

Inter-municipal cooperation in health care  
services: coping with the wickedness?



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# Inter-municipal cooperation in health care services: coping with the wickedness?

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## Summary

Inter-municipal cooperation (IMC) in health care services has increased in Norway in recent years. IMC is often implemented in the public sector to solve what are termed “wicked” problems. However, despite increasing interest in IMC in recent decades, there are gaps in the existing literature. In an attempt to address these gaps, the overall aim of this thesis is to identify critical issues involved in IMC in health care services, and thus to contribute to solving problems encountered in the municipalities. Further, it addresses wicked problems in relation to IMC. The study design is influenced by pragmatism.

Paper I aimed to identify the most important challenges to coordination and IMC in health care services from the viewpoint of experts in the municipalities. A Delphi study was undertaken including 19 experts from various municipalities in Norway. The findings indicated that coopetition, complex leadership, and resistance to change were the main challenges that could hinder IMC in health care services.

Paper II aimed to investigate the characteristics of communication and information sharing, and barriers to communication and information sharing for employees involved in IMC. A qualitative case study approach, including 20 municipal employees from inter-municipal services and their collaborating partners, was conducted. It was found that communication and information-sharing practices were complex and characterised by multiple actors and information types and a combination of actions. Issues relating to IT capability and usability, differences, privacy, confidentiality, and security, and awareness are all factors enabling barriers to communication and information sharing in inter-municipal health care services.

Paper III aimed to explore the critical issues for employees involved in inter-municipal health care services. A multiple qualitative cross-case study involving 17 inter-municipal employees and their collaborating partners was conducted. It was found that support, differences, and geographical distance were the most critical issues experienced by the employees. Further, it was found that employees in inter-municipal services that were organised into teams experienced fewer challenges than employees working as isolated individuals.

Secondary analysis was undertaken based on the findings from Papers I, II, and III. First, qualitative content analysis was undertaken. It was found that there were three critical issues in the initial planning phase of IMC, complex leadership,

coopetition, and resistance to change, and five critical issues in the implementation and operating phases of IMC; support, geographical distance, differences and diversity, complex information sharing, and awareness. Second, abductive reasoning was applied. The findings suggested that first, IMC becomes an integrated part of the problem it is designed to solve, and second, IMC is a means of coping with wicked problems.

This thesis provides insights for both policy and practice. It addresses how IMC can serve as a tool for addressing wicked problems in municipalities. Services should be organised in team structures, and the need for communication and information-sharing tools should both be addressed prior to the study and adapted as needs change. Further, it provides a conceptual model to guide managers and policy-makers in the planning phase of an inter-municipal service.

The thesis also identifies several topics for future research. The network structure of IMC as a means of addressing wicked problems should be investigated in greater depth, including the organisation of inter-municipal services into team structures, coopetition as an integrated element of IMC, and how and when IMC is most beneficial.

Antall interkommunale samarbeid i norske helse- og omsorgstjenester har økt de siste årene. Interkommunalt samarbeid er ofte en strategi for å imøtekomme det som gjerne omtales som «wicked problem» i offentlige helse- og omsorgstjenester. Til tross for et økt fokus på interkommunalt samarbeid de siste årene, er det mangel på forskningslitteratur som adresserer tematikken. For å imøtekomme disse manglene er målet med denne avhandlingen å identifisere viktige utfordringer for interkommunalt helsesamarbeid, og dermed kunne bidra til å løse problemer kommunene står overfor. Videre adresseres «wicked problems» i sammenheng med interkommunalt helsesamarbeid. Forskningen som presenteres i avhandlingen er inspirert av pragmatisme.

I artikkel I var målsettingen å identifisere de viktigste utfordringene for koordinering og interkommunalt samarbeid i norsk helsetjeneste. En Delphi-studie som inkluderte 19 eksperter fra ulike norske kommuner deltok. Funnene indikerte at samkamp (det vil si et samarbeid som samtidig inneholder elementer av konkurranse), komplekst lederskap og endringsmotstand var viktige utfordringer som kunne hindre interkommunalt helsesamarbeid.

I artikkel II var målsettingen å undersøke prosedyrer og barrierer for kommunikasjon og informasjonsdeling opplevd av ansatte i interkommunale helsetjenester. Det ble gjennomført en kvalitativ case studie som inkluderte 20 ansatte i interkommunale helsetjenester og samarbeidspartnere. Funnene viste at kommunikasjons og informasjonsdelingen var kompleks og karakterisert av mange ulike aktører og informasjonstyper. IT-kompetanse og brukervennlighet, ulikheter, personvern og sikkerhet samt bevissthet er faktorer som kan utgjøre barrierer for kommunikasjon og informasjonsdeling i interkommunale helsetjenester.

I artikkel III var målsettingen å utforske kritiske utfordringer for ansatte i interkommunale helse- og omsorgstjenester. Det ble gjennomført en multipl casestudie som inkluderte 17 ansatte i interkommunale helse- og omsorgstjenester og deres samarbeidspartnere. Støtte, ulikheter mellom kommunene og geografisk avstand ble opplevd som kritiske utfordringer av de ansatte. Det ble også identifisert at ansatte som var organisert i team opplevde færre utfordringer enn ansatte som jobbet alene i den interkommunale tjenesten.

Det ble videre gjennomført sekundæranalyser basert på funn fra artikkel I, II og III. Først ble en kvalitativ innholdsanalyse gjennomført. Funn fra innholdsanalysen indikerte at i planleggingsfasen for interkommunalt

helsesamarbeid er samkamp, komplekst lederskap og endringsmotstand kritiske utfordringer. I implementering og drift av interkommunale helsesamarbeid er støtte, geografisk avstand, ulikheter og mangfold i de involverte kommunene, kompleks informasjonsdeling og bevissthet mellom samarbeidende aktører kritiske utfordringer. Videre ble abduktiv resonnering benyttet. I tråd med teori om «wicked problems», indikerer funn at interkommunalt helsesamarbeid blir en del av problemet som skal løses samtidig som det også kan være en måte å håndtere «wicked problems» på.

Denne avhandlingen gir innsikt som er relevant både for policy og praksis. Den gir innsikt i hvordan interkommunalt samarbeid kan bidra som et verktøy for å adressere «wicked problems». Funn indikerer at interkommunalt samarbeid i team-struktur gir en fleksibilitet og omstillingsevne som er nyttig når man skal imøtekomme «wicked problems». Videre er det utarbeidet en konseptuell modell som kan gi innsikter som er viktige for beslutningstakere og ansatte i interkommunale tjenester, både i planleggingsfasen og implementering og driftsfasen for interkommunale helsetjenester. Det identifiseres også områder for videre forskning; eksempelvis hvordan interkommunalt samarbeid kan fungere som en måte å håndtere «wicked problems» på, organisering av interkommunale samarbeid i team-struktur, samkamp som en integrert del av interkommunalt samarbeid og hvordan og når interkommunalt samarbeid er fordelaktig.



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Holen-Rabbersvik, E., Eikebrokk, T. R., Fensli, R. W., Thygesen, E., & Slettebø, Å. (2013). Important challenges for coordination and inter-municipal cooperation in health care services: a Delphi study. *BMC health services research*, *13*(1), 451.

### Paper II

Holen-Rabbersvik, E., Thygesen, E., Eikebrokk, T. R., Fensli, R. W., & Slettebø, Å. (2018). Barriers to exchanging healthcare information in inter-municipal healthcare services: a qualitative case study. *BMC medical informatics and decision making*, *18*(1), 92.

### Paper III

Holen-Rabbersvik, E., Eikebrokk, T. R., Fensli, R. W., Thygesen, E., & Slettebø, Å. (2018). Critical issues for employees in inter-municipal health care services: a multiple case study. *BMC health services research*, *18*(1), 805.



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# Part I



## **1.0 Introduction**

Inter-municipal cooperation (IMC) in health care services is a widespread phenomenon in Western countries (Rudie Hulst & Andre van Montfort, 2007). Having worked as a nurse for several years, I have considerable experience of cooperation both within and across organisational boundaries. Moreover, I have experienced the impact cooperation can have on patients, especially the critical and potentially fatal consequences of inadequate cooperation. This realisation was the starting point for my interest in IMC in health care services.

During the work on my thesis, I commenced work as a manager in several inter-municipal initiatives in health care services, which provided me with personal and embedded knowledge on the topic. In particular, I developed an interest in the complex problems we are trying to solve in municipal health care services. Contextual factors such as demographics, technological developments, and political guidelines are continually changing, necessitating continuous development of services. However, it is not always clear what problems we are trying to solve. There are several stakeholders, who often have different goals, and as we try to solve one problem, new and unforeseen problems may arise. These complex problems are called “wicked problems”, and cooperation has been suggested as one possible solution. Therefore, in this thesis, I focus on IMC through the lens of wicked problems; does IMC add further complexity to wicked problems, or can it form part of the solution?

### ***1.1 Structure of the thesis***

This thesis consists of two parts. Part I provides an overview of the research process and the overall aim of the thesis, while Part II presents the three papers on which the thesis is based.

#### **Part I**

Section 1 provides an introduction to the thesis, including the background and aims. Section 2 presents the theory of wicked problems. Section 3 introduces the overall philosophical paradigm for the thesis and provides insight into the various research methods used in the three papers. Finally, it presents the methodological approach used in this thesis. Section 4 presents the findings from the three papers,

as well as the overall findings of this thesis. Section 5 presents a discussion of the findings, including ethical considerations, as well as implications for both policy and practice. Section 6 presents the conclusion and suggestions for future research.

## Part II

Part II consists of Papers I, II, and III, which have all been published in international journals.

Paper I examines the important challenges facing coordination and IMC in health care services, and was based on a Delphi study including 19 experts on coordination and IMC in municipal health care services.

Papers II and III were based on data collected during the eHealth-extended Care Coordination project funded by the Agder Regional Research Fund. The research project focused on collaboration and information-sharing practices in inter-municipal health care services.

Paper II examines barriers to communication and information-sharing practices in inter-municipal health care services and includes 20 participants who were either employed by or collaborated with employees in inter-municipal services.

Paper III focuses on the critical issues faced by employees in inter-municipal health care services and includes 17 participants who were either employed by or collaborated with employees in inter-municipal services.

Finally, Appendices A–P are presented.

### ***1.2 Terminology***

This thesis sheds new light on IMC in health care services. The term “inter-municipal” refers to something that happens across municipal borders, as opposed to “intra-municipal”, which is something that happens within municipal borders. The term “cooperation” is used to describe interactions among municipalities. In the literature, the terms “collaboration”, “coordination”, and “cooperation” are used interchangeably and inconsistently (McNamara, 2012; Omicini & Ossowski, 2004), and describe a horizontal relationship (Keast, Brown & Mandell, 2007). In addition, the term “integration” has been used interchangeably with the term “coordination” in relation to “integrated care” (Rosen & Ham, 2008). Elements that are considered crucial in distinguishing between the terms “cooperation”, “coordination” and “collaboration” are the design of the connection, degree of

formality, organisational autonomy, key personnel, information sharing, decision-making, resolution of turf issues, allocation of resources, system integration and trust (McNamara, 2012). A simple way of comparing the three terms is to consider them on a scale based on the degree of connectedness and intensity. Cooperation, which involves limited connection and a low level of intensity, is at one end, coordination, which features a medium level of connection and intensity, is in the middle, and collaboration, which features a high level of connection and intensity, is at the other end (Keast et al., 2007).

The term “cooperation” has been widely used in the context of IMC, both in practice and in academic settings. Hence, it is used in this thesis, other than in relation to cases in which specific services are addressed. However, as the findings of this thesis show, interactions can include elements of cooperation, coordination, and collaboration.

In this thesis, I rely on The Council of Europe’s definition of IMC: “...when two or more municipalities agree to work together on any of the tasks assigned to them in order to gain mutual benefits and to enhance the effective provision of services to citizens” (Council of Europe, 2019).

### ***1.3 Background***

In recent years, different forms of interorganisational cooperation have been implemented in the public sector. Barretta and Busco note that “The development of new cooperation agreements and innovative forms of organising within the public sector have been portrayed as possible ways of increasing performance through more efficient use of resources, greater competitiveness, and improved customer service” (Barretta & Busco, 2011, p. 213).

In recent decades, IMC in Norway has attracted increasing public interest. The term “IMC” was mentioned 500 times in the Norwegian media in 2003 and more than 3500 times in 2013 (Jacobsen, 2014). This increased attention has been viewed as a result of political changes. Norwegian municipalities are characterised by fragmented and diverse structures, and reform in recent years has placed additional pressure on them (Tjerbo & Zeiner, 2014; Zeiner & Tjerbo, 2015). In addition, the population density in Norway is 16.5 people per km<sup>2</sup>, which is low compared with the average population density in Europe of 116 people per km<sup>2</sup> (Ministry of Local Government and Modernisation, 2014). More than half of Norway’s municipalities have less than 5000 inhabitants and 20% of the

population live in scattered settlements (Statistics Norway, 2019). Some central politicians claim that Norwegian municipalities are too small to manage their responsibilities, and larger municipalities are better equipped to do so, while others suggest that IMC is an alternative to amalgamation, enabling the municipalities to make use of scale advantages while retaining their identity and the benefits of being small and flexible (Jacobsen, 2014).

IMC has a long tradition in Norway. As far back as the 1800s, we can find examples of cooperation in relation to roads, water supply, and the poor relief system. However, municipal responsibilities in the 1800s are not comparable with those of today, and thus there is little value in making comparisons (Jacobsen, 2014). In the early 1900s, there are examples of formal IMC, for example, in relation to electricity supply and outdoor recreation councils (Jacobsen, 2014). In 1921, the new jurisdiction for municipalities contained a clause allowing two or more municipalities to create common steering groups for municipal tasks, reflecting the already significant amount of IMC that was occurring (NOU 1995: 17, 1995). Today, all Norwegian municipalities, both large and small, engage in several forms of IMC (Jacobsen, 2014). In relation to municipal health care services, IMC has become an important strategy to meet the increasing challenges related to costs and resources. The coordination reform that was implemented in 2012 (The Norwegian Directorate of Health, 2009) implied greater responsibilities for the municipalities, and the various services were encouraged to organise IMC if necessary. This coordination reform led to an increase in IMC in health care services (Zeiner & Tjerbo, 2015).

IMC is widespread in Western European countries (Rudie Hulst & Andre van Montfort, 2007), and takes place through local governments, which vary significantly both within and across country borders in terms of tasks, autonomy, population, character, and scope. However, there are some commonalities because local communities in all Western European countries subscribe to the principle of self-government (Rudie Hulst & Andre van Montfort, 2007). All local governments in Western Europe include elected representatives, which is a prerequisite for democracy, and the municipalities are central actors in the delivery of public services (Goldsmith, 1992).

Despite the diversity that is evident in IMC, four basic types of IMC have been described: quasi-regional governments, planning forums, service-delivery organisations, and service-delivery agreements (Hulst & van Montfort, 2012). All of these include cooperation with other municipalities, other public authorities, and



private institutions. Quasi-regional governments have formal decision-making power and financial resources, and are a standing organisation governed by cooperating municipalities. Planning forums are involved in planning and coordinating various policies and activities, and consist of a loose network of municipalities and other public or private actors. Service-delivery organisations are widespread, yet diverse. They involve standing organisations with decision-making power and are involved in the delivery of public services. Service-delivery agreements are developed between coordinating partners without the presence of a joint organisation (Hulst & van Montfort, 2012).

#### ***1.4 Research related to IMC in health care services***

Collaboration is inherently complex, and it is challenging addressing this complexity in an attempt to model cooperation (Kaats & Opheij, 2014). The conceptualisation of collaboration and the factors influencing collaboration are diverse (D'Amour, Ferrada-Videla, San Martin Rodriguez & Beaulieu, 2005). The extant literature on collaboration and interorganisational coordination is based on various scientific disciplines and perspectives, including collaborative networks (Baker, Kan & Teo, 2011; Camarinha-Matos, Afsarmanesh, Galeano & Molina, 2009; Romero & Molina, 2011), network governance (Jones, Hesterly & Borgatti, 1997; Provan & Kenis, 2008), public management networks (Agranoff, 2014; McGuire & Agranoff, 2011), shared service centres and shared service networks (Becker, Niehaves & Krause, 2009; Janssen, Niehaves & Krause, 2010), and e-governance (Jaeger et al., 2007; Tat-Kei Ho, 2002).

Research focusing on relationships among organisations has a long tradition. Early empirical studies on interorganisational relationships focused on relationships between organisations involved in the delivery of public services, such as those between different social services offices and those between social services offices and volunteer organisations (see, for example, Levine and White (1961) and Litwak and Hylton (1962)). Levine and White (1961) developed a conceptual framework identifying four dimensions related to exchanges among organisations involved in health services, including the parties to the exchange, the kinds and quantities of services exchanged, the agreement underlying the exchange, and the direction of the exchange. This served as an initial framework for understanding health-agency interactions and developing models for studying interorganisational relationships.

In recent years, a vast amount of research on IMC in Norway has been linked to the term “governance” (Jacobsen, 2014). There is no widely accepted definition of governance, but a strong emphasis on the process of governing, and the limits of governmental power, rather than the structure of government, are common features in the application of the term (Klijn, 2008). The terms “governance” and “governance networks” are generally found to deal with similar issues (Klijn, 2008), and research on governance networks has been increasing since the mid-1990s (see, for example, (Hajer, Hajer, Wagenaar, Goodin & Barry, 2003; Peters & Pierre, 1998; Pierre, 2000; Rhodes, 1996; Torfing & Sørensen, 2014)). Empirical studies have identified three key features of governance networks: complex decision-making processes, partnerships and new forms of alliances between public and private actors, and interorganisational networks for service delivery (Klijn, 2008, pp. 111-112). These elements are not mutually exclusive, although the latter is of particular interest in relation to the IMC that is the focus of this thesis, wherein service delivery is a central endeavour. The literature in this area focuses on how new forms of interorganisational cooperation can be used to improve service delivery (Klijn, 2008), and IMC is one example of this (Haveri, Nyholm, Røiseland & Vabo, 2009). The complexity of network governance in the public sector is emphasised, with “continuous and committed management or a process manager taking part in the day-to-day activities” (Haveri et al., 2009, p. 552) seen as important in promoting positive interactions among the participants. Management of interorganisational cooperation in the public sector is an important issue, because the characteristics of cooperation in the public sector differ from those in the private sector (Barretta & Busco, 2011). There are found to be three important issues in relation to the management of interorganisational cooperation in the public sector. First, many cooperative efforts are established by government mandate, and little is known about the challenges and contingent factors related to situations where cooperation is enforced (Barretta & Busco, 2011). Second, the structure and mechanisms that apply to governing networks are unclear. How best to monitor and manage interorganisational cooperation so that the desired aims are achieved is unclear. Third, there are challenges in the development of common goals, trust, and mutual understanding among partners who were previously either unknown to each other or competitors (Barretta, 2008; Barretta & Busco, 2011). Further, the lack of transparency and the potential for a democratic deficit in relation to collaborations and governance networks are emphasised, as they can be managed by experts and officials, rather

than by elected politicians (Haveri et al., 2009). Conversely, it is claimed that governance networks represent new ways of connecting stakeholders and citizens with policy-making, and hence adapting services to meet the needs of stakeholders (Hajer et al., 2003; Klijn & Skelcher, 2007).

Research on IMC has primarily been undertaken in relation to the general phenomenon of IMC (Andersen, 2011; Hulst & van Montfort, 2012). Incentives for IMC, its causes, spread, effect, and economics have also been studied (Airaksinen & Haveri, 2003; Bel & Warner, 2015; Blaeschke, 2014; Sorrentino, Spano & Bellò, 2011; Sørensen, 2007; West, 2007). The main driving forces behind IMC have been identified as fiscal stress, population growth, and size heterogeneity, implying that neighbouring municipalities of different sizes are most likely to engage in IMC (Blaeschke, 2014). However, in the Norwegian context, the findings indicate the opposite; that small municipalities surrounded by larger municipalities participate in IMC less than municipalities surrounded by other municipalities of a similar size (Arntsen, Torjesen & Karlsen, 2018).

Specific public services such as water and wastewater management have been addressed in relation to IMC. (Dijkgraaf & Gradus, 2007; Hophmayer-Tokich & Kliot, 2008; Montero, Castellón, Rivera, Ruvalcaba & Llamas, 2006; Silvestre, Marques & Gomes, 2018). A few studies have also focused on the specific area of health and health promotion, for example, Andersen, El Ansari, Rasmussen and Stock (2010) and Arntsen, Torjesen and Karlsen (2018), who addressed the process, difficulties and experiences of IMC and factors affecting the level of IMC in health services, respectively. Although studies on IMC are scarce, there is evidence that in the field of water and wastewater management, IMC can deliver increased efficiency and cost savings (Silvestre et al., 2018). In the context of health, the clarity of the collaborative effort, the structural circumstances, contextual factors and the bearing of individual efforts in the relationship are factors described as critical for IMC (Andersen et al., 2010). Further, population size and fiscal stress are found to be important drivers for IMC in health services (Arntsen et al., 2018). There have also been some comparative international studies on IMC. In one such study, Hulst, van Montfort, Haveri, Airaksinen, and Kelly (2009) found that the scope of IMC was impacted by national legislation and incentives, the composition of the arrangements was impacted by the formal state structure, and pressure from the central government to improve efficiency induced inter-municipal initiatives (Hulst et al., 2009; Kelly, 2007).

In the field of cooperation, coordination, and collaboration in the public health sector, numerous studies have been conducted in relation to vertical collaboration between primary and secondary care (Christiansen, Fagerström & Nilsson, 2017; Lasker, 1998; Melby, Brattheim & Hellesø, 2015; Poland et al., 2005; Van Eyk & Baum, 2002), and with a focus on the need for communication and information sharing between care levels (Christiansen et al., 2017; Hellesø, Melby, Brattheim & Toussaint, 2016). It has been found that nurses are generally unaware of the ability of information and communications technology (ICT) systems to improve coordination during patient discharges (Christiansen et al., 2017). Although digitalisation has improved patient transitions in Norway during the last decade, there are still challenges that must be addressed to ensure accurate information sharing (Hellesø et al., 2016), especially regarding organisational routines and professional culture (Wibe, Ekstedt & Hellesø, 2015).

In addition to focusing on information sharing and communication, previous studies have also shed light on our understanding of interdisciplinary collaboration (Barr, Vania, Randall & Mulvale, 2017; D'Amour et al., 2005; Fewster-Thuente & Velsor-Friedrich, 2008; Rice, 2000; Zwarenstein, Goldman & Reeves, 2009). D'Amour, Ferrada-Videla, San Martin Rodriguez, and Beaulieu (2005) conducted a literature review of interprofessional collaboration in health care and found significant diversity in terms of how collaboration is conceptualised by various authors (D'Amour et al., 2005).

Integrated care is another field that is receiving increasing attention as a result of current efforts in relation to health care reforms (Strandberg-Larsen & Krasnik, 2009). There is no widely accepted definition of integrated care (Martínez-González, Berchtold, Ullman, Busato & Egger, 2014), but it is considered to be “a promising solution to the problem of fragmentation” (Rosen & Ham, 2008, p. 2). One study of partnerships in an integrated primary-care setting concluded that monitoring the collaboration process was important for achieving the full benefits of collaboration, and thus future research should include an examination of the perspectives of all actors (Valentijn et al., 2015).

The lack of consensus regarding paradigmatic beliefs in relation to research on collaboration has been labelled an “academic gap”, and has led to non-comparable research (Bell, Den Ouden & Ziggers, 2006). Studies on interorganisational collaboration are often discipline- or journal-specific, which makes it difficult to identify the complexity of the field (Gazley, 2017; Gazley & Guo, 2015). It has been noted that within the field of interorganisational

collaboration, researchers from different disciplines are not taking each other's work into account (Gazley, 2017).

Very few studies have focused on employees in interorganisational settings, and in particular there is a lack of studies focusing on employees involved in IMC and information sharing and communication practices in this context. The complexity involved in managing inter-municipal services means that a focus on employees is important. For example, it has been found that there is a need to include interorganisational relationships when studying employment relationships, and to consider employment issues in any analysis of interorganisational contracting (Rubery, Cooke, Earnshaw & Marchington, 2003).

This summary of previous research on interorganisational cooperation and collaboration shows that despite an extensive focus on this field in the context of health care services, as well as interorganisational coordination and IMC, there are four lessons to be learned regarding research on inter-municipal health care services:

- There is a scarcity of studies focusing exclusively on IMC in health care services.
- There is a lack of studies focusing on information-sharing and communication practices in IMC.
- There is a lack of studies focusing on employees in inter-municipal settings.
- There is a need to include multiple scientific disciplines to properly address the complexity of this field.

### ***1.5 Aims and objectives***

The studies included in this thesis were part of the eHealth-extended Care Coordination project. The project focused on communication in and coordination of health care services across municipal borders, with the aim of developing a collaborative information-sharing system.

#### **1.5.1 Overall aim**

The overall aim of this thesis is to identify critical issues involved in IMC in health care services, and thus to contribute to solving problems encountered in the municipalities. Further, it addresses wicked problems in relation to IMC. To

address the complexity of this field, the perspectives of various stakeholders, as well as various methods and theoretical lenses, have been used. This approach has been used to obtain detailed knowledge of the theoretical and practical implications of IMC in health care services.

### **1.5.2 Research questions in this thesis**

To achieve the overall research aim, the findings from Papers I, II, and III provided the basis for answering the following research questions:

RQ1: What are the critical issues facing IMC in health care services, and how are these critical issues related?

RQ2: How is IMC related to, and able to cope with, wicked problems?

The following aims and research questions were specified in the three included papers, and contribute to achieving the overall aim of the thesis.

#### **Paper I**

Aim: To identify the most important challenges facing coordination and IMC in health care services from the viewpoint of experts in the municipalities.

The aim was operationalised in questionnaires (see Section 3.2.4).

#### **Paper II**

Aim: To investigate the characteristics of communication and information-sharing practices, and the factors that contribute to barriers for communication when employees involved in IMC attempt to communicate and share information.

Research questions:

RQ1: What characterises communication and information-sharing practices in inter-municipal health care services?

RQ2: What factors can contribute to barriers for communication and information sharing in newly established inter-municipal health care services?

#### **Paper III**

Aim: To explore critical issues for employees in inter-municipal health care services.

Research questions:

RQ1: What critical issues are experienced by employees working in inter-municipal health care services?

RQ2: How and why do inter-municipal employees experience the identified critical issues?

RQ3: How do identified critical issues affect employees and working practices in inter-municipal health care services?





## 2.0 Theory

The term “wicked problems” refers to problems that are difficult to identify, involve multiple stakeholders with different views, consist of complex interdependencies, and whose solution often results in the emergence of new problems. The term was first used in a study by Rittel and Webber (1973) on complex public problems titled “Dilemmas in a General Theory of Planning”. The term “wicked” was contrasted with the term “tame”, which refers to problems that are stable and can be solved with the necessary information, for example, problems within the field of mathematics. Collaboration has been proposed as a possible means of solving wicked problems (Roberts, 2000). In the following section, I elaborate on the theory of wicked problems and how they are relevant to IMC.

### 2.1 *Wicked problems*

Rittel and Webber (1973, pp. 161–167) identified ten characteristics of wicked problems.

“1. There is no definitive formulation of a wicked problem”

Rittel and Weber argue that the information needed to solve the problem is dependent on how one is planning to solve the problem. Thus, the processes of both formulating the problem and conceiving a solution are identical. This is in contrast to tame problems, where a formulation containing all relevant information necessary to solve the problem can be provided.

“2. Wicked problems have no stopping rule”

In contrast to other problems in which certain criteria can tell the problem-solver that the solution has been found, wicked problems have no clear end point. The challenge of solving the problem is intertwined with the process of understanding its nature. The context is continually changing, and hence there is no logical predefined end to the problem-solving process.

“3. Solutions to wicked problems are not true-or-false, but good-or-bad”

Owing to the existence of numerous stakeholders, judgements in relation to possible solutions will vary based on personal interests, special value-sets, or

ideological predilections. Hence, no one has the power to judge whether the proposed solution is right or wrong, and thus proposed solutions are either good or bad, or better or worse.

“4. There is no immediate and no ultimate test of a solution to a wicked problem”  
Solutions to wicked problems will have consequences that cannot be foreseen, and will create waves of consequences over an extended period of time. It is not possible to identify all the potential consequences for all stakeholders, and thus it is not possible to test whether a proposed solution is the best solution for all stakeholders.

“5. Every solution to a wicked problem is a ‘one-shot operation’; because there is no opportunity to learn by trial and error, every attempt counts significantly”  
Every attempt to solve a wicked problem affects the lives of those involved, and if a decision is reversed because of undesired consequences, a new set of wicked problems emerges.

“6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan”  
There are no criteria that can ensure that all potential solutions to the problem have been identified and considered. The plan to address the problem “relies on realistic judgement, the capability to appraise ‘exotic’ ideas and on the amount of trust and credibility between planner and clientele that will lead to the conclusion” (Rittel & Webber, 1973, p. 164).

“7. Every wicked problem is essentially unique”  
It is important to consider the context when dealing with wicked problems. Despite apparent similarities with previous contexts, the complex world of social planning means that it is likely that each new problem that emerges is unique.

“8. Every wicked problem can be considered to be a symptom of another problem”  
The problem might be defined in different ways, depending on who you ask. The higher organisational level involved in problem formulation, the broader the problem definition might be, but it might also become harder to do something about it. In relation to wicked problems, there is no “right” level of problem

definition. However, one should be at a high enough level to not cure the symptoms, but rather address the problem area. Members of an organisation often tend to see problems below their own level, for example, a manager is likely to demand better hardware when he/she is asked about problems facing the organisation.

“9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem’s resolution”

Every stakeholder is likely to have different views on why a proposed solution is either right or wrong. Due to the uniqueness of the problem, and the lack of opportunities to perform experiments outside the context, every stakeholder has their own explanation for resolving the wicked problem.

“10. The social planner has no right to be wrong (i.e., planners are liable for the consequences of the actions they generate)”

When dealing with wicked problems, planners are liable for the consequences of their actions. Planners work within a system characterised by several causalities, and their actions are assessed based on the views of the various stakeholders.

When addressing wicked problems from a public management perspective, three types of uncertainties generated by these problems have been identified; substantive, strategic, and institutional (Koppenjan & Klijn, 2004; Van Bueren, Klijn & Koppenjan, 2003). Substantive uncertainty refers to a lack of knowledge related to the problem area, involving both gaps in the literature and conflicting understanding of the problem. Strategic uncertainty refers to the existence of several stakeholders related to the problem, all with different views and preferences. Institutional uncertainties refer to the variety of organisations, networks, and regulatory regimes in which the relevant actors are involved. This is likely to render decision-making processes in relation to wicked problems messy and uncoordinated (Koppenjan & Klijn, 2004; Van Bueren et al., 2003).

## ***2.2 Wicked problems in a health care setting and IMC as a solution***

Several health-related issues, such as mental health, health inequities, health promotion, rural health services, demographic changes and health reforms are

placed under the umbrella of “wicked problems” (Hannigan & Coffey, 2011; Humphreys & Wakerman, 2008; Petticrew et al., 2009; Signal et al., 2012; Strehlenert, 2017). The phenomenon of “double societal aging” is a part of the demographic changes and refers to the combination of the increasing proportion and life expectancy of older people. This is placing increasing demands on the health- and social-care systems (Auping, Pruyt & Kwakkel, 2015). The problem of societal aging is claimed to be a wicked problem because of, for example, the divergent views of stakeholders, increased multimorbidity, and hence a need for coordinated care from various health care providers, and uncertainties regarding future development and feedback effects (Auping et al., 2015; Strehlenert, 2017). One example of a feedback effect related to aging is the increase in life expectancy as a result of improved health care, which leads to higher health care costs (Auping et al., 2015).

The traditional hierarchical organisation of public sector agencies has been found to be inadequate for addressing wicked problems (Head & Alford, 2015). Instead, a collaborative approach involving the various stakeholders, including end users, has been identified as more appropriate (Head & Alford, 2015), and networks are argued to be the most suitable means of addressing wicked problems in the public sector (Ferlie, Fitzgerald, McGivern, Dopson & Bennett, 2013). IMC has been implemented several times in an attempt to solve the problems experienced by municipalities. However, the specific context, including the demography, geography, and culture of the municipalities involved can render proposed solutions unworkable. IMC is highly dependent on the context, and thus every implementation has consequences for both the service delivery and the people involved, unlike experiments done in the laboratory (Rittel & Webber, 1973).

When dealing with the topic of IMC in health services, it can be hard to identify the problem area, and the question “What is the problem?” regarding the issues IMC in health services is set up to address can be difficult to answer. IMC can be a response to low population density. Due to demographic changes, the municipalities are expected to take care of more specialised tasks, but as the population base in many municipalities is too low to allow the employment of specialised healthcare personnel in full-time positions, the answer is often IMC. However, is the underlying problem related to demographic changes, scattered settlements, or simply too many municipalities, or is the problem the fact that municipalities are required to assume responsibility for more and more specialised

services that have traditionally been provided through secondary care? Maybe IMC is a problem itself, as has been suggested by the present government, which is strongly promoting municipal mergers, or might it be that the problem is caused by the continual change in politicians, each of whom proposes different solutions to the same problems? The initial problem, which resulted in the establishment of IMC, is hard to pinpoint, and therein lies the nature of a wicked problem. As Rittel and Weber (1973, p. 161) state, “The formulation of a wicked problem *is* the problem!” Strehlenert (2017) argues that because of the interdependence between the definition of the problem and the potential solution, policy-makers should involve stakeholders in addressing both of these aspects simultaneously.

The wicked problems in health care services that IMC is attempting to address involve numerous stakeholders with different perspectives, interests, and backgrounds, and their judgement regarding what is true or false will be based on personal judgement and their place in the organisation. Although the problem definition is unclear, this thesis seeks to elaborate on this unwieldy area of interest.



### 3.0 Methods

In this section, I describe the research paradigm, as well as the methods used in this thesis. Table 1 provides an overview of the methodological approaches, including a summary of each paper and the overall aim of this thesis. The contents of Table 1 are elaborated on in Sections 3.2–3.4.

**Table 1 Methodological approaches**

<b>Source</b>	<b>Paper I</b>	<b>Paper II</b>	<b>Paper III</b>	<b>Thesis</b>
<b>Aim</b>	To identify the most important challenges for coordination and IMC in the health care services, from the viewpoint of experts in the municipalities	To investigate both characteristics of communication and information sharing, and factors that contribute to barriers for communication when employees in inter-municipal cooperation communicate and share information	To explore critical issues for employees in inter-municipal health care services	To identify critical issues in IMC in health care services and address wicked problems in relation to IMC
<b>Design</b>	Delphi study of consensus	Qualitative case study	Qualitative case study	Secondary analysis
<b>Participants</b>	19 municipal employees	20 employees in inter-municipal health care services and collaborative partners	17 employees in inter-municipal health care services and collaborative partners	39 municipal employees (participants from Paper I, II and III)
<b>Data collection</b>	Qualitative and quantitative digital questionnaires	Interviews, observational studies and workshop	Interviews, observational studies, workshop and documents	Data from Paper I, II and III
<b>Analysis</b>	Consensus rounds based on initially collected qualitative data	Qualitative content analysis	Qualitative content analysis including cross-case analysis	- Inductive content analysis - Deductive content analysis - Abductive reasoning

In this section, I introduce the research paradigm used in this thesis and explain how it influenced the research process. Next, an overview of the methodology regarding the Delphi study in Paper I is presented. Then, the methodology regarding the two qualitative case studies presented in Papers II and III is presented. Finally, the methodology used in relation to the overall aim of this thesis is presented.

### ***3.1 Research paradigm***

A paradigm can be regarded as an “accepted model or pattern” (Kuhn, 2012, p. 23), and as a philosophical position that relates to the nature of social phenomena and social structures. It is regarded as representing a “...*worldview* that defines, for its holder, the nature of the world...” (Guba & Lincoln, 1994, p. 107), and is based on assumptions regarding ontology, epistemology, and methodology (Guba & Lincoln, 1994). Hence, it directs research efforts (Kuhn, 2012).

Two major paradigms are prominent in scientific research: the positivist/post-positivist paradigm and the constructivist/interpretivist paradigm. Post-positivist and positivist researchers assume that theories can be described or tested “through observation and measurement in order to predict and control the forces that surround us” (O’leary, 2004, p. 5) and constitute an objective and measurable reality. Positivists and post-positivists are generally aligned with quantitative data-collection methods and analysis (Mackenzie & Knipe, 2006). A central endeavour in the constructivist/interpretivist paradigm deals with understanding “the subjective world of human experience” (Cohen, Manion & Morrison, 2002, p. 22). The participants’ views of the situation being studied are relied upon (Creswell, 2009), and the researchers’ background and experience impact the study (Mackenzie & Knipe, 2006). More nuanced positions exist, such as post-structural, feminist, and critical positions. However, the post-positivists/positivists with their objective views of society and the constructivists/interpretivists with their subjective views of society are the two dominant schools in the social sciences (Burrell, 2017; Teddlie & Tashakkori, 2009).

Another paradigm is pragmatism, which is not related to the dichotomy of positivism or interpretivism, but rather emphasises “human beings as agents and their practical relations to the world” (Delanty & Strydom, 2003, pp. 277-278).



The studies included in this thesis are influenced by pragmatism. The reason for choosing this approach is the aim of undertaking research that is meaningful for practice in the field. To be meaningful, research must provide insights that practitioners can use to improve their practice. In this way, we can ensure that research is legitimised. Pragmatism encompasses a view that epistemology and ontology must be considered after the research question has been determined (Wahyuni, 2012). The research questions addressed in Papers I, II and III and in this thesis were based on an evolving process guided by practical needs, and the methodological choices were made based on these research questions.

Dewey argues that both positivism and objectivism are derived from the same paradigmatic family, and both seek to find the “truth” (Dewey, 2008, pp. 46–47). Both positivist and objectivist researchers aim to produce knowledge that best corresponds to, or represents, reality (Festenstein, 1997). Pragmatist researchers hold an “antirepresentational view” of knowledge, arguing that research should not aim to represent reality, but rather that “...inquiry aims at utility for us...” (Rorty & Rorty, 1999, p. xxvi).

In the following section, I provide an overarching description of how pragmatism as a research paradigm guided the process of this study. This is specifically related to the process of how the research questions were developed, followed by the methodological considerations in relation to them. In pragmatism, it is important for the researcher to adjust the research concepts based on how field observations elucidate or modify the understanding of the concepts being studied (Friedrichs & Kratochwil, 2009). Below, I describe how new insights led to adjustments and further development of the research questions and methods.

The studies included in my research and reported in Papers I, II, and III were part of a project in which the overall aim was to create technological solutions to improve IMC. Hence, the findings had to be relevant to technological development, confirming Rorty and Rorty’s argument that it should aim for utility (Rorty & Rorty, 1999, p. xxvi).

The starting point of this research resulted in Paper II. The main aim of Paper II was to investigate how information sharing was practiced in inter-municipal services. The two research questions “What characterizes communication and information-sharing practices in inter-municipal health care services?” and “Which factors can contribute to barriers for communication and information sharing in newly established inter-municipal health care services?” guided the methodological development. The research questions required an

interpretive approach, and thus qualitative methods were applied. During the process of data collection, I observed challenges experienced by employees regarding employment and work procedures in relation to inter-municipal services. These were related to both information sharing and other aspects of IMC. On the basis of the theory of wicked problems, it is important that the entire problem area is addressed, and not just parts of it. The philosopher Churchman, who spent most of his career focusing on city planning and policy, described the usual research behaviour of addressing only the feasible parts of a wicked problem as morally wrong:

...whoever attempts to tame a part of a wicked problem, but not the whole, is morally wrong. Such a moral principle would appear to be ridiculous to many a management scientist, who has been brought up to believe that he should only tackle “feasible” problems. (Churchman, 1967, pp. B-142)

On the basis of knowledge of how best to undertake research on wicked problems, a holistic approach was applied. Therefore, the initial research questions were extended with the research questions in Paper III. The answers to these research questions could increase the foundation for decisions on which technological solutions to develop and how to develop them. They also provided information on which critical issues could be addressed using new digital solutions or through other initiatives. In addition, they provided a complementary foundation for policy and practice in relation to knowledge in the field of IMC in health services, where both barriers to information sharing and employees’ experiences are important to decision-makers. Addressing only one part of the problem, such as information sharing, is inadequate if the main problem is related to other challenges experienced by employees such as a lack of support. Hence, these additional research questions are “anchored in real collective problems” (Delanty & Strydom, 2003, p. 207), as stressed in the theory of pragmatism.

Papers II and III focused on an interpretive understanding of data. The interpretive knowledge; the understanding of the world, is considered to be useful for conducting actions in the field of practice (Goldkuhl, 2012). In the process of the data-collection, barriers and other challenges became apparent, and thus new questions arose. Why do some municipalities engage in IMC, whereas other choose not to do so? What challenges can potentially hinder IMC, and how do these challenges relate to the empirical evidence from the studies presented in

Papers II and III? There was a scarcity of literature regarding these questions in the context of health care. However, there was a large body of literature in relation to other forms of coordination and collaboration in health care services. This could imply that the findings in relation to cooperation and collaboration in other health services areas are applicable to IMC. It could also confirm a scarcity of research in this particular area. These uncertainties provided the background for a study aimed at identifying the most important challenges to coordination and IMC in health care services, and resulted in Paper I. These new questions required a new approach independent of the initial context.

Wicked problems are characterised by divergence and fragmentation among the various actors. This is related to the various views, values, and strategic intentions that exist among the actors (Head, 2008). In the case of IMC, this divergence is also highly dependent on the nature of the municipalities participating in IMC. In the initial studies, we had included practitioners involved in IMC. However, in Paper I, we wanted to obtain the views of experts in IMC in the context of their municipality. Pragmatism aims to “...interrogate a particular question, theory, or phenomenon with the most appropriate research method” (Feilzer, 2010, p. 13). Because of a scarcity of prior knowledge, it was not possible to create a questionnaire covering all relevant aspects, and in practical terms, I did not have sufficient resources and time to travel around large geographical areas collecting data. Thus, I decided that the most appropriate way of approaching these questions was to apply the Delphi method in search of consensus, including both qualitative initial rounds to identify the challenges and quantitative rounds to rank the impact of those challenges. This study included experts from various municipalities in Norway. By undertaking this study, I provided enlightenment in relation to the problem in different contexts and from different viewpoints.

In this thesis, I used the findings from all three papers to conduct a secondary analysis. The studies provided knowledge on various aspects of IMC. To address wicked problems, one should seek to investigate the overall problem, and not just some parts of the problem. To answer RQ1, “What are the critical issues for IMC in health care services, and how are these critical issues related?”, I decided to conduct a secondary analysis, identifying critical issues from Papers I, II, and III and investigating the relationships among them. By doing this, I was able to replicate findings across districts and geographical areas, and across different organisational levels. This secondary analysis contributed to “...processes of interpretation and discussion or argumentation” (Delanty &

Strydom, 2003, p. 278), which is important for knowledge development using the pragmatist approach. By doing this, I sought to address the problem from different viewpoints, and thus to identify interdependencies among the issues identified in the three papers. The development of knowledge in different ways and in various contexts is important from the pragmatist viewpoint (Delanty & Strydom, 2003).

In all three studies, we found evidence of the inherent complexity in IMC and the context in which it takes place. We also found evidence of the ability of IMC to cope with some of this complexity. On the basis of these observations, I applied abductive reasoning to the relationship between IMC and wicked problems. Abduction is emphasised as an important research strategy in pragmatism.

By using pragmatism as the inspiring research paradigm, I sought to contribute to knowledge regarding ways of overcoming collective problems, which in the context of this thesis relate to IMC in health services, and by providing additional knowledge on the topic, to realise and enhance democracy. These aspects are emphasised as being a central endeavour in pragmatism (Delanty & Strydom, 2003).

## ***3.2 Paper I***

### **3.2.1 Study design**

In Paper I, the Delphi method of consensus development was used. The Delphi method was developed during the 1950s and used by the Rand Corporation (Dalkey & Helmer, 1963). In essence, the procedure comprises several sequences or rounds of questionnaires delivered to a group of experts in a specific field, with the researcher providing controlled feedback to the expert panel. The aim is to achieve consensus among the group of experts (Dalkey & Helmer, 1963; Linstone & Turoff, 1975).

The Delphi method has the advantage of being a democratic and structured approach, taking advantage of the collective knowledge of the participants (Powell, 2003). In addition, it has the advantage of saving resources, because the expert group does not need to meet face-to-face. This makes it possible to include experts from across large geographical areas. The potential for communication over large distances and reaching consensus among experts in various contexts were key reasons for choosing the Delphi method.

### **3.2.2 Participants**

In Paper I, we wanted to obtain knowledge from people with experience on IMC in their municipality. Therefore, we recruited people with high levels of competence in collaboration and IMC in health care services within various municipalities. Therefore, the subjects were not experts in collaboration and IMC in relation to health care services in general, but rather were experts in collaboration and IMC in the municipality in which they were employed.

Because of the challenges faced by small municipalities in recruiting highly competent personnel (Wiberg & Limani, 2015), we can anticipate a difference in competence of personnel between large and small municipalities. Personnel in small municipalities often have a wide range of responsibilities, while those in large municipalities are often focused on more specialised tasks. Therefore, it is conceivable that personnel in small municipalities have more experience in relation to IMC than those in large municipalities. Because of the potential range of competences among personnel in large and small municipalities, it was not possible to predefine selection criteria regarding either specific knowledge or experience. Therefore, we recruited participants through a third party, either the health care managers, councillors, or mayor in 78 Norwegian municipalities.

The initial aim of the study was to compare large and small municipalities, and thus 35 of the municipalities that were contacted were large (> 20,000 inhabitants) and 43 were small (<5000 inhabitants). They were asked to identify and provide contact information for the employee in their municipality with the highest level of competence in relation to collaboration and IMC in health care services. It was specified that this person could either be a project manager in the area of IMC or someone with insight related to the implementation and operation of IMC. In addition, the person receiving the initial request was a potential candidate for inclusion on the expert panel. Contact information was received for 31 experts, of which 19 consented to participate in the study. The experts who participated were mainly managers, project managers, or advisors.

### **3.2.3 Approach**

Approaches to the Delphi method vary. In the original approach, the first round was unstructured. However, today, structured or semi-structured questionnaires

are often used in the first round (Powell, 2003). Because little was known about the topic of IMC, the classical approach of conducting an inductive and qualitative first round was used, and open-ended questions were asked. This allowed the participants to freely elaborate on the topic under investigation, as this can increase the richness of the data collected (Powell, 2003; Rowe, 1994).

We conducted a pilot study to test how SurveyXact could support the Delphi process, and to test different setups such as wording, response formats, and how much time the participants required. On the basis of the findings of the pilot study, we adjusted the formulations, layout, and response format of the questionnaires.

In previous Delphi studies, several different definitions of consensus have been used. In this study, a pragmatic approach to consensus was adopted, and thus we chose to use two different consensus methods. In the pilot study, it became clear that a large number of statements were identified in rounds 1 and 2. Thus, to avoid possible panel fatigue, we used round 3 to reduce the number of statements, and in round 4 and 5 these statements were rated using a five-point Likert-type scale. The number of rounds was not determined a priori, and consensus among the group was used as a stopping guideline.

### **3.2.4 Data collection and analysis**

The Delphi study was conducted using a total of five iterative consensus rounds. SurveyXact was used to distribute the questionnaires and collect the responses. In the first round, the experts answered the following questions:

*Q-1.* What challenges do you experience related to coordination with various actors in the health care services in your community and specialist health care? You should mention point-wise all the challenges you can think of.

*Q-2.* What challenges exist for inter-municipal work in the health care sector? You should mention point-wise all the challenges you can think of.

In round 1, the qualitative data were consolidated and analysed to distinguish challenges from “consequences” and “measures/success factors”. The answers were also merged to form overarching themes.

In the second round, the experts were asked the following questions in relation to Q-1 and Q-2:

1. Verify that your answers are sorted under the correct category, to ensure that the meaning of the answer is understood.
2. Verify consolidation by ensuring that your opinion will appear under one of the statements (but not necessarily verbatim).
3. If you now come up with new challenges, you can add them. I also want you to consider whether your answers (or the consolidated responses) can be specified more, or incorporated into, existing answers. Ask yourself why this is a challenge. Eg: "Reform is not fully funded for municipalities." Why is it a challenge? If you have no money to hire the necessary expertise? If patients poorer? Or are there other reasons that make this a challenge?

On the basis of the experts' responses, minor changes were made such as the addition of new statements and the reformulation of some existing statements to better communicate their meaning.

Rounds 3–5 were consensus rounds. In round 3, the 73 statements in response to Q-1 and the 26 statements in response to Q-2 were presented to the expert panel. To reduce the number of statements that had to be ranked, the expert panel was instructed to choose the 20 most important statements in response to Q-1 and the ten most important statements in response to Q-2. Statements that were chosen by more than half of the experts were presented in rounds 4 and 5. This procedure reduced the number of statements from 73 to 26 for Q-1 and from 26 to 17 for Q-2. In rounds 4 and 5, the participants were asked to choose the most important statements and then rate them using a five-point Likert-type scale (0–4). Agreement among experts in rounds 4 and 5 was measured using Fleiss Kappa statistics. IBM's SPSS statistics 19 was used for calculations. Consensus was achieved when statements were rated 3 or 4 by more than 75% of the experts. These statements were then abstracted and divided into themes.

### **3.2.5 Limitations**

There were some limitations to this study. The major panel attrition occurred between rounds 1 and 2, with a drop-out rate of 42%. In round 2, the panel was asked to validate the qualitative data from round 1. Thus, there is a risk that some of the data provided in round 3 were not properly validated. One of the initial aims of the study was to distinguish between large and small municipalities, and experts were recruited on this basis. This created a limitation regarding representativeness, as no participants came from middle-sized municipalities. Further, the findings are based solely on input from experts in a Norwegian context.

## ***3.3 Papers II and III***

### **3.3.1 Study design**

An inductive qualitative case study strategy with embedded design was used for the studies presented in Papers II and III. Paper II combined descriptive and explorative designs and Paper III used an exploratory design. The initial focus of the study was communication and information-sharing practices in inter-municipal health care services in two districts in Norway. Because of the importance of the context, a case study approach was used. According to Yin, “A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context may not be clearly evident” (Yin, 2013, p. 16).

During the data collection and initial analysis phases, it became clear that the respondents were talking about additional critical issues that they found important, but which were not relevant to our initial research questions. Thus, we decided to include some additional research questions aimed at identifying critical issues for employees involved in inter-municipal health care services. This resulted in the adoption of a new strategy for the case study, whereby a multiple case study strategy was used in an attempt to answer these new research questions. The multiple case study strategy was adopted to obtain the analytic benefits of applying replication across cases, and hence to increase analytic generalisability. Multiple case studies are more parsimonious than single case studies, but are also more robust and generalisable (Eisenhardt & Graebner, 2007). Qualitative data from individual and focus-group interviews, observational studies, a workshop, and several reports were collected, and cross-case analysis was applied to obtain



contextually grounded and generalisable findings (Ayres, Kavanaugh & Knafl, 2003). This process is explained in more detail in Section 3.3.7.

### **3.3.2 Setting**

The study took place in two districts in Norway. These districts include more than one municipality and may span county borders. The districts represent another organisational level in addition to the three formal levels of political administration, namely, the state, counties, and municipalities, and cooperate in a range of areas with various degrees of formalisation. The districts in the present study were led by a council comprising representatives from each participating municipality. The district councils undertook IMC based on the Local Government Act § 27 Joint Discharge of Local Authority Functions (Local Government Act, 1992), and had established various health-related inter-municipal projects based on the coordination reform (The Norwegian Directorate of Health, 2009). These district councils can be regarded as planning forums as suggested by Hulst and van Montfort (2012).

Both districts had newly established project-based inter-municipal health services. They were involved in service delivery and were organised within the district councils. Hence, they can be categorised as a service delivery organisation as suggested by Hulst and van Montfort (2012). The contexts differed. One district comprised a mixture of coastal and inland municipalities, while the other comprised only inland municipalities. The districts also differed in terms of number of municipalities and population, meaning that our findings are applicable across different contexts.

### **3.3.3 Inter-municipal services**

Six inter-municipal health services were included in the study: a dementia team, a psychologist, a substance abuse therapist, an occupational therapist, a palliation project, and a substance abuse team. These services were mainly organised as projects with fully or partially external public funding. They comprised services delivered by both teams and individual employees serving several municipalities (hereafter “individual services”). All of the services had been established from three to 18 months prior to the commencement of the study. Pseudonyms were

used to denote districts, municipalities, teams, and individual informants to protect the participants' privacy.

### 3.3.4 Participants

The study involved a total of 20 participants in Paper II and 17 participants in Paper III (see Appendix P). There were 12 employees and project managers from inter-municipal health care services and eight and five collaborating partners, respectively, including community nurses, a general practitioner (GP), and inter-municipal ICT personnel. Six participants were involved in multiple aspects of the study, such as interviews, observational studies, and a workshop. Details of the participants and data-collection methods are presented in Table 2.

**Table 2 Participants and data-collection methods**

	<b>Profession/ Role</b>	<b>Sex</b>	<b>Age</b>	<b>Data-collection methods Paper II</b>	<b>Data-collection methods Paper III</b>
<b>District 1</b>	Psychologist	Female	20- 29	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	Substance abuse therapist	Female	20- 29	<ul style="list-style-type: none"> <li>• Qualitative interview</li> <li>• Observational study</li> <li>• Phone interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	ICT manager	Female	40- 49	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	Dementia coordinator	Male	50- 59	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> <li>• Two observational studies</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> <li>• Two observational studies</li> </ul>
	Dementia contact 1	Female	50- 59	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>
	Dementia contact 2	Female	50- 59	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>

	Dementia contact 3	Female	20-29	<ul style="list-style-type: none"> <li>• Observational study</li> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>	<ul style="list-style-type: none"> <li>• Observational study</li> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>
	Dementia contact 4	Female	30-39	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> <li>• Observational study</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> <li>• Observational study</li> </ul>
	Consulting doctor	Male	30-39	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>	<ul style="list-style-type: none"> <li>• Workshop</li> <li>• Focus-group interview</li> </ul>
	General practitioner	Female	30-39	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	Medical secretary	Female	?	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
	Community nurse manager 1	Female	30-39	<ul style="list-style-type: none"> <li>• Qualitative interview</li> <li>• Workshop</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> <li>• Workshop</li> </ul>
	Community nurse manager 2	Female	20-29	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	Project manager for substance abuse therapist and Psychologist	Female	50-59	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	Community nurse 1	Female	?	<ul style="list-style-type: none"> <li>• Observational study</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
	Community nurse 2	Female	?	<ul style="list-style-type: none"> <li>• Observational study</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>District 2</b>	Occupational therapist	Female	30-39	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	“Palliation in Vik” project manager/coordinator	Female	30-39	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>
	Manager of a substance abuse team	Female	30-39	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative interview</li> </ul>

ICT consultant	Female	30-39	• Qualitative interview	• Qualitative interview
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### 3.3.5 Recruitment

The research team contacted managers in the various municipalities in the two districts, who identified participants meeting the following inclusion criteria: project managers and employees working in an inter-municipal public health care service or involved in the ICT aspects of inter-municipal services. During primary interviews and observational studies in district 1, the coordinator of the inter-municipal team identified collaborative partners, who were then contacted. Their managers approved their participation. The researcher contacted the GPs directly. Everyone who was contacted volunteered to participate, except for one GP who lacked the resources to participate, and thus nominated his secretary as a substitute. No one withdrew their consent to participate.

### 3.3.6 Data collection

Multiple data-collection methods such as interviews, observational studies, a workshop, and, in Paper III, document review, were used to strengthen the theoretical grounding by triangulating the evidence (Eisenhardt, 1989). The use of multiple qualitative methods makes it possible to provide more complete explanations (Morgan, Pullon, Macdonald, McKinlay & Gray, 2017).

*Interviews.* A total of 12 individual interviews were conducted in the two districts. As recommended by Myers and Newman (2007), the interviews commenced with a description of the interviewees and of the project. The interviews were based on a semi-structured interview guide (see Appendix A, B, D, F). The semi-structured interview format provides flexibility (Myers & Newman, 2007) and the opportunity to explore unexpected and interesting points raised by the participants. The main questions in the interview guide related to the participants' work situation, including what inter-municipal work tasks were conducted, by whom, and how participants collaborated in relation to the work they performed, as well as how information was documented and shared and barriers relating to

information-sharing practices. The collaborating partners were asked about their work tasks, documentation and information sharing routines and their relationships and collaboration with the various inter-municipal services. Two researchers were present in seven of the individual interviews. In these interviews, one researcher was tasked with conducting the interview, while the other took notes and asked additional questions. One researcher was present in the other five interviews. All interviews were audio-recorded and transcribed verbatim, except for one interview in which notes were taken. This interview was conducted ad hoc. During the interview with the GP, she recommended that we conducted a follow-up interview with her medical secretary. One researcher conducted the interview, while the other researcher took notes.

*Focus-group interview.* One focus-group interview was conducted with the five members of a dementia team. There is a lack of consensus regarding the ideal number of participants in focus-group studies. If the group is too large, there is a risk that not all participants get the opportunity to contribute, while if the group is too small, the topic may not receive any more coverage than in an individual interview (Merton, Fiske & Kendall, 1990). Several researchers have recommended that focus groups should comprise between four and eight participants (Kitzinger, 1995; Twinn, 1998). Further, the use of pre-existing groups has been criticised, as established relationships and hierarchies can influence the participants' responses (Krueger & Casey, 2014). We chose to include an established team because it was important to obtain the various perspectives of all team members regarding their experience and work practices. Kitzinger (1995) defends the use of pre-existing groups, as their value lies in the naturally occurring data. As one of the participants was also the project leader, the researchers were wary of the potential effect this could have on the discussion, and made sure all participants were included in the discussions.

The focus-group discussion was divided into two sections, each lasting for approximately one and a half hours. It was semi-structured (see Appendix E) and focused on the same topics as the individual interviews, in addition to a group processes focusing on problem definition. The semi-structured approach enables flexibility in relation to the various participants' interest in different topics and facilitates dialog among the participants (Morgan, 2002). This revealed the participants' personal perspectives and enabled them to elaborate on topics they found important. It is recommended that two researchers participate in focus-group

interviews. To obtain the same insight, and to facilitate the focus-group interview, three researchers participated. The interview was audio-recorded and transcribed verbatim. Individual participants were identified in the transcript wherever possible.

*Observational studies and workshop.* Two observational studies were conducted with the dementia team and one observational study was conducted with the substance abuse therapist. The researcher was observing information-sharing practices and work routines in three patient cases. The entire process from referral, preparation, assessment, and documentation through to further referrals to GPs and primary care was observed. In addition, two community nurses provided insights into information-sharing practices in their daily work, in particular regarding coordination with the dementia team. The observational studies were conducted to obtain information that was not able to be obtained from either the interviews or the workshop, such as structures, processes, and behaviours that the participants were unaware of, and provided validation of the initial findings. The observational protocol was divided into two parts: a structured approach aimed at identifying information-sharing practices and standardised assessment tools, specifically targeting the aim of Paper II, and an unstructured approach aimed at identifying informal practice activities with a view to understanding the context in which the employees were involved in IMC. The observational studies were conducted in everyday settings that is, either the informants' offices or the patients' homes.

The structured observation dealt with access to information, who information was shared with, how it was shared, and the use of standardised mapping tools used for dementia assessment (See Appendix C). Participants were questioned on how and why they performed various tasks. The observations were conducted as direct observations in natural settings. On the basis of Gold's explanations of the degree of participation, I mainly conducted the observations in the role of "observer-as-participant" (Gold, 1958), whereby I asked questions during the observations to ensure that I obtained a complete understanding of how and why various tasks were performed. One exception was the observation of the dementia assessment in the patient's home, in which I acted as a "complete observer" (Gold, 1958). This was done to limit interference in relation to the contact between the patient and the health care personnel. I was seated at some distance from both the patient and the health-care personnel, and did not interrupt the assessment process by asking questions, so as not to affect the patient. My

observations provided an in-depth understanding of the employees' work and the context of the inter-municipal service.

In district 1, a workshop was conducted that included seven participants. The aim was to validate and complement the initial findings regarding information-sharing routines and work practices. Preliminary findings based on interviews with the participants and observations were presented, and discussions on these findings served to both validate and complement the data. Notes were made during the workshop, which was also audio-recorded and transcribed.

*Documents.* To corroborate the empirical data used for the study presented in Paper III, seven documents were collected and analysed including evaluation reports and plans related to the inter-municipal services that were the focus of the study.

### **3.3.7 Data analysis**

*Paper II.* An inductive approach inspired by qualitative content analysis, as described by Graneheim and Lundman (2004) and recommended by Kohlbacher (2006), was used to analyse the data that were collected. A total of 392 pages of text were analysed using the qualitative software tool Nvivo 10 (QSR International Pty Ltd., 2012). Each transcription of either an individual interview or the focus-group interview, as well as each set of observational notes and the workshop notes, was treated as a unit for analysis. First, each unit was read to obtain a sense of the whole. Then, the text in each unit was coded into various categories. An analysis of the manifest content was then undertaken. A descriptive approach was used to answer RQ1 and an exploratory approach was used to answer RQ2. All of the findings were discussed by the interdisciplinary research team.

To answer RQ1, "What characterizes communication and information-sharing practices in inter-municipal health care services?", three aspects guided the analysis: what information was communicated and shared in the provision of inter-municipal services, with whom it was shared, and how. The various actors involved were coded during the analysis, and it became apparent that information was shared with a number of different actors. The same procedure was followed in relation to how and with whom the information was shared and communicated.

To answer RQ2, "Which factors can contribute to barriers for communication and information sharing in newly established inter-municipal health care services?", the relevant factors were identified and coded using an

inductive approach. First, various categories were identified, and then following interdisciplinary discussions among the research group these categories were revised and merged into several main categories. One example of this involved the categories “Competence” and “Functionality”, which related to a lack of the necessary functionality and competence to support work and information sharing. However, it was challenging to identify whether it was actually the functionality that was lacking or whether the personnel were not sufficiently trained in the system’s use. During the observational studies, it became clear that the IT systems were not intuitive, and thus the functionality and possibilities offered by the systems were unclear, and often “hidden” from the user. On the basis of these observations, the categories “Competence” and “Functionality” were merged to form the main category “IT capability and usability”.

*Paper III.* The analysis was conducted in iterative phases, and the findings revealed a need for different approaches, as shown in Figure 1, which was published in Paper III.



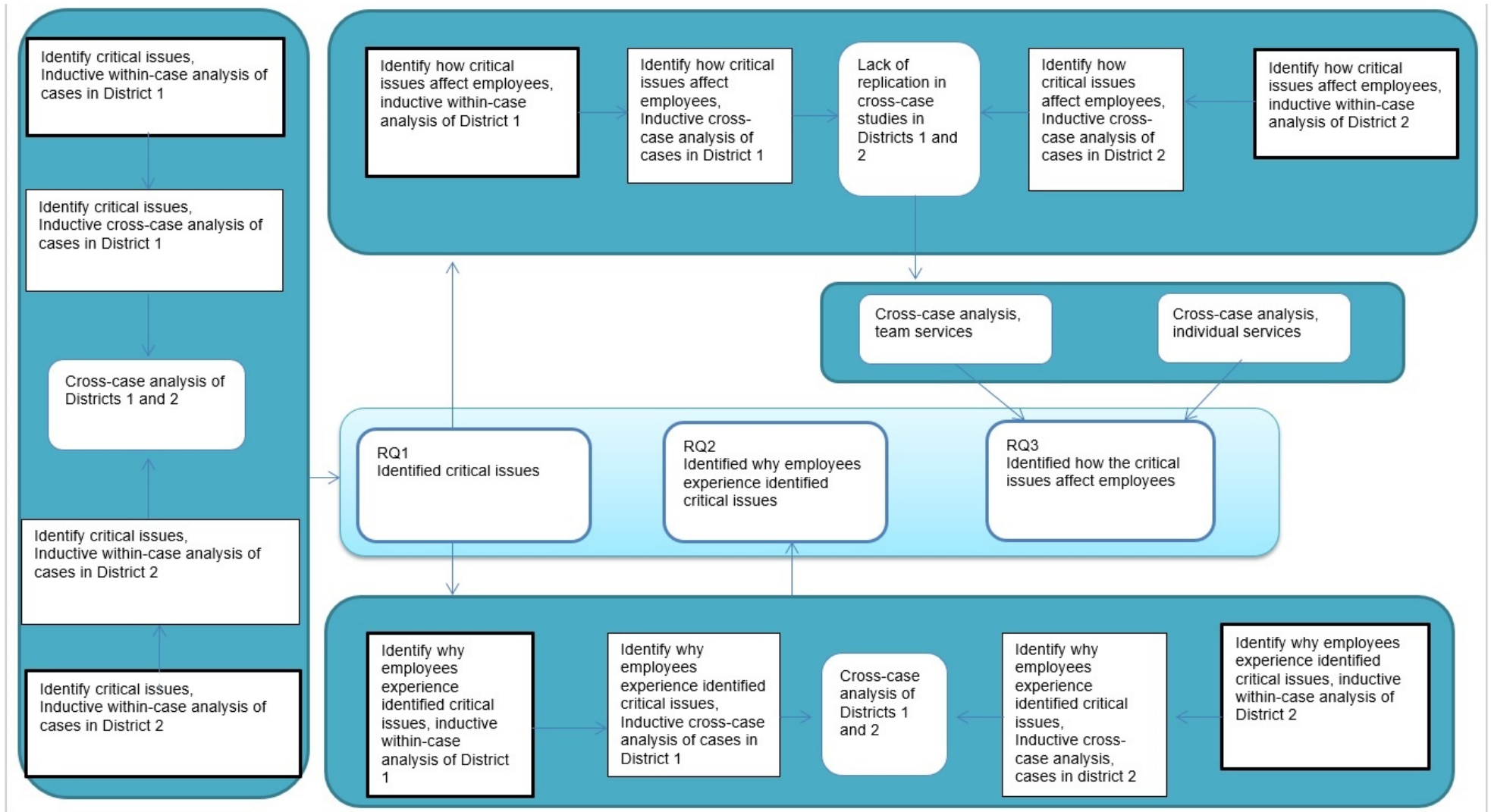


Figure 1 Data analysis process

Source: Holen-Rabbersvik, Thygesen, Eikebrokk, Fensli, & Slettebø (2018, p. 6)

The qualitative software program Nvivo 10 (QSR International Pty Ltd., 2012) was used for the analysis, which was guided by the following research question:

RQ1: What are the critical issues experienced by employees working in inter-municipal health care services?

First, a case analysis was conducted within the six inter-municipal services representing the individual cases. Each case had various data sources. The “dementia team” case in district 1 was associated with numerous sources including observational studies, focus-group interviews, and collaborating partners, whereas the “occupational therapist” case in district 2 only had the individual interview as a source. Each case was analysed using qualitative content analysis, inspired by Graneheim and Lundman (2004). Kohlbacher (2006) recommends this approach to case studies. The relevant data sources for each case were analysed and inductive categories were developed based on the research question. Second, cross-case analysis was conducted using the cases within each district, that is, the inter-municipal dementia team, the psychologist, and the substance abuse therapist in district 1, and the occupational therapist, palliation project, and substance abuse team in district 2. The cross-case analysis examined replications of, contrasts with, and extensions to emergent findings between cases in each district. Third, findings that were replicated in cases in both districts were analysed across the two districts to identify replications of, contrasts with, and extensions to emergent findings. The initial findings are the categories that were replicated first across cases within each district, and second across districts 1 and 2. One example of a replicated finding was the category “differences” that was identified in all cases in both districts, and thus was replicated across the districts.

The categories that were identified formed the basis for addressing the following research question:

RQ2: How and why do inter-municipal employees experience the identified critical issues?

Qualitative content analysis was used to further analyse the data. First, an inductive approach was applied, and each category was analysed individually within each case. Second, cross-case analysis was conducted within each district. Several local conditions existed regarding each category identified in relation to RQ1, in

addition to numerous personal experiences. Hence, replication was not obtained across all cases in each district. However, the most important and prominent categories were identified. In district 2, we found that differences in the organisation of services across municipalities created challenges for cooperative routines. In district 1, we found that differences created challenges for the employees, who had to adapt and learn several different systems. Finally, the findings from each district were analysed, and common themes were identified and considered as evidence of replication.

In the final research question, we sought to identify how the critical issues that were identified in RQ1 affected the employees:

RQ3: How do identified critical issues affect employees and working practices in inter-municipal health care services?

Each category identified in RQ1 formed the basis for new inductive analyses addressing RQ3 individually within each case. Cross-case analysis within each district did not reveal replication across all cases. However, the analyses revealed overarching findings across districts, such as the vast amount of time the employees spent driving and the wish for a more uniform way of organising the services because the differences created additional work. Regarding the critical issue of “Support”, there was a lack of replication across cases in the various regions. During the analyses, it became apparent that team structures and individual provision of inter-municipal services were affected by support in different ways. This led us to refine and extend the analyses. The initial individual analyses of each case involving teams and those involving individual services were analysed across cases but not across districts. The cross-case analyses within the teams and individual services produced findings that were replicated across cases. This replication confirmed the rationale for refinement of the analyses.

### **3.3.8 Data validity and reliability**

The research team consisted of several investigators with multidisciplinary competences and backgrounds in nursing, ethics, eHealth, ICT, and information systems. A diverse team structure can increase the likelihood of obtaining novel insights, while convergence from multiple investigators improves the level of

confidence in the findings (Eisenhardt, 1989). The prior knowledge of the researchers can potentially affect the research process, and thus the different perspectives of the researchers were actively exploited in combination with various data-collection methods to avoid unilateral focus, and thereby researcher bias.

### **3.3.9 Ethical considerations**

The research projects were approved by the Norwegian Centre for Research Data (Appendix M and N). The Declaration of Helsinki (World Medical Association, 2013) formed the basis for ethical considerations in the recruitment process. The overall eHealth-extended Care Coordination project was responsible for ethical approval. This project was exempted from the need for approval by a regional ethics committee.

The district managers all consented to participate in the studies, and provided voluntary informed consent. All data were treated as confidential. All participants in interviews, focus groups, observational studies, and the workshop provided written consent (see Appendix G, H, I, J, K). Participants in the Delphi-study provided consent through the digital questionnaire in SurveyXact (see Appendix L). The employees in the dementia team identified those patients who had the necessary competence to provide consent and could potentially be considered for the observational study. In discussions with the health care personnel, it was considered appropriate that only one researcher observed their interactions with the patients to limit the potential distraction of the patients. The patients were being assessed for dementia, and therefore it was possible that they suffered cognitive impairment. Thus, the patients' relatives were consulted by the health care personnel prior to assessment. The health care personnel informed the patients' relatives about the study prior to the observations, and both the patients and their relatives provided consent prior to the observations. The relevant information was provided to the patient on the day of the observation and informed voluntary consent was obtained from the patient. The information was provided by an employee who knew the patient, and it was stressed that participation was voluntary, and the patient could ask the researcher to leave at any time.

To ensure anonymity, quotes that were included in the papers were not able to be linked to a specific participant. The location of the districts was not provided in either Papers I, II, and III or in this thesis.

The PhD candidate did not previously know any of the participants in the study, nor had she worked in or had other contact with the work environments included in the study. The funding providers did not contribute to the design of the study, the collection, analysis, and interpretation of the data, or the writing of the manuscript.

The PhD candidate declares no conflicts of interest with any of the participants, organisations, and publishers involved in this thesis.

### ***3.4 Secondary analysis***

In this thesis, I conducted a secondary analysis based on the findings of the three previous studies to address the research questions that emerged during those studies. Secondary analysis can be undertaken by researchers other than those who collected the original data (Johnston, 2017), although in qualitative studies, it is most common for at least one of the researchers involved in primary data collection to undertake the secondary analysis (Heaton, 2008). Secondary analysis has traditionally been used for two main purposes: to investigate new or additional research questions, or to verify the findings of previous research (Heaton, 2008). In this thesis, secondary analysis was used to investigate two new research questions:

RQ1: What are the critical issues in relation to IMC in health care services, and how are these critical issues related?

RQ2: How is IMC related to, and able to cope with, wicked problems?

The analysis was performed based on the findings of all three prior studies. In addition, data collected in the initial rounds of the Delphi study were included. The Delphi study provided several qualitative responses in the initial rounds. The findings from round 1 and 2 are presented in Table 3 (See Appendix O). Table 3 shows all of the validated, consolidated, and categorised challenges identified by the experts in the Delphi study. The rationale for including this information in the secondary analysis is the need for in-depth data that permit the investigation of possible relationships, rather than a narrower dataset containing only challenges on which there is consensus.

The research questions take into account an overall perspective including the perspectives of employees and experts. The overarching findings from Papers

II and III are used, including the condensed units of meaning from the Findings section, which substantiate the overarching findings. The challenges identified in the Delphi study, along with related information, both from the initial qualitative rounds and the final round in which consensus was reached, the important issues identified in Paper II, and the critical issues identified in Paper III are analysed to answer the two research questions.

To answer RQ1, an inductive qualitative content analysis inspired by Graneheim and Lundman (2004) was undertaken to identify overarching categories in relation to the qualitative findings from Papers I, II, and III. Next, a deductive approach was used to identify relationships between the identified categories. These relationships do not signify causality, nor a process, as they can operate in different directions at different stages of the process. However, the figure does indicate a process from the initial planning phase of the IMC to the implementation and operating phases of the IMC. Finally, a conceptual model showing the critical issues in relation to IMC in health care services and the relationships between these critical issues is presented.

Abductive reasoning was used to answer RQ2. During the work on the three papers, the complexity of the wicked problem that IMC sought to solve became apparent. Eisenhardt argues that “Creative insights often arise from the juxtaposition of contradictory or paradoxical evidence...The process of reconciling these contradictions forces individuals to reframe perceptions into a new gestalt” (Eisenhardt, 1989, p. 546).

There is a scarcity of qualitative studies using abductive reasoning (Lipscomb, 2012), and the modern use of the concept of abduction is associated with the work of Charles Sander Peirce (1839–1914) (Råholm, 2010). Peirce’s views on abduction developed throughout his career. In his early work, he focused on abduction (hypothesis) as a process of providing evidence, whereas abduction was treated more as a methodological process in his later work (Råholm, 2010).

During the research process, it became evident that IMC had been implemented in an attempt to solve a “wicked problem”, as explained in Section 2.1. The analyses that were conducted in Papers I, II, and III elucidated the additional complexity created by IMC. This paradox of IMC becoming a part of the problem it is seeking to solve is integrated with theory on wicked problems using abductive reasoning. Further, the findings provided insight into the characteristics of IMC, which are positive traits, for example, flexibility and adaptability, when dealing with wicked problems. These traits seemed to occur

only in those inter-municipal services that were delivered by teams. This insight is further elaborated on by combining findings from the papers with theory on wicked problems using an abductive approach. This abductive reasoning results in two interpretations, contributing to the development of theory in relation to IMC as an approach to addressing wicked problems. This is in accordance with Dubois and Gadde (2002, p. 559), who note that the abductive approach creates "... fruitful cross-fertilization where new combinations are developed through a mixture of established theoretical models and new concepts derived from the confrontation with reality".

The abductive approach to reasoning possesses an inherent weakness;

As a general rule, Hypothesis [abduction] is a weak kind of argument. It often inclines our judgement so slightly toward its conclusion that we cannot say that we believe the latter to be true; we only surmise that it may be so. (Peirce, 1992, p. 189).

Following the pragmatism adopted in this thesis, the aim of the abductive reasoning is not "truth", but "utility" (Rorty & Rorty, 1999, p. xxiv). Hence, the aim is to develop ideas that can be tested and developed further.





## 4.0 Findings

In this section, the main findings of each paper are presented. Further, the findings in response to the new research questions developed in this thesis are presented. These findings represent an overall analysis that epitomises the findings from the three papers.

### 4.1 Paper I

In the Delphi study, findings indicate different challenges that can hinder both vertical and horizontal cooperation in health care services. Consensus was reached in relation to eight statements identifying important challenges that can hinder coordination in health care services, and three statements identifying important challenges that can hinder IMC in health care services. These were abstracted into themes.

#### 4.1.1 Coordination in health care services

The expert panel was asked the question “To what extent do you believe that these challenges can hinder coordination in health care services?” and was asked to rank each challenge using a five-point Likert-type scale. The panel reached consensus in relation to eight statements, which were abstracted into the following themes.

*Different cultures.* This theme was identified based on the statements “different cultures in municipal and specialist health care services”, “specialist health service has a focus on diagnosis and treatment, but the municipality has focused on coping and quality of life”, and “different patient perspectives in municipal and specialist health care services”. These statements all reflected the different cultures that are present in relation to patient treatment in hospital care and primary health care and can be seen as a response to the different goals in the different sectors. Different cultures represent a challenge that can hinder coordination.

*Uneven balance of power.* This theme was identified based on the statement “The hospital sets the conditions for the process concerning discharge of patients.” This statement indicates that one party in the collaboration has the authority to take

decisions which directly impact a collaborating partner, and that this can hinder coordination.

*Lack of possibility to communicate electronically.* This theme was identified based on the statements “lack of electronic communication” and “lack of common tools for electronic communication”, and points at both the lack of communication and the lack of common tools to exercise communication, and the potential hindrance this is to coordination.

*Demanding tasks in relation to resources.* This theme was based on the statements “scarce resources in terms of time” and “patients discharged are in worse health conditions than before”. These statements point to a challenge concerning resources, and to the fact that this is a progressive challenge that can hinder coordination.

#### **4.1.2 IMC in health care services**

The expert panel was asked the question “To what extent do you think that these challenges can hinder inter-municipal cooperation in health care?” and was asked to rank the challenges using a five-point Likert-type scale. The panel reached consensus in relation to three statements, which were abstracted into the following themes:

*Coopetition.* This theme was based on the statement “It could become prestigious to localise the project in one’s own district and closer to the clients. As a result, the choice of municipality to localise services is subject to political debate.” This statement points to a challenge concerning the trade-off between the need to cooperate and the potential of obtaining more profit than that provided by cooperation. This dichotomy between cooperation and competition is termed “coopetition” (Brandenburger & Nalebuff, 1996), and presents a challenge that can hinder IMC.

*Complex leadership.* This theme was based on the statement “Political leadership and management of inter-municipal work are demanding (require more than only organising the municipal services).” This statement points to a challenge

concerning the demanding organisational structure that IMC requires, and the strain associated with management of such an organisation.

*Resistance to change.* This theme was based on the statement “It is challenging to establish inter-municipal cooperation as it is often more tempting to solve problems alone since this is more flexible, it creates synergy, and expertise that can be applied across the municipality.” This statement points to the benefits of delivering services in one’s own municipality, where the gains are known and controllable. Rather than delivering services in the context of IMC, where the benefits are neither known nor controllable, it is tempting to continue to solve problems in the familiar municipal context.

## **4.2 Paper II**

Communication and information-sharing practices were complex and characterised by multiple actors, information types, and channels. The findings suggested that the communication and information-sharing needs in relation to IMC were not identified prior to establishment, either by the municipalities or by the actors involved in delivering the services. This resulted in several ad hoc solutions. Electronic health records (EHRs) were used for information sharing, but other communication channels such as the phone, face-to-face communication, and post were often used as a complement to, or instead of, EHRs. The findings indicate that the following factors are barriers to communication and information-sharing practices.

### **4.2.1 IT capability and usability**

The information systems that were available in the municipalities did not provide sufficient support for information-sharing practices. We found evidence that functionality was present but not accessible because of a lack of usability. One example was a note that was sent by the dementia team to home-care services regarding patient follow-up but was apparently not received. Following observations and interviews, home-care services became aware of this note, however, the system did not provide any notification or indication that the note had been received.

We also found an inability to incorporate the results of tests and assessments in the EHRs, which resulted in duplication of documentation, with details recorded both on paper and electronically.

#### **4.2.2 Differences**

The inter-municipal employees' information-sharing practices were characterised by different technological solutions in the various municipalities. One district had appointed a common vendor for EHRs, but various systems were used by the municipalities, and so the employees had to deal with different interfaces.

#### **4.2.3 Privacy, confidentiality, and security**

Issues concerning privacy, confidentiality, and security emerged during the implementation of IMC. Access was based on employees' main work in the municipality, and not related to IMC. Different practices regarding access control in the various municipalities were also highlighted. In addition, they experienced a mismatch between the national government's encouragement to engage in IMC and legislation that was not adapted to meet the organisation's needs regarding electronic information sharing.

#### **4.2.4 Awareness**

A lack of awareness regarding communication and information-sharing practices between the inter-municipal employees and their collaborating partners was identified. This related to the type of information that was received, how the information was received, and what was done with the information. In addition, there was a lack of awareness regarding coordination of services, resulting in unnecessary visits.

### ***4.3 Paper III***

We found three issues that were deemed critical by inter-municipal employees and impacted them in various ways.

### **4.3.1 Support**

Both supervisor support and co-worker support were found to be important. Within the team structures that were part of the IMC, the employees largely enjoyed the support of their co-workers. However, employees who were working alone lacked both professional support and support regarding the distribution of tasks. The organisation of IMC into either teams or individual services was found to influence how the critical issues that were identified affected the employees. Team members appeared to use each other for supervision and support, and were capable of exercising autonomy in relation to the issues that were identified. Hence, IMC organised at the level of individual services involved more challenges than IMC organised at the team level.

### **4.3.2 Differences**

The employees involved in IMC experienced inconsistencies between the municipalities regarding the management and organisation of services. This resulted in additional work and cumbersome work practices. Differences were also found in relation to resources and competence, as well as in the use of inter-municipal services.

### **4.3.3 Geographical distance**

Geographical distance was found to be a critical issue among the employees, who spent a large proportion of their time driving long distances, both during and outside working hours. In addition, we found that geographical distance influenced collaboration.

## ***4.4 Overall findings***

In this section, I address the overall aim of the thesis based on the findings of the three papers.

#### **4.4.1 Critical issues**

The findings suggest that IMC in health care services is characterised by several interrelated critical issues. To address the overall aim, as shown in Table 1 (see Section 3.0), the following research question guided the secondary analysis:

RQ1: What are the critical issues in relation to IMC in health services, and how are these critical issues related?

On the basis of a secondary analysis of the data from Papers I, II, and III, it is evident that the challenges that were initially identified as hindering IMC in health care services are related to the critical issues and barriers that were identified in relation to the established inter-municipal services. Table 4 shows the categories identified in the secondary analysis, including data supporting the development of the categories.

**Table 4 Identified critical issues**

Category	Identified challenges, barriers and critical issues from data in Paper I, II and III
Complex leadership	Municipalities are lacking skills, ability to recruit and offer fragmented services
	When considering inter-municipal work, most municipalities think "to the necessary extent" rather than to "the sufficient extent"
	It can often be a long way from idea to decision
	Challenging to find suitable areas for cooperation
	Inter-municipal work tends to be expensive, as no one "owns" it
	Clear responsibilities and lines of authority can be challenging to establish
	Decisions on how to best organise inter-municipal work is challenging. There are different models with different advantages and disadvantages
	Administrative challenges for the participating municipalities related to the economy and decision-making
	Political leadership and management of inter-municipal work are demanding and require more than only organising the municipal services
	Inconsistent use of the inter-municipal services
Coopetition	Professional environment/ challenges are "removed" from some municipalities and centralised. It can lead to impoverishment in some municipalities
	Challenges occur in the municipality when staffing levels decrease as a result of the work being resolved within the inter-municipal service
	Challenging to agree on cost allocation, number of places and administration
	The largest of the cooperating municipalities must lead many of the processes. As a result, small municipalities claim they lose control and influence. Maintaining the interest of small municipalities can be challenging

	It could become prestigious to localise the project in own district and closer to the clients. As a result, the choice of municipality to localise services is subject to political debate
	Municipalities are lacking skills, ability to recruit and offer fragmented services
Resistance to change	It is challenging to establish inter-municipal cooperation as it is often more tempting to solve problems alone since this is more flexible, it creates synergy, and expertise that can be applied across the municipality
Support	Co-worker support
	Supervisor support <ul style="list-style-type: none"> <li>- Organisational issues</li> <li>- Professional issues</li> </ul>
Differences and diversity	Differences in working practices <ul style="list-style-type: none"> <li>- Service organisation</li> <li>- Management</li> <li>- Competence</li> <li>- Resources</li> </ul>
	Differences related to information sharing <ul style="list-style-type: none"> <li>- Different vendors in the municipalities</li> <li>- Same vendors but different lay-outs in the municipalities</li> <li>- Different written languages</li> <li>- Different procedures for obtaining information</li> </ul>
	Partly different interests
	Different understanding and different tools
	Different basic data in IPLOS <sup>1</sup>
	Municipalities are very different; it is often challenging to find common solutions
	Different organising makes it hard to find the effective level of cooperation for the administration
Awareness	Mutual lack of awareness between employees in inter-municipal services and their collaborators regarding: <ul style="list-style-type: none"> <li>- Collaborators whereabouts</li> <li>- When they were presents</li> <li>- What information was received, how information was received</li> </ul>



	<ul style="list-style-type: none"> <li>- Integration</li> <li>- Work procedures</li> <li>- What was done with the information received.</li> <li>- Lack of procedures for information sharing and</li> </ul>
	Challenging to distribute knowledge in the organisation, and to anchor the joint cooperation projects at the local level
Complex information sharing	Privacy, confidentiality and security <ul style="list-style-type: none"> <li>- Access control and duty of secrecy</li> <li>- EHR was unsatisfactory in terms of differentiating necessary access;             <ul style="list-style-type: none"> <li>o access control was not adapted to needs in the IM-service</li> <li>o mismatch between how they were encouraged to deliver services and how security concerns complied with current legislation</li> </ul> </li> </ul>
	IT capability and usability <ul style="list-style-type: none"> <li>- Lack of necessary functionality</li> <li>- Usability issues made information inaccessible</li> <li>- Need for multiple actions to share information</li> <li>- Lack of efficiency and ease of use</li> </ul>
	Challenging when someone needs to replace the documentation system
	Various documentation systems that cannot be integrated
Geographical distances	A large proportion of part-time, inter-municipal jobs involve travelling long distances
	Employees have to spend a disproportionate amount of their working time on driving
	Using a large amount of time getting to workplace affects how employees collaborate and with whom one collaborates
	Large geographic distances between municipalities
	Larger distances between services and inhabitants' homes and local support system than if the offer was made in their own municipality

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<sup>1</sup> IPLOS – Information about patients receiving healthcare services from the municipality

The categories shown in Table 4 formed the basis for the development of a conceptual model of the critical issues in relation to IMC in health care services and the relationships among those issues (see Figure 2). The «Initial planning phase» and the “Implementation and operation phase” represent the process, whereby the issues described in the initial planning phase precede those described in the implementation and operation phase. The arrows between the issues represent a relationship, but not necessarily a process. These relationships are visualised in the conceptual model shown in Figure 2.

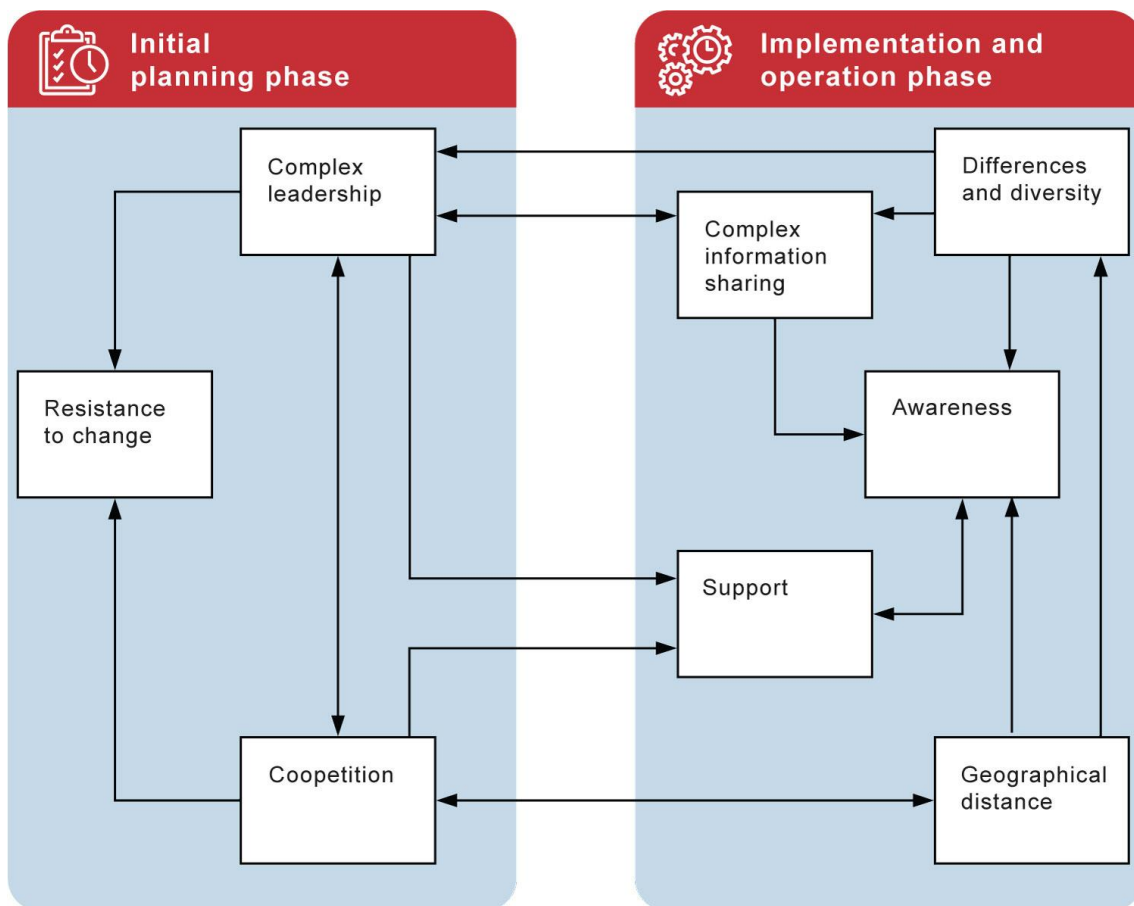


Figure 2 Critical issues in relation to IMC in health care services

On the basis of this conceptual model, it is evident that two of the three issues that were identified as hindering the establishment of IMC can have an impact on established IMC in health care services. The relationships that were identified are outlined below.

*Complex leadership → Support*

A complex administrative management structure can lead to improper and undefined management of personnel involved in IMC. This can be experienced as lack of support, and hence an improper work situation for employees.

*Complex leadership ↔ Complex information sharing*

Managing IMC without the necessary ability to share information is challenging. It was found that needs regarding information sharing were not identified prior to the establishment of the inter-municipal services. The employees described a mismatch between the national government's desire to establish inter-municipal services and the legislation related to information sharing, which did not facilitate the necessary level of cooperation. This mismatch contributed to an even more complex situation for managers.

*Complex leadership ↔ Coopetition*

Managing the establishment of an inter-municipal service can be challenging, as competition between the cooperating municipalities can be associated with cooperation. How the service is initially organised will have consequences for how much the services are used and how much effort is expended in the municipalities. Unequal effort and use of services represent an additional challenge for managers of inter-municipal services. Further, coopetition can play an important role in the complexity of political and administrative management. Competition between the collaborating municipalities can impact the localisation of services, and hence the use of inter-municipal services.

*Complex leadership → Resistance to change*

The complexity of administrative management, such as establishing lines of authority and the inconsistent use of services, can provide a rationale for choosing to deliver services in one's own municipality.

*Coopetition → Resistance to change*

Coopetition will have an impact on the municipalities' willingness to embrace IMC. Delivering services in one's own municipality instead of in the context of IMC can lead to advantages and synergies that can be applied in one's own municipality instead of risking the loss of expertise.

*Coopetition  $\leftrightarrow$  Geographical distance*

The professional environment can lead to employees having to travel longer distances. Further, centralisation of services can present a challenge to users/patients living remotely and can lead to impoverishment in some municipalities. This may lead to more competition in relation to IMC.

*Support  $\leftrightarrow$  Awareness*

A lack of support can impact how information regarding the inter-municipal service is distributed, and hence anchoring the services in the municipalities can be challenging. Lack of anchoring of inter-municipal services can impact awareness between employees in municipal and inter-municipal services. Conversely, a lack of awareness about inter-municipal services can create a lack of support, as managers do not know whether they are responsible for inter-municipal employees.

*Differences and diversity  $\rightarrow$  Complex leadership*

Differences and diversity among the municipalities can create additional challenges regarding the management of inter-municipal services.

*Differences and diversity  $\rightarrow$  Complex information sharing*

Differences and diversity among the municipalities create additional challenges for information sharing in relation to IMC because the municipalities have developed different systems and information structures based on local needs.

*Differences and diversity  $\rightarrow$  Awareness*

The different procedures adopted by the municipalities provide an additional challenge regarding awareness of municipal procedures.

*Complex information sharing  $\rightarrow$  Awareness*

IMC was established without integration of existing procedures to facilitate information sharing with collaborating partners. This led to a lack of awareness regarding information and work processes.

*Geographical distance  $\rightarrow$  Awareness*

Proximity stimulates informal contact and collaboration, which has an impact on awareness among the employees.

*Geographical distance → Differences and diversity*

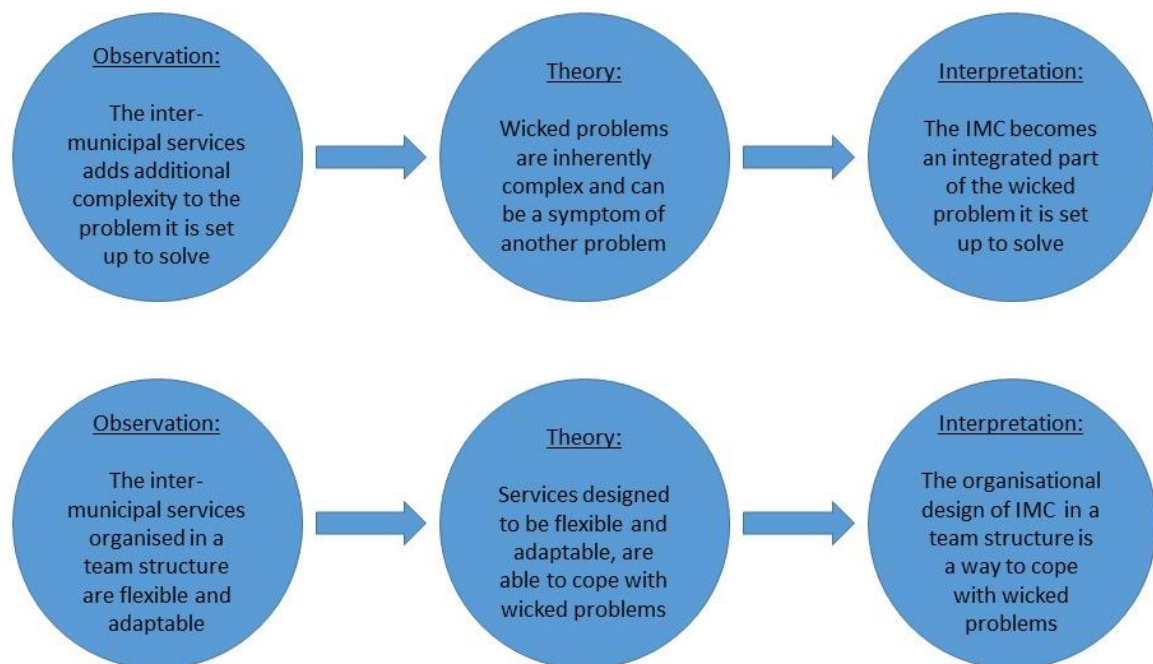
Increased geographical distance makes it more difficult to recruit personnel with the necessary competences and can increase the differences among municipalities in terms of access to relevant competences.

#### 4.4.2 IMC and Wicked problems

A secondary analysis using abductive reasoning was conducted to answer the second research question:

RQ2: How is IMC related to, and able to cope with, wicked problems?

In the findings from the three papers, I found evidence that IMC is associated with a high degree of complexity. I also found that the services were flexible and adaptive based on user needs. Thus, while IMC is a possible answer to a wicked problem, every wicked problem can be a symptom of another problem (Rittel & Webber, 1973). The observations from Papers I, II, and III, combined with theory on wicked problems, form the basis for using abductive reasoning in relation to the two emergent findings (see Figure 3).



### **Figure 3 IMC in relation to wicked problems**

In the following section, I use abductive reasoning to elaborate on these propositions. In line with the abductive reasoning approach, I elaborate on the findings based on the empirical data combined with theory on wicked problems (Råholm, 2010).

Collaboration has been seen as a promising way to address wicked problems. However, it is difficult to establish and sustain robust collaboration in the public sector as a result of turbulence and strict accountability rules. Our findings suggest that IMC adds to the wicked problem by introducing even more complexity to an already highly complex area of service delivery in a municipal context with changing demographics. However, in addition to this added complexity, we find evidence that inter-municipal organisation of service delivery provides the flexibility and adaptiveness necessary to cope with the wicked problem.

*IMC as an integrated part of the wicked problem.* The empirical findings indicate that IMC becomes an integrated part of the wicked problem. In Paper II, we found evidence that information sharing is challenging and complex, with IMC adding an extra dimension of complexity to an already challenging situation within the municipalities. The findings indicated that problems related to information-sharing practices in the local context were not addressed prior to the establishment of the inter-municipal service.

We also found a mismatch between the national government's encouragement to establish inter-municipal services and the supporting legal framework, which hindered information sharing. In addition, Papers II and III identified diversity and differences among the municipalities. This provides an insight into the range of stakeholders with different needs and responsibilities that are involved, resulting in the complex leadership challenges described in Paper I. When national government recommendations are not matched by a supporting legal framework, IMC becomes challenging, and represents an additional problem for those managing the services. Diversity in relation to organising services and information-sharing practices also creates an additional layer of complexity for the leaders of these services.

The findings of Paper I suggest that resistance to change is a barrier to implementing IMC. This is related to the advantage of providing services solely

within the municipality. For sparsely populated municipalities, IMC can offer a solution to wicked problems such as demographic changes and new and demanding tasks facing local governments. However, in relation to the resource-consuming nature of collaboration, it is important to identify the right problems to solve through IMC, and, as shown in Table 3 (Appendix O), it can be “challenging to find suitable areas for cooperation”. The solutions to wicked problems are not straightforward: “Solutions to wicked problems are not true or false, but good-or-bad” and “There is no immediate and no ultimate test of a solution to a wicked problem” (Rittel & Webber, 1973, pp. 162–163). On the basis of these statements, assessment of whether or not problems should be solved through IMC is challenging because IMC can never be viewed as the “right” solution, and it is not possible to test whether IMC is appropriate in potential areas for cooperation. Due to the complexity arising from IMC and the multiple stakeholders assessing the problem area from various viewpoints, it can be argued that IMC becomes an integrated part of the wicked problem.

*IMC as a coping mechanism in response to a wicked problem.* Even though it is clear that there is no absolute solution to a wicked problem, various solutions can be either good or bad. In Paper II, it was found that information-sharing practices were not established prior to the establishment of the inter-municipal services. However, we also found evidence that practices were changing and adapting to the needs of the participants as the study progressed. Following data collection, the legal framework was also adapted to better support the cooperative health initiatives (The Health Register Act, 2014). This relates to the theory of wicked problems, wherein it is shown that the problem and its solutions are interrelated. It is implied that it is impossible to obtain a full understanding of the various stakeholders’ needs prior to commencement when addressing wicked problems. On the basis of this knowledge, it is useful to establish a service that can cope with challenges that arise along the way.

In Paper III, we found that a common knowledge base was established between the inter-municipal employees, their collaborative partners, and the end users. Both organisational support and clinical supervision were provided by members of the teams, which can create a high level of learning capability and competence-building across municipalities. In Paper III, it was evident that the use of a team structure in IMC enabled participants to take advantage of the flexibility and autonomy provided by the inter-municipal services. They were able to adapt

existing services and develop new services based on the needs of users/patients and their collaborative partners. This adaptability and flexibility are considered as positive traits when coping with wicked problems (Head & Alford, 2015; Roberts, 2000)

*Summary.* Our findings suggest that IMC extends the existing wicked problem by adding even more complexity to an already highly complex area of service delivery in a municipal context with changing demographics. In addition to this added complexity, we find evidence that when organised in a team structure, IMC has the advantages emphasised as necessary to meet wicked problems, such as flexibility, establishment of a common knowledge base, and cooperation with collaborators and end users.



## 5.0 Discussion

The aims of this thesis were twofold: first, to identify the overarching critical issues in relation to IMC in health care services and the relationships among them, and second, to identify how IMC in health care services is related to, and able to cope with, wicked problems. The findings suggest that IMC in health care services is characterised by multiple interrelated critical issues, both in the initial planning phase and in the implementation and operating phases. The relationship between IMC and wicked problems has been illuminated. Several theoretical lenses have been applied to understand the phenomenon of IMC.

To structure the discussion, first I discuss the critical issues identified in the planning phase of IMC. Second, I discuss the critical issues in the implementation and operating phases of IMC. Third, I discuss the overall findings in relation to wicked problems. Fourth, I discuss methodological considerations, and finally, I discuss implications for policy and practice.

### *5.1 Critical issues in the planning phase of IMC*

In this thesis, critical issues relating to cooperation, resistance to change, and complex leadership in the initial planning phase were identified. These are all issues that can hinder IMC. This assumes that an initial problem has been identified and that IMC can offer a solution.

Engagement in IMC is a political and management decision; however, there is a lack of research regarding governance of organisational networks in the public sector (Barretta & Busco, 2011; Provan & Kenis, 2008). Three themes in particular are relevant in relation to this issue: the origin of the cooperation, the structure and governance of the network, and cooperation among partners who are either unfamiliar with each other or were previously competitors (Barretta & Busco, 2011). This section focuses on these three themes.

First, the origin of the cooperation is relevant. Interorganisational cooperation can be imposed, for example, by a government mandate. The fact that the partners do not choose each other, and that a superior authority can make decisions in relation to the design and management of the interorganisational relationship will have an impact on leadership (Barretta & Busco, 2011). In the papers included in this study, the origin of IMC was not in question. However, data

collection took place at a time when coordination reform (The Norwegian Directorate of Health, 2009) was being implemented. This reform included strong recommendations for the establishment of IMC where necessary, although the findings in this thesis indicated that it was difficult to identify which areas were suitable for IMC. The reform stated that the municipalities were required to deliver more complex and specialised services, implying that the numerous sparsely populated municipalities in Norway should engage in IMC. Thus, it can be seen that many IMC programs were not established based on needs emerging from a bottom-up process, but rather in response to the requirements of the national government.

Resistance to change was a critical issue that was identified in this thesis. This was related to knowledge of today's practices within one municipality and the benefits of delivering services within one's own municipality. Organising services in the context of IMC can result in a lack of synergy in terms of service delivery and a lack of knowledge regarding the benefits that will ensue. Thus, not all municipalities or services will gain from IMC. It is found that rural municipalities in particular can benefit from cooperation, and that small municipalities will obtain more benefits than larger ones (Bel & Warner, 2015). Resistance to change can also be related to the fact that it is "challenging to find suitable areas for cooperation", which is included in the category "complex leadership". Overall, this can be seen as an expression of the challenges in identifying both the relevant problems to be solved and the solutions. From some municipalities' perspective, it is clear that problems relating to service delivery can be solved in one's own municipality, creating additional profits and synergies. In addition, it is a challenge identifying which areas are appropriate for cooperation. This might be a reflection of the uncertainties surrounding the definition of the problem.

Politicians implementing coordination reform assume that municipalities will collaborate on relevant tasks. However, the findings in this thesis indicate that there are challenges in identifying those relevant tasks. The municipalities are aware of the present situation when it comes to service delivery, but the future is less clear. In addition, Norwegian municipalities are diverse in terms of factors that are relevant to future service planning, for example, population, geographic size, degree of centralisation, and access to necessary competences (Holen-Rabbersvik, Eikebrokk, Fensli, Thygesen & Slettebø, 2018; The Norwegian Directorate of Health, 2009). This introduces additional complexity in relation to

the planning of health services for the future. It is unclear what problems will need to be solved, and hence how capable the current municipal structure is of addressing future requirements. Demographic changes are regularly monitored, and statistics are published annually (Statistics Norway, 2019). However, projections are uncertain, especially in relation to immigration (Syse, Leknes, Løkken & Tønnesen, 2018). In addition, future fertility, mortality, and internal migration are all characterised by uncertainty. Further, the composition and geographical distribution of future populations are uncertain, and the uncertainties are greatest in relation to small municipalities (Syse et al., 2018). We know that the number of elderly people will increase substantially in the years ahead (Syse et al., 2018), but we do not know how they will cope with various health issues. This is related to various contextual factors such as innovative technological and medical developments and access to informal caregivers. IMC is claimed to be a strategy to cope with risks regarding potential fluctuations in demand for health personnel (Jacobsen, 2014), and yet future needs are characterised by a high degree of uncertainty. To add to the complexity of addressing future needs in relation to health care service design and delivery, national political systems can create additional uncertainties. For example, reform aimed at promoting municipal mergers commenced in Norway in 2014, and is designed to reduce the number of municipalities from 428 in 2014 to 356 in 2020 (Innst. no. 300 S 2013-2014, 2015). In this landscape of uncertainties and changing contexts, the process of identifying problems and solutions is challenging. The challenges can be summarised by Rittel and Weber's explanation of wicked problems:

By now we are all beginning to realise that one of the most intractable problems is that of defining problems (of knowing what distinguishes an observed condition from a desired condition) and of locating problems (finding where in the complex causal networks the trouble really lies). In turn, and equally intractable, is the problem of identifying the actions that might effectively narrow the gap between what-is and what-ought-to-be. (Rittel & Webber, 1973, p. 159).

It has also been noted that because of the diverse range of policies in relation to complex and value-laden issues such as welfare services, "there is no 'root cause' of complexity, diversity, uncertainty and ambiguity – hence there is no 'root cause' of wickedness and no single best approach to tackling such problems" (Head &

Alford, 2015, p. 715). These statements illustrate the inherent difficulties in determining why municipalities should participate in IMC and what kinds of services are appropriate for this form of collaboration, which is resource-consuming and should only be conducted when necessary. As Huxham and Vangen (2005) caution, "...seeking collaborative advantage is a seriously resource-consuming activity...Our message to practitioners and policy makers alike is *don't do it unless you have to*" (p. 13).

To date, collaboration appears to be the most promising way to address "wicked problems", and might be something that we "have to" do. On the basis of the findings in this thesis, it is clear that managers need guidance in identifying the most appropriate areas for IMC. It can be challenging to identify the services to which IMC is relevant, and for whom they are relevant. This indicates a need for guidance in relation to when it is beneficial to engage in IMC and when it is better to organise the delivery of services within one's own municipality.

We do not know the specific background behind the establishment of IMCs' included in this thesis, but it is clear that more or less mandated IMC will have implications in relation to how the cooperation is managed. For example, co-competition would prove challenging if the manager was relying on cooperation. How the service is organised initially will have consequences in relation to the future application of IMC, and thus the benefits of IMC.

The second theme deals with the structure and mechanisms related to public sector networks. Cooperative agreements need to be monitored and governed within an appropriate structure to ensure that the aims of the network are achieved (Barretta & Busco, 2011). Both informal mechanisms such as trust and formal mechanisms such as control systems are relevant (Barretta & Busco, 2011). The findings of this thesis revealed that support from managers was lacking in the context of IMC. This was related to both professional issues, wherein the lack of professional colleagues available for discussion resulted in a lack of opportunities for professional development, and to limited insights into the nature of the tasks that needed to be performed. It can be seen that the complexity of the situation might result in a lack of effective management, and hence prove a burden for employees working individually across municipalities. This can also result in a lack of monitoring of service delivery, which is designed to ensure that the aims of the network are achieved. Another interesting finding was that although team members did not receive any support from a manager or superior, they made use of co-worker supervision and took advantage of the autonomy within the team,

adapting the service to meet the needs of their collaborative partners and users. This contradicts the literature stating that networks need to be properly governed to ensure that their aims are achieved (Barretta & Busco, 2011). Flexibility and the ability to adapt quickly are two of the positive traits of network structures (Agranoff & McGuire, 2001). To ensure that the positive feature of flexibility is balanced with the need for governance and monitoring, flexibility must be combined with the ability to measure the performance and outcomes of the inter-municipal service to ensure that the service is accountable to its stakeholders (Agranoff & McGuire, 2001). Managing IMC requires a different approach than to managing traditional hierarchical municipalities. Klijn and Koppenjan (2012, p. 593) note that network managers require “negotiating skills, skills to bind actors and skills to forge new solutions that appeal to various actors whose resources are required to implement solutions.”

Coopetition is a critical issue that can hinder IMC. Competition in relation to achieving closeness to services for the municipalities’ own inhabitants, and recruitment of personnel with high competence, hence an increased number of inhabitants in the municipality can be part of the initial discussion between municipalities interested in IMC. Therefore, the choice of whether to implement IMC is not simply a question of the problems that need to be solved and the potential benefits of solving them through IMC. To assess the potential benefits of such a solution, it is necessary to examine how the IMC is organised and localised in the various municipalities. Trust has been identified as playing an important role in networks (Klijn, Edelenbos & Steijn, 2010; Provan, Huang & Milward, 2009). However, it is not the sole coordinating mechanism, but rather an important asset that is necessary if the network is to achieve its goals (Klijn & Koppenjan, 2012). On the basis of this knowledge, it is important for managers to be aware of the coopetition that can arise in relation to IMC and to focus on the establishment of trust in the provision and management of inter-municipal services.

The third important theme is that many recently established interorganisational relationships in the public sector consist of partners who are either unfamiliar with each other or were previously competitors (Barretta, 2008). The findings indicate a relationship between complex leadership and coopetition and resistance to change, making this third theme of particular relevance. Previous studies have shown that the level of complexity of management is related to the degree of resistance to change (Haveri et al., 2009). Increased complexity of the governance situation reduces the opportunity and will to develop new forms of

cooperation (Haveri et al., 2009). It is easier to rely on old models as a result of this complexity, which is in line with the findings of this thesis. Further, the complexity of the situation means that there is insufficient time to develop new ways of interacting with other actors (Haveri et al., 2009). This is especially relevant when the potential partners are unfamiliar, and the complexity of the problem means that the will to spend time on developing coping mechanisms might not be present.

The municipalities can act as competitors when it comes to the design of the inter-municipal service, as localisation in one's own municipality will deliver increased benefits. Thus, under conditions where competition is present, a special focus on management control systems is needed (Barretta & Busco, 2011). In these circumstances, the construction of common goals and shared views is important, and management must build trust among the partners. When coping with wicked problems, cooperation is often the favoured strategy, but it is important to recognise that cooperation often involves some degree of competition. Previous studies have found that when it comes to cooperation in health care services, it is not possible to apply the notion of competition as was the case in the National Health Institute (Goddard & Mannion, 1998). However, it can be seen that in the context of IMC in health care services, competition is prominent because localisation of services can impact a municipality's share of the profits. Collaboration and coordination have been identified as key instruments when dealing with complex problems (Head & Alford, 2015), and a network structure can enhance the autonomy, and hence the flexibility of the participants (Bardach, 1998). However, there is a risk that the collaborating parties will engage in gaming behaviour, and hence become a part of what makes the problem "wicked" (Head & Alford, 2015).

The competition that was identified in this thesis is not necessarily either good or bad. It can be bad if it results in the termination of IMC as a result of competition, but it can be good if it motivates municipalities to perform even better. The most important thing is to recognise that competition is likely to be present when organisations are collaborating to solve wicked problems.

## ***5.2 Critical issues in the implementation and operating phases of IMC***

In this thesis, critical issues were identified in relation to support, differences, diversity, complex information sharing, geographical distance, and awareness in

the implementation and operating phases. These critical issues are interconnected, and can all have an effect on employees involved in inter-municipal service delivery.

The findings indicated a lack of support from managers in the municipalities. This lack of support affected employees working alone across municipalities in particular, whereas employees working in a team took advantage of support from other team members. The lack of support was related to organisational issues, for example, some of the managers in the municipalities did not know how the service was organised, and some of the municipalities did not provide the necessary facilities such as EHRs and office support.

As presented in Section 4.1, management of IMC is more complex than management in traditional hierarchical organisations. “Negotiating skills, skills to bind actors and skills to forge new solutions that appeal to various actors whose resources are required to implement solutions” (Klijn & Koppenjan, 2012, p. 593) are necessary if managers are to successfully manage networked organisations. However, these traits are less suited to the needs of individuals working across municipalities as part of the inter-municipal service delivery than to those of employees working in teams. This provides an insight into the lack of literature related to employees involved in IMC. Although they were working in a service under the umbrella of IMC, personnel working individually to provide services expressed a sense of loneliness associated with the perceived lack of support.

The employees also experienced inconsistencies across municipal borders. These were mainly related to diversity among the municipalities involved in the IMC, which required a range of procedures. We know that IMC is easier to achieve if the municipalities are homogenous in terms of their needs, interests, resources, budgeting rules, and service requirements (Feiock, 2007). However, municipalities are inevitably diverse in terms of population, geographical size, and distance from specialised health care services. This diversity led to different forms of organisations and practices in the collaborating municipalities, and hence the need for inter-municipal employees to adapt to these different practices. This creates a challenge for the employees, who must work across municipalities characterised by diversity. This is in line with previous research showing that heterogeneity between cooperating municipalities regarding organisational issues and working methods were barriers to successful partnerships (Andersen et al., 2010). Further, research has suggested that heterogeneity regarding the size of potential municipalities reduces the potential for small municipalities to engage in IMC

(Arntsen et al., 2018). The findings of this thesis elaborate on previous findings, suggesting that heterogeneity regarding service organisation, management, competence resources, ICT tools and information sharing is a challenge in the implementation and operating phases of IMC in health services.

The employees also experienced challenges presented by geographical distance, with employees spending large amounts of both their working hours and spare time driving long distances. IMC is one answer to the need for cooperation, and a low population density is an important driver of IMC in health care services in Norway (Arntsen et al., 2018). However, this low population density and a lack of centralisation of services means that employees must drive long distances to meet patients.

In addition, the findings revealed challenges in anchoring the IMC in the municipalities. This lack of anchoring leads to a lack of awareness, and thus to a lack of support, and can also lead to inefficient use of resources, as employees spend a lot of time replicating processes related to information-sharing activities or unnecessary visits to patients. Challenges related to awareness of different aspects regarding people in an organisation are well-known (Maybury, D'Amore & House, 2002). However, we lack information on the effects this lack of awareness will have in the complex context of IMC. As illustrated in Figure 2 (see Section 4.4.1), the findings show that awareness can impact how the IMC is anchored within a particular municipality. This is also related to a mutual lack of awareness between inter-municipal services and intra-municipal services, and is also related to information sharing. Marshall and Bly (2004) argue that people share information with each other in an attempt to develop mutual awareness. Awareness encompasses “knowledge of people, their presence and availability, their activities, the information they produce and the tools they use” (Maybury et al., 2002, p. 199).

The findings revealed a lack of awareness regarding these issues in the context of IMC. Information sharing and communication are important antecedents for solving wicked problems in networks (Weber & Khademian, 2008). Although information sharing between primary and secondary care has attracted considerable attention (see, for example, Christiansen et al. (2017) and Hellesø et al. (2016)), this is not the situation when it comes to horizontal cooperation, such as IMC in health care. In this thesis, I found evidence suggesting that information sharing is inherently challenging and complex, and IMC added an extra dimension of complexity to what was already a challenging situation within



the municipalities. The findings indicated that problems in relation to information-sharing practices were not addressed prior to establishment of the service. However, we also found that information-sharing practices changed during the data-collection process, indicating flexibility and a willingness to change based on newly occurring needs. Through information sharing, the various stakeholders can establish a common focus, whereby information provides additional knowledge about, and potential solutions to, the wicked problem. When this information is distributed among all participants, and received and accepted, it can serve as a knowledge base from which to address the wicked problem (Feldman & Khademian, 2005).

### ***5.3 Overall discussion***

The findings provide insight into the critical issues facing IMC in health care services and the impact these issues have on each other. The numerous relationships that were identified are related to the nature of wicked problems, wherein every wicked problem can be considered as a symptom of another problem (Rittel & Webber, 1973). This relates to interdependency among problems, which is also reflected on in this thesis. IMC in relation to health care services can be seen as the result of trying to solve a wicked problem. This can either be a current problem (e.g., a lack of resources, whereby one municipality has too few patients to employ a full-time psychologist, but no psychologist is willing to be employed in a part-time position) or future problems (e.g., changing demographics, with politicians suggesting that the municipalities need to improve their efficiency and provide more specialised care for the elderly). The need for new and more specialised services in sparsely populated areas is a particular challenge. Hence, IMC is a potential solution to an initial wicked problem.

The problem and its solutions are inevitably interconnected with other problems. The term “wicked problems” refers to problems that are difficult to identify, involve multiple stakeholders with different views, consist of complex interdependencies, and the solving of which often result in new problems (Rittel & Webber, 1973). The space of the wicked problem comprises overlapping and interconnected subsets of problems that cut across policy domains and levels of government (Weber & Khademian, 2008). IMC involves numerous stakeholders with different perspectives, interests, and backgrounds, and substantiates what has been referred to as strategic uncertainty (Koppenjan & Klijn, 2004). The actors

involved have their own unique perceptions of the problems, and these perceptions might not be acknowledged by others. This can result in a large variety of strategies on how to address the problems. Although the team-based structure exploited autonomy in terms of delivery of services, it was not evident that the members adopted unexpected strategic approaches. Rather, their actions were based on interactions with stakeholders such as users, relatives and other health professionals. However, the lack of support from managers means that it is possible for the teams to undertake actions other than those expected by the municipal managers.

Rittel & Weber (1973) argue that the information needed to solve the problem is dependent on how one is planning to solve the problem. Thus, the processes involved in formulating the problem and conceiving a solution are intertwined. This is in contrast to tame problems, for which a formulation containing all relevant information necessary to solve the problem can be provided (Rittel & Webber, 1973). The causes and effects of wicked problems are extremely difficult to identify, and a lack of consensus in relation to the problem leads to a high degree of conflict (Roberts, 2000).

One must also acknowledge the limitations of science in addressing wicked problems. Wicked problems are associated with scientific uncertainty as a result of fragmentation and gaps in knowledge (Head & Alford, 2015). Existing studies are scarce in relation to IMC in health care services. Moreover, the existing studies are diverse and fragmented. This introduces additional complexity to the field of IMC. This lack of knowledge is part of the substantive uncertainty about the nature of the problem. Both the availability of relevant information and the use and interpretation of that information are of relevance (Koppenjan & Klijn, 2004). One promising strategy seems to work with the end in mind. If part of the problem is a lack of collaboration with external health care personnel and end users, IMC is a promising way of promoting the necessary cooperation. However, it is important to ensure that the problem is defined at an organisational level that is high enough to address the actual problem, and not merely the symptoms of the problem (Rittel & Webber, 1973).

In addition, ICT is presented as a way of addressing wicked problems (Westbrook et al., 2007). Even though information sharing is complex, and could well be a part of the wicked problem, there is also the potential for technology to be used to address the other critical issues. For example, there are many examples of how telecare can improve remote patients' access to health care (Alkmim et al.,

2012; Karlsen, Moe, Haraldstad & Thygesen, 2019; Magdalena & Bujnowska-Fedak, 2015), which addresses the critical issue of geographical distance. Further, it is found that ICT support can increase job satisfaction for teleworkers<sup>2</sup> (Bentley et al., 2016), which addresses the need for support by employees working as isolated individuals in IMC.

Information sharing across organisations has great potential, and can provide new opportunities for managers in need of information from multiple sources (Bigdeli, Kamal & De Cesare, 2013; Pardo, Gil-Garcia & Luna-Reyes, 2010). Hence, ICT can help address the complex leadership challenges being experienced today in relation to IMC in health care services.

It is claimed that in general, modern social problems are “ill defined”. Because they rely on political judgements rather than on scientific certitudes, most major public policy problems are wicked (Rittel & Webber, 1973). In Norway, coordination reform (The Norwegian Directorate of Health, 2009) was initiated by politicians and implemented in 2012. The reform emphasised IMC as a way to meet the requirements set out by the reform. Yet, in 2014, the parliament supported the government in suggesting the need for a local government reform reducing the number of municipalities (Innst. no. 300 S 2013-2014, 2015). Contradictory political views on the “right” way to address citizen needs can lead to an additional burden on managers when deciding whether or not to engage in IMC. The findings indicate that it is difficult to know when to implement IMC, and it can be more efficient to continue as before. Due to uncertainties regarding political views and decision-making, this might be a good strategy. This is elaborated on in a study addressing IMC in Denmark, where a barrier to successful IMC was a local government reform that served as a competing force (Andersen et al., 2010). This can be addressed in terms of the institutional uncertainty that characterises wicked problems, which are cross-sectional and involve actors at different organisational levels. All actors make decisions based on the regulations and regimes that exist in their own organisation (Koppenjan & Klijn, 2004). Therefore, national initiatives might not always fit the objectives, interests and perceptions of local governments. Institutional uncertainty is also of relevance regarding the diversity that is identified as a critical issue in this thesis. Participants in IMC can face

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<sup>2</sup> Telework has been defined as “*work carried out in a location where, remote from central offices or production facilities, the worker has no personal contact with co-workers, but is able to communicate with them using new technology*” (Di Martino & Wirth, 1990, p. 530).

difficulties in cooperating with other municipalities, as all employees are guided by the structure of their own municipality. Thus, heterogeneity amongst them becomes a challenge.

Paper III found that the use of teams in IMC made use of the flexibility and autonomy provided by inter-municipal services. They adapted existing services and developed new services based on the changing needs of users/patients and their collaborative partners. Flexibility and adaptability are regarded as positive traits of networks (Provan 2008), and are important when addressing wicked problems. Rule-based actions are found to be inadequate when dealing with wicked problems (Weber & Khademian, 2008). A common knowledge base, rather than control-and-command processes, is a basis for cooperation in wicked problem settings (Weber & Khademian, 2008). In Paper III, we found that this common knowledge base was established between the inter-municipal employees, their collaborative partners, and the users in a team-based structure in relation to IMC. Network governance has been described as both a threat to democracy and a supplement to existing democratic structures (Hajer et al., 2003; Haveri et al., 2009; Klijn & Skelcher, 2007). Although networks are described as having the intention of improving democratic structures, new practices are emerging rather slowly (Klijn & Koppenjan, 2012). The findings of this thesis include evidence supporting those stating that network governance can supplement existing democracy. Although the findings suggest that IMC can increase wicked problems by adding even more complexity to an already highly complex area of service delivery, the use of team-based services in IMC was found to be flexible and enabled services to be adapted based on interactions with stakeholders.

Previous studies have pointed to collaboration as a way of coping with wicked problems, and interdisciplinary cooperation has been of particular importance (Head & Alford, 2015). Collaboration addresses wicked problems in three ways. First, it increases the likelihood of a shared understanding of the problem and its causes (Bentrup, 2001; Padiila & Daigle, 1998). Second, openness to joint problem-solving increases the likelihood that provisional solutions to the problem can be found and agreed upon (Head & Alford, 2015). Third, collaboration facilitates the implementation of solutions, as it enables shared contributions and coordinated actions among the various actors that are involved (Koppenjan & Klijn, 2004). In this thesis, it is clear that IMC, as opposed to the traditional hierarchical organisation of public services, shows promise as a means of coping with wicked problems.

Even though there is evidence that the team structure is the best way to organise IMC, it must be considered that “wicked problems have no stopping rule and are considered relentless” (Rittel & Webber, 1973). In contrast to other problems wherein various criteria can tell the problem-solver that a solution has been found, this is not the case with wicked problems, where the process of solving the problem is intertwined with that of understanding its nature (Rittel & Webber, 1973). The context is constantly changing, hence there is no logical predefined end to the problem. The problem cannot be solved, and despite people’s best intentions, efforts to solve the problem will have consequences in other policy areas. Policy-makers recommended IMC as a way of dealing with health care issues. However, the necessary laws and regulations had not been established to support this approach. When national regulations do not match national recommendations, IMC provides an additional challenge for managers. The findings show that there are several critical issues with a high degree of connectedness, as discussed in Sections 4.1, 4.2, and 4.3. On the basis of these discussions, the importance of addressing the whole problem, rather than trying to solve part of the problem, is a key insight.

#### ***5.4 Methodological considerations***

In this section, I discuss the quality of the research undertaken in this thesis. Which quality criteria to use in relation to qualitative research, and how they should be used, are unclear (Flick, 2014). One commonly used model involves the eight criteria suggested by Tracy (2010): worthy topic (the topic is relevant, timely, significant and interesting), rich rigor (sufficient and appropriate theoretical constructs, data, sample, context and analysis are applied), sincerity (self-reflexivity and transparency characterises the study), credibility (the research is characterised by thick descriptions, triangulation, multivocality and member reflections), resonance (the research affects readers through, for example, aesthetic, naturalistic generalisations and transferable findings), significant contribution (the contribution of the research is significant conceptually, practically, morally, methodologically or heuristically), ethics (procedural ethics, situational and cultural ethics, relational ethics and exiting ethics), and meaningful coherence (the study achieves what it purports to achieve, uses methods that fit the initial goals and meaningfully interconnect the literature, research questions, findings and interpretations). This model is expansive, yet flexible, is applicable

to various paradigms, and focuses on both the means and ends of the research project (Tracy, 2010).

#### **5.4.1 Worthy topic**

Initially, an existing gap in the literature highlighted the need for this study. It was clear that more knowledge regarding IMC in health care services from the viewpoint of employees was required. This study provides new knowledge about issues experienced by the people affected by the research, and hence it creates what Lincoln and Guba term “educative authenticity” (Lincoln & Guba, 1985). In addition, the research commenced at a time when IMC in health care services in Norway was increasing. The public sector in Western countries is facing major challenges in terms of demographic changes, reduced budgets, and technological developments, and IMC has been introduced in Norway as a way of coping with these future uncertainties, hence it is necessary to learn more about the critical issues facing this form of organisation.

#### **5.4.2 Rich rigor**

The research undertaken in this thesis provides rich data from different contexts involving different cases using various data-collection methods and analytical approaches. The research investigated a complex phenomenon implemented in a complex context. The need for tools that are at least as flexible, complex, and multifaceted as the phenomenon being studied (Weick, 2007, p. 16) has been termed “requisite variety” (Weick, 2007). Further, the research team in Papers I, II, and III consisted of researchers from different disciplines. To understand the inductive findings that emerged during analysis, numerous theories and literature from various disciplines were examined with a view to identifying those that were most applicable to understanding and discussing the emergent findings. Weick (2007, p. 16) emphasises that “A head full of theories...increases requisite variety”, meaning that complicated sensing devices are needed to understand a complicated set of events.

During the study, new research questions arose, prompting us to collect additional data from documents and project reports, which provided sufficient information to conduct a qualitative analysis.

The data were collected over a period of one year. Contextual factors, such as changes in technology and the legal framework and municipal mergers contributed to changes in the environment in which the data collection took place. The IMC project that was the focus of this study was newly established. Further, the limited context in which this study took place and the relatively short duration of the study must be taken into consideration in line with the theory on wicked problems (Rittel & Webber, 1973) stating that every context is unique. Although not all the findings may be transferable to other contexts, I argue that the inclusion of six inter-municipal services from two different districts provides a broad base of insight that can be of relevance for many practitioners. In particular, I argue that the analysis used in Paper III, including both within-case analyses of three inter-municipal services in two districts and cross-case analyses across the included districts provides a high degree of analytic generalisability as stated by Yin (2014). The findings are replicated across the six cases, and thus are likely to be relevant to other inter-municipal health care services.

We collected data from participants in IMC and their collaborating partners, while the users and their relatives were not included in this study. The lack of their voices is a limitation of this thesis. Although we found evidence of the flexibility and adaptability of team-based services, we do not know how this impacts the quality or experience of the services provided. Feedback in this regard is based on secondary sources such as statements from inter-municipal employees and reports. Further, this thesis provides recommendations for managers. However, apart from the inter-municipal project leaders, no managers or decision-makers in the municipalities were included in this study, and these people could have provided new information or corroborated information provided in relation to various aspects of the study.

Pragmatism guided our research, and the research questions in the papers and the overall aim of the thesis emerged in response to new insights. This prompted us to adopt new research strategies, such as conducting a Delphi study and collecting more data from new sources. These changes were made to ensure that sufficient appropriate data were collected and analysed to meet the aims of the papers and this thesis. In addition, rich description on how data has been collected, transcribed and analysed, both in the papers and as elaborated on in Section 3 in this thesis, contributes to rich rigor.

There were 19 participants in the initial round of the Delphi study. There is no consensus regarding the ideal number of participants in a Delphi study. Some

have argued that a panel should include between eight and 12 experts (Cavalli-Sforza & Ortolano, 1984; Novakowski & Wellar, 2008; Richey, Horner & Mar, 1985), while others argue that 10–50 is an appropriate number. Recommendations regarding sample sizes in homogenous groups can be relatively small (Trevelyan & Robinson, 2015), from 8–12 (Keeney, McKenna & Hasson, 2010), to 10–15 (Skulmoski, Hartman & Krahn, 2007). However, a larger sample size can increase generalisability (Trevelyan & Robinson, 2015). In Paper I, the experts were recruited because of their knowledge and competence regarding collaboration and IMC, and thus were considered homogenous. However, because of the heterogeneity in relation to context (large and small municipalities) and the risk of attrition because of an uncertain number of rounds, we chose to include a higher number of experts than that recommended for homogenous groups. This was also related to the decision to use consensus as a stopping guideline, which meant that it was not known how many rounds the study would include. Eventually, the study comprised five rounds. As expected, we experienced significant panel attrition, with slightly less than half of the initial panel of experts participating in the final round of the study. As attrition is likely to increase with each successive round (Trevelyan & Robinson, 2015), the fact that nine experts participated in the final round should be seen as a strength of this study.

The reliability of a Delphi study is dependent on the experts who are recruited to the study (Hsu & Sandford, 2007). The term “expert” has been widely used in health care research, especially in relation to consensus methods such as Delphi studies, and is usually linked to experience and/or knowledge regarding a certain topic (Cantrill, Sibbald & Buetow, 1998; Trevelyan & Robinson, 2015). However, as a result of ongoing debates on how to define both experience and knowledge, the use of the term “expert” has been criticised (Trevelyan & Robinson, 2015). Therefore, we chose to link expertise with context; the person with the highest competence on collaboration and IMC in the municipality were recruited.

During the work on the papers included in this thesis, it was found that the initial research questions did not cover important aspects of IMC, and thus the need arose for new research questions. The ability to change the research questions has been claimed as a strength of case studies (Yin, 2014), but this flexibility has also been criticised (Yin, Bateman & Moore, 1985). To address this criticism, it is recommended that researchers should start from the beginning with a new research design (Yin, 2014). In this study, new research questions became evident.



However, the existing research questions were still applicable. Therefore, we decided to continue with the original research design, but also to start again by defining a new research design for the new research questions.

### **5.4.3 Sincerity**

At the start of the research presented in this thesis, I was a novice in relation to both conducting research and the literature and theories related to IMC. Having supervisors from different disciplines, I quickly decided not to choose a predefined scientific point of view, but rather to make use of the relevant literature as findings emerged. In this way, I was able to make use of the interdisciplinary potential of the research team. This standpoint fits well with pragmatism as a research paradigm, as well as being a suitable strategy for addressing wicked problems. However, it also meant that I had to spend a lot of time obtaining insights into the relevant literature. Being unaware of the large number of disciplines addressing IMC and the degree of fragmentation among them, I spent a lot of time collecting data without the insight of relevant literature. Greater insight might have led to other questions in the interviews, or the recruitment of additional participants.

My presence as a researcher might have impacted the behaviour of the participants during the observations as a result of the Hawthorne effect (Morgan et al., 2017). To avoid such potential bias, the findings from the observations were validated through a workshop. In the course of the workshop, we were advised that some of the practices we identified during observations were not standard practices. For example, the participants informed us that a “pre-visit” to a patient, which we observed during data collection, was not usually conducted. We do not know if this pre-visit was a result of the Hawthorne effect, or whether there were other reasons, such as a “try and fail” strategy in the implementation phase. Whatever the cause, the validation round in the workshop served its purpose.

The field notes taken during the observation period could have been influenced by what I “chose” to identify as relevant. This was especially relevant in the unstructured part of the observation process. My background as a nurse might have influenced the notes I made, and information I took for granted and did not record might have been valuable for others without a background in health services.

#### **5.4.4 Credibility**

To ensure credibility in relation to qualitative research, thick description is important (Tracy, 2010). In Papers II and III, I described the context in which the study took place and related this to the findings. This relates not only to descriptions of the region, population, and organisation, but also to external factors affecting the services, such as demographic changes and the implementation of the coordination reform, as this information can be of the utmost importance in understanding the context and circumstances in which the inter-municipal services are established.

In qualitative research, tacit knowledge is also important (Tracy, 2010). Thus, during the analysis, I also took note of what was not being expressed. This was especially relevant regarding the team's experience with support, and the insight that they did not mention support, or lack of support, from managers, but rather focused entirely on how the team members supported each other. We also made use of what has been called "member reflection" (Tracy, 2010). By conducting the workshop, we gave the participants the opportunity to provide feedback on the preliminary findings, thereby contributing to the validation of those findings.

In Papers I, II, and III, the data were collected from different sources in various contexts by researchers from different disciplines, and different theoretical lenses were applied. In this thesis, a secondary analysis of the data from these papers was conducted, replicating the findings in the papers. This provided a deeper understanding and encouraged an evolving interpretation of the data. Abductive reasoning was applied in relation to RQ2 in this thesis. It is acknowledged that there is no obvious answer to the question of how we can combine the advantage of the systemic character of the empirical world with the systemic character of theoretical models (Dubois & Gadde, 2002). However it is recognised that using multiple sources of data may reveal new dimensions of the research problem (Dubois & Gadde, 2002), as was the case in this thesis.

#### **5.4.5 Resonance**

Resonance emerges if the research study has the potential to be valuable outside the context in which it took place. In the research underlying this thesis, I have also described other areas where the findings may be relevant. This is especially applicable regarding the team structure used in IMC, which can potentially be

applied to network organisations in other areas, for example, within the municipality.

#### **5.4.6 Significant contribution**

This study extends the existing theoretical knowledge on how the public sector can respond to wicked problems. Further, it provides new insights into critical issues for IMC in general, and from the viewpoint of employees in particular. This was an area where there was a gap in the existing knowledge.

Further, this thesis seeks to provide practically significant findings. By providing a conceptual model of critical issues affecting IMC, I aim to empower stakeholders to see IMC in a different way. Inter-municipal employees can obtain insight into and an overview of a work situation that others have experienced, and hence a better understanding of the context in which they are working. Managers will have a framework that enables them to identify and address critical issues, and hence provide a good work environment and effective services. Meanwhile, the national government will obtain insight into the information that is lacking and how better synchronisation of reforms and regulations can be provided in the future.

#### **5.4.7 Ethical**

In this thesis, I have strived to achieve high ethical standards. This includes a focus on avoiding plagiarism or falsifying information. Although the main project, eHealth-extended Care Coordination, was responsible for ethical approvals, I acknowledge the responsibility I have for my research.

It is a social responsibility that time spent on research, both the participants' time, as well as that of the researcher, should result in research that is beneficial (The Norwegian National Committees for Research Ethics, 2014). Initially, I argued why the research conducted in this thesis was necessary. Further, it is important that academic freedom is preserved (The Norwegian National Committees for Research Ethics, 2014). The influence of pragmatism ensured an evolving process whereby research questions emerged based on new and bottom-up insights, ensuring academic freedom. It is also important that the findings are made available. The papers in this thesis have all been published in open-access

journals, ensuring that they are freely available, and thereby contributing to democracy (The Norwegian National Committees for Research Ethics, 2014).

All participants in this study provided voluntary informed consent. They were not exposed to any additional danger by participating and suffered no disadvantages apart from the time spent on participation. The case studies included several participants within two specific settings, which might prove problematic (Flick, 2014). To ensure confidentiality, both for the general public and for the participants in the study, the districts are not mentioned by name, nor is the specific time frame during which the study took place mentioned. Pseudonyms have been used in relation to all participants and the citations from interviews are not linked to any specific participants' roles.

The researcher observed three patient consultations. It is acknowledged that there is a power imbalance between the participant and the researcher (Shaw, Houghton, Casey & Murphy, 2010), and one cannot fully ensure that the patient was not distracted by the presence of a researcher in the room. To limit the risk of interfering in the interaction between the health care personnel and the patient, the researcher engaged in dialog with each patient on where to sit to limit interference, and confirmed that the observation was not focused on the patient, but rather on how the health care personnel handled the information they acquired during the visit. The health care personnel, who knew the patients, discussed the study and the observation with the patients prior to the observation. Before the dementia assessments, the patients' relatives were also informed and consented to the patient's participation. In addition, the researcher informed the patients about the study and emphasised that participation was voluntary. This gave the participants time to think about whether they wished to provide consent to participate in the study.

#### **5.4.8 Meaningful coherence**

To achieve meaningful coherence, I made use of pragmatism as a research paradigm during the research process. This involved not making any preliminary choices regarding the methodological approaches or theories to be used in the research. However, the emerging research questions guided my methodological choices, and the emergent findings guided the application of theory. Further, the research findings of all papers included a section outlining the practical implications.

On the basis of this discussion of the eight criteria relating to qualitative research, I argue that the research presented in this thesis is of high quality.

### ***5.5 Implications for policy and practice***

This thesis provides insights that are relevant to both policy and practice in various ways. First it provides a conceptual model illuminating critical issues relating to IMC in health care services. For employees, this is useful knowledge for planning inter-municipal services and identifying the critical issues experienced by others. This conceptual framework can serve as a tool for identifying critical issues experienced in their work situation and suggesting improvements. It can also serve as a basis for planning and the provision of efficient and effective services.

The team structure was found to be important, and employees working as isolated individuals were affected by a lack of support. This implies that the best way to provide inter-municipal services is through a team structure. However, this might not always be possible. In these cases, one must assure that the employees receive support in relation to both professional feedback and organisational issues. On the basis of the positive experiences that were identified in relation to the use of a team structure in IMC, team structures involving other professionals in other regions and/or in conjunction with secondary care could be a promising area to explore.

For managers, this conceptual model can serve as a guide when preparing for the planning phase of an IMC project. Further, it can serve as a tool for identifying critical issues during the implementation and operating phases and provide information on how one critical issue is likely to impact other critical issues. Several of these issues are likely to have a direct impact on the employees working in the various services involved, and can serve as management tools. Further, the conceptual model identifies important issues that should be addressed prior to establishment.

New technological solutions such as telecare and ICT support can help to address some of the critical issues that were identified. Further, the findings acknowledge the importance of both identifying information-sharing needs prior to the establishment of IMC and ensuring that the organisation is flexible and able to implement new practices and technology as new needs arise.

In addition, this thesis provides information on how IMC is related to wicked problems and strategies on how best to organise IMC. Ultimately, this thesis provide insights for managers in all local government organisations dealing with wicked problems. The findings of this thesis provide new insight into why collaboration is a constructive way to address wicked problems. Addressing wicked problems, the traditional hierarchical structure is not satisfactory, and thus network structures should be established. This network structure can be flexible and able to adapt to changing user needs. This insight is also useful for managers not involved in IMC, as a networked organisation can also be created within a single municipality.

Finally, one implication for policy-makers is that when planning for the future, coherence between recommendations and legislation should be ensured to support smooth implementation processes for practice.

## 6.0 Conclusion and further research

This thesis contributes to the existing literature in three ways. First, it sheds light on several critical issues in relation to IMC in health care services: cooperation, complex leadership, resistance to change, support, geographical distance, differences and diversity, complex information sharing, and awareness. Second, it reveals the interconnectedness between these critical issues, and the importance of addressing the whole problem, rather than just parts of the problem. Third, it shows how IMC in health care services can be used to address wicked problems. In addition, it has practical implications. Employees involved in IMC can be alert to potential critical issues, and thus are better equipped to address these issues when they appear. Managers involved in IMC should adopt a process perspective in relation to the design, operation, and transformation of IMC. By creating awareness of the critical issues involved in each process as identified in this study, the managers will be better equipped to collaborate and increase their capabilities, enabling them to develop the strategies needed to ensure that inter-municipal health services are able to address wicked problems.

This thesis has illuminated several areas of interest for future research:

- The network structure used in IMC is flexible and able to adapt to changing user needs. This insight should be elaborated on in relation to both wicked problems in areas other than health and forms of cooperation other than IMC. This includes the insight that team members require little support from managers.
- Future research should focus on the mechanism related to management of inter-municipal services. In this thesis, I found evidence indicating that management and professional support is of the utmost importance for individuals, but is lacking.
- The findings provided insight into the challenge of identifying when and when not to participate in IMC. There is a need for support in relation to deciding when IMC can be beneficial.
- We found evidence of the co-existence of competition related to IMC. This cooperation and its implications should be elaborated on.
- The experiences of patients and their relatives in relation to health care services delivered through IMC should be elaborated on.





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## **Part II**



## **Paper I**





RESEARCH ARTICLE

Open Access

# Important challenges for coordination and inter-municipal cooperation in health care services: a Delphi study

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## Abstract

**Background:** Demographical changes have stimulated a coordination reform in the Norwegian health care sector, creating new working practices and extending coordination within and between primary and hospital care, increasing the need for inter-municipal cooperation (IMC). This study aimed to identify challenges to coordination and IMC in the Norwegian health care sector as a basis for further theorizing and managerial advice in this growing area of research and practice.

**Methods:** A Delphi study of consensus development was used. Experts in coordination and IMC in health care services were selected by the healthcare manager or the councillor in their respective municipalities. In the first round, an expert panel received open-ended questions addressing possible challenges, and their answers were categorized and consolidated as the basis for further validation in the second round. The expert panel members were then asked to point out important statements in the third round, before the most important statements ranked by a majority of the members were rated again in the fourth round, including the option to explain the ratings. The same procedure was used in round five, with the exception that the expert panel members could view the consolidated results of their previous rankings as the basis for a new and final rating. The statements reaching consensus in round five were abstracted and themed.

**Results:** Nineteen experts consented to participate. Nine experts (47%) completed all of the five rounds. Eight statements concerning coordination reached consensus, resulting in four themes covering these challenges: different culture, uneven balance of power, lack of the possibility to communicate electronically, and demanding tasks in relation to resources. Three statements regarding challenges to IMC reached consensus, resulting in following themes: cooptation, complex leadership, and resistance to change.

**Conclusions:** This study identified several important challenges for coordination and it supports previous research. IMC in health care services deals with challenges other than coordination, and these must be addressed specifically. Our study contributes to extended knowledge of theoretical and practical implications in the field of coordination and IMC in health care sector.

**Keywords:** IMC, Delphi, Coordination, Cooperation, Municipality, Health, Reform

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## Background

In European countries there will be substantial demographic changes resulting in challenges of costs and capacity in the health care services. To meet these challenges many European countries have implemented new working practices.

The “Coordination reform” was implemented in the Norwegian health care services in 2012. This reform entails that more advanced treatment shall occur in the municipalities through new working practices, such as extended coordination within primary care and between primary and hospital care. In this study, the health care sector is considered as hospital services organized at the regional level and primary health care services organized in the municipalities, and both are publicly funded. In Norway, there are 429 municipalities, and more than half of these have less than 5000 inhabitants. For municipalities to manage both the specialized and increased amount of tasks, the coordination reform entails an increased need for inter-municipal cooperation (IMC) between small municipalities. It is expected that the municipalities will implement IMC when necessary.

In the field of collaboration/coordination, research has targeted the need for inter-organizational integration in health care services, and has pointed to the fragile and volatile nature of inter-sectorial collaboration [1]. Management, as well as commitment and support from actors, are mentioned as essential when delivering integrated care. Other important challenges for integrated care are the institutional context, such as the financing system and legislation [2]. Moreover, organizational culture is found to be of great importance to inter-sectorial collaboration [3] and important barriers are identified in professional tribalism, and status and power differentials [4]. In a previous report, 10 challenges were identified that must be addressed to achieve successful collaboration, including careful preparation and organization by the leaders, and supportive home management [5].

Research based on neo-institutional theory has shown that obstacles in tackling health care reforms have less to do with “what to do” than “how to do it” [6]. Other research has shown that health reform complexity is often noticed by the planners, but are not taken as seriously as they should be [7]. This lack of attention towards complex problems in the health reform is also addressed in a study by Glouberman and Zimmerman [8].

Many reports on IMC are non-scientific and in general, there is a scarcity of systematic research targeting IMC. In “Inter-Municipal Cooperation in Europe” [9], the authors conclude that research into the performance of IMC and into factors determining success and failure should be at the top of future research agendas. In 2006, a report [10] showed that inter-municipal work in Norway is lacking political management, control, and overview, concluding

that the situation could undermine local democratic control of basic public services, and measures should be implemented to enhance the visibility, knowledge, and awareness of IMC.

A study by Haveri [11] found that even though the need for cooperation is acknowledged in most surveys, practical steps are difficult to carry out because of complexity in inter-organizational action.

Given the establishment of new collaboratives with substantial differences in interests, Øvretveit et al. [5] suggest that more research is required on this issue.

To address this gap in the literature, the purpose of this study is to identify the most important challenges for coordination and IMC in the health care services, from the viewpoint of experts in the municipalities.

## Methods

A Delphi study among Norwegian experts was conducted to identify and prioritize challenges that might hinder coordination and IMC in health care services in Norway. The study was conducted from May to August, 2012. In the present study, IMC includes cooperative arrangements between municipalities and not between municipalities and other organizations. The phrase “coordination” is used, referring to the “coordination reform”. The meaning of coordination in this context is explained in a report to the Storting (Norwegian Parliament) [12] where the term “coordination” is used to describe the ability of different healthcare services to unite tasks to reach a common goal, and to complete the tasks in a coordinated and rational way. The phrase “cooperation” is used in the context of IMC, and is an established phrase in the literature [13,14].

According to Powell [15], the Delphi technique has the advantage of being a democratic and structured approach, which exploits the collective knowledge of the participants. The Delphi technique is thus a promising method for facilitating communication and seeking consensus within different groups. In essence, the procedure comprises several sequences of questionnaires or rounds to a group of experts within a specific field, with controlled feedback from the researcher. The Delphi technique attempts to seek the most reliable consensus of opinion for a group of experts [16,17]. This Delphi study was conducted in three steps; it started with open-ended questions, qualitative data were validated, and it finished with three rounds of a consensus process.

As a first step, a pilot study was conducted to test how SurveyXact could support the Delphi method, test wording and response format, and finally, how much time was required in each round. Five informants were included, four with relevant experience of IMC, and one with research experience related to IMC. The pilot study was conducted in four rounds (response rate round 1, 5/5; round two, 5/5; round three, 3/5; and round four, 3/5).

The pilot study revealed uncertainty in the interpretation of terms, such as “Delphi” and “panel group”, and resulted in some changes in formulations, questioning and lay out, as well as improvements in the use of open-ended questions, response format, timing of the interviews as well as subsequent survey design.

**Expert panel**

A total of 79 municipalities were contacted. Based on data from Statistics Norway, 35 of the contacted municipalities were categorized as large (>20,000 inhabitants) and 43 as small (<5000 inhabitants), as the intentional plan was to compare the two groups. To ensure a variety in the group, the municipalities were evenly distributed with respect to socio-economic criteria as restricted costs per capita and free disposable income per capita. Free disposable income per capita reflects the amount of revenue municipalities have at their disposal after the restricted costs are covered, and indicates the municipalities’ economic freedom.

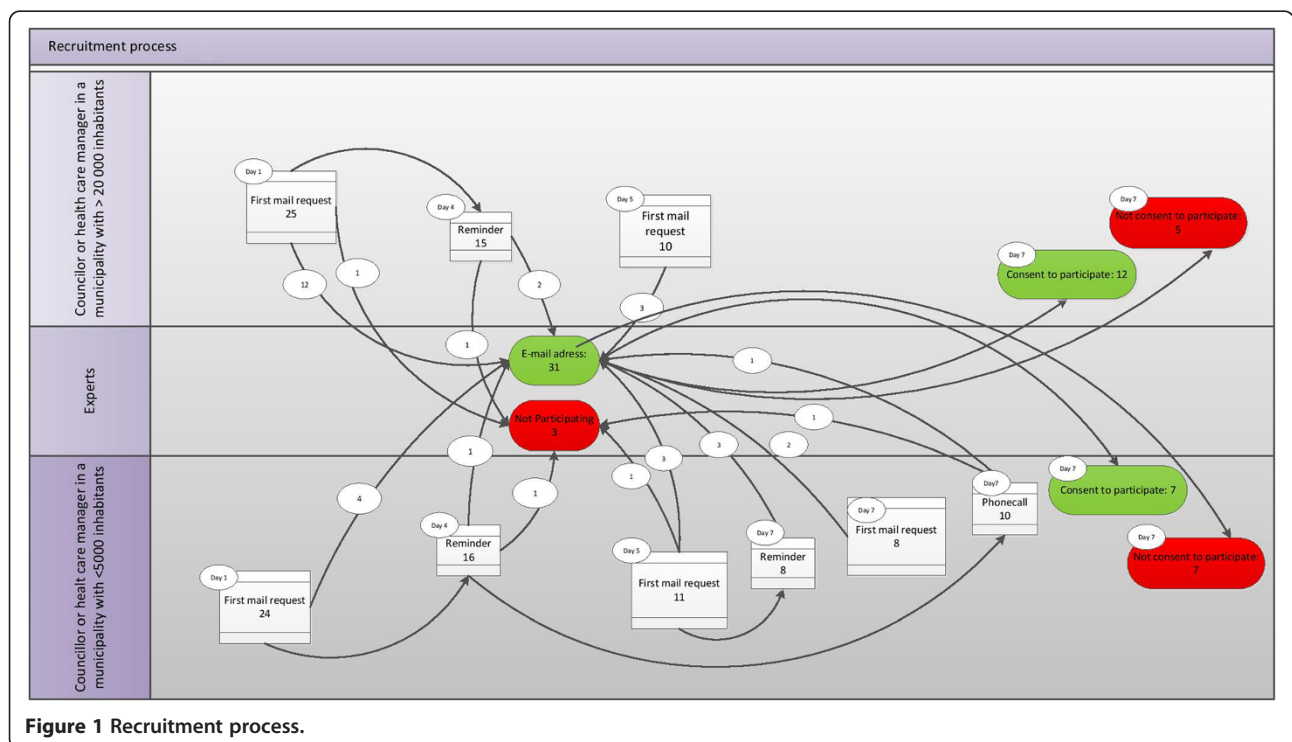
Depending on the local municipal structure, health care managers or councillors in the 79 municipalities were contacted by e-mail. We assumed that they had the best knowledge to identify experts of cooperation and IMC in their respective municipalities. The health care managers or councillors were asked to identify and send contact information of the employee in their municipality with the highest competence related to collaboration and IMC in health care services. They were told that the

identified person could be a project manager in the field, or a person with good insight by being involved in an implementation and continuation phase of IMC. In some cases, the health care manager or councillor who received the first e-mail could also be this expert. A detailed procedure for recruiting respondents is shown in Figure 1.

Figure 1 shows the number of municipalities that were contacted to identify experts in their respective municipalities. The figure shows the distribution of small and large municipalities, and the number of municipalities that was contacted. As the figure illustrates, a larger amount of small municipalities had to be contacted in several rounds. After seven days with several rounds of recruitment, we had contact information to 31 experts. They received information about the project and link to the first questionnaire. Table 1 shows that a total of 19 experts consented to participate. Out of those, 7 experts were from small municipalities and 12 were from large municipalities. The experts represented municipalities with inhabitants varying from 1500 to 115,000. Table 2 shows the experts position and size of municipality.

**Procedure**

This study was conducted as a five-round study. Survey Xact was used to distribute questions and collect data. A link to the questionnaire was sent by e-mail to respondents, and the response period was set to 4 working days with a reminder after 2 working days. In a few cases, some



**Figure 1** Recruitment process.

**Table 1 Sample**

	n	%
Sample	31	100
Consent to participate	19	61,3

respondents stated the need for extended time to answer, and this was accepted. The analysis was conducted in 2–6 working days, and then returned to the experts. Because of the summer vacation, it took almost 2 months between the fourth and fifth rounds. Participants who did not answer a round were excluded from the rest of the study. Table 3 shows the panel participation in the rounds. The language used in this study was Norwegian. One researcher translated the answers to English. The translation was validated by two co-researchers.

### Analysis

#### Round 1

In the first round, the experts answered the following open-ended questions:

Q-1. *What challenges do you experience related to coordination with various actors in the health/care services in your community and specialist health care? You should mention point-wise all the challenges you can think of.*

**Table 2 Experts positions**

Size of Municipality	Position
Small	Operating manager, preventive services
Small	Unit manager, nursing and care services
large	Special advisor, faculty of preventive services
large	Municipal Chief Physician
large	Advisor, faculty/support unit
large	Coordinator, the coordination reform
large	Advisor, health care services
large	Coordinator, the coordination reform
large	Project manager, the coordination reform
small	Local authority Executive
small	Coordination contact, Unit Manager, health care.
small	Municipal Chief Physician
large	Local Authority Executive
large	Project Manager, inter-municipal medical center
small	Local Authority Executive
small	Local Project Manager, the coordination reform
large	Unit Manager, health care services
large	Advisor, electronic messaging in care coordination
large	Special Advisor

**Table 3 Participation**

	Q-1	Q-2
Round one (%)	19 (100)	19 (100)
Round two (%)	11 (58)	11 (58)
Round three (%)	11 (58)	10 (53)
Round four (%)	10 (53)	10 (53)
Round five (%)	9 (47)	9 (47)

Q-2. *What challenges exist for inter-municipal work in the health care sector? You should mention point-wise all the challenges you can think of.*

In the beginning of the questionnaire, the respondents were given the report to the Storting's (Norwegian Parliament) description of the term "coordination" [12] to ensure they had a common understanding of the term. Qualitative data were first consolidated, meaning that answers with equal meaning were merged. The data were then analysed to distinguish actual challenges from "consequences" and "measures/success factors". The answers were also merged based on the overarching theme. This was carried out to validate the researcher's and expert panels' understanding of the different answers. Some statements were reformulated to more readily identify the challenge, such as the original statement: "What activities/tasks we can handle ourselves and what needs cooperation" was reformulated to "Lack of clarity related to how to handle ourselves and what needs cooperation".

#### Round 2

The expert group in the second round was asked the following questions related to Q-1 and Q-2:

1. *Verify that your answers are sorted under the correct category, to ensure that the meaning of the answer is understood.*
2. *Verify consolidation by ensuring that your opinion will appear under one of the statements (but not necessarily verbatim).*
3. *If you now come up with new challenges, you can add them. You should also consider whether your answers (or the consolidated responses) can be specified more, or incorporated into existing answers. Ask yourself why this is a challenge. For example, "Reform is not fully funded for municipalities." Why is it a challenge? Do you have no money to hire the necessary expertise? Do patients get lower quality for services? Or are there other reasons that make this a challenge?*

Based on the expert's responses, minor changes were made, such as adding some new statements, and some statements were reformulated to better communicate the meaning.

### Round 3

In the third round, the experts were instructed to point out a specified number of the most important statements related to each question. In all of the tasks, the a priori consensus criterion was set at variables selected by more than half of the experts. To avoid context effects, the variables for each theme were distributed in random order. The questionnaire was made in three versions with the themes unequally distributed.

Q-1. *Choose at least 20 variables you think are important challenges related to coordination in health care services. Your answers should be based on the competence you have in your position. The challenges do not have to relate to your own experiences in your municipality.*

Q-2. *Choose at least 10 variables you think are important challenges related to inter-municipal work in health care services. Your answers should be based on the competence you have in your position. The challenges do not have to relate to your own experiences in your municipality.*

In the task related to Q-1, 73 statements identified in round two were presented. One statement identified in round 2 was missing in round three. This statement was presented in round four. A total of 16 statements reached consensus. To avoid ambiguities, the statements were specified by two researchers, ending up with 20 statements. An additional file shows the 74 statements, including the missing statement. Number of times chosen and statements reaching consensus are presented [see Additional file 1].

In the task related to Q-2, 26 statements identified in round two were presented. A total of 13 statements reached consensus. To avoid ambiguity, the statements were specified by two researchers, ending up with 17 statements. One expert identified nine statements. As it was likely that this was a mistake made by the expert, the answers were included in the analysis. It was considered that removing the nine chosen answers had more potential to bias the results, than the lack of one chosen statement. One expert identified three statements, which was regarded as too few to be included in the analysis. This expert answered correctly regarding Q-1, and was therefore invited to the subsequent rounds.

An additional file shows the 26 statements. Number of times chosen and statements reaching consensus are presented [see Additional file 2].

### Round 4

In round four, the experts were instructed to rate the important variables related to each question on a five point Likert-type scale. To avoid context effects, the

variables for each theme were distributed in random order. In addition, they could comment on their explanations for their ratings. The missing statement from round three was also presented, and the experts were instructed to rate this provided they would have chosen it in round three. An additional file shows the statements presented in round four [see Additional file 3].

On a scale from 0–4, where 0 = no extent and 4 = a very large extent, the experts were asked the following questions:

Q-1. *To what extent do you believe that these challenges can hinder coordination in health care?*

Q-2. *To what extent do you think that these challenges can hinder inter-municipal cooperation in health care?*

### Round 5

In round five, the experts were presented the results from round four. The variables for each theme were distributed in random order. The results were presented as sample maximum and minimum, mode, median, and the consensus value was set as 80% response within two adjacent values. The two adjacent values that had most rates were set as the consensus value. When the two adjacent values were equally distributed, their mean value was set as the consensus value. In addition, the experts were presented with the other experts' explanations for rating, before they were instructed to re-rate the variables. This step followed the same procedure as in round four.

Agreement among experts in rounds 4 and 5 was analysed using Fleiss kappa statistics, calculated by IBM SPSS statistics 19.

Because the aim in this study was to identify the most important challenges, consensus in round five was set with statements rated as 3 or 4 (where 0 = no extent and 4 = a very large extent) by more than 75% of the experts. Statements reaching this value were abstracted and divided into themes by the researchers.

### Ethics

This study was approved by the Norwegian Social Science Data Services (NSD) (30209) and exempted from ethical approval from a Regional Ethical Committee according to Norwegian law. The experts gave voluntary informed consent to participate.

### Results

In round one and round two, the aim was for experts to identify and validate statements concerning coordination and IMC in health care services. A total of 74 challenges were identified concerning coordination and 26 barriers were identified concerning IMC.

In rounds three, four, and five, the aim was to obtain consensus on the most important challenges concerning coordination in general and IMC in particular in health care services. Eight challenges of coordination obtained consensus. The researchers abstracted the challenges into four themes. Three challenges of IMC obtained consensus. The researchers abstracted the challenges into three themes.

**Methodological result**

Fleiss’ kappa was used to measure agreement among the experts. Table 4 shows that value of kappa increased concerning Q-1 and Q-2, indicating that that the principle of a successive broader agreement between experts during the rounds was fulfilled. In round five, the value of kappa in Q-1 was higher than that in Q-2. The expert panel is homogenous because they are all defined as experts in coordination and IMC in their municipality. However, they are heterogeneous with regard to the size of the experts’ municipalities. Obtaining consensus in a heterogeneous expert panel is more difficult. This result suggests that large and small municipalities experience many of the same challenges concerning coordination, but for IMC, their view on what is important varies to a greater extent. The size of the experts’ municipality might be an influencing factor.

**Coordination**

In Q-1, eight statements reached consensus. Table 5 shows statistics of statements reaching consensus. These statements were abstracted into overarching themes by the researchers as shown in Table 6.

Consensus was reached on three challenges concerning different cultures. Differences were specified based on how to treat the patient and the different views on the patient’s “role” within the hospital and municipal setting. Experience of the hospital taking the lead in a central part of the coordination; the discharge of the patients was also rated as an important challenge.

Consensus was reached on two challenges concerning the lack of possibility to communicate electronically. Lack of common tools for electronic communication and lack of electronic communication were identified challenges in the expert panel. In Norway, juridical restrictions prevent sharing of sensitive information between organizations. Therefore, sensitive information is exchanged as semi-electronic solutions by the use of a secured message

**Table 4 Fleiss Kappa statistics**

	Round four	Round five
Q 1	Moderate agreement (kappa = 0,54)	Substantial agreement (kappa = 0,68)
Q 2	Fair agreement (kappa = 0,34)	Fair agreement (kappa = 0,38)

**Table 5 Descriptive statistics for statements reaching consensus in round five, Q-1**

Statement rated 3 or 4 by >75%	Measure	Value
Different culture between municipal and specialist health care services.	Sample maximum and minimum	2-4
	Median	3
	Mode	3
Specialist health service has focus on diagnosis and treatment, but the municipality has focused on coping and quality of life.	Sample maximum and minimum	2-4
	Median	3
	Mode	3
Lack of electronic communication.	Sample maximum and minimum	2-4
	Median	4
	Mode	4
Lack of common tools for electronic communication.	Sample maximum and minimum	2-4
	Median	4
	Mode	4
The hospital sets the conditions for the process concerning discharge of patients.	Sample maximum and minimum	2-4
	Median	4
	Mode	4
The reform is not fully funded for the municipalities.	Sample maximum and minimum	2-4
	Median	4
	Mode	4
Scarce resources in terms of time.	Sample maximum and minimum	2-4
	Median	3
	Mode	3
Different patient perspective between municipal and specialist health care services.	Sample maximum and minimum	2-4
	Median	3
	Mode	3
Patients discharged are in worse health condition than before.	Sample maximum and minimum	1-4
	Median	3
	Mode	3

exchange with predefined content between health care organizations. The electronic health records (EHR) are characterized by several individual and different solutions, which cannot be integrated. Reasons for the lack of possibility to communicate may vary, but this challenge indicates that this is an important area to be aware of to obtain coordination.

Consensus was also reached on two challenges of the mismatch between available resources and the tasks given. An important challenge was stated that patients who are discharged are in a worse health condition than

**Table 6 Results Q-1**

Theme	Abstraction	Statement
Different cultures	Challenges concerning the experience of different cultures and relationship between municipal and specialist health care services.	Different cultures in municipal and specialist health care services. Specialist health service has focus on diagnosis and treatment, but the municipality has focused on coping and quality of life. Different patient perspective in municipal and specialist health care services.
Uneven balance of power	Challenges concerning experience of being the inferior part.	The hospital sets the conditions for the process concerning discharge of patients.
Lack of the possibility to communicate electronically	Challenges concerning lack of possibilities for electronic communication.	Lack of electronic communication. Lack of common tools for electronic communication.
Demanding tasks in relation to resources	Challenges concerning the experience of lacking resources and demanding tasks.	Scarce resources in terms of time. Patients discharged are in worse health condition than before.

earlier and that time resources for health professionals in the municipalities are scarce. Coordination reform implies that more demanding tasks will be managed in municipalities and the mismatch between available resources and the tasks given reflect that coordination is not easy to obtain, without having the required resources.

#### IMC

In Q-2, three statements reached consensus. The statistics of the statements are presented in Table 7. These statements were abstracted into overarching themes by the researchers and are presented in Table 8.

Consensus was reached on a challenge concerning the competitiveness in IMC. The challenge was based on the statement which pointed out the prestige in delivering service in one's own district and closer to clients. The paradox of wanting to cooperate and at the same time be a competitor was abstracted into the theme "coopetition". This challenge refers to a point in the planning phase of IMC, and might hinder establishment of IMC if it is not solved.

Consensus was also reached on a challenge concerning the complex leadership of IMC. The challenge was based on the statement which pointed out the demanding challenges of political leadership and management of IMC in contrast to regular municipal services.

Resistance to change was another identified challenge reaching consensus. The statement leading to this challenge was the conveyed contentment with the present organization and the advantageous ways of solving problems in one's own municipality. This challenge implies that the effort in establishing IMC is not proportional to expected outcome, compared with what can be managed in one's own municipality. This makes implementation of IMC challenging, and can hinder establishment of IMC.

#### Discussion

##### Theoretical implications

The results indicate that challenges in regards to what can hinder IMC are different from the challenges to what can hinder coordination in general in health care

**Table 7 Descriptive statistics for statements reaching consensus in round five, Q-2**

Statement rated 3 or 4 by >75%	Measure	Value
It could become prestigious to localize the project in own district and closer to the clients. As a result, the choice of municipality to localize services is subject to political debate.	Sample maximum and minimum	2-4
	Median	3
	Mode	3
Political leadership and management of inter-municipal work are demanding (require more than only organizing the municipal services).	Sample maximum and minimum	2-4
	Median	3
	Mode	3 and 4
It is challenging to establish inter-municipal cooperation as it is often more tempting to solve problems alone since this is more flexible, it creates synergy, and expertise that can be applied across the municipality.	Sample maximum and minimum	3-4
	Median	3
	Mode	3

**Table 8 Results Q-2**

Theme	Abstraction	Statement
Coopetition	Challenges concerning wanting to cooperate, but in the same time acting as competitors.	It could become prestigious to localize the project in own district and closer to the clients. As a result, the choice of municipality to localize services is subject to political debate.
Complex leadership	Challenges concerning more demanding tasks on a political level.	Political leadership and management of inter-municipal work are demanding (require more than only organizing the municipal services).
Resistance to change	Challenges concerning resistance to change, "what we have works fine".	It is challenging to establish inter-municipal cooperation as it is often more tempting to solve problems alone since this is more flexible, it creates synergy, and expertise that can be applied across the municipality.

services. As a result, there is a need for more research in the field of IMC, and that theories on coordination not necessarily can be transferred to the field of IMC. Theory of coopetition seems particularly relevant as a perspective for understanding challenges of IMC. The municipalities want to cooperate for a service, but they compete on where to place the service because they want it closer to their clients. This cooperative competition is further stimulated by demographic changes during the last 30 years, where 100 Norwegian rural municipalities have experienced a 20% population decrease as a result of migration to urban municipalities [18]. Inter-municipal services located in own municipality might increase the number of jobs, as well as the closeness to the service, thus attracting potential new inhabitants. For municipalities experiencing growth or decline in population, a potential increase of inhabitants is positive. This can explain the competition on where to place the service. The simultaneous presence of cooperation and competition is termed "coopetition" [19]. The concept of coopetition has generally been used in the context of business and game theory [20] but has gained popularity among public policymakers across Europe, the US, and Asia [21,22], probably as a result of changes in the public sector following increased globalization and international agreements. Public governance is characterized by the use of quality indicators and performance management that enable local competition and benchmarking [23], thus explaining the relevance of coopetition theory in the public sector. According to Brandenburger "Business is cooperating when it comes to creating a pie, and competing when it comes to dividing it up ... learning to be comfortable with this duality is key to success" [20]. This statement is highly relevant and expresses the core in the identified challenge; inter-municipal collaboration increases the value of joint service production but creates challenges in the division of costs and benefits. In this study an identified challenge that potentially can hinder IMC is the satisfaction with how things can be arranged within the present

organization. This suggests that the organization of IMC is considered as too cumbersome in relation to the expected gain, or it could have elements of procrastination or denial of future demographical changes. Solving problems based on scientific evidence might help tackle the system, but it could trigger key stakeholders who don't have acceptability to the solutions. Stakeholders defend what they believe is the proper way of delivering health care, and their opposition shall not be understood only as rational rent seeking [6]. This challenge can be of great importance when central interest groups represent these norms and challenges. According to Contandriopoulos & Brouselle [6], this challenge can best be met using political and governance questions, but not with programmatic questions. This underpins the importance of political management in IMC. Contandriopoulos & Brouselle [4] use neo-institutional theory when concluding that to help understanding the process of health care reform policies a promising avenue is "... influencing shared norms and values about the nature of health and healthcare in ways that render them compatible with what have been shown to be efficient healthcare delivery models". In the context of IMC in health care services, there might not always be an efficient health care delivery model that is transferable to the given context. Because of the unpredictable future, as well as the inherent problems experienced with IMC, we suggest that, in the context of IMC, there should be shared understanding on what is likely to be an efficient health care delivery model, not what has been shown to be an efficient health care delivery model. The choice of the model should be based on a broader set of scientific evidence involving not only what currently works, but also future projections, and the municipality's local knowledge. Based on the result of our study concerning IMC, we suggest that the understanding of the norms and values of health and healthcare should be complemented by a common understanding of future demographic changes in this process of health care reform policies. The special context that is created when demographic changes occur, must be accounted for in developing and choosing the most suited



inter municipal health care delivery model. Otherwise, the true challenges of the context (e.g. demographic changes) might be lost and efforts less relevant as norms and models are not compatible. Our study suggests that it is important that political management and key stakeholders with local knowledge are involved in the development of shared understanding, and the theory of cooptation should not be underestimated.

### Practical implications

Our findings have several practical implications. In the coordination reform it is anticipated equality between municipalities and hospitals, but many of the statements dealt with the issue of different perspectives of the services regarding the patient. Traditionally, hospitals have focused on medical recovery, for both its organization and its function. Primary care has largely focused on the patient's coping and functional level [12]. Primary care is managed by the municipalities, with a total of 429 in Norway. Specialist health care is managed by a total of four Regional Health Organizations. This implies that primary care might experience inferior collaboration with hospitals. The name *specialist* health care might also reflect an authoritarian power. Uneven balance of power is a challenge supported by a study of nurse training in collaborative practise, where the major barriers identified were professional tribalism along with status and power differences [4]. In the Discourse Theory of Habermas, four presuppositions of dialectic procedures are presented [24]. One of them assumes equal voices of participants. Concerning the identified challenge, the voice between the hospital and the municipal staff is not equal. Therefore, the argument in the case of discharging patients does not regard the actual execution of dialectical procedures. As our results show several statements that can hinder coordination regarding inequality between municipalities and hospitals, this must be taken seriously by the policymakers. In coordination reform, the term "coordination" is described as an expression for the health care services' ability to unite tasks to reach a common goal, as well as the ability to complete the tasks in a coordinated and rational way [12]. This implies that in addition to the services' traditional goals, they also have to work to reach an overriding common objective with the patient as the central actor. Gray's view of collaborations is stated as: "... a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible" [25], and this should be the goal for stakeholders both in hospitals and in the municipalities.

Another challenge that has the potential to hinder coordination is the lack of possibility to communicate electronically. Norway has made an substantial effort to

implement ICT in health care services, and is now a leading country in the implementation of the Electronic Health Record (EHR) [26]. However, ICT systems are characterized by several individual and different solutions, which cannot support the need of exchange of health information during patient pathways [26]. At the start of the coordination reform, a report stated that electronic messages are used to a great extent between GPs and primary care. Only a few municipalities use electronic messages in their communication with hospitals. When two statements refer to the lack of electronic communication as a potential barrier to coordination, it can address the lack of electronic tools to communicate, but it might also indicate that electronic messages do not fulfil the need as coordination tools. Electronic communication is an important measure to reach the vision of the coordination reform with "proper treatment – at the right place and right time" [12]. For managers it is important to ensure that electronic communication fulfil the users need in the process of coordination.

Another challenge that can prevent coordination is that tasks are too demanding on resources in the municipalities. The coordination reform implies that more demanding tasks will be managed by the municipalities. The statements from our study conveyed that the patients are in a worse condition when being discharged from hospitals than earlier, and that the health professionals in the municipalities do not have enough time to do their tasks. This might have severe implications for the coordination. The municipalities can choose not to admit the patient, but because of the coordination reform, they must cover costs in the hospital. This can have huge economic consequences for the municipalities. Another solution is for the municipalities to receive the patient even though the capacity is not present, creating a serious threat to patient safety.

The results show that the challenges that can hinder IMC are different from challenges that can hinder coordination in general. A main issue is the complexity of IMC, and this has to be dealt with in other ways than coordination in general. With regard to IMC, scientific knowledge can only be helpful up to a certain point. The complexity of IMC requires political leadership, and cannot only be managed by expert knowledge [11].

Complex problems can also be called "wicked" problems because their potential solutions cannot be transferred and used for similar problems outside of their context? [8]. One study showed that wicked problems during a health reform were observed, but were not taken as seriously as they should have been [7]. In this previous study, complexity and wickedness in the reform were observed, but they were solved as solutions for tame problems [7]. This indicates that even though complexity

is identified in the organization, it must be acknowledged and coped with in an appropriate manner.

In the present study's identified challenges, political level was specifically mentioned. Even though local self-government might profit from IMC compared with centralization, democracy in IMC could be scarce [27]. Decision-making in inter municipal services must be made jointly by cooperative municipalities, and the political involvement in these processes must be recognized. The type of organizational form of the IMC will also have an effect on the level of democracy.

The results of our study show that a challenge was the complex leadership of IMC. Political leadership and management of inter municipal work are demanding, and requires more than only organizing the municipal services. Another important barrier we found was the challenge of establishing IMC, and that is was more tempting to solve things alone. To practitioners it is important to know when it is beneficial to collaborate. The coordination reform says that IMC shall be implemented when necessary, but the results show that it might not always be clear when necessity has occurred. The challenges regarding political management and the benefits of solving things in own municipality must be weighed against the potential benefits of IMC. Research does not provide a satisfying answer to when cooperation can improve implementation, but research has shown that part of the answer is that the impact of cooperation will increase with task complexity. This might indicate that the municipalities shall not cooperate on simple cases that they can manage themselves and get benefits from, but rather save the cooperation to the more complex cases. This might indicate that policy makers in health care services should not always stress the importance of coordination, but rather focus on when it has the potential to provide more benefits than challenges. Due to future demographical changes, we know that health care services cannot be solved as they are today. In the Norwegian context the coordination reform is entailed to meet some of the future demographical changes by giving the municipalities' greater responsibility for health care services. When it is necessary to work in different ways because of demographical changes, IMC has some clear advantages over other possible solutions, such as territorial reorganization and centralization of local tasks to upper level government. An inter-municipal organization will more easily than other solutions, adapt to new circumstances and developments, and is more capable of dealing with a rapidly changing environment [27]. In order to meet the demographic changes in the future, it might be a good strategy to implement IMC before any complex issues arise with a so called strategic proactive change [28]. The challenge in doing it this way might be that in lack of

immediate positive results, the problems of the demanding leadership as well as the lack of benefit when solving problems in one own municipality might be prominent. This demands decision makers to outweigh resisting forces and they have to advocate change strongly to overcome resistance, as recommended in Lewin's three-step model for change [29].

The results in our study show that an important challenge is where to localize the inter-municipal project, and this is subject to political debate. This challenge is part of the initiation phase of the project and indicates that the need for IMC is agreed upon, but the challenge of location has the potential to hinder the IMC.

The political level is included in two of the three identified challenges of IMC. This is an important finding that clearly differs from the results concerning coordination. This finding indicates that stakeholders at the political level must be emphasized considering IMC.

#### **Limitations**

Because of the low number of respondents, there is a need for more research to both confirm and generalize our findings.

We chose to supplement standard procedures of the Delphi method with the use of a third person to identify the person with the highest competence in coordination and IMC in health care services. This gives the researcher less impact in predefining the qualifications of the expert panel. However, we believe that this technique added to the validity of our data by providing us with participants with the highest level of competence as seen from the context itself rather than from an external researcher. The dropout rate between rounds 1 and 2 was 42%. Panel attrition was expected because the study was voluntary and uncontrollable. In the second round, an extensive amount of data was sent back to the expert panel. Presenting the data clearly was a challenge because of technical restraints in the survey tool. And it was reported by a panel member that it was difficult to get an adequate overview of the categories. This may explain the dropout between the rounds. In Delphi studies aiming to achieve consensus, dropout can be a substantial problem, because one round is largely constructed upon the answers in the previous round. In this study, the aims in rounds one and two were to identify and verify statements, while the aim in rounds 3–5 was consensus achievement. The risk may be that some statements were not properly validated by the experts, and may have had other meanings than conceived by the expert panel or the researcher. However, the consensus process was not subject to a large dropout. Our study does not divide the different organizational forms of IMC, but identifies challenges that encompass all organizational forms of IMC.

## Conclusions

In the current study, eight statements reached consensus as important challenges to coordination in health care services, and three statements reached consensus as important challenges to IMC in health care services. They were abstracted into four and three themes, respectively.

Regarding coordination in health care services, our findings support previous research. The challenges of a different culture, uneven balance of power, lack of possibility to communicate electronically, and a demanding task in relation to available resources are already known from previous research. In the field of IMC, there has been little research in general, especially in the context of health care services. Therefore, our study provides new insight in the field of IMC. The expert groups emphasized different challenges to coordination versus IMC in the health care sector. This indicates that even though both coordination and IMC deal with inter-organizational work, different approaches should be taken to avoid the different challenges. Our main findings are that scientific knowledge only can give scarce information on how to concretely address challenges of IMC. Because of the complexity of IMC and the importance of involving stakeholders in future solutions for providing health care, local competence and political management be encouraged to find shared values regarding the view of health care and common understanding of future projection and solutions to deal with IMC. Our study used the theory of cooptation to explain some of the challenges of IMC. The simultaneous appearance of cooperation and competition can be positive for municipalities, as well as in the private sector. More research is required to determine how this simultaneously affects IMC. People need to be aware of the presence of cooptation in IMC in health care services, so no inconsistencies appear in reforms and policies. Our study also clarifies the need for more research on IMC. In particular, our study indicates that tailored research on IMC is required. Research on the prevalence of challenges of IMC divided into different forms of organization will be an important follow-up and complementation of the present study.

## Additional files

**Additional file 1:** Important challenges concerning coordination.

**Additional file 2:** Important challenges concerning inter-municipal collaboration.

**Additional file 3:** Statements presented in round four.

## Competing interests

The authors declare they have no competing interests.

## Authors' contributions

EHR carried out the Delphi-study, drafted the manuscript and performed statistical analysis and abstraction of the data. TE participated to the design

of the study, interpretation of data and revising the manuscript. RF participated in the design of the study and revising the manuscript, ET participated in analysis of data and revising the manuscript. AS participated to the design of the study, interpretation of data and coordinated and revised the manuscript. All authors read and approved the final manuscript.

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## **Paper II**



RESEARCH ARTICLE

Open Access



# Barriers to exchanging healthcare information in inter-municipal healthcare services: a qualitative case study

Elisabeth Holen-Rabbersvik<sup>1\*</sup> , Elin Thygesen<sup>1</sup>, Tom Roar Eikebrokk<sup>2</sup>, Rune Werner Fensli<sup>3</sup> and Åshild Slettebø<sup>4</sup>

## Abstract

**Background:** In recent years, inter-municipal cooperation in healthcare services has been an important measure implemented to meet future demographic changes in western countries. This entails an increased focus on communication and information sharing across organisational borders. Technology enables efficient and effective solutions to enhance such cooperation. However, the systems in the healthcare sector tend not to communicate with one another. There is a lack of literature focusing on communication and information sharing in inter-municipal healthcare services. The aim of this article is to investigate both the characteristics of communication and information sharing, and the factors that serve as barriers to communication and information sharing for employees in inter-municipal healthcare services.

**Methods:** In this study, a qualitative case study approach is used to investigate both characteristics of communication and information sharing, and factors enabling barriers to communication and information sharing for employees in newly established inter-municipal healthcare services. Data collection methods were individual interviews, focus group interviews, observation studies and a workshop. A total of 18 persons participated in the study. The interviews, observations and workshop were conducted over a period of ten months.

**Results:** Communication and information sharing practices were found to be complex and characterised by multiple actors, information types and a combination of multiple actions. Findings indicate that 1. IT capability and usability 2. Differences 3. Privacy, confidentiality and security and 4. Awareness are all factors enabling barriers to communication and information sharing in inter-municipal healthcare services. Specifically, these barriers were related to lack of EHR usability, inadequate workflow processes, digital systems incompatibility, the understanding of needs in different systems and knowledge and practices regarding privacy and confidentiality.

**Conclusion:** By focusing on the context of inter-municipal cooperation when assessing communication and information sharing in healthcare services, this article contributes to close a gap in existing knowledge. The perspective of the employees provides useful insight, and findings can be relevant for future theory development and for managers and policymakers in inter-municipal services.

**Keywords:** Inter-municipal cooperation, Case study, Information sharing, Information infrastructure, Inter-organisational cooperation

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## Background

Because of future demographic changes, including an increasing number of older people in western countries, there is a need to enhance the efficiency of healthcare services. Healthcare reforms often emphasise coordination in both the design and delivery of healthcare services. Both intra- and inter organisational, vertical and horizontal coordination, have become objects of increased focus in the field of health services research [1, 2], for example in coordination between primary healthcare and specialized health care, and within various providers of primary healthcare. To arrange new and specialized services in health- and social services, several inter-municipal cooperations (IMC), have been established in recent years [3]. This entails an increased focus on communication and information sharing across municipal borders. Technology opens for several methods of communication and information sharing between collaborative partners and provides the ability to enhance the effectiveness and efficiency of inter-organisational cooperation. Information systems play a key role in supporting healthcare professionals and the delivery of healthcare services. In the public sector, cross boundary information is increasingly important [4]. Inter-municipal healthcare service production implies a large amount of horizontal information sharing across the involved municipalities. Horizontal information sharing is normally found to be more difficult than vertical information sharing [5].

Governments express the need for new and improved ways to deliver healthcare services and expects changes to be implemented in the sector. This implies an assumption on the part of the government that the infrastructure of healthcare information is currently suitable for new working practices. However, it is known that despite technological maturity among European healthcare organisations, the systems tend not to communicate with one another [6]. Information and communication technology (ICT) systems that are unable to share information with other ICT systems are a threat to optimal communication and information sharing, and consequently to IMC.

In a framework of inter-organisational information sharing in the public sector, several success factors at the practitioner's level are identified, including minimisation of changes in existing internal processes and information flow, and a strong leadership to support information sharing efforts [5]. In newly established inter-municipal services, there is no established process and information flow, hence the framework is less applicable. Furthermore, it is well known that management of inter-municipal cooperation is challenging [3, 7]. There is a lack of literature focusing on communication and information sharing in inter-municipal healthcare services. To close the gap in existing knowledge, there is a need for a specific focus on

the context of inter-municipal cooperation when assessing communication and information sharing in healthcare services.

The aim of this article is to investigate both characteristics of communication and information sharing, and factors that enable barriers to communication when employees in inter-municipal cooperation communicate and share information. Specifically, the following research questions will be explored:

RQ1: What characterises communication and information sharing practices in inter-municipal healthcare services?

RQ2: Which factors can contribute to barriers for communication and information sharing in newly established inter-municipal healthcare services?

## Related research and theory

The present study uses an inductive approach to identify and elaborate on communication and information sharing in inter-municipal healthcare services from the perspective of the employees. Communication and information sharing are essential for efficient collaboration. To answer the research questions, we apply related research that sheds light on the organisational aspects of inter-municipal cooperation, in addition to research targeting the technology related to communication and information sharing. A summary of previous research specifically targeting inter-organisational cooperation, information infrastructure, including the eHealth perspective, information sharing and the Unified Theory of Acceptance and Use of Technology (UTAUT), will be presented. The inter-disciplinary theories and research presented are not necessarily interrelated in themselves, but each concept can provide unique insight into the findings in this study. The aim is to gain a broad theoretical perspective on this inductive research.

## Inter-organisational cooperation

Factors like devolution, technical development, scarce resources and changing demography characterises the public sector and have led to increased focus on collaboration [8]. This includes both vertical and horizontal collaboration within and across organisations and professions [9]. Organisations are abstract phenomena and may be viewed as cultural artefacts created through human interaction. Over time, the organisations tend to become "institutionalised" and their roles and tasks are accepted and institutionalised by the broader environment. Inter-organisational integration, according to institutional economic theory, can be achieved through a management hierarchy with a top-down coordination in organisations, in a market competition with contractual relations between organisations [10]. It can also manifest itself in the form of networks, which is collaboration between organisations without a common hierarchy [11].



Inter-municipal cooperation can be considered the network form of inter-organisational integration.

**Network governance** In recent decades, the establishment of networks has increased. There have been many suggestions for the definition of the organisation of networks, as an alternative to hierarchical organisation [12–14]. One widely accepted definition is from Jones, Hesterly and Borgatti: “Network Governance involves a select, persistent and structured set of autonomous firms (as well as non-profit agencies) engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges. These contracts are socially – not legally – binding” [15]. The term “governance” is used instead of government, as it captures the process and approach to the organising of networks referred to in the definition. In governance network theory, it is asserted that “the network form of governance is a response to exchange conditions of asset specificity, demand uncertainty, task complexity, and frequency” [15].

Network governance can take different forms and has been categorised in the following three types: shared governance, lead organisation and network administrative organisation. Within all three forms of organisations, three basic tensions are found to be inherent; efficiency versus inclusiveness, internal versus external, legitimacy and flexibility versus stability [16]. Both the organising of the network, as well as management of the tensions existing in the various networks are deemed important for success. Tension management is critical for network effectiveness [16]. However, there is a lack of knowledge and consensus regarding the kind of management that should be applied in this context, and the way in which it should be applied. In public sector research, network organising has been widely addressed, in terms of both network structure and context (see e.g. K Huang and KG Provan [17] and LJ O’Toole Jr. and KJ Meier [18]) as well as the management and coordination of public networks (see e.g. M Kort and EH Klijn [19] and WJ Kickert, E-H Klijn and JF Koppenjan [20]). Recently, there has been an increased focus on the importance of managers facilitating information sharing and communication in networks [21, 22], however, exactly how and what areas managers should focus on has not been fully elaborated.

#### **Information infrastructure**

The information infrastructure is a prerequisite for the facilitation of communication and information sharing in inter-municipal healthcare services. The term “infrastructure” refers to equipment necessary to facilitate human activities in society such as roads, railways, harbours, waste management and electricity supply. In

addition, the large amount of information exchanged in society needs supportive infrastructure. Infrastructure is described as fundamentally and always a relation, never a thing [23] and is often invisible and taken for granted by employees [24]. There is a diffuse boundary between the technological and organisational means of information processing. People, routines, forms and classification systems are as integral to the information handling as computer cables and web protocols [25].

**eHealth infrastructure** In this study, we rely upon the European Commission which refers to eHealth as “tools and services using information and communication technologies (ICTs) that can improve prevention, treatment, monitoring and management” [26]. In recent decades, there have been overarching strategies and plans focusing on digitalisation of healthcare services around the globe, but initiatives do not seem to have had the expected effect. In the eHealth Action Plan from 2004, for example, there are several measures to foster a widespread adoption of eHealth technologies around Europe [27]. However, in the latest eHealth Action Plan it is stated that the envisioned interoperable eHealth infrastructure in Europe has not been realised and the promise of eHealth “remains largely unfulfilled” [28].

There are a number of systems under the umbrella of eHealth, for example Picture Archiving and Communication Systems (PACS), Radiology Information Systems (RIS), Patient Administrative Systems (PAS) and the Electronic Health Record (EHR) [29]. The EHR plays a central role in healthcare institutions. Its primary purpose is “...the support of continuing, efficient and quality integrated healthcare...It contains information which is retrospective, concurrent and prospective” [30], Chapter 2.10]. In Europe, healthcare and eHealth, is to a large degree a public responsibility. In many countries, collaboration has been the driving force for implementation of eHealth initiatives [31]. Inter-organisational eHealth infrastructures, both horizontal and vertical, are important for a number of stakeholders such as healthcare personnel, researchers and public authorities. When enhancing eHealth infrastructure across organisational boundaries, standards regarding interoperability, terminology and nomenclature are crucial components [29].

#### **Information sharing**

During recent decades, there has been a shift from information protection to information sharing across organisational borders [5]. Such sharing of information is regarded as important for increasing the organisations’ efficiency and performance, for example on issues like anti-terrorism and public health [5]. When focusing on inter-organisational information sharing, also the context of intra-organisational and intra-personal

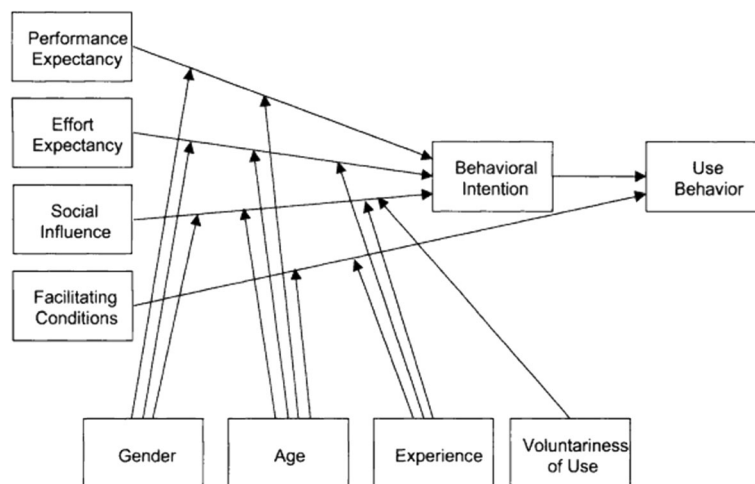
information sharing are found to be interrelated [5]. Three primary factors are found to influence inter-organisational information sharing: organisational, technological, political and policy perspectives [5]. The expected benefits of starting collaborative eGovernment initiatives are affected by perceived impediments and prior experience [32]. Information sharing is found to be a challenge both in public and private organisations as it often requires collaboration between several organisations to share information and, in some cases, to integrate business processes [32]. To minimize changes in internal processes and information flow, is one suggestion to improve organisations' chances for successful information sharing. In addition, activities like "promotion of a culture of information stewardship as opposed to ownership; strong leadership support to information sharing efforts; legislative and regulative mandates; a reward system that promotes information sharing both within and across organisations; the establishment of shared goals; and the development of ongoing trusted relationships based on mutual understanding of needs and concerns and shared responsibility..." [5] are all positive actions designed to promote inter-organisational information sharing.

**Unified Theory of Acceptance and Use of Technology (UTAUT)** When establishing a new IMC, the use of information technology is an integrated part of the work and support communication and information sharing needs across organisational boundaries. When implementing new inter-municipal services, the technology can be new or used in a new way, relying on existing systems. Either way, employees must use and implement the information technology in a new setting. This implies that employees must accept and use the

technology. In recent years, the Unified Theory of Acceptance and Use of Technology (UTAUT) [33] has been widely used by Information systems (IS)/ Information technology (IT) researchers and have been found to be useful in the context of healthcare [34, 35]. The model provides a useful tool for managers by providing an understanding for the many factors that can influence user acceptance for IS, hence the ability to design interventions targeting the end users [33]. It integrates eight theories into one model, that can provide insight into factors hindering or enabling the adoption and use of technology. Performance expectancy, Effort Expectancy and Social Influence are described as impacting Behavioural Intention, and hence Use Behaviour. Facilitating Conditions are described as directly impacting Use Behaviour (Fig. 1).

In this **Background** section, we have included related research and theories which is found to have an impact on information sharing and communication in inter-municipal healthcare services. The first section; **Inter-organisational cooperation**, including network governance provides insight into the organisational aspects of IMC. The second section; **Information infrastructure** sheds light on prerequisites for information sharing in general and in eHealth settings in particular. In public administration today, information technology is an obvious and necessary tool in everyday work. Therefore, the third section; **Information sharing**, deals with information sharing particularly across organisations, and include factors hindering or enabling the adoption and use of technology.

Following this **Background** section, methodology, including setting, design, data collection, participants, analysis and ethical considerations are presented in **Methods** section. **Results** section presents the results



**Fig. 1** The UTAUT Model. Permission: Figure 3 from Venkatesh et al. [33]. Copyright © 2003, Regents of the University of Minnesota. Reprinted by permission

structured on the two research questions. In **Discussion** section, the results are discussed in relation to previous research along present findings that are distinctive for the context of communication and information sharing in inter-municipal healthcare services, in addition to a discussion of the implications for practice and limitations. Finally, concluding remarks are given.

## Methods

### Setting

The study was conducted in Norway, a European country with approximately 5 million inhabitants. Norway has three levels of political administration: national government, counties and municipalities. In addition, the country is divided into districts, which are larger than the municipalities and smaller than the counties. The districts are characterised by common culture, dialects or geography and may cross county borders. The Norwegian Coordination Reform [36] was implemented in 2012. The reform's new directions increased the municipalities responsibility for health and social care. Because of diversity among municipalities in terms of population density and, as a result, access to competence, the municipalities were encouraged to collaborate on service delivery.

In this study, two formal districts are included, including councils and representatives from each participating municipality. Both districts had established various inter-municipal health initiatives to address new working practices based on the Coordination Reform [36]. District 1 had fewer than 10,000 inhabitants distributed among four municipalities, and districts 2 had some 35,000–40,000 inhabitants distributed among six municipalities.

### Design

In the present study a qualitative case study approach was used. The boundaries between the phenomena of communication and information sharing in IMC and the context are not clear, and the contextual conditions were regarded as relevant to the findings. In this situation, Yin [37] recommends that a case study approach should be considered. A descriptive approach has been applied to answer the first research question, and an exploratory approach to answer the second research question. Individual interviews, focus group interviews, observation studies and one workshop were conducted. Multiple data sources facilitate the acquisition of a holistic understanding of the phenomenon and enhance data credibility [37, 38]. The different data collection methods are used to elucidate divergent aspects of the phenomenon. The individual interviews provide an in-depth understanding of the phenomenon from the perspective of the individual; the observational studies provide a thorough knowledge of the phenomenon and guided our inclusion

of relevant participants; the focus group interviews generate dialogue and subsequent reflection among the participants; and the workshop contributes toward validating our findings.

### Participants

Managers in the two districts identified persons who met the following criteria for inclusion: they were employed in an inter-municipal health- or social service delivery, either as project leaders, employees of an inter-municipal team, or as persons related to the ICT aspects of inter-municipal services. In District 1, the manager identified eight participants; the members of the dementia team, the ICT-consultant and the project leader of the inter-municipal (IM) services. In District 2, the manager identified four participants. Because of the need for an in-depth study in District 1, the collaborative partners in the various municipalities had to be contacted. During primary interviews and observation studies in District 1, the coordinator of the inter-municipal team, identified collaborative partners, and these were then contacted. Their managers approved their participation. The researcher contacted the general practitioners (GPs) directly. All participants volunteered to participate when requested to do so, except for one GP who lacked the resources to allow him to participate. As an alternative, the GP recruited his secretary who substituted for him in the interview (Table 1).

A total of 18 persons participated in the study, including seven who participated more than once. The interviews and workshop were conducted and the observational data were collected over a period of ten months. Pseudonyms have been used for districts, municipalities and the individual participants to ensure participant privacy.

### Inter-municipal services

In this section we present the different inter-municipal services included in the study. In addition to the services presented, the study comprises collaborative healthcare personnel and ICT support personnel in the municipalities.

The inter-municipal services included in the study were all services that had been newly established from one and a half to three months prior to the start of the study. The services were mainly organised as projects with full or partial external public funding.

In District 1, a dementia team, a substance abuse therapist and a psychologist were included. The dementia team consisted of one dementia coordinator, and one dementia contact in each municipality. Their work duties were primarily carried out in their respective municipality, where they held a part-time position on the dementia team. Their main task was to conduct dementia assessment among inhabitants with suspected dementia in the four municipalities of District 1. The substance

**Table 1** Participants

	Profession	Sex	Age	Data collection methods
District 1	Psychologist	Female	20–29	• Qualitative interview
	Substance abuse therapist	Female	20–29	• Qualitative interview • Observational study • Phone interview
	ICT manager	Female	40–49	• Qualitative interview
	Dementia coordinator	Male	50–59	• Workshop • Focus group interview • Two observational studies
	Dementia contact 1	Female	50–59	• Workshop • Focus group interview
	Dementia contact 2	Female	50–59	• Workshop • Focus group interview • Observational study
	Dementia contact 3	Female	20–29	• Workshop • Focus group interview
	Dementia contact 4	Female	30–39	• Workshop • Focus group interview • Observational study
	Consulting doctor	Male	30–39	• Workshop • Focus group interview
	General practitioner	Female	30–39	• Qualitative interview
	Medical secretary	Female	?	• Qualitative interview
	Community nurse manager 1	Female	30–39	• Qualitative interview
	Community nurse manager 2	Female	20–29	• Qualitative interview
	Project manager for substance abuse therapist and psychologist	Female	50–59	• Qualitative interview
District 2	Occupational therapist	Female	30–39	• Qualitative interview
	“Palliation in Vik” project manager/coordinator	Female	30–39	• Qualitative interview
	Manager of a substance abuse team	Female	30–39	• Qualitative interview
	ICT consultant	Female	30–39	• Qualitative interview

abuse therapist and the psychologist had a full-time position in the inter-municipal services and served all four municipalities in the district. In addition, the project manager for the inter-municipal psychology and substance abuse services had a 20% inter-municipal position.

In District 2, the “palliation in Vik” project “[anonymised district designation]” had a project manager with a 30% inter-municipal position. The position had public funding: The project was established to enhance competence in palliation for district health personnel in the municipalities in the district. The occupational therapist had a full-time inter-municipal position and was supposed to serve as a resource in direct patient cases for all municipalities in the district. The Vik [anonymised district name] substance abuse team consisted of four positions, including a project manager. Their main task was to follow-up drug addicts in need of assistance in the municipalities in the district.

#### Data collection

This case study examined communication and information sharing practices in inter-municipal healthcare

services in two districts in Norway: District 1 and District 2. A total of 11 individual interviews were conducted, seven individual interviews in District 1 and four in District 2. In District 1, additional data were collected from one focus group, from two observational studies and from one workshop.

#### Interviews

In total, data from 11 individual interviews were collected based on information from healthcare managers, healthcare personnel, and ICT managers related to IMC. The interviews were conducted as semi-structured interviews lasting from 20 min to 2 h, and focused on communication and information sharing in inter-municipal healthcare services. Focus was specifically on how the inter-municipal work was conducted, how information was shared, what information was shared, and with whom information was shared, in addition to an identification of barriers related to communication and information sharing. The researcher made notes during the

interviews. In addition, all interviews were audiotaped and transcribed verbatim.

#### **Focus group interview**

One focus-group interview was conducted with a dementia team, divided into two sessions of approximately one and one-half hours each with five participants. The interview was semi-structured and focused on the same topic as the individual interviews. One researcher made notes during the interview. In addition, all interviews were audiotaped and transcribed verbatim.

#### **Workshop**

In the workshop, seven participants from an inter-municipal team and a cooperating partner participated. The workshop focused on current work and the information process and identification of related barriers, and served as a verification of findings from interview and observation studies. This provided the basis for development of Business Process Modelling (BPM) [39, 40] to create externalised representation, including barriers and requirements of the processes of the inter-municipal dementia team. BPM was used as a basis for the development of a coordination tool for the inter-municipal cooperation. The researcher made notes during the workshop. In addition, it was audiotaped and transcribed, to ensure that no details were missed.

#### **Observational studies**

In addition, observational studies in three cases of the process of an inter-municipal work assignment were conducted. During field visits, researchers talked to healthcare personnel, observed actual operations, including sitting with healthcare personnel before, during and after a dementia assessment. The observations were done in the natural environment; including participants' offices, the patients' homes and at a meeting office at the health centre. Researchers also observed documentation practices in community nursing offices.

Elements of action research [41] appeared during the data collection. Questions during focus group interviews revealed different approaches between the municipalities. More importantly, the observation studies revealed unintended consequences based on the participants' lack of awareness of each other's work procedures. This resulted in changes in procedures, such as designing a routine for taking a phone call in addition to making an entry in the electronic health record (EHR). Changes in work processes based on findings from the observation studies were also reported.

#### **Analysis**

The data from the transcribed interviews, observational studies and workshop were analysed. In total, there were 392 pages of text in Calibri font, size 12, space 1.5. An

inductive approach inspired by qualitative content analysis, as described by Graneheim and Lundman [42] and recommended by Kohlbacher [43], was applied. The qualitative software tool Nvivo [44] was used for the analysis. Each individual interview, all observational notes and workshop notes were considered units of analysis. A thematic synthesis was used to identify, analyse and report themes across the different units. Thematic synthesis is one of the most common methods for synthesis of evidence in software engineering and has the advantage of providing a way to organise data from large and diverse sources [45, 46]. Each unit of analysis was first read through to obtain a sense of the whole. Then the text was coded and sorted into categories. The manifest content of the data was analysed. To answer RQ1, information sharing practices, we identified what information was shared, how and with whom. To answer RQ2, factors contributing to communication and information sharing, barriers were identified and coded and an inductive category development was compiled. During the analysis, the research group (the authors of this article) discussed findings to ensure an inter-disciplinary approach and understanding of the findings in the analysis-process. When all the units were analysed, categories were reviewed, merged and abstracted into main categories.

#### **Trustworthiness**

To ensure credibility and the ability to elucidate the research question from a number of different perspectives, participants were chosen from various levels in the inter-municipal service and among different cooperative partners in the inter-municipal service. The participants were of various ages and both genders, and reflected perspectives on IMC from a broad workforce. The research team comprised persons with multi-disciplinary competence in ethics, eHealth, ICT and information systems. The complementary research background permits novel insights into the data and enhances confidence in the findings. The research team has had open discussions on the data's consistency. Different perspectives were actively exploited in combination with various data collection methods to avoid unilateral focus, and thereby researcher bias.

#### **Results**

Communication and information sharing practices were complex and characterised by multiple actors, information types, and channels for communication and information sharing. Findings suggested that the needs for communication and information sharing in IMC were not identified prior to establishment, neither by the involved municipalities nor the actors involved in the services. This resulted in several ad hoc solutions. The EHR

was used actively for information sharing, but other communication channels like phone, face-to-face (FTF) and mails by post were often used as a substitute for, or alternative to, the EHR. Findings indicate that 1. IT capability and usability 2. Differences 3. Privacy, confidentiality and security and 4. Awareness are all factors that may enable barriers to communication and information sharing in inter-municipal healthcare services.

**Characteristics of information and communication practices in IMC**

To answer research question 1 “What characterises the information and communication practices in inter-municipal healthcare services?” actors involved in communication and information sharing, information types, and how information is shared and communicated in inter-municipal healthcare services were identified.

**Involved actors**

Inter-municipal employees in healthcare services communicate and share information with multiple, different actors. In addition to communication amongst team members in the inter-municipal services, they communicate with employees in several municipal healthcare services, with social services, hospital services, and patients and relatives. See Table 2 for detailed results.

**Information types**

Findings revealed two main categories of information: sensitive health information and non-sensitive information. See Table 3 for detailed results.

**Table 2** Communication and information sharing actors

Actors	
Municipal healthcare services	<ul style="list-style-type: none"> <li>• General Practitioner</li> <li>• Occupational therapist</li> <li>• Physical therapist</li> <li>• Habilitation services</li> <li>• Health clinics</li> <li>• Assistive technology services</li> <li>• Home care services</li> <li>• Intake services</li> <li>• Substance abuse and psychiatric services</li> <li>• Personal assistants</li> <li>• Psychologist</li> </ul>
School, Police and Social services	<ul style="list-style-type: none"> <li>• Child welfare</li> <li>• School</li> <li>• Labour and welfare services</li> <li>• Educational and Psychological Counselling Services</li> <li>• High school follow-up services</li> <li>• Correctional services</li> </ul>
Hospital services	<ul style="list-style-type: none"> <li>• Supervisors</li> <li>• Relevant departments</li> </ul>
Patients/relatives	

**Table 3** Information types

Sensitive health information	Non-sensitive information
Declaration of consent	Coordinative information
Epicrisis	Information about inter-municipal service
Discuss patient cases	Team contact
Referral	Advice and guidance
Information on recommended actions, status after assessment and the tasks performed	Teaching
Assessment report	
Transfer note	
Report after patient-related meetings	

Related to patient treatment, different information needs to be shared before, during and after a direct patient contact. In addition, the inter-municipal employees had to communicate coordination tasks. Information about the inter-municipal services was shared. The IM-services possessed a specialised competence, and guiding, advising and training other municipal healthcare workers were often part of their work tasks. In addition, the need for informal communication between team members was highlighted by the participants.

**Information methods**

Finally, we identified how the information was shared and communicated in inter-municipal healthcare services. Findings revealed two main categories: Digital and non-digital communication, including several methods of information sharing. Specifically, findings implied that usually multiple actions were taken to provide information, and sensitive health information was often provided using a combination of both digital and non-digital methods. See Table 4 for detailed results.

**Factors that may enable barriers to communication and information sharing**

In RQ2, findings from RQ1 are elaborated on:

**Table 4** Information methods

Digital communication	Non-digital communication
Electronic Health Record (EHR)	Work book
E-mail	Work list
Web-pages	Fax machine
Local disc	Physical meetings
Video conference	Oral
	Paper-based
	Post
	Phone
	Print

“Which factors can contribute to barriers for communication and information sharing in newly established inter-municipal healthcare services?”

Findings indicate that there are many barriers to exchange of information. These barriers are related to usability and capability regarding the IT-systems, differences in both procedures and information systems, privacy, confidentiality and security issues and awareness amongst employees. These barriers may indicate that needs regarding communication and information sharing were not identified prior to the establishment of the IMC. On the contrary, the needs seem to have been met along the way.

#### ***IT capability and usability***

The inter-municipal work was characterised by multiple sources for communication and information sharing. Findings suggested this was a result of IT capability and/or usability. Necessary functionality to support work and information flow in the EHR was either lacking or usability issues made it inaccessible. In particular, the lack of proper administrative and coordinative tools resulted in the need for multiple actions to provide correct information to the right person.

The tests performed by the dementia team were paper-based, but the results had to be reported in the EHR, leading to double actions as well as a risk of errors. The main collaborative municipal partners were the home care services and the GPs. The GPs had no system for achieving the test results digitally, so the test results had to be dispatched as paper-based documents by regular mail.

A crucial factor related to information sharing was the systems' lack of efficiency and ease of use. The findings revealed a dissatisfaction with the EHR, among both those who recently implemented the system, and those who had had the system for a long period.

The personnel stated that the EHR lacked several functions. This resulted in a need for multiple alternative ways to document and share information. One example was that even though it was technically possible for the home care manager to read reports from the dementia team, she received no message saying that the report was accessible. The dementia coordinator had to make an additional phone call to inform that the report was completed and accessible, and that actions from the home care services should be taken.

Participant:

«...because no signs appears, and it is a new scheme and report [in the EHR], and that is inexpedient, it would have been nice if it blinked. In other words, one does need an additional communication channel to make sure there is something there. So, we found

out that what works best for us right now is that he calls us, says this and that, and then I can read and provide information to the community nurse»

The systems in municipal homecare services were characterised by information overload, in addition to the multiple sources of communication and information sharing. In the home care services, a typical routine for the district nurse was first to check a printed list of her daily patient tasks. The list was updated with sticky notes and discontinued tasks were crossed out. She also had to check the “Black book” that provides additional patient information, such as «Get drugs at the pharmacy and Sarah is going to the doctor at 12 o'clock.» Then she checked the EHR which provided continuous information on all patients receiving service from the home care services. The home nurse stated that she did not bother reading entries from many days back, because she was provided with so much unnecessary patient information.

The personnel did not know about the technological solutions that could potentially make coordination easier. For example, no one knew if the calendar function to coordinate meeting times between municipalities worked. Technically, they had the possibility to access the information, but they did not know that they were expected to access it, nor how to do so, and this revealed that employees lacked sufficient training of the EHR and that the system was not intuitive in its design.

#### ***Differences***

The communication and information sharing between the inter-municipal services and the municipal partners were characterised by different procedures based on available information technology.

In one district, some of the municipalities changed EHR vendors so that the municipalities in the district could benefit from using the same vendor. Nevertheless, even though the same vendor delivered the EHR, the EHR was adapted to the needs in each municipality. This led to different layout in the municipalities and a challenge for employees who met different content in the EHR in the various municipalities. Semantic translation between cooperative municipalities was also complicated because the various municipalities used different names for the same objects. In Norway, there are two equate but different written language variants. Complications were caused by the use of different written language variants in the municipalities within one district. The differences resulted in cumbersome practices for the inter-municipal employees, as they spent much time looking for the right place to document patient data.

In addition to differences in the EHR, findings also revealed differences in procedures. Although several

persons might report a need for a dementia assessment using several different procedures, the GP always had to approve assessment done by the team. Our study found that this approval was not acquired in all assessments. The diversity in procedures for obtaining information laid down varying procedural requirements.

#### **Privacy, confidentiality and security**

The juridical issues concerning privacy, confidentiality and security were found to be a comprehensive area of concern. Specifically, access control and duty of secrecy were frequently discussed among the participants and new perspectives were highlighted and actualised due to the implementation of IMC. The ICT manager described the current access path to the EHR as both cumbersome and ineffective. The EHR was unsatisfactory in terms of differentiating necessary access; managers got very broad access to patient data, and a fictive/emergency username and password could be used during evening, nights and weekends if the nurses needed quick access to patient data when the manager was not present. All users could access patients registered in the system, even though the detailed information and journal notes were not accessible. The smaller municipalities provided wider access to patient information, compared to the larger municipalities.

The inter-municipal team members had their main employment in the municipal healthcare services, such as nursing homes or community nursing, and a part-time position in the inter-municipal service. Their access control was linked with their main position in the municipal healthcare services and was not adapted to needs regarding the inter-municipal service. Employees described a situation where there was a mismatch between how they were encouraged to deliver services and how security concerns complied with current legislation. ICT-personnel stated:

“But I do hope that we can manage a solution which satisfy both privacy concerns and ensure accessibility. Because I do think that we must be able to provide a solution that makes patient safety and privacy concerns fit together instead of biting each other’s tails”

She continued:

“... It is a jungle and it is hard to identify which of the agencies is correct, and how to interpret today’s legislation and how it will be adapted. That is priority one. That’s where I think the national government has an extremely important job to do, in adapting the legislation to what they promote as good and expedient ways to work.”

The practitioners described practices where they tried to make the best of the situation with what they had available, even though the solutions they chose were not necessarily legal. Examples given included borrowing user names and passwords from colleagues to access the system or sending e-mails (outside the secure system) with patient initials. It was also expressed that denial of access to document patient information had implications for patient safety and quality of the service.

#### **Awareness**

Findings suggest that there was a lack of mutual awareness between employees in the inter-municipal services and their collaborators. The lack of awareness was related to employees’ whereabouts, when they were present, what information was received, how information was received and what was done with information received. In the small communities, employees often had several roles, and relevant patient information was shared randomly in arbitrary meeting arenas. This might indicate that in some cases, because the IMC was placed in small communities, information found its way despite, rather than because of, structured information flow. The established inter-municipal services were new in all the municipalities. They were largely implemented as isolated services with a lack of procedures for information sharing and integration with collaborating partners. There was a lack of awareness regarding work procedures between different stakeholders in the municipalities:

“the doorbell rings, and the daughter in law opens [the door]. It is the home care services that have come to administer the medication. They agree that she can come back later, when the dementia team have finished the assessment.” (field note)

Coordinative information between the inter-municipal dementia team and the home care services in the municipalities was found to be inadequate, resulting in interference in the assessment setting, the necessity to reschedule home care service routines and improper test conditions for the patient.

#### **Discussion**

The inter-municipal work was characterised by multiple sources of communication and information sharing, and barriers to exchange of information were related to both usability and capability regarding the IT-systems, differences in both procedures and information systems, privacy, confidentiality and security issues and awareness amongst employees. Although the EHR is digital and information is supposed to be documented, it was found that communication and information sharing were conducted in several other ways outside the EHR. This



indicates that the present functionality and use do not make it a sufficient tool for meeting the need for communication and information sharing in inter-municipal healthcare services. It is not known what employees expected prior to the establishment of the IMC. However, it is known that the employees got their experience during, rather than prior to, the implementation of the services. Findings revealed barriers concerning IT capability and usability-issues; the system lacked necessary functionality to perform work tasks and was cumbersome to use. The UTAUT-model defines effort expectancy as “the degree of ease associated with the use of the system” [33]. “Effort Expectancy” will, according to UTAUT, influence behavioural intentions, and eventually, Use Behaviour. Findings show that in addition to the use of digital communication and information sharing, non-digital methods were used extensively, either as a compliment to or instead of digital information sharing. Based on the UTAUT-model, both the negative experience regarding “Effort Expectancy” and “Facilitating conditions” will influence Behavioural intentions and Use Behaviour [33], and can be used to explain the extensive use of additional non-digital communication and information sharing methods.

In addition, the diversity amongst the collaborating municipalities negatively affected the use of EHR and was found to be a barrier to communication and information sharing. This was also the case related to judicial issues that prohibited access to necessary patient information across municipal borders. These barriers are related to a lack of an overarching facilitation of needs regarding communication and information sharing in inter-municipal services.

In recent decades there has been a shift away from information protection to information sharing across organisations [5]. Findings in the present study indicate that in the context of inter-municipal healthcare services, this is not the case. Findings suggest a tension between patient information privacy protection and the possibility of effective and qualitatively good services through IMC, requiring information sharing to facilitate continuity of care. Policy and information infrastructure do not enable sharing of sensitive patient information across municipal borders, but political reforms [36] promote this way of organizing health services. This creates barriers for employees in the services, as policy and practice represent opposites.

Differences were found to be a barrier to communication and information sharing. In the literature on inter-organisational integration and collaboration, one finds structural barriers such as different administrative boundaries, different laws and regulations, different information systems and databases [47, 48]. The present study indicates that this is also an important factor to be

addressed in inter-municipal healthcare services, as it represents a barrier to communication and information sharing among the employees. The individual municipalities are structured bureaucratically and are shaped by local needs, resulting in a culture that treats information sharing in different ways. Differences is also related to barriers concerning lack of awareness. Awareness is described as “...an *understanding of the activities of others*, which provides a *context for your own activity*. This context is used to ensure that individual contributions are relevant to the groups activity as a whole,” [49] (p. 107). A lack of awareness was identified in terms of where employees were, when they were present, what information was received, how information was received and what was done with the information received. When inter-municipal employees work across different municipalities, much is required of them regarding knowledge of local procedures to be followed. The diversity amongst the municipalities challenges the possibility for employees to be aware of the locally adapted procedures regarding communication and information sharing; hence, this is specifically relevant to inter-municipal cooperation. When facilitating eHealth, infrastructure standards regarding interoperability, terminology and nomenclature are crucial [29], and support our findings that differences are factors that serve as barriers to information sharing.

Our study found barriers related to inter-organisational information sharing that were closely related to barriers regarding intra-organisational and intra-personal information sharing. As pointed out by Yang and Maxwell [5], the inter-organisational information sharing is interrelated with intra-organisational information sharing and intra-personal information sharing. Even though information was transferred from the inter-municipal service to the municipal service, there were inadequate routines in the municipalities to ensure that information was effectively and efficiently addressed. Intra-personal information sharing in various and random settings ensured necessary communication, and there was a need for multiple communication methods to ensure the information was received and handled properly. The traditional work processes among municipal actors had not been re-engineered due to the implementation of new inter-municipal services; as a consequence, information sharing routines were not in place. Our findings support the importance of addressing inter- and intra-organisational and intra-personal information sharing in inter-municipal healthcare services.

The complexity of the public sector has been widely addressed and has often been referred to as containing “wicked problems” [50–52]. Wicked problems are described to be unstructured, implying challenges regarding identification of causes and effects and therefore little consensus on the problem or solution [51]. Our findings identified a lack of preparation regarding

information sharing needs in inter-municipal cooperation. Theory regarding wicked problems, nevertheless, implies that it is not possible to get a full view of the needs prior to establishment. This suggests that in addition to identifying information sharing needs in IMC, it is important to establish a strategy for how to manage challenges that arise along the way. Flexibility and the ability to adapt are regarded as positive traits of networks [16], and are a strategy for solving problems. They appear to have the potential to be a feasible strategy regarding information sharing in inter-municipal healthcare services. Information sharing is characterised by a continual development, due to the ongoing changes in the context, such as implementation of electronic messaging, the striving for commonalities in cooperating municipalities and so on. Findings suggest that the dilemma between the flexible nature of the IMC and the bureaucratic nature of the municipality creates challenges in anchoring the service. Changes and remedies can occur rapidly in the IMC, while the structures in the municipalities are inflexible and change takes more time.

#### **Practice and policy implications**

Findings indicate a situation where there was a mismatch between how they were encouraged to deliver services and how security concerns complied with current legislation. In future reforms, national policymakers should make sure that recommendations pertaining to service delivery are matched with adapted legislation. Recently, there has been an increased focus on the importance of having managers facilitate information sharing and communication in networks [21, 22], but how and what areas managers should focus on have not been elucidated so far. Our study reveals a need for increased managerial focus on identifying needs regarding information sharing prior to establishment of new inter-municipal services. Employees experience that communication and information sharing across municipal borders is complex and involves several different actors, types of information and information sharing methods. Findings identified several factors experienced by employees that serve as barriers to communication and information sharing. To ensure satisfactory information sharing in newly established inter-municipal healthcare services, organisational, technical and policy factors must be considered prior to, and during, establishment and implementation. Findings in the present study indicate that an important area for managers to focus on, when establishing inter-municipal healthcare services, is the overarching facilitation of needs regarding communication and information sharing. This must include the needs of collaborating partners in the municipal healthcare services who must be aware of one other's practices prior to establishment. The managers must also take into consideration the differences that are

present in the involved municipalities. Information infrastructure should be adapted to new inter-municipal healthcare services and facilitate integration with existing municipal services. Managers must consider whether differences between the municipalities can be managed without too much effort on the part of the employees, or whether the individual municipalities should work toward a uniform practice to optimise inter-municipal services. Managers must also consider the juridical window of opportunity regarding information sharing across organisations. In the effort to identify important issues prior to establishment, it must be kept in mind that the complexity and wicked problems that may occur in inter-municipal healthcare services cannot necessarily be foreseen prior to establishment. Managers should include a strategy to solve problems as they arise. The flexible nature of the network organisation of IMC can promote this ongoing problem solving.

#### **Limitations**

We acknowledge some limitations in our study. The geographical setting was limited and provided findings from two districts in Norway. It would be of great value to conduct similar studies in other districts in Norway, as well as in other countries. This could permit a comparison of whether the local context, such as statutes and regulations, structures and cultural influences might affect the findings that have been revealed in the present study. The healthcare sector, as well ICT and jurisdiction, are experiencing rapid development. The time of the study might affect findings, as it will imply a change in those contextual factors. Furthermore, this study provides findings from the employee perspectives. Other perspectives, such as those of managers and policymakers can provide additional or contradictory findings and are necessary to obtain a complete view of information sharing in inter-municipal healthcare services. Further research is needed to address the limitations; whether new research confirms or refutes our findings, it will serve to bolster and expand needed knowledge in the field of inter-organisational information sharing.

#### **Conclusion**

Communication and information sharing in newly established inter-municipal healthcare services are complex and characterised by several different collaborating actors, information sharing methods and information types. In the current study, organisational preconditions, technological limitations and policy issues paved the way for the experience of factors contributing to barriers regarding communication and information sharing in inter-municipal healthcare services. Factors like IT capability and usability, differences, privacy, confidentiality and security and awareness are contributing factors to

the barriers experienced by the employees. Findings in the study support the need for a specific focus on the context of inter-municipal cooperation when assessing communication and information sharing. The perspective of the employees can provide useful insight, and findings may be of relevance for managers and policy makers in inter-municipal services. By focusing on the context of inter-municipal cooperation when assessing communication and information sharing in healthcare services, this article contributes to further theorizing on this particular field of research, and hence, closing the gap in existing knowledge.

#### Abbreviations

BPM: Business Process Modelling; EHR: Electronic Health Record; FTF: Face to face; GP: General practitioner; ICT: Information and Communication Technology; IMC: Inter-municipal cooperation; IS: Information Systems; IT: Information technology; NSD: Norwegian Centre for Research Data; PACS: Picture Archiving and Communication Systems; PAS: Patient Administrative System; RIS: Radiology Information Systems; RQ: Research question; UTAUT: Unified Theory of Acceptance and Use of Technology

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#### Availability of data and materials

The authors do not wish to make the data available, as it contains information that could identify specific individuals. Examples of data leading to the conclusion are presented in quotes in the [Results](#)-section.

#### Authors' contributions

RF were in charge for the application for the funding of this research. EH, ET and RF undertook primary data collection. EH, ÅS, TE and ET were involved in the analysis and interpretation of data. EH led drafting of this article, which was revised critically for important intellectual content by all authors. All authors read and approved the final manuscript.

#### Ethics approval and consent to participate

These studies were approved by the Norwegian Centre for Research Data (NSD) (28,027; 30,209) and exempted from ethical approval by a Regional Ethical Committee because no health information was collected. The Declaration of Helsinki [53] was the basis for ethical considerations in the recruitment process. The participants gave both written and verbal voluntary, informed consent to participate, and the data were treated as confidential. To ensure anonymity, quotes in the [Results](#) section are not linked to the specific informants.

#### Consent for publication

Not applicable.

#### Competing interests

The authors declare that they have no competing interests.

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## **Paper III**



RESEARCH ARTICLE

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# Critical issues for employees in inter-municipal health care services: a multiple case study

Elisabeth Holen-Rabbersvik<sup>1\*</sup> , Tom Roar Eikebrokk<sup>2</sup>, Rune Werner Fensli<sup>3</sup>, Elin Thygesen<sup>4</sup> and Åshild Slettebø<sup>1</sup>

## Abstract

**Background:** Traditional, hierarchical government structures have recently been challenged by increased complexity, fragmented services and heavy public demand. When healthcare services become fragmented and decentralised, they require redesign. Inter-municipal cooperation is a strategy to deal with current challenges and future demographic changes. Few studies exist that can help us conceptualize challenges regarding employment in this context and inform managers in the involved municipalities. This study aims to identify critical issues for employees in inter-municipal health care services and to elaborate on how and why these issues are experienced.

**Methods:** A multiple qualitative case study was conducted with data from interviews, observation studies, a participant workshop and inter-municipal healthcare service project documents and reports. The study involved two districts in Norway and six cases including 17 informants. First, a within-case analysis was conducted for all cases; second, a cross-case analysis was conducted in each district to examine replication, contrasts and extension to emergent findings; and, eventually, replicated findings in Districts 1 and 2 were analysed across districts.

**Results:** Three critical issues were identified: support, differences, and geographical distances. Employees working in teams experienced fewer challenges than did those working as isolated individuals.

**Conclusions:** Critical issues for employees represent an important aspect of inter-municipal cooperation, and additional research should be undertaken to inform future policy and practice.

**Keywords:** Inter-municipal cooperation (IMC), Case, Cooperation, Municipality, Health, Reform, Employee

## Background

In recent decades, traditional, hierarchical government structures have been challenged by increased complexity, fragmented services, heavy public demands and the need to reduce costs [1, 2]. In health care services, factors like patient multi-morbidity, changing patient expectations, economic pressure, technological development and predicted decreases in the working-age population contribute to increasingly complex challenges for effective health care service production and delivery in local governments. Health care service delivery must be scaled to meet future needs, which will require changes that include service redesign and new structures for public service provision.

Within local governments, inter-municipal cooperation (IMC) is one strategy used to meet future changes in the public sector [3, 4]. In contrast to a traditional, hierarchically organised municipality, IMC often represents a less formalised and more loosely coupled system where control is distributed across several municipalities. This might create challenges in coordinating management and control across municipalities in general and might create uncertainties for the employees in particular. Hence, IMC represents an additional dimension of complexity within municipal health care services. Previous research has noted the need for inter-organisational integration in public health services [5], and research focusing on public networks are increasing [6]. To shed a light on the complexity of working in an inter-municipal healthcare service, two theoretical lenses are of particular relevance;

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Governance networks and Perceived Organisational Support (POS).

### **Governance network**

IMC has been described as involving contracts or joint production with other local governments. The goal is to gain economics of scale, improve service quality, and promote regional service coordination across fragmented local government regions [7, 8]. IMC in various municipal service deliveries are a widespread phenomenon, particularly in small municipalities [9–11]. Inter-municipal cooperation can be seen as a so-called governance network. Governance networks can be defined as “more or less stable patterns of social relations between mutually dependent actors, which form around policy problems and/or clusters of means and which are formed, maintained and changed through a series of games” [12], and refers to a horizontal interaction between autonomous, yet interdependent actors [13].

In the last decades, network organising, in contrast to traditional hierarchical structures, has become more popular. Flexibility and the ability for rapid adaptation are found to be among the greatest advantages of networks [14]. It has also been expressed that it can change democratic processes found in traditional hierarchical organisations, both in a positive and a negative way. It can provide an alternative way for stakeholders to achieve democracy. Sørensen and Torfing [15] express that “...governance networks provide a supplement to representative democracy that grants an extra channel of influence to those who are intensely affected by certain decisions” [15]. In an inter-municipal health care setting, this will imply that patients and users of the services potentially will have more influence on the service. Moreover, it is expressed that contemporary problems in public sector requires flexibility, and that governance networks potentially has the advantage to be able to self-organize [16]. This implies more power, autonomy and influence for employees in IMC. Such organisational democracy can be both positive and negative for the employees. Potential advantages for employees are enhanced commitment, the feeling of more responsibility and a more participatory climate overall [17]. Potential disadvantages are the increased demands and accountability such a change of power can imply for the employees [17]. On the other hand, network governance has also been found to represent a threat to democracy, when democracy is defined from theories of liberal democracy such as Habermas [18] and Rawls [19] and described by Sørensen and Torfing [20]. Literature on IMC specifically, has identified challenges involving the potential democratic deficit of such cooperation [11]. Questions can be asked about whether local councils are informed about decision-making processes and budget

control in inter-municipal service delivery [11]. However, if one sees democracy from the view of new post-liberal theory such as that of Etzioni [21] and Young [22], their emphasis is on the need for both a horizontal and vertical balance structure, and hence governance networks can play a positive role in democracy [20].

### **Perceived Organisational support**

The concept of POS can shed light on employees and their influence in IMC settings. In general, employees perceived organisational support (POS) is found to positively influence affective commitment, job satisfaction, positive mood at work, desire to remain with the organisation, and turnover intentions [23]. POS consist of employees’ common global perception concerning the extent to which the organisation values their contribution and cares about their well-being [23]. For the employees, the organisation gets humanlike characteristics that lead to the perception that the organisation has a favorable or unfavorable orientation against them [24]. Based on organisational support theory [24], the organisations’ favorable treatment regarding fairness, supervisor support and organisational reward and job conditions will most likely increase POS, and hence how employees perceive how their contribution is valued and their well-being cared for in the organisation [25]. POS has also been addressed regarding change related uncertainty in organisations [26]. POS was found to be a mediator of the relationship between employee’s adaptability and perception of change-related uncertainty and employees’ satisfaction and performance [26]. POS lead to responsible behavior such as knowledge sharing behavior that benefits the organisation [27]. Knowledge sharing is important for the fulfilment of common goals amongst cooperative partners [28]. Trust in supervisor is also found to be of importance for knowledge sharing behavior [27].

### **Research questions**

In inter-organisational theory, the focus is primarily on the collaboration across organisational boundaries, however, the employees are also part of the partnership and network they inhabit [29]. Despite an extensive focus on coordination and collaboration in health care services, as well as on inter-organisational coordination and IMC, few studies have focused exclusively on IMC in health care services, and there is a lack of contextual grounding on research and theory on employees in this setting. As a result, we do not know how to manage and coordinate the work of health care personnel in this setting in order to meet their needs involved in the production of current and future health care services. The role of employees in improving service production has for long been a topic in the management literature (e.g. C Grönroos and P Voima



[30]) but few studies have addressed how and under what conditions employees can contribute to improved service production in general (e.g. J Gummerus [31]) and in particular to inter-organisational health care service production. To address this gap, this study aims to explore critical issues for employees in inter-municipal health care services. This will have important implications for personnel management in inter-organisational cooperation's in public health care services. The aim is elaborated in the following research questions:

RQ1: What critical issues are experienced by employees working in inter-municipal health care services?

RQ2: How and why do inter-municipal employees experience the identified critical issues?

RQ3: How do identified critical issues affect employees and working practices in inter-municipal health care services?

Furthermore, similarities and conflicts in inter-disciplinary theory on network governance and POS are examined, and thereby contributing to managerial and theoretical enhancement.

## Methods

### Study design

An inductive multiple qualitative case study strategy was applied. Employees with different experiences of IMC were included to develop a rich dataset. According to Yin, "A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context may not be clearly evident" [32]. The focus of present study was the critical issues for employees in newly established inter-municipal health care services. Because of its strong relation with the context, a case study approach was established. Further, a multiple case study was established to get the analytic benefit of applying replication across the cases in various contexts, and hence increase analytic generalisability. Multiple case studies are more parsimonious than single case studies, but also more robust and generalizable [33]. Qualitative data from individual and focus group interviews, observational studies, workshops and several reports were collected, and a cross-case analytical method to yield contextually grounded and generalisable findings was adopted [34].

### Setting

The study took place in Norway, a country with three levels of political administration: state, county and municipal. In addition to these three formal administrative levels, Norway is divided into districts, which are organised by culture, common language or geography. The districts are larger than the municipalities but smaller than the counties and may span county borders. The districts in the present study

are formal districts with a council and representatives from each participating municipality. Norway implemented the "Coordination Reform" in 2012 [35]. Because this reform entails the delivery of more health services via local governments, and because many municipalities are sparsely populated, the need for IMC has increased.

The participants in the interviews, observational studies and workshop came from two districts in Norway. The districts were chosen because both had newly established inter-municipal health services and hence were comparable in terms of the inter-municipal services. The contexts varied; one district comprised a mix of coastal and inland municipalities and the other comprised only inland municipalities. They differed in numbers of municipalities and population, enabling us to provide findings applicable across different contexts.

District 1 contained four municipalities with less than 10,000 inhabitants in total. The district council had established a health project grounded in the coordination reform [35]. The health project established several health-related inter-municipal projects, all rooted in the district council steering committee.

District 2 contained six municipalities with a total of 35,000–40,000 inhabitants. To adapt to the "Coordination Reform" [35], the district established a district health network that comprised managers of all six municipalities, the district hospital and the regional user committee, and union representatives. The main objective of establishing this network was to facilitate health care cooperation between the municipalities and between the municipalities and the hospital. One of the mandates of the network was to initiate and steer inter-municipal health care services.

### Participants

Six inter-municipal health services, representing the six cases were included in the study; inter-municipal dementia team, psychologist, substance abuse therapist, occupational therapist, palliation project and substance abuse team. The six cases involved 12 employees of the inter-municipal health care services and five collaborating partners such as community nurse, general practitioner and inter-municipal ICT-personnel. The research team contacted managers in the district, who identified participants meeting the following inclusion criteria: project managers and employees in an inter-municipal public health care service. In addition, employees working in health care services, managers, ICT-personnel and collaborative health personnel in the municipalities, were included. Altogether, seventeen persons participated in the study (Table 1), including six who participated in multiple aspects of the study, such as interviews, observational studies and workshop. This approach was adopted to ensure an in-depth understanding of the phenomenon. Interview and observational data were collected over eight months. Pseudonyms are used to denote

**Table 1** Participants

	Profession	Sex	Age	Data collection methods
District 1	Psychologist	Female	20–29	• Qualitative interview
	Substance abuse therapist		20–29	• Qualitative interview
	ICT manager	Female	40–49	• Qualitative interview
	Dementia coordinator	Male	50–59	• Workshop • Focus group interview • Two observational studies
	Dementia contact 1	Female	50–59	• Workshop • Focus group interview
	Dementia contact 2	Female	50–59	• Workshop • Focus group interview • Observational study
	Dementia contact 3	Female	20–29	• Workshop • Focus group interview
	Dementia contact 4	Female	30–39	• Workshop • Focus group interview, • Observational study
	Consulting doctor	Male	30–39	• Workshop • Focus group interview
	General practitioner	Female	30–39	• Qualitative interview
	Community nurse manager 1	Female	30–39	• Qualitative interview
	Community nurse manager 2	Female	20–29	• Qualitative interview
	Project manager for substance abuse therapist and psychologist	Female	50–59	• Qualitative interview
	District 21.1.1.	Occupational therapist	Female	30–39
“Palliation in Vik” project manager/coordinator		Female	30–39	• Qualitative interview
Manager of a substance abuse team		Female	30–39	• Qualitative interview
ICT consultant		Female	30–39	• Qualitative interview

districts, municipalities, teams and the individual informants to protect participant privacy.

#### Inter-municipal services

The inter-municipal health care services in this study were mainly organised as projects with fully or partially external public funding. The services were organised either on the basis of inter-municipal teams or as individual employees serving several municipalities (hereafter “individual service”). All the services were newly established from three months to 1.5 years prior to the start of the study.

In District 1, the dementia team was structured such that the employees and the project manager carried out their main work in their respective municipalities with part-time inter-municipal employment. The substance abuse therapist and psychologist had a 100% inter-municipal position each and served all four municipalities. One municipality served as the host municipality and fulfilled management responsibilities.

In District 2, the project “Palliation in Vik [anonymised district name]” was established as a competence-enhancing project for district health personnel financed by external public funding. Only the role of project leader had an inter-municipal component (30%) for the coordination of competence-raising measures. The occupational therapist was employed in a service that entailed her serving the involved municipalities individually. This position was administratively organised by one of the municipalities, whereas the hospital was responsible for professional supervision. The Vik substance abuse team consisted of four positions, including a project manager. One of the municipalities, the one in which the team was based, served as a host municipality.

#### Data collection

Multiple data collection methods such as interviews, observational studies, workshop and document studies were used to strengthen the theoretical grounding by triangulating the evidence [36].

### Interviews

A total of 11 individual interviews and 1 focus group interview were conducted in the two districts. The interviews were loosely structured based on a semi-structured interview guide dealing with inter-municipal employment. The main questions dealt with what and how their work was done and how the inter-municipal work tasks were performed, by whom and how participants collaborated in the work they performed, as well as how information was documented and shared. The municipal employees were asked about their work tasks and their relationships with the various inter-municipal services. All interviews were audio recorded and transcribed except for one interview where notes were taken. In District 1, seven individual semi-structured interviews lasting from 20 min to two hours were conducted. One focus group interview was also conducted in District 1. Five participants participated in the focus group interview, which was divided into two sections of one and one-half hour each. In District 2, four individual semi-structured interviews, lasting from 30 min to 45 min were conducted.

### Observational studies and workshop

Two observational studies were conducted, following the dementia team's work; from the referral of a patient, the preparation in the office, the dementia assessment in patient homes, the patient documentation and the referral to collaborative partners. The observations were conducted as open observation in all cases, aimed at understanding the context of the employees working in IMC. The observation studies were conducted in everyday settings including informants' offices, patients' homes and transport between office and patient homes. Observations in the patients' home were conducted as nonparticipative observation to not interrupt the patients' assessment. The researcher was sat at a distance from the patient and health personnel and did not interrupt or ask questions. Questions regarding how and why tasks were done, were asked in front of and after the assessment. In the other settings, the observations were conducted as participant observation, and questions were asked regarding how and why participants performed tasks. The questions were asked to ensure a complete understanding regarding how and why tasks were done. The combination of nonparticipative and participant observations provided *an in-depth understanding of the employees work and the context of the service and permitted comparison between the interview data and observations. In District 1, a workshop aiming at validating and get increased insight on work procedures were conducted. Eight participants were present; seven participants from an inter-municipal team and one cooperating partner. The workshop was audio recorded.*

### Documents

To corroborate the empirical data, seven local project/evaluation reports and plans related to the different services were collected; three from District 1 and four from District 2. In District 1, the inter-municipal ICT service was organised as a project; and a pilot study and project report were included in our data.

### Data analysis

The data analysis was conducted in iterative phases, and the research questions and findings obtained during the process revealed a need for different approaches as visualized in Fig. 1.

The qualitative software program Nvivo [37] was used for the analysis. The research questions guided the analysis:

RQ1: What critical issues are experienced by employees working in inter-municipal health care services?

First, case analysis was conducted on all individual cases. Data sources relevant to each case were analysed using qualitative content analysis, as inspired by Graneheim and Lundman [38] and recommended by Kohlbacher [39]. The content was analysed through a series of readings of data relevant to each case. The data were analysed and developed inductive codes and categories based on the research questions. Examples are seen in Table 2. Second, cross-case analysis was conducted on the cases inter-municipal dementia team, psychologist and substance abuse therapist in District 1 and on the cases occupational therapist, palliation project and substance abuse team in district 2. The cross-case analysis in each district examined replications of, contrasts with, and extensions to emergent findings. Third, findings replicated across cases in both districts were analysed across the two districts to identify replications of, contrasts with and extensions to emergent findings. The initial findings of the present study are the categories replicated across cases within a district, and across districts.

The categories served as a framework for addressing the following research question:

RQ2: How and why do inter-municipal employees experience the identified critical issues?

The same strategy, qualitative content analysis, was used in the further analysis of the data. Each category was analysed individually within each case using an inductive approach. Cross-case analysis was conducted within each district. Several local conditions exist regarding each identified category from RQ1, and replication logic across all cases was not obtained. However, the most important and prominent categories were identified. Finally, findings from each district were analysed, and a common theme was identified and considered as evidence for accomplishing literal replication.

RQ3: How do identified critical issues affect employees and working practices in inter-municipal health care services?

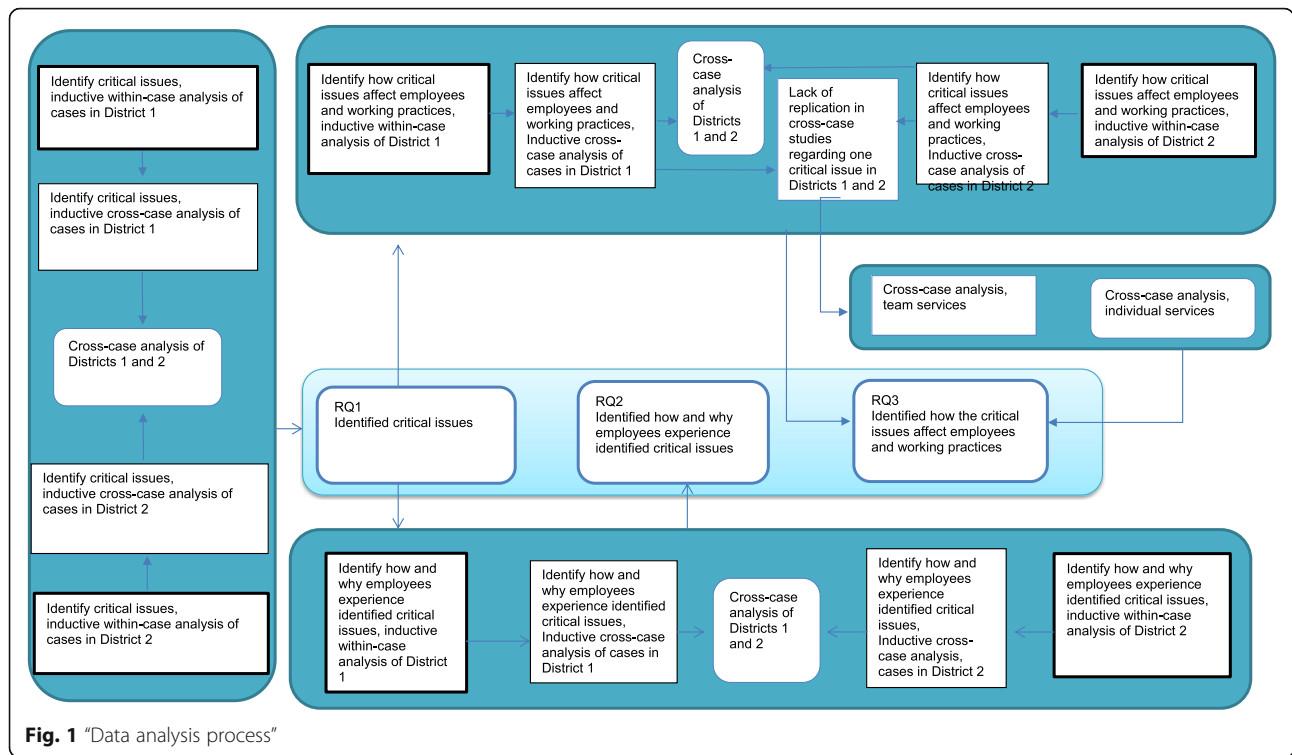


Fig. 1 "Data analysis process"

Each category from RQ1 was analysed individually within each case, using an inductive approach. Cross-case analysis was conducted within each district. The cross-case analysis revealed few to zero replications across cases in the various regions regarding the identified critical issue "support", which compelled the researchers to refine and extend the analysis approach. The findings indicated differences in how both teams and individual services were affected. Hence, the cases composed as teams and those composed as single services were analysed across cases but not across districts. The cross-case analysis in each group obtained findings that were replicated across cases. The replication logic confirmed the refinement of our analysis and suggested that service composition had more impact than district characteristics on how critical issues affect employees in inter-municipal services. Regarding the identified critical issues "differences" and "geographical distance", common

themes were identified and considered as evidence for accomplishing literal replication.

**Data validity and reliability**

To obtain robust findings, a multiple-case design that allowed replication of findings was conducted. Data analysis revealed that no further replication was feasible, contributing to data saturation. The discussion actively uses existing literature from other contexts or viewpoints to enhance internal validity and analytic generalisability.

Both participant and nonparticipant observation can influence the participants' behaviour. To reduce this potential bias, multiple data collection methods are used in the analysis of data.

The nature of case study design enables the transfer of findings to other contexts. The findings in the present study were replicated across two districts with diverse characteristics, indicating applicability to other settings and groups.

Table 2 Illustration of data coding

Quotation	Code	Category
"...To have some arenas for cooperation, where you meet and can discuss those things, evaluate along the way, I think that is really important to in a way see if this is working, shall the tasks be changed, I came close to saying, is this what I'm supposed to be doing?"	Need for supervision	Support
"...But I do feel that it would have been nice if it could all be organised pretty much the same way. It is a lot to deal with when there are four different interfaces in the system [Electronic Health Record], different templates and different..."	Differences between municipalities	Differences
"...But the time, driving that many hours a week, I think it is a challenge. You lose a lot of time, it might be two hours of your workday and you don't get paid for it..."	Additional practical challenges	Geographical distance

The research team consisted of multiple investigators, with multi-disciplinary competence. The complementary insights provided by a team can improve data richness and increase the likelihood of capitalising on novel insights from the data, while convergence from multiple investigators improves confidence in the findings [36]. The prior knowledge of the researchers might affect the research process. The researchers avoided thinking about specific relationships between theory and findings during the data gathering and analysis. The participants varied in terms of age and gender, thus reflecting diverse perspectives on IMC. The constant use of different perspectives from researchers, various data collection methods and cross-case analysis comprised the strategy to avoid a unilateral focus, and hence researcher bias.

The data collection evolved over time, and the initial interviews gave new insights that influenced the decision to broaden the research question and made it necessary to include more participants to ensure saturation, and, hence, replication between multiple perspectives. The research team had open discussions regarding data consistency. To reduce the threat of selective bias, external colleagues working in inter-municipal health care services were consulted to check the possibility of rival or other reasonable explanations. In case studies, the extensive use of empirical evidence can result in too much reliance on theory with excessively detailed findings, and a lack of overall perspective [36]. Rather than trying to capture everything, this study focuses on findings that were replicated across multiple cases and in different contexts and avoids explaining rival findings across cases.

## Results

The overall finding was that support, differences in working practices between the involved municipalities and considerable geographical distance are critical issues for inter-municipal employees. Organisation of IMC in a team or at the level of individual services was found to influence how the identified critical issues affect employees. Team members appear to use each other's resources for supervision and support and are capable of taking advantage of autonomy related to the identified issues. Hence, IMC organised at the level of individual employees involves more challenges than does IMC organised at the team level. In the following sections, the three critical issues will be elaborated on through quotes and explanations and divided according to the research questions asked.

## Support

### *Critical issues*

The findings suggest that support is a critical issue for inter-municipal employees. Both supervisor support, here defined as support from an employee's immediate

superior, and co-worker support were found to be important. Team members largely took advantage of co-worker support within the team. In addition, the findings made it clear that inter-municipal employees themselves acted as experts, with professional supervision of municipal employees being one important task. However, the inter-municipal employees were found to lack supervisor support in relation to both professional and organisational issues. The lack of support was related to professional feedback regarding direct patient cases and clinical themes, and administrative support regarding the execution of work.

The existence of several different managers having different local needs poses a challenge for the inter-municipal employee. The need for regulated arenas to ensure evaluation, and to ensure the employee is focused on the right tasks, is elaborated as follows by the inter-municipal employee:

...to have some arenas for cooperation, where you meet and can discuss those things, evaluate along the way, I think that is really important to, in a way, (to) see if this is working; shall the tasks be changed? I almost said, is this what I'm supposed to be doing?

Services provided through IMC were specialized municipal services. Therefore, relatively few municipal employees were trained in delivering these services, leading to only limited discussions regarding service-related matters. In some cases, there was communication with specialist health care services to provide necessary supervision and professional support, and it was decided that this communication had to be on a regular basis.

In addition to the lack of professional discussion partners for individual inter-municipal employees, the lack of supervisor support regarding the actual execution of assignments was a challenge. This resulted in uncertainty regarding whether the work was done as expected by the representative of the employing municipalities.

For the team members, the lack of supervisor support was not explicitly conveyed. During data collection, it became apparent that team members managed their work by providing professional supervision to one another. Decision-making processes were influenced by collaboration among horizontal partners in the municipalities and end-users. In none of the cases were upper management or immediate superiors highlighted in the descriptions of how team members performed their work or made decisions on what to do and how. One example is that the team members used each other as discussion partners and supervisors on patient cases. One team member in team A stated:

But I do feel that I get a lot of competence from the other team members, just by discussing different cases, challenges, things I find difficult. So, I get a lot of suggestions, and yes, at least that is competence for me.

Team B worked as its own supervising mechanism. They had regular weekly meetings where challenging cases were discussed. This served as an arena for supervision.

Decisions on how to perform tasks, as well as what tasks to perform, were guided by the needs of end-users and collaborating partners in a bottom-up strategy. Team A established a “relatives café” based on needs conveyed by relatives.

#### ***How and why employees experience support as a critical issue***

The findings indicate that inter-municipal employees in health care services lack overall governance. This situation relates to the lack of support experienced by these employees. Britt mentioned that in one municipality, the health care manager did not display a conscientious attitude regarding his role in IMC:

...the person to whom, in a way, the health care manager that I am supposed to belong to, when I asked him “are you my immediate professional manager?” Well, no he was not sure about that. So, I do not know, well, it is very unclear.

The findings indicate that roles are not properly clarified prior to their establishment and that the service is not strongly anchored in the municipalities. This lack of support creates a challenge for the employees, as they do not know who they shall contact regarding services they are delivering in the municipalities.

#### ***Effect on employees and working practices***

The findings revealed a distinct difference between how a lack of support influenced inter-municipal employees organised in teams as opposed to those organised in individual services. Team members effectively used each other for supervision, and adapted services based on feedback from collaborators and service users.

#### ***Teams***

The lack of support in the teams was not emphasized, and the findings suggest team organisation was safeguarded by co-worker support and feedback and user feedback rather than by external support. Findings suggest that the teams took advantage of their autonomy and used a bottom-up strategy to adapt services based on the interests of partners and users, and to improve their own working conditions. Distance from supervisors created the opportunity to deviate from the regular bureaucratic decision-making. For services offered via an organised team structure, this led to flexibility and adaptation based on interaction among municipalities, collaborators and user needs. Such flexibility benefited service users and was valued by municipalities involved in IMC. In a project report it is stated: “The municipalities

experience it [the service] as useful, both in individual follow-up work, where the team has shown to be very flexible, and they see it as a resource concerning general advisory in the field [of expertise].”

Municipalities that need inter-municipal cooperation in health services are often sparsely populated, meaning there is a high likelihood of personal relationships existing between employees and users. Sometimes this creates challenges owing to problems in these personal relationships. In such cases, the inter-municipal teams use their flexibility and seek to match users with the most suitable employees.

Employees in teams emphasized the feedback of users and relatives and aimed to meet their needs and wishes in a quick and adaptive manner. A team member states: “... The users provide the feedback that when things happens through the dementia-team, they happen very quickly...”.

#### ***Individual services***

The individual employees were afflicted by not having support in terms of both professional and organisational feedback. They felt isolated in their work and stated that it was difficult to achieve satisfactory cooperation; as Britt stated: “I don’t know, but I can easily be alone at work, so that is a challenge. So I think it requires a lot from me, to manage to cooperate.” Without any possibility of a professional discussion partner, their work gave them little opportunity for development. Gunn stated: “... because I find the position very lonely, and I get little stimulus in a way, and I need that. Somebody to discuss difficult cases with”.

Expressions conveying autonomy in their work were not present in data from employees in individual services. Unlike the teams, they were supposed to deliver the service on their own and experienced little room for flexibility in terms of service organisation; hence, autonomy was not utilized.

#### ***Differences***

##### ***Critical issues***

Employees experienced differences among collaborating municipalities concerning management and organisation of health care services, as well as in terms of competence and resources such as the electronic health record (EHR). There was no consistency among the municipalities in terms of service organisation, leading to different procedures in work routines, documentation practices and contact persons. In a joint-service provision like IMC, employees had to use solutions specific to the various municipalities.

The employees emphasized the differences in EHR management. Some municipalities obtained their EHRs from various vendors, while others shared a common vendor but still their EHRs presented different information.

Different organising within municipalities also created challenges related to the physical location of inter-municipal employees because secured health networks were not available in the welfare units. The differences also applied to resources and competence among the municipalities involved in the cooperation.

#### ***How and why employees experience differences as a critical issue***

Because the municipalities differ and have individually adapted services, it is challenging to devise effective solutions that fits all. In both cases, substance abuse work was organised in health care units in some municipalities, and in welfare units in others. In District 2, the municipalities had chosen various EHR vendors. In District 1, despite a conscious decision to implement an EHR system from the same vendor, the system content nevertheless varied among the municipalities. The Norwegian language consists of two written language variants, and in District 1, the written language used was different depending on the cooperating municipalities, and this led to further challenges.

Ellie emphasized the importance of employees not being constrained by the municipality in which a patient lives. However, the jurisdiction and guidelines were contradictory. Lack of national guidelines made it difficult to devise good solutions for all municipalities. Differences between municipalities also related to the need for new systems to conduct the inter-municipal services. The overarching solutions necessary to support inter-municipal employees were often not in place before service establishment.

The municipalities varied in how geographically central they were, and in an evaluation report for the dementia team it was stated that geographical location could affect access to relevant competence: “both to recruit and keep qualified personnel is an extra challenge for the inland municipalities.” In Norway, the larger municipalities are mainly coastal towns. Inland municipalities are hence more rural, and this affects access to competence and skills.

#### ***Effect on employees and working practices***

The differences caused increased system complexity and workload and decreased efficiency and effectiveness. Employees expressed a wish for a more uniform way of organising the services because the differences created additional work burden. The differences were also related to how implementation of necessary ICT solutions was prioritized in the municipalities. This prevented employees from documenting health services provided and caused a lot of frustration.

The differences between competence and resources in the municipalities resulted in two opposite consequences for employees. In one case, the differences resulted in

additional work for the employee: “I have been dragging for Berg [a Municipality] for several years, because they have not had the competence, and that is okay, but we have had to share and share, and share...”.

In one of the districts, the differences in competence between municipalities resulted in the investment of unequal effort in IMC. However, in the other district, the differences in competence between municipalities resulted in less use of inter-municipal employees. The two municipalities that lacked occupational therapy services were found to be the ones not using the service.

#### ***Geographical distance***

##### ***Critical issues***

The findings suggest that geographical distance was a critical issue for employees, albeit mainly a negative one. A large proportion of part-time, inter-municipal jobs involve travelling long distances. When discussing the time spent on a patient assessment, a project leader mentioned that a single assessment could involve hours spent driving. If the assessment were carried out in a municipality far from the employee’s main working place, it could take an entire day. As the project leader put it: “... and some hours driving too maybe, so if I’m going to municipality C, it actually takes a day.”

#### ***How and why employees experience geographical distance as a critical issue***

Some inter-municipal employees spend time working in municipalities other than those where their offices are located. This leads to personal challenges in terms of their work attendance in different municipalities. Different municipalities can be separated by long distances, and employees must sometimes spend a great deal of time simply getting to their work place. Natalie states: “...But the time, ...driving that many hours a week, I think it is a challenge. You waste a lot of time; it might be two hours of your workday, and you don’t get paid for it...”.

The findings also indicate that roadway infrastructure relates to the challenges of distance, with poor infrastructure increasing the challenges of long distance. However, with effort, the challenges experienced by employees could be decreased. A project report for the substance abuse and psychologist service states that the employment situation should be improved, implicitly indicating that managers can implement various measures to influence how driving distances affect employees.

#### ***Effect on employees and working practices***

On a personal level, the distance was challenging because potential spare time was used to travel to work; meanwhile, on a professional level, there were challenges in that working time was used for travel rather than actual work. Some inter-municipal services were supported

only on a part-time basis. Employees spending only 10% of their working time on IMC expressed that much of this limited working time was consumed by long distances: Erna states “Long distances [...] consuming a lot of the ten percent [part-time job] we got”. This suggests that employees have to spend a disproportionate amount of their working time on driving. In an annual report in District 1, driving distance was considered the most challenging aspect of the service for two of the inter-municipal employees, and the main reason for one of them quitting the job.

Geographical distance also affects how employees collaborate and with whom one collaborates. Britt stated:

...Here it is easier to drop by, and the same is true in municipality C; he is the one I have collaborated with the most, and he is located at the neighbouring office, so it's just next door, so that is of relevance, how close they are and how you are able to collaborate.

The findings suggest that distance is important, and proximity stimulates informal contact.

## Discussion

This study aimed to identify the critical issues for employees when working in an inter-municipal health care service, and to elaborate how and why these issues were identified and how they affected employees. The findings revealed three critical issues: support, differences and geographical distance. Several findings indicated that the use of teams in the inter-municipal organisation of service provision positively affected employees compared with situation in which individuals worked independently.

Lack of support was found to be a characteristic of inter-municipal services. Previous research suggests that direct management, which is based on continuous information flow between practitioners and their governing body, as in a traditional, hierarchical organisational structure, is lacking in horizontal cooperation like IMC [40]. The complex leadership in inter-municipal cooperation in health care services are found to be challenging [41]. According to the theory of perceived organisational support (POS), supervisor support is an important antecedent to POS [25], and hence impacts employee commitment, loyalty and performance [23]. Previous research emphasizes the negative effects of not receiving support from one's immediate superior, and this is considered to be a predominant issue for horizontal networks like IMC. Lack of supervisor support implies lack of trust in supervisor. We do know that trust in supervisor promotes knowledge sharing behaviour in the organisation, which is an important goal for inter-organisational cooperation's. Hence, the lack of support can potentially affect the cooperation negatively. However, the findings do suggest that the lack of support was not perceived as challenging for the team members. They emphasized the importance of support

from other team members. Previous studies have suggested that teamwork reduces both the need for supervisor support in an organisation, as well as the importance of such supervisory support for individuals [42]. This suggests that although supervisor support is lacking in inter-municipal services, this might not be experienced as a hardship for team members.

Inter-municipal employees are often employed to manage specialized health care issues, in cases where a larger population base is necessary to build proper competence. Hence, employees in these positions are supposed to be experts on a specific field, serving in a municipality that lacks this competence. Inter-municipal employees thus act as supervisors rather than as supervisees. Supervisor support is more closely related to POS than co-worker support, because supervisors are seen as more representative of the organisation. Supervisor support implies an inter-level relationship, whereas co-worker support implies an intra-level relationship. Clinical supervision can be inter-level but is not exclusively so. Co-workers might also serve as supervisors. A definition of clinical supervision is as follows:

Clinical supervision is a support mechanism for practising professionals within which they can share clinical, organisational, developmental and emotional experiences with another professional in a secure, confidential environment in order to enhance knowledge and skills. GM Lyth [43].

In health care services, clinical supervision can be given equally from a co-worker as from a supervisor, explaining findings that team members did not need supervisor support from a manager. In contrast, employees in individual services experienced negative consequences from the lack of supervisor support.

The findings suggest that lack of supervisor support provides overall autonomy regarding what tasks should be performed and how, as well as the allocation of work within the team. This can relate to the implementation of new services in municipalities, and to the need for flexibility regarding the services that should be included in the implementation phase and how they should be included. However, the findings suggest that IMC organised in teams are most likely to take advantage of the flexibility given to them. Flexibility and the ability for rapid adaptation are found to be among the greatest advantages of networks [14]. In previous studies, autonomy in teamwork has been highlighted as important [44, 45] Employees in individual services have reduced possibility to be flexible or adapt the services provided because they lack others with whom to collaborate. Challenging governance and democratic control can be found in inter-municipal cooperation [15, 41]. However, how this affects employees, and hence service delivery, has not been determined. Employees



mention the importance of feedback from municipal partners such as the General Practitioner (GP), as well as from patients and their relatives. For team members, this leads to a grounded fit of services, where end-user needs are guiding service content and structure.

Previous literature states that in a network, stakeholders can achieve democracy [15, 46]. The empirical findings support this theory and indicate that IMC can potentially foster a new dimension in representative political democracy, because employees are guided and take decisions based on a bottom-up strategy involving end-users. Network governance has been found to represent a threat to democracy, [18–20], but from the view of post liberal theories, findings in this study can be seen as an empirical evidence for the democratic potential in networks, despite the lack of governance [20–22]. Co-creation and co-production of public services is a response to the democratic deficit experienced the planning and deliverance of public services [47]. The users contribution is crucial to the performance of the service and creates value for the service user [47]. The inter-municipal teams develop services in cooperation with users, relatives and cooperative partners and such an organising of the inter-municipal service is a promising action to facilitate co-creation between employees and their stakeholders in public services.

The findings suggest that the municipalities differ in terms of economy, population density, EHR and several locally adapted solutions exist. This becomes a challenge when employees work across municipal borders. Cultural diversity is found to be challenging and can negatively impact identification of shared interests and understanding between cooperating partners [48]. While some studies treat boundaries as a means for ordering differences, other studies have conceptualized them as interfaces that facilitate knowledge production by enabling communication across organisations [49, 50]. However, clarity is known to be one important antecedent for job satisfaction [51]. The differences were negatively affecting the employees and led to additional work. Findings suggest that common procedures and tools are desirable to ensure clarity, and hence, job satisfaction in inter-municipal health services.

Geographical distance was also found to be a critical issue for employees. Driving long distances was challenging, yet inter-municipal services are often necessary in sparsely populated areas. Hence, inter-municipal services must organise service delivery over a relatively large geographical area. The vast majority of modern workers commute, and the number of long distance commuters seems to have increased [52]. For health care workers, the location of their workplace is dependent on where patients live, as well as political considerations. The

relationship between long commuting distance, and the likelihood of quitting a job is well known [53]. An antecedent for job satisfaction are the work and family balance [51]. Findings indicate that the driving distance is challenging because free time is used to drive long distances. Findings suggest that managers recognize they can do something about this situation. Location-specific wage subsidies have been identified as one means to support commuting [52].

### Limitations

The sample size in the present study was small and the geographical setting was limited. This study does not emphasize or distinguish between different organisations and formalizations of IMC which can potentially affect critical issues related to IMC. Further research is needed to address these limitations

### Managerial implications

The findings of present study have some implications, which can guide managers of IMC in a health care setting. Employees were found to be affected by several critical issues, in which potentially can have negative impact on both job satisfaction and POS. This in turn, may affect turnover intentions and the employees' perception on how the organisation values their contribution and cares about their well-being [25, 54]. In network governance theory, networks are described to be flexible, and they can change the existing democratic system [14, 20]. Findings in present study provides a contextually grounded support for these theories. However, the flexibility was only present in the services organised in team-structures, suggesting that the positive effect work across organisational borders are also dependent on how the employees are organised at the local level. Organising the employees in a team structure were found to hinder the negative impact of employment in inter-municipal health care services, and it could in addition better utilize the positive effects of IMC. Teams were more flexible in terms of their ability to match employees with suitable patient cases, as well as coping with time-schedules and distances. Team members made use of co-worker support and did not express challenges regarding lack of supervisor support. Future health care will be characterized by rapid changes and development. Thus, the ability to quickly adapt to environmental changes could potentially meet future needs. It was also apparent that employees in the inter-municipal services were guided and made decisions, based on a bottom-up strategy, supporting post-liberal theories suggesting that networks can enhance democracy by providing an additional channel for the stakeholder voice [21, 22]. Further, managers should be aware of the challenges related to differences amongst the cooperating municipalities, and the geographical distance. This lead to increased workload for

the employees and decreased efficiency and effectiveness in the services. Managers should consider to putting in place measures to minimize the possibility of negative effects for the employees regarding geographical distance and differences amongst the municipalities.

The mandate of an inter-municipal service should be precisely explained, and flexibility within a defined framework can generate effective services with user involvement based on a bottom-up strategy.

## Conclusion

Critical issues for employees in inter-municipal services are found to be support, differences and geographical distances. Challenges related to lack of governance in inter-municipal services can explain why these work conditions were identified. This study is a contribution to the gap in the literature whereby focus has been exclusively on employees in IMC in health care services; the study thereby clarifies the need for an increased focus on critical issues in IMC in health care services from the perspective of the employees. In a public sector with an increasing amount of services being delivered across organisational borders, future research should elaborate on POS theory and focus on how employees can perceive organisational support in a context with many, and diverse, organisations. To elaborate on existing literature, future research should focus exclusively on employees in inter-organisational services. Findings indicate that potential negative effects from working across municipal borders, can be reduced by organising the service in a team structure. The employees in the inter-municipal teams can also facilitate co-creation of the planning and implementation of public services, and findings contribute to the emerging literature on co-creation value in public services. Therefore, future research should include both an organisational and an individual perspective when studying employment in inter-municipal health care services. In addition, this multiple level focus should be encompassed by a multi-disciplinary research approach to capture the complexity of the field. This study was a cross-case study across different districts within the same country. Finally, future research should focus on cross national study, and identify replication and contradictions across national borders to further develop the research area.

## Abbreviations

EHR: electronic health record; GP: general practitioner; ICT: information and communication technology; IMC: inter-municipal cooperation; POS: perceived organisational support; RQ: research question

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## Availability of data and materials

The datasets generated and analysed during the current study are not publicly available due to the respondents' consent to use the data for this research specifically. Data can be available upon reasonable request to the authors.

## Author's information

The research team consisted of three female and two male investigators with various levels of experience and training. Elisabeth Holen-Rabbersvik (EH) is a Ph.D. student with experience in nursing, health-informatics and qualitative studies such as Delphi-study and qualitative document analysis. Tom Roar Eikebrokk (TRE) is a professor of Information Systems and experienced in using both quantitative and qualitative research methods, including interviews, focus groups and Delphi techniques. Rune Werner Fensli (RWF) is a professor of Information and Communication Technology (ICT), with experience in Health Informatics and Communication and System Security. Elin Thygesen (ET) is an associate professor in Health Science who earned a Ph.D in 2010 and has experience from qualitative interviews and quantitative studies on health care. Åshild Slettebø (ÅS) is a professor of Health Care Science, with experience in qualitative in-depth and focus group interviews. None of the research team members had relationships with participants prior to the study, except for one informant taught by ET.

## Authors' contributions

EH carried out the observation studies, participated in all interviews and workshops, drafted the manuscript and performed the analysis. TE participated in the design of the analysis and the revision of the manuscript. RF participated in the workshop, focus group interviews and in the manuscript revision. ET participated in the workshop, the focus group interview and individual interviews, as well as in the analysis and the revision of the manuscript. ÅS participated in the study design, as well as the analysis and manuscript revision. All authors read and approved the final manuscript. All authors agree to be accountable for all aspects of the work and guarantee that questions related to the accuracy or integrity of any part of the work will be appropriately investigated and resolved.

## Ethics approval and consent to participate

The study was approved by the Norwegian Centre for Research Data (NSD) (28,027; 30,209) and was exempted from ethical approval by the Regional Ethical Committee because no health information was collected. The Declaration of Helsinki formed the basis for ethical considerations in the recruitment process. The participants gave both written and verbal voluntary, informed consent to participate, and the data was kept confidential.

## Competing interests

The authors declare they have no competing interests.

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## **Appendix A**



## **Intervjuguide**

**Kan du fortelle om din jobb og dine arbeidsoppgaver?**

**Kan du fortelle litt om samhandlingsrutiner i forbindelse med at du/dere mottar en henvisning?**

- Hvordan skjer selve henvisningen? (telefon, post, fax...)
- Hva slags informasjon har du tilgang til?
- Hvordan dokumenterer du?
- Hvordan formidler du informasjon videre?
- Tilbakemeldinger på ditt arbeid?

**Er du fornøyd med systemet slik det er i dag?/Hvordan opplever du kvaliteten på informasjonen du finner i fagsystemet?**

- er systemet enkelt å bruke?
- er systemet stabilt?
- er det lett å finne informasjonen du trenger?
- kommer relevant informasjon opp på skjermen, er det noe viktig som blir utelatt?
- antall "klikk" en må bruke før en er inne i et dokument?
- kan du utdype/gi eksempler på noe som er bra eller dårlig?
- Hva kunne blitt gjort bedre?

**Opplever du at fagsystemet fører til bedre service på tjenestene dere yter?/Kan du gi noen eksempler på fordeler du opplever at fagsystemet har gitt?**

- Spart arbeidstid. Mer tid til andre oppgaver(pleie- og omsorg, annet ...?)
- Bedre og mer praktisk kommunikasjon?
- Unngår unødig personlig interaksjon med helsepersonell/leger osv?
- Bedre kontroll på informasjon?
- Bedre anvendelighet enn det tidligere arbeidsprosesser kunne tilby?
- Enkel innhenting av informasjon?
- Tillit (prosesser, pasienter e. lign)
- Bedre informasjonsflyt?
- Mer inkludert i beslutninger enn tidligere?
- beslutningsstøtte/lettere å ta beslutninger?

**Er det noe du savner, noe du har bruk for i daglig arbeid som ikke finnes i systemet?**

**Hvis du prøver å se for deg en ideell situasjon ift samhandling, hva ville være annerledes enn i dag? Gi eksempler**

**Hva er de viktigste hindringer/barrierer for god og sikker dokumentasjon?**

- Kompetanse hos personell?
- Programvare?
- Informasjonssikkerhet?

**Hva de viktigste hindringer/barrierer for samhandling/arbeidsflyt i tjenesten?**

- Kompetanse?
- Utstyr?
- Avstander?

**Annet**

- Er det noe annet som vi ikke har snakket om i løpet av intervjuet som ikke er nevnt som du synes er viktig (å ha med)?



## **Appendix B**



**Intervjuguide**, interkommunalt ansatte.

Kan du fortelle meg om **ditt arbeid** og dine **arbeidsoppgaver**?

- pasientrettet arbeid?
- aktuelle samarbeidspartnere?
- benyttes standardiserte kartleggingsverktøy?

**Dokumentasjonsrutiner.**

- Hvor og hva dokumenteres?
- Når dokumenteres?( før, under, etter en konsultasjon?)
- Hvordan formidles/ utveksles informasjon mellom deg og de ulike samarbeidende aktørene?
- Hva slags opplysninger utveksles, og for hvem?
- når leses rapport fra samarbeidene aktører?
- Forskjeller i ulike kommuner?
- Tidsperspektiv på et typisk case?

**Hvordan** syns du **samhandling fungerer** med de aktuelle samarbeidspartnere?

- Hvor tilgjengelig er informasjonen?
- informasjon som er vanskelig å formidle eller få tak i?
- Manglende funksjoner i de elektroniske systemene?
- Særlige tungvindte/arbeidskrevende arbeidsoperasjoner?
- Elektroniske skjemaer?
- Understøtter dokumentasjonssystemet pasientbehandlingen?

Er det spesielle **utfordringer** ved å jobbe **interkommunalt**?

- Hva er det viktigste flaskehals/barrierer?

Har du forslag til **løsninger** eller **endring av rutiner** som ville **forbedret ditt samarbeid** med andre aktører( og evt pasienten selv)?

**Annet?**



## **Appendix C**



## Observasjonsguide

### Strukturert observasjon:

Kartleggingsverktøy	Start (tidspunkt)	Slutt (tidspunkt)	Dokumenteres hvor, og av hvem?	Videreformidles til:	Viderformidlings- form
<b>MMS</b>					
<b>Klokketest</b>					
<b>Pårørendesamtale (diverse tester fra helsedir)</b>					
<b>Annet : -Informasjon fra henvisning og prebesøk</b>					

### Ustrukturert observasjon:

Hva skjer?

Hvem er involvert?

Hvordan utveksles informasjon?

### Tidsperspektiv:

### Tidsbruk:





## **Appendix D**



## **Intervjuguide samarbeidende aktør**

### Hva er rutiner i forhold til dokumentasjon?

- hvordan starter dagen med rapport?, ettermiddag, kveld?
- hvilke behov har du? Knyttet til mobil enhet?
- understøtte pasientbehandling?
- Rutiner knyttet til system?

### Hvordan fungerer dagens system med tanke på samhandling med:

- spesialisthelsetjeneste
- fastlege,
- andre samarbeidspartnere

### Hva er viktigste flaskehalser/barrierer for kommunikasjon og informasjon?

#### **Oppfølging av pasientutredning:**

Har du fått informasjon om utredningen?

Når og hvordan fikk du informasjonen?

- Har dere gjort endringer i pasientoppfølging av pasienten basert på evt tilbakemeldinger fra teamet?

Hvilke erfaringer har du ellers gjort knyttet til teamets arbeid, og deres samarbeid?

Hva er de viktigste utfordringer for et godt samarbeid?

Erfaring/tanker om fremtidig samarbeid med andre tverrkommunale tjenester?



## **Appendix E**



## Fokusgruppeintervju

### Kartlegging av behov for samhandling og deling av informasjon i den kommunale helsetjenesten med spesielt fokus på demensomsorg

1. Hvordan er dagens rutiner?
2. Hva er flaskehalsene?

#### Ad 1: Dagens rutiner

- **Hva er prosedyrene for deling av informasjon?**
  - hva slags informasjon dokumenteres?
  - Hvem er involvert?
  - Hvor dokumenteres det?
  - Hvordan utveksles informasjon mellom de ulike personellgrupper som er involvert?
  - Hva gjøres med informasjonen?

Be informantene beskrive sine rutiner. Samtidig prøve å tegne dette opp på tavla slik at vi får en oversikt. Får validert underveis om vi har forstått det rett. Blir da enige om en skisse. Denne kan vi gå videre med når vi skal registrere dette senere (når vi gjør selve kartleggingen i kommunene og får med tidspunkter for registrering også).

#### Ad 2: Hva er flaskehalsene?

- **Problem-tre**  
**Tema: Hva er de viktigste hindringer/barrierer for samhandling/arbeidsflyt**
- Hva er hovedproblemene? (brainstorming)
- Velge ett problem eller problemområde for analyse
  - Hva er de viktigste årsakene til problemet? (post-it)
  - Hva er virkningene av problemet? (post-it)

Lage et problem-tre som viser årsaker og virkninger (eller sammenhengen mellom problemene)





## **Appendix F**



## Kartlegging av behov for samhandling og deling av informasjon i den kommunale helsetjenesten

1. Hvordan er dagens samhandlingsrutiner?
2. Hva er flaskehalsene?

### Ad 1: Dagens rutiner

- **Hvordan er status per i dag når det gjelder deling av informasjon både internt i kommunen, mot spesialisthelsetjenesten og mellom kommunene?**
  - Informasjonsflyt generelt
  - Meldingsutveksling
  - Etablering av tverrkommunale team
  - Felles plattform når det gjelder fagsystemer
  - Dokumentasjon: Erfaringer ved bruk av profil
  - Kommunikasjon mellom ulike fagsystemer (PLO og lege, sykehus)
- **Hvordan er status i dag mht samhandling?**
  - Erfaringer knyttet til arbeids- og samhandlingsrutiner (videokonferanse, lync, reiser, telefonkontakt, posttjenester...)
- **Hvordan er status mht informasjonssikkerhet?**
  - Hvordan er sikkerheten ivaretatt per i dag?
  - Status ift "Normen" (HODs "Norm for informasjonssikkerhet")
  - Vaktordning?

### Ad 2: Hva er flaskehalsene?

- **Hva er de viktigste hindringer/barrierer for god og sikker dokumentasjon?**
  - Kompetanse?
  - Programvare?
  - Informasjonssikkerhet?
- **Hva er de viktigste hindringer/barrierer for samhandling/arbeidsflyt i demensteamet?**
  - Kompetanse?
  - Utstyr?
  - Avstander?

Er det noe du savner, noe du/dere har bruk for i det daglige arbeidet som ikke finnes i systemet?

Hvis du prøver å se for deg en ideell situasjon ift samhandling, hva ville vært annerledes enn i dag?

Hva er de viktigste verdiene ift dokumentasjon og samhandling?



## **Appendix G**



## **Forespørsel om deltakelse i forskningsprosjektet**

### *“Kartlegging av behov for samhandling og deling av informasjon i den kommunale helsetjenesten”*

#### **Bakgrunn og hensikt**

Dette er et spørsmål til deg som ansatt i en av kommunene i xxx om å delta i en forskningsstudie hvor hensikten er å kartlegge behov for samhandling og deling av informasjon i den kommunale helsetjenesten.

Bakgrunnen for denne forespørselen er at kommunene i xxx er med i et prosjekt sammen med Universitetet i Agder (UiA). Hovedmålet med prosjektet er å vurdere nye muligheter for samhandling og utvikle teknologiske løsninger som tilrettelegger for elektronisk deling av informasjon i forbindelse med interkommunalt arbeid.

Gjennom observasjon av dokumentasjonsrutiner i forbindelse med et ansvarsgruppemøte, ønsker vi å kartlegge rutiner for dokumentasjon og samhandling for å få et innblikk i dagens situasjon og for å identifisere potensielle flaskehals. Det vil derfor være aktuelt å observere når du dokumenterer og i tillegg intervjuer deg om dine erfaringer knyttet til behov for tilgang til journalinformasjon og utveksling av informasjon med samarbeidende fagpersoner både internt og på tvers av kommuner samt med spesialisthelsetjenesten. Dette er viktig informasjon som et utgangspunkt for det videre arbeidet med å finne gode teknologiske løsninger for samhandling i framtiden.

#### **Hva innebærer studien?**

Dette er en forespørsel til deg om å samtykke til at en forsker fra UiA kan observere og intervjuer deg i forbindelse med dine oppgaver knyttet til dokumentasjon og samhandling. Forskeren vil ikke spørre om forhold som er direkte knyttet til deg eller andre enkeltpersoner, men vi ønsker å vite noe om dine arbeidsformer og rutiner og hva som eventuelt er de største hindringene for god samhandling.

#### **Mulige fordeler og ulemper**

Med unntak av tidsbruken, medfører deltakelse i studien ingen stor risiko eller ulemper for deg. Det følger ingen spesielle fordeler med å delta, men din deltakelse er et viktig bidrag til at kommunens fremtidige satsning på ulike teknologiske løsninger er basert på kunnskap om dine erfaringer.

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

Det vil bli skrevet notater underveis i observasjonen, som blir brukt i videre analyser. Det vil bli benyttet båndopptaker under intervjuet. Senere vil intervjuet bli skrevet ned i sin helhet, men hvor alle personidentifiserbare opplysninger anonymiseres. Lydfilene vil bli lagret på en passordbeskyttet datamaskin og vil bli slettet når prosjektet avsluttes, innen 31.12.2012. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres.

#### **Frivillig deltakelse**

Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien.

ehelse – samhandling uten grenser – observasjon konsultasjon

Dersom du ønsker å delta, undertegner du samtykkeerklæringen under. Om du nå sier ja til å delta, kan du senere trekke tilbake ditt samtykke. Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte stipendiat ved Universitetet i Agder: Elisabeth Holen Rabbersvik, telefon: 37233295 / mobil: 93248992 eller prosjektansvarlig ved Universitetet i Agder: Elin Thygesen, telefon: 38 14 18 52/mobil: 91 57 15 15.

## Samtykke til deltakelse i studien

Jeg er villig til å delta i studien

-----  
(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

-----  
(Signert, rolle i studien, dato)



## **Appendix H**



## Forespørsel om deltakelse i forskningsprosjektet

*“Kartlegging av behov for dokumentasjon og deling av informasjon i den kommunale helsetjenesten”*

### **Bakgrunn og hensikt**

Dette er et spørsmål til deg som ansatt i en av kommunene i xxx om å delta i en forskningsstudie hvor hensikten er å kartlegge behov for samhandling og deling av informasjon i den kommunale helsetjenesten.

Bakgrunnen for denne forespørselen er at kommunene i xxx er med i et prosjekt sammen med Universitetet i Agder (UiA). Hovedmålet med prosjektet er å vurdere nye muligheter for samhandling og utvikle teknologiske løsninger som tilrettelegger for elektronisk deling av informasjon i forbindelse med utredning og oppfølging av personer med demens.

Gjennom intervju knyttet til utredning og oppfølging av personer med demens, ønsker vi å kartlegge rutiner for dokumentasjon og samhandling for å få et innblikk i dagens situasjon og for å identifisere potensielle flaskehalsar. Det vil derfor være aktuelt å intervju deg om dine erfaringer knyttet til behov for tilgang til journalinformasjon og utveksling av informasjon med samarbeidende fagpersoner både internt og på tvers av kommuner samt med spesialisthelsetjenesten. Dette er viktig informasjon som et utgangspunkt for det videre arbeidet med å finne gode teknologiske løsninger for samhandling i framtiden.

### **Hva innebærer studien?**

Dette er en forespørsel til deg om å samtykke til at en forsker fra UiA kan intervju deg i forbindelse med dine oppgaver knyttet til dokumentasjon og samhandling. Forskeren vil ikke spørre om forhold som er direkte knyttet til deg eller andre enkeltpersoner, men vi ønsker å vite noe om dine arbeidsformer og rutiner og hva som eventuelt er de største hindringene for god samhandling. Intervjuet forventes å ta fra ca. 45 minutter.

### **Mulige fordeler og ulemper**

Med unntak av tidsbruken, medfører deltakelse i studien ingen stor risiko eller ulemper for deg. Det følger ingen spesielle fordeler med å delta, men din deltakelse er et viktig bidrag til at kommunens fremtidige satsning på ulike teknologiske løsninger er basert på kunnskap om dine erfaringer.

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

Det vil bli benyttet båndopptaker under intervjuet. Senere vil intervjuet bli skrevet ned i sin helhet, men hvor alle personidentifiserbare opplysninger anonymiseres. Lydfilene vil bli lagret på en passordbeskyttet datamaskin og vil bli slettet når prosjektet avsluttes, innen 31.12.2012. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres.

### **Frivillig deltakelse**

Denne henvendelsen skjer gjennom vår kontaktperson i din kommune, xxx. Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien.

ehelse – samhandling uten grenser – intervju [REDACTED]

Dersom du ønsker å delta, undertegner du samtykkeerklæringen under. Om du nå sier ja til å delta, kan du senere trekke tilbake ditt samtykke. Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte stipendiat ved Universitetet i Agder: Elisabeth Holen Rabbersvik, telefon: 37233295/ mobil: 93248992 eller prosjektansvarlig ved Universitetet i Agder: Elin Thygesen, telefon: 38 14 18 52/mobil: 91 57 15 15.

## Samtykke til deltakelse i studien

Jeg er villig til å delta i studien

-----  
(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

-----  
(Signert, rolle i studien, dato)

## **Appendix I**



## Forespørsel om deltakelse i forskningsprosjektet

### *“Kartlegging av behov for samhandling og deling av informasjon i den kommunale helsetjenesten”*

#### **Bakgrunn og hensikt**

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Bakgrunnen for denne forespørselen er at kommunene i xxx er med i et prosjekt sammen med Universitetet i Agder (UiA). Hovedmålet med prosjektet er å vurdere nye muligheter for samhandling og utvikle teknologiske løsninger som tilrettelegger for elektronisk deling av informasjon i forbindelse med utredning og oppfølging av personer med demens.

Gjennom intervju knyttet til utredning og oppfølging av personer som benytter interkommunale helse/sosialtjenester, ønsker vi å kartlegge rutiner for dokumentasjon og samhandling for å få et innblikk i dagens situasjon og for å identifisere potensielle flaskehalser. Det vil derfor være aktuelt å intervju deg om dine erfaringer knyttet til behov for tilgang til journalinformasjon og utveksling av informasjon med samarbeidende fagpersoner både internt og på tvers av kommuner samt med spesialisthelsetjenesten. Dette er viktig informasjon som et utgangspunkt for det videre arbeidet med å finne gode teknologiske løsninger for samhandling i framtiden.

#### **Hva innebærer studien?**

Dette er en forespørsel til deg om å samtykke til at en forsker fra UiA kan intervju deg i forbindelse med dine oppgaver knyttet til dokumentasjon og samhandling. Forskeren vil ikke spørre om forhold som er direkte knyttet til deg eller andre enkeltpersoner, men vi ønsker å vite noe om dine arbeidsformer og rutiner og hva som eventuelt er de største hindringene for god samhandling. Intervjuet forventes å ta ca. 1 time.

#### **Mulige fordeler og ulemper**

Med unntak av tidsbruken, medfører deltakelse i studien ingen stor risiko eller ulemper for deg. Det følger ingen spesielle fordeler med å delta, men din deltakelse er et viktig bidrag til at kommunens fremtidige satsning på ulike teknologiske løsninger er basert på kunnskap om dine erfaringer.

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

Det vil bli benyttet båndopptaker under intervjuet. Senere vil intervjuet bli skrevet ned i sin helhet, men hvor alle personidentifiserbare opplysninger anonymiseres. Lydfilene vil bli lagret på en passordbeskyttet datamaskin og vil bli slettet når prosjektet avsluttes, innen 31.12.2012. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres.

#### **Frivillig deltakelse**

Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien.

ehelse – samhandling uten grenser – intervju [REDACTED]

Dersom du ønsker å delta, undertegner du samtykkeerklæringen under. Om du nå sier ja til å delta, kan du senere trekke tilbake ditt samtykke. Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte stipendiat ved Universitetet i Agder: Elisabeth Holen Rabbersvik, telefon: 37233295/ mobil: 93248992

## **Samtykke til deltakelse i studien**

Jeg er villig til å delta i studien

-----  
(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

-----  
(Signert, rolle i studien, dato)



## **Appendix J**



## Forespørsel om deltakelse i forskningsprosjektet

### *“Kartlegging av dokumentasjon og utveksling av informasjon i den kommunale helsetjenesten”*

Du har en avtale om at helsepersonell fra din kommune skal komme på hjemmebesøk til deg 27.01.11. I den forbindelse er dette en forespørsel til deg om en medarbeider fra Universitetet i Agder kan delta på dette hjemmebesøket?

Bakgrunnen for denne forespørselen er at din kommune er med i et prosjekt sammen med Universitetet i Agder hvor hensikten er å finne nye og mer effektive måter å arbeide på.

Hensikten med å delta på hjemmebesøk er å observere. Derfor vil det ikke bli aktuelt å gjøre noe intervju, men kun observere hva slags type opplysninger som registreres. Etter hjemmebesøket er det ønskelig å kartlegge på hvilken måte helsepersonell følger opp i etterkant. Derfor er dette også en forespørsel om prosjektarbeideren kan få innsyn i din journal. Det vil ikke være aktuelt å registrere opplysninger som kan kobles direkte til ditt navn. Derfor vil det ikke være mulig å identifisere deg når resultatene av prosjektet presenteres.

Dersom du samtykker i å delta, undertegner du under. Om du sier ja deltakelse nå, kan du senere ombestemme deg. Dersom du senere skulle ønske å trekke deg eller bare har spørsmål, kan du kontakte vår kontaktperson i [redacted] kommune: [redacted] telefon: [redacted] eller prosjektansvarlig ved Universitetet i Agder: Elin Thygesen, telefon: 38 14 18 52/mobil: 91 57 15 15.

## Samtykke til deltakelse i prosjektet

Jeg er villig til å delta i studien

-----  
(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

-----  
(Signert, rolle i studien, dato)



## **Appendix K**



## **Forespørsel om deltakelse i forskningsprosjektet**

*“Kartlegging av behov for samhandling og deling av informasjon i den kommunale helsetjenesten”*

### **Bakgrunn og hensikt**

Du har en avtale om å delta i en konsultasjon med helsepersonell fra kommunehelsetjenesten den xxx. I den forbindelse er dette en forespørsel til deg om en medarbeider fra Universitetet i Agder kan delta på denne konsultasjonen?

Bakgrunnen for denne forespørselen er at din kommune er med i et prosjekt sammen med Universitetet i Agder hvor hensikten er å finne nye og mer effektive måter å arbeide på. For å finne ut av dette arbeider vi nå med et delprosjekt hvor vi å kartlegge hvordan helsepersonell jobber i forbindelse med utredning og oppfølging av pasienter i kommunene. Vi vil også undersøke hvordan dokumentasjon og utveksling av pasientopplysninger fungerer for å se hva som fungerer godt og hva som bør endres. Dette delprosjektet vil avsluttes innen 31.12.12.

Kommunene i xxx er i gang med å innføre elektroniske journaler. Det vil si at journaler som tidligere var papirbasert, etter hvert vil være lagret på datamaskiner. I prosjektet er det også ønskelig å finne ut hvordan de elektroniske journalene fungerer og hva som kan gjøres for å forbedre dem.

Prosjektmedarbeideren ønsker derfor også å observere hvordan helsearbeiderne skriver inn opplysningene de har fått under konsultasjonen i din journal. Derfor er dette også en forespørsel om prosjektarbeideren kan få innsyn i din journal. Prosjektmedarbeideren vil ikke bruke ditt navn eller konkrete opplysninger om deg i sitt arbeide, men vil kun registrere hva slags type informasjon som skrives inn i de elektroniske journalene. Det vi finner ut i denne kartleggingen vil være et utgangspunkt for videre arbeid med å forbedre de elektroniske journalene og rutineene i kommunene.

### **Hva innebærer studien?**

Dette er en forespørsel om ditt samtykke til at en ansatt ved Universitetet i Agder kan delta som observatør under ditt ansvarsgruppemøte med helsepersonell fra ditt distrikt, og om hun kan få innsyn i din journal når det skrives rapport fra konsultasjonen. Videre vil prosjektmedarbeideren følge informasjonen som din ruskonsulent mener er relevant å videreformidle til samarbeidende aktører i din ansvarsgruppe. Hensikten med å delta på konsultasjonen er å observere. Derfor vil det ikke bli aktuelt å gjøre noe intervju, men kun observere hva slags type opplysninger som registreres og på hvilken måte de følges opp.

### **Mulige fordeler og ulemper**

Med unntak av tidsbruken, medfører deltakelse i studien ingen stor risiko eller ulemper for deg. Det følger heller ingen spesielle fordeler med å delta, men din deltakelse er et viktig bidrag til forbedring av rutiner for dokumentasjon og formidling av pasientopplysninger i ditt distrikt.

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

Vi som forskere kjenner ikke din identitet før du eventuelt samtykker til deltakelse. Det vil ikke være aktuelt å registrere personopplysninger eller helseopplysninger som kan kobles direkte til deg. Derfor vil det ikke være mulig å identifisere deg når resultatene av prosjektet presenteres.

### **Frivillig deltakelse**

Denne henvendelsen skjer gjennom vår kontaktperson i din kommune. Vi som prosjektmedarbeidere kjenner ikke din identitet. Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i prosjektet.

Dersom du samtykker i å delta, undertegner du samtykkeerklæringen under. Om du sier ja deltakelse nå, kan du senere trekke tilbake ditt samtykke. Dersom du senere skulle ønske å trekke deg eller bare har spørsmål til studien, kan du kontakte vår xxx, stipendiat ved Universitetet i Agder: Elisabeth Holen Rabbersvik, telefon: 37233295 / mobil: 93248992 eller prosjektansvarlig ved Universitetet i Agder: Elin Thygesen, telefon: 38 14 18 52/mobil: 91 57 15 15.

## **Samtykke til deltakelse i prosjektet**

Jeg er villig til å delta i studien

-----  
(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

-----  
(Signert, rolle i studien, dato)



## **Appendix L**



## **Forespørsel om deltakelse i forskningsprosjektet**

*"En studie av utfordringer og muligheter ved samhandling i kommunal helse- og omsorgstjeneste"*

### **Bakgrunn og hensikt**

Dette er et spørsmål til deg om å delta i en forskningsstudie hvor hensikten er å identifisere utfordringer ved samhandling sett fra kommunal helse- og omsorgstjenestes ståsted.

Samhandlingsreformen startet 01.01.12, og alle kommer har nå gjort seg noen erfaringer knyttet til denne.

Hovedmålet med prosjektet er å vurdere nye muligheter for samhandling og utvikle teknologiske løsninger som tilrettelegger for elektronisk deling av informasjon.

Gjennom dette delphistudiet ønsker vi å identifisere de viktigste utfordringene ved dagens samhandling, og hva som kan være mulige løsninger på dagens utfordring. Dette er viktig informasjon som et utgangspunkt for det videre arbeidet med å finne gode teknologiske løsninger for samhandling i framtiden.

### **Hva innebærer studien?**

Studien er en delphistudiet, hvor målet er å oppnå konsensus innen din panelgruppe.

Studien innebærer at du vil få tilsendt opp til 6 spørreskjema, hvor tidsbruken estimeres til ca 15-20 min per gang. Skjemaet skal returneres i løpet av fire virkedager. Dette vil forgå over en periode på 6-8 uker og total tidsbruk estimeres til 1,5-2 timer. I løpet av denne perioden vil jeg oppfordre deg til å ha tilgang til internett/mail på virkedager, da kommunikasjonen vil foregå via elektronisk spørreskjema.

### **Mulige fordeler og ulemper**

Med unntak av tidsbruken, medfører deltakelse i studien ingen stor risiko eller ulemper for deg. Det følger ingen spesielle fordeler med å delta, men din deltakelse er et viktig bidrag til fremtidige satsning på ulike teknologiske løsninger, basert på kunnskap om dine erfaringer.

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

Det vil ikke være mulig for meg som forsker, eller for andre å identifisere deg gjennom opplysninger du gir. Innsamlede opplysninger vil bli anonymisert ved prosjektslutt, senest ved utgangen av 2012.

### **Frivillig deltakelse**

Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien.

Om du nå sier ja til å delta, kan du senere trekke tilbake ditt samtykke. Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte stipendiat ved Universitetet i Agder: Elisabeth Holen Rabbersvik, telefon: 37233295/ mobil: 93248992, epost: elisabeth.rabbersvik@uia.no.



## **Appendix M**





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Fax: +47 55 58 96 50  
nsd@nsd.uib.no  
www.nsd.uib.no  
Org.nr: 985 321 884

Elisabeth Holen Rabbersvik  
Institutt for psykososial helse  
Universitetet i Agder  
Serviceboks 422  
4604 KRISTIANSAND S

Vår dato: 27.03.2012

Vår ref:30209 / 3 / LT

Deres dato:

Deres ref:

## TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 15.03.2012. Meldingen gjelder prosjektet:

30209 *En studie av utfordringer og muligheter ved elektronisk samhandling i kommunal helse- og omsorgstjeneste*  
*Behandlingsansvarlig* *Universitetet i Agder, ved institusjonens øverste leder*  
*Daglig ansvarlig* *Elisabeth Holen Rabbersvik*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, eventuelle kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, [http://www.nsd.uib.no/personvern/forsk\\_stud/skjema.html](http://www.nsd.uib.no/personvern/forsk_stud/skjema.html). Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://www.nsd.uib.no/personvern/prosjektoversikt.jsp>.

Personvernombudet vil ved prosjektets avslutning, 31.12.2012, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

  
Knut Kalgraff Skjåk

  
Lis Tenold

Lis Tenold tlf: 55 58 33 77  
Vedlegg: Prosjektvurdering



Det gis skriftlig informasjon og innhentes skriftlig samtykke. Personvernombudet finner skrevet godt utformet, men forutsetter at det tilføyes en setning om at innsamlede opplysninger vil bli anonymisert ved prosjektslutt, senest ved utgangen av 2012. Personvernombudet legger til grunn for sin godkjenning at revidert skriv ettersendes før det tas kontakt med utvalget.

Innsamlede opplysninger anonymiseres ved prosjektslutt, senest 01.06.2012. Anonymisering innebærer at direkte personidentifiserende opplysninger som navn/navneliste slettes, at SurveyXact sletter e-post/IP-adresser, og at eventuelle indirekte personidentifiserende opplysninger (sammenstilling av bakgrunnsopplysninger som f.eks. yrke, alder, bosted) fjernes eller endres. Ved publisering vil ingen enkeltpersoner kunne gjenkjennes.

Firmaet SurveyXact er databehandler for prosjektet. Personvernombudet forutsetter at det foreligger avtale mellom SurveyXact og Universitetet i Agder for den behandling av data som finner sted, jf. personopplysningsloven § 15.



## **Appendix N**





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Org.nr. 985 321 884

Elin Thygesen  
Institutt for helse- og sykepleievitenskap  
Universitetet i Agder  
Postboks 422  
4604 KRISTIANSAND S

Vår dato: 10.11.2011

Vår ref: 28027 / 3 / KH

Deres dato:

Deres ref:

## KVITTERING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 14.09.2011. All nødvendig informasjon om prosjektet forelå i sin helhet 03.11.2011. Meldingen gjelder prosjektet:

28027

*eHelse - Samhandling uten grenser. Kartlegging av behov for sambending og deling av informasjon i den kommunale helsestjenesten med spesielt fokus på demensomsorg. [REDACTED] kommune og [REDACTED] Universitetet i Agder, ved institusjonens overste leder Elin Thygesen*

Behandlingsansvarlig  
Daglig ansvarlig

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

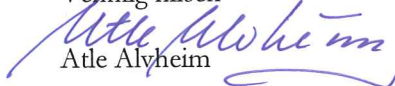
Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, eventuelle kommentarer samt personopplysningsloven/-helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, [http://www.nsd.uib.no/personvern/forsk\\_stud/skjema.html](http://www.nsd.uib.no/personvern/forsk_stud/skjema.html). Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://www.nsd.uib.no/personvern/prosjektoversikt.jsp>.

Personvernombudet vil ved prosjektets avslutning, 31.12.2012, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

  
Atle Alyheim



Kjersti Håvardstun

Kontaktperson: Kjersti Håvardstun tlf: 55 58 29 53

Vedlegg: Prosjektvurdering



### FORMÅL

Formålet med prosjektet er å kartlegge dagens samhandlingsrutiner i den kommunale helsetjenesten og å identifisere potensielle flaskehalsar. I tillegg er det aktuelt å fokusere på endringer i pasientforløp, arbeidsflyt og informasjonsflyt. Denne kunnskapen skal ligge til grunn for utvikling og eventuelt tilrettelegging av ny software. Hensikten er å utvikle gode redskaper for dokumentasjon og samhandling innad og på tvers av virksomheter ved å vurdere nye muligheter for samhandling og utvikle teknologiske løsninger som tilrettelegger for elektronisk deling av informasjon mellom de kommunale omsorgstjenestene og på tvers av kommuner. Det er også ønskelig å kartlegge hvordan de nasjonale retningslinjene for demensutredning er implementert i kommunene.

### UTVALG, REKRUTTERING

Utvalget består av fastleger, helsepersonell i demensteamene i aktuelle kommuner, samt it-personell, kontorpersonell og demente som er hjemmeboende.

Rekruttering av helsepersonell og annet personell i kommunene vil skje i samarbeid med kommunenes faglige ansvarlige. Kontaktpersoner i kommunene vil ta kontakt med aktuelle informanter og gi både skriftlig og muntlig informasjon om prosjektet.

Rekruttering til hjemmebesøk (demenspasienter) vil skje gjennom kommunenes kontaktpersoner. I forkant av hjemmebesøket vil pasienten få skriftlig og tilpasset muntlig informasjon om prosjektet.

### INFORMASJON OG SAMTYKKE

Personvernombudet finner informasjonsskrivene tilfredsstillende utformet.

Pasientene er personer med begynnende eller mer langtkommen kognitiv svikt som er spesielt sårbare med hensyn til å kunne tilegne seg nødvendig informasjon for å kunne gi et informert samtykke. I forbindelse med hjemmebesøkene vil det derfor i hvert enkelt tilfelle, i samarbeid med kommunenes faglige ansvarlige, bli vurdert hvorvidt pasienten har samtykkekompetanse eller ikke. Der hvor pasienten ikke har samtykkekompetanse, vil pasientens nærmeste pårørende bli forespurt. Personvernombudet forutsetter at det foreligger samtykke fra pasient, eventuelt nærmeste pårørende, for alt innsyn i pasientopplysninger, jf. helsepersonelloven § 22, og at taushetsplikten ikke er til hinder. Vi gjør oppmerksom på at spørsmål om et eventuelt behov for dispensasjon fra taushetsplikten avklares med Helse- og omsorgsdepartementet.

### DATA

Datamaterialet vil bli samlet inn gjennom intervju, gruppeintervju og observasjon. Observasjonen innebærer innsyn i pasientjournaler. Personvernombudet legger til grunn at eventuelle utskrifter anonymiseres før forsker mottar dem. Det legges videre til grunn at det i intervju med fastleger og annet personell ikke innhentes opplysninger om enkeltpasienter. Det vil ikke bli opprettet noe kodeskjema som muliggjør kobling mellom personopplysninger og helseopplysninger.

Følgende opplysninger innhentes:

1. Type informasjon som dokumenteres og ikke dokumenteres

2. Hvem som er involvert
3. Hvor det dokumenteres
4. Tidspunkter for dokumentasjon og overføring av dokumentasjon
5. Hvor lang tid går med til de ulike arbeidsprosesser
6. Hvordan utveksles informasjon mellom de ulike personellgrupper som er involvert
7. Hvilke aksjoner gjøres

#### ANDRE GODKJENNINGER

Personvernombudet legger til grunn at kommuneledelsene har klarert prosjektet. For observasjon av dokumentasjonsrutiner søkes det om tillatelse til innsyn i pasientopplysninger fra ansvarlig leder i kommunen, i tillegg til at det innhentes samtykke fra pasient, eventuelt pasientens nærmeste pårørende.

Dersom det blir aktuelt å få tilgang til sykehusjournaler forutsettes det at det innhentes samtykke til dette fra den det gjelder.

#### MEDARBEIDERE

Universitetslektor Marthe Fosse Fensli, også ansatt ved Universitetet i Agder, har tilgang til datamaterialet da hun vil bistå med transkripsjon og analyse av data.

Prosjektsslutt er 31.12.2012. Datamaterialet anonymiseres ved at verken direkte eller indirekte personidentifiserbare opplysninger fremgår. Lydopptak slettes/makuleres. Indirekte personidentifiserbare opplysninger som stilling fjernes, omskrives eller grovkategoriseres.





Elin Thygesen  
Institutt for helse- og sykepleievitenskap  
Universitetet i Agder  
Postboks 422  
4604 KRISTIANSAND S

Vår dato: 09.03.2012

Vår ref: 28027 KH/LR

Deres dato:

Deres ref:

## BEKREFTELSE PÅ ENDRINGSMELDING

Vi viser til endringsmelding mottatt 24.01.12 for prosjektet:

28027

*eHelse - Samhandling uten grenser. Kartlegging av behov for samhandling og deling av informasjon i den kommunale helsetjenesten.*

Endringsmeldingen er omfattende og personvernombudet minner om at prosjektprotokoll- og plan i all hovedsak bør være ferdigstilt før innmelding til personvernombudet.

Deler av endringsmeldingen ble vurdert og bekreftet den 26.01.12. Dette gjaldt at Elisabeth Holen Rabbersvik ble knyttet til prosjektet som medarbeider.

Det søkes videre om tilgang til data for ansatte ved UiA som er veiledere for Holen Rabbersvik. Dette er biveiledere Rune Fensli og Tom Roar Eikebrokk. Personvernombudet legger til grunn at disse kun skal ha tilgang til data i forbindelse med veiledningsoppgavene, og ikke gjennomføre egne analyser av data.

Masterstudentene [REDACTED] vil delta i datainnsamlingen hva gjelder intervju med ansatte i kommunen. Det er lagt til grunn at masterstudentene kun skal ha tilgang til disse opplysningene, og ingen pasientopplysninger.

Det er for øvrig registrert at Marthe Fosse Fensli utgår fra prosjektgruppen.

Personvernombudet registrerer at et nytt utvalg inkluderes i undersøkelsen. Utvalget omfatter ruskonsulent og psykolog i interkommunale stillinger, pasienter som følges opp av henholdsvis konsulenten og psykologen, samt aktører som samarbeider med konsulenten og psykologen; fastlege, hjemmesykepleie, NAV og kontorpersonell.

Trekking av pasientene foretas av ruskonsulent og psykolog. Personvernombudet forutsetter at ruskonsulent og psykolog oppretter førstegangskontakten med sine pasienter og at taushetsplikten ikke

er til hinder for trekking og første kontakt. Det legges til grunn at pasientene er samtykkekompetente og at ruskonsulent/psykolog vurderer dette.

Ruskonsulent og psykolog formidler et forespørselsskriv om deltakelse i prosjektet, på vegne av prosjektgruppen. Personvernombudet finner informasjonsskrivet til pasientene mottatt 29.02.12 tilfredsstillende utformet, men anbefaler at det eksemplifiseres hvem samarbeidende aktører i ansvarsgruppen kan være (for eksempel fastlege).

Personvernombudet forutsetter at helsepersonell mottar tilsvarende informasjon om prosjektet.

Personvernombudet forutsetter at prosjektet kun får tilgang til opplysninger fra pasientens journal som innhentes ved den beskrevne konsultasjonen og at det ikke gis innsyn i øvrige journalopplysninger om pasient, og at taushetsplikten ikke er til hinder. Vi legger til grunn at ingen pasientopplysninger vil bli registrert.

Ta gjerne kontakt dersom noe er uklart.

Vennlig hilsen

Vigdis Namtvedt Kvalheim

Kjersti Håvardstun

Kontaktperson: Kjersti Håvardstun tlf: 55 58 29 53

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## **Appendix O**



**Table 3 Challenges identified in the Delphi study**

<b>Category</b>	<b>Challenge</b>
<b>Localisation / Distance</b>	Larger distances between services and inhabitants' homes and local support system than if the offer was made in their own municipality
	Inconsistent use of the inter-municipal services
	It could become prestigious to localise the project in own district and closer to the clients. As a result, the choice of municipality to localise services is subject to political debate
	Large geographic distances between municipalities
<b>Organising</b>	The largest of the cooperating municipalities must lead many of the processes. As a result, small municipalities claim they lose control and influence. Maintaining the interest of small municipalities can be challenging
	Political leadership and management of inter-municipal work are demanding and require more than only organising the municipal services
	Administrative challenges for the participating municipalities related to the economy and decision-making
	Decisions on how to best organise inter-municipal work is challenging. There are different models with different advantages and disadvantages
	Clear responsibilities and lines of authority can be challenging to establish
	Municipalities are very different; it is often challenging to find common solutions
	Different organising makes it hard to find the effective level of cooperation for the administration
<b>Documentation Systems</b>	Challenging when someone needs to replace the documentation system
	Various documentation systems that cannot be integrated
	Different understanding and different tools
	Different basic data in IPLOS
<b>Economy</b>	Inter-municipal work tends to be expensive, as no one "owns" it
	Challenging to agree on cost allocation, number of places and administration

<b>Establishment of internal municipal services</b>	Challenging to find suitable areas for cooperation
	It can often be a long way from idea to decision
	When considering inter-municipal work, most municipalities think "to the necessary extent" rather than to "the sufficient extent"
	It is challenging to establish inter-municipal cooperation as it is often more tempting to solve problems alone since this is more flexible, it creates synergy, and expertise that can be applied across the municipality
	Municipalities are lacking skills, ability to recruit and offer fragmented services
<b>Interests / priorities</b>	Partly different interests
<b>Highlight inter-municipal services</b>	Challenging to distribute knowledge in the organisation, and to anchor the joint cooperation projects at the local level
<b>Staffing / Expertise</b>	Challenges occur in the municipality when staffing levels decrease as a result of the work being resolved within the inter-municipal service
	Professional environment/ challenges are "removed" from some municipalities and centralised. It can lead to impoverishment in some municipalities

## **Appendix P**



## **Errata**

In Paper II, the number of participants is shown as 18.  
However, the correct number is 20, as shown in Table 2.

In Paper II, it is stated:

“one and a half to three months prior to the start of the study.”

However, the correct information is:

“one and a half years to three months prior to the start of the study.”

