pathways covered by our study, the informants could not clearly identify who was in charge of these meetings. The specific way MDT meetings are managed varies and can change according to interpretations and negotiation of needs based on local experience.

### 3.4. Vertical Coordination and Its Limitations

One finding from our material is that both medical and logistical coordination were often achieved through interplay between these four mechanisms. Awareness and acceptance of this synergy require a combination of conscious and tacit knowledge among the involved actors. This includes professionals in managerial positions, especially on the lowest levels. However, topics related to cancer pathway coordination seldom seemed to be on the table at line management meetings. In the interviews, line management was seldom mentioned as playing a crucial role in performing coordination. In fact, in some cases, coordination efforts required approval or resources made available through decisions from higher managerial levels. The descriptions of these situations gave a general impression of a difficult and stagnant process, as illustrated as illustrated by a couple of our informants:

“You order those laboratory tests and set up an outpatient examination. I have regular meetings to plan the lists for outpatient clinic and surgeries. It is a complex matrix. This takes time to accomplish satisfactory. You have to use time, much more than I believed and it is much more time consuming than those guys on the top understand. They proclaim that we shall have predictability . . . . However, but you know we don't know who the cancer patients will be from one week to another.”

“The one who has experienced a major problem returns to her department, and consider that there is not much to do about it. Any further efforts then depend very much on the engagement of the pathologist experiencing the problem. More rapid processing of these biopsies from mamma-cancer could be an option. However, that would depend on access to more resources. So then everyone could turn to his or her leader and explain the problem, and there it will rest in peace, so definitely it is a need for someone on a high level to be more aware of the problem.”

This phenomenon is more systematically elaborated in Table 12.



**Table 12.** Initiative from the bottom up—elevating problems in the line.

<p>Descriptions of what happens when attempting to elevate problems</p>	<ul style="list-style-type: none"> <li>• New opportunities created by new technology and knowledge are not necessarily discussed upwards but may require some resource allocation</li> <li>• Medical considerations, prioritizations, and dilemmas that require transverse assessments, while not topics that are elevated, may claim resource allocation</li> <li>• Bottlenecks in operation and investment are often elevated year after year—persistence may lead to success Issues might reach the immediate leader level, where there is also a connection to the medical, while attempts at further elevation stall</li> </ul>
<p>Interpretation of these challenges</p>	<ul style="list-style-type: none"> <li>• The system is cumbersome to maneuver upwards in. The size of the organization may influence these challenges. Physical proximity to line management also plays a part</li> <li>• There is not always a clear understanding at ground level how processes work further up the administrative line</li> <li>• The line is not perceived to be a forum for transverse coordination, but rather for direct administrative issues; when transverse coordination requires resource adjustments in one unit, the authority and responsibility lies with the line management; however, do not have the authority or managerial capacity to accomplish the transvers coordination</li> <li>• Individuals in the management-line are unfamiliar and unconfident in taking coordinating roles—both professionally and procedurally</li> <li>• Changes that are implemented after elevating problems are perceived as symbolic</li> <li>• Elevating problems to management level requires a greater formalization than is found in collegial groups and networks and forwarding claims are therefore inhibited</li> <li>• External medical lines connected to administrative lines in cases that affect coordination ability and bottlenecks, lingers out</li> <li>• The line may be a part of historically inherited, established structures that are characterized by power struggles and territory markings, and thus not suitable for solving coordination</li> <li>• The role of certain coordinating actors in elevating cases tied to coordination needs may be unclear</li> </ul>

Table 12. Cont.

How is lack of success in supporting coordinating needs managed?	<ul style="list-style-type: none"> <li>• By obtaining consensus and support in the collegial community (e.g., transverse checklist for MDT meeting preparations) and then elevating the issue to line managers rather than addressing the topic in formal meetings</li> <li>• Breakthroughs are sometimes experienced as being dependent on the background and random interests of the managers up the line, as well as their network relationship to the ones raising the case (possibly external stakeholders/clients who have put it on the agenda)</li> <li>• Coordination through formal management structures may seem most effective when the units needing coordination are close organizationally and not far apart</li> <li>• Significance of separated or integrated hierarchies on medical and administrative issues</li> <li>• Line managers often coordinate via their more informal role in medical collegial networks, which may support the line manager role</li> </ul>
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These descriptions suggest that the involvement and support of line managers in solving coordination challenges at the institutional level are dependent on the interaction between the informal systems of professional communities and networks and the formal line management and leader meetings. The vast majority of respondents experienced that it was much easier to get support for adaptations, improvements, and innovations from their peers than from their superiors. More, the agendas of these formal meetings appeared to consist of issues decided from above related to finance, Human Resources (HR), or administrative governance topics. The necessity for attention to coordination needs does not seem to be pervasive or dependent on consultation with even higher levels which either lack the managerial capacity to deal with such issues or do not prioritize them.

#### 4. Discussion

We have shown that the degree of complexity and uncertainty characterizing cancer patient pathways is high and tend to get higher. Based on interviews with key clinical personnel from four different hospitals in Norway we have identified the practices and actors involved in coordination. Our main conclusion is that coordination through industrialized standardization, value chains, and quality management is not sufficient due to non-controlled variations and individual adjustments for the patients. Coordination on a daily and individual case basis requires a culture of, and a skill for, improvisation.

Lillrank et al. [61] approach the challenge of managing and coordinating health care operations by dividing processes according to degrees of urgency and specialization. They describe seven categories and propose that the solution is to align processes with similar types of demand and add operating logic. Cancer pathways, however, contain activity in all seven categories and in addition, in the case of most pathways, are integrated into hospital organizations competing for the same resources. When several interrelated processes coexist and are based on different logics it is not possible to optimize them all simultaneously [104]. Avoiding complexity and, to some extent, unpredictable variations is therefore not only impossible but also an inappropriate perspective. The real world is not standardized [51] and variations may be necessary, not least if the patient is to receive the best possible personalized therapy according to her/his needs and wishes and adapted to the situation [47], but also simply to optimize treatment quality under uncertainty [105]. Accordingly, there will not be a perfect fit in formal organization establishing formal lines and fora of command and coordination to efficiently serve the

purpose of coordination for all interests [72]. Despite variations in the specific organizational models of the hospitals we studied, we could not recognize any alternative organizational model that played a decisive role in accomplishing pathway coordination. Our analysis in this study acknowledges that the standardized descriptions of pathways and formal organizations play a role as a context. However, on a daily basis, for cases and pathways in need of active coordination, these structures do not play a major facilitating role. Rather, we have identified four semiformal structural elements that play a decisive role in performing necessary coordination: professional communities, social networks, boundary spanners, and physical proximity.

The four elements identified in pathway coordination have all been described in the current literature, both theoretically and empirically, but never in a comprehensive setting. What we have added is the importance of the four factors and how they act separately and in combination to facilitate coordination in processes characterized by complexity and uncertainty. However, we find sparse evidence of coordination facilitated by the four structural elements being discussed or represented at the level of the hospital management team. We argue that the explanation is twofold: First, though the four elements may have a formal or physical expression, the way they perform coordination is not incorporated, and therefore hardly visible, in the formal organization or the management team. Secondly, the formal organization of a hospital and the processes containing the managerial arenas mainly represent the economic administrative logic. This logic is expressed by the accounting and auditing systems [106] while patient pathways mainly represent the medical and patient-related logics. These two explanations for the lack of contact between the formal and semi-formal structural systems are probably connected to and reinforced by each other. That means that if medical and patient-related logics are incorporated in a management system, it happens through a process of co-option whereby the medical professional logic tends to stay at a rhetoric level [22,40]. A revised structure and process believed to create a better fit between organizational structure, process, strategy and outcome do not solve this tension and lack of connection between the two systems of structures.

The processes of pathway coordination carried out by our four semiformal, emerging structural elements may be dependent on adjustments and access to resources or contextual regulations, or infrastructure governed by the formal organization. On such occasions, the coordinating mechanisms of the informal system often fall short. The processes in the emerging structures strive to achieve the attention and trigger the necessary action. The lack of acknowledgment of the self-organizing system is highlighted by den Herder-van der Eerden et al. [107] in a study of integrated palliative care and in a study by Pine and Mazmanian [108] on the implementation of an electronic health record. Therefore, some kind of integration and coexistence of the two structural systems is needed. Martin et al. [70] notes that they are mutual dependent to succeed. This integration would also deliver a legitimate demand for accountability for the outcome of the coordinating processes to higher administrative management levels, filling the expectations from the principals to their agents [109,110]. The contribution to establish a fruitful coexistence lies in improved understanding of the interplay between standardization and improvisation in hospital organizations.

Scholars of organizations including both perspectives report the presence and a role of standard elements in addition to memories, references, and routines. Practicing improvisation is then about developing skills to see the opportunities and develop connections that emerge through the pathway processes and for the involved actor to be trained to listen, interpret, and build on to the contributions of others while keeping in mind the recognizable standard elements. This is what Austin [111] calls transactive group memory, which is aligned with our description of the dynamics of coordinating MDT meetings and confirms the analysis of Oborn and Dawson [88] in their study of cancer MDT meetings. In this way, formal patterns and the emerging opportunities merge, coordination is achieved, and the patient is satisfied with their pathway experience.

In accordance with our findings, several scholars highlight the necessary interplay and coexistence of both the formal and the emerging structures of work processes. Banks et al. [24] describe how top-down coordination must be actively supported by bottom-up processes. Hoffer Gittel [20] notes

that the presence of established routines supports the work of coordinating meetings and the work of boundary spanners in the presence of high uncertainty. Meier [69] describes how the relation between planned coordination and practice is performed through improvised processes of moving things around and letting things happen while den Herder-van der Eerden et al. [107] point to the interplay of nourishing the professional core teams and informal network parallel to necessary support from external authority and standardized pathways. Finally, Pine and Mazmanian [108] revealed the danger of underestimating the importance of the informal artful coordination of clinicians in the process of implementing electronic health records.

However, it is tempting to try to look for a transcending model implying structures that integrate the coordinating capacities of boundary spanners, networks, and communities into the formal organizations and the managerial system. Scholars [75,92] argue that the solution is to actively manage the coordinators, networks, and communities of practice, incorporating them into ordinary management processes [112]. Improvement of formal design is also the answer delivered by a study on coordination of cancer care [113]. Our analysis does not lead to the same conclusions. Semi-formal structures will only survive and flourish when they are allowed to exist relatively free from formal organizations and management. The study of introducing cancer-genetic pathways in England [70] as well as a recent study from German military supports this view [114]. This reasoning connects to the presence of separate, distinct institutional logics and tries to avoid blurring and coopting mechanisms between them. One of Stacey's [72], core arguments, based on his work on complexity science and organizational dynamics, is about the need to keep self-organizing local emerging types of organizational processes separate from formal hierarchical command and control. The organizational space created by this separation corresponds to the organizational slack that according to Clegg et al. [115] is necessary to achieve organizational learning.

There is a third argument for not incorporating the coordination processes attached to the four emerging structural elements into the management system. These emerging structures rely more on improvisations and less on standardization and thus represent a more organic and less mechanical approach to coordination than formal organizational structures. The structuring mechanisms of professional communities and networks build on different types of leadership. In improvisation, there are hardly any formal leadership positions or, if they do, the positions change over time and in relations to circumstances or are difficult to recognize [116]. It is a distributed leadership characterized by being voluntary, informal and organic [70]. In the formal hospital organization, on the other hand, there is a clear rigid hierarchy.

Lateral processes [64] and distributed leadership [70] should be encouraged, and adhocracy [117] should have a place as a core element of coordinating pathways. At the same time, these forms of organization will be embedded in the formal organizational structure based on function and work chain. Our study as well as the study of Martin et al. [70] also based on cancer pathway cases-studies, indicate that allowing the two types of structures to coexist and flourish on their own premises, but at the same time interact, is a difficult balance to achieve. It is a question of accepting the presence of locally based self-organizing processes [72] and practicing self-managing processes of post-bureaucratic structures [71] inside a more traditional machine-bureaucratic framework. In the end, this may be the only way to succeed in coordinating care pathways in hospitals facing increased uncertainty and complexity. The conversation through which this interaction occurs [118] may combine two way scholars have proposed to deal with pervasive uncertainty: formal and informal institutionalization [46] and creativity and so-called animal spirits [33].

## 5. Conclusions

We have shown how ICPs in cancer care for three diagnoses at four Norwegian hospitals were practiced through a balance of standardized and improvisational means. We have addressed how these can be managed to create connected processes and integrate relevant knowledge to meet the challenge of inevitable uncertainty and complexity. There is room for improvement in terms of how

standardization and process-oriented structures are designed and applied. The same is true concerning improvisational skills. However, we claim that the presence of both improvisation and standardization is not the main challenge connected to needs for coordination caused by complexity and uncertainty. The main challenge is to accept and understand the two different ways of structuring with their unique premises and to acknowledge and respect the crucial role of emerging self-organizing coordination processes that we have identified through our analysis.

One conclusion from this study seems to be that the standardization, value chain organization, and Total Quality Management (TQM) inspired by industrial management development do not provide satisfying explanation of how the hospitals we studied performed coordination of integrated pathway processes in cancer care. However, we observed that both those opposing industrial sources of learning and those promoting them seemed to lean on these tools of standardization, value chain redesign, and TQM. The emerging structures and improvisational processes we found that were actually decisive in explaining the practice of ICP can also be found in industrial contexts [71]. Therefore, it is not a matter of industry and health care being two different worlds and that there is just limited learning between the two. Experience and knowledge might fruitfully be exchanged between industry and cancer care.

The design of the current study lends itself to more research. We have focused on identifying processes on the meso-level using material from one type of process occurring in hospitals; it will obviously be valuable to supplement this work with more detailed analyses covering more elements in these processes, as well as other types of processes in hospitals. However, more important than research in this field is experience and practice that actively stimulate the dynamics between actors involved in the pathway, which is the crux of our study. Although improvisation, by nature, is nearly impossible to control and manage in a traditional way, it should nevertheless be acknowledged, made visible, facilitated, and encouraged. The most valuable research will then probably be research that looks at experiences with improvisation and attempts to learn more about its fundamental ambiguity. The studies of Martin et al. [70], Oborn and Dawson [88], Zuiderent-Jerak [52], den Herder-van der Eerden et al. [107] and not least of Schulte et al. [114] are a good example of this.

In conclusion, lack of coordination in health care is not caused mainly by failure of a formally governed and strictly managed system. The problem is that these systems have to be practiced in a way that simultaneously nourishes and recognizes the emerging social structural relations and more informal improvisational processes that we have identified. Achieving this kind of coordination will be at the core of the art of managing complex processes as ICPs and, at the next level, complex hospitals. Awareness of the coexistence of formal hierarchies and emerging social interactions is lacking, and more models and practical examples should be encouraged. This dance of coexistence between two models of organizational practice can be summed up in this refrain from an old jazz standard: “It don’t mean a thing if it ain’t got that swing.”

**Author Contributions:** Conceptualization of research project P.M.M. and S.S., empirical research design and data collection P.M.M., analysis of data material P.M.M. and I.K.S.H., writing original draft P.M.M., reviewing and editing the manuscript S.S., I.K.S.H. and P.M.M. All authors have read and agreed to the published version of the manuscript.

**Funding:** This project is a part of a project funded by The Research Project of Norway, project no 272945.

**Acknowledgments:** The authors like to thank associate Bjørn Erik Mørk and associate Trond Tjerbo for useful comments connected to the performance of the project and the development of the manuscript. We also like to thank emeritus Hans-Christian Sørhaug for inspiring discussions during our process of analysis and writing.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article

# Mind the Differences: How Diagnoses and Hospital Characteristics Influence Coordination in Cancer Patient Pathways

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**Abstract:** Integrated care pathway (ICP) is a prevailing concept in health care management including cancer care. Though substantial research has been conducted on ICPs knowledge is still deficient explaining how characteristics of diagnose, applied procedures, patient group and organizational context influence specific practicing of ICPs. We studied how coordination takes place in three cancer pathways in four Norwegian hospitals. We identified how core contextual variables of cancer pathways affect complexity and predictability of the performance of each pathway. Thus, we also point at differences in core preconditions for accomplishing coordination of the cancer pathways. In addition, the findings show that three different types of coordination dynamics are present in all three pathways to a divergent degree: programmed chains, consultative hubs and problem-solving webs. Pathway coordination also depends on hierarchical interaction. Lack of corresponding roles in the medical–professional and the administrative–institutional logics presents a challenge for coordination, both within and between hospitals. We recommend that further improvement of specific ICPs by paying attention to what should be standardized and what should be kept flexible, aligning semi-formal and formal structures to pathway processes and identify the professional cancer related background and management style required by the key-roles in pathway management.

**Keywords:** cancer patient pathways; integrated care pathways; cancer care; coordination; breast cancer; colorectal cancer; ovarian cancer



**Citation:** Mæhle, P.M.; Hanto, I.K.S.; Simensen, V.C.; Smeland, S. Mind the Differences: How Diagnoses and Hospital Characteristics Influence Coordination in Cancer Patient Pathways. *Int. J. Environ. Res. Public Health* **2021**, *18*, 8818. <https://doi.org/10.3390/ijerph18168818>

Academic Editor: Paul B. Tchounwou

Received: 23 June 2021

Accepted: 18 August 2021

Published: 21 August 2021

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## 1. Introduction

### 1.1. The Lack of Contextual Understanding in Cancer Patient Pathway Implementation

The integration of individual patient trajectories and the high flow of patients through hospitals are recognized as a major challenge in cancer care [1]. Integrated care pathways (ICPs), or cancer patient pathways (CPPs) as they are called in cancer care, were launched to address these challenges [2,3]. Such tools are associated with standardization, which in organizational research is recognized as a mechanism of coordination [4]. However, are CPPs capable of creating coherence, and can they be managed, across the silo-oriented hospital system? One would expect real-life pathway coordination to be influenced by what and who are treated by whom and where, to put it more precisely, by real-life diagnoses, patients and hospital organizational fields, and the multitude of directions and constraints these entail.

The scope [2,5,6] and purpose [5,7–10] of ICPs have been widely reported in the literature. Historically, the main driving force is the need to reduce the increasing tension between quality and cost-effectiveness of care [11]. ICPs are interpreted as a tool

to implement clinical guidelines and evidence-based medicine [7,12] while monitoring medical practice and making it more accountable [13–15]. ICPs are also portrayed as a way of making health care more patient-centered and reducing variance in quality, cost and care [15]. ICPs were initially developed for other diagnoses than cancer. However, the significant contextual variations in cancer make this group of diagnoses well suited for investigating conditions for deploying ICPs.

Several definitions of ICP have been proposed, but there is no uniform or international standard defining what elements ICPs should contain or entail [16]. However, a core ingredient of the ICP phenomenon is the matrix of events or procedures along a timeline technically expressed through a flow chart or a Gantt chart [17,18]. An ICP is referred to as complex [19] as it entails several components in addition to the flowchart. In addition to a documented linear workflow process, introducing navigators or coordinators, multidisciplinary team meetings (MDT), patient information and education, and monitoring procedures all correspond with the primary objective for ICPs. Accordingly, ICPs are described as a method of governance, management, boundary processes enhancement or work process improvement.

Several scholars claim that the main purpose of ICPs is to improve coordination of care [18,20–22]. Coordination is a core activity in optimizing patient flow in hospitals. It is also essential in multi- and cross-disciplinary interactions and decision-making. Combining clinical and patient-related decisions and the logistics of cure and care is essentially coordination. The implementation of ICPs as a tool for coordinating activities and deployment of knowledge seems to unite the expressed motives and included measures. Using ICP as a coordination device is a solution to the divergence between increased fragmentation and the demand for integration. In a horizontal workflow, ICPs allow for coordination across formal organizational borders. Coordination also has a vertical dimension when the immediately involved health professionals are not authorized to make adjustments within the system or make necessary resources available. This is problematized in publications on ICP but remains unsolved [5,15].

While some authors seem to present ICPs as a kind of panacea for most problems in health care and hospitals [13], others point to the limitations of their effectiveness and validity of ICPs. Two widespread conclusions and recommendations on effectiveness and validity are as follows: Firstly, ICPs are best fit for high-volume diagnoses [3,21]. Secondly, ICPs work best in care processes with a high degree of predictability [8,20,23,24]. Some of the first reported clinics to organize ICPs were specialized orthopedic clinics [18]. Accordingly, the literature has debated the general usefulness of ICP as a tool to optimize care in more complex and/or less predictable patient pathways. Thus, one takeaway is that ICP is not a measure fit for achieving industrialized standardization when the conditions for such standardization are not present [25].

In the last 20 years, more complex pathways as in cancer care have widely incorporated ICPs or CPPs, and also in hospitals with relatively small volumes of patients and limited ability to create high process predictability. At an institutional level, low predictability is caused by variation in degrees of urgency, patient expectations and needs, and availability of resources. Many studies have described ICPs in practice or tried to evaluate their effects. However, so far literature point at some knowledge gaps [5,7,16,22–24]. First, reports are frequently limited to one hospital, one diagnose and pathway and one element of the pathway. Consequently, they lack a comprehensive perspective [7,26] since internal properties of a specific treatment or patient group [5] may influence the functioning of the CPP flow. Secondly, knowledge is missing on how different parts of CPPs work and in what contextual circumstances [7]. A CPP is more than a complex intervention. It is a complex intervention in a complex system [9]. This makes it challenging to analyze cause and effect processes [27], which leads to our research question: What traits of cancer diagnoses, patient characteristics and hospitals have a significant impact on cancer patient pathway coordination and how do these differences influence coordination processes and management requirements?

Several CPP studies deal primarily with existing approved ICP documents. Thus, the research is focused on the map rather than the mapping process and implementation based on the existence of some kind of pathway map [8,28]. In Norway, national standardized CPPs for all major cancer diagnoses were officially implemented in 2015 [29]. The main target of this reform was to improve flow time for patient throughput time from referral to start treatment [30]. However, in several hospitals in Norway, elements of CPPs were already present and had been put into practice. The national CPP documents gave room for customization [25]. What we will study is not primarily the intention of the CPPs as phrased in national documents, but real-life CPPs in hospitals in the context of cancer diagnosis, treatment, organizational structures and governance systems. In the current work, the term CPP refers to the pathway process as implemented while the term standardized CPP refers to officially approved, documented pathways.

### *1.2. Analytical Approaches to Explore Understand Crucial Differences between CPP Processes*

We draw upon three analytical approaches to study different coordination mechanisms in CPPs. First, inspired by Trosman [1], we look at CPPs from a project management perspective. We assume that a project is a unique task with a definite end but will be carried out within some degree of uncertainty and complexity. From this, neither individual CPPs nor the total stream of diagnoses specific CPPs would per definition be a project if CPPs could be implemented in a standardized way based on predictable and satisfying access to resources and stable or predictable surroundings. Conversely, if both single CPPs and the total stream of CPPs have some degree of unpredictability and uncertainty [31] added by some extent complexity, they could be classified as series of project tasks constituting a program [32]. In line with Slack et al. [32] these CPP programs may be classified into a matrix in relation to the combined degree of uncertainty and the degree of complexity. Increased uncertainty in project-like tasks will lead to extended challenges to accomplish the up-front planning of the process. While increased complexity will challenge the ability to control the process while in progress. In identifying variable expressing uncertainty and complexity, we follow the analysis of Han et al. [31] proposing that a reasonable taxonomy of uncertainty in healthcare should be attached to the source from which it originates.

The project task principally cannot be solved in a satisfactory manner if all quality measurements, available resources and available time slots are fixed and do not leave room for any flexibility, slack and room for negotiation [32,33]. This challenge is exacerbated in situations characterized by extended complexity and shortage of available time limiting the ability to arrive at a complete overview of the chosen interventions and outcome [25,34]. This is presumably why ICPs primarily entered health care in sheltered elective pathways suited to deliver a predefined quality and volume with a fixed time frame and resource base [18,35]. If there is a temporary higher influx of patients in such cases, the patient can wait with hardly any clinical risk. It also explains the use of ICPs in acute settings such as trauma and stroke treatment. In such cases, time cannot be compromised. Neither can outcome quality. However, competent resources will be flexible and available when needed. These highly urgent pathways unfold impressively in lots of hospital acute care units and they are both documented and internalized among the potential participants. This raises several questions: How do we rate CPPs for different diagnoses in terms of complexity, variation and predictability of context and process? In addition, how flexible are they in terms of available time and perceived urgency and/or access to critical resources of equipment and competences? Quality of outcome can hardly be negotiated, but certain standard pathway processes should allow some room for improvisation to adapt to restricted flexibility of time and resources. This will open up for identifying the optimal way to implement CPPs under variable conditions [15,25] and provide knowledge on the type of and variation in complexity and uncertainty and thus open for identifying the corresponding management strategies. CPPs are interpreted as a measure to reduce complexity and unpredictability and thus make rational planning achievable [36] while others claim that these pathways have to adapt to the complexity and fluidity of the context

in which they are deployed [7,37]. Answering our research question might also resolve this apparent contradiction.

The second analytical approach concerns searching for conceptual tools to differentiate between types of coordination dynamics in CPP processes. ICPs are explained as an organized and predefined flow of activities across a certain time span [28]. This is in line with the organizational model of the work chain [14]. However, we question whether this will cover all types of dynamics present in coordination of CPPs. Cancer care is increasingly complex. This is due to an increasing numbers of events and alternatives of procedures or treatment routes at each event [1,38]. Pathway activities include more steps requiring integrated decision-making and cross-disciplinary processes. In addition, the pathways are dynamic and tightly intertwined back-and-forth processes. New knowledge emerges in several steps and may change the route of the pathway. As a consequence logistics and knowledge interdependence of diagnostic and therapeutic activities become intrinsically interweaved. Concepts covering these types of process dynamics and appearing as alternatives to the programmed chain of activities have been described in the literature [39–41]. When studying hospital organization and clinical coordination, Glouberman and Mintzberg [41] add two models to the programmed chain: the consultative hub and the problem-solving web. In the consultative hub, one professional actor seeks assistance from other professionals with supplementary knowledge or skills. This first professional then has a coordinating role. In the problem-solving web, there is a cooperation among equals and all contributors are active coordinating partners. The concept of a web also has connotations of a network. In our study, we anticipate that the three concepts including programmed chain, consulting hub and problem-solving web are tools used fruitfully to explain variations in dynamics of CPP processes.

The third analytical approach, inspired by Greenwood et al. [42], includes the concept of institutional logics and the interplay between these in our analysis of vertical coordination. Several scholars have explored the concept of institutional logics or interests in relation to patient pathways [7]. The concept of institutional logic was introduced by Alford and Friedland [43]. They defined it as cultural beliefs and roles determining how practices and structures are assessed. Accordingly, we identify two dominant institutional logics present in hospitals: the professional medical logic based on a combination of scientific knowledge and experience-based skills in diagnostics and treatment, and the economic–administrative logic responsible for the optimal use of resources to deliver the outcome expected by the hospital owner under certain resource constraints. Thus, in line with other scholars [14,28], we do not view the ICP as an objective concept and practice that can be applied to every kind of interest and purpose involved in the pathway. Logics are in play, and they interfere with the specific unfolding of ICP, both documented as a map and in practice [38,44]. The professional medical logic defines the preconditions for horizontal coordination activities and is represented by the informal medical community of practice [45] and clinical guidelines [11]. The economic–administrative logic is present through the hierarchical processes of governance and is in touch with the ICP in conducting monitoring activities targeting the outcome parameters of ICP that has political and administrative attention like accomplishment of lead time in standardized CPPs. Furthermore, the economic–administrative logic meets the ICP when coordination at street-level raises question that needs to be elevated to a higher organizational level to be solved; usually lack of resources or adjustments to supportive systems [46]. The structuring of interaction between organizational levels affects the ability to achieve balanced solutions to coordination challenges when premises from two different institutional logics are present [7,13,44,46]. In this study, we search for traits of cancer diagnoses and hospitals, including relations between hospitals that have an impact on these interaction processes and thus might constitute decisive differences in the way each CPP works.

The three analytical approaches identifying crucial contextual variables making an impact on coordination of CPPs also relates to differences in management. This is a main point of Buchanan et al. [47] in a study of change management for the prostate cancer



pathway in British hospitals. They suggest that the content of process and the degree of complexity of influence which leadership style that are contributing to success. Increased complexity and a process associated with ambiguity and blurred borders correspond to a need of greater flexibility supported by enhancing distributed leadership. The connection between the type of context-dynamics, management roles and leadership styles are elaborated in management literature. Moreover, further analysis of managing different CPP under various circumstances could demand both roles as controller [48], integrator [49], broker and steward [50]. Thus, they provide us with a potential conceptual tool to speculate on the connection between variations in context and requirements for specific managerial roles.

## 2. Materials and Methods

CPPs consist of several unique independent elements that are constructed in various ways, which, separately and in combination, may influence the outcome. In addition, the field of interest has several elements that might individually and in combination, directly or indirectly, affect outcomes. In the research design, we also have to consider that the field context is not stable but dynamic and non-linear. Since experimental methods are not suitable to studying CPPs as a complex intervention in a complex system [20,51], we approached the epistemological puzzle created by the several layers of complexity, instability and iterative processes on one hand by using a research design comprising two elements: multi methods and combination of data sources [51–53]. We allowed theory to emerge from the field [54] and being fertilized by diverse models from previous research in a theoretical triangulation [53]. The theoretical models were identified through an abductive process while structuring the data from our cases [55].

When searching for variables that are decisive for CPP execution, we selected case signals and underlying hypothesis regarding variables that might have an explanatory value. We chose to investigate the pathways of three cancer diagnoses. In selecting colorectal cancer, breast cancer and ovarian cancer, we had pathways that differed in terms of patient volume, degree of urgency, existence of screening programs, proportions of patients receiving multimodal therapy, referral patterns to university hospitals, and whether the surgical activity is sheltered from emergency activity. By selecting both university hospitals and community hospitals, we captured differences in size and variations in the proportion of specialized care. Choosing two hospitals in each group allowed us to evaluate how the same role in cancer care could be accomplished in different ways with possible impact on CPP execution. The four hospitals participating in the study, two university hospitals and two community hospitals, represent two health regions. The Norwegian hospitals are organized in four health regions governed by a governmentally owned regional health trust. There is one referral hospital in each region and a regional referral plan centralized treatment. This implies that the university hospitals act as a regional hub for specialized care.

The main sources of data were qualitative interviews and documents. Relevant documents were documents from the hospitals' quality systems, including procedures for practicing CPPs; information available on the hospital website, like organizational maps and relevant policy documents; data from the national CPP monitoring system; national diagnosis-specific guidelines approved by the Directorate of Health; and statistics from the National Cancer Registry and the national diagnosis-specific quality registers. We identified core formal sources of relevant documents based on information from our contact persons, during interviews, and from the authors' knowledge in the field.

In each hospital, we had a contact person who gave us information about the hospital, procured relevant documents, and identified relevant interviewees. We picked the informants to represent all key activities for all three pathways at every hospitals. This means key medical personnel from outpatient units, surgery, oncology, pathology and radiology departments. Some were leaders; others had no formal management position. In addition, we interviewed patient coordinators, the majority of whom were trained nurses.

We also interviewed some department leaders. Some leaders were responsible for more than one of the diagnoses and CPPs; this was more common in the community hospitals. Except for two interviews, all of the 66 interviews were performed in the interviewee's local environment. A loose interview guide was distributed to the interviewees ahead of the interview. The interviews lasted from 0.5 hours to 1.5 hours with a median duration of 50 minutes. The interviews were recorded and transcribed. The distribution of informants is shown in Table 1:

**Table 1.** Number of informants from the participating diagnoses and hospitals.

	Hospital 1	Hospital 2	Hospital 3	Hospital 4	Total
Ovarian cancer	5	4	2	1	12
Breast cancer	6	4	2	1	13
Colorectal cancer	10	9	4	3	26
Two or three cancers	3	1	4	7	15
Total	24	18	12	12	66

The first and the senior authors' long-term experience of working with managing and improving cancer care in university hospitals was a source of knowledge to the field studied and influenced how we prepared and conducted interviews, and how we interpreted the data. In line with Berwick [52], we consider this an advantage. Reflections on this aspect of the study were documented in a separate essay during the research process.

The process of identifying core characteristics of cancer diagnoses, patient groups and type of hospital that have an impact on the construction and execution of CPPs included analyzing transcribed interviews and written sources, reflecting upon our own experiences studying literature on ICPs, CPPs and coordinated hospital care in general. All together, the goal was to develop analytical models that structure our data to address our research question. Gradually, we developed the three approaches presented in the introduction. By then we had started to structure interview data through exploratory coding using NVivo (QSR International, Melbourne, Australia). As our analytical models emerged, we supplemented the NVivo analysis with new nodes and new layers of nodes. Qualitative and quantitative data from written sources were compiled in tables structured by variables thought to be relevant for the analytical dimensions of the analytical approaches. The synthesized categories presented in the tables in the results section are thus based on data from several of our available sources.

### 3. Results

The presentation of results is organized according to the two independent variables: hospital and diagnosis. For both, we have data on several core variables representing the dimensions in our analytical approaches. The core variables are directly and indirectly indicators of complexity and variation in predictability. The main variable groups and their connection with each other are described in Figure 1.

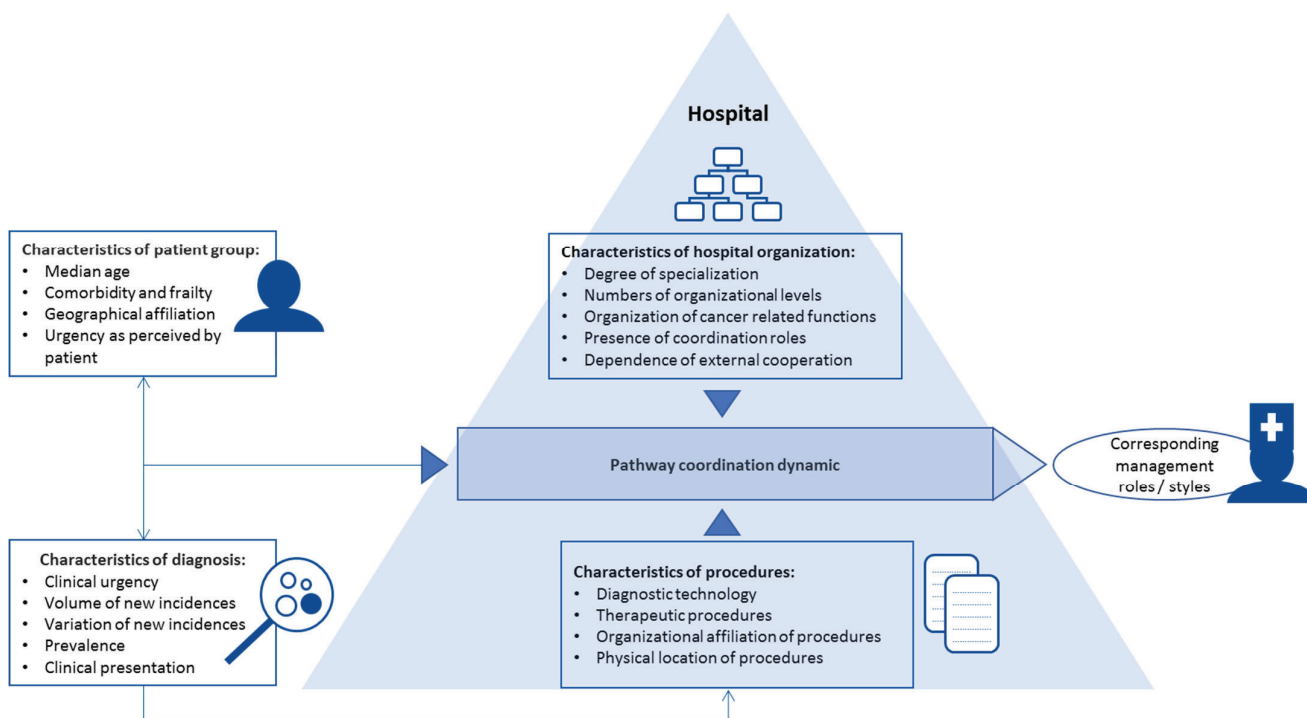


Figure 1. Variable groups with indicators.

### 3.1. Hospital-Related Variations

We start by presenting general relevant information about the four hospitals and then show data from the three pathways attached to each of the hospitals, followed by data of patient groups in each of the pathways and finally data based on properties of each of the three diagnoses. Each of these table-based approaches is commented, summarized and supplemented with citations from the interviews. This provides us with an overview of the premises for identifying variations in coordinating conditions in and between pathways for different diagnoses and types of hospitals and thus establishes a platform for discussion of managerial and organizational consequences. We start in Table 2 by presenting relevant data describing cancer care at the four hospitals included in this study.

There are considerable differences in the number of patients diagnosed and starting a standardized CPP among the four hospitals but considerable number of cancer patients are treated even at the community hospitals. The difference between the two university hospitals and the two university hospitals in number of patients treated surpasses, however, the differences expressed in the table since the university hospitals also receive patients for tertiary care. Nevertheless, the capacity of the community hospitals to deliver coordinated and appropriate cancer care is indicated by this citation:

“Community hospital D is of the right size, there are short communication routes, there is the right number of specialties in the hospital, but still it’s easy to reach out to. It is not so big that you’ll lose track here. However, a hospital shouldn’t be too small because then there will be too few specialties and too few with cutting-edge competence.” (D4)

**Table 2.** Data characterizing cancer care at the hospitals included in the study.

General Characteristics	University Hospital A	Community Hospital B	University Hospital C	Community Hospital D
No of patients newly diagnosed with all cancers	4715	1340	2545	513
Population served	Local: 550,000 Regional: 3,000,000	Local: 250,000	Local: 460,000 Regional: 1,100,000	Local: 110,000
No of patients starting standardized CPPs	5985	3134	4235	1005
No of organizational levels involved	4–5 levels	4 levels	3 levels	3 levels
No of units involved	Level 2: 12 of 15 units Level 3: 31 units	Level 2: 3 of 7 units	Level 2: 11 of 22 units	Level 2: 2 units Level 3: 7 units
No of cancer care sites	4 sites	1 site	3 sites	3 sites (2 satellites)
Coordinating function of cancer care	Cancer Center Board organized as a leadership matrix Navigators organized in each department involved	Head of one division has a major coordinating role Navigators organized in a centralized unit at hospital level	The hospital management and medical director Navigators organized in each department involved	Medical director coordinating role in problem-solving Navigators organized in a centralized unit at hospital level

The university hospitals have a combined role as both specialized regional care providers and community hospitals for surrounding districts. For several reasons, the process complexity increases in general as we go from community hospital to university hospital. The number of units involved increases, as does the degree of sub-specialization and the presence of formal and informal subunits, especially in the diagnostic units and the oncology departments. This experience is expressed in the following citation:

“I believe it’s simply that the silos are becoming bigger. When you’ve got more hospitals, each hospital can be seen as a silo. Then you’ve got smaller silos within the hospitals. So I believe it’s as simple as the organization is more complex, and that you have more of those lines or silos to deal with.” (A24)

The increase in multimodal treatments and referrals, and the subsequent traveling of patients between hospitals, increases complexity. Complexity can also decrease when going from a community hospital to university hospital. The following citations refer to one of the university hospitals having two sites, thus sheltering cancer activity from emergency care.

“Specialization in the diagnostic functions and also the fact that we are allowed to be a distinctive elective hospital specialized in cancer care is extremely important. To run a business like this in addition to, for example, emergency operations would reduce the quality of care in my eyes. So we are, as we see it, extremely lucky to have the position we have.” (A22)

“That hybrid model is very difficult to handle. The acute care pathways destroys the whole planned structure that a top-notch competence need. Unpredictable, have to constantly run around. All the plans you’ve made, you must make again because they didn’t work. And we live with these challenges on a daily basis. And if you then collaborate closely with other areas that are more electively run and that have structure and order that also have local hospital patients, who will take care of them?” (C7)

“I saw the operational benefits of a sheltered elective arrangement. When you received referrals or attended an MDT meeting and planned four, six, eight weeks ahead in time, versus our internal arrangement where you experience these fluctuations that are not balanced to the acute flow of patients, but at least there was not the large amount of benign surgery where the waiting lists are 18 months for many patients no one want to operate. It’s surgery that means an intervention in their lives and should be planned well in advance. When we try long-term planning, the CPPs come and mess this up.” (A4)

Only university hospital A has a specific comprehensive cancer coordinating entity. The patient coordinating positions that are mandatory for the standardized CPPs in Norway are organized at the central hospital level at the two community hospitals. In these hospitals, these navigators coordinate the steps of the entire pathway in their hospital regardless of which unit is performing the task. In contrast, the two university hospitals have separate navigators in each clinical department involved in the pathway and they are organized in each unit. The dynamic of pathway coordination between levels of hospitals was described like this:

“If there is someone you need to discuss or create an individual path for, you could just call and discuss and make an agreement, and that’s also how it works with the referring hospital, that is, if there’s anything they want, they’ll call. It does happen that one is unsure about something, that they’ll call from the community hospital and explain why they absolutely want to do it in that way.” (A4)

However, sometimes this system of improvising networks may have some limits in reaching solutions:

“In our hospital there are three persons who work with colorectal cancer as their primary task, and they know the environment at different locations in university hospital A, but in the management line there is not so much contact and I think that when we have a bottleneck, we would maybe benefit from having some arenas where the leaders could meet. The leader arenas that exist are clearly tied to level one or level two. There are not many meeting points at level three or four across the hospitals.” (B1)

To further investigate the hospital-related variation, we looked into the hospitals’ activity connected to each of the three diagnoses under study, beginning with the breast cancer pathway, illustrated by monitored activity of the standardized CPPs in Table 3.

**Table 3.** Variables influencing care coordination in the breast cancer pathway in the four hospitals, 2019 [56].

	University Hospital A	Community Hospital B	University Hospital C	Community Hospital D
No of patients diagnosed with cancer	588	223	412	66
Variation in monthly number of patients starting standardized CPP	Average: 69 Max/Min: 84/52	Average: 35 Max/Min: 47/19	Average: 77 Max/Min: 113/40	Average: 14 Max/Min: 23/7
No of patients in standardized pathway receiving their first cancer treatment	S *: 389 C *: 218 Sum: 607	S *: 157 C *: 15 Sum: 172	S *: 249 C *: 179 Sum: 428	S *: 48 C *: 18 Sum: 66

\* Surgery (S), Chemotherapy (C).

The number of patients in the breast cancer pathway differs substantially between hospitals A and D. In this pathway, diagnosis and surgery are defined as community hospital tasks. Radiotherapy is centralized. The patients are recruited from two channels: the national screening program or investigation prompted by a clinical finding. Both groups are referred to a breast diagnostic center at each hospital dedicated for this purpose only. If the patient is diagnosed with cancer, the majority will start treatment at their community hospital, and receive radiotherapy if needed at a university hospital. The exception is patients with (locally advanced, stage III) tumors. These patients are referred to the university hospital and undergo an MRI of the breast before starting adjuvant chemotherapy. All four hospitals have MDT meetings, although oncologists do not participate at university hospital C. In all four hospitals, a breast surgeon has a coordinating role on all issues related to CPP governance. However, only in community hospital D are the units involved in breast cancer pathways located at the same site.

The differences in the volume of patients diagnosed with colorectal cancer (CRC) do not vary to the same degree as for breast cancer, as shown in Table 4.

**Table 4.** Variables influencing care coordination in the colorectal cancer pathway in the four hospitals, 2019 [56].

	University Hospital A	Community Hospital B	University Hospital C	Community Hospital D
No of patients diagnosed with cancer	330	230	186	95
Variation in monthly number of patients starting standardized pathway	Average: 49 Max/Min: 64/36	Average: 73 Max/Min: 91/60	Average: 35 Max/Min: 43/13	Average: 21 Max/Min: 29/12
No of patients in standardized pathway receiving their first cancer treatment	S *: 174 C *: 34 R *: 138 Sum: 346	S *: 161 C *: 15 R *: 0 Sum: 176	S *: 183 C *: 75 R *: 62 Sum: 320	S *: 61 C *: 11 R *: 1 Sum: 73

\* Surgery (S), Chemotherapy (C), Radiotherapy (R).

For patients with localized disease, the colon cancer pathway is managed at the community hospital. Corresponding departments manage diagnostics and treatment in all four hospitals. The MDT meetings consist of radiologist, pathologist, gastro-intestinal surgeon and oncologist. Gastroenterologists are only present at community hospital B

as they are the ones conducting the colonoscopy. If the cancer has metastasized, or in the case of locally advanced rectal cancer, the diagnostic and treatment procedures are performed at a university hospital if considered curable. Colorectal cancer patients with metastases, usually in the liver or lung, are discussed at MDT meetings at the university hospital comprising members according to the specialties involved. Patients with operable metastatic disease have surgery at the university hospital. The pathway in a community hospital of a CRC patient was described like this:

“With metastatic colorectal cancer some of the patients are to have neoadjuvant chemotherapy so then there’s a consultation and the patients’ information is sent and the patients are discussed at an MDT meeting in university hospital A and then a path is planned, for example, if they are to have both rectal surgery and liver surgery and that they’ll get neoadjuvant treatment with us, and then a time path is created and in many ways I think that works very well.” (B1)

Community hospital B is the only hospital where all functions related to this pathway are gathered in one location. At university hospital C and community hospital D, colonoscopies are performed in several locations. At both university hospitals, the gastrointestinal surgeon has a coordinating role concerning medical related topics and in overall pathway governance.

The variation between the four hospitals concerning ovarian cancer is shown in Table 5.

**Table 5.** Variables influencing care coordination in the ovarian cancer pathway in the four hospitals, 2019 [56].

	University Hospital A	Community Hospital B	University Hospital C	Community Hospital D
No diagnosed with cancer	251	27	46	9
Variation in monthly number of patients starting standardized pathway	Average: 14.6 Max/Min: 21/12	Average: 4.9 Max/Min: 11/3	Average: 6.2 Max/Min: 11/3	Average: 1.1 Max/Min: 3/0
No of patients in standardized pathway receiving their first cancer treatment (surgery)	175	59	75	13

The diagnostic procedures in cases of suspected ovarian cancer shall, according to the standardized CPP, be made by a gynecologist at a specialized department of gynecological oncology at a university hospital. The proportion of patients diagnosed with this cancer at university hospital A is high. The initial management of these patients is delegated to the gynecology departments at the community hospitals. Occasionally this is done post-surgery after an abdominal intervention at a community hospital. The university hospitals are responsible for the majority of cases, including detailed diagnostics work-up and treatment—both surgery and chemotherapy. In addition to gynecological oncologists, pathologists and radiologists attend the MDT meetings. The head of the gynecological oncology departments also acts as a coordinating officer for all medical-related purposes. All involved specialists at the two university hospitals are co-located at the hospital areas. The following citation describes how this works in practice:

“We have regional meetings, so there is an oncologist in addition to a radiologist and a doctor from nuclear medicine and pathologist. And it depends what else we need. That is, if we need anesthesia or a gastro-intestinal surgeon or a sarcoma surgeon or any need in particular.” (C9)

### 3.2. Diagnose Related Variation

In Table 6, which is organized according to diagnosis, we have extracted data representing patient-related variables that may influence the preconditions for achieving coordination and thus the implementation of CPP processes. These variables are volume of

patients, medical urgency expressed by stage and relative survival and risk of comorbidity expressed by median age of patient population.

**Table 6.** National data characterizing the patient groups of the three diagnoses studied [57].

		Breast Cancer [58]	Colorectal Cancer [59]		Ovarian Cancer [60]
			Colon	Rectum	
			Female, Male	Female, Male	
Incidence 2019	Total	3753	2979 1541, 1438	1316 539, 777	528
Screening		Women 50–69 years old [58]	2019: no screening [59]		High risk-groups [60]
Fraction of patients by stage * 2015–2019	I	42.7%	17.9%, 18.9%	25.1%, 24.9%	20.3%
	II	32.9%			
	III	10.6%	52.1%, 51.3%	44.7%, 46.2%	20.7%
	IV	4.1%	22.3%, 23.3%	19.3%, 19.4%	52.0%
	Unknown	9.8%	7.7%, 6.5%	10.8%, 9.5%	7.0%
Median age at diagnosis 2015–2019		62.0	73.0	70.0	67.0
5-year relative survival by stage * 2015–2019	Total	92.0%	71.1%, 68.1%	71.5%, 71.1%	50.3%
	I	100.9%			
	II	96.1%	98.9%, 98.3%	96.1%, 98.0%	97.4%
	III	79.4%	85.4%, 84.4%	80.8%, 82.3%	61.9%
	IV	34.0%	20.8%, 15.1%	24.0%, 20.4%	37.1%
	Unknown	78.2%	35.3%, 31.4%	46.0%, 46.3%	40.5%

\* Stage indicates how advanced the cancer is.

When comparing the three diagnoses, we recognize that breast cancer has the highest volumes, the highest frequency of patients diagnosed in stage I and the lowest in stage IV (metastatic disease), the highest expected relative overall survival for patients in all stages, and the youngest patient group. In contrast, compared to breast cancer, ovarian cancer patients are fewer (one-seventh), the cancer is diagnosed in more advanced stages, and survival rates are worse for all stages. CRC patients are the oldest population and comorbidity is expected to be higher in this population. For the CRC population, 15–25% of the patients presented with acute abdominal symptoms. As we see in Table 6, there is variation in the stage of the cancer at presentation and we find more advanced disease (stage III and IV) in ovarian cancer and CRC patients compared to breast cancer patients. Nevertheless, patients' subjective experience of urgency may be higher for a possible breast cancer patient, as one physician explained:

“Because I worked for a long time, I started with breast cancer and had both colorectal and breast cancer patients, and we had to get these breast cancer patients in before the colorectal cancer patients, because I believe it has to do with this is something you feel, it's outside the body, and the breast cancer patients were more impatient than female colorectal patients who were more relaxed in a way.” (A2)

The characterizations and presentations are further elaborated in Table 7, together with other relevant information that may add to the complexity and predictability of the CPP.



Table 7. Clinical presentation, diagnostic work-up and treatment.

	Breast Cancer [58]	Colon	Colorectal Cancer [59]	Rectum	Ovarian Cancer [60]
<b>Clinical presentation</b> Characteristics and presentation of signs and symptoms	Visible or palpable lumps or changes in skin or tissue Changes seen on mammography screening	Tumor/polyp on ano-/rectoscopy/colonoscopy Acute intestinal perforation, bleeding or ileus	Ambiguous symptoms	Ambiguous symptoms	Ambiguous symptoms
<b>Diagnostic workup</b> Essential procedures and technology	<i>Triple diagnostics:</i> Clinical examination Clinical mammography and/or ultrasound (radiologist) Fine-needle aspiration cytology (FNAC)/cyst puncture/core needle biopsy (CNB)/vacuum-assisted core biopsy (radiologist, examined by pathologist) <i>If incomplete needle biopsy or malignant finding:</i> Open biopsy (surgeon) <i>Neoadjuvant treatment:</i> MRI breast (radiologist)	Clinical examination with digital rectal exploration (DRE)/rectoscopy Colonoscopy with biopsy (gastroenterologist, examined by pathologist) <i>If incomplete colonoscopy:</i> CT-colography (supported by radiologist) <i>For TNM * stage:</i> CT thorax, abdomen and pelvis (radiologist) <i>Acute presentation:</i> CT abdomen and pelvis (radiologist)	Ano-rectoscopy with biopsy <i>For TN * stage:</i> High-res MRI with surface coils (radiologist) <i>For T1/T2 * stage:</i> Ultrasound rectum (surgeon) <i>For M * status:</i> CT thorax, abdomen and pelvis (radiologist)	CT thorax, abdomen and pelvis (radiologist) Blood sample Genetic test Clinical and gynecological examination with ultrasound (UL) (gynecologist) Calculation of Risk of Malignancy Index (gynecologist) <i>Stage III-IV:</i> UL-guided biopsy(gynecologist and radiologist, examined by pathologist)	
<b>Treatment</b> Essential procedures	Conventional breast conservation surgery (BCT)/oncoplastic breast conservation surgery (OBCS)/ablation/mastectomy/sentinel lymph node biopsy (SNB)/axillary dissection (AD) Radiotherapy <i>Adjuvant and neoadjuvant systemic therapy:</i> Hormone therapy/Chemotherapy/Targeted medical therapy	Lymph node dissection/colon resection/dissection in circumference of tumor Adjuvant chemotherapy <i>Acute presentation:</i> Resection with or without anastomosis/colostomy/stent  <i>Palliative treatment:</i> Palliative surgery Palliative radiotherapy	Total mesorectal excision (TME)/Partial mesorectal excision (PME) <i>Neoadjuvant and adjuvant therapy:</i> Concomitant radiotherapy and chemotherapy	Cytoreductive surgery/fertility-preserving surgery Neoadjuvant and adjuvant chemotherapy	

\* Tumor (T), Node (N), Metastases (M).

Table 7 demonstrates that patient referral is referred to the hospital involves two dimensions. One dimension concerns whether hospital referral results from a screening program or from an incidental or symptom presentation to the general practitioner (GP) or an unexpected finding during an unrelated surgery. In 2019, breast cancer was the only diagnosis among the three diagnoses studied, with a national screening program. The other dimension is whether the admission to the hospital is acute or planned. An emergency tag to mobilize resources is also in use in elective cancer patient pathways. The clinicians label the radiology or pathology form with “citu” to have it prioritized. In addition, the perceived state of urgency may also be influenced by the stage or aggressiveness of the cancer. The variations among patients within a diagnostic group make the preconditions for standardized processes more complicated.

Table 7 also shows that the diagnostic work-up procedures vary substantially between the three diagnoses. For breast cancer patients, the diagnostic work-up may be completed with a mammogram and an ultrasound-guided fine needle biopsy, plus an MRI for patients with locally advanced tumors. A patient with suspected CRC will need a colonoscopy and a complete thoraco/abdominal CT scan before surgery. Patients with suspected ovarian cancer will also undergo a complete thoraco/abdominal CT scan, but final diagnosis is based on the operation specimen.

Variations in surgical procedures within and between these three diagnoses appear as well from Table 7. Tumor resection is straightforward for breast cancer in the majority of cases but will often need concurrent or secondary reconstructive procedures. Locally advanced rectal or ovarian carcinomas may require extensive tumor resection and a broader competence in the surgical team while CRC might require highly specialized teams for metastasectomies either in lung or liver.

As multiple factors related to the diagnoses influence the diagnostic and treatment procedures performed, the organization of the pathways is also affected. The characteristics of organization are depicted in Table 8.

Table 8 shows that independent of hospital, there are important variations in the organization of the main steps in the pathways of the three diagnoses studied. These variations influence the context for coordination by creating complexity and the type of work process performed and the kind of competence in charge at the various steps of the pathway. For the initial part of pathway when the patients are admitted to the hospital, the organizational pictures are: Breast cancer patients are all received at a breast diagnostic center where all resources and competences connected to diagnostic procedures are gathered. These centers are also sheltered from activity related to other patient groups. At all four hospitals there is no easy access to MRI technology. For patients with suspected CRC, there is no designated diagnostic center. The colonoscopy facilities are also used for other patient groups. However, there may be a number of slots every week reserved for patients with suspected CRC. In university hospital C and community hospital D colonoscopy are performed also outside the main hospital site. Patients with suspicion of ovarian cancer typically arrive at a department of general gynecology. An interviewee described the interaction between university hospital A and community hospitals related to the ovarian pathway:

“It’s up to our department head to contact the head of the local gynecological department when something is not working, to put pressure on the person in question so that things go faster. But I have to say, it’s noticeable that for these departments, cancer is only a part of their task. They have a lot of births and do a lot of other things as well. So it’s not always the case that cancer is perceived to have the highest prio (A8)

**Table 8.** Characteristics of organizational aspects related to the three diagnoses.

	<b>Breast Cancer</b>	<b>Colorectal Cancer</b>	<b>Ovarian Cancer</b>
	<p><i>Referrals to local hospitals by GPs, or after positive screening:</i></p> <p>Initial diagnostic workup in sheltered environment managed by radiologists</p> <p><i>Referrals to regional hospitals from local hospitals:</i></p> <p>Specialized diagnostic imaging in sheltered environment</p>	<p><i>Referrals to local and regional hospitals, from GPs or local hospitals:</i></p> <p>Diagnostic workup in general gastrointestinal department with allocated slots for CPPs, otherwise non-sheltered environment</p>	<p><i>Referrals from GPs, private providers and local hospitals:</i></p> <p>Suspected or detected in non-sheltered gynecology or gastro-medicine department</p> <p><i>Referrals to regional hospitals:</i></p> <p>Sheltered gynecological cancer departments</p>
<b>Organization of referral and the diagnostic workup</b>	<p>Radiologist, breast surgeon, pathologist and oncologist (except university hospital C)</p>	<p>Gastro surgeon, radiologist, oncologist, pathologist and, only in community hospital B, gastro-intestinal physician</p>	<p>Gynecologist, radiologist and pathologist</p>
<b>Participants in MDT meetings</b>	<p>Specialized surgeons. Primary reconstructive surgery performed cross-disciplinary with plastic surgeons</p> <p><i>Regional breast cancer:</i></p> <p>Initial oncological treatment demanding close dialogue between oncologist and surgeon</p>	<p><i>Local colon cancer:</i></p> <p>Surgery in community hospital also comprising other elective and acute diagnoses</p> <p><i>Local rectum cancer:</i></p> <p>Surgery in community hospital also comprising other elective and acute diagnoses</p> <p><i>Regional rectum cancer:</i></p> <p>Possible cross-disciplinary surgery at regional hospital</p> <p><i>Metastases:</i></p> <p>Cross-disciplinary decision process in MDTs and possibly synchronous surgery if detected simultaneously</p>	<p>Surgical and oncological treatment managed by specialized regional department for gynecological cancer</p>
<b>Organization of treatment</b>	<p><i>Surgery as primary treatment:</i></p> <p>Follow-up by breast surgeon at local hospital</p> <p><i>Neoadjuvant treatment:</i></p> <p>Follow-up by oncologist at local hospital</p>	<p><i>Surgery as first treatment:</i></p> <p>Follow-up by gastro surgeon at local hospital</p> <p><i>Neoadjuvant treatment:</i></p> <p>Follow-up by oncologist at local hospital</p> <p><i>Metastatic surgery or advanced rectum surgery at regional hospital:</i></p> <p>Follow-up by the treating unit</p>	<p>First follow-up by gynecological cancer unit at regional hospital and subsequently at local hospital</p>
<b>Organization of state of remission follow-up</b>			

Several of our informants expressed a wish for developing towards organizational structuring supporting an integration of cancer pathway related specialties, expressed like this:

“If we were more like a cancer hospital where we could have gastro surgeons, gastro oncologists and palliative professionals more integrated, so that the patients could stay with us like they do in other diagnosis groups like breast cancer, lymphoma, and sarcoma, they belong to the cancer department their whole pathway.” (C16)

The task split between community and university hospitals varies between the diagnoses. The majority of breast cancer patients are offered surgical treatment at their local hospital—either a community or a university hospital. Only the patients with locally advanced disease are referred to a university hospital, and preferably neoadjuvant chemotherapy, before surgery. The majority of CRC patients’ entire pathway is at the local hospital. However, patients with locally advanced rectal cancer or metastasis deemed resectable are referred to the university hospital. Treatment for locally advanced ovarian cancer patients is centralized at specialized gynecological oncology departments at the university hospitals. The cooperation along pathways across hospital borders is in addition to be influenced by the functional division of labor in clinical treatment significantly influenced by differences in roles and competences in the diagnostic support disciplines of radiology and pathology. Two informants express it like this:

“My perception is that many specialties are quite clear, such as what they say in community hospital D: “this is what we are doing here, and we are sending these patients away to the level above.” However, in radiology and laboratory, it has become the case that one has to be able to serve the whole spectrum—everything in diagnostics and controls regarding these patients. Even if the patient had been referred to a higher level of care, there is little to say about what we are doing. In a way, we have to follow them the whole pathway.” (D2B)

“Because our radiologists and pathologists are dedicated to one field, whereas if you work as a radiologist or pathologist in a community hospital, you need to know all sorts of stuff, which doesn’t make it strange that one can disagree and assess things differently.” (A8)

#### 4. Discussion

We assume that specific features of patients, hospitals and diagnoses influence the contextual framework for achieving coordination of CPPs in hospitals. Since these features vary depending on diagnosis and hospital type, understanding the characteristics of these variations is of value for management of CPP coordination.

##### 4.1. Horizontal Coordination—Differences in Complexity and Predictability

In line with a project management approach [33] to context and coordination, we base our analytical approach on the assumption that higher complexity combined with more or less predictable variations make coordination through standardized CPP more difficult to implement [32]. The combination of complexity and unpredictability requires room for improvisation and flexibility not to reduce adherence to quality standards for the pathway process on neither single patient nor the institutional level. Across our four hospitals and three diagnoses, we identified four elements that affected complexity and uncertainty. They typically relate to different sources of uncertainty [31], characteristics of patients, process and organizational context.

First, there is an unpredictable variation in patient volume. According to the literature on standardizing processes, greater stability [3,18] and volume [19,21] support the conditions necessary to implement standardized pathways. In the current work, breast cancer has the highest volume of the studied diagnoses, as well as the most stable inflow of patients over time due to the national screening program, which recruits more than 50%

of total breast cancer patients. Colorectal cancer is also a cancer type with high patient volumes. However, there is higher variation in referrals to hospitals and in referred suspected cases of CRC that actually end up with a cancer. Ovarian cancer is a less common cancer with relatively lower variation in referrals over time.

The second contextual variation affecting coordination is control versus competition for core resources. This is influenced by hospital organization and whether the resources are sheltered from other priority tasks, especially emergency activities. This variation concerns the relative fluctuations of supply and demand, of relevant resources for the diagnostics and treatments needed in each pathway, the degree of urgency normally present for patients with each cancer diagnosis, and the organization of hospitals. This means how ownership of the units controlling limited resources is organized in relation to the units in need of them. Organizational dimensions decide whether resources related to a cancer pathway are sheltered or have to compete with other diagnoses and pathways. Breast cancer is diagnosed and treated at dedicated breast diagnostic centers at all four hospitals. The surgeons that perform cancer surgery are not involved in emergency activities. The specialized rectum cancer surgery teams and metastases surgery team at university hospital A are sheltered from acute gastrointestinal surgery activity. The specialized gynecological cancer departments at both university hospitals are sheltered from the general gynecological activity. In university hospital A, this department is located at a specialized cancer hospital. In contrast, colon cancer surgery at all four hospitals is integrated and organized with the other GI surgical activity, including a high degree of acute care activity. Medical urgency increases the coordination challenge of mismatch between demand and supply of resources for a cancer pathway. Ovarian cancers are more commonly diagnosed in more advanced stages than breast cancers and colorectal cancers and thus have a higher degree of medical urgency when it comes to receiving necessary resources in a timely manner. The medical urgency of ovarian cancer is also reflected in the lower expected relative survival rates. However, as we have illustrated, patients' experienced urgency may not parallel with medical urgency.

The third contextual feature affecting complexity and predictability is connected to the clinical presentation, the diagnostic workup, and the therapeutic procedures in each specific cancer diagnosis. The general complexity increases when regional/locally advanced (stage III) or metastatic disease (stage IV) is detected. Stage III and IV patients (not colon for stage III) are admitted to the university hospitals for further diagnostics if radical surgery is deemed possible. The frequency of locally advanced and metastatic cancers is higher in ovarian cancers than in the two others, and the majority of the patients are treated at the university hospital. The diagnostic work-up of colorectal and ovarian cancers includes more diagnostic and specialized imaging procedures before surgery, which adds to the complexity of these CPPs. All three cancers may have ambiguous symptoms. However, the majority of diagnostic processes for breast and colorectal cancer seem to be straightforward in most of the cases. The breast cancer pathway is the most standardized in accomplishing the primary diagnostic workup. However, this pathway is also more developed when it comes to introducing alternative treatments based on precision medicine, which then depend on a more precise and complex radiology or molecular pathology analysis.

The fourth contextual dimension influencing coordination capabilities is variation in comorbidity and frailty. The patient's total disease burden may increase complexity and the need for individualized treatment for patients. Comorbidity is related to age and colorectal cancer patients have a higher median age than the two other cancer types.

The fifth element originates from the organizational context of CPP. On one end, in breast cancer pathway the vast majority of patients are treated at their community hospital. While on the other hand there is the ovarian cancer where the majority of patients have pathways including two hospitals in the same way as for locally advanced/curable metastatic CRC.

To summarize, our findings show that the five groups of variables that influence horizontal coordination in CPPs are differently weighted in hospitals and diagnoses. Com-

paring type of hospitals, this seems to be the tendency: Streamlining might be easier in university hospitals due to higher patient volumes. However, these hospitals have more complicated organizational structures, a broader case mix and higher proportions of more advanced cancers, all of which increase complexity and thus influence the conditions for coordination. The challenges of coordinating CPPs in the university hospitals seem to decrease when cancer procedures are sheltered from other activities, especially emergency activity.

The main trajectories of differences between diagnoses and their consequences for challenges in accomplishing coordination and standardization are outlined in the Figure 2.

	<i>Groups of variables</i>	<b>Close to stream-lined Breast Cancer</b>	<b>The mixture Colorectal Cancer</b>	<b>Challenging contexts Ovarian Cancer</b>
<b>Uncertainty</b>	Patient volume - <i>Relative volume of patients</i> - <i>Relative stability in number of new patients</i>	Higher patient volume Fluctuating patient inflow	Higher patient volume Stable patient inflow	Lower patient volume Stable patient inflow
	Control versus competition for core resources - <i>Relative sheltered activity</i> - <i>Relative medical urgency</i>	Sheltered environment Lower medical urgency	Non-sheltered / sheltered environment Varying medical urgency	Non-sheltered / sheltered environment Higher medical urgency
<b>Complexity</b>	Clinical presentation, diagnostic workup and therapeutic procedures - <i>Relative frequency of advanced disease</i> - <i>Symptom characteristics</i> - <i>Relative complexity in diagnostic workup</i> - <i>Relative degree of cross-disciplinarity in treatment procedures</i>	Lower frequency of advanced disease Accessible and ambiguous symptoms Lower complexity in diagnostic workup Lower degree of cross-disciplinarity in treatment procedures	Lower frequency of advanced disease Diffuse and ambiguous symptoms Higher complexity in diagnostic workup Medium degree of cross-disciplinarity in treatment procedures	Higher frequency of advanced disease Diffuse and ambiguous symptoms Higher complexity in diagnostic workup Lower degree of cross-disciplinarity in treatment procedures
	Comorbidity and frailty - <i>Relative median patient age</i>	Lower median age	Higher median age	Medium median age
	Share of pathways covering two hospitals	Lower share of pathways covering two hospitals	Medium share of pathways covering two hospitals	Higher share of pathways covering two hospitals

**Figure 2.** Three diagnoses expressing two positions and one mixture to: what makes the difference? (The degree of unpredictability and complexity is expressed using green (lower) and red (more extensive) colors.).

In this figure the first two group of variables affect predictability of the CPPs and the three next groups of variables are influence the complexity related to CPP performance. From this, we derive that breast cancer CPP of the three will be most suitable for described and practiced closest to a standardized programed chain of events and procedures. We do not have any information about the prevalence of organized CPP in different cancer diagnoses. Nevertheless, in a review [5] of studies on integrated care planed implemented in cancer care breast cancer by far is the diagnosis most frequently selected as the subject of a study.

#### 4.2. The Dynamic of Processes—Does One Pattern Fit All Patients, Pathways and Hospitals

As outlined in the introduction, ICPs and CPPs emerged from an interpretation of pathways as linear sets of procedures that can be described using flowcharts [1,10,11,28]. Our findings do not disprove that elements of these programmed chains are present for all three pathways. The national documentation of rough verbal descriptions of standardized pathways, as well as the standardized flow chart descriptions developed and published in the quality system of university hospital A, are constructed to show the programmed chain of action and decisions. However, there is neither a technologically supported work or information flow, nor an organizational formal structure aligned with the prescribed programmed chain. The documented standardized CPPs therefore play a role as a kind of soft

governance infrastructure facilitating reconciliation of the involved actors' interpretations of the steps in the chain of actions. The CPP is not a blueprint that everyone is obliged to follow but a reference according to which the involved partners communicate and negotiate. Thus, it supports coordination along a chain of events that still needs active interventions to succeed. This way of understanding CPPs also dissolves the apparent contradiction between the claim, on one hand, that they reduce complexity and unpredictability and the claim, on the other hand, that they do not reduce these issues but rather make it possible to adapt to them. By establishing a common language, CPPs reduce the complexity of communication around a still complex process. This common reference of a language then facilitates cooperating behavior necessary to cope with a process of complexity and unpredictability. Since the hospitals' basic organization and management lines are not aligned with the process chain of CPP procedures, the deployment of the soft governance expressed by a standardized CPP must be performed by a management function linking the elements together through a stewardship [50].

In addition to affirming the presence of real programmed chains of action, our study shows that other types of coordinating dynamics are present. We connect them to the concepts of consultative hub and problem-solving web [41]. Some procedures, both diagnostic and treatment-related, are complicated and iterative with cross-disciplinary involvement. Examples of such cooperation include the examination of combined diffuse symptoms of patients with suspicion of one cancer diagnosis; the involvement of specialists in gastrointestinal surgery and internal medicine when discovering suspected cancer during a colonoscopy; the cooperation of breast surgeons and plastic surgeons during primary reconstructive breast surgery; and the joint efforts of gastro-surgeons with urologists, plastic surgeons or even orthopedics in cases of locally advanced rectum cancer. An interesting special case of consultative web is the work of gynecologic oncologists, who exemplify the unification of multi-disciplinarity in one highly specialized medical doctor (MD). They are skilled in both gynecological surgery and medical oncology; they take biopsies and also perform abdominal surgery. Thus, while they are masters of multiple trades attached to the fields covered by their hub, they also act as a consultative hub, drawing on other specialists.

What kind of specialist inhabits the core roles of the hub- and web-processes is not indifferent. Does she have a background providing her with a general cancer competence? Our findings indicate that this, largely, depends on who runs the technology used during examination or treatment. Radiologists play a dominant role in initiating the breast cancer CPP. They are in charge of the mammography and ultrasound technology and run the breast diagnostic centers. Consultants in gastrointestinal medicine are in charge of the colonoscopy technology and are therefore the key players in the initial phase of the CRC pathway. Gynecologists manage the admission of lots of the ovarian cancer CPPs, either as general gynecologists or specialist gynecologic oncologists. They either perform or organize both the examination and treatment procedures. Post-treatment, the patients are generally followed by the specialist responsible for the first treatment. Thus, a patient who receives surgery first has their follow-up managed by the surgical specialist, while a patient who receives neoadjuvant treatment first has their follow-up managed by an oncologist. We suggest, however, that the various specialists do not necessarily have the same in-depth and broad knowledge of the specific disease and the interplay of treatments and thus are unable to coordinate the medical process, the logistical process and the patients' need for comprehensive communication.

The MDT meetings, too, are examples of consultative hubs in practice, albeit to varying degrees. Morris et al. [12] argue that teaming processes are crucial to the successful outcome of a pathway program in gynecological cancer. Elements of consultative hubs are present not only in certain sequences of the pathways, but also as iterative processes during the pathway. This is in line with explanations by May et al. [54] and Shiell et al. [27] of how complex interventions in health care actually work. This finding also corresponds to the arguments made by Trosman et al. [1] in their study of coordinating complex task

interdependence in cancer care. As Slack et al. [32] states, high complexity challenges the ability to deploy traditional governance control in project-like tasks, and Plowman et al. [48] then argue that control, as a management mechanism, should be substituted by enabling. This is not least what we then expect to find in CPPs with existing solution hub elements.

The third type of coordinating dynamic we introduced was problem-solving webs. In line with other scholars studying healthcare [39,41], we found that connecting provided a crucial supplemental dynamic in the pathway. These networking processes consisted of both the relational work itself and the bargaining efforts this work entails. This dynamic is about connecting capacity to needs for resources, connecting information requirement to access to information, connecting professional knowledge to knowledge gaps and connecting what makes sense from one logic to another. These connecting activities are performed partly according to a system, partly based on routines and partly from artistic improvisation; they are all based on network processes. Network activities [39,41] can both connect and align context elements to needs in a programmed chain and may connect several elements with different coordination dynamics in the same pathway. An example of the latter is connecting steps in a linear sequence of events and procedures. This may as well connect logistics and outcome from different solution hubs along a pathway or even iterative elements of diagnostic and treatment procedures, effect examinations and cross-disciplinary counseling. The problem-solving webs is close to its pure form in the pathway coordinator office at the two community hospitals. The employees in these units have their major legitimacy and work related to connecting information and demanded resources to patient and to the physicians present at any time in the CPPs [25]. Handling variation in predictability combined with complexity challenge the ability practicing pre-planned processes [32] and require management characterized by brokering [50] related to information and access to resources and to building communication channels suitable for this performance.

Finally, in the discussion of different types of process dynamic, we return to Figure 2 delivering a summary of the different conditions for performing horizontal coordination when comparing the three diagnoses. From this picture representing different profiles of complexity and unpredictability we may derive the following: Though elements of all three process types may be present in all three diagnosis-based CPPs as illustrated in Figure 3, processes of solution hubs and connecting webs and the associated management requires are more prevalent in ovarian CPP and partly in CRC CPPs compared to breast cancer CPPs.

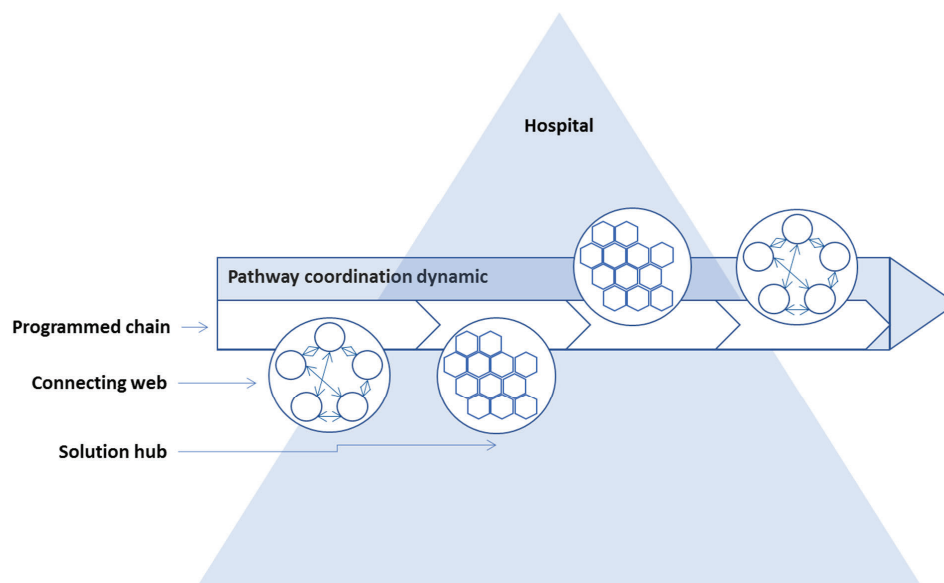


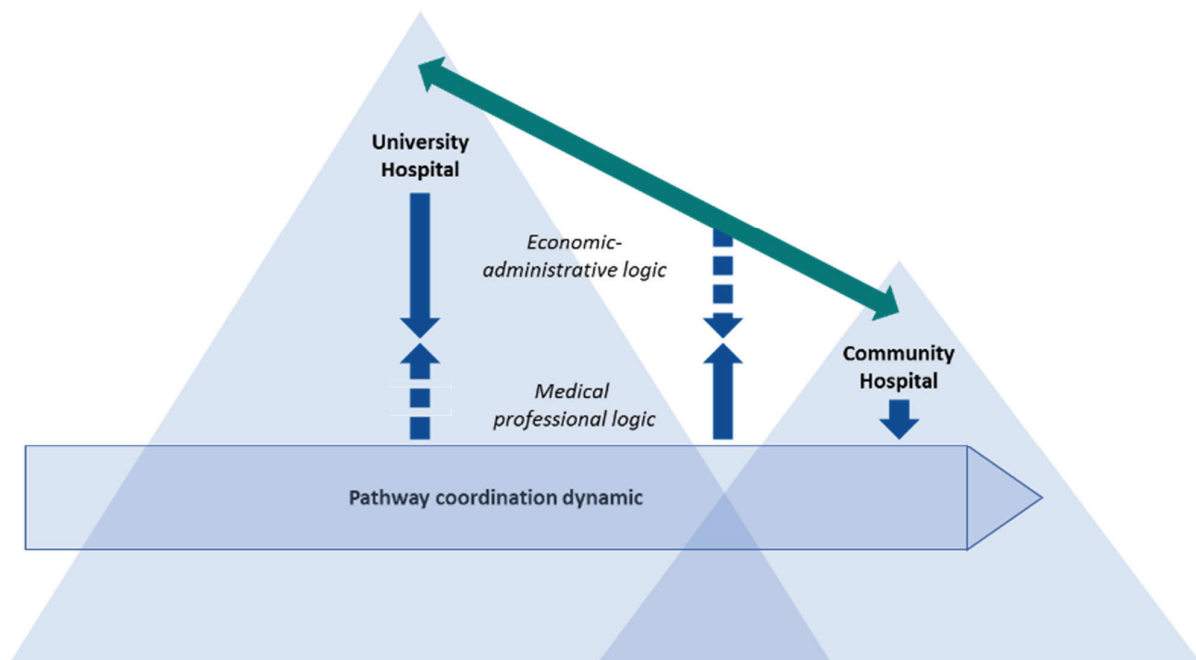
Figure 3. Combination of pathway dynamics in horizontal coordination processes of CPPs.



#### 4.3. Characteristics of Hierarchical Coordination in and between Hospitals

Those actors representing each step during a pathway may coordinate their activity by combining several well-known measures such as internalized competences, imposed rules, standards and guidelines and through mutual negotiations, adjustments and improvisation. However, these measures are not always enough to reach a solution, leading to the need for the involvement of higher hierarchical levels representing the economic–administrative logic. For pathway governance, a key question is whether there is a medical stewardship [61] representing the professional community and the medical logic that encompasses the entire CPP and can communicate in a balanced way to representatives of the economic–administrative logic. To some extent, we identified professionals with a comprehensive responsibility for the pathway of each cancer diagnosis, usually a senior physician. In university hospital A, there is a coordinating cancer center board as well as a pathway coordinating stewardship for each CCP that reports to the board and has a mandate to facilitate coordination and solve bottlenecks. However, the extensive lack or weakness of semi-formalized stewardship roles covering the CPP across borders of the formal organizational entities challenge the ability to create clear meeting points creating opportunities for mutually explorative and negotiating processes between the professional medical logic and the economic administrative logic.

A second level of coordination challenge exists between hospitals. In line with the general analyses of Axelsson and Axelsson [62], this is a prevalent phenomenon in pathways moving between community hospitals and university hospitals. Although there is a lack of actors with coordinating authority representing the comprehensive medical professional community speaking up on behalf of the pathway, there are many informal and semiformal networks between medical communities across hospitals [25]. However, in the current case, there is a lack of coordinating agents representing the economic–administrative systems of the cooperating hospitals. The top levels of the hierarchical management in each health region meet, but they lack the capacity to manage and support the needs of coordination activities on what we might call the medium level of the hierarchy. The coordinating interactions happening vertically through the hierarchical levels in and between hospitals are shown in Figure 4. The dotted lines illustrate a lack of functional vertical coordination. Thus, we illustrate limited integrating management between institutional logics on the borders between hospitals cooperating along the same CPP. To a greater extent this creates a challenge in the CPPs where relatively more of the patients' pathways cover two hospitals; thus, being more prevalent in ovarian cancer and parts of the CRC CPPs than for breast cancer CPPs.



**Figure 4.** Vertical coordination in processes in and between hospitals. (The green arrow expresses the institutionalized interaction between top management in the hospitals. The blue arrows indicate vertical interaction.).

## 5. Conclusions

In the current work, we have systematically described how contextual variables affect the premises of CPP coordination. We argue that both the diagnosis and the type of hospital make a difference. We have also identified different variables that create difference in coordinating premises. Using three analytical approaches allowed us to better understand the mechanisms contributing to variation in coordination practices in CPPs. From this, there are two lessons learned.

First, it is necessary to recognize that CPPs are characterized to varying degrees by a combination of contextual and procedural complexity and variation in predictability. This will influence the premises for executing the necessary horizontal coordination along the pathways for single patients and of the flow of patient groups within and between hospitals. There is a need to acknowledge that CPP coordination involves more than linear sequences of simple events. To varying degrees, it is also characterized by the dynamics of consultative hubs and problem-solving webs, which, fundamentally challenges the basic assumption that ICPs are standardized processes in an industrial sense. The balance and combination of dynamics from these three categories of processes varies across and within cancer care pathways. This variation should be mirrored in the way CPPs are documented, organized and led. Performing management has to adapt to these variations if CPP coordination is to be successful. One size does not fit all pathways, their constituents or types of hospital. CPPs should be organized and led according to an understanding of the specific diagnosis, type of hospital, and patients being treated. Thus, all hospitals need management that engages in controlling, enabling and brokering, in addition to having a general integrating role. To avoid the challenges that mixed management styles generate, hospitals may develop specialized and sheltered units. This has been done to some extent at university hospital A. However, for the many patients with pathways crossing the borders of the coordination typologies this could be an unsatisfying solution. In line with a conclusion of Cook et al. [41], we also anticipate that limited overall integration will impair the ability to promote a learning environment.

Second, the need for vertical coordination of processes in and between hospitals related to CPP implementation address the need for specific managing roles and skills.

Professional–medical and the economic–administrative institutional logics meet when topics from pathway coordination are raised to a higher organizational level. Collaboration and negotiation between the logics depends on the existence of connecting points and on the logics having representatives with legitimate authority being present at these points. If such representatives do not have a formal role, a steward or an ambassador should be appointed. We call for the acknowledgement of the need for such a stewardship role representing the professional–medical logic in these pathways in connection with the hierarchical line management in the hospitals. In parallel, we recommend that an integrating ambassador represent the management line where connecting networks of pathways cross hospital borders.

In line with Zuiderent-Jarek [37], these two arguments together contribute to an understanding that CCP coordination measures should be developed based on a situated platform. Within this frame-work we suggest future implementation and improvement of CCPs and ICPs to consider what is apt to be standardized and what should be kept flexible and be influenced by the type of characteristics of the specific diagnose, patient group and context. Secondly, the improvement of CCPs should pay more attention to development of suitable formal and semi-formal structures to connect the mixture of hubs, webs and chains present along the pathway in addition to promote cooperation between hierarchical levels and institutional borders. Finally, the improvement of CCPs and ICPs should focus on which type of professional cancer related background and management style is required to fill the key coordinating roles in different parts of the pathway. The necessity of accomplishing these improvements may be reinforced by the increasingly coherent process of providing more precise diagnostics, by the need for advanced information to identify targeted therapies, and by the more in depth follow-up to measure effects of treatment.

Finally, further research on ICPs in general, and on CPPs specifically, evaluating their effects and how they work should consider the interplay between structural contexts, the features of what is being coordinated through CPP, as well as outcomes. We argue that the direction of CPP research will be more valuable for developing the concept and improving CPP implementation than continuing to view CPPs as a single standard intervention and measuring outcomes before and after or comparing cases of implemented CPP with cases where a CPP was not put to use. Knowledge on complex interventions involving complex tasks in a complex system with complex sets of outcomes introduced in a variety of contexts of health care systems should be built using other types of research approaches and applying other types of research methods.

**Author Contributions:** Conceptualization of research project, P.M.M. and S.S.; empirical research design and data collection, P.M.M.; analysis of data material, P.M.M. and I.K.S.H.; writing original draft, P.M.M.; reviewing and editing the manuscript S.S., I.K.S.H., V.C.S. and P.M.M. All authors have read and agreed to the published version of the manuscript.

**Funding:** This project is a part of a project funded by The Research Project of Norway, project no 272945.

**Institutional Review Board Statement:** The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by The Norwegian Centre for Research Data (protocol code 57386, date 15 December 2017).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

**Acknowledgments:** The authors would like to thank Bjørn Erik Mørk and Trond Tjerbo for their useful comments connected to the performance of the project and the development of the manuscript. We would also like to thank Vegard Kolbjørnsrud for the valuable discussion on the analytical approach we utilized and Stein Kvaløy for discussions contributing to the interpretation of our findings. Finally, we thank Siri Christine Kvernmo Næss for the collaboration on performing some interviews at one of the hospitals.

**Conflicts of Interest:** The authors declare no conflict of interest.

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