The knowing body and a body of knowledge: an ethnographic study of professional knowledge in use in clinical nursing

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‘…*the very elements of nursing are all but unknown’*

(Nightingale, 1992 [1859], p. 6)

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Summary

This thesis is an ethnographic study of nursing knowledge from the perspective of its use, exploring how professional knowledge evolves in work by taking clinical cancer nursing as its case. Cancer nursing requires a complex interplay between biomedical, clinical and patient knowledge in caring for patients' acute and prolonged physical and mental problems. It thus provides a case that reveals the heterogeneous body of theoretical knowledge and complex practical skills that comprise clinical nursing. The nature and status of these different forms of knowledge and their usefulness for clinical practice in modern healthcare contexts have been discussed in great detail in the nursing literature, more recently related to questions of academisation and evidence-based practice. These discussions reflect the essential role ascribed to knowledge in defining and exploring what professions are, and what they do, in the sociology of professions and the literature on expertise. Despite this interest in understanding what knowledge is, and what role different forms of knowledge play in professional practice, few studies have aimed to envision and explore how different types of knowledge and modes of knowing are interconnected in professional decision-making at a micro-level, and how knowledge thus develops through use.

These questions are explored in this thesis by analysing data from five months of fieldwork followed by formal interviews with registered nurses in a cancer ward in a Norwegian hospital. Observations revealed how nurses' professional knowledge and clinical expertise emerged in clinical decision-making through practices of sensing, sharing and caring, as they aimed to evaluate, define and meet cancer patients' overall care needs. These practices were further explored and analysed by combining perspectives from the sociology of professions and knowledge in policy with sociological and anthropological notions on embodiment, translation and temporality. On this basis the thesis addresses the question of how knowledge is acquired, shared and structured in nurses' clinical practice and how it is moulded in its circulation through enactments in an organisational context.

Based on the three empirical articles, the thesis demonstrates, firstly, how nursing knowledge develops through the building of sensory knowledge in nurses' continuous, embodied and intersubjective interaction with individual patients and a specific patient group. Secondly, it illustrates how the embodied knowledge of individual nurses is transformed through acts of translation as knowledge is shared, and hence moves in interaction. Thus, nursing knowledge emerges as a third space in the nurses' interpretative and creative effort to fill the gap between knowledge as embodied and inscribed and the languages and lifeworlds of patients,

practitioners and managers. Finally, it displays how nurses' professional knowledge is produced and reproduced through temporal structuring of caring practices in clinical work, potentially emphasising particular modes of accomplishing care and forms of knowing at the expense of others. In sum, the thesis thus sheds light on how nurses' heterogeneous body of theoretical knowledge and practical skills is put to use and made useful in a particular organisational context. In this way, the study identifies topics for reflection by clinical practitioners, managers and policy-makers in the field of knowledge management in contemporary healthcare contexts and other professional settings.

Beyond providing an in-depth ethnography on aspects of clinical work and knowledge that are little studied in the existing nursing literature and often rendered invisible in a modern hospital context, the thesis contributes to the literature on professions more generally. It does so by demonstrating how acts of diagnosis and treatment are accomplished in the continuous mobilisation and synthesis of theoretical and practical forms of knowledge through inference as an embodied, interactional and situated achievement. The thesis thereby nuances a notion on professional knowledge as a given, illuminating its potential heterogeneous nature, the complex ways in which various forms of knowledge are connected in the solving of particular tasks, and how it circulates and evolves in enactments at the workplace. Overall, the thesis demonstrates the fruitfulness of broadening out theoretical and methodological approaches to the understanding of professional knowledge in future research. It is to be hoped that the thesis can inspire further exploration and new revelations of the knowing body and the body of knowledge in professional practice.

Sammendrag

Denne avhandlingen er en etnografisk studie av sykepleieres kunnskap basert på feltarbeid ved en kreftavdeling. Studien utforsker hvordan sykepleiekunnskap utøves og utformes i arbeidet med kreftpasienter som har akutte og langvarige fysiske og psykiske komplikasjoner. Dette arbeidet fordrer et komplekst samspill mellom biomedisinsk kunnskap, kliniske ferdigheter og pasientinnsikt. Utøvelse av sykepleie på en kreftavdeling er dermed en klinisk kontekst der sykepleiens heterogene kunnskapsgrunnlag kommer til syne. Spørsmål om hva som kjennetegner teoretiske og praktiske former for kunnskap, hvilken status de har og bør ha, og vektleggingen av ulike akademiske tradisjoner har vært gjenstand for debatt i sykepleiefaget, i senere tid særlig knyttet opp mot spørsmål om akademisering og kunnskapsbasert praksis. Diskusjonene reflekterer den sentrale rollen kunnskap har i forståelsen av profesjoner som en spesifikk type yrkesgruppe i profesjonssosiologien og i studier av ekspertise. På tross av denne interessen for hva kunnskap er og hvordan ulike former for kunnskap tas i bruk i profesjonell praksis er det få studier som har undersøkt hvordan ulike kunnskapsformer kobles sammen i profesjonelle beslutningsprosesser på et mikronivå, og hvordan profesjonell kunnskap fremkommer og utvikles i utøvelsen av profesjonelt arbeid.

Avhandlingen utforsker disse spørsmålene basert på data fra et fem måneder langt feltarbeid etterfulgt av formelle intervjuer med sykepleiere på en kreftavdeling ved et sykehus i Norge. Gjennom deltagende observasjon kom det fram at sykepleieres profesjonelle kunnskap og kliniske ekspertise utformes i kliniske beslutningsprosesser gjennom tilegnelse av sansekunnskap om pasientenes tilstand, deling av kunnskap om pasienter med andre og gjennom ulike former for omsorgsutøvelse. Disse praksisene ble videre utforsket og analysert ved å kombinere perspektiver på kunnskap fra profesjonssosiologien og politisk sosiologi, med antropologiske og sosiologiske perspektiver på kroppsliggjort kunnskap, oversettelse og temporalitet. På dette grunnlaget utforsker denne avhandlingen hvordan kunnskap tilegnes, deles og struktureres i sykepleiernes kliniske praksis, og hvordan den dermed formes gjennom utøvelse i en organisatorisk kontekst.

Som presentert i avhandlingens tre artikler viser studien først hvordan sykepleiekunnskap fremkommer gjennom tilegnelse av sansekunnskap i sykepleiernes kontinuerlige kroppslige og intersubjektive samhandling med individuelle pasienter og en spesifikk pasientgruppe. Deretter illustrerer den hvordan den kroppsliggjorte kunnskapen transformeres i oversettelsen som skjer når kunnskap deles og dermed forflytter seg i interaksjon med andre. Med dette

belyser studien hvordan kunnskap vokser fram i sykepleiernes kreative fortolkningsarbeid som bidrar til å skape sammenheng mellom kroppsliggjort og formalisert kunnskap, og mellom den virkelighetsforståelsen som pasienter, profesjonsutøvere og ledere besitter. Til slutt viser studien hvordan sykepleieres profesjonelle kunnskap produseres og reproduseres gjennom strukturering av praksiser i tid, og hvordan dette kan medføre en vektlegging av visse omsorgsoppgaver, forstått som typer av kunnskapsarbeid, på bekostning av andre. Samlet belyser dermed avhandlingen hvordan sykepleiernes heterogene teoretiske og praktiske kunnskapsfelt tas i bruk og nyttiggjøres i en spesifikk organisatorisk kontekst. Med dette har studien reist problemstillinger som forhåpentligvis kan bidra til refleksjon og diskusjon blant profesjonsutøvere, ledere og politiske beslutningstagere i helsesektoren så vel som i andre sektorer.

I tillegg til å gi et dyptgående etnografisk innblikk i aspekter ved utøvelse av sykepleie som ikke så ofte har blitt gjort til gjenstand for empirisk forskning, og som står i fare for å bli usynlig i en moderne sykehuskontekst, bidrar avhandlingen også til den mer generelle profesjonsforskningen. Den gjør det ved å belyse hvordan diagnostisering og behandling av komplekse problemer skjer gjennom profesjonsutøveres kontinuerlige mobilisering og syntetisering av teoretiske og praktiske kunnskapsformer. Videre viser avhandlingen hvordan dette finner sted gjennom kroppsliggjorte og situerte slutningsprosesser i interaksjon med andre. Studien nyanserer dermed forståelsen av profesjonskunnskap som en gitt teoretisk base eller et sett med praktiske ferdigheter ved å belyse hvordan ulike heterogene kunnskapsformer integreres i håndteringen av konkrete problemer, og hvordan kunnskap sirkulerer og endres når den utøves i en gitt organisatorisk kontekst. Overordnet demonstrerer studien verdien av å utvide det teoretiske rammeverket og den metodiske tilnærmingen i studier av profesjonell kunnskap. Forhåpentligvis kan avhandlingen dermed inspirere til videre forskning og nye innsikter om kroppen som base og om kunnskapsbasen i profesjonell praksis.

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Article 2	Ihlebæk, H. M. (2020). Lost in Translation: Silent Reporting and Electronic Patient Records in Nursing Handovers: An Ethnographic Study. *International Journal of Nursing Studies* 109: 103636. **https://doi.org/10.1016/j.ijnurstu.2020.103636**
Article 3	Ihlebæk. H.M. (2021). Time to care: an ethnographic study of how temporal structuring affects caring relationships in clinical nursing. Social Science and Medicine, 287, Artikkel 114349. **https://doi.org/10.1016/j.socscimed.2021.114349**

CHAPTER 1 | Introduction

> A nurse sits at the computer reading the patient records after having received brief updates from the night shift nurse. ‘Two discharges to be arranged, some blood tests remain, and then there’s room 2, she’s not well. It’ll be busy’, she states while logging out. As she is about to leave the open space office, a doctor arrives and informs her that they are going to do a biopsy, which needs preparation. The nurse confirms this and makes notes on her patient list, fetches the vital signs trolley, and hurries down the corridor. She knocks on door 2, and we enter. ‘Good morning,’ she smiles and approaches the patient. The room is quiet and smells of sleep. ‘I’m here for your measurements. How are you doing?’ ‘I’m not sure,’ the patient replies. ‘You look feverish, are you in any pain?’ The nurse touches the patient’s forehead, and sits down by the bed.

The expertise of the nursing profession has been defined in terms of its caring-giving function, using clinical judgements ‘to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery or to a peaceful death, that he would perform unaided if he had the necessary strengths, will or knowledge’ (Henderson, 1966, p. 15). According to the nursing literature, this commonly shared notion of what nursing is prevails despite massive transformations in modern healthcare in recent decades, which have altered the context, content and pace of nursing practice, making it increasingly knowledge-intensive and diverse. Against this background, questions have been raised about the relevance of the traditional nursing mandate and what competences modern hospital nursing entails (Allen, 2015; Charles-Jones et al., 2003; Latimer, 2000; Tjora, 2000).

This thesis explores nursing knowledge from the perspective of use, taking clinical cancer nursing as its case. Based on five months of ethnographic fieldwork in a Norwegian hospital ward, nurses’ clinical practices are analysed to gain insight into how various forms of knowledge are mobilised, synthesised and continuously transformed in the nurses’ efforts to define and solve cancer patients’ complex needs. Based on observations and participation in various activities and interactions across situations over time, I examine how knowledge about patients’ complex conditions is established, and the means through which knowledge is shared and communicated. Finally, in tracing the circulation of knowledge between actors and means of representation, the thesis explores how knowledge is translated and temporally structured through its various enactments in an organisational context.

In this way, the thesis contributes to a longstanding debate in the nursing literature on the nature and emphasis of academic, theoretical knowledge and practical, experience-based clinical skills in the practice of nursing (Benner, 1984; Dreyfus & Dreyfus, 1986; Molander, 1996; Schön, 1987). The role and status ascribed to these types of knowledge has varied over time in different geographical contexts across the world. In the Norwegian and Nordic context, their prominence has varied throughout the development of nursing as an academic and professional discipline (Heggen, 2010; Lund, 2012; Martinsen & Wærness, 1991; Moseng, 2012). Furthermore, the relative emphasis of phenomenological and humanistic perspectives on care and ethics rather than the medical, natural, sociological and psychological sciences has been at the heart of discussions of what nursing practice is, and what it ought to be (Heggen, 2010; Messel & Smeby, 2017). More recent debates have concerned the role and value of evidence-based practice, and the status and conditions for care in the face of new demands and increased complexity in contemporary healthcare contexts (Alvsvåg, 2009; Kirkevold, 2016; Kristoffersen, 2016; Nortvedt et al., 2007)

These discussions in the nursing literature reflect the centrality of knowledge in more general scholarly understandings of professions as a distinct specialisation of work (Freidson, 2001). Drawing on conceptualisations from the philosophy of science and sociology of knowledge, questions of what counts as knowledge, what different types of knowledge exist, how it is expressed and applied, and how it can be explored and conceptualised have been prevalent in the research literature. Central to these discussions have been a revival and refinement of the neo-Aristotelian understandings of *episteme, techne* and *fronesis* (Aristotle, 2013 [349 BC], pp. 156-160) used to explain both the nature of forms of knowledge and the relationship between them in professional practice. First, theoretical knowledge refers to knowledge that can be explained as true justified beliefs (*episteme*), and is thus propositional and context-free, referred to by Ryle (1963) as ‘knowing that’. Second, practical knowledge refers to the synthesising of technical skills (*techne*), thus ‘knowing how’ to accomplish something (Ryle, 1963), with the practical wisdom (*fronesis*) of ‘knowing why’ and ‘knowing when’ a particular intervention is appropriate (Ryle, 1963; Sullivan & Benner, 2005; Sullivan, 2010).

The different stands that have been taken on the role these types of knowledge play in professional work and decision-making processes constitute an important backdrop to the research questions addressed in this thesis, and will now be briefly detailed.

Forms of knowledge in professional decision-making

In the sociology of professions, formally acquired academic knowledge is seen as essential to the legitimisation of a profession's status and the internal and external control professions have over the tasks they are set to solve (Abbott, 1988; Brante, 2011; Freidson, 2001; Larson, 1977; Parsons & Platt, 1973; Siegrist, 2001). The practical 'knowing how' has from this perspective been evaluated as the application of the propositional 'knowing that', which, in line with the predominant perception in Western thought, has been privileged as the primary and most reliable form of knowledge (Brante, 2011; Grimen, 2008). From this perspective, then, making judgements on 'why' and 'when' a particular intervention is appropriate can be justified according to what is evidently known, independent of context. This model for understanding the relation between theoretical knowledge and practical skills has become increasingly prevalent in many contexts of professional practice. In hospitals it is particularly prevalent with the emergence of evidence-based practice where randomised controlled trials are regarded as the gold standard (Timmermans & Berg, 2003a).

Other conceptualisations have contested the notion that genuine knowledge can always be represented as true, justified beliefs, claiming that theoretical knowledge is inseparable from and arises from 'knowing how', which is experience-based, embedded and learnt in practice (Benner, 1984; Dreyfus & Dreyfus, 1986; Lave & Wenger, 1991; Schön, 1983). The role of the academic, formally learnt 'knowing that' has from this viewpoint been evaluated as merely credential, with the necessary knowledge and skills being developed through work (Collins, 1979). In the exploration of expertise, the ability to make decisions that are efficient and moral is thereby conceptualised as an intuitional competence evolving in epistemic cultures, in a community of practice (Knorr-Cetina, 1999; Wenger, 1998). Thus, practical knowledge is specific to small social groups, inseparable from the person who holds it and the situations in which it is enacted (Grimen, 2008), and is more or less conscious or explicit (Collins, 2010; Polanyi, 2009).

Another schism in the literature presents conflicting views on professional expertise. The cognitive strand focuses on the success of expert intuition and perceives professional decision-making as an intellectual skill that involve sophisticated processes of forming and testing hypotheses and recognising essential patterns by processing information and evidence (Endsley, 1995; Endsley et al., 2003; Kahneman & Klein, 2009). This position has been criticised for neglecting the complexity and ethics of individual cases, the diversity of social, embodied and material interactions involved in professional decision-making, and how it is enacted in real-time communicative practices (Büscher et al., 2010; Carr, 2010; Collins & Evans, 2007; Dekker, 2005; Goodwin, 2010, 2014; Mesman, 2010). Furthermore, it has been criticised in judgement and decision research for placing too much faith in professional intuition, which, using mental heuristics, has been proven to cause cognitive biases that affect the quality and accuracy of experts' discretionary judgement (Kahneman, 2011; Kahneman & Klein, 2009; Molander & Grimen, 2010; Shanteau, 1992; Smeby, 2013).

These dichotomisations between a conservative or 'intellectualist' view of knowledge and a radical or 'anti-intellectualist' view (Fantl, 2008), and between different notions on expertise has clearly been central to contemporary understandings of the role and value of different forms of knowledge in professional practice. There are, however, reasons to claim that the differing viewpoints represent a somewhat simplified picture of the roles of theoretical and practical knowledge alike, underestimating their internal heterogeneity, and neglecting their similarities and thereby the complex ways in which they are connected in professional work and decision-making processes in particular contexts (Fantl, 2008; Gilje, 2017; Hawley, 2003; Lum, 2017).

It is increasingly acknowledged that in a knowledge-intensive society most occupations depend on some level of research-based knowledge, and that scientific knowledge is central to professional practice (Brante, 2011). On the other hand, all work performance, including that of professionals and academics, requires a broad set of practical skills (Gilje, 2017). Finally, the level of accuracy in decision-making will always depend on the indeterminacy and complexity of the problems a profession claims jurisdictional ownership to (Abbott, 1988), and the level of fragmentation and technicality of the scientific knowledge the profession has established and depends upon (Elster, 2007, p. 36; Shanteau, 1992). The relevance and heterogeneous nature of both academic knowledge and practical skills do vary between occupations and professions. I will now turn to how the relative balance between different types of knowledge and modes of knowing has been conceptualised and discussed in the nursing literature.

Reviewing literature on nursing knowledge

The development of nursing from a vocational occupation to an academic and professional discipline has been described as evolving through different overlapping stages, in the manoeuvring between two areas of conflicting views in the discussion of what nursing is. The first is between an emphasis on academic and theoretical elements and a focus on practical and vocational elements, while the second is between an orientation towards nursing science and an emphasis on medical-technical, and socio-psychological knowledge paradigms. The pace of this development has, however, varied between European countries (Karseth, 2000). This review of some central debates on knowledge in the nursing literature, which have set the stage for current debates on nursing practice in contemporary healthcare contexts will therefore start with a presentation of certain key historical features and controversies on what nursing is and should be, in the Norwegian context.

What is nursing? A question of knowledge

As an emerging occupation, nursing originally had a religious basis in diaconal care and was performed by elderly widows from the working class. Nursing, then, was considered to be a Christian calling and a continuation of women's domestic responsibilities in the family (Dahl-Michelsen & Solbrække, 2017; Kirkevold, 1993; Martinsen, 1984; Martinsen & Wærness, 1991; Moseng, 2012, p. 30 ff). However, the need for knowledge and experience was recognised from the very start, as evident in the following quote from deaconess Rikke Nissen who anonymously published a pioneer textbook on nursing in 1877: 'The Diaconate does not serve the Lord through stupidity and ignorance, but by meeting the challenges of modern times with specialised education'[1] (Moseng, 2012, p. 39 ff). The first Norwegian nursing school was established by deaconesses as early as 1868, and shortly afterwards hospitals established their own educational institutions for nurses, who were now mainly recruited among unmarried middle-class women (Jensen, 1993; Mathisen, 2006, pp. 96-97, 110 ff; Moseng, 2012, p. 39).

In these earliest stages nursing knowledge was based on a humanistic tradition, and nursing was considered to be a vocation whose authority was grounded in care as a craft, using apprenticeship as a pedagogical method (Heggen, 2010, pp. 25-27; Kirkevold, 1993, pp. 9-10; Martinsen, 2003; Martinsen & Wærness, 1991; Mathisen, 2006). Thus, the development and transfer of knowledge were closely integrated with the performance of nursing (Jensen, 1993; Moseng, 2012, p. 39). From the 1950s and the following two decades, this initial phase was replaced by a phase of strengthening and standardisation of the theoretical knowledge base, emphasising medical and technological elements in order to prepare nurses to be doctors'

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[1] My translation

assistants. The implementation of the Nursing Act of 1948, which laid the basis for formal authorisation of nurses, was an essential step in this development (Karseth, 2000; Martinsen, 2003; Messel & Smeby, 2017).

During the 1970s, increasing dissatisfaction with nurses’ inferior position and submissive attitude in relation to doctors emerged in strands of the nursing environment. Hence, a professionalisation project was initiated by members of the Norwegian Nursing Association to develop nursing as a distinct academic discipline separate and distinct from the study of medicine. This development into a third phase was inspired by the focus on research-based nursing knowledge in the USA and the aspiration to strengthen nurses’ psychological, sociological and medical competences. There were critical voices, proclaiming that this professionalisation process removed nursing from its caregiving tasks and mandate and its traditional humanistic origin, but these gradually lost ground (Lund, 2012, p. 63 ff). When nursing was established as a separate discipline at Norwegian universities and formally acknowledged as a university college subject in 1977, elements from the social sciences, education and psychology were emphasised and used to inform practical training (Heggen, 2010; Jensen, 1993; Karseth, 2000).

With the first governmental framework plan for nursing education, introduced in 1987 and revised in 1992, the focus switched back to the traditional focus on care, ethics, philosophy and relationship building, while the amount of practical training was reduced (Karseth, 2000; Lund, 2012, p. 344; Messel & Smeby, 2017). Disagreements about the relative balance between nursing science and medical, natural and social science subjects has been evident also in later revisions of the framework plan (Alvsvåg & Førland, 2005; Heggen, 2010; Messel & Smeby, 2017; Tveit, 2008). Today, the controversy, which continues to divide nursing students, practitioners and scholars is particularly evident in debates on academisation, with the introduction of scientific methods in nursing education in 2000, and the increasing number of master’s and PhD programmes in nursing established at Norwegian universities (Heggen & Kirkevold, 2017; Sortland & Petersen, 2014). The controversy is also evident in discussions on the need for medical evidence and knowledge-based practice to meet the complex challenges of modern healthcare, questioning what evidence is, and how it can be transferred and made relevant to clinical work (Alvsvåg, 2009; Graverholt et al., 2011; Heggen & Engebretsen, 2009; Heggen & Kirkevold, 2017; Nelson, 2008; Saunders et al., 2016; Saunders & Vehviläinen-Julkunen, 2016).

A main concern in the ongoing discussions of nursing knowledge in a Norwegian context, then, has been how to prepare nursing students for the challenges involved in professional practice. Thus, the question of ‘what nursing is’ also concerns what nursing practice entails. (Heggen & Kirkevold, 2017; Lund, 2012, p. 214). This question must therefore be understood in light of the societal and organisational changes that have taken place in healthcare systems and workplaces, and how these have affected the conditions for nursing, with implications for the legitimacy of nursing knowledge. These topics are thoroughly explored and discussed also in the international nursing literature, and often revolve around different notions of care work.

What is nursing practice? A question of care

Nursing is commonly understood as a caregiving profession, defined by its direct and one-to-one clinical contact with and knowledge of individual patients (Allen, 2015). The question of what nursing practice is and should be is thus closely interwoven with the problem issues associated with care: what it entails, how it is facilitated, and what knowledge and practical skills it requires. James (1992) presented the formula ‘Care = organisation + physical labour + emotional labour’ to identify and explore the constituents of care work and how these interact in different contexts. I will use this formula to structure an overall review of the vast numbers of topics covered in medical sociology and the literature on nursing knowledge in care work, starting with the dichotomisation between physical and emotional labour, which are commonly understood as the two basic constituents in philosophical discussions and empirical investigations of what care is (Kleinman & Van der Geest, 2009; Mol, 2008; Van der Geest, 2010).

First, physical labour refers to activities that are carried out on behalf of others, and which benefits them, such as washing, feeding, tending to wounds and providing medicine (Mol, 2008). It denotes practices aimed at ‘caring for’, or ‘taking care of’ patients (Habran & Battard, 2019; Tanenbaum, 2015). ‘The logic of care’ in this literature is thus practical, a mode of ordering events and a knowledgeable doing, aimed at improving the life of patients (Gherardi & Rodeschini, 2016; Mol, 2008). Strands of this literature have taken an interest in body work, which denotes nurses’ skill in monitoring and managing patients’ bodily functioning and their lived and embodied experiences (Cohen, 2011; Heath & White, 2008; Lawler, 1991; Twigg et al., 2011). Others have been concerned with how ‘caring for’ patients involves technical skills and the use of innovative technologies (Mesman, 2008; Pols, 2010a, 2010b, 2012). According to James (1992), physical labour is the most identifiable component of care, often conceived as comprising the ‘real work’ of nurses, scheduled and formalised in work policies and standards.

Emotional labour, on the other hand, is described as less visible, not formally acknowledged in hospital contexts, and it often suffers from the demands of practical and technical care (James, 1992). Nevertheless, the affective aspects of care have been the subject of considerable research interest in recent years, being understood as a social and moral activity resting on personal dedication and empathy (Hochschild, 2003a, 2003b; James, 1989; Kleinman & Van der Geest, 2009; Smith, 1992; Theodosius, 2008). This literature describes how emotional work is accomplished in day-to-day responses to situations that arise, develops from the social relationship in which it is enacted, and involves ‘caring with’ or ‘caring about’ patients (Davies, 1994; Habran & Battard, 2019; James, 1992). Like physical labour, it is described as demanding and skilled work, and not merely a quality added to it, and it requires extensive knowledge of and responsiveness to patients’ individual needs. Such care, as a type of involvement, implying taking time and ‘being there’, is often closely associated with the traditional nursing mandate, evaluated as ‘good care’, and hence as ‘good nursing’ (James, 1989).

These contrasting views on what ‘care is’ have implied different evaluations of the consequences of recent major changes in modern healthcare for the status of care and the legitimacy of the knowledge it involves. I now move on to the organisational component of care work, denoting both ‘the organisation’, i.e. the context in which care is carried out, and ‘organising’, referring to the acts of making things happen (James, 1992). In the literature on emotional work in healthcare, organisational transformations have been said to rationalise and dehumanise care through processes of objectification, commodification and standardisation (Timmermans & Almeling, 2009). Warm, person-centred and holistic care is contrasted with and seen to suffer from cold technology, biomedicine and management (Clarke et al., 2003; Kleinman & Van der Geest, 2009; Pope, 2003; Schillmeier, 2017; Van der Geest, 2010). In a practice perspective, however, the relationship between care and cure is a question of ‘fit’, seen as overlapping in handling questions of what is ‘good’ (Mol, 2008; Mol et al., 2010). Likewise, technology is evaluated according to what it actually does in particular ethnographic and historical contexts, such as creating a feeling of comfort and relief, or mediating clinical encounters (Berg, 1996; Felder et al., 2016; Mol, 2008; Mol et al., 2010; Pols, 2010a, 2010b, 2012; Timmermans & Berg, 2003b).

Others have taken an interest in how organisational transformations have led to an increase in nurses’ organising responsibilities, caused by the evolution of medical technologies (Charles-Jones et al., 2003; Mort et al., 2004; Tjora, 2000), more standardisation and external scrutiny through new systems of clinical governance, and a preoccupation with knowledge management (Allen, 2015; Berg, 1997; Harrison & Ahmad, 2000; Numerato et al., 2012). In this perspective nurses are seen to play a vital role in ward management, coordinating patients’ care trajectory and ensuring service quality in the healthcare system as a whole (Allen, 2015; Latimer, 2000; Olsvold, 2016). They also play an essential role in the generation and distribution of patient information, managing the knowledge flows that support the practical accomplishment of care (Allen, 2015). Although it has been acknowledged that nursing has always included administrative responsibilities (Nightingale, 1992 [1859]), it is claimed that this work is not sufficiently recognised, understood or described in its own right. Rather than seeing such tasks as a distraction from patient care, as the ‘dirty work’ of nursing (Hughes, 1951), ‘organising work’ needs to be acknowledged and explored in its own right (Allen, 2015; Olsvold, 2010, 2016).

As evident from this overall review, the existing literature on physical, emotional and organisational care focuses on and discusses different but essential components of nursing practice, illuminating the complexities of technical competencies, moral abilities and organisational skills involved in clinical work. Common to the three strands, however, is a concern about features that make problematic the visibility of nursing work and the legitimacy of nursing knowledge in contemporary healthcare context (Allen, 2015; Benner, 2004; Bergey et al., 2019). First, practical, emotional and organising work all involve tasks associated with a traditional gendered labour division, assumed to rest on the natural talents of women, and such work is thus easily taken for granted as informal practices (James, 1992; Star & Strauss, 1999). Second, nursing is body work, which in addition to the technical aspect that can be identified and formalised (James, 1992), involves crossing social boundaries, which is difficult to formalise and talk about (Lawler, 1991; Suchman, 1995; Twigg et al., 2011). Finally, nurses seem to lack a conceptual frame that encompasses the uniqueness of nursing in contrast to medicine, and its extraordinary diversity of tasks and changing fields of responsibilities, thus leaving certain responsibilities and competences out of sight (Allen, 2015; Benner, 2004). This thesis aims to shed light on some of these practices and competences to detail and discuss the continued relevance of nursing knowledge in modern hospital care.

Summing up, this introduction to some overall themes in the existing literature shows that the relevance of the knowing body and a body of knowledge in nursing and in professional work more generally has been discussed in great detail. Furthermore, the need to understand how different forms and ways of knowing are related in professional practice is acknowledged. I find, however, that not many studies have aimed to envision and explore how different types of knowledge and modes of knowing are interconnected in professional decision-making at a micro-level. In aiming to do this, the present thesis builds on the vast literature reviewed by acknowledging that the processes through which nursing knowledge evolves in work cannot be seen as endogenous or linear. Rather, knowledge is continuously mobilised and synthesised through multiple interactions with people and technologies, structured by particular managerial logics in an organisational context where knowledge is distributed and hierarchically ordered. These interconnections and how they affect the processes through which knowledge is obtained, shared and structured among nurses on a cancer ward will be subject to exploration and discussion in this thesis, which takes cancer nursing as its case.

Research questions and articles

Central to this study of knowledge in the doing of nursing have been the assumptions that knowledge in use is insolubly tied to the knowing body, always embedded in practice, and evidently situated in a structured environment. Furthermore, the thesis builds on the notion that knowing-that and knowing-how share essential similarities in that both can be articulated, learned, transferred, accumulated, justified and critically investigated, if we recognise that there exist different forms of articulation, many ways to learn, several types of accumulation, and various forms of justifying and scrutinising knowledge (Grimen, 2008; Hawley, 2003). Their similarity also entails that the tacit dimension is an essential aspect of both intellectual and practical knowledge and of the collective and interactional expertise of knowing how to integrated them across situations and between places (Collins, 2010, pp. 11, 124-125; Polanyi, 2009, p. 18)

Finally, the thesis assumes that both theoretical and practical forms of knowledge are heterogeneous, which means that the relationship between them is necessarily complex, and that neither can be reduced to nor seen as a species of the other (Gilje, 2017; Hawley, 2003). This does not imply that they should be regarded as pure forms in themselves, or as different knowledgeable states of mind, but that they appear in overt actions and statements, and can be analytically separated as aspects of knowing (Fantl, 2008; Gilje, 2017; Lum, 2017; Ryle, 1945, 1963). On this basis, the thesis addresses and seeks to answer the following research questions:

1. *How do nurses obtain knowledge of patients' complex conditions in clinical decision-making?*
2. *How is knowledge shared and communicated among nurses, and what happens to knowledge as it circulates in clinical practice?*
3. *In what ways is nursing knowledge affected by the temporal structuring of caring activities in an organisational context?*

By exploring how knowledge is obtained, shared and structured through enactments in a cancer ward, *the overall ambition of the thesis is to contribute new, empirically based understandings of nursing knowledge from the perspective of use, and how this knowledge evolves through the solving of clinical tasks in a hospital context.* These questions and overall goals are outlined and discussed in the following three articles, which are summarised in more detail in Chapter 4:

Article 1: '*Blood, Sweat and Tears: Making Sense of Senses in Expert Nursing'.* This article explores sensory knowledge in nurses' clinical work with patients from an ethnographic and phenomenological standpoint. It finds that building sensory skills involves a complex interplay between different forms of knowing, ways of sensing, and modes of learning and communicating knowledge constituted in the nurses' continuous embodied and intersubjective interaction with patients in a particular clinical context.

Article 2: '*Lost in translation - Silent reporting and electronic patient records in nursing handovers: An ethnographic study*'. This article investigates how nurses engage with the electronic patient record during silent reporting in handovers and their representation of patient information. The article details how talk enabled the translation and interplay between the embodied, informal knowledge of the individual nurse, and the formal knowledge inscribed in patient record notes.

Article 3: '*Time to care: an ethnographic study of how temporal structuring affects caring relationships.*' This article details how different orientations to and valuations of time and modes of knowing associated with different care logics work to nuance and balance each other in nurses' caring relationships, and how this balance is affected by the temporal structuring of caring activities in a modern hospital context.

In the three articles, sensing, sharing and caring are detailed and discussed as essential practices through which nurses evaluate, define and meet cancer patients' overall medical and care needs. Further, the articles describe how this involves mobilising and synthesising different types of knowledge, through complex processes of inference as an embodied, interactional and situated competence. Thus, the thesis represents a comprehensive ethnography of hospital nursing by providing a detailed analysis of the sensorial, social, material and temporal aspects of nursing knowledge in clinical work.

Based on the empirical findings, this thesis aims to illuminate practices and skills that are often rendered invisible in a modern hospital context. Furthermore, the study provides a theoretical refinement of prevailing notions of different forms of knowledge and the role they play in nursing and professional work in general. Here, the study demonstrates how professional knowledge is not given, but emergent, evolving as the body comes to know, as practitioners draw on a heterogeneous body of theoretical and practical knowledge through enactments in a particular community of practice. Finally, the thesis aspires to encourage fruitful discussions about nursing knowledge and its general conditions in complex work organisations in the health sector and beyond.

Outline of the thesis

The remainder of this thesis is organised as follows.

Chapter 2 outlines five distinct but overlapping theoretical perspectives and analytical concepts that make out the overall theoretical framework of this thesis. Combining perspectives from the sociology of professions and knowledge in policy with sociological and anthropological notions on embodiment, translation and temporality facilitates the exploration of nursing knowledge from the perspective of use and the processes through which it evolves in clinical decision-making.

Chapter 3 describes the context and study setting and discusses methodological questions relevant to the doing of ethnography in a hospital ward. The continuous analytical process through which the data was generated in the accomplishment of participant observation and formal interviews is presented and elaborated on.

Chapter 4 summarises the findings of the three articles on which the thesis is based.

Chapter 5 reviews and discusses the overall empirical findings and conclusions. The theoretical contribution of the study to prevalent understandings of knowledge in nursing and professional work more generally is highlighted and discussed, and its potential value for workplace organisations in healthcare and beyond is suggested. Before concluding, some limitations are outlined and prospects for further research are proposed.

CHAPTER 2 | Theoretical Framework

In the three articles of the thesis, sensing, sharing and caring are detailed and discussed as essential practices in the application of knowledge to clinical work. This chapter elaborates on these perspectives by synthesising them into an overall theoretical framework applied in the analysis of professional knowledge in the doing of clinical cancer nursing.

First, I draw on Andrew Abbott (1988) theory of knowledge in use, through his concepts of diagnosis, inference and treatment as mediating acts in professional work. Second, to deliberate on and refine the prevailing understanding in the sociology of professions that professionals manage and control a body of knowledge that is used and drawn upon in work, the thesis builds on Freeman and Sturdy (2014a)'s framework of knowledge in policy. This model provides an understanding of how knowledge can take on and exist in different forms or phases, enabling us to see how knowledge circulates or is restricted from moving within an organisational context. Finally, the thesis introduces the three conceptual frameworks of embodiment, translation and temporality, which are used as analytical tools to elaborate on aspects of the circulation of knowledge: how the body comes to know, how knowledge is transformed through enactments and how it is structured in an organisational context. Together these theoretical perspectives and analytical concepts represent distinct, yet overlapping and mutually reinforcing insights that enable the thesis to show how professional knowledge emerges in use, that is, how it evolves through ongoing practices of sensing, sharing and caring, as embodied, interactional and situated achievements.

Knowledge in use in professional work

Professions have been defined as knowledge-based occupational groups, applying somewhat abstract knowledge to solve particular individual and group human problems, amenable to expert services (Abbott, 1988, p. 8; Freidson, 2001). The main purpose of professional knowledge is thus its application, and Abbott (1988, p. 53) starts with a theory of professional knowledge in use in an attempt to understand the relationship between professions and the knowledge of which they claim jurisdictional ownership. This implies that in order to understand the role of knowledge in professional practice and how it is constructed in the doing of nursing, it is necessary to first present a framework for understanding the nature of the tasks that professionals are set to solve.

According to Abbott (1988), all professional tasks and problems are constructed through the process of diagnosis, inference, and treatment. Theoretically, these refer to three acts or modalities of action performed within particular political, social and cultural contexts (Abbott, 1988, pp. 35-40). The modalities are thereby analytically detached from their medical origin in a clinical context where doctors traditionally diagnose and prescribe, while nurses treat. Diagnosis, according to Abbott (1988), involves removing the extraneous qualities of an individual or group of clients, seeking the correct professional categorisation for the problem to be solved. Thus, in a clinical context, diagnosis involves first assembling a 'picture' of the patient's relevant needs, a process Abbott refers to as 'colligation', representing 'the first step in which the professional knowledge system begins to structure the observed problems' (Abbott, 1988, p. 41). Colligation consists of exclusion rules that define what evidence is relevant and what is irrelevant, and the level of acceptable ambiguity. Second, this picture needs to be 'classified', i.e. to be placed into the correct diagnostic category by referring it to a dictionary of professionally legitimate problems (Abbott, 1988, pp. 40-41).

The diagnostic processes of colligation and classification are often related in complex ways, determining or dictating each other. Thus, while being logically distinct, they are seldom separate in practice. The same holds for the relationship between diagnosis and treatment, which is not necessarily a one-way process. The diagnostic system, according to Abbott (1988), is restricted by external relations like the abstract professional knowledge system imposing a logical clarity on a complex reality, but also by the treatment system which classifies problems implicitly by lumping together problems that share similar treatments. Thus, forms of treatment are often a means to diagnosis. Treatment and diagnosis as modalities of action, then, are both organised around a classification system and a brokering process in which a problem and its possible solutions are defined. When making diagnoses, information is taken from the patient in a process of colligation, while the brokering in defining treatments gives results to the client in a process of prescription (Abbott, 1988, p. 45).

The combination of internal complexity and external constraints make both diagnosis and treatment complex endeavours, and the relation between them potentially problematic (Abbott, 1988, pp. 42-43). First, both treatment and diagnosis as systems of classification are not isomorphic, which means that a number of different simultaneous or sequential treatments might pertain to a particular diagnosis. Second, the treatment classification system does not only lump together problems with similar treatments, but also associates with each problem a likelihood of successful outcome under a given treatment, evaluating existing options, available resources and technologies, acceptability of procedures, and risks to patients. Finally, the individual characteristics influencing the effect of the treatment must be taken into consideration, reintroducing the patient properties, individual or group, that were removed in diagnosis to produce a diagnosed case (Abbott, 1988, pp. 45-48).

In this way, both diagnosis and treatment are mediating acts, taking information into the professional knowledge system in making a diagnosis, and bringing instructions back out of it to define and provide treatment. Inference, then, according to Abbott (1988), is the only purely professional task. It takes place in between and alongside diagnosis and treatment and relates professional knowledge, client characteristics and chance when the connection between diagnosis and treatment is vague. Abbott (1988) states that inference often works by exclusion in medical and clinical work, maintaining a general treatment while ruling out areas by using diagnostic procedures or observing the outcome of diagnostic treatments. The chains of logic it involves associate with each step a probability of error or difficulty that can be terminated or altered on the way, and the rate of success is often measured by catastrophes avoided rather than successes achieved. Inference is thus a process characterised by indeterminacy (Abbott, 1988, pp. 48-50).

An essential argument in Abbott (1988) theory of professions is that diagnosis, inference and treatment are not endogenous processes, but take place as an interprofessional struggle for control of work by making jurisdictional claims to perform certain tasks and services in relation to other occupations (Abbott, 1988, p. 59). The knowledge system, and its level of abstraction, is the currency in this system of competition between professions, a value which is relative to time and place, and hence a question for empirical investigation. The notion that increased diversity in the amount and types of knowledge needed to accomplish work might represent changes in the organisation of knowledge between professions is a useful insight to the question of how knowledge is applied, and how it evolves in work (Abbott, 1988, p. 177).

Abbott’s outlining of the basic acts of professional practice has informed this study of nurses’ clinical work in two respects. First, it has provided a conceptual framework for the analytical separation between different operations involved in the processes of making sound clinical judgements and acting upon them. The practices of sensing, sharing and caring that have been detailed and discussed in the three articles can therefore be further elaborated as practices in which patient information is colligated and classified and scopes of action for treating patients' care needs defined and enacted, through complex processes of inference. Knowledge is, however, not comprehensively discussed in its own right in Abbott's outlining of the inference processes involved in diagnosis and treatment. This study explores how this is accomplished in a diversity of embodied, social, material and temporal interactions among nurses in a particular clinical context. In this way, the thesis provides empirical nuances that will be used to deliberate on, and refine our understanding of, how the professional body of knowledge is not a given, a 'sui generis' phenomenon used and drawn upon in work, but emergent and evolving in the continuous solving of professional tasks.

Second, Abbott's structural framework has enabled analysis of the complex relationships between internal knowledge processes within nursing and exogenous processes related to the characteristics of the hospital as a particular knowledge-intensive work environment. This is a context where a multiplicity of types of knowledge coexist, ranging from evidence-based biomedicine to lay experience; these are hierarchically structured and distributed amongst different healthcare practitioners, non-professionals like patients and knowledge-driven technology. In order to theoretically grasp this complexity, I will now outline the forms professional knowledge might take in an organisational policy context such as a cancer ward, and how knowledge circulates through enactments.

The circulation of knowledge in policy

In their work on knowledge in policy, Freeman and Sturdy (2014a) have presented a model outlining how knowledge can take on and move between different forms or phases as embodied, inscribed and enacted. While influenced by insights from the sociology of scientific knowledge, this schema for thinking and talking about knowledge across disciplinary and professional boundaries is not aimed at providing an account of what knowledge is, the status of different kinds of knowledge, how it is created, or how it influences social action. Thus, it will not be applied in this thesis to raise questions regarding what counts as knowledge, how it can be characterised, or who knows what, how, or why (Freeman & Sturdy, 2014a). Rather, it will be used as an analytical framework to enable an understanding of how knowledge circulates and how it is transformed through various kinds of actions, in an organisational context, where nurses stand at the intersection between patient needs, professional values and the hospital care policy.

Embodied knowledge, according to Freeman and Sturdy (2014a), is the knowledge that is held and adapted by human actors, tacit and verbal, knowing-how and knowing-that, employed and expressed by them as they go about their activities in the world. In its embodied phase knowledge is thereby constrained and limited by the human body itself, liable to decay and degeneration, but at the same time sharing the adaptability that is one of the most important characteristics of the human being. This underlines the importance of embodied human beings in the distribution, movement and mobilisation of knowledge, and the need to pay attention to its situated enactments, including what people do with their bodies (Freeman & Sturdy, 2014a).

Inscribed knowledge, on the other hand, refers to knowledge written in texts, represented in diagrams and pictures or incorporated into technologies, restricted by the rules and materiality of the media in which it is being cast. In a policy context the artefacts in which knowledge is inscribed are often remarkably stable and fixed, which makes it easily reproduced and highly mobile. Because it can be made available to many different individuals separated in time or space, it can also serve to constrain, discipline and coordinate our interaction with the world and with each other (Freeman & Sturdy, 2014a). Assuming that policy works to coordinate action, the questions of what knowledge finds its way into inscriptions, and how those inscriptions move within a particular institutional context are interesting topics for empirical investigation (Freeman & Sturdy, 2014a).

Knowledge as embodied and inscribed thus moves as bodies and artefacts travel at different speeds and with different levels of stability and fragility within a policy context. It does, however, also move between phases, from embodied to inscribed and vice versa (Freeman & Sturdy, 2014a). These movements of knowledge involve processes of transformation of content and meanings, as when embodied knowledge is inscribed in documents, and hence becomes disembodied, stripped of knowledge that cannot fully be expressed in words, such as sentiments and affection (Smith-Merry, 2014). On the other hand, meaning can also be gained, for instance by providing a sense of technical inevitability, paving the way for new embodied practices and experiences (Grek, 2014).

These transformations take place as thoughts are spoken, skills performed and texts and technologies put to use. Freeman and Sturdy (2014a); (Freeman & Sturdy, 2014b) therefore argue that knowledge as embodied and inscribed only gains its meaning and significance through enactments, informing action and interaction. However, despite the difficulty in separating embodied and inscribed knowledge from what we do with that knowledge, enactment can still be analytically treated as a distinct phase, with characteristics that differ from mere representations of the other two. Freeman and Sturdy (2014a) base this on the acknowledgement that what is expressed in enactments is often more than or different from knowledge as previously embodied and inscribed. It is the phase where innovation and new knowledge may arise, in the form of new ideas, aims and rules, and is thus an act of knowing that is essentially transient, transformative and often collective. It is also a phase where surveillance and control take place, informed by the policies and social relations structuring social interaction, and it therefore exhibits forms of reliability and regularity (Freeman & Sturdy, 2014a).

This schema for understanding knowledge in policy is relevant for the study of professional knowledge in use, because it allows for an understanding of how the transfer of knowledge from one form or context to another through enactments involves translation, as practitioners define and aim to solve professional tasks. Finally, this enables an analysis of how restrictions on particular enactments of knowledge, and hence its circulation, work to prioritise particular forms of knowledge and ways of knowing, while marginalising others in a particular policy context (Freeman & Sturdy, 2014a, 2014b). Central to this framework then is the non-hierarchical ordering of the possible phases of knowledge, and the juxtaposition of embodied knowledge with other more formalised forms in exploring and managing knowledge in a policy context (Freeman & Sturdy, 2014b). To understand how people's actions and interactions work to mobilise and set knowledge in motion this thesis draws on three different analytical concepts that will now be presented, starting with a phenomenological notion of embodiment.

Embodiment

Many terms are used in the literature, as reflected in this thesis, to denote and describe the body as a site of knowing, e.g. practical, tacit, personal, experiential, sensory and embodied knowledge. At the heart of a number of these conceptualisations lie phenomenological notions of embodiment. This thesis leans on Merleau-Ponty (1962) phenomenology of perception, insisting on the body as the site of knowing the world, understood as a non-dualistic entity that is 'not distinct from or in interaction with an opposed principle of the mind' (Csordas, 1990, p. 8). Therefore, according to Merleau-Ponty, perception begins in the human body and through reflective thinking ends in objects, and is by nature indeterminate because there is always more than meets the eye (Merleau-Ponty, 1962, p. 69). This implies that on the level of perception, there is not yet a distinction between subject and object, just pre-objective being, in a world characterised by arbitrariness and indeterminacy. Sensation therefore needs to be realised in relation to other elements, and therefore cannot be defined as ‘pure impression’ (Merleau-Ponty, 1962, p. 4). In fact, pure sensation would result in no sensation, in the sense that the observing nurse would see only colour or light, hear sounds and smell odours, and it is only when ‘overlaid by a body of knowledge’ that sensations are realised (Merleau-Ponty, 1962, p. 5). In other words, even though the world is what we see, we must nonetheless learn to see it, matching our vision with knowledge (Merleau-Ponty, 1968, p. 4).

Central to the exploration in this thesis of how the body comes to know, then, is the premise that the pre-objective does not imply that the body exists outside or prior to culture. By claiming that the body is in the world from the beginning, Merleau-Ponty instead indicates that we are in contact with the social by the mere fact of existing, meaning that perception is always embedded in a social world (Merleau-Ponty, 1962, p. 362). This implies that to recognise the ‘embodiedness’ of our being-in-the-world is to discover our common ground of existence, i.e. how each individual exists in an intersubjective field, not as self-referential entities, but as a network of relationships (Merleau-Ponty, 1962, pp. 427-431). The body and the world then presuppose each other, and the lived body is a compendium of possibilities and activities, a ‘…general means of having a world’ (Merleau-Ponty, 1962, p. 147).

The phenomenological premise that all humans inhabit the same sharable world, and that even our most basic experiences therefore both indicate and entail a fundamental intersubjectivity, has inspired understandings of different modalities of human existence in anthropology in recent decades (Csordas, 2008; Csordas, 1990, 1993; Desjarlais & Throop, 2011; Duranti, 2010; Ingold, 2011; Jackson, 1983; Stoller, 1997). Furthermore, this premise has been proposed as an overall theoretical frame, and a paradigm or methodological orientation in anthropological enquiries into how people interpret, organise and reproduce particular forms of social life and social cognition (Csordas, 1993; Duranti, 2010; Jackson, 1989). According to Thomas Csordas, our attention to objects in the world is a bodily phenomenon, taking place through ‘somatic modes of attention’, that is, the ‘culturally elaborated ways of attending to and with one’s body in surroundings that include the embodied presence of others’ (Csordas, 1993, p. 138).

As outlined in Article 1 of this thesis, this fundamental intersubjectivity is not only what makes ethnographic research possible in the first place, but it also has implications for how such research should be practised, provoking a need for multisensorial, embodied engagement with others in the environment in which they live and work (Csordas, 2012; Ingold, 2011, p. 171). Embodiment have thus been instructive in this study as a methodological approach, which involved attending to my own bodily sensations while sharing the experiences of nurses as a particular mode of attending to the world (Csordas, 1993). However, in this thesis, Merleau-Ponty (1962)'s phenomenology of embodiment is also used as an analytical tool in the discussion of troublesome dualities, between knowing-that and knowing-how in the literature on professions. This makes it possible to grasp how the evolving of professional knowledge in use is not a process in which the mere experiences of the body are constructed and defined by an enlightened, reflective and knowing mind, based in cognitive attention or abilities (Pink, 2015; Ram & Houston, 2015). Thus, mind and body, intellect and sensation and objective and subjective aspects of reality should not be allocated different roles in the production of experience and hence knowledge.

The collapsing of the duality between doing and knowing in embodiment further implies that practical knowledge or skills should not be regarded as mere 'techniques of the body' but as active engagements with and responsiveness to the surroundings (Mauss, 1973). This further means that skills cannot be reduced to a formula (Bernstein et al., 1996), neither can they be learnt through context-free and propositional knowledge taught outside of use, or be passed on from a skilled person to a novice by observation or imitation alone. Instead, the body comes to know through processes of enskilment, which involves the presence of the person, indissolubly body and mind, in a structured environment, and the attentive, perceptual involvement with the environment and sensory correction and responsiveness to things in it (Ingold, 2011, pp. 352-354, 416).

In an organisational context, such engagements involves communication between workers, who make sense of their experiences through verbal articulation and the construction of narratives (Ingold, 2011, p. 158). This often takes place through sharing of knowledge inscribed in documents, which prompts the questions posed by Freeman and Sturdy (2014b) about what happens to embodied knowledge when it becomes disembodied. Thus, it raises the problem of how to contain emotional and affective aspects, 'writing intersubjectivity', while at the same time promoting a professional and authoritative voice (Jackson, 1989, pp. 32-36). In order to elaborate on this dilemma, I now turn to the concept of translation.

Translation

Translation is a concept that has been widely used and debated in the study of knowledge transfer and transformation within research, policy and various practice domains, including that of health and healthcare (Armstrong et al., 2006; Currie et al., 2014; Freeman, 2009; Ogilvie et al., 2009; Wehling, 2008). In this thesis, I draw on conceptualisations of translation developed in ethnographic research with relevance to knowledge production in clinical practice. In this literature, translation has been used to denote the complex act of creating written artefacts from lived life and oral events through transcriptions (Silverstein, 2003). Thus, in contrast to the common understanding of translation as the linguistic process of rendering words or text from one language into another, in its broadest sense, it is taken to mean cross-cultural understanding (Rubel & Rosman, 2003). This has raised debate about whether such understandings can really be achieved, and if so, how, and under what conditions, implying that one should be attentive to what is missed and distorted in the act of interpreting, appreciating and describing another culture (Clifford, 1997; Rubel & Rosman, 2003; Tambiah, 1990).

Questions about what translation is and what it does, or cannot do, are rooted in the acknowledgement that the transfer of meaning from one context to the other has ideological implications (Rubel & Rosman, 2003). Venuti (1995) has envisioned translation as a battleground between hegemonic sources evident in the division between ‘foreignizing’ and ‘domesticating’ translations. In the former the feel of the original text and context is preserved, carrying the reader to the original language by identifying with the customs, ways of thinking and means of expression it represents, and letting this powerfully affect the text produced. In a clinical context this could imply aiming to use a language as close as possible to the experiences of the patient in a medical record, as discussed in Article 2 of this thesis. By contrast, in ‘domesticating’ translations text is shaped to meet the needs, claims to semantic unity and culture of the reader, for instance a fellow nurse, a doctor, or a hospital manager, representing an ethnocentric tradition where all traces of the source text’s provenance and the translation process including the role of the translator are obliterated (Venuti, 1995, pp. 17-39). Balancing between these two types of textual representations, then, translators act as interpretative agents whose subjectivity is socially conditioned (Hermans, 1996; Hermans, 2000; Lefevere, 1998).

Another insight from the translation literature relevant to this study is the notion that incompatibilities between source and target languages in translations necessitate contextualisation and ‘glossing’ (Rubel & Rosman, 2003). Thus, the social dimension and setting of the re-writing, including the intrinsic intentions, emotions and affects surrounding its creation and reception must be communicated in order for the translation to be meaningful. This makes the problem of translation cultural, involving social relationships and not simply the propositional knowledge of the individual mind (Rubel & Rosman, 2003; Silverstein, 2003). These concerns are pertinent for both ethnographic research and clinical practice, which share the obligation to describe and represent, and hence translate, subjective knowledge of the particular and local into a series of analytical and universal categories and concepts, which can enable comparison and understanding across particular cases. Since the development and use of such abstract concepts, like those available in a diagnostic system, are based on an assumption of a limited number of natural possibilities and categories, acts of translation work to counter peoples’ uniqueness, potentially creating barriers between worlds, instead of crossing them (Rubel & Rosman, 2003; Silverstein, 2003). This implies that without contextualisation, meaning can be lost in translation.

While the conceptual terms and categories available are thus used to structure the professional understanding of the people studied and observed, there is also a process through which the meaning of concepts evolves, being enriched by the language and culture of the local and particular (Venuti & Baker, 2000, p. 22). Thus, translation in ethnographic research and clinical practice alike is a balancing act that necessitates an effort to grasp the embodied and experience-near data in their fullness (Geertz, 1973), before translating them into more abstract experience-far concepts, which thus gain new meaning from variation across particular cases (Tambiah, 1990). This further implies that acts of translation are not simply about faithful representation but involve a methodological orientation in the co-creation of knowledge, creating a third space through acts of structuration and fabrication in ways that shape the actors taking part in it and the relationships between them (Gentzler & Tymoczko, 2002, p. xxi).

Such transformative powers are also emphasised in action network theory, known as the sociology of translation, which set out to expand the scope of what translation entails, perhaps to the extent that it is made to do too much (Freeman, 2009). However, some points of value will be drawn upon in this thesis. The first point is the semiotic insight that entities take their form and acquire their attributes in their relationship with other entities, human and non-human, and that such relationships are not given, but have to be continuously performed (Law, 1999). Translation then refers to the collaborative and communicative work of bringing entities into relationships with each other, and the ways in which the emerging new relationship, or ‘action network’, changes the properties of the things or people taking part in it (Callon, 1986; Latour, 1986, 1987; Law, 1999). From this perspective, translation can be perceived as a multilateral accomplishment appearing in the mutual definition and inscription between actors or ‘allies’ who have entered into relations with each other and started to reconstruct themselves, their interests and their worlds (Callon, 1991, p. 143; Latour, 1987, 1988).

Based on the conceptualisations presented above, it seems clear that translation is anything but simple and mechanical, but rather a creative and deeply ambivalent accomplishment, a matter of craft and ambiguity beset by uncertainty and contingency (Freeman, 2009; Steiner, 1998, p. 246). Recognising this complexity, this thesis uses translation as an analytical tool to describe and discuss how the construction of professional knowledge in use involves multifaceted processes of meaning-making, aiming to create intersections between worlds, patients, the professional and the organisational. This enables a discussion of how professional knowledge is produced and reproduced through collaborative practices of sharing and communicating knowledge in the ongoing effort to define and solve professional tasks.

Furthermore, it means that when clinical practitioners like nurses inscribe their embodied knowledge of patients’ subjective experiences into disembodied texts, it represents a more or less deliberate, reflective and conscious act of change, a process of rewriting or reproduction. New meaning, then, that did not exist prior to translation is constructed and reconstructed in processes of communication, which are not linear or dialogical but multilateral, shaping the characteristics and relationships between those taking part (Freeman, 2009). Finally, central to this understanding is the ideological potential in the use of language, conditioned by the availability and legitimacy of different mediators and stylistic conventions in which knowledge can be represented and articulated in particular organisational contexts (Freeman & Sturdy, 2014a).

Temporality

Time has long been a major object of study and theorisation in the social sciences, constituting a pervasive and inescapable, yet intangible dimension of all aspects of social experience and practice (Gell, 1992; Munn, 1992; Schulz, 2012; Wajcman & Dodd, 2017). A fundamental dichotomy that has underpinned much of this literature is between the objective, measurable and spatialised passage and scheduling of time on the one hand (Zerubavel, 1976, 1979, 1981), and the subjective ‘presence of time’, as a lived quality and ‘inner *durée*’ on the other (Bergson, 2013; Davies, 1994; Munn, 1992; Orlikowski & Yates, 2002; Wagner, 1986). Time has also been treated as one-dimensional, determined by societal processes (Wajcman & Dodd, 2017), evident in the literature on the acceleration of society, where modern life has been envisioned as going increasingly faster, emphasising information technology as one of the main factors causing this increasing speed (Gleick, 1999; Rosa, 2010; Rosa & Trejo-Mathys, 2013; Virilio, 1995).

Applying temporality as an analytical tool to explore knowledge from the perspective of use, this thesis builds on strands in the literature that seek to nuance or reject simplistic perspectives and reductionist tendencies inherent in one-sided viewpoints. In this way, the thesis seeks to avoid the risk of treating prevalent dichotomisations as inherent properties of time without refuting the fact that there might be differences in the way time is represented or perceived among different people and at different points in history (Munn, 1992; Orlikowski & Yates, 2002; Wajcman & Dodd, 2017). Such a dynamic understanding of collective representations of time and how they are shaped and conditioned by society requires awareness of their multidimensionality, and of the ways in which different sociocultural dimensions such as sequencing, timing and past-present-future orientations are formed, lived and apprehended in everyday practices (Elias, 1992; Munn, 1992; Schulz, 2012). It also involves recognising time as fundamentally socio-material, and being open to experiences and expectations of its passing at different speeds, with various moral connotations and political implications in different empirical contexts (Molotch, 2017; Wajcman & Dodd, 2017).

In organisational studies, a dynamic and practice-based perspective on time implies seeing temporal structures as social constructions and enacted phenomena, enabling actors to comprehend, orient themselves towards and coordinate practice consisting of recurring actions and events (Orlikowski & Yates, 2002). Temporal structures are thus produced and reproduced reflexively and enable and constrain particular types of action by structuring the ways in which actors interpret and interact with time (Orlikowski & Yates, 2002). According to Rowell et al. (2016), practices enact three different temporal structures that work together to structure their performance. ‘Temporal patterns’ describe the visible positioning of practices in relation to time and to each other, evident in the pacing, speed, and rhythm of events and activities. For such patterning to take place, actors must share deeper, often tacit and taken for granted ‘temporal conceptions’ of the properties of time, such as clock-based or event-based. Finally, practices involve ‘temporal orientations’ that denote and enact ways of valuing and attending to time, such as an emphasis on the present over the past and future, process versus outcome, or an orientation toward time as a resource, denoting a commoditised valuation of time (Hernes & Schultz, 2020; Rowell et al., 2016).

This framework enables an exploration of how practices are reproduced by installing normative and cognitive constraints on deviations from practice. The prevailing notion in many societies and organisations is that time is ‘chunkable’ and linear and can be owned, managed and hence valued as a resource; this can for instance elevate perceptions of punctuality and lateness from the practice domain to the normative domain (Erickson & Mazmanian, 2016; Rowell et al., 2016; Zerubavel, 1980). Temporal structures can pose cognitive constraints by making it difficult to deviate from the deeper conceptualisations even though overt temporal patterns are altered or rebelled against, such as when a nurse opposes efficiency measures by spending extra time with a patient, without denouncing the fact that time is scarce (Erickson & Mazmanian, 2016; Rowell et al., 2016). Furthermore, when such deep structures are widely shared across practices, they seem to reinforce both normative and cognitive constraints because they are then more embedded in the organisational principles of the practice domain (Rowell et al., 2016).

An understanding of temporal structures as comprising recurring activities and events that both take place in time and express and embody temporal orientations (Hernes & Schultz, 2020), does, however, also provide a framework for exploring how actors not only reflexively reproduce temporal structures, but also transform and bend time through reflective and innovative engagements. Hernes and Schultz (2020) suggest the term ‘temporal translation’ to describe how activities that work to reproduce temporal structures also enable actors to reflect on them and hence transform them by addressing individual future or past events that are brought into the present in ways that transform current temporal structures (Hernes & Schultz, 2020). Erickson and Mazmanian (2016) argue that some knowledge workers operate as temporal entrepreneurs, introducing new actions and orientations into the dominant temporal discourse. Innovative use of communication technology can for instance loosen up streamlined timelines by attending to multiple interactions and contexts simultaneously (Erickson & Mazmanian, 2016; Mazmanian et al., 2015).

In concluding, then, temporality is applied as an analytical tool in this thesis in order to envision how the development of professional knowledge in the doing of nursing is interwoven with the temporal rhythm of organisational activities and events. Drawing on the notion that organisational practices are produced and reproduced through their temporal structuring in a particular organisational context enables a discussion of the contextual and ideological aspect of professional knowing, showing how particular enactments of knowledge are infused with moral or cognitive constraints on practice deviation. This also reveals how transformation and innovation are made possible as professional practitioners manoeuvre between opposing organisational rhythms, rebelling against or bending dominating temporal conceptions. In this way, the thesis adds a dimension that has received little attention in its own right in the literature on professions as an aspect of professional knowledge and its application in work.

Concluding remarks

By combining the distinct but overlapping theoretical perspectives and analytical concepts outlined in this chapter, the thesis argues that nursing knowledge emerges in clinical decision-making through acts of sensing, sharing and caring, rather than being used and drawn upon in proceeding from diagnosis to treatment through inference, as modalities of professional action (Abbott, 1988). Furthermore, elaborating on different dimensions of knowledge and how we as human beings aim to grasp and act upon the world in which we live and work, the conceptual framework applied enables the thesis to propose and explore the practices and processes involved in the circulation of knowledge in an organisational context.

First, the embodiment perspective provides insights into how bodies come to know, as we interact and share experiences with others in an intersubjective and material environment. Translation is used as an analytical concept to elaborate on how new understandings can be gained but also lost as knowledge moves from one phase to another, in an effort to make worlds intersect, through enactments. Finally, notions of temporality provide an analytical frame for discussing how practices are reproduced and potentially transformed in the organisational structuring of professional work, enabling, restricting or reinforcing particular enactments of knowledge. The combination of the different theoretical perspectives thus enables an analysis of how professional knowledge emerges as a body of knowledge are enacted by knowing bodies in a particular working environment.

The knowledge produced in this study also emerged in use, evolving from embodied, interactional and situated involvements in the field. It involved engaging in an intersubjective environment, interacting with and sharing experiences with nurses in a particular clinical context over time, aiming to translate those experiences into text, and drawing on theoretical frameworks and concepts to make sense of what I had experienced and observed. Thus, the exploration of the dimensions of professional knowledge presented in this chapter was based on the ethnographic approach taken in this study conducted among clinical nurses in a Norwegian cancer ward. The following chapter will detail how this particular professional context was approached methodologically and established as a field site in the attempt to generate data of interest.

CHAPTER 3 | Data and methods

In this chapter, the study setting and the data and methods used to answer the research questions concerning how knowledge is acquired, shared and structured by nurses in clinical work will be presented. The data on which this thesis is based include five months' fieldwork in the cancer ward, observation and participation in nurses' activities on different shifts, involving also informal in-field talks, and nine formal semi-structured interviews with nurses following the fieldwork.

During the course of the study and my subsequent work on the articles, I came to realise that there are essential similarities, and some noteworthy differences, between the process of producing ethnographic knowledge about a field of study and the way in which the nurses acquired knowledge about their patients. The process required embodied presence, observation and participation in relevant activities, it involved talk, sharing thoughts and ideas about the world, and it involved being emotionally aware, establishing empathetic relationships over time built on mutual respect and trust. However, it did also necessitate maintaining a certain distance, in order to comprehend what was going on, while respecting the integrity of others and acknowledging that one can never fully grasp the essence of their lived realities. Finally, it involved transforming observations and experiences into text, including and excluding activities and events according to the evolving objectives of the study, and to structure my activities according to the temporal rhythm at the ward. In a research process, these aspects of gaining knowledge about people who live and work in a world populated by and shared with others are questions that need to be systematically addressed, explained and reflected on. This chapter is devoted to that endeavour.

I will start by presenting the process of gaining access to and entering the field. Methodological questions relevant to the implementation of participant observation and the doing of ethnography in a hospital context will then be discussed. This will include an elaboration of the continuous processes through which the study findings were generated in the doing of participant observation and interviewing, and how these two data sets are seen to complement each other. Steps taken in the analysis of the entire empirical data in the writing of the articles will then be further detailed. Finally, I will discuss some key ethical aspects and overall reflections on the research design.

Beginnings

This thesis started out with the broad scope of exploring professional knowledge in nurses' clinical work in a Norwegian context. The aim was to conduct an ethnographic, explorative study of how nurses acquire, share, use, and thereby produce knowledge to establish clinical expertise in patient care in a work environment populated by other health professionals and managers. In order to capture the complexity of nursing knowledge in work, I was advised to conduct the study in a clinical ward as a context where nurses play an essential role in tending to patients' complex needs. Based on these criteria, I chose to contact the cancer ward of a large emergency hospital in Southern Norway, a study setting described in more detail below.

The Norwegian state hospitals are an essential institution in the Norwegian healthcare system, which is largely publicly funded and recognised as one of the world's most efficient with rights to free medical treatment for all residents. The state hospitals are overseen by the Ministry of Health and Care Services, organised into four regional health authorities and categorised as either regional hospitals, which are large hospitals serving more than 60 000 inhabitants, or smaller local hospitals with a catchment area of fewer than 60 000 inhabitants. They provide specialist health services involving diagnosis, treatment and observation of patients with acute, serious and chronic diseases and health conditions (Ministry of Health and Care Services, 2021). The study hospital had at the time of the study about 5000 employees and a catchment area of approximately 300 000 inhabitants, and is thus defined as a large hospital in the Norwegian context.

The initial contact with the cancer ward at this hospital was made by e-mail in September 2016, addressed to the hospital's head of research and the management of the cancer ward. Shortly thereafter, a meeting was arranged with the senior consultant and charge nurse from the ward, and a senior adviser and the head of the research department of the hospital, in addition to one of my supervisors and myself. At the meeting, I presented my project, including research interests and progress plan, with my aim to conduct participant observation and interviews among the ward nurses. Mutual expectations and possible outcomes of the project were then discussed. Among the issues settled was the ward management's expressed interest in gaining insight into how they could improve their work procedures and efficiency. While acknowledging this as a sign of interest and appreciation of the project as valuable and relevant, I also needed to explain that I had neither the intention nor the qualifications to evaluate the quality of the nurses' work. Furthermore, we agreed that I would present my findings to the management and the participating nurses after publication, but that my results would not be offered as a list of recommendations for improvements.

The meeting ended with a positive response from all parties, but it was not until they started allocating tasks that needed to be arranged before my arrival that I was pleased to realise that we had already reached agreement. Before I started my fieldwork in January 2017, I signed a contract of a 0% position, which meant that I was subject to the same duty of confidentiality as the ordinary hospital employees. I also attended an introductory course for new staff. The charge nurse informed the ward staff of my project and role as a researcher, and started recruiting nurses with whom I could pair up during the initial shifts. Preparations for fieldwork, however, also included updating myself on what cancer nursing entails.

Cancer nursing

The practice of clinical cancer nursing is knowledge-intensive work, accomplished in the midst of a number of composite and rapidly changing medical and organisational complexities. First, cancer is a collective term used to denote a group of about 200 diseases that, despite sharing a number of characteristics, also differ in nature, rate of progression, sequelae, treatment and outcome (Corner, 2009). The numerous potential acute and late side effects of the disease process and the prolonged and harsh nature of many treatments, mean that the implications of cancer for the individual patient include physical, psychosocial and practical complications (Cancer Research UK, 2020; Corner, 2009). Cancer nursing, then, requires technical, emotional and supportive care, in order to manage a vast complexity of cancer-related problems in patients who are suffering, recovering or dying from cancer, in addition to dealing with the reactions and involvement of the patient’s relatives (Corner & Bailey, 2009; Cribb, 2009).

Second, major breakthroughs in the science of cancer biology in recent years have resulted in the implementation of a number of novel treatments, including surgery, drug treatment, chemotherapy, radiation treatment, stem cell transplantation and immunotherapy (Kreftforeningen, 2020). This offers hope to the increasing number of patients diagnosed with cancer, and three out of four now survive their cancer diagnosis in Norway, which is twice as many as 50 years ago (Kreftforeningen, 2020). It does, however, represent new challenges for nurse practitioners who must be continuously updated on biomedical expert knowledge, support patients with new and potentially difficult treatment choices, and achieve novel and complex symptom management (Tadman et al., 2019).

Finally, nurses must fulfil obligations in the coordination and managing of patients' illness and care trajectories. Since 2015, national standard pathways have been implemented for a number of cancer diagnoses in Norway, defining the roles of general practitioners and specialist and primary care services, and prescribe a time limit for each step in the diagnostic and treatment process (Helsedirektoratet, 2016). For nurses this has resulted in an increase in managerial, non-clinical activities, such as maintaining an overview of individual patients' care status, ensuring that all necessary activities are carried out and synchronised, organising internal patient transfers and coordinating discharges with primary healthcare or other healthcare facilities. Due to these challenges, the cancer ward represents a study setting where nurses composite mix of biomedical expertise, clinical skills, patient knowledge and organisational ability in tending to cancer patients' multiple needs comes into play. Entering the field, I gradually gained insight into this setting as a workplace.

The cancer ward

The cancer ward was divided into three sections each serving nine patient rooms, giving a total of 27 patient rooms. One section was reserved for patients with haematological diseases, while oncology patients were located in the other two sections, one of which had the most severe cases and terminal patients in need of palliative care. All sections had a workstation consisting of an open area separated from the corridor by a small counter, and an inner office with glass walls and a sliding door. Each workstation had three to four computers and a small meeting table, a medical trolley and equipment for blood samples and measurements in addition to a storage room with necessary supplies to provide daily patient care. The ward also contained a combined kitchen and meeting room where nurses working in the different ward sections met up for lunch and to attend the morning and afternoon shift meetings.

At the time of the study, about 45 state authorised general nurses worked in the unit, including two men. All of these had completed a three-year bachelor's degree or an older equivalent in nursing from a university or university college. Nine had an additional specialised education in cancer nursing, which is a one-year, 60-credit university course that covers a large number of cancer-related topics. The nurses' work in the cancer ward was organised into three shifts: morning (7/7:30 am-3 pm), afternoon (2:30 pm-10:15 pm), and night (9:45 pm-7:15 am). Two to three registered nurses, sometimes two registered nurses and one auxiliary nurse, ran a section during the day shifts, by dividing the responsibility for the nine single-patient rooms among themselves. The main activities of the ward took place during the morning shift and were centred on the decentralised workstations where nurses met up on their way to and from patient visits to check or record information in the computerised systems and to have brief updates between themselves and with physicians and other practitioners.

In line with the hospital’s aim to maximising the value of patient-related services by optimising organisational resources, work processes at the ward were streamlined based on lean management principles. This involved extensive use of clinical procedures, a more or less universal physical design across sections, and an extensive use of information technology in the accumulation and documentation of knowledge and in its communication within and outside the hospital. Every hospital employee had a smartphone that was logged into according to the person’s assigned role on a particular shift. The phones were used to notify healthcare professionals and service personnel of tasks to be done, e.g. which rooms needed to be cleaned, or which patients had called for assistance. In addition, different computer programmes were used in knowledge-management of patient-related data, such as the allocation of patient rooms and patients’ diet, medical documentation of diagnoses and future treatment and care needs, and the recording of medication and measurements, displaying the patients’ medical chart. All of these programmes were used frequently by the nurses to document knowledge held about patients, and to communicate this information to others.

The above information describes cancer nursing as an area of work and the ward as a social and physical entity, a workplace populated by people, material objects, and their interactions. However, the ward and the nurses’ work and knowledge as an ethnographic ‘field’ of study needed to be constituted in the doing of fieldwork (Atkinson, 1992b, pp. 8-9). When I entered the ward, I came with a common-sense understanding of hospitals and nursing as a familiar institution and profession in the community. It did not take long, however, before a number of surprising observations and experiences made me realise that I actually had minimal experience from ‘front stage’ situations, and no intimate knowledge of the backstage workings and the hospital’s everyday dramaturgy (Goffman, 1971). This revelation opened my eyes to how the methods chosen and applied are paramount in terms of what knowledge can be gained, potentially affecting the scope and direction of a study. The following sections will outline and discuss how I have applied the data collection techniques chosen, including the opportunities they have offered, the challenges they involved, and the continuing analytical process involved in the generation of data (Fangen, 2010).

The doing of fieldwork

According to a pluralist and pragmatist approach to methodology, the choice of method must depend on the research question posed, combined with insight into which of the available data collection methods are most suitable (Lamont & Swidler, 2014). The overall aim of this study was to explore how knowledge evolves in nurses' clinical work and decision-making processes. This represents a broad and explorative quest for understanding how different types of knowledge are mobilised, connected, shared and learnt, and how enactments of knowledge are enabled and constrained within a dynamic and knowledge-intensive work environment. A combination of participant observation and interviews appeared to be the most appropriate approach to explore and understand these questions.

Participant observation

Fieldwork with participant observation is the hallmark of ethnographic research, described as the basis of 'true ethnography' (Shweder, 1996; Wind, 2008). Ever since Malinowski (1922) set the gold standard, it has been understood to involve the first-hand study of people as they go about their lives, by living in a community for a substantial amount of time and participating in the daily life of the people being studied (Atkinson, 2001; Wind, 2008). As a data collection method, participant observation enables the researcher to study human interaction and communication by being present in actual social interaction, describing the participants, their roles and positions and what they communicate in activities they initiate or take part in (Fangen, 2010; Wind, 2008).

The five months of fieldwork of this study, from January to June 2017, involved observing and participating in the nurses' activities on different work shifts, in addition to attending compulsory courses for hospital employees, and internal seminars and workshops on the ward. Participating nurses were selected by snowball sampling after an initial introduction to two of them by the senior charge nurse at the outset of the study. The ten nurses I paired up with, and later interviewed, were aged 25-50, with 2-25 years' experience and 60-100% positions, and three were qualified cancer specialists. As nurses were mainly attached to one work section, with its typical patient profile, I observed all three sections. This enabled variety in length of experience and involvement with different patient groups. Normally I was in the field for two to three days a week, mostly present for entire shifts and sometimes across shifts, and I usually spent three weeks in one section to get to know its staff and specific routines, before moving on to another section. I always made a prior appointment to accompany one of the nurses, but as I became familiar with the nurses and life on the ward, this could be altered during a shift, if something occurred that the nurses felt would be interesting for me to witness or take part in.

Participant observation performs the dual purpose of placing the researcher both inside through participation, and outside by observation. In this way, the ethnographer aims to access an ‘insider’s point of view’, by establishing empathetic relationships in the field (Wind, 2008, p. 80). The aim is to illuminate how social interaction in a strange world can make sense from the perspective of another world, by the researcher trying to learn to think, feel and act as a member of a particular culture, and learning how it is to be differentially situated, living with different constraints and preferences (Fangen, 2010; Spradley, 1980; Wind, 2008). At the same time, the ethnographer is expected to keep the necessary analytical and intellectual distance to be able to make observations and interpret what is going on. Thus, the ethnographic endeavour for knowledge involves a need to stand back from our perception of the phenomenon, and the empathetic relationships built, in order to avoid the risk of transferring our own system of representation on to it. Furthermore, we need to switch chairs to fully understand the particular informant’s place in the overall game of social relations, and how others see him or her (Fainzang, 2007; Wind, 2008).

I experienced this balancing act of establishing intimacy and distance to be a continuous but still unevenly distributed process evolving in different stages of the fieldwork (Spradley, 1980). First, my main concern was how to lay the foundation for empathetic relationships in a hectic work environment where my role was not immediately evident either to me, or to the nurses. As will be outlined in more detail below, gaining access to the ‘insider’s point of view’ involved being interested and attentive, but perhaps most importantly, it necessitated the sharing of relevant experiences with the nurses over time, aiming to give experience-near interpretations of what was taking place (Geertz, 1973).

Withdrawing from the relationships established in order to maintain analytical distance was partly accomplished by the very nature of how the fieldwork was organised. In accordance with the nurses’ working schedule, it involved going in and out. Thus, like the nurses, I was not present on the ward every day, and needed to update myself on what had been happening since my last field observation. In addition to a ten-day field break halfway through the study, this provided me with some distance, which was used to analyse what I had already observed, helping me to focus future observations (Spradley, 1980). Yet further out in the fieldwork, as the analytical work on the articles had started I realised how distance also necessitates contextualising the experience-near descriptions of situations and events in already existing theorisations, providing ‘thick descriptions’ (Geertz, 1973). This balancing act between simultaneously maintaining intimacy and distance was thus an important continuous analytical endeavour that also involved acknowledging that as an ethnographer I would only ever get a partial view or a ‘partial truth’ (Clifford, 1986, p. 7) of what was going on (Wind, 2008).

Following on from the acknowledgement in ethnographic research that the level of intimacy depends on the time spent in the field, it is now also widely recognised that the researcher’s role and degree of participation will differ according to the field, the specific situation and the activities that take place, in addition to the background and interests of the ethnographer (Spradley, 1980; Wade, 1984; Wind, 2008). However, these insights seldom find their way into descriptions of the ethnographic method in articles (Wind, 2008). This is also true of the articles in this thesis, and I will therefore take this opportunity to elaborate on some aspects I experienced to affect my possibilities to grasp what was going on in the doing of ethnography in a hospital context.

Doing ethnography in the hospital

In line with traditional anthropological studies of ‘exotic places’ and village communities outside the researcher’s own culture, hospitals have been explored as tight little islands or as culturally embedded institutions. Within both of these approaches, ethnography has represented a methodology invaluable to the quest for understanding and portraying the hospital’s complexity and multifaceted relationships (Long et al., 2008) also conceptualised as consisting of a large number of worksites or ‘variegated workshops’ (Strauss et al., 1997, pp. 5-7). Participant observation in the hospital setting does, however, involve some general methodological challenges, which were also relevant to my fieldwork concerning the role I took on and was designated when in the field, and the level of participation possible for me as a researcher in a clinical ward.

The first point concerns who I was. The fact that I shared a number of personal characteristics with the nurses, being a woman and a mother in the forties, made it easy for me to blend in in lunch-hour talk about life in general and enabled me to imagine and sympathise with their overall life situation. On the other hand, I had little experience with the inner life and workings of a hospital ward, having never worked in any healthcare facility, and only spent three nights under a hospital roof. I experienced from the very beginning that the fact that I was not a nurse stood out as an advantage, allowing me to ask naive questions and be surprised by even small matters such as a smell, which the nurses themselves took for granted. It also prevented a comprehension that I was there to evaluate their efficiencies. My curiosity seemed to intrigue the nurses, who stated that they were not used to someone outside the hospital, or even outside their own profession, being interested in learning about their work.

On the other hand, it took time to become acquainted with and understand everyday ward life. Firstly, the nurses' language impeded my understanding of what was going on, being full of abbreviations. In addition, the staff used a number of medical and technical terms, denoting medications, diagnoses and equipment, some of which I eventually learnt, while I never really grasped others. I also spent time and effort trying to figure out the structure and activities of a normal working day, and the differences in responsibilities and tasks to be accomplished on different shifts. Finally, the allocation of duties between registered nurses and other health professionals such as doctors and auxiliary nurses was a puzzle I needed to solve. This was particularly relevant with regard to which tasks I was allowed to perform to assist or relieve the nurses, and which tasks were reserved for qualified nurses.

I also needed to be constantly aware of the latter issue because I could easily be taken for a nurse, being a woman dressed in white in the company of nurses. On some occasions, this did in fact happen, even though I wore a nametag stating that I was a researcher. The question of whether to dress appropriately to blend in when in the field has been debated. Chambliss (1996) argues that as a researcher you should not 'wear a lab coat', as this will give the impression that you are willing to bend the truth or deceive people into getting access (Chambliss, 1996, p. 192). To be honest, the potential consequences of my choice to wear white were not very well considered in advance, other than the fact that all hospital staff spending time with patients needed to wear clothes not worn at home, to avoid the risk of infections being spread to the hospital. Thus, the choice to wear the nursing uniform was not based on a wish to conceal my motives, or to gain access to situations I would not otherwise have been invited to. In all encounters with patients, relatives and health professionals, I was always presented or presented myself as a researcher studying nurses.

I did, however, experience some situations that made me reflect on the consequences of dressing like a nurse. First, the actual procedure of entering the hospital by the staff entrance, rushing through the long corridors in the basement from the workwear dispensers to the wardrobe where I had my own locker gave me a feeling of belonging. It made me feel part of, or at least gave me a glimpse of, the inner and more hidden life of the hospital. Furthermore, the very act of putting on and wearing the uniform, thereby blending in with other hospital staff, affected how I was looked at, or perhaps more importantly not looked at, by others, which had an effect on my way of being in the field. This became evident to me in small things like my own gestures and movements, which became more ‘nurse-like’, for instance walking faster and more purposefully towards the lift, and entering the ward with a degree of naturalness. At other times, being taken for a nurse led to awkward and potentially stressful situations, as when I was asked by a doctor to assist in performing a biopsy.

However, the question of whether I could or should blend in as a nurse was not only affected by who I was. Another crucial methodological issue concerns what credible roles are available to the ethnographer in which trust and rapport can be built. In a highly specialised and technological hospital context, this becomes a question of whether becoming part of the ongoing activities and events is really possible at all (Wind, 2008). Even though I chose to dress as a nurse, and spent all my time in the field accompanying and assisting nurses, I experienced, like Wind (2008) in her hospital study, that the role as a nurse did not provide any real possibility for ‘active’ or ‘complete participation’ (Spradley, 1980). Being restricted from doing various nursing procedures was one thing. More important was the undeniable fact that I was not bound by the same ties of dependency and responsibility as the nurses, involving acute situations, emergencies and their consequences, ultimately concerning patients’ life or death.

According to Wind (2008), participating in something means becoming part of what is going on, being involved in a common goal, a plot or an emerging narrative. While the nurses were engaged in complicated technical nursing procedures, intimate work with patients’ bodies, and emotionally intense and sometimes disturbing conversations and difficult decisions, my role as a researcher meant that I was always free to leave even when assisting with patient care. Thus, in order not to misconstrue my role as an ethnographer, it was important to be conscious of the fact that I was never as committed to the work as the nurses, and could thus never behave as if I was bound by the same obligations as they were (Van der Geest, 2007; Wind, 2008).

One consequence of these methodological dilemmas could be to call all fieldwork in a hospital setting ‘non-participation’ (Spradley, 1980; Wind, 2008). This would, however, omit some essential aspects of the doing of fieldwork, which, as described above, is so much more than just being there. Thus, even though the only feasible role in the doing of ethnography at a hospital might be that of a researcher, it still involves the opportunity to share relevant experiences with those we observe (Van der Geest, 2007). My participation in such common experiences was eased by the fact that my nurse informants were used to being accompanied, having responsibility for training and apprenticeship. It sometimes seemed that the role I was designated could be equated with that of a student or an apprentice, eager to learn about nurses’ work and skills, observing, asking and being explained how and why they did what they did. At other times, I participated more as an auxiliary nurse performing tasks like fetching food or nutritious smoothies for patients, helping them with personal hygiene, and assisting them to the toilet. Both types of participation provided access to numerous situations involving nurses’ interaction with patients, fellow nurses and other clinicians.

In this way, doing participant observation in a hospital context involved negotiating my way into the field, by adopting different roles ranging from complete observer to active participant (Spradley, 1980; Wind, 2008). However, to the nurses I was always ‘the researcher’, who for some reason was interested in them and their work. This meant that I was also the subject of their observations, interpretations and social engagement, where they examined my actions, attitudes, comments and questions (Wind, 2008). As such, fieldwork involves being enmeshed in the endeavour of all human social interaction, namely to grasp and interpret the intentions, meanings and actions of the people with whom we associate and interact in our daily lives.

Writing field notes

The writing of field notes is essential to knowledge production in ethnographic research, and involves more than putting events into words. As the very first act of textual production, it is an interpretative process involving the need to select from the complexity of social interaction and the multiplicity of everyday events those activities and occurrences which appear relevant to the study objectives (Atkinson, 1992b; Emerson et al., 1995). When observing and participating in nurses' activities during a shift, I carried a small black notebook and a pen, which I kept in the pocket of my nurse uniform. I was very attentive to when, where and how I took notes (Emerson et al., 1995) in order not to disturb my relationship of trust with the nurses, or attract unwanted attention or suspicion by other parties, such as patients, relatives, and other clinicians. I never took notes when I was with patients, with or without nurses, out of consideration for their vulnerable position, and the fact that the particularities of their situation were outside the scope of my study.

There were, however, numerous situations when writing notes was natural, blending in as an activity that also preoccupied the nurses, and sometimes indicating that I paid attention to what they told me about their work and the knowledge needed in order to perform it. Usually, I made brief notes when accompanying a nurse between patient rooms and the work section, mirroring the nurses' scribbling of readings and follow-up care on their paper patient list. I also picked up my notebook when the nurses used their smartphones to take an incoming call or to check up on something, and in pre-round meetings with doctors where reading and notetaking were commonplace activities. Finally, I used the opportunity to elaborate on my observations and add analytical comments when the nurses sat at their computers updating the electronic patient records, usually towards the end of a shift. These brief in-field jottings were subsequently elaborated into chronologically ordered and computerised field notes at the end of a fieldwork session, often initiated in the hospital library and study room or in the quiet area of the cafeteria, and completed upon returning to my office at the university.

As outlined in Article 2, it struck me how my efforts to provide accurate descriptions of conversations, events and the atmosphere on the ward at any particular point in time resembled the nurses' notetaking during a typical day. Neither their notes from observations of patients, nor mine from observing them, involved providing objective accounts of self-evident facts whose meaning could be accessed by simply paying attention to and describing what went on out there 'in the field' (Atkinson, 1992a, p. 454). Rather, the notes represented interpretive acts, turning social discourse from passing and momentary events into inscriptions (Geertz, 1973, p. 19). This involved struggling with the puzzle of writing intersubjectivity (Jackson, 1998, pp. 32-36), aiming to articulate my understanding of the nurses' lifeworlds in ways that would do them justice. Furthermore, it involved being reflective about how my more or less explicit interests and perspectives directed my gaze, representing a particular lens on the world, which worked to emphasise some events, and aspects of events, at the expense of others (Emerson et al., 2001).

This became evident in the way my notetaking changed during the fieldwork, moving from the noting down of non-specific and descriptive observations of everyday activities to more focused observations of particular processes and practices (Spradley, 1980). For instance, the revelation that nurses could smell things I could not directed my attention towards the use of senses as a source of knowledge in patient care for the remainder of the fieldwork, which then enhanced my understanding of how knowledge is shared and communicated among nurses. Further, just as experienced nurses had learnt how to distinguish between normal and abnormal when observing patients, I found that greater familiarity with ward life altered my focus, and thus the nature of my own writing. Normal everyday activities were no longer described in lengthy notes, and became instead a sort of backdrop to more focused attention, which also enabled the unusual to stand out.

To make sense of my observations and ensure that I had not misinterpreted or overlooked essential aspects, I needed to contextualise my descriptions by comparing them with other texts. Firstly, I re-read previous field notes, where I found that additional observations provided new insights into notes already written (Atkinson, 1992a), and secondly, I read existing research on related subjects. Furthermore, new perspectives and ways of understanding the data emerged from consultations with fellow researchers, involving the presentation of preliminary analyses and the theoretical framework at internal seminars and conferences. My field notes then appeared as ‘liminal texts’ (Jackson, 1990), constantly available for interpretation and reinterpretation. Making sense when being written, they were also partial and incomplete, implying complex processes of textual construction and interpretation (Atkinson, 1992a).

Informal ethnographic interviews

Conversation and talk are a fundamental aspect of social interaction, and the ethnographer therefore needs to talk with the people observed in order to make sense of the observations of behaviour and events (Jerolmack & Khan, 2014; Lamont & Swidler, 2014). There are in fact many ways in which the ethnographer can listen to and engage in talk in the field (Schatzman & Strauss, 1973). One is to listen to participants talking to each other, another is through informal conversations with them, and finally more structured interviewing can be conducted

(Fangen, 2010, p. 172). Spradley (1979, pp. 78-91) points out that ethnographic interviewing involves two distinct and complementary processes, namely developing rapport and eliciting information. Rapport refers to a harmonious relationship where a basic sense of trust develops between the ethnographer and the informant through different phases, and lays the ground for the free flow of information. In preparing for such a relationship, the ethnographer must pay attention to culture-specific ways in which friendship and trust are established (Spradley, 1979).

In the cancer ward, building mutual trust seemed to be intertwined with the shared feeling of responsibility for patients, the experience of a cooperative effort, and the responsibility for delegating and implementing tasks among the staff. It also involved sharing work-related experiences and constraints. This meant that it was important for me to be able to participate in the nurses’ work, to ease their workload where I could, and share subsequent insights with them. Sometimes I could add information that had passed them by, having been present in the situation, but not preoccupied with performing particular tasks. Thus, as I eventually understood more of their work and working environment, I found it easier to grasp the meaning of their talk, to participate in their conversations, and to ask more relevant questions about what they were doing and why.

Talk naturally constituted a necessary part of nurses’ work, taking place with patients and their relatives, fellow nurses, other clinicians and managers during each shift. Conversations between nurses took place in the corridors, at the cluster workstation, in pre-round and report meetings, in handovers and during lunch. They generally concerned work-related issues, such as sharing information about patients, delegating tasks, and discussing the overall workload or staffing situation. Listening to the nurses and engaging in informal interviews thus provided insights into how they perceived their workplace environment and the actual work but also their perceptions of patients, providing insights into how assessments and clinical judgements were made and practical problems solved. At times, the nurses also shared topics of a more personal nature related to family members, leisure activities like vacations and weekend plans; this was mainly during lunch, when and if they found the opportunity to take a break.

In fact, finding the time and place to sit down and confer with other nurses was generally a huge challenge, as their work schedule was extremely hectic and unpredictable. As outlined in Article 2, there were situations such as handovers where computer-mediated documentation was meant to replace talk. At other times, the section workstations were so crowded that the nurses had to hold their post-round report meeting in the laundry room. Talk about patients in the corridor was a reoccurring issue that nurses wished to avoid due to patient confidentiality. With all this in mind, I always considered where and when to interrogate nurses, and frequently noted down questions to be asked at a later point in time.

In spite of this, the nurses always generously answered my more or less uninformed and naïve questions, explaining what they were doing and why. Thus, I found that building rapport was not only essential in paving the way for the free flow of information in ethnographic interviews. It also worked the other way around. Engaging in conversations was important in developing empathetic relationships of trust between me as an ethnographer and the nurses as my informants (Spradley, 1979; Wind, 2008). I could then build further on such relationships when conducting formal interviews following the fieldwork.

Formal interviews

The formal interviews were conducted in September 2017. All nine interviewees were recruited during the fieldwork, from among the nurses with whom I had spent most time in the field. While this ensured that a trusting relationship had already been established (Spradley, 1979), I still found that the context of the interviews, being conducted in an office in another part of the hospital, where we sat on opposite sides of a table with a tape recorder between us, necessitated efforts to re-establish the rapport that had been built. I therefore always started out by referring to common experiences in the field, and restated that the overall aim of my project was to explore how they learnt, shared and applied knowledge in their work. I also made it clear that the objective of the interviews was not to question them, but to be able to discuss at greater length their thoughts and understanding of the nature of their work and what they needed to know in order to accomplish it.

During the interviews, which lasted about 60 minutes on average, I followed the principles outlined by Spradley (1979), namely to keep the informants talking without undue interruptions, to provide repeated explanations, to restate what the informants said, and to ask descriptive questions, all in an empathetic and understanding interviewing style (Spradley, 1979, pp. 78-91). I reminded them that even though I had already spent several months on the ward, there were probably many things I had missed, or not fully understood. In so doing I aimed to avoid getting thin explanations, reactive responses and answers that they believed I was after, thus precluding taken-for-granted or tacit knowledge (Spradley, 1979, pp. 78-91).

The semi-structured interview guide (Appendix 2) was developed based on the preliminary analysis of the field notes, and consisted of five batteries of questions. One was related to the nurses' background information, while another concerned their general conception of what nursing is and what the performance of good nursing entails. The third was on how they go about assessing patients, the fourth on how they communicate and share patient information with doctors and other nurses, while the fifth dealt with factors that promote or inhibit the enactment of their knowledge and skills in everyday patient care. After each interview, I noted down points on the need to re-structure the remaining interviews, and my experience of the atmosphere and interaction in the interview situation.

From the first interview I realised that just as observations involve interviewing of some sort, interviews also entail observation (Lamont & Swidler, 2014). The formal talks I had with the nurses were conducted during a normal shift. While the charge nurse had arranged for an extra nurse in addition to the ordinary staffing at the time of the interviews, I still found that some of the nurses were a little stressed. Most brought their packed lunch to the interview, and started out by giving an account of the present situation on the ward, sometimes with a happy smile, and sometimes with an exhausted sigh. Some received and answered incoming calls from colleagues, and occasionally the alarms went off on their smartphones indicating that a patient was calling for assistance, which made some worry that the electronic back-up system was not functioning.

Observing these disturbances reminded me of the hectic nature of the nurses' work and how sitting down to eat without interruptions was a rare pleasure, making me once more aware of the feeling of life on the ward. Being in work mode while talking about their job sometimes made it easier for the nurses to come up with descriptive answers and examples. At other times, they were so embroiled in the current situation on the ward that talking about their work, in more general terms, was difficult. Overall, I did not find that these incidents detracted from the informants' performance or the information obtained. The following section will discuss the ways in which the data generated from the interviews provided depth to the observations and in-field experiences and vice versa.

What people do and what people say

The motive for using both participant observation and interviewing in this study was not to use one method to counterbalance the faults of the other. Following Atkinson and Coffey

(2003, p. 110), I believe that ‘social life is performed and narrated’, i.e. actions are comprehensible because they can be talked about, and accounts, including talk in interviews, are social actions. Thus, I did not aim to use observations in order to check whether the nurses were telling the truth when they talked about ‘what’ they knew or ‘how’ they knew when doing their job, i.e. to provide data about what ‘really’ happened. Similarly, I did not intend to use interviews in order to obtain real, intrinsic and ultimate values, emotions, meaning or knowledge, which existed prior to the individual nurse’s choice of actions, and which can complement in situ data by describing or predicting behaviour and events (Atkinson & Coffey, 2003; Lamont & Swidler, 2014). Rather than considering events and social situations as things ‘out there’ that can be directly observed and described or more or less truthfully talked about, the two methods were applied and evaluated on their own terms as constitutive of particular versions of reality. Observation and interviews, then, were seen as incorporating different kinds of social actions, providing data of different forms (Atkinson & Coffey, 2003; Gubrium & Holstein, 1997).

Using participant observation provided insights into how knowledge is made and remade through negotiation, being guided, innovated and constrained by the demands of the situation and the interaction between participants such as nurses, healthcare assistants, doctors, patients and relatives (Barth, 2002; Freeman & Sturdy, 2014a). Participating in everyday ward activities thus enabled me to describe the actors, their roles and positions, what they do and what they communicate in the activities they initiate or take part in. Observing the nurses’ activities allowed me to describe and deconstruct the enactment of knowledge, and to witness and experience the formation, circulation and transformation of competencies over time (Atkinson & Coffey, 2003).

Interviewing the nurses based on experiences in the field, on the other hand, provided insight into dimensions of behaviour and events that were inaccessible through observations of actions and interactions alone. It gave access to knowledge that was not explicated in work, not because it could not be verbalised, but because it was considered unnecessary or too time-consuming to speak of, in actual situations and events taking place (Collins, 2010). Interviews thus provided an opportunity to scrutinise and trace theoretically motivated questions of why certain forms of knowledge appear tacit and others not, allowing the nurses to elaborate on how they conceptualised different types of knowledge in their own language. It also revealed how nurses understand and categorise knowledge and how contextual aspects like educational background, range of experience, person preferences and organisational conditions affect how they enact and use knowledge in particular situations. Thus, combining interviewing and participant observation made it possible to explore the complex ways in which knowledge is articulated, learnt, accumulated and justified in nursing practice.

Analysis

The analytical generation of data began immediately upon entering the research setting, and continued throughout and after the fieldwork and interviews, in the abstraction of themes presented in the three articles and the overall theoretical and methodological conclusions of this thesis. As already outlined, my prior knowledge of what goes on in a hospital was restricted to stereotypical and popular insights and indirect knowledge gained through the reading of policy documents and scholarly works (Glouberman & Mintzberg, 2001). The first encounter with the ward therefore seemed almost as exotic as entering a new and unknown part of the world.

Theoretically, however, I was better prepared. As a trained anthropologist and PhD student at the Centre for the Study of Professions, I was already familiar with the vast complexity of anthropological, philosophical, and sociological conceptualisations of knowledge and professional work. Thus, my attention and ethnographic gaze were directed by sensitising concepts (Blumer 1954) related to different typologies or models of understanding knowledge as propositional, explicit and abstract on the one hand, and practical, indexed, tacit and embodied on the other. Furthermore, these conceptualisations of knowledge have implications for understandings of learning, which also provided general guidance in my empirical encounters (Blumer, 1954). Despite this, I aimed to enter the field with an open-mindedness towards surprising observations, against a background of existing theorisations (Tavory & Timmermans, 2014).

The analytical process of writing thick, descriptive and reflective field notes (Geertz, 1973) resulted in many pages of written material. Yet the process of gleaning themes, followed by relevant and illustrative extracts and quotes, from a large amount of written material was not as straightforward as the analysis sections of the articles might suggest. It was accomplished following the principles of reflexive thematic analysis, as outlined by Braun and Clarke (2006, 2019), and began with iterative readings and re-readings of notes and annotations already during the fieldwork; in this way I ‘familiarised’ myself with the material, writing down initial ideas about what the data contained (Braun & Clarke, 2006).

I then proceeded by inductively ‘coding’ the basic elements of the data, such as descriptions of situations and activities and quotes from conversations, using different coloured markers on the chronologically ordered printed texts to sort the data into meaningful groups (Braun & Clarke, 2006). I also noted down analytical reflections on theoretical and empirical issues that informed future observations. One particular and surprising revelation that helped me to single out the topic for the first article appeared quite early in the study and was noted down in bold letters in my annotation to one of the field notes: THEY CAN SMELL THINGS I CAN NOT! This discovery immediately made my head spin and my pulse rise, and on the bus going home that day, I noted down all the different thoughts, ideas and aspects of surprise that arose from this revelation, starting with the sentence in bold above.

First, I was extremely intrigued by the very fact that there appeared to be smells in the air that I was unable to single out. Next, I was surprised by my own puzzlement, and by the fact that I had not already reflected on and sought out uses of the senses. Obviously, I knew that nurses used their eyes to observe the patients and their hands to feel them. Furthermore, I was equipped with analytical concepts to be aware of the embodied, tacit and intersubjective aspects of professional knowledge. Yet it was not until I discovered how smells were used to detect indications of a patient’s condition that all of the senses stood out as skills that played an important role in the nurses’ diagnostic work. With this insight in mind, I returned to and re-read previous field notes with the aim of identifying and coding descriptions already made about nurses’ sensory engagement with patients across different work practices.

I also started updating myself on previous anthropological and sociological research and theorisations of embodiment and sensory knowledge and work, and related methodological approaches. All of this influenced my own awareness of the field, the future observations I made, the attention I paid to my own bodily sensations, and the content of the informal in-field interviews with nurses. It aroused my interest in the different and often covert ways in which knowledge moves and circulates in the physical and socio-political context of a hospital ward among nurses and between nurses and patients and other clinicians. Eventually, it motivated an exploration of how knowledge is communicated and shared, with the revelation that nurses were supposed to be doing silent reporting in shift handovers. Furthermore, this drew my attention to the role time and its optimisation played in the structuring of caring activities.

All of these field observations motivated further probing in the research literature. As such, the analytical process was not strictly inductive, but involved the abductive process of allowing empirical observations and theoretical texts to enhance each other. Based on a broad familiarity with existing theories, then, interesting and surprising pieces of data appeared, which further motivated the choice of theory to direct the analysis and interpretations of the data at hand, thereby avoiding a simple descriptive analysis (Järvinen & Mik-Meyer, 2017; Tavory & Timmermans, 2014).

Towards the end of the fieldwork, all field notes were coded into meaningful groups. In preparation for the interviews, the groups of coded material were revised, laying the ground for developing the interview guide. I then continued to familiarise myself with the data by transcribing the audiotaped interviews, which was done verbatim using QSR NVivo 11 and resulted in 263 written pages in addition to analytical annotations. Finding the total amount of text to be somewhat overwhelming, I decided to continue the coding in Nvivo, where the interview transcripts were already stored. I copy-pasted the field notes and annotations into the programme, and inductively coded and re-coded the entire material by tagging and naming elements of the text based on the meaningful groups already established, while also expanding these groups, in order to capture important details across observational and interview data (Braun & Clarke, 2006).

The next phases involved the processes of ‘generating’, ‘reviewing’ and ‘naming’ themes relevant to the articles of the thesis, i.e. sorting and collating different codes into broader categories (Braun & Clarke, 2006, pp. 89-93; 2019). This was achieved by zooming out, aiming to combine codes and establish their relationship to generate patterns of shared meaning according to ‘central organising concepts’ based on a general understanding of the data as a whole. This therefore required a new round of re-readings and structuring of the totality of the text produced (Braun & Clarke, 2006; Braun et al., 2014). Exemplified again by the first article of this thesis, my unanticipated field experience of nurses using their olfactory sense had resulted in a number of codes denoting a variety of typical episodes where touching, observing, listening and smelling took place, and situations where sensory impressions were a topic of conversations. Such meaningful groups were translated into themes such as active and ongoing, direct and mediated use of the senses, and the dialectic interplay between theoretical knowledge and practical skills established in the doing of nursing, which included talk with patients and colleagues in making sense of sensory inputs.

Finally, the last phase of ‘producing the report’ involved the effort to tell the complicated story of the data in a concise, coherent, logical and interesting way within and across the themes, and also entailed choosing and translating extracts and quotes to be included in the articles, with minor grammatical and aesthetic adjustments (Braun & Clarke, 2006, p. 93). This process was repeated for each of the three articles of the thesis. Finally, the three articles constituted the data set for writing up the thesis, in which the themes and overall conclusion presented are discussed in relation to the overall research questions of the study.

Ethical considerations

Appropriate formal approval of the fieldwork and interviews was obtained from the Norwegian Centre for Research Data on 12 December 2016 (Appendix 3). The project was also approved by the director of the hospital department of research, and by the senior consultant and senior charge nurse in the cancer ward. It was ascertained whether the projected needed to be reported to the Regional Committees for Medical and Health Research Ethics (REK). In line with the REK guidelines and the Norwegian Health Research Act, it was decided that the project was not notifiable to the REK. The study did not aim to generate scientific knowledge about medical and health issues or personal health data, which meant that I did not intend to collect or record any personal patient information. I did not have access to patients’ electronic records or any other patient- related documentation. Finally, as an employee in a 0% position, I signed a non-disclosure agreement in accordance with the Health Personnel Act, on the same terms as all other hospital employees.

Informed consent was ensured both orally and in writing, prior to and during the fieldwork. All nurses and other staff members on the ward were informed about the project by the ward nurse, and all participating nurses received written information about the object of the study, including my contact information, and signed a compliance agreement (Appendix 1). Oral presentations and clarifications of the study objectives were provided on several occasions, also involving discussions on preliminary findings with the nurses throughout the study. To ensure the informants’ internal and external confidentiality, their names and ages, and the name and location of the hospital were anonymised in the field notes. When considered necessary for the presentation of data, pseudonyms were used for individual nurses. As the focus of the study was on knowledge in nursing, and not the nurses themselves, my attention and notes were directed at describing activities rather than details of individual nurses.

Even though patients and their relatives were not subjects of this study, their presence in observational situations was unavoidable and even essential. During the observations, I wore a nametag stating my role as a researcher at all times, and never asked patients about personal information. The patients' informed consent was ensured by the nurses, who acted as gatekeepers to patient encounters by informing them, and, when relevant, visiting relatives about my role and the focus of the study. Sometimes this initiated interesting conversations about nursing and the role of nurses and nursing knowledge with patients and other health professionals. I was never asked to leave the room, but in a couple of instances nurses decided that I should not take part in a patient consultation. These were occasions where patients' ability to provide informed consent could be questioned or particularly sensitive issues were to be handled. All accounts of situations involving patients in the analysis have been anonymised by producing 'typical' patient stories, and by altering age, sex and diagnosis.

Overall reflections on the research design

Although the research design chosen, as detailed and discussed in this chapter, was productive for the exploration of nurses' work and work-related knowledge, some final overall reflections remains. All scientific research, ethnography included, adheres to the same epistemic values of validity, reliability and representability by sharing the equal fundamental purpose of learning the best we can, seeking a glimmer of truth about the world (Hunt, 1990; Stewart, 1998, p. 14). However, judging the quality of ethnographic research in ways that ensure its distinctiveness requires some adaptions to how these criteria are conceptualised.

Validity, in ethnographic research is not concerned with the question of having measured what was intended, but rather with whether one has really observed what the description claims, and with how well the study has succeeded in its depiction, and thus, how far empathetic understanding has been reached (Stewart, 1998). Furthermore, reliability does not include a claim to consistency or replicability, which means that one cannot disregard the ways in which the study is embedded and situated in complex, long-term social contexts (Stewart, 1998). A level of objectivity can, however, still be reached by the ways in which he researcher provides a reflexive account of intersubjective relations and communication, specifying the paths taken in the research process, the role obtained in interaction with the informants, and the situatedness of the data in context. This chapter has been devoted to these ventures.

Finally, representability can be accomplished in ethnographic research by doing a thorough and structured analysis, aiming to comprehend and specify underlying or generic patterns in the interaction observed. This involves also the effort to theoretically establish the domain to which these patterns apply, by drawing a connection between observations and experience-distant concepts that capture the general features of social life (Stewart, 1998). According to Blumer (1954), the connection between theory and the empirical world in social empirical research is established by ‘sensitizing’ as opposed to using ‘definitive’ concepts. This means that the concepts we use do not refer to any clear attributes or fixed benchmarks in the empirical world, but rather work as a general sense of reference and guidance, suggesting directions in where to look (Blumer, 1954). This is related to the fact that every phenomenon in the social world of everyday experience that constitutes the object of our inquiry has a distinct and unique form that cannot be encompassed by our concepts embedded in contexts of similar distinctive character. In order to detect and study what is common, this particularity needs to be accepted, developed, used and faithfully depicted through analytical probing (Blumer, 1954).

The remainder of this thesis is dedicated to the result of this endeavour, summing up the findings and main conclusion in the articles (Chapter 4), and discussing the study’s overall empirical and theoretical contributions and potential social implications (Chapter 5).

CHAPTER 4 | Article Summaries

This chapter provides a brief overview of the articles of the thesis, focusing on the main findings and discussions.

Article 1: Blood, Sweat and Tears

Ihlebæk, H.M. (2018). Blood, Sweat, and Tears: Making Sense of Senses in Expert Nursing. *Ethos (Berkeley, Calif.)* 46, no. 4: 477-97. **https://doi.org/10.1111/etho.12220**

The first article in this thesis explores nurses' work with patients from an ethnographic and phenomenological standpoint, and provides an analysis of how sensory knowledge is formed and applied in everyday practices and social processes at a micro-level in the cancer unit. The article finds that the acquisition and use of sensory knowledge involves a complex interplay between different forms of knowing, ways of sensing, and modes of learning and communicating knowledge. Thus, building sensory knowledge, meaning the ability to make sense of sensory inputs in a clinical setting, involves a complex interdependence between formally learnt biomedical knowledge of anatomy, pathology and pharmacology and specifics of cancer diagnoses and treatments and the practical experience of detecting through the senses e.g. the sound of infectious breathing. Furthermore, it required a combination of evidential knowledge and clinical experience with indicators such as age, sex and medical history, but also the patients' mental state and social situation and the effect of these on the disease and the healing process. The interdependence between these different types of knowledge was constituted through unmediated and intermediate sensing through technological instruments, or patients' own senses, and ranged from the 'clever' use of one particular sense to an ongoing attentiveness to the whole sensorium in patient encounters. Thus, sensory knowledge was established in the doing of nursing, through continuous interaction with people and technologies in a clinical environment.

The article therefore argues for the continued relevance of embodied, intuitional and sensory aspects of professional knowledge and skills, in a context increasingly dominated by a biomedical knowledge regime and management control mechanisms, which are claimed to threaten and replace clinical judgement with technology and computerization. It is argued that in order to avoid a decline in the performance of such skills, nurses, doctors and others involved in clinical decision-making need to have sufficient time, human resources, and autonomy to prioritize engaging in continuous, intersubjective, and embodied interaction with patients. Furthermore, the importance of an open dialogue about how to make sense of sensory knowledge must be acknowledged and facilitated by managers and leaders in hospitals and other healthcare facilities. Finally, the article highlights how an ethnographic and phenomenological approach, involving joining the nurses in their daily activities, learning to attend to the things they were attentive to and engaging in talk to make sense of our common experiences, contributed valuable insights into how expertise is cultivated in everyday clinical practice.

Article 2: Lost in translation

Ihlebæk, H. M. (2020). Lost in Translation: Silent Reporting and Electronic Patient Records in Nursing Handovers: An Ethnographic Study. *International Journal of Nursing Studies* 109: 103636. **https://doi.org/10.1016/j.ijnurstu.2020.103636**

The second article investigates nurses' engagement with the electronic patient record as a mediator of knowing in handover situations. At the time of the study, computer-mediated handovers referred to as 'silent reporting' had been implemented at the ward, replacing the traditional oral handover to ensure adequate and reliable sharing of information, associated with increased quality, and safer and more efficient provision of healthcare. The article outlines how this affected nurses' ability to gain a dynamic and contextualised understanding of a patient's status. It shows how talk was a prerequisite in the nurses' effort to make the electronic patient record work, due to their complex and dynamic workflow, their attention to sensitive and psychosocial aspects, and the uncertainty involved in clinical decision-making as a collective achievement. These findings concur with research suggesting that optimistic expectations for technical interventions do not always align with what actually occurs when technologies and their users interact in practice, and that relying exclusively on formal tools like electronic patient records may create a knowledge gap in clinical practice.

The article contributes to this field of study by showing how this potential knowledge gap can be understood to depend on the possibility for knowledge to move between the embodied, inscribed and enacted as particular forms that knowledge can take. Further, it highlights the role talk plays in facilitating this movement by enabling translation and as such interconnectedness between embodied, informal knowledge, employed and expressed by the individual nurse through work, and formal knowledge inscribed in the electronic patient record. The study argues that silent reporting that restricts talk in handovers works to inscribe a set of ideas about appropriate communication between nurses, which affects these translation processes. Thus, relying solely on formal handover tools not only leads to the loss in translation of information essential to nurses' evolving, dynamic, and contextualised understanding of the patient's situation, but also the loss of the visibility and legitimacy of nursing knowledge. Furthermore, it is argued that nurses' handover practices can be seen as efforts to counteract these effects, in ways that also increase the relevance and usefulness of the electronic patient record.

Article 3: Time to Care

Ihlebæk. H.M. (2021). Time to care: an ethnographic study of how temporal structuring affects caring relationships in clinical nursing. *Social Science and Medicine*, 287, Artikkel 114349. **https://doi.org/10.1016/j.socscimed.2021.114349**.

The third article explores how temporal structuring affects nurses' caring relationships with patients. Based on a dynamic perspective on time, caring practices aimed at 'caring for' and 'caring with' patients are analysed to detect how temporal patterns, conceptions and orientations interact and reinforce each other in guiding and reproducing practice performance. The findings, presented as three ethnographic vignettes, describe how 'medical time', 'patient time' and 'hospital time' emerged as three different clinical rhythms, creating dependency, partnership and reliability as distinct but interconnected constituents of caring relationships. Furthermore, by tracing nurses' activities in pre-round meetings, patient rounds and various care situations, the study shows how nurses manoeuvre between time as defined by the carer and owned by the patient, and its various orientations towards the past, present and future. Through nurses' intermediate role, then, the potential pitfalls of dependency were balanced by the advantages of partnership and vice versa, as distinct but interrelated aspects of caring relationships. Finally, the study described how this is a vulnerable dynamic affected by hospital time's clock-based conception and commodified valuation of time, which worked to reproduce practices aimed at caring for patients.

Based on these findings the article argues that temporal reflexivity and flexibility are essential conditions that affect the interplay between care logics in an organisational context, and therefore need to be facilitated. The capacity to critically reflect on and change temporal rhythms, the dynamics between them and their effect on caring relationships requires acknowledging the essential role nurses play as temporal agents, accommodating several temporal conceptions and orientations simultaneously. Furthermore, to balance dependency with partnership and vice versa, the value of time spent with patients and on inter-professional communication needs to recognised and accommodated. Finally, temporal reflexivity requires a level of flexibility in temporal patterning of caring activities, entrusting clinical practitioners with the autonomy to define and time care interventions in ways that allow different temporal conceptions and orientations to interact and reinforce each other. The article argues that time to care matters because it enables a temporal structuring of caring practices that safeguards patients’ inevitable dependency, accommodates partnerships and ensures reliability as essential constituents in caring relationships in modern healthcare contexts.

CHAPTER 5 | Discussion and Conclusion

This chapter discusses the study's overall empirical findings and what they tell us about *nursing knowledge from the perspective of use, and how it evolves through the solving of clinical tasks in a hospital context*. The findings will be discussed according to the three research questions of the thesis, namely:

(1) How do nurses obtain knowledge of patients' complex conditions in clinical decision-making?
(2) How is knowledge shared and communicated among nurses, and what happens to knowledge as it circulates in clinical practice?
(3) In what ways is nursing knowledge affected by the temporal structuring of caring activities in an organisational context?

This will be followed by a brief discussion of how the study data considered together can nuance and refine existing notions of nursing knowledge in the research literature. The theoretical and methodological implications will then be discussed, emphasising how applying a broader analytical framework to the study of professional practice enhances our understanding of professional knowledge in more general terms. Next, suggestions will be made as to how the study might encourage reflection on professional knowledge in complex work organisations within the health sector and beyond. Finally, the inevitable limitations of the thesis will be proposed, leading to prospects for further research.

Summary and discussion of the main study findings

The research questions posed in this study concerning how knowledge about patients is acquired, shared and structured in clinical cancer nursing have been treated more or less separately in the three articles of the thesis, related to the practices of sensing, sharing and caring as summarised in Chapter 4. These practices were inductively abstracted to envision nurses' clinical decision-making processes. Thus, I entered the field looking for knowledge and through ethnographic methods, I experienced a number of revelations and surprising observations that enabled this thesis to address and describe aspects of clinical knowing that have not been discussed in detail in their own right in previous literature on nursing knowledge.

The first article describes the acquisition and use of sensory knowledge in nurses' efforts to evaluate cancer patients' clinical condition. The second details the implementation of silent reporting and reliance on electronic patient records in sharing patient information in nursing handovers to gain a dynamic and contextualised understanding of patients' status. Finally, the third article outlines and discusses the temporal structuring of caring practices and how this affects nurses' caring relationships with patients. Thus, in the articles, the processes involved in sensing, sharing and caring are outlined and discussed in relation to nurses' patient-related work. The relevance of these results to the overall aim of this thesis to understand nursing knowledge from the perspective of use and how it evolves in clinical practice will now be further elaborated and discussed.

The moments through which the body comes to know

The first research question of this thesis, asking *how nurses obtain knowledge of patients' complex conditions in making clinical diagnosis* emerged from the surprising realisation during fieldwork that nurses could smell things I could not. This triggered an exploration of the acquisition and use of sensory knowledge in cancer nurses' clinical work with patients, combined with an immersion into conceptualisations of embodiment and sensory experience (Article 1). Thus, the overall quest to understand how nursing knowledge is applied and evolves in work started with an interest in grasping the moments through which the body comes to know. It involved scrutinising the first step of diagnosis referred to by Abbott (1988, p. 41) as the process of colligation, which involves assembling a picture by applying knowledge to structure the problem at hand. By exploring sensory knowledge, the thesis depicts this as an embodied competence achieved in the continuous effort to solve the problem of uncertainties, hence, of not knowing, or not knowing what to do with what you know.

Of course, this does not mean that a nurse enters a patient room unknowingly. She comes with a heterogeneous body of knowledge from her educational background and clinical experience from similar patient cases. Most often, she is also acquainted with the particular patient in question from previous visits, the reading of clinical notes and consultations with other nurses and doctors, and experience with similar cases. Nevertheless, every patient encounter is characterised by an inherent indeterminacy, a potential moment of confusion or loss of grasp (Benner et al., 2011), as occasions where sensory inputs are taken in, taken note of and made dependent on clinical judgment. It thereby represents moments where the dynamic interconnection between the particularity of the individual patient case and knowledge inscribed in universal diagnostic classification systems comes into play (Abbott, 1988).

By exploring the moments through which the body comes to know, this study has described how the uncertainties in such moments are temporarily resolved and a level of understanding reached through the integration of different forms of knowledge and modes of knowing in embodiment. Furthermore, it has shown how this is a complex and dynamic relationship, as nurses' fragmented body of academic knowledge, including biomedical, psychosocial and ethical subjects, is variously mobilised and gains new meaning and relevance in making clinical decisions. In cancer care a rising temperature or sudden absent-mindedness have different implications for a haematology patient who has received stem cell transplantation, a patient who has just been diagnosed with a poor prognosis, and a terminal patient in palliative care. This implies that the nature of the problem at hand will determine the academic knowledge activated and how this is integrated and informs action. This also applies to the complexities of practical skills and moral competencies, which are mobilised according to the task to be solved. Thus, theoretical knowledge and practical skills are intertwined in the doing of nursing, in the perceptual attentiveness to a patient's condition and the performance of care practices.

The study also demonstrates how the creative and continuous establishment of such connections between 'knowing that' and 'knowing how, when and why' (Ryle, 1963; Sullivan & Benner, 2005; Sullivan, 2010) are more or less conscious and explicit processes appearing in statements and clinical acts (Lum, 2017). They range from nurses' active engagement with particular clinical indicators based on evidential knowledge, like a drop in blood pressure, which is a visible and deliberate act and frequently articulated, to the dynamic, ongoing, often tacit attentiveness to patients' overall condition, even when they seem to be doing well (Maslen, 2015; Mesman, 2010). Clinical observation was performed in nurses' everyday tasks as an integral part of their interactions with patients. This means that the emergence of nursing knowledge through clinical decision-making takes place through a variety of clinical activities including physical/technical, emotional and organisational tasks, as distinct but interconnected constituents in the actual performance of care work (James, 1992).

In this way, the study shows how nursing expertise depends on the relative emphasis of different forms of knowledge and modes of knowing. These are established and cultivated in nurses' continuous embodied and intersubjective interaction with individual patients and particular patient groups, and the medical complexities and care needs this entails. This further implies that nursing knowledge is personal and experience-based, and therefore differentially distributed among individual practitioners (Benner, 1984; Lave & Wenger, 1991; Polanyi, 1958; Schön, 1983). However, it evolves in a community of knowers who share a similar body of knowledge and embodied experiences in a culturally elaborated and structured environment through processes of enskilment (Csordas, 1993; Ingold, 2011, p. 416).

Building nursing knowledge, then, depends on communication with others, exchanging information with patients, fellow nurses, doctors and other healthcare professionals using body language and oral, textual and technological means of representing knowledge. In order to understand how nursing knowledge evolves in clinical practices we therefore need to pay attention to the movements and activities of nurses as bearers of knowledge, to what they do, what they say, and how they interact and communicate with others (Freeman & Sturdy, 2014a). I will now turn to how such various enactments of knowledge involve processes of transformation of meaning and of relationships, which are informed and constrained by the circumstances in which the interactions take place.

The transformation of knowledge in interaction

Aiming to trace what happens to embodied knowledge in clinical interaction, the second research question of this thesis asks *how knowledge is shared and communicated among nurses, and what happens to knowledge as it circulates in clinical practice.* This question also emerged from a field observation, disclosing how nurses continued to talk during silent reporting in handovers, often followed by the statement ‘we are supposed to be doing silent reporting, but…’. Handover practices were thereby explored, aiming to grasp how replacing oral reports with electronic patient records affected nurses’ ability to gain a dynamic and contextualised understanding of a patient’s status (Article 2). The finding that new insights were gained but that meaning was also lost in translation from embodied to inscribed will now be discussed, elaborating on how the translation processes taking place in everyday clinical practice can bring new insights into how nursing knowledge evolves in use.

In order to grasp the complexity of nurses’ knowledge-sharing practices as acts of translation, this thesis draws on notions from ethnographic research. Translation is thereby understood in its broadest sense as the effort nurses make in creating a cross-cultural understanding between patients, clinical practitioners and managers and their lifeworlds (Rubel & Rosman, 2003). Furthermore, it is taken to be a practical and interactional accomplishment riddled with uncertainty, involving the creation of written artefacts from lived life and oral events through transcriptions (Freeman, 2009; Silverstein, 2003), and making use of such transcriptions in the evaluation of patients' clinical condition. As outlined in this study, patient information was shared among nurses through a number of different means of articulating knowledge, such as body language, oral accounts and written and digital recordings. This complexity became evident in the apparently mundane act of writing clinical notes, which can be perceived as a practice of producing what Venuti (1995, pp. 17-39) refers to as more or less 'foreignising' or 'domesticating' texts. It involved balancing the needs and claims of different actors at the source and target ends, and solving the quandary of how to handle and present the role the nurses played as translators in the creation of meaning.

The study shows how nurses' concern about how to phrase themselves was based on a need to provide a fair and precise representation of the clinical encounter by communicating the most pressing issues, but also the wish to appear professional, objective and accountable. This indicated how translating embodied knowledge into textual representations involved the effort to create new meaning, by adding clarity and technical inevitability to the messy complexity, sensitivity and intimacy of intersubjective experience (Grek, 2014). Furthermore, it showed how this was an interpretative and collective accomplishment (Hermans, 1996; Hermans, 2000; Rubel & Rosman, 2003), which included consideration for the patient as the source of the text, but also for previous writers through the use of other texts and inscriptions, potential future readers, and fellow nurses present in the moment.

The balancing act between different means of representing knowledge was, however, also affected by the explicability of the knowledge held, the properties of available means of communication, and knowledge management routines and stylistic conventions, constraining the information to be expressed and how to articulate it in professional and accountable ways. As outlined in Chapter 2 of this thesis, translating knowledge from embodied to inscribed involves an inevitable loss of meaning, as the affective nature of the situations in which the knowledge was established cannot be expressed in disembodied text (Freeman & Sturdy, 2014a; Smith-Merry, 2014). The continued practices of talk among the nurses in handovers can thereby be understood as acts of contextualisation or 'glossing' (Rubel & Rosman, 2003). They worked to preserve and capture the intrinsic intentions, sensitive issues, emotions and inherent uncertainties of the setting of the translation that were necessary for the textual translation to be meaningful, but unsuited for the record. Furthermore, talk was used to communicate the unspeakable, adding tone of voice, including pauses and body language and thereby letting different types of representations complement each other in the translation between worlds.

Hence, the sharing of information between nurses involved creating a third space, accomplished in the interpretative and creative effort to fill the gap between embodied and inscribed and between the languages and lifeworlds of patients, practitioners and the management (Gentzler & Tymoczko, 2002). The translational work this involved constituted new meanings and understandings of the particular patient case, but also of the parties involved, and the relationships between them, continuously performed in clinical interactions between different actors on the ward (Law, 1999). Thus, the process of transforming the complexity of people's lived life into a patient case guided interaction in patient encounters and involved translating knowledge of the particular into universal concepts and categories (Berg, 1996). In this way, it imposed meaning onto patients, reducing their uniqueness by combining and reducing information in the process of classification (Rubel & Rosman, 2003; Silverstein, 2003).

Finally, in this third space nursing knowledge was expanded and deepened in the effort to make clinical judgments on individual patient cases over time (Venuti & Baker, 2000). It involved discussions of how to evaluate and understand observations of particular indicators, based on the evidently known and previously experienced, and of how to phrase the insights gained, thus creating a common language for the known and the unanticipated. The knowledge established in these interactions between nurses was transient in nature, emerging in the mobilisation and enactment of embodied and inscribed knowledge in the here and now. Yet it often resulted in new inscriptions that ensured a level of stability and continuity across time and place (Freeman & Sturdy, 2014a). The fact that the need for permanency is an essential aspect in understanding how knowledge evolves in use and how it depends on the intersection between formal and informal practices is a line of argument that will now be followed.

The reproduction of knowledge through temporal structuring

The third research question broadens out the perspective from enactments of knowledge in interactions between nurses to the wider hospital setting, asking *in what ways nursing* *knowledge is affected by the temporal structuring of caring activities in an organisational context.* Time was a pervasive dimension in the implementation of patient care on the cancer ward, evident in the daily scheduling of activities, the different pace of movements and interactions, and the various experiences of patients, nurses and other clinicians. This multiplicity of temporal realities has been analytically outlined in this study as three different clinical rhythms evident in the reproduction of particular caring practices, which affected nurses' caring relationships with patients (Article 3). The implications of these findings for the production and reproduction of knowledge in the contemporary healthcare context will now be further elaborated.

In this study, caring practices are perceived as knowledgeable doing, a situated, collective and ongoing accomplishment, which in the literature is described as involving physical, emotional and organisational tasks in attending to patients' composite care needs (Gherardi & Rodeschini, 2016; James, 1992; Nicolini, 2011). By applying a dynamic and practice-based perspective on time to the analysis of these practices, the study understands different sets of caring tasks as not only representing the enactment of different types of knowledge, but also as embedding different temporal structures. Furthermore, the reproduction of these temporalities in an organisational context is understood as conditioned by the extent to which they are tied to the meaning of activities and events and the degree to which they are commonly shared across practices (Rowell et al., 2016)

Based on these premises, medical time is here considered as 'the silent politics of time' (Das, 1991) in the hospital, commonly accepted as the main underlying principle for ordering events. It builds on biomedical knowledge such as anatomy, pathology and pharmacology, which in nursing is enacted through 'physical labour' (James, 1992) that requires technical and practical skills aimed at managing and 'caring for' patients and their bodies. These caring practices were temporally patterned by care practitioners in the intersection between medical evidence and knowledge of patients' symptoms and care needs (Habran & Battard, 2019). This therefore involved the enactment of knowledge closely associated with the main purpose of activities at any hospital, to tend to patients' immediate problems and to cure and heal, which was widely acknowledged and shared among cancer care practitioners and managers. Deviations from structuring caring activities according to medical time were morally constrained, related to professional standards and ethics, which thus involved an inevitable reproduction of the biomedical knowledge and the technical skills this entailed among nurses.

The study further demonstrates how the necessary and lifesaving implications of medical time implied that the activities it involved were also the main organising principle for ‘hospital time’, which is presented as a clock-based structuring of caring events. As outlined in recent research, the obligation to coordinate and manage ward activities to ensure efficiency in patient care pathways is an increasingly time-consuming responsibility in nursing (Allen, 2015; Latimer, 2000; Olsvold, 2016). This was evident also in the cancer ward, where nursing required a complex mix of organisational and technical skills, using smartphones, tablets, electronic blackboards and various digital programmes to time activities in relation to each other, and to ensure that information, equipment and patients were at the right place to the right time. Thus, being the dominant temporal logic in any Western society and organisation, clock time was a pervasive temporal order whose dominance was never questioned by nurses at the ward, albeit sometimes contested and protested against (Erickson & Mazmanian, 2016; Orlikowski & Yates, 2002; Rowell et al., 2016). Deviations from hospital time involved cognitive constraints and moral sanctions related to punctuality and efficiency, and nurses’ organisational skills and technical competencies were therefore reproduced by their mutually dependent and reinforcing companionship in clinical care.

Emotional labour on the other hand, described as temporally structured according to ‘patient time’ in this study, depended on affective and personal dedication and the competence to mobilise lay, experiential and expert knowledge in the continuous exploration of emerging care needs (Hochschild, 2003a, 2003b; James, 1989, 1992; Smith, 1992; Theodosius, 2008; Van der Geest, 2010). The study has demonstrated that such intimate and relational knowledge of patients’ suffering, lifeworld possibilities and constraints (Benner, 2004) was considered essential as a backdrop in nurses’ communication with doctors when making clinical judgements. However, patient time, with its fluid boundaries not easily prescribed, measured and managed according to the clock, remained a hidden and informal temporal order. Its reproduction then appeared to depend on nurses’ moral obligation to perform what they defined as ‘good nursing’. This also had implications for the visibility of the practices through which it was enacted and thereby the legitimacy of the knowledge it entailed.

This thesis thereby demonstrates how knowledgeable caring practices on the ward were moulded and reproduced through nurses’ continuous manoeuvring and managing of these different formally acknowledged and informal clinical rhythms. Innovative engagements with time, such as using available technologies to bend dominant temporal logics and thereby promote social change (Erickson & Mazmanian, 2016; Mazmanian et al., 2015), did not seem to have reached their full potential. More attention seems to be needed on how temporal structuring affects care work and nursing knowledge, and on nurses’ role in managing various emergent temporalities in current healthcare institutions.

Relevance to the nursing literature

By combining notions of embodiment, translation and temporality into an overall theoretical framework, this thesis has aimed to provide a rich ethnographic description of nursing knowledge from the perspective of use. Sensing, sharing and caring have been explored and presented as essential practices through which clinical decision-making among nurses on a Norwegian cancer ward takes place. The relevance of the study findings for the ongoing discussions of what nursing is and what it should be in the nursing literature will now be proposed and discussed.

The status and emphasis of different forms of knowledge have been central in the development of nursing as a profession, as exemplified by discussions in the nursing community in a Norwegian and Nordic context at the beginning of this thesis. The preference for a traditional humanistic focus on care and ethics has been contrasted with the need for medical, natural and social science disciplines (Karseth, 2004; Lund, 2012; Moseng, 2012). Furthermore, increased academisation is discussed as a potential threat to the acquisition of the practical skills required in clinical work, while the emergence of evidence-based practice is taken to give prominence to medical evidence over other types of knowledge, raising questions of what evidence is and how it can be made useful for clinical work (Alvsvåg, 2009; Heggen & Kirkevold, 2017; Nelson, 2008). Recently, voices have been raised about how these discussions seem to be based on a simplistic perception of both theoretical and practical knowledge and the relationship between them, calling for a need to explore the complex processes through which knowledge is actually enacted (Benner et al., 2011; Heggen & Kirkevold, 2017; Lillehagen et al., 2013).

This thesis responds to this call by providing empirical evidence of the micro-practices through which practical skills and theoretical knowledge are mobilised and how they intersect in nurses’ clinical practice. Firstly, it describes how nurses’ clinical expertise is an embodied competence, acquired and continuously cultivated as the body comes to know through the doing of nursing. Further, it sheds light on how the work nurses are set to perform on behalf of society requires and depends on a heterogeneous body of academic knowledge, technical skills and moral competences that are integrated according to the nature of the problems at hand. From the perspective of use, this thesis suggests that this diversity needs to be embraced and further explored in different clinical contexts as a basis for fruitful discussions on the future development of nursing as a profession.

In addition, by elaborating on how nursing knowledge evolves as a third space in the intersection between worlds, and the role nurses play as translators of meaning in the creation of written artefacts from lived life (Silverstein, 2003), the thesis offers an alternative approach to the question of evidence-based practice and knowledge translation in the field of health and healthcare. This literature has been dominated by a concern for how research-based knowledge can be made available and applicable in clinical practice, exploring the transfer of knowledge as a problem of nurses' readiness, ability and opportunities to make use of updated evidence at the workplace (Freeman, 2009; Lillehagen et al., 2013; Saunders et al., 2016; Saunders & Vehviläinen-Julkunen, 2016). Different understandings of what translation means and how it can be achieved has thereby been proposed, ranging from a simple transfer 'from bench to bedside' in translational medicine (Wehling, 2008), to different conceptual frameworks that may facilitate research-informed practice at a micro-level (Armstrong et al., 2006; Bero et al., 1998; Lillehagen et al., 2013; Scott et al., 2012; Wolf & Fukari, 2007).

In contrast, this study has focused on how translation is an inevitable aspect of knowledge-sharing practices, in the continuous processes of accumulating, documenting and sharing patient information, and the nurses' role in facilitating this (Allen, 2015). In this way, the thesis sheds another ray of light into the black box of how different types of knowledge and different means of representing knowledge are put to use and made useful in clinical practice. It demonstrates how translation involves integrating formal and informal practices, and lay, expert and evidence-based knowledge in the creative and ongoing dilemma of addressing uncertainties that arise (Timmermans & Angell, 2001). Furthermore, it shows how this is a collective and cooperative achievement involving a number of actors, human and non-human, present or imagined (Goodwin, 2014; Mesman, 2010).

Finally, by setting 'time' on the agenda, the study contributes insights into the conditions for care work as knowledgeable doing in contemporary healthcare contexts. As already outlined in Chapter 1, strands of the research literature in medical sociology and nursing have for some time been concerned about recent transformations in healthcare said to be insensitive to the time and space needed to provide situated care, which seems to suffer from cold technology, biomedicine and management (Cohen, 2011; Davies, 1994; Kleinman & Van der Geest, 2009; Pope, 2003; Schillmeier, 2017). Another strand of the literature has explored how nurses' limited time is currently and increasingly being spent on new tasks and responsibilities, calling for a broadening of the understanding of what nursing entails beyond its traditional caregiving function (Allen, 2015; Charles-Jones et al., 2003; Latimer, 2000; Tjora, 2000).

By adopting a practice perspective in exploring what caring entails and actually does in particular contexts (Gherardi & Rodeschini, 2016; Mol, 2008; Mol et al., 2010; Nicolini, 2006; Pols, 2010a, 2010b), this thesis contributes to this vast literature by showing how physical, emotional and organisational care work and the clinical competencies and technical skills this requires are distinct but intertwined components of nursing (James, 1992). Furthermore, it demonstrates the processes and organisational structures through which these elements may become integrated or differently emphasised in a particular healthcare context. The study thereby also enhances knowledge of how temporality matters in healthcare, which, with some recent exceptions, has not been a central research topic in its own right (Habran & Battard, 2019; Pedersen & Roelsgaard Obling, 2020; Randall & Munro, 2010; Tomkins & Simpson, 2015).

Overall, this thesis has thus aimed to shed light on nurses' individual and group role, in the development of nursing knowledge, as bearers of expertise, negotiators of new meanings and as agents of change and stability through their situated enactments of caring practices. In this way, it demonstrates features of clinical nursing and aspects of care work that have been proven to make problematic the visibility of particular practices and the legitimacy of certain forms of knowledge (Allen, 2015; Benner, 2004; Bergey et al., 2019). To this end, the thesis has applied an analytical framework that has enabled the tracing of movements of knowledge and, thus, how particular enactments are facilitated or constrained in an organisational context (Freeman & Sturdy, 2014a). Hence, accepting the premise that no work is intrinsically visible or invisible, but can appear as one or the other through context-specific indicators (Star & Strauss, 1999), an important responsibility lies on researchers as spectators, and our ability and willingness to widen the gaze and broaden the perspectives. This thesis can be read as a means to that end.

Relevance to the study of professions

The main findings of this study contribute to the literature on professions more generally, by demonstrating the fruitfulness of broadening the theoretical and methodological approach to the understanding of professional knowledge. The study achieves this by combining and synthesising perspectives from the sociology of professions and knowledge in policy with sociological and anthropological perspectives on embodiment, translation and temporality. Furthermore, ethnographic methods are applied to capture the micro-processes and practices through which professional knowledge emerges in the intersection between the knowing body and a body of knowledge. This enables the study to help bridge the gap between differing notions on the nature and role of practical and theoretical knowledge and the continuous interplay between them in professional decision-making. The complex processes of diagnosis, inference and treatment outlined by Abbott (1988) as the basic modalities of all professional work, can be viewed as an embodied, interactional and situated competence acquired in use.

First, the convergence between phenomenological and ethnographic methods adopted in this thesis has enabled an analysis of the subjective, sensorial and experiential aspects of professional knowledge without ignoring its broader structural and social influences (Csordas, 2012; Desjarlais & Throop, 2011). Instead, the phenomenological notion that sociality is given a priori has allowed the thesis to demonstrate how professional knowledge emerges as practitioners engage with people and things, building a common narrative through perceptual and practical activities in a shared environment (Ingold, 2011, p. 314). Rather than seeing professional expertise as something professionals have or hold, it is viewed as something they do, which allows for an understanding of how it is cultivated as a continuous and collective process of becoming, through the solving of professional tasks (Carr, 2010).

In this way, the thesis refines the existing conceptualisation in the sociology of professions of professional knowledge as primarily propositional, a ‘sui generis’ applied and drawn upon in the structuring and solving of professional tasks (Abbott, 1988; Brante, 2011; Freidson, 2001; Parsons & Platt, 1973). It also nuances this assumption with strands of the expertise literature that emphasise practical skills over theoretical knowledge or consider academic education as merely credential (Collins, 1979; Eraut, 1994; Schön, 1987). While acknowledging the essential role these types of knowledge both play, this thesis argues that exploring the micro-processes involved in the acquisition of knowledge in client-professional encounters can bring valuable insights into how theoretical knowledge and practical skills are variously mobilised, appearing in overt actions and statements, and how they intersect in professional practice (Fantl, 2008; Gilje, 2017; Lum, 2017; Ryle, 1945, 1963).

Further, by examining such actions and statements as enactment of knowledge, and tracing how knowledge circulates in an organisational context, the study demonstrates how professional knowledge is not static, but continuously evolves in dynamic processes of translation between forms and across worlds (Freeman, 2017; Freeman & Sturdy, 2014a). Through participant observation and sharing experiences with nurses across situations, the study reveals how certain technical skills and moral competencies, 'knowing how, when and why' (Ryle, 1963; Sullivan & Benner, 2005; Sullivan, 2010) could be translated into words and shared, orally and inscribed. Some aspects of practical experiences were explicable and discussed, but not formalised due to practicalities or convention, while others, like the nature of a smell, were impossible to verbalise and remained embodied. The vast complexity of theoretical knowledge, on the other hand, was explicable when required, but otherwise seldom expressed, being silently incorporated into the judgements and practical solving of particular cases.

These findings bear witness to the heterogeneous nature of both theoretical and practical types of knowledge, while simultaneously demonstrating their similarity in that both can be articulated, justified and critically investigated if we know where to look (Grimen, 2008; Hawley, 2003). The thesis thus also contributes to existing theory on the distinction between tacit and explicit knowledge, showing that this does not represent a simple division between propositional and practical knowledge but rather constitutes an aspect of both (Polanyi, 2009, p. 18). Furthermore, it suggests that the building of professional knowledge, i.e. knowing how to mobilise and combine particular types of knowledge from situation to situation and across places involves 'collective tacit knowledge', representing an interactional, unspoken or inexplicable expertise acquired through social companionship (Collins, 2010, pp. 124-125; Turner, 2014). In this way, the thesis also draws attention to the social situatedness of knowledge and the need to empirically explore how particular enactments of knowledge and hence its circulation are enabled or restricted in particular organisational contexts (Freeman & Sturdy, 2014a).

The third and final theoretical and methodological contribution of this thesis, then, is the context-sensitivity inherent in the ethnographic approach and the analytical concepts that comprise the overall theoretical framework. Embodiment, translation and temporality are conceptual frameworks that allow for an analysis of how knowledge is always situated in the knowing body of actors who move and interact with others in a structured environment. This thesis has thus been able to capture vital aspects of how relationships between professions and the knowledge they claim to own are established in a particular political, social and cultural context (Abbott, 1988, p. 53). Finally, the thesis demonstrates how professional knowledge as the situated enactment of expertise is inescapably ideological (Carr, 2010). The practice of professional knowledge in modern workplace organisations involves a complex interplay between internal and exogenous knowledge processes affected by the multiplicity of types of knowledge that coexist, which are hierarchically structured and distributed amongst different professional and non-professional actors.

Implications for healthcare organisations and beyond

The findings in this thesis can hopefully inspire reflection among clinical practitioners and managers in contemporary healthcare contexts, which are characterised by increased diversity and thereby new demands of evidence-based practice, and knowledge management (Allen, 2015, p. 2613; Clarke et al., 2003; Lambert et al., 2006; Lillehagen et al., 2013). These challenges are often met with the implementation of innovative health technology that standardises practices and ensures an adequate and appropriate sharing of information and hence collaboration between clinicians (Bergey et al., 2019; Boonstra et al., 2014; Meum & Ellingsen, 2011). New technology is, however, known to cause divergent reactions among mangers and practitioners as well as between different strands of the research community. Optimistic expectations of how technology can improve the quality, safety and efficiency of healthcare by making evidence available and applicable to practice is met with scepticism among those who stress difficulties and potential barriers in adopting a new instrumentality (Nicolini, 2006). However, both of these strands seem to share a deterministic view of technologies as a fundamental cause of change, seeing their implementation as a linear process that evidently leads to either success or failure (Lillehagen et al., 2013; Nicolini, 2006; Timmermans & Berg, 2003b).

Instead, as outlined in the three articles, this thesis has relied on insights from the literature that highlight the need to apply a more dynamic perspective, exploring what technologies actually do in particular ethnographic contexts. Drawing on the interdisciplinary field of science and technology studies, this strand of the literature sets out to grasp the complexities of relations between other tools, actors and practices in which technologies are embedded. It thus sees the implementation of technology as political processes where different interests and influences are negotiated, with potentially unexpected and disputed consequences (Edwards, 2007; Mol & Elsman, 1996; Timmermans & Berg, 2003b; Timmermans & Epstein, 2010). By shedding light on this complexity from a micro-perspective in a particular clinical context, this thesis hopefully provides insights of use to policy makers, managers and practitioners alike in making technologies work as tools for the mediation of knowledge.

First, the study has highlighted the complexities of the theoretical, practical and moral competencies involved in clinical work, and how these types of knowledges are interconnected. Thus, facilitating innovation and best practice involves recognising how professionals are bearers of expertise, and the role they play in the distribution, movement and mobilisation of knowledge (Freeman & Sturdy, 2014a). Second, there is a need to acknowledge the non-linear and distributed nature of clinical decision-making, and how it evolves in interactions between multiple human and non-human actors, including resources such as protocols, policies and medical technologies (Berg, 1992; Bloor, 1976; Goodwin, 2014; Mesman, 2008; Rapley, 2008). Finally, there is a need to identify the multiple possible functions of mediated and unmediated encounters between practitioners and between practitioners and patients. Furthermore, such interactions need to be understood as moments where new insights and meaning arise, as enactments of knowledge where formal and informal practices intersect, uncertainties and indeterminacies are negotiated and different lifeworlds and their temporalities are interconnected.

For managers and policy makers this involves recognising the importance of practices and competencies that can never be classified, documented or measured, and the role they play in professional decision-making. However, it also entails realising how formal systems are always partial, and can never fully capture the actual, multifaceted nature of professional work and knowledge (Bar-Lev, 2015; Benner, 2004; David et al., 2009). Practitioners for their part need to recognise and grasp the possibilities innovative technologies and evidence might imply by mobilising their social and work skills to operate as agents of change, introducing new ways of ordering events in their continuous co-construction of knowledge (Erickson & Mazmanian, 2016). Thus, technological innovations can be made part of the solution to ensure quality and efficiency in healthcare if this is based on a realistic understanding of the actual complexity of professional practice and knowledge, closing the gap between ‘work as imagined’ and ‘work as done’ (Maslen, 2016, p. 173). It is to be hoped that this thesis can promote further exploration of and reflection on how innovative ways of managing care can be facilitated by ensuring the multiplicity of the different types of knowledge that nursing entails in clinical cancer care as well as in other professional contexts.

Limitations and prospects for future research

This chapter has presented what I found when exploring nursing knowledge from the perspective of use, and what relevance this might have for the existing research on nursing in particular, and conceptualisations of professional knowledge in general. Before concluding, I will now briefly reflect on how the methodological approach and theoretical framework chosen have directed my gaze in the analysis and discussion of the findings, inevitably leaving other aspects of nurses' professional knowledge at the fringe, or out of sight altogether, opening up prospects for future research.

Reflections on the study's research design have already been outlined and discussed in Chapter 3, and the topics presented there will not be repeated. However, some aspects of the overall methodological and theoretical framework remain to be discussed. Ethnographic research has some obvious shortcomings, which are also its strengths. This thesis set out to understand how nursing knowledge evolves in use, which is a broad and complex research topic. The fact that I limited the scope of the study to nurses only, clearly coloured my comprehension and therefore my descriptions of what went on in the ward more generally. Driven by my endeavour to build empathetic relationships in order to understand the complexity of the doing of nursing, I sometimes found it difficult to 'switch chairs' to see how nurses were seen by others, thus maintaining the necessary analytical distance (Wind, 2008). A design that deliberately included other participants such as patients, auxiliary nurses, or doctors could have broadened the analysis, potentially providing other perspectives and a more critical understanding of nursing work and knowledge.

Furthermore, nursing knowledge has been explored in one clinical ward, in one hospital, among nurses working with patients suffering from cancers and haematological diseases, representing a category of diagnoses lumped together because they share some essential similarities. Finally, the study was conducted in a Norwegian context that, while it shares some of the main characteristics of other Western healthcare systems, still represents a uniqueness shared with few other countries, for instance by offering free public medical care to all of its citizens. Thus, the in-depth exploration of 'large issues in small places' (Eriksen,

2010) typical of ethnographic research means that this thesis represents but one of many possible stories about nursing and professional knowledge from the perspective of use.

While I have aimed to make this story relevant to other times and places through a detailed analysis as outlined in Chapter 3 and by contextualising it in a wider theoretical framework, more research is needed, applying other conceptual frameworks in exploring how knowledge is mobilised and integrated in professional decision-making in similar or other professional contexts. This is important because professional practice, as situated enactment of knowledge, while sharing similarities that separate them from other occupations (Freidson, 2001), implies different complexities of tasks to be solved in different settings. The findings presented in this thesis might therefore be particularly pertinent to professions where the knowing body and the use of sensory and embodied skills are of great importance in diagnosis and treatments, such as various types of clinical work. Moreover, the conclusions of the study drawn from the exploration of the complexities of forms and modes of knowledge in the enactment of nursing might be more relevant and generalisable to professions that share a similar heterogeneous and fragmented body of theoretical knowledge and practical skills.

Another limitation concerns how the analytical framework applied directs our gaze as researchers, sensitising us in where to look and what to look at (Blumer, 1954). The study results presented in this thesis are framed by my familiarity with existing anthropological, sociological and phenomenological conceptualisations of knowledge in general and professional knowledge in particular. Thus, using this theoretical lens, I encountered the everyday notions of what knowledge is, which I shared with my informants, but also specific understandings of what being and becoming knowledgeable involves in clinical practice among nurses. In the intersection between these perspectives, surprising observations emerged in the field, and embodiment, translation and temporality were abductively abstracted, and applied as sensitising concepts and analytical tools in the further exploration of how knowledge moves and evolves in clinical decision-making (Tavory & Timmermans, 2014). Hence, the theoretical concepts chosen have conditioned the story that has now been told.

This has not only necessarily excluded other perspectives and insights but also affected the analysis conducted. The broad quest of this thesis to explore professional knowledge from the perspective of use motivated the mobilisation and synthetisation of a heterogeneous body of knowledge to explain and make sense of my embodied experiences in the doing of fieldwork.

Embodiment, translation and temporality are distinct and vast literatures that overlap in their suitability as analytical tools to explore facets of how we as humans grasp, orient ourselves in and act upon the world we all share and inhabit. This broadness in scope might, however, have come at the expense of an even deeper study of sensing, sharing and caring as essential practices in nurses' clinical decision-making, and of the heterogeneity of both theoretical and practical knowledge in professional work more generally. Nevertheless, I hope this thesis have illuminated aspects of professional knowledge in use that can enrich the existing literature on nursing and other professions with new empirical insights that can encourage further theoretical questioning and other revelations and surprising observations in future studies.

Conclusion

This thesis has explored nursing knowledge and how it evolves from the perspective of use among nurses on a Norwegian clinical cancer ward. The point of departure was an interest in discussions in nursing literature on what nursing is and what competences are needed in contemporary healthcare contexts, based on questions of the nature and role of different types of knowledge and their relationships in professional practice in more general terms. The study has taken cancer nursing as its case, representing a clinical context where nurses play an essential role in tending to patients' complex medical, psychosocial and practical needs. Based on observations, the thesis asks how nursing knowledge is acquired, shared and structured in clinical decision-making and how it moves and is transformed through enactments in a particular organisational context. The study found that nursing knowledge evolves in clinical decision-making through practices of sensing, sharing and caring. These practices were further explored in interviews and analysed by synthesising perspectives from the sociology of professions and knowledge in policy with sociological and anthropological perspectives on embodiment, translation and temporality.

Based on three empirical articles, the main findings and arguments of the thesis are threefold. First, the thesis argues that nursing expertise evolves in the acquisition of sensory knowledge, which involves mobilising and synthesising various forms of knowledge and modes of knowing, accomplished in the continuous embodied and intersubjective interaction with individual patients and specific patient groups. Second, the study maintains that knowing in clinical nursing develops as patient information is accumulated and shared by nurses, representing continuous, collective and creative processes of translation between worlds. Third, the thesis suggests how particular forms of nursing knowledge are produced and reproduced through the temporal structuring of caring practices, nurses manoeuvring between different clinical rhythms and moral valuations of how time is best used.

I hope that these findings can lead to reflection by clinical practitioners, managers and policy makers on the continued relevance of practices that are often rendered invisible in contemporary healthcare contexts. Furthermore, the study contributes to questions of what nursing is and what it should be in the nursing literature by providing an in-depth ethnography of how nurses' heterogeneous body of knowledge is put to use and made useful in clinical practice according to the particular complexities of the problems to be solved. Finally, the overall conclusions aspire to nuance existing notions of the nature and role of theoretical and practical knowledge in professional work by illuminating how professional knowledge circulates and evolves as an embodied, interactional and situated competence in professional decision-making. In this way, the thesis aspires to encourage more research in other professional contexts on the intersection between the knowing body and a body of knowledge.

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Appendices

Appendix 1: Information letter

Appendix 2: Interview guide

Appendix 3: Ethics approval

Informasjon og samtykkeerklæring | Kunnskap og profesjonsutøvelse i sykepleie

Til ansatte ved Kreftavdelingen
Sykehuset NN

Bakgrunn og formål

Jeg er ansatt som stipendiat ved Avdeling for helse- og sosialfag, Høgskolen i Østfold, og har mitt arbeidssted der. Som doktorgradsstudent ved Senter for profesjonsstudier, Høgskolen i Oslo og Akershus, skal jeg gjennomføre en studie blant sykepleiere ved Sykehuset NN.

Dette er en henvendelse til deg, som sykepleier, om å delta i studien «*Kunnskap og profesjonsutøvelse i sykepleie*».

Det overordnete målet med ph.d. prosjektet er å undersøke hvordan sykepleiere som yrkesgruppe bruker kunnskap i en klinisk kontekst, på et sykehus.

Forskningsspørsmålene er knyttet opp mot noen sentrale begreper i forståelsen av profesjoner og profesjonelt arbeid, og er utarbeidet med tanke på å fange kompleksiteten i den kunnskapen som ligger til grunn for utøvelsen av sykepleie:

1. Skjønn og ekspertise er viktige begreper i forståelsen av profesjoner og profesjonelt arbeid.
    - Hvordan brukes og forhandles det om ulike typer kunnskap, som personlig erfaring, kollektiv ekspertise og formell kunnskap i bruk av skjønn og etablering av sykepleiens ekspertise sykepleiere imellom?
2. Jurisdiksjon handler om hvordan profesjoners ansvarsområder og arbeidsoppgaver og således deres posisjon og identitet etableres i relasjonen til andre profesjoner.
    - Hvordan etablerer, bevarer og utvikler sykepleiere sitt ansvarsområde og sine arbeidsoppgaver gjennom forhandling med og om kunnskap i møte med andre profesjoner i sykehuset?
3. Autonomi er en sentral verdi i utøvelsen av profesjonelt arbeid som muligens endres i møte med innføring av nye styringsformer i offentlig sektor.
    - Hvordan brukes og forhandles det med og om kunnskap for å bevare klinisk og profesjonell autonomi i møte med krav til standardisering og etterprøvbarhet av arbeidsprosesser.

Du mottar denne henvendelsen på bakgrunn av at du er ansatt som sykepleier ved Kreftavdelingen og at avdelings- og seksjonsleder har godkjent at studien kan gjennomføres hos dere. Basert på samtykke vil jeg sette meg opp på vakter til de sykepleiere jeg skal følge. Kreftavdelingen er valgt ut fordi det er en enhet som behandler pasientgrupper med komplekse og sammensatte utfordringer, og hvor ulik kunnskap er sentral i diagnostisering, behandling, oppfølging og utskrivelse av pasientene.

Hva innebærer deltakelse i studien?

Studien innebærer ca. 7 måneders deltakende observasjon der jeg følger ulike sykepleiere, etterfulgt av individuelle intervjuer og gruppeintervjuer. Observasjonen vil altså innebære at jeg følger deg, og i den grad det er relevant, assisterer deg under en vakt. Jeg vil også delta på møter i seksjonen. Siden jeg er opptatt av kunnskap vil observasjonen være rettet mot hvordan ulik type kunnskap kommer til uttrykk i løpet av en arbeidsdag, i samarbeidet med andre sykepleiere, andre profesjoner og ledelsen. Det vil ikke bli samlet inn personlig informasjon om deg eller dine pasienter.

Jeg håper at du er villig til å bli intervjuet etter at observasjonsperioden er over. Det individuelle intervjuet vil vare maks. 1,5 time. Gruppeintervjuet vil vare maks 2 timer. Intervjuene vil brukes til å samtale mer inngående om muligheter og utfordringer knyttet til utøvelse av skjønn, opplevelsen av autonomi og råderett over arbeidsoppgaver og ansvarsområder. Avdelingsledelsen har godkjent at intervjuene gjennomføres i arbeidstiden.

Hva skjer med informasjonen om deg?
Alle personopplysninger vil bli behandlet konfidensielt og det er kun jeg som vil ha tilgang til personopplysninger som navn og kontaktinformasjon. Denne informasjonen vil ikke kobles til datamaterialet som samles inn via observasjoner og intervjuer.

Informasjonen som registreres under observasjon og intervju skal kun brukes slik som beskrevet i hensikten med studien. Det vil ikke bli registrert navn eller andre direkte gjenkjennende opplysninger om deg.

Notater fra observasjonene vil anonymiseres og ikke være tilgjengelig for andre enn undertegnede. Intervjuet vil bli tatt opp ved hjelp av en digital opptaker. Når intervjuet skrives ut vil all informasjon om deg bli avidentifisert. Det vil ikke være mulig å gjenkjenne deg når resultatene fra observasjoner og intervjuer publiseres i artikler som del av ph.d-avhandlingen, på seminarer og konferanser.

Prosjektet skal etter planen avsluttes 1.9.2020. Lydopptak slettes senest ved prosjektslutt og vil i mellomtiden oppbevares i låsbart skap i låst rom, og på server i virksomhetens nettverk som er beskyttet med brukernavn og passord.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn, og uten at dette får negative konsekvenser for deg. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert. Dersom du ønsker å delta, vennligst fyll ut og signer samtykkeerklæringen.

Øvrig informasjon
Studien er meldt til/av Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS (prosjekt nr. 50934) og ledelsen ved Sykehuset NN. Dersom du har spørsmål i forbindelse med denne henvendelsen, kan du ta kontakt med meg på følgende måte:

Telefon jobb: 69 60 8880 | Mobil: 41560926
E-post: hanna.m.ihlebak@hiof.no

Vennlig hilsen

Hanna Marie Ihlebæk
Stipendiat

Samtykke til deltakelse

Jeg har mottatt informasjon om studien og samtykker til å delta i:	JA	NEI
Observasjon		
Individuelt intervju		
Gruppeintervju		

(Signert av prosjektdeltaker, dato)

Intervjuguide

September 2017

Innledning:

1. introdusere meg selv
2. Forklare hensikten med studien
3. Forklare hvordan jeg vil sikre anonymitet

Først, noen innledende spørsmål om din bakgrunn:

1. Navn og alder
2. Hvor mange år har du jobbet som sykepleier?
3. Hvor mange år har du jobbet med kreft- og/eller hematologipasienter?
4. Hvor lenge har du jobbet ved kreftavdelingen her på Sykehuset?

Da skal vi komme inn på de temaene som jeg ønsker å vite mer om - og jeg skal begynne med et litt overordnet spørsmål:

5. ***Kan du si noe generelt om hva sykepleie er***, hva handler faget/yrket om, hva må du vite eller kunne noe om for å utføre jobben din på en god måte?
6. Kan du beskrive en episode for meg der du følte at du oppfylte det du tenker er god sykepleie på kreftavdelingen. Hva konkret gjorde du da/hvilke vurderinger gjorde du da?
7. Er det noen elementer i utdanningen din tenker du at er spesielt viktig eller nyttig for deg i en sånn situasjon? Grunnutdanning → spesialistutdanning?
8. Hva har du lært gjennom å jobbe som sykepleier på en kreftavdeling som du ikke lærte, eller kunne ha lært i utdanningen og som er viktig i en sånn situasjon? Hvem lærer du av? Hvordan lærer du?

Da kommer vi over på hvordan du vurderer pasientene:

9. Hva er det viktig for deg å vite om pasientene før du går inn i et pasientrom f.eks. i starten av en vakt? Hva slags type informasjon søker du? Hvorfor er det viktig å vite dette?
    a. Hvilke ulike dokumenter
10. Hvordan går du fram for å tilegne deg denne informasjonen? Er det andre måter?
11. Når du så kommer inn i pasientrommet, kan du beskrive hvordan du konkret går fram for å vurdere tilstanden til en pasient? Når du gikk inn til en av pasientene i morges f.eks. kan du beskrive hvordan du gikk fram for å vurdere tilstanden til pasienten? Hva er viktig?
12. Hva kan pasienten fortelle deg?
13. Jeg har jo erfart at dere sykepleiere bruker kroppen mye i arbeidet deres, f.eks sansene, som lukt eller hørsel, i møte med pasientene
    a. Hvordan har du lært deg å bruke sansene på denne måten? Kan du beskrive en situasjon der du første gang lærte deg å gjenkjenne en spesiell lukt eller lyd? Hvem?
    b. Hvis du skulle prøve å identifisere hva du må vite for å kunne gjenkjenne at en lyd eller en lukt eller en observasjon er en indikasjon på en tilstand hos pasienten? Hva?
    c. Har du noen refleksjoner rundt om du bruker de ulike sansene ulikt? Er det forskjell på hvordan bruker du syn – hørsel – lukt – følesansen? Hvor aktivt?
14. I tillegg til sansene er det jo også andre kroppslige ferdigheter du må mestre i møte med pasientene, sette inn kateter, ta blodprøve osv. Hvordan læres det? Hvem lærer du det av? Hva skal til for at du skal lære det på en god måte?
15. Kan du beskrive en typisk prosedyre og hvordan du bruker den/hvordan den hjelper deg til å gjøre bedre vurderinger? Eksempel.
16. Hvor er det prosedyrer ikke kan fortelle deg? Hvordan vet du at du gjør det riktig?

17. Hva gjør du hvis det prosedyrene forteller deg at du skal gjøre, strider med det din egen vurdering tilsier at du skal gjøre? Eksempel på en situasjon der du opplevde dette?

Jeg har også lyst til å snakke litt om formidling og deling av informasjon om pasientene: Jeg har sett at dere sykepleiere i ulike situasjoner må koordinere og formidle det dere vet om pasientene til kolleger, som andre sykepleiere og legene, både muntlig og skriftlig

18. Hva er det du vektlegger å formidle når du deler informasjon om pasientene dine med andre **sykepleiekollegaer**? Hva er det viktig at andre sykepleiere får vite om pasienten?
19. Kan du beskrive typiske situasjoner der du deler den type informasjon med en annen sykepleier i løpet av en dag? Ta meg gjennom arbeidsdagen …
20. Hvordan ser en ideell situasjon for formidling og deling av informasjon om pasientene med andre sykepleiekolleager ut for deg?
21. Hvordan opplever du at det du formidler blir møtt eller tatt imot?
22. Opplever du at dere sykepleiere kan være uenige i vurderingen av pasientene eller at dere gjør ting ulikt? Kan du fortelle meg om ting dere kan være uenig om eller ting dere gjør ulikt?
23. Har du eksempel på en situasjon der du opplevde at dere sykepleiere sammen løste en utfordring med en pasient ved å dele det dere kan og vet om pasienten? Hva kjennetegnet den situasjonen?
24. Og når du diskuterer pasientene dine med **legene**, hva er det du vektlegger å formidle da?
25. Kan du beskrive typiske situasjoner eller kanaler hvor informasjon om pasientene deles med en lege i løpet av en dag? Ta meg gjennom arbeidsdagen …
26. Hvordan ser en ideell situasjon for formidling og deling av informasjon om pasientene med legene ut for deg?
27. Hvordan opplever du at den innsikten du har om pasientene typisk blir møtt eller tatt imot?
28. Hva gjør du hvis du opplever at dere er uenige i vurderingen av pasientene? Hva slags type ting kan du typisk være uenig med legen om, og hvordan håndterer du det?
29. Kan du beskrive et eksempel på en situasjon der du opplevde at du sammen med en lege løste en utfordring med en pasient ved å dele det dere kan og vet om pasienten? Hva kjennetegnet den situasjonen? Hva vet legen, hva vet du?

Hemmere og fremmere:

30. Med tanke på arbeidssituasjon din, altså hvordan avdelingen og sykehuset er strukturert og organisert, kan du komme med eksempler på ting som motvirker at du får brukt din innsikt og kompetanse som sykepleier på en god måte? Hvordan kunne dette å ha vært løst?
31. Og tilsvarende, er det noen sider ved arbeidssituasjonen, hvordan arbeidshverdagen er strukturert, som du opplever at støtter opp under at du får brukt det du vet og kan som sykepleier?
32. Hva ser du på som de viktigste oppgavene du skal løse som sykepleier på Kreftavdelingen?
33. Hvilke oppgaver tar i realiteten mest tid i din arbeidshverdag?
34. I hvilken grad opplever du at de oppgavene du er satt til å løse står i samsvar med den kompetansen du har?
35. I hvilke situasjoner opplever du i størst grad at kompetansen du har blir verdsatt? Eksempler på situasjoner der du opplevde at din vurdering ble tatt på alvor. Hvem? Hva skjedde da?

36. Er det noe mer du ønsker å tilføye som du ikke har fått snakket om?

Intervjuguide

September 2017

Interview-guide (translated version)

Introduction

1. Introduce myself and the project
2. Explain the purpose of the interview
3. Explain how I will ensure anonymity

Background information

1. Name and age
2. Length of experience as nurse
3. Length of experience with care for cancer/haematology patients
4. Length of experience at this particular hospital

Overall questions about nursing

5. What is nursing?
6. Describe a situation where you accomplished what you consider to be “good nursing”
7. Relevance of education in these types of situations
8. Relevance of work experience to these types of situation

Evaluation of patients

9. What do you need to know about patient prior to patient visits?
10. How do you gain such knowledge?
11. How do you evaluate the patient in clinical encounters?
12. What can the patient typically tell you?
13. How do you learn to use the senses clinically? Describe sitations where this was learnt
14. How are other technical and embodied competencies learnt (blood tests, catheters)?
15. How are procedures used and how do they help in making clinical evaluations?
16. What can procedures not tell you?
17. What if procedures contradict what you find to be the right way of doing it?

Communication and sharing of information

18. What information do you emphasise when sharing patient information with fellow nurses?
19. Describe typical situations during the workday when information is shared.
20. Describe an ideal situation for sharing information
21. How do you generally experience that you evaluations are met?
22. What can you and fellow nurses typically disagree about?
23. Can you describe a situation when you and fellow nurses solved a difficult case by sharing information?
24. In in communication with doctors, what information do you typically share?
25. Describe specific/typical moments of sharing information with doctors during a shift
26. What is an ideal situation for sharing patient information with doctors?
27. How are your evaluations typically met by doctors?
28. How do you approach/solve disagreements with doctors on patient evaluations?
29. Can you describe a situation where a patient problem was met through the mutual sharing of information with a doctor?

Organisational factors affecting work and knowledge

30. Are there specific work conditions that affect the possibility to use the potential of your competencies negatively?
31. Are there specific conditions that affect the possibility to use the potential of your competencies positively?
32. What do you consider to be your most essential responsibilities at the cancer ward?
33. What tasks occupies your work mostly?
34. To what degree are there a correspondence between these tasks and your competencies as a nurse?
35. In what situations do you experience that your competencies are most appreciated and taken notice of?

36. Are there anything else you would like to comment on or talk about?

Hanna Marie Ihlebæk
Senter for profesjonsstudier Høgskolen i Oslo og Akershus
Postboks 4 St. Olavs plass
0130 OSLO

Vår dato: 12.12.2016 Vår ref: 50934 / 3 / STM Deres dato: Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 03.11.2016. Meldingen gjelder prosjektet:

50934	*Knowledge and Professionalism in Nursing/Kunnskap og profesjonalisme i sykepleie*
Behandlingsansvarlig	*Høgskolen i Oslo og Akershus, ved institusjonens øverste leder*
Daglig ansvarlig	*Hanna Marie Ihlebæk*

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, ombudets 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/meldeplikt/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://pvo.nsd.no/prosjekt.

Personvernombudet vil ved prosjektets avslutning, 01.09.2020, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Kjersti Haugstvedt

Siri Tenden Myklebust

Kontaktperson: Siri Tenden Myklebust tlf: 55 58 22 68
Vedlegg: Prosjektvurdering

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Prosjektvurdering - Kommentar

Prosjektnr: 50934

REKRUTTERING
Personvernombudet forutsetter at dere tar hensyn til konfidensialitet og at forespørselen rettes på en slik måte at frivilligheten ved deltakelse ivaretas.

INFORMASJON OG SAMTYKKE
Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. Informasjonsskrivet er godt utformet. Følgende setning kan tas bort: Studien er meldt til/godkjent av Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS (prosjektnr.) og erstattes med Studien er meldt til/av Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS (prosjekt nr. 50934).

DATAINNSAMLING
Data samles inn ved hjelp av observasjon av sykepleiere/helsepersonell og intervjuer.

Deler av datainnsamlingen består av observasjon på sykehus. Ifølge prosjektmeldingen skal det ikke registreres personopplysninger om pasienter under observasjon. Vi minner om at lydopptak i noen tilfeller kan være identifiserende, og derfor ikke kan benyttes under observasjon, ettersom denne delen skal være anonym. Vi legger til grunn at helsepersonell innhenter tillatelse fra den enkelte pasient til at forsker kan være til stede som observatør.

Utvalget har taushetsplikt og det er viktig at også intervjuene gjennomføres slik at det ikke registreres taushetsbelagte opplysninger om pasienter.

ANDRE TILLATELSER
Observasjon på sykehuset skal avklares med sykehusets ledelse. Vi minner om at prosjektleder må undersøke hvorvidt det er tilstrekkelig med godkjenning fra ledelsen, eller om det i tillegg må søkes om dispensasjon fra taushetsplikten fra REK.

INFORMASJONSSIKKERHET
Personvernombudet legger til grunn at alle data og personopplysninger behandles i tråd med Høgskolen i Oslo og Akershus sine retningslinjer for innsamling og videre behandling av forskningsdata og personopplysninger.

PUBLISERING
Det oppgis at personopplysninger skal publiseres. Personvernombudet legger til grunn at det foreligger eksplisitt samtykke fra den enkelte til dette. Vi anbefaler at deltakerne gis anledning til å lese igjennom egne opplysninger og godkjenne disse før publisering.

PROSJEKTSLUTT OG ANONYMISERING

Forventet prosjektslutt er 01.09.2020. Ifølge prosjektmeldingen skal innsamlede opplysninger da anonymiseres. Anonymisering innebærer å bearbeide datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjøres ved å:

- slette direkte personopplysninger (som navn/koblingsnøkkel)
- slette/omskrive indirekte personopplysninger (identifiserende sammenstilling av bakgrunnsopplysninger som f.eks. bosted/arbeidssted, alder og kjønn)
- slette digitale lydopptak

Article 1

Ihlebæk, H.M. (2018). Blood, Sweat, and Tears: Making Sense of Senses in Expert Nursing. *Ethos (Berkeley, Calif.)* 46, no. 4: 477-97. **https://doi.org/10.1111/etho.12220**

Blood, Sweat, and Tears: Making Sense of Senses in Expert Nursing

Hanna Marie Ihlebæk

Abstract In this article, I draw on material from an ethnographic and phenomenological study of knowledge and professionalism among registered nurses working in a cancer unit at a Norwegian hospital. During the study, the use of the senses stood out as an important skill in nurses' work with patients. The question to be investigated in this article is how the nurses acquire and use sensory knowledge in their clinical work. Building on a notion of knowledge as situated, embodied, and sensory, and learning as embedded in doing, this article contributes to and expands on the study of sensory knowledge in two respects. First, it foregrounds the processes and practices in which sensory knowledge is actually formed and used at a microlevel. Second, it highlights how an ethnographic and phenomenological exploration of the acquisition and use of sensory knowledge can contribute new insights into how expertise is cultivated in everyday clinical practice. [cancer, phenomenology, expertise, nursing, sensory knowledge]

> The nurse enters the patient's room. It is quiet; the television is turned off, the room is tidy, lightened up by the window that covers most of the wall opposite the entrance. "Good morning, sorry for disturbing you. I'm just going to take some measurements and give you your morning medication," she says, approaching the patient, looking at her and touching her forehead with her palm. "How are you feeling today?" She gives the patient a comforting smile.

This article draws on material from an anthropological study of knowledge and professionalism among registered nurses working in a hospital cancer unit in Norway. The unit represents a clinical context where nurses' knowledge is essential in addressing patients' complex needs. Cancer patients need to be rigorously monitored. Chemotherapy and stem cell transplantation break down the body's immune defense system, providing poor protection from infections, indicated by changes in temperature, pulse, respiration, blood pressure, or pain. Nurses hold the main responsibility for maintaining frequent observation and measurements of the patients' overall medical condition and well-being. This is partly accomplished by looking at, feeling, smelling, listening, and talking to their patients. Thus, during the study, the use of the senses stood out as an important skill that the nurses depend on in their everyday care of patients. How then do nurses acquire and use sensory knowledge in their clinical work?

To answer this question, this study explores nurses' work with patients from an ethnographic and phenomenological standpoint. This enables an analysis of how sensory knowledge is

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formed and applied in everyday practices and social processes in the cancer unit. In this article, I argue that the acquisition and use of sensory knowledge involves complex interplay between different forms of knowing, ways of sensing, and modes of learning and communicating sensory knowledge. Furthermore, I claim that the ethnographic and phenomenological approach enables the study to demonstrate how the interdependence between these different types of knowledge is established in nurses' intersubjective, embodied, and sensory work with patients, which is therefore crucial to the continuous cultivation of their clinical knowledge and expertise.

Such insights can enhance awareness of a type of knowledge often marginalized in a hospital context, which is increasingly being dominated by a biomedical knowledge regime, reconfiguring professional identities and practice work (Charles-Jones, Latimer, and May 2003). Thus, management control mechanisms introduced to meet challenges threatening the healthcare systems in western countries have been linked to an erosion of professional autonomy, changing the nature of medical professionalism (Harrison and Ahmad 2000; Numerato, Salvatore, and Fattore 2012). These changes in the control and governance of clinical practice, involving the introduction of new technology, also structure the nurses' work with patients affecting processes that are essential to the building of sensory skills. To patients, these skills can ultimately become a matter of life and death. The role of sensory knowledge in the cultivation of clinical expertise is therefore a crucial area to study.

The article first presents two models for understanding knowledge and learning as a basis for outlining how senses will be conceptualized as knowledge and related to expertise in this study. Then follows a presentation of the study's methodology, the research methods applied, and the hospital as field site. I then present the analysis, describing situations where sensory knowledge played an essential role and conversations with nurses about how they acquired and used sensory knowledge in clinical practice. Finally, I discuss the complex and multifaceted processes involved in trying to understand sensory inputs. In this section, I will also discuss implications of the ethnographic and phenomenological approach to the findings and briefly suggest this project's broader implications for the study of professional knowledge and expertise and the role of sensory work in changing healthcare environments.

Knowledge, Senses, and Expertise

Theoretical, abstract, and formally learned knowledge has been privileged as the primary and most reliable form of knowledge in western thought. This involves a model for understanding the relationship between practical and theoretical knowledge in which the former is seen as the application of the latter (Grimen 2008). Learning then takes place through the acquisition of context-free and propositional knowledge, available for transmission by teaching outside the context of use, and is separated from doing (Ingold 2011 [2000], 416). This perspective on knowledge has been dominant within the strands of the sociology of professions, where abstract knowledge acquired through higher education is regarded as essential in defining professionalism, fundamental to professional autonomy and the solving of expert tasks (Parsons and Platt 1973; Abbott 1988; Freidson 2001). Within a hospital context, the prevalence of evidence-based medicine (EBM) also bears elements of this way of reasoning about the relationship between theory and practice, with randomized controlled trials (RCT) ranking highest as the golden standard (Timmermans and Berg 2003). According to Lambert, Gordon, and Bogdan-Lovis: “evidence-based approaches have come to play an increasingly important role in many national health systems, not only in guiding clinical practice but also in shaping research agendas, formulating policy and allocating financial resources” (2006, 2613).

Other conceptualizations of knowledge and learning have contested this privileging of theoretical over practical and embodied ways of knowing, claiming that the ability to do something, in contrast to knowing that something is, is also knowledge (Ryle 1963). Thus, theoretical knowledge is seen as inseparable and arising from practical knowledge (Schön 1983; Benner 1984; Dreyfus and Dreyfus 1986). According to Grimen (2008), practical knowledge is “indexed,” that is, inseparable from the person who holds it or the situations in which it is used. It has tacit dimensions and includes embodied skills that may be difficult to put into words (Polanyi and Sen 2009 [1966]). Within these perspectives, learning is contingent on its connectedness, historically and with others (Wenger 1998). It needs to be understood as what Lave (1990) calls “understanding in practice.” Thus, learning is a process of “enskilment,” inseparable from doing, and both are embedded in a context of practical engagement in the world (Ingold 2011 [2000], 416).

Investigating senses as knowledge is dependent on such a broadened understanding of the scope of knowledge, as know-how, indexed, and hence personal, embodied, and sometimes tacit, and a notion of learning as doing. Yet this does not imply that knowledge necessarily become private in any individual sense (Barth 2002). Every person’s knowledge, Barth claims, is constructed within the traditions of knowledge of which each of us partakes, and personal skills and embodied knowledge are largely constituted on the bases of activity into which the person has been socialized. Exploring knowledge, we need to investigate the particulars of action in which knowledge is realized and applied, paying attention to the agency and acts of knowers, and how substantive ideas, representations, and communication of knowledge mutually determine each other, in addition to being restricted by material circumstances and relations of power and disempowerment (Barth 2002).

Drawing on these conceptualizations of knowledge in the exploration of how nurses acquire and use their senses in everyday clinical practice, this article contributes to the study of sensory knowledge and expertise in two respects. First, it foregrounds the processes and practices in which sensory knowledge is actually formed and used at a microlevel. The connection between senses and knowledge is not new. The anthropology of the senses, represented by the work of Howes (1991) and Classen (1993, 1997), has highlighted how senses can be seen as foundational knowledge that structures and facilitates thought at a societal level (Maslen 2015). However, according to Maslen (2015), few studies have explored how senses are actually formed and come to act, that is, how sensory knowledge is acquired and used. Aiming to fill this gap, Maslen has investigated how doctors learn to hear medically (Maslen 2015) and the nature and role of diagnostic sensory work in the meeting with new management regimes and techno-scientific changes in healthcare environments (Maslen 2016, 2017). In the discussion, I will argue that her conclusions are relevant to the study of how the senses are cultivated and used also among nurses, who are frequently being delegated the role of making sensory judgments on behalf of physicians (Oudshoorn 2008, 2009). Drawing on Maslen's work I claim that building sensory knowledge involves a complex interdependence between different types of knowledge, constituted in the nurses' continuous interaction with people and technologies in the clinical environment.

Second, the article highlights how a phenomenological and ethnographic exploration of the acquisition and use of sensory knowledge can contribute valuable insights into how expertise is cultivated in everyday clinical practice. According to Lawlor and Solomon (2017), numerous studies have examined the role of guided participation and apprenticeship, involving various forms of novice-expert interaction, in establishing expertise. However, anthropology has focused little on the cultivation and spread of expertise, particularly from an ethnographic and phenomenological standpoint (Lawlor and Solomon 2017). Within anthropology, expertise is understood as inherently interactional, involving the participation of objects, producers, and consumers of knowledge, enacted in real-time communicative practice (Carr 2010). Contemporary developments in the expert literature emphasize that expert decision-making is an intuitive competence, rather than rational, based on logical knowledge and ability (Collins and Evans 2007). Combining a phenomenological and ethnographic approach in the study of sensory knowledge and expertise, this study aims to demonstrate how nurses' expertise is cultivated in continuous, embodied, sensory, and intersubjective relations in the doing of nursing.

Methodology and Research

Phenomenological methods have been considered of great utility to anthropological inquires over the past three decades, grounding theories, descriptions, and analysis in examination of peoples' lived experiences and concrete bodily experiences, forms of knowledge, and practice. This has made phenomenological anthropologists prone to one of the main critiques of phenomenology, namely that it ignores broader structural, social, and historical influences, focusing only on the subjective and experiential (Desjarlais and Throop 2011). The phenomenological focus on the "subject body" (Jackson 1989) and embodiment, pursuing "how the world is felt and experienced from a first person point of view" (Hollan 2012, 37), does, however, not imply taking the individual as an isolated and self-contained object of scrutiny as the point of departure. Rather, it contains the idea that even our most basic experiences entail a foundational intersubjectivity, that is, thinking, perceiving, remembering, and learning are fashioned in the ongoing relations with others and the environment and need to be studied within the political and cultural context where people's practical involvement with the lived-in world takes place (Jackson 1998, Desjarlais and Throop 2011, Ingold 2011 [2000], 171).

Thus, the critique of phenomenological methods can be counteracted in the "convergence" between phenomenology and ethnography, that is, using phenomenological methods, concepts, or sensibilities in the interpretation of ethnographic data, or ethnographic data as the basis for phenomenological reflection (Csordas 2012). This convergence has implications for ethnographic practice, which consequently must entail multisensorial embodied engagement with others and with their social, material, discursive, and sensory environments. Furthermore, it requires critical reflection on these engagements (Pink 2015, 28).

Paul Stoller (1989, 1997) promoted the reflexive and embodied turn in social theory, arguing that anthropologists should not only consider the multisensory experience of others, but also attend to their own senses and thereby produce evocative and tasteful ethnographies. Linking Merleau-Ponty's ([1964] 2012) phenomenology of perception with the practice theory of Pierre Bourdieu, Csordas (1990) outlined embodiment as a methodological orientation, a paradigm for anthropological empirical research, taking the body as a productive starting point for analyzing culture and self. He introduced the notion of "somatic modes of attention" to describe "the culturally embodied ways of attending to and with one's body in surroundings that include the embodied presence of others" (Csordas 1993, 138).

According to Ingold (2011 [2000]), the fact that sociality is a given from the start, in the direct, perceptual involvement of fellow participants in a shared environment, is what makes anthropological fieldwork possible. This involvement allows the fieldworker and local people to inhabit a common ground of experience. Because people make sense of their experiences by constructing a narrative based on strands of practical, perceptual activity, understanding of meaning production must start from the processes of social life, with how people sense the world. Participant observation allows the ethnographer to access other people's ways of perceiving by joining with them in the same currents of practical activity, learning to attend to necessary tasks, as would any novice practitioner. This communion of experiences establishes a baseline of sociality for all subsequent attempts at verbal communication (Ingold 2011, 314).

Guided by these methodological perspectives, my fieldwork involved drawing on sensory and embodied knowledge, attending *to* bodily sensations as a mode of apprehending the intersubjective milieu of the cancer unit that caused these sensations and thus paying attention *with* my body (Csordas 1990). I accessed the nurses' ways of perceiving by joining them in their practical work, learning to attend to what they attended to and engaging in talk to make sense of our shared experiences. This involved aiming for an understanding that was "as loyal as possible to the contexts, the embodied, sensory and affective experiences, and the negotiations and intersubjectivities through which the knowledge was produced" (Pink 2013, 35).

The Fieldwork

The study involved participant observation and ethnographic interviews (Spradley 1979) during five months from January to June 2017. The 40 fieldwork sessions involved participating in the nurses' activities on different shifts, and in addition, I attended compulsory courses for hospital employees and internal seminars at the ward. During the observations, I was dressed in white, with a name tag stating that I was a researcher. As nurses are mainly attached to one cluster (unit within a ward), with its typical patient profile, I observed and participated in each of the three clusters. Attending different shifts provided access to varied situations involving nurses' interaction with fellow nurses, patients, and other clinicians. The nurses who participated in the study were selected by snowball sampling after an initial introduction to two of the nurses from the Senior Charge Nurse at the outset of the study. All of the nurses working at the ward were informed about my role there, and none of the nurses I approached about participation refused to take part in the study.

The fieldwork evolved as a process of overlapping phases as outlined by Spradley (1980). Initially, I noted down nonspecific descriptive observations, aiming to grasp the complexity of the everyday ward activities, involving electronic recording of measurements and medication, writing and reading of nursing reports and notes, handover and preround meetings, rounds, oral reporting between nurses and other professionals, lunch-hour conversations, and nurse-patient encounters. As my familiarity with the routines increased, my observations became more focused, and my attention narrowed down to particular processes and practices. Repeated observations of selected situations involving the nurses' continuous monitoring and caring for their patients and informal talks with them about the knowledge needed in such encounters highlighted the importance of the use of the senses, thus focusing my attention further. Before explaining how I sensed my way into the hospital and the cancer unit, delimiting the field through the senses, I will describe the hospital and the cancer unit as a workplace to the nurses and an ethnographic field site to me as a researcher.

The Hospital and Cancer Unit as Field Site

In early ethnography, hospitals were described as exotic places or "tight little islands" cutting their inhabitants off from normal life. Others have depicted the hospital as culturally embedded, a place invaded and shaped by values, rules, and ideas of the outside world (Long, Hunter, and Van Der Geest 2008). Essential in both these approaches is the need to understand the complexity and multifaceted relationships that exist within the walls of the hospital or ward. In 1930, Michael Davis wrote that to the patients and their relatives, the hospital is a "battlefield between life and death, the focus of intense anxiety and hope" (cited in Long, Hunter, and Van Der Geest 2008, 71). To the physicians, however, it is "an institution for the practice of medicine and a central agency through which the study of disease is pursued, the boundaries of medical science widened, and medical skill increased" (Long, Hunter, and Van Der Geest 2008, 71).

Strauss et al. (1997) state that a useful way of conceiving of the hospital is as a large number of work sites, consisting of "variegated workshops." On a cancer ward, some patients are dying, some are receiving radio- or chemotherapy to be cured, and all are suffering from side effects of the disease or the treatment. In this working environment, nurses are providing medical and psychological care, doing "comfort work" (Strauss et al. 1997, 5–6). Heath and White (2008) have described nurses' work with patients as "body work," caring for patients in various ways to minimize the effects of illness and disability and maximize health and independence. The tasks involved in comforting care and "body work" would appear to be accomplished in close interaction with, and sometimes involving mediation between, the battling patients and the medically oriented physicians.

The nature of such comfort care and "body work" is potentially being reconfigured within risk management systems that privilege abstract, biomedical forms of expertise over embodied ways of knowing, threatening to disconnect clinical relationships and dehumanize patients (Charles-Jones, Latimer, and May 2003; Pine 2011; Hillman et al. 2013). This is the case also in a Norwegian context. The hospital under study had recently been relocated and reorganized, involving an enhanced focus on patient safety and participation and increased use of information technology. Still, the neoliberal trends shaping medical care in countries like the United States (Pine 2011) have not been as extreme in Norway, which is known for having one of the world's most efficient welfare systems, involving free medical treatment. This, I claim, makes a study of sensory knowledge among nurses in a Norwegian hospital an interesting case that might contribute to ongoing debates on hospital regulation and governance as well as the nature of "good" healthcare.

The hospital where the study took place is owned and financed by The Ministry of Health and Care Services and has about 5,000 employees and a catchment area of over 300,000 inhabitants. Like all other wards at the hospital, the physical outline and work processes in the cancer unit are organized into clusters, each serving nine single patient rooms. The three clusters of the cancer unit thus have a total of 27 patient rooms. Two clusters are reserved for oncology patients, one of which has the most severe cases and terminal patients in need of palliative care. Patients with hematological diseases are located in the third cluster. Although nurses were attached to one cluster, they all had to take shifts in the others when needed. At the time of the study, about 45 nurses worked in the unit, including two men. Nine were specialist nurses. The nurses that I observed were from 25 to 50 years old, had two to 25 years' experience, and held 60 to 100% positions.

All Norwegian nurses have a bachelor's degree or an older equivalent in nursing from a university or university college. The cancer nursing specialization is a one-year, full-time university course. Three of the 10 nurses I observed and worked with had this qualification. The nurses reported having learned basic theoretical knowledge about anatomy, physiology, pathology, and pharmacology in their bachelor's program, while knowledge of cancer diagnoses, treatments, and side effects was mainly acquired in clinical practice in a cancer unit. Here, the theoretical knowledge only became meaningful through their clinical experience. I would therefore argue that this study is particularly suitable for investigating how expert knowledge is based in embodied, sensory experience, and learning enmeshed in practice.

Delimiting the Field Through the Senses

From the moment when I first entered the hospital, I used my senses to take in the atmosphere. My first fieldwork notes describe what I saw. The white walls, marked with colors on each elevator shaft: orange, purple, grey, and green, indicating where in the building I was located. The staff in their white clothes rushing through the endless corridors in the basement, some using scooters, some on their way to the locker rooms, indicated by sets of clean workwear neatly folded up under their arms. The AGVs (automatic guided vehicles) passing by, stopping, blinking, shifting direction. The mixture of fear and delight at the sight of myself in white in the mirror, taking the elevator up to the cancer unit.

The ward contained an office for each cluster, a reception, a lunchroom, and long white corridors, with differently colored doors indicating what to expect on the other side. A wooden color signified patient rooms that I learned should be knocked on before entering, treatment rooms had white doors, while grey was chosen for service rooms such as stores and the pantry. I saw unfamiliar medical equipment and patients in beds in corridors. Patients walked slowly in the hallway, in their hospital shirts and slippers, some holding on to rods with bags attached to their bodies by tubes, containing fluids being extracted from their bodies, or antibiotics or other medication inserted into them.

Entering the single patient rooms, I was struck by the dominance of the large hospital bed, facing a flat screen television, the brightness of the rooms with their white walls, and a large window in the wall opposite the entrance. On the bedside table were personal belongings a card with greetings from relatives, a mobile phone, medication, liniments and body lotion, lip balm, glasses of iced water, and nutritious smoothies. I also noted down the movements I observed in these rooms, such as the medical staff rushing back and forth in contrast to the patients more or less tied to their beds and rods.

Moving around in these rooms and scenes, with their various movements and activities, I also became acquainted with the diversity of particular sounds and smells. In the basement, the sound of alarms from the AGVs and the beeping from the automatic machines where workwear is collected and laundry handed in merged with the vinegar-like smell of disinfected clothes. The quiet of the night was gradually replaced by a cacophony of sounds and smells as the ward awakened to its everyday activity: the regular sound of alerts on nurses' smartphones, messages given in the hallway, in preround, report, or handover meetings, and conversations with patients amalgamated with smells of medication and food from the kitchen area. The patient rooms smelled of food, sweat, excrement, vomit, perfume, or soap, depending on the time of day and the patient's condition. Sometimes the rooms were strikingly silent, sometimes filled with sounds of crying, moaning, but also laughter and joking. I felt the awkwardness of the sound of sports commentators or canned laughter on TV mixing with nurses or physicians informing patients about their diseases or treatment.

Becoming more familiar with the ward routines, I could perform tasks that brought me closer to patients, such as fetching their breakfast trays, changing their bed linen, assisting them in their morning care, helping them to the toilet, and taking blood pressure. These activities could involve touching and feeling the clammy skin of a febrile patient during morning care or bearing the weight of a full-grown man while assisting him to the toilet. They also included looking at patients' faces expressing fear, pain, relief, or apathy and hearing changes in their tone of voice from one day to another, expressing anger, despair, relief, or hope. This meant being able to respond to the patients' mental states by attuning my own facial expression, gestures, and tone of voice and finding comforting or encouraging words. Proximity to patients involved being exposed to various bodily odors, like the overwhelming smell of excrement after leakage from an ostomy bag. During my familiarization with ward life and activities, some sensory experiences faded, while new sensory inputs suddenly stood out. However, what really aroused my interest in the smells, sounds, sensations, and scenes of the cancer unit was the realization that the nurses could sense things that I could not. This revelation showed how using the senses represents a particular type of knowledge.

Analysis

The analysis that follows began immediately on entering the research setting. I learned about the nurses' use of senses in their work quite early in the fieldwork and dedicated significant time and attention to understanding what it entailed, that is, how the nurses acquired and used their senses in clinical work and their effort to render sensory input meaningful. This resulted in extensive and thick descriptions (Geertz 1973) of nurse-patient encounters. All field notes were written in Norwegian, and the extracts included in this article have been translated making minor grammatical and aesthetic adjustments. Relevant field notes have been inductively differentiated and iteratively reviewed to explore the sensory aspects of the nurses' work with patients.

It's Impossible to Tell Someone What It Smells Like!

The importance of the nurses' use of sensory knowledge struck me when a nurse opened a small bottle of vitamins. "These vitamins have a very characteristic smell," she said. I instantly recognized the smell of a vitamin syrup that we used to take as children, and I suddenly realized that smelling must play some part in nurses' work. When I asked the nurse about this, she replied, "Oh yes, there's a lot of things I can smell! . . . For instance, urine infection or clostridium![1] That's really easy to smell!" Another nurse confirmed this, saying, "Very! And melena,[2] or necrosis!"[3] When I asked different nurses on other occasions, they reacted in the same way and mentioned mostly the same smells. One nurse stated, "I don't know what I would have done without my ability to smell." Nurses also mentioned how easy the smells were to recognize, "Urine infection is really distinct; I can recognize that smell in the corridor!" and "With experience that smell's so obvious that I hardly bother to do the test. But of course we always do!"

This revelation surprised me. I had of course already experienced typical hospital smells of medications and sick patients. But the presence of smells in the air that I did not know or sense made me realize that the nurses' use of their senses like olfaction represented a particular type of knowledge. When I merely smelled excrement, they could identify the presence of the intestinal bacteria clostridium, causing diarrhea. Where I smelled urine, they could detect whether a patient had a urine infection. When I asked nurses to describe the different smells, their replies were still consistent, but much vaguer than when I asked what they could detect by smelling. One nurse said, "You know it's impossible to tell someone what it smells like. You just have to experience it!" Urine infection was often described as smelling like UTI (urinary tract infection). However, some odors were easier to describe: necrosis had a “rotten” smell and melena an “iron-like” smell. Generally, the nurses stated that they identified aromas based on previous experiences of smelling, but they could not describe scents precisely in words.

If the nurses could not describe the aroma to me, how had they learned to identify the different smells as an indication of a particular medical condition? During my time in the cancer unit, I found that nurses spent considerable time consulting with fellow nurses and other staff between patient visits, in the corridors, in the office, or in prerounds or other meetings. Here, the nurses shared assumptions based on their sensations and discussed suitable measures. One such typical situation took place at a preround meeting where a nurse, having assisted an elderly male patient to the toilet, discussed her experience with a physician:

> The patient feels very weak, and has constant diarrhea after eating. It was a bit rough, the feces splashing on the walls as he bent down to sit on the toilet. It was greenish and smelled like clostridium. We did the test, but it was negative.

Based on the nurse’s experiences and her descriptions of the smells and look of the patient’s excrements, together with the negative test result, they discussed what the man’s diarrhea might indicate. They had already tried to take him off antibiotics as a possible cause of his diarrhea, but without result. Eventually they decided to adjust the patient’s diet, and the nurse was told to continue monitoring him to see if that helped. The nurses considered such consultations and tests important in learning to recognize clinical indicators like particular smells because their assumptions were either confirmed or rejected, which thus informed their future interpretations of sensory experiences. Nurses reported having consulted colleagues and other professionals more frequently as graduates or as new to a ward. Many described having been made aware of a particular smell and what it could indicate when in a patient room with a more experienced nurse or physician. Most, however, emphasized experience and time spent with patients as the most important factors. The variety of tasks involved in patient care and monitoring provided a sound basis for enhancing their ability to interpret various aromas.

How Are You Feeling Today?

The most obvious situation related to monitoring was the daily measurement of respiratory rate, oxygen saturation, temperature, systolic blood pressure, pulse rate, and level of consciousness, referred to as the NEWS (national early warning system). The NEWS score is a standardized method used in hospitals to assess acute illness, detect clinical deterioration, and initiate a timely and competent clinical response. I return now to the situation depicted at the very beginning of this article, where the nurse enters the room, asks the patient how she feels, and then initiates the NEWS measurements:

> The patient is lying in her bed, smiling slightly back at the nurse. “I’m okay,” she replies, staring out of the window. The nurse performs the NEWS. Oxygen saturation,

> temperature, and blood pressure are measured electronically. For the pulse rate, however, the nurse holds the patient's wrist, looks at her watch and counts. It is silent in the room. She writes down the results and turns to the patient: "It sounds like you have a respiratory infection. We'll let the doctor listen to you afterwards." The patient replies that her breathing does feel a bit heavy. "Are you feeling any pain at the moment," the nurse asks. "No, not when I'm lying like this," the patient replies. The nurse sits down in the chair by the bed. "But you're not supposed to be lying in that exact position in your bed all day, are you? Can you show me where the pain is located?" she asks, touching the patient's arm gently. "You're not supposed to have pain, and you need to tell us if you do, okay?"

When we went back to the office, the nurse said, "You know, the moment I entered the room, I could see she was in a lot of pain." "How did you see that?" I asked. "She was tense, stiff. There was something about the way she moved, and an expression in her face." She pointed at her upper lip to illustrate. Then she talked about the barriers to taking painkillers for some patients. She told me that they get depressed because they are in pain, and this causes apathy and reluctance to receive help. Sometimes they do not realize or accept that the pain is causing their depression. "It takes time convincing patients that they don't need to be in pain," she said.

In this typical situation, the nurse used her whole body in the evaluation of a patient's medical condition and well-being. She could tell that the patient was in pain from signs in her face and from the stiff movements when she altered the patient's bed position. She recognized the apathy that comes with depression from the patient's tone of voice. Touching her forehead, the nurse could feel if the patient was damp or warm. Looking her in the eyes, engaging in conversation, she determined whether the patient was conscious and alert. Holding her hand, she took the patients' pulse. In the silence that followed, she listened to the patient's breathing, which could indicate whether she felt upset or not, or a possible respiratory infection. Using the electronic device to measure the patient's blood pressure, and the electronic thermometer for her temperature, she read off vital information to supplement her bodily assessment of the patient's condition. Thus, evaluating the patients' condition through the active use of the senses and the reading of electronic measurements often worked to correct or confirm one another, and thereby operated as mechanisms in the development of sensory skills among the nurses.

In observational situations such as the one described above, the nurses were highly aware of their responsibility to monitor patients and the indicators to which they should pay attention to. One nurse stated:

> We need to be very observant about even the smallest sign of decline in these patients' medical condition. It means we need to spend time with the patients, observing them and talking to them.

When I asked the nurses what they attend to when entering a patient room, one said:

> You know, I try to get an overall picture. I look at their skin, the expression in their eyes, and watch their body language, to see if the patient is stiff or restless. I listen to

> how they breathe and their tone of voice, and of course, what they say. Touch is also important of course, feeling their skin or their pulse.

All of these concerns are reflected in the typical questions that the nurses ask the patients; these reveal another crucial resource in the cultivation of the nurses' sensory knowledge, namely the patients stories and sensory impressions. Conversations with patients were often initiated with the general question "How are you feeling today?" Subsequent questions may be: Have you eaten or drunk anything today? Have you been able to go to the toilet? Are you feeling warm? Are you feeling any pain? Are you feeling nausea? Asking these questions, the nurses relied on the patients' own evaluations of their bodily sensations. They also used sensory knowledge to make statements about a patient's condition, reflecting what they saw and heard: "I can hear from your coughing that you have an infection." Almost every nurse-patient encounter involved such statements: "I can see on your tongue that the fungus is receding," "I can feel that you have a fever," "I can see from the wound that there's an infection," or "I can tell from your skin that you've lost weight." Thus, the patients' stories were not taken at face value, especially when it came to pain, but were combined and counterbalanced by what the nurses themselves could see, feel, hear, or smell and the results from tests or measurements like the NEWS-score.

However, not all situations and activities appeared to involve such overt monitoring. During a shift, the nurses paid repeated visits to the patient rooms, bringing meals with the associated medication, taking blood samples, changing or tending to catheters or wounds, assisting patients to the toilet or with getting dressed, and changing bed linen. During these routine activities, the nurses reported that they did not pay active attention to the fact that they were sensing, or to one sensory input at a time, such as looking, then touching, hearing, and smelling. One stated: "I don't go around sniffing for particular smells to try to detect anything, but I'd sense it instantly if the smell in the room indicated something, like clostridium or urine infection." Another nurse said: "When I enter the room, I sense immediately if there's anything special about the patient. It's difficult to detect what it is exactly. It's just a feeling that something's not right." Several nurses stated that their attention towards a particular sensory input is activated only when a deviation from normality is detected. Knowing what was normal, however, seemed to be a relative phenomenon, which required additional knowledge.

Sensing That Something's Wrong

During the time I spent in the cancer unit, it became clear that making sense of sensory knowledge gained through close observation of and interaction with patients requires theoretical knowledge of the particular vulnerability of people suffering from cancer or hematological diseases and the side effects of their treatment. For instance, long-term use of antibiotics, as with many patients in the ward, increases the risk of clostridium; the nurses in this unit became particularly attentive to indications of this condition. During a discussion of a patient's blood pressure with a nurse working with hematology patients, the nurse explained to me that they were particularly concerned about blood pressure as an indicator of the clinical conditions of the patients, because of the treatment they had been given, and the possible risk it posed to vulnerable patients.

This information is also found in the literature on cancer nursing. According to Johansen (2017), patients who have been treated with cytostatic drugs run the risk of developing hematological conditions like febrile neutropenia, particularly dangerous because of their poor immune defense. These patients are therefore vulnerable to infections. A sudden fall in blood pressure, oxygen saturation, high respiratory rate, and rising temperature could be symptoms of an emerging sepsis, possibly leading to septic shock, organ collapse, and eventually death. Signs of infection, like fever, a sore throat, diarrhea, or frequent urge to urinate therefore need to be taken very seriously, and the nurse needs to notify the oncologist or hematologist to prescribe antibiotics (Johansen 2017).

Thus, the biomedical, theoretical knowledge of the symptoms, and actions to be taken when they are detected, can be taught in textbooks, learned on specialized courses, and verbalized in procedures for cancer nursing. Only three of the nurses that I observed and worked with had specialized in cancer nursing, but all the nurses appeared to have some level of expertise on different cancer diagnoses, treatments, and side effects. They reported having acquired this knowledge working with cancer patients, looking at, touching, listening to, and smelling their bodies, and then, based on these sensory experiences, consulting with more experienced nurses and physicians about their impressions and possible actions. Thus, theoretical knowledge and clinical experience of cancer and the interdependency between these two types of knowledge were reported to have been acquired in the continuous observation and monitoring of cancer patients.

The fact that they had acquired specialized knowledge about cancer patients became obvious when they had the possibility to work in other units. One nurse told me, “If I suddenly had to work one day on the ward for patients with heart conditions, I would feel quite lost. I don’t know the clinical indicators or the medications well enough to be able to do a good job.” During my observations, patients from other wards were often moved to the cancer unit, especially from the pulmonary and cardiac units, which are the wards under most pressure at the hospital. These patients were the responsibility of physicians specialized in pulmonary and cardiac diseases, but they were nevertheless observed and cared for by the nurses in the cancer unit where they were located. The nurses sometimes said they felt uneasy about this, as illustrated by the following quote: “I have to read up thoroughly about this patient. He belongs to the heart unit, and he’s had several cardiac arrests. I don’t know that patient group very well, so I’m a bit stressed about it.”

I also learned that their expert knowledge was specific, not only to the cancer unit, but also to the differences between patient groups located in the different clusters within the unit. Compared to oncology patients, hematology patients were vulnerable in different ways, and needed to be more closely observed, or observed using different parameters. Some of the nurses were indeed reluctant to work in the hematology cluster, feeling insecure about their ability to provide adequate care for those patients, who needed to be monitored very closely. In addition, the terminal cancer patients on palliative care in one cluster needed to be observed and cared for differently than the curative patients in another cluster. Hence, clinical indicators like high or low blood pressure or fever have different meanings and implications for different groups of cancer patients.

Knowing the individual patient was also considered essential to the provision of proper care. If nurses knew that a patient normally had a high body temperature, they did not necessarily take steps to lower it, if the patient was feeling fine. Having spent time with patients over days, weeks and sometimes months, the nurses also often developed an emotional engagement with their situation. They got to know patients' relatives, found strategies to cheer them up, knew what topics to avoid, and when patients needed an extra push. This was also considered important knowledge in detecting deterioration in their medical condition or helping them improve. After a visit to one patient, a nurse stated:

> Hmm... something's wrong with her. She isn't usually like this. I think she's worried about going home. We need to work on that. Getting home will normalize her situation. It will do her good.

The presentation of the findings in this study has aimed to depict how sensory knowledge is acquired and used by the nurses in the cancer ward. In the discussion that follows, I aim to elaborate further on how building sensory knowledge depends on a complex interplay between different types of knowledge, various ways of sensing, and modes of learning. Furthermore, I claim that the ethnographic and phenomenological approach enables the study to demonstrate how sensory skills are established through the nurses' continuous, intersubjective, embodied, and sensory interaction with patients, which is therefore crucial to the continuous cultivation of their clinical knowledge and expertise. Finally, I will indicate the broader implications of these findings for scholars interested in understanding knowledge in professional work and expertise, for managers and policymakers responsible for structuring professionals' work environments, and for all of us whose lives depend on such knowledge.

Discussion

As stated at the outset of this article, not many studies have explored and aimed to understand how sensory knowledge is actually formed and comes to act. Sarah Maslen (2015), who conducted conducted an ethnographic study of how doctors learn to hear medically, is a notable exception. In more recent publications, she has investigated the nature and legitimacy of diagnostic sensory work in the meeting with new management regimes and techno-scientific changes in healthcare environments (Maslen 2016, 2017). The crisis of legitimacy she describes arises in an apparent conflict between the shift in medical regulation and governance involving enhanced reliance on formalized decision-making tools and test, and recent developments in the expertise literature, which have moved from conceptualizing expert decisions as rational, based in logical knowledge and ability, to intuitive competence.

She described this as “a gap between work ‘as imagined’ by policy makers and work ‘as done’ by doctors” (Maslen 2016, 173).

I claim that this gap poses a similar possible threat to the legitimacy of nurses’ sensory expertise. As stated in the introduction, medical sensory work is frequently being reconfigured involving the distribution of sensory judgments to others, like nurses (Oudshoorn 2008, 2009). Still, the nurses’ work, where sensory judgments play a crucial part, takes place within that same techno-scientific landscape and government regime. Hence, I argue that an ethnographic and phenomenological study of the acquisition and use of sensory knowledge among nurses represents an important contribution to the overall discussion of clinical expertise and what constitutes “good” medical care in changing environments.

Making Sense of Sensory Knowledge in the Cultivation of Clinical Expertise

Sarah Maslen’s (2015) work identifies how learning to sense medically involves a complex interplay between theory, experience, and creative attempts to describe and share knowledge that is difficult to put into words. She also found that in their diagnostic work doctors use their senses in a diversity of ways, from “clever” and “active” in examinations like auscultation, to ongoing sensing of patients’ bodies, characterized as intuitional and tacit. Sensing can be unmediated or take place through a variety of mediators, including technological instruments (Maslen 2017), patients’ own senses, or analysis of to patients’ stories of sensory experiences (Maslen 2016).

Building on Maslen, this study among nurses has revealed how monitoring a patient’s overall medical condition and well-being sometimes requires the ability to attend to and make sense of a particular sensory input, associated with a specific medical condition, akin to when a cardiologist performs auscultation. During the daily routine of measuring patients’ NEWS scores, for instance, the nurses paid active attention to certain sensory experiences such as the patients’ temperature or blood pressure. Moreover, the NEWS score guided the nurses on the clinical indicators to focus on in future observations. Thus, the nurses, like Maslen’s doctors, need to use their senses “cleverly,” both unmediated and coupled with sensing intermediate sensors, in order to decide on any particular intervention, such as administering an appropriate test, the administering of antipyretics to reduce fever, or giving of fluids to stabilize blood pressure.

Learning to use their senses actively involved adhering to clinical procedures, reading indicators provided by instruments, or administering tests that might confirm of disprove their unmediated sensing and further refine future judgements. In addition, sensory practice also often involved guidance from physicians and more experienced nurses. Maslen’s doctors were, she claims, consistently of the opinion that even though formal training was essential, medicine is ultimately about apprenticeship. Students and trainee doctors learn through mentoring and experience in a continuous and web-like mix of formal and informal training (Maslen 2015). This holistic apprenticeship was evident also among the nurses in this study, as when newly employed nurses asked more experienced colleagues for advice, or when students or trainee nurses participated with supporting guidance.

The nurses' main responsibility was not just to monitor one particular organ or indicator, but rather to keep a day-to-day watch over the patients in order to identify improvements or deterioration in their overall medical condition. This role required being able to detect various clinical indicators through different sensory inputs or a combination of several. Thus, like Maslen's doctors, nurses' clinical practice required an ongoing attention to the patient with the whole sensorium, opening up to any sensory input that might, or might not, appear. Detection of pain often emerged from such ongoing and more or less tacit use of several sensory inputs, combining unmediated perception with indirect sensing of the patients' sense. Moreover, if the nurses' information indicated that the patient was stable, they reported entering the patient's room without paying particular attention to the fact that they were using their senses at all. Still, I often observed that they expressed opinions about the condition of the patient during or after routine tasks like changing the bed linen, helping patients to the toilet, assisting them in their morning care, or serving meals.

Thus, the monitoring of patients was inseparably interwoven into the performance of various tasks in nurse-patient encounters. Looking, smelling, feeling, and listening were integral aspects of their movements in the room, of their interaction with patients, that is, in the doing of nursing. Ingold (2011 [2000], 244) describes the nature of sensing as a scanning movement, accomplished by the whole body, from a fixed location, seeking out and responding to the clues in the environment to which it is attuned. When the nurses had learned to attend to relevant clues indicating a decline in the patient's condition, perception became such an integral part of their doing that they served no further purpose (Ingold 2011 [2000], 416). It was therefore sometimes difficult to separate any particular sensory input that could be used to denote a particular indication. What the nurses saw or did not see, what they heard or did not hear, smelled or did not smell, merged into a feeling, that something is not right. This finding is in line with contemporary work on expertise describing how expert decision-making is intuitive and responsive to contexts and situations occurring in the lived-in world (Collins and Evans 2007; Ingold 2011 [2000]).

This ongoing, tacit, and intuitive way of sensing patients' bodies, involving the ability to combine several sensory inputs and sensing of patients' senses, I claim, involved another mode of learning than following procedures, or taking part in guided participation and scaffolding. Lawlor and Solomon (2017) describe how cultivation of expertise is complex and messy, involving both containment and contagion of knowledge as people actively engage themselves in intersubjective relationships to generate new understanding. To the nurses, this quest for knowledge about the medical condition and well-being of patients necessitated repeated and continuous embodied interaction with them. Learning also necessitated communicating with other medical practitioners. The fact that the nurses found it difficult to verbalize the nature of a particular sensory impression did not stop them from talking about their experiences, trying to make sense of them and deciding on how to act.

This study has revealed how the nurses continuously asked questions and made assertions about patients' overall well-being and medical condition. They relied not only on what they themselves had sensed, but also on the patients' accounts of their own bodily experiences, as well as relatives' stories. For instance, when they sense that a patient is in pain, they make further inquiries asking about how the patient feels. The patient's account is then counterbalanced with what the nurses are sensing, observing the patient's bodily gestures and facial expression and listening to their tone of voice, what they say and what they do not say. Furthermore, deciding on what action to take, the nurses continuously shared what they had sensed with other health professionals, consulting with other nurses, discussing patients at preround meetings with physicians, and reading written reports. Verbalizing their sensory experiences to others and deciding in collaboration on how to act were, according to the nurses, an important aspect of the process of building sensory knowledge, which enabled them to trust their own sensations and take independent decisions on them. Communicating through a recognizable linguistic repertoire what they felt, saw, heard, or smelled was a way to convey an experience and a means to compare their experience with that of the other (Ingold 2011 [2000], 285), working to establish a community of practice (Lave and Wenger 1991). This communication was also a way to constitute themselves as experts (Carr 2010).

Building sensory knowledge by making sense of what they had sensed, "cleverly" or ongoing, unmediated or through the sensing of sensors, did, however, require further knowledge than the mere sensory impressions and discussing these with others. According to Merleau-Ponty ([1964] 2012) sensations are produced through people's encounters with sense-data but are only realized when overlaid by a body of knowledge (Pink 2015, 29). The nurses reported that in most patient encounters, especially when patients were considered stable, attention to a particular sense was activated only when something deviated from what was considered normal. Normality, however, needed to be defined in a complex interdependence between theoretical knowledge and clinical experience.

Thus, being able to make sense of a deviation, labeling it, and knowing how to act on it requires theoretical knowledge about bodily functioning and malfunctioning, conditions and treatments of particular patient groups, and how aspects like age, sex, and psychosocial factors affect the development of the disease and prognosis for recovery for individual patients. This theoretical knowledge is, however, meaningless if not combined with the clinical experience of knowing through the senses what infectious breathing sounds like, how fever looks or feels, or how clostridium smells. Furthermore, the nurses reported that biomedical knowledge of cancer diagnoses, treatments, and side effects was mainly learned in clinical practice working in a cancer unit. This illuminates how building sensory knowledge and expert skills requires a complex mix of and interdependency between different types of knowledge and that this is established in practice, in the doing of nursing, interacting with particular patient groups.

A Phenomenological and Ethnographic Study of Clinical Expertise

This way of conceptualizing expertise works to demystify the notion of what intuition is. Because explicating the content of intuitional skills in words, an aura of mystique has often surrounded the skills, leading to descriptions of them as a sixth sense. The sensory knowledge and perceptual skills that the nurses enacted in their work with patients surely had tacit elements. When the nurses reported that it was not possible to tell anyone what something smelled like, it indicates that "we can know more than we can tell" (Polanyi and Sen 2009 [1966], 4). However, building on the notion that even our most basic experiences are not private in any individual way, entailing a foundational intersubjectivity (Jackson 1998; Barth 2002; Desjarlais and Throop 2011; Ingold 2011 [2000]), this study has aimed to demonstrate that sensory knowledge is still learned, shared, and accounted for in the processes of building sensory skills and expertise. Patients communicate their sensory experiences by the way they move, by an expression in their face, by the look in their eyes, the tone of their voice, and what they say and do not say. The nurses learned to recognize and interpret these cues as indications of particular conditions or a change in the patient's condition, by tuning in and attending to and with their own senses, combining what they saw, heard, felt, and smelled with theoretical knowledge through communicative practices.

A phenomenological approach involving participant observation and ethnographic interviews was, I claim, essential in recognizing the aspects of the nurses' acquisition and use of sensory knowledge discussed in this article. Sensing my way into the hospital, I saw, smelled, and heard many things, some that I immediately recognized as associated with the hospital, and some unfamiliar, which I did not know how to make sense of. When I became acquainted with ward life and activities, some sensory experiences faded, while other, new sensory inputs stood out, and yet others remained unrecognizable to me for the duration of the study. Taking part in the nurses' activities did, however, enable me to observe and experience how they used their senses and how in different situations they could suddenly realize that something was happening to the patient. This became evident from a look in their eyes, their asking specific questions that for me seemed out of the blue, a slowing of their movements or sometimes stopping what they were doing to sit by the patient's bedside, looking at them, perhaps touching them and engaging in talk.

Ethnographic research enabled me to follow up by asking the nurses questions about what they had experienced in these situations. Their explanations fed into my own awareness of sensory inputs and experiences, when I eventually was given the opportunity to spend time alone with patients and perform tasks on behalf of the nurses. Thus, joining with the nurses in their practical activities with patients, I learned to attend to the things they were attentive to, engaging in talk in order to make sense of what they and I had experienced (Ingold 2011 [2000], 285). Attending to and with my body (Csordas 1993) became a means for me as a researcher to understand what was going on, which also provided insights into the crucial role of sensory knowledge in clinical work. Corporeal attending revealed how the cultivation of clinical expertise necessitates continuous embodied, sensory, and intersubjective engagement with patients in the daily managing of excrement, urine, blood, sweat, and tears.

Broader Implications of the Study

With this study, I have aimed to contribute to enhanced awareness of the embodied, intuitional, and sensory aspects of professional knowledge and skills, which I hope will encourage additional research related to other sectors and professions. Moreover, the study has intended to provide further empirical insight into the complex processes and intersubjective aspects involved in the cultivation of expertise in a clinical context (Lawlor and Solomon 2017). These are important insights that I hope can feed into the sociopolitical discourse on what it means to practice and provide "good" medicine and healthcare, in which sensory work is conspicuously absent (Maslen 2016).

Pine (2011) claims that the techno-scientific changes in healthcare workplaces are not only threatening to replace clinical judgments with technology and computerization. They also involve the introduction of a scientistic rhetoric immanent in EBM and RCT, which when used as a tool and coupled with management-control mechanisms becomes hegemonic, operating as ritual speech and transforming power relations. Thus, a techno-scientific regime constrains what counts as valid knowledge, accepted forms of representation, and how knowledge can be communicated and employed in social interaction (Barth 2002). This trend is evident in the tendency that physicians, nurses, and other health professionals seem to incorporate management terms and ideas like "efficiency," "evidence," and "Best Practices" in their discourse and work practices in the effort to reduce errors and avoid publicly exposed clinical failures (Pine 2011; Numerato, Salvatore, and Fattore 2012). If the result is an indiscriminate trust in decision-making tools and tests, which are also associated with risks and faults, this is a dangerous trend (Maslen 2016). Perhaps even more critical is the possibility that explicit conversations between health professionals on the accuracy, liability, uncertainty, and risks associated with sensory knowledge in clinical decision-making is being silenced.

Adding empirical insight to research on sensory work in contemporary healthcare contexts, this article aims to give voice to the continued importance of sensory knowledge and skills in making diagnostic judgements. In order to avoid a decline in the performance of such skills, nurses, physicians, and others involved in clinical decision-making need to possess the necessary amount of time, human resources, and autonomy to prioritize engaging in continuous, intersubjective, and embodied interaction with patients. Furthermore, the importance of an open dialogue about how to make sense of sensory knowledge must be acknowledged and arranged for by those who structure and manage hospitals and other healthcare institutions.

Finally, the findings in this study have implications for all of us who depend on the competence of nurses and other professionals to make decisions on our behalf, which ultimately can be a matter of life and death. This makes the role of sensory knowledge in the cultivation of clinical expertise an important area of study, to which this article has aimed to contribute.

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Notes

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1. *Clostridium difficile* bacteria cause diarrhea, are a frequent complication of some antibiotic treatments, and are increasingly common as a hospital-acquired infection (Kunnskapsforlaget 2017a).

2. Melena refers to dark, sticky feces containing partly digested blood, resulting from internal bleeding or swallowing of blood (Kunnskapsforlaget 2017b).

3. Necrosis is cell death in an organ or tissue, caused by disease, physical or chemical injury, or interference with the blood supply (Kunnskapsforlaget 2017c).

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Article 2

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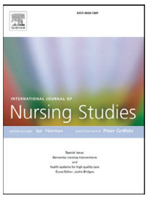

Lost in translation - Silent reporting and electronic patient records in nursing handovers: An ethnographic study

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ABSTRACT

Background: Electronic patient records are increasingly being implemented in hospitals around the world to promote a process of sharing information that is reliable, more efficient and will promote patient safety. Evidence suggests that in practice, adaptations are being made to how such technologies are being used in practice. Few studies have explicitly aimed to explore how electronic patient records influence on nurses' communication of patient information in clinical practice.

Objective: To enhance understanding of the impact of electronic patient records on nurses' cognitive work, by exploring how nurses engage with the electronic patient record during handover and the representation of patient information.

Methods: Ethnographic fieldwork was conducted in a Norwegian hospital cancer ward where computer-mediated handover referred to as 'silent reporting' had been implemented. The fieldwork included five months of participant observation and nine semi-structured interviews with registered nurses. Participating nurses were selected to ensure representation by clinical experience. The analysis of field notes and transcripts was partly performed in NVivo 11, following thematic analysis (Braun and Clarke 2006).

Findings: Four themes emerged: 1) nurses' complex and dynamic workflow necessitated talk in handovers, 2) oral communication allowed nurses to share sensitive information on psychosocial issues, and 3) to solve uncertainties considered unsuited for the record, and 4) talk facilitated professional and moral support in clinical decisions-making, as collective achievements. Talk was thereby found to be essential to nurses' cognitive work and professional knowledge, allowing for the translation and interplay between the embodied, informal knowledge of the individual nurse, and formal knowledge inscribed in record notes.

Conclusions: Silent reporting has implications for nurses' cognitive work and professional knowledge. With the sole reliance on the electronic patient record as handover tools, it is not only information essential to nurses' evolving, dynamic, and contextualised understanding of the patient's situation that is lost in translation, but also the visibility and legitimacy of nursing knowledge. Nurses' continued practices of talk in handovers can be seen as efforts to counteract these effects in ways that also increased the relevance and usefulness of the electronic patient record as a mediator of knowledge.

What is already known about the topic?

- The implementation of electronic patient records is widespread in hospitals around the world.
- Electronic patient records are expected to ensure adequate and reliable sharing of information in nursing handovers, associated with increased quality, and safer and more efficient provision of healthcare.
- Optimistic expectations of the effects of electronic patient records do not always align with what occurs when these technologies and their users interact in practice.

What this paper adds

- Oral communication is essential to the nurses' cognitive work, by allowing for the translation and interplay between the

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embodied, informal knowledge of the individual nurse, and formal knowledge inscribed in record notes.
- Silent reporting in handovers has implications for the translation processes in ways that affect the nurses' evolving, dynamic and contextualised understanding of patients, and the legitimacy and visibility of nursing knowledge.
- Nurses' continued practices of talk in handovers work to integrate the electronic patient record into their complex and dynamic workflows, increasing its relevance and usefulness as a mediator of knowledge about patients.

1. Introduction

Electronic patient records are increasingly being implemented as handover tools in hospitals worldwide to ensure improved quality, and safer and more efficient provision of healthcare (Meum and Ellingsen, 2011; Boonstra et al., 2014; Håland, 2012). The literature on health information technologies has, however, established that these optimistic expectations do not always align with what occurs when technologies and their users interact in practice (Nicolini, 2006; Timmermans and Epstein, 2010; Bergey et al., 2019). The implementation of technologies such as electronic patient records has been shown to influence the administration of clinical care, relationships between clinicians, and professional autonomy, affecting what health professionals do, but also how they understand work and self (Aarts et al., 2007; Bar-Lev, 2015; Allen, 2009, 2015; Pirnejad et al., 2008; Halford et al., 2010; Campbell and Rankin, 2017). Moreover, electronic record systems are found to impact on clinicians' ability to form and maintain an overview and shared understanding of patients, causing potential loss of information and professional knowledge (Chao, 2016; Staggers et al., 2012, 2011; Varpio, 2015; Weir, 2011).

Despite the extensive research interest on information technologies' impact on professional practice in health care workplaces, few studies have explicitly aimed to explore how their use affects clinicians' cognitive work (Wisner et al., 2019). Building on the frameworks of clinical grasp (Benner, 2009, 2011) and situation awareness (Endsley, 1995), Wisner et al. (2019), define cognitive work as "a higher order, dynamic, and evolving understanding of the patient's status, situated in a particular clinical context, and dependent on the clinician's ability to continually contextualize and synthesize data across information sources" (Wisner et al., 2019: 75). More understanding is according to Wisner et al. (2019) needed on how nurses synthesise and communicate information to achieve and maintain such evolving and dynamic understandings of the clinicial encounter, and on the compatibility of handover tools with how nurses think and work. To that end, this study explores nurses' engagement with the electronic patient record in handovers at a Norwegian cancer ward.

Cancer nursing involves daily monitoring of patients suffering from severe physiological and psychological impediments, due to the disease process and the prolonged nature of the treatment (Corner, 2009). This requires complex interplay between biomedical, contextual and intersubjective knowledge, generated in a continuous process of gathering and sharing information from a heterogeneous and complex number of sources**,** like clinical observations and consultations, medical charts, and record notes from several different health professionals. At the time of the study, computer-mediated handover referred to as 'silent reporting' had been implemented to ensure the distribution of adequate and reliable information, and enhance efficiency in work processes. This represents a recent trend in Norwegian hospitals involving a formalisation of handovers, replacing oral with written and eventually electronic documentation (Meum and Ellingsen, 2011). In the cancer ward, silent reporting meant that handover involved writing and reading the free text notes, in addition to the nursing care plan and medical chart. Only brief messages should be provided orally**.** The varied and complex nature of knowledge in cancer care, and the introduction of silent reporting with the electronic patient record as formal handover tool, made this an ideal case for exploring how the use of the electronic record system influence on nurses' cognitive work.

To address this issue the analytical framework proposed by Freeman and Sturdy (2014), that knowledge can take on and exist in different forms or phases as embodied, inscribed and enacted is applied. This schema for understanding knowledge infers that knowledge moves, rendering the questions of how it moves and how knowledge can be prevented from moving within particular policy contexts open for empirical investigation (Freeman and Sturdy, 2014). Not all embodied knowing, defined as "knowledge held by human actors and employed and expressed by them as they go about their activities in the world" (Freeman and Sturdy, 2014: 8), can, for instance, be easily inscribed into disembodied texts or technology. This can be due to the static and fixed nature of written language, stylistic conventions of an institution or the complexity of work, with consequences for the legitimacy and visibility of certain practices and competences (Benner, 2004; Star and Strauss, 1999; Allen, 2015; Smith-Merry, 2014). Furthermore, as embodied and inscribed knowledge is enacted in actions and interactions, it is channelled within a community of knowers making it subject to control and possible sanctions, but also facilitates new knowledge to arise beyond what has been previously inscribed or embodied (Freeman and Sturdy, 2014).

Building on these insights, this article aims to illuminate how nurses integrate the electronic patient record into their complex and dynamic workflows, through continued practices of talk in handovers. Furthermore, it emphasises how talk is essential to the nurses' cognitive work as interactional achievements, allowing for the translation and interplay between the embodied, informal knowledge of the individual nurse, and formal knowledge inscribed in record notes. By this, the article discusses what may be lost in translation with the implementation of silent reporting.

2. Data and methods

The article draws on material from a larger ethnographic study of knowledge in nursing conducted by the author in a Norwegian cancer unit. The hospital studied has about 5000 employees and a catchment area of over 300 000 inhabitants and is thus a large emergency hospital in a Norwegian context (Helse- og omsorgsdepartementet, 2017). The physical structure and work processes in the cancer unit are organised into three work sections with nine single patient rooms in each, giving a total of 27 patient rooms. At the time of the study, about 45 nurses worked in the unit, including two men.

Fieldwork was conducted during five months from January-June 2017, and involved participant observation among the nurses, in addition to informal interviewing (Spradley, 1979). The ten nurses that I paired up with were selected by snowball sampling after an initial introduction by the senior charge nurse at the outset of the study, ensuring a spread in length of experience and involvement with different patient groups. Fieldwork was followed by formal semi-structured interviews with nine of the ten nurses with whom I had already developed some rapport through observations, to allow for a freer flow of information (Spradley, 1979). The tenth nurse was not interviewed due to sickness absence.

As a data collection method, participant observation involves spending substantial time in the field, enabling the researcher to study human interaction and communication from an "insider's point of view" (Wind, 2008: 80; Geertz, 1973). I was at the ward two to three days a week throughout the fieldwork, to secure familiarity with ward activities and continuity in field-relations. I always made an appointment to pair up with one of the nurses in advance, and mostly attended full, seven hours shifts, partaking in everyday work activities. As nurses are mainly attached to one section with a typical patient profile, I observed all three, spending three weeks in one section at a time before altering, to get accustomed to staff and particular routines.

During observations, I was dressed in white, with a nametag stating that I was a researcher. I presented myself as a scholar studying nurses in all encounters with patients, relatives, and other health professionals. Oral and written information on the study goals was provided, and preliminary findings were discussed with the nurses throughout the study. The nurses, who were used to being tailed by students and trainees, soon equated my research interests to that of an apprentice, eager to learn about their work and competences, a role I embraced. With time, I was entrusted to perform tasks, like fetching food to patients and assisting them with personal care. Thus, at the course of the fieldwork I adopted different roles from complete observer to active participant, negotiating my way into field (Spradley, 1980; Wind, 2008). The role I attained, the length of each fieldwork session and the extended time of the fieldwork worked to diminish the possible effects of my presence on activities going on.

Writing fieldnotes is essential to knowledge production in ethnographic research, and requires being attentive to when, where and how notetaking is accomplished (Emerson et al., 1995). I carried a small notebook and a pen in the pocket of my nurse uniform at all times and usually made brief notes when running along with a nurse from one patient room to the other, in the same fashion as the nurses scribbled down results from measurements or future tasks on their patient lists. These in-field jottings were elaborated into chronologically ordered fieldnotes coming to the end and following each shift when the nurses sat by their computers updating the patients' record notes. Under the evolving of the fieldwork, my notetaking went from nonspecific descriptive observations to grasp the complexity of ward activities, to more focused attention to particular processes and practices (Spradley, 1980).

The complexity of knowledge-sharing practices in handovers eventually caught my attention and the nurses' experiences with silent reporting, and the use of the electronic patient record became key themes in the formal interviews. The semi-structured interview guide was developed to let nurses talk without undue interruptions, containing open-ended, descriptive questions (Spradley, 1979) like: "Can you describe a typical handover situation?", "Can you give examples of how different types of information is communicated in handover?", and "Can you explain how what you say differ from what you write?" The interviews were performed in a hospital conference room outside the ward, lasted about 60 minutes on average and were audio-recorded. Fieldnotes and interview transcripts were translated, with minor grammatical and aesthetic adjustments.

Appropriate IRB approval was obtained from the Norwegian Centre for Research Data (ref. 54770). All ward nurses were informed about my role and none refused to take part in the study. To ensure internal and external confidentiality, names and ages were anonymised. All participating nurses signed non-disclosure agreements and gave informed consent. The nurses worked as gatekeepers to patient encounters, and all accounts of conversations involving patients have been anonymised in the analysis by producing 'typical' patient stories, altering age, sex or diagnosis.

3. Analysis

The analysis began immediately on entering the research setting and the writing of thick, descriptive and reflective field notes (Geertz, 1973), which as described above shared essential similarities with the nurses' effort to produce patient record notes. It involved selecting from the complexity of social interaction and the multiplicity of everyday events those activities and occurrences that appeared relevant to my objective. It meant aiming to make sense of observations by contextualising my descriptions in other writings, re-reading previous fieldnotes, and reviewing previous research on related topics. Additional observations provided new insights into notes already written. The analysis thus involved complex processes of reading and writing (Atkinson, 1992).

Furthermore, my quest for understanding what was going on involved discussing my observations with others, primarily nurses in the field and during interviews, but also fellow researchers, presenting and discussing preliminary analyses and theoretical framing at seminars and conferences. Thus, like patient records my fieldnotes appeared as 'liminal texts' (Jackson, 1990), constantly available for interpretation and reinterpretation, making sense when being written, but also partial and incomplete, implying complex processes of textual construction and interpretation (Atkinson, 1992). In line with the first step of thematic analysis (Braun and Clark, 2006), the initial analytical phases thereby involved immersing and familiarising myself with the data through repeated perusals, searching for interesting and surprising observations against a background of existing theorisations (Tavory and Timmermans, 2014), and noting down ideas about what the data contained.

The list of ideas formed the basis for inductively categorising and coding interesting features down to the most basic segment, organising the data into meaningful groups, like; "Notes need to be objective" "Talk about difficult patients", "Not sure about observations", and "Consulting with fellow nurses". Such categories constructed from thick descriptions (Geertz, 1973) of actual and situated handover situations and informal in-field talks underpinned the interview-guide. The interviews on their hand provided insights into the nurses' comprehension and experiences of types of information and ways of communicating knowledge about patients. Interviews were transcribed verbatim and re-read, searching for additional interesting ideas, which resulted in adding new and revising already existing codes, thereby enriching the observational data (Braun and Clark, 2006).

The analysis of this overall written material, field notes and interview transcripts, was now partly performed in NVivo 11 (QSR International, Brisbane) following the next steps in thematic analysis, i.e. searching for, reviewing and naming themes. This involved sorting and combining the different codes into overarching patterned responses or 'themes' in the data and analysing these themes in relation to each other and the data set as a whole, according to the research question (Braun and Clark, 2006). The four themes that emerged as particularly relevant to the objective of this study will now be presented.

4. Findings

The handover situation took place at the workstation located in each of the ward's three sections**,** which all had three or four computers and a small conference table in an adjacent inner office and a reception desk and office space facing the corridor. These were busy and sometimes crowded areas, where nurses and other clinicians frequently met to update each other and to fetch medicine and medical equipment, prepare blood samples and medication, and to read or record information in the electronic patient record. This also applied to the 30-minute overlap between incoming and outgoing nurses at the changeover of shifts. The overlap was further constrained following the fieldwork when the ward management reduced the handover time to 15 minutes to make it more efficient and avoid unnecessary talk. During my time at the ward, I witnessed many handover situations, observing and participating in nurses' activities during and across shifts.

The nurses I paired up with were aged 25-50, with 2-25 years' experience and 60-100% positions**.**

In the following, the four themes emerging as particular relevant to the understanding of how nurses engage with the electronic patient record during handover and the representation of patient information, will be presented. First, how nurses' complex and dynamic workflow necessitated talk in handovers. Thereafter, how oral communication allowed nurses to share sensitive information on psychosocial issues and to solve uncertainties considered unsuited for the record. Finally, the role talk played in facilitating professional and moral support in clinical decision-making as collective achievements.

4.1. "We're supposed to be doing silent reporting, but…"

The nurses were always eager to start their shift by finding a computer, stating that being updated on the latest developments by reading patients' records before going to check on them was essential for doing a good job. However, the written information found there appeared to be insufficient. The observation that talk was still essential in sharing patient information is evident in the following field note extract, which represents a typical handover situation between two incoming nurses, Eva and Anne, who meet Nora, about to finish her shift.

> I go with Anne and Eva from the lunchroom where they have fetched their patient lists to the section workstation. They rush through the corridor delegating responsibility for each patient according to their previous knowledge of them. At the workstation, they meet Nora. "Hello, how are things going here?" Anne asks. Nora reports that it has not been as chaotic as last week. They go on to discuss the fragile situation of some of last week's patients. "We should have more opportunities to discuss the most severe cases amongst ourselves," Anne sighs. The incoming nurses log in to the computers to start reading, while Nora continues updating the summaries and future care plans.
>
> While the nurses sit at their computers, the conversation drifts into an oral report on particular patients (often referred to by room numbers). Nora says, **"**You should pay extra attention to room 2. We didn't get to take her blood tests and provide her medication until rather late this morning, and she feels a bit neglected and frustrated." "Okay, I'll go and see her as soon as possible then", replies Eva and asks, "Yesterday she seemed a bit feeble, even though her vitals were fine, how is she today?" Nora replies that she looks better and says she feels quite well. The results are satisfactory. Eva looks them up on the computer, making some notes on her paper patient list. "Have you met her husband then?" Nora asks, raising her eyebrows. "I know! A bit of a handful! I guess it's their way to get control though. We have to make sure to keep them both updated" Eva replies.
>
> Going through each patient on the list, and skimming through their records, the nurses then talk about what medication and pain relief different patients have received, when, and the effects. Nora tells Anne that one of her patients has been complaining about frequent and burning urination. "She recognises the symptoms and claims she knows she's got a urinary tract infection, but agreed to take a test. As you'll see, the doctor's already prescribed antibiotics, which should be given if the test proves positive," she explains. Anne goes to see the patient, returns soon after and starts preparing the test. Meanwhile, Eva has been to see the frustrated patient in room 2.
>
> Nora continues to write while sporadically providing Eva and Anne with oral updates. One patient is supposed to eat every two hours. She is a bit stressed about it, so they need to see to that. Another patient has received two blood transfusions and antibiotics. Her temperature is fine and she does not seem feverish. A third patient is to be transferred to the local hospital. Nora says that an ambulance has been requested and that she has called to check its expected arrival. Eva asks whether the patient will get a private room in the pain relief ward where she is going, but Nora does not know. "She really needs it", says Eva. "She's having such a hard time!" "I know!" Nora replies. "I'll call them to check", says Eva. It is 3.30 pm; Nora should have left at 3 but is still sitting at the computer finishing off the reports. Sometimes Nora asks Eva and Anne how to phrase a particular sentence for the report. She turns to me and says, "We're supposed to be doing silent reporting, but…"

Attending numerous handover situations like this throughout the fieldwork, I noticed that the nurses' talk about the patients fluctuated between past observations, their present condition, and future necessary tasks. Furthermore, I was struck by how a variety of topics seemed intertwined in their assessments based on observations and results from tests and measurements that indicated changes in patients' condition, e.g. medication administration, diets, future discharges, patients' mood, and temper, and relatives' involvement and willingness to cooperate. Another feature that stood out was the interplay between reading, writing and talking, sometimes interrupted by going to see a patient, where all of this seemed to intermingle into the one activity of reporting.

Informal conversations and interviews confirmed the observation that much handover talk was about coordinating activities, like the scheduling and synchronising of tasks, and delaying and delegating undertakings related to patients' future care needs. This represented information they needed to share, but was unnecessary and even unwanted for the record, as insights and activities essential for the patient's recovery or survival could otherwise drown in an information overload. As described in the fieldnote excerpt above, however, nurses' oral handovers involved more than communicating organisational tasks to be accomplished. At the core of the nurses' justifications for the continued need to talk was also properties ascribed to the record system, concerning the topics and types of language it required and allowed for, and its' compatibility with their need to sort out ethical dilemmas and uncertainties inherent in clinical diagnostic work.

4.2. "You have to consider what to write"

Nurses' daily monitoring of patients is often associated with the detection of indicators of patients' vital signs like temperature, heart rate, respiration or blood pressure. However, during the fieldwork, I did notice that the nurses also noted and discussed other aspects of the patients' condition, e.g. related to their hygiene detected by the cleanliness in the room and the smell of bodily odours, their eating habits, initiative, mobility, cognitive awareness, and cooperativeness, regarded as indicators of their overall wellbeing and recovery potential. Yet it was not easy to document these issues, as stated by a nurse in an interview

> You have to consider what to write in the record, because, you know, the patient can get hold of it and read it. If there's been any unfavourable situation, of course, you write about it, but more nicely, if you know what I mean. I suppose when you talk, you communicate more subjective experiences. When you write, though, you try to be somewhat objective.

Thus, what nurses wrote was influenced by their awareness that the record and the information documented there are available to patients, their relatives, other health professionals, and managers. Sometimes topics contained intimate information that a patient might have shared with nurses in confidence. Other topics were avoided or rephrased in writing; these represented nurses' subjective opinions, which could be distressing, harmful or insulting to patients and relatives, but still considered important to know and share.

Although nurses discussed such matters orally, the record still played a role in sharing sensitive issues. As the nurses said, they naturally wrote about these but in a nicer way, using terms considered more objective. This can be understood as a token of their acknowledgment that for the record to be meaningful to nurses not present at the handover, it needed to be precise and specific, to avoid any potential confusion or misunderstandings. The brief and objective language thus worked to direct their attention to potential challenging situations and often formed a basis for adding subjective observations and opinions orally. One nurse explained

> You know, we meet many different people, and when we write we try to be more precise and to the point, use a somewhat more academic language. We focus on being as specific as possible. If there are issues concerning their state of mind, or pain or well-being, we do of course write full reports on that. However, based on that report, colleagues tell me "The situation is a bit tense" or "We're struggling with the relatives", things like that… "The patient's a bit difficult… to understand". Some issues aren't always very easy to record… like the mental situation, relatives, cooperation, how we experience the patient. Such things are often communicated orally (…)

Contextualising what the record briefly itemised about the here and now thus prepared the incoming nurse for what to expect, enabling her to meet the situation in the best possible manner for the patient, as clearly seen when the nurse continued

> (….) But then again we're very concerned about not transferring bad experiences to the incoming nurse. Although it's sometimes good to prepare her for what could become an issue, like "That patient's very insecure, if you don't come to the point". You try to lead your colleague into a good first experience with the patient.

As these quotes indicate, the nurses were not only cautious about recording delicate information. Writing a record note also involved phrasing oneself professionally, using a language considered 'objective' and sufficiently detached to be meaningful to other professionals not directly involved in the here-and-now situation.

Thus, the concise language of the electronic patient record and the oral exchange on sensitive patient issues, adding nuances and details considered unsuited for the record, fulfilled different functions in the mediation of the nurses' complex and dynamic workflow. Further, the interconnectedness between these informal and formal sources of information was essential for nurses in their efforts to establish the overall picture of patient's situation at any given time. This seemed to apply also to the solving of uncertainties in assessing patients' conditions and deciding how to act upon them.

4.3. *"We're not always sure"*

Throughout the fieldwork, I found that oral communication in handovers involved discussing different types of ambiguities. The conversations often involved sharing doubts about how to evaluate their observations of patients, identifying symptoms as indicators of a particular condition. The uncertainties in themselves were considered irrelevant to the patient record, as stated by one nurse

> We do have oral reporting too, although they [management] don't want us to. They don't realise why we need to talk, but it's actually quite important, because there are issues that are... Not everything can be written down. Like opinions that we cannot really explain or be sure about. It may sound peculiar, but we're not always sure what to make of observations, so we say to each other, "You should keep an eye on that" or "I think she's a bit sad, but I'm not sure". "Can you observe that before we decide what to do?" Things like that.

The nurses also communicated that articulating insecurity in writing was difficult, and involved the risk of losing or altering the message. One nurse explained, "There are nuances that disappear if we only use written reports, like vague things that aren't communicated there. Things that are easier to say than to write, like if you have a feeling about something, but you aren't very sure".

Sometimes the uncertainties concerned how to interpret results and measurements, or prescriptions and previous record notes by other clinicians, e.g. questioning why a medication was prescribed when test results suggested otherwise, or what to make of a brief statement in the record in light of the patient's current condition. Thus, outgoing nurses used the handover to inform incoming nurses of mismatches between information found in the record and their own subjective experience and assessments of patients. Uncertainties involved in assessing a patient's condition suited for a written record thus involved combining and make sense of information from various sources

> Some things are written, but need supplementary information. Like "I've tried this, but I think you should pay attention to this and that". "I think he might be a bit confused, but then I might be wrong, so you should perhaps keep an eye on that". You don't want to do the patient wrong and write anything that might not be accurate.

When colleagues were aware of such doubts, they could more easily decide which patients to see first, and which indicators to focus on. One nurse reported providing oral information

> …if there's anything special, like a check-up, or something's happened that's caught my attention. Something abnormal. Say I have a bad feeling about a patient; he hasn't been feverish, and his results were fine, but he's a bit feeble and exhausted, or like a patient's temperature has gone up and down, so his condition could decline very rapidly. Or, that a patient's breathing is a bit abnormal for instance.

Discussing what to make of the multiplicity of information that nurses held about patients, then, not only worked to provide a broader picture than the record alone provided. It also enhanced the value of record notes, rendering the information found there more meaningful.

These findings demonstrate that making sound judgements about changes in patients' condition, and knowing when to decide what to write, is never a straightforward, systematic process, nor in shift handovers. Furthermore, the communication practices, drawing on various sources through reading, writing and talking, were not considered part of the process of reaching a clinical judgement, but constituted the very essence of decision-making and how it is accomplished.

4.4. *"We make decisions together"*

During a shift, nurses constantly seek support and recognition from colleagues regarding the many assessments they make before, during and after the handover report. The incoming nurse sometimes knew patients from previous shifts and could provide additional information on their condition and future care needs, which could affect what the outgoing nurse finally wrote in her report. The handover was thus more of an ongoing, reciprocal consultation between nurses in their common effort to understand a patient's situation than a one-way transfer of information between nurses. The temporary conclusions made were noted in the record as a basis for future consultations and assessments, also playing an important role in mutual learning. Describing the handover communication, involving reading notes and talking, one nurse concluded

> …And this is like how we cooperate. You know, some people are more experienced than others, and some have more experience with particular conditions. So then it's often like, I ask someone, "I've got this patient, this has happened, I have observed this. Then look at these test results, what do you think? My thoughts are so and so, do you agree with my assessment?" That's to get my observations confirmed, and then others ask me like that, so I reckon when making patient assessments we seek support from our colleagues.

This quote also raises another essential aspect of decision-making as a collective achievement, namely the need for professional and moral support. Working with chronically and critically ill patients, in an environment where accountability and risk management are emphasised as strategies to meet the needs of knowledgeable patients and prevent publicity on clinical failures, the cancer nurses expressed a need for joint responsibility

> We, colleagues, need to stand side by side, and we make decisions together. I believe it's important that we all more or less agree that 'this is the right decision'. Confronting the patients and relatives, we're like "This isn't only my opinion, but we all agree on this."

Thus, efforts to solve uncertainties and make sense of the pieces of information obtained during a shift involved reading the written documentation containing record notes from nurses and other health professionals, as well as results from measurements and tests, and discussing these with others. It also involved sharing observations and drawing on each other's experience before eventually deciding on what constituted the most essential aspects of patients' here-and-now and the need for future actions, which were noted in the record. Patient narratives were, thus, produced as collective accomplishments, involving a continuous interplay between embodied and inscribed knowledge, through reading, writing and talking. Handovers appeared to be important situations for such performances to take place.

5. Discussion

The main aim of this study was to enhance understanding of the implication of electronic patient records on clinicians' cognitive work by exploring how nurses engage with the record when silent reporting is implemented in shift handovers. The oral handover has been criticised for being speculative, vague, subjective, and irrelevant for patient care, and the need for its replacement with more unambiguous and formal systems has been proposed and increasingly implemented in hospitals around the world (Spooner et al., 2013, 2018; Sexton et al., 2004; O'Connell et al., 2008). This study's findings concur with research suggesting that such one-sided focus on replacement rather than on the interplay between formal and informal handover practices is linked to a lack of recognition of handovers' embeddedness in particular work practices, involving different skills, knowledge, and artefacts, and playing informational, social and educational functions (Kerr, 2002; Meum and Ellingsen, 2011; Benner 2004).

The findings also support the assumption that, due to the close relationship between written and oral accounts in the organisation of medical work, relying exclusively on formal tools like electronic patient records may affect the nurses' cognitive work and create a knowledge gap in clinical practice (Atkinson, 1995; Meum and Ellingsen, 2011; Wisner et al., 2019). The article contributes to this field of study by illuminating how this potential knowledge gap can be understood to depend on the possibility for nurses to incorporate the electronic patient record into their evolving, dynamic and contextualised understanding of the patient's status, enmeshed in complex and dynamic workflows (Wisner et al., 2019). Further, it highlights the role talk plays in facilitating this integration by enabling translation between embodied, informal knowledge, employed and expressed by the individual nurse through work, and formal knowledge inscribed in the electronic patient record (Freeman and Sturdy, 2014; Berg, 1996, 1997).

Oral communication played an essential role in the writing of record notes. When nurses reported needing to "consider what to write" and how to phrase it, they did not refer to a cognitive, individualised simple transfer of personal knowledge to the record text. Instead, providing an accurate and fair textual representation of the clinical encounter with patients, considered sufficiently professional and objective was a collaborative achievement where information from various sources needed to be orally negotiated (Allen, 2015; Bar-Lev, 2015). These negotiations also involved discussing how to make sense of already written notes, containing knowledge inscribed in text. Here, talk played the role of re-embodying knowledge that had been detached from the embodied experience, by adding essential affective, contextual and intersubjective dimensions (Freeman and Sturdy, 2014).

Thus, sharing information considered too sensitive, subjective or uncertain for the record but still considered essential to the provision of care ensured that the personal and embodied knowledge of the individual nurse was enacted in interaction with others, feeding into future patient encounters and later record inscriptions (Freeman and Sturdy, 2014). While being restricted by the rules of the written language and by the ascribed archival and legal purpose of the record within the hospital context (Berg, 1996; Fitzpatrick, 2004), it did however also work to enhance the meaning and relevance of the record notes, in the nurses' common effort to comprehend and attend to patients' urgent needs. The discussions involved in the creation and sense-making of record notes, then, allowed new knowledge to arise in the form of new ideas and insights but also operated as a mechanism of moral support and control. The handover conversations thus laid the ground for regularity, facilitating knowledge production channelled within a community of knowers to which the nurses belonged (Freeman and Sturdy, 2014).

Without disregarding the value of written texts or neglecting the possible fragility of verbal sharing of information, this demonstrates that nurses' cognitive work is enacted within an oral culture, evolving in interactions with multiple others, human and non-human, including resources such as protocols, policies and medical technologies (Bloor, 1976; Berg, 1992; Goodwin, 2014; Rapley, 2008; Mesman, 2008; Atkinson, 1995). Furthermore, handovers appeared to be essential situations for such collective practices of clinical decision-making. As demonstrated by Kerr (2002), however, nursing handovers have multiple functions. The findings in this study demonstrate that the oral consultations among the nurses also involved negotiating how to generate a satisfactory presentation of nursing knowledge, in a technologically mediated hospital context where knowledge is hierarchically ordered and evaluated (Meum and Ellingsen, 2011; Benner, 2004). The article thereby argues that the restrictions imposed on the nurses' handovers practices, involving both management-led limitations on talk through silent reporting, and self-inflicted censorship on what to write, can be understood as related to the legitimacy and visibility of elements of nursing practice and the knowledge needed to support it.

This became evident through the realisation that the value of talk and its interplay with written accounts was recognised and formalised in other clinical encounters on the ward, like the physicians' morning conferences, and the pre-round meeting between nurses and physicians. According to Star and Strauss (1999), no work is intrinsically visible or invisible, but may be viewed as one or the other within particular contexts. The nurses' work on the cancer ward was astonishingly diverse. Unlike the work of physicians, they did not only focus on the physical body, but also on "embodiment, suffering, lifeworld possibilities and constraints, and human responses to and coping with illness" (Benner, 2004: 427). Since almost all the ward nurses were women, these tasks can be characterised as gendered work and thereby functionally invisible, being taken for granted as resting on women's natural talent (Allen, 2015; Star and Strauss, 1999). Furthermore, Benner (2004) has pointed out how social aspects and the sentient human body have been separated from the traditional medical diagnostic process.

Hence, in a hospital context where evidence-based medicine represents the gold standard (Timmermans and Berg, 2003a), and the objective dominates over the subjective, practices directed at the psychosocial and relational become marginalised and invisible (Benner, 2004). Moreover, the associated knowledge is considered subjective and hence speculative, and thereby irrelevant to clinical decision-making and to the record system (Vikkelsø, 2005). The translation practices accomplished by nurses when engaging with the electronic patient record thereby also involved transforming their knowledge to meet professional and institutional standards and stylistic conventions. This implies that when relying solely on formal handover tools it is not only information essential to nurses' dynamic, evolving and contextualised understanding of the patient situation that is lost in translation, but also the visibility and legitimacy of nursing knowledge.

6. Limitations

There are several limitations to this study. First, all data were collected from one hospital ward only, providing insights into a limited range of healthcare practitioners. A significant volume of data from both participant observation and interviews was however accumulated, and data saturation was achieved. Second, within the health sciences concerns are being raised about the possible bias caused by the presence and subjectivity of the researcher (Wind, 2008; Mulhall, 2003). Moreover, being an anthropologist doing a study among nurses provides a potential challenge to the accurateness of the interpretations of what was going on. The length of each session, observing whole shifts**,** and the extended length of the fieldwork as a whole worked to diminish these limitations, as did the apprentice role I was ascribed during fieldwork. Furthermore, discussing my findings with the nurses, both during the fieldwork and in the interviews, and contextualising my interpretations in light of previously written field notes and research on related topics worked to guide my interpretations. The fact that I was not a nurse stood out as an advantage in that it allowed me to ask naive questions and to illuminate aspects of nursing work and competences, taken for granted by the nurses.

7. Implications and conclusions

This article adds to the literature on how electronic patient records influence nurses' cognitive work by emphasising how restrictions on talk work to inscribe a set of ideas about appropriate communication between nurses, affecting their possibility to incorporate the record system into dynamic and complex workflows (Wisner et al., 2019). Furthermore, the study detects how silent reporting becomes a question of legitimacy and visibility (Star and Strauss, 1999, Benner 2004), promoting biomedical, 'objective' and formally inscribed knowledge over orally shared and informal knowing of relational, sensitive and uncertain patient issues. Finally, the necessary interconnectedness between these types and ways of representing knowledge to nurses' clinical decision-making and professional knowledge is potentially lost (Berg, 1996, 1997; Timmermans and Berg, 2003b).

As such, this article supports assertions in the literature that when new technologies are implemented, this may be particularly problematic for already marginalised and invisible practices such as those of nurses (Bergey et al., 2019; Allen, 2015; Bar-Lev, 2015; Benner, 2004). To ensure quality and continuity in care provision, then, managers and policy-makers need to acknowledge and support practices and competencies that can never be classified or formally documented. Furthermore, they need to acknowledge that formal documentation systems are always partial, unable to capture the actual, multifaceted nature of professional work (Bar-Lev, 2015; Benner, 2004; David et al., 2009).

This article has aimed to illustrate how this involves recognising the role talk plays in the translation between the embodied and informal knowledge of the individual nurse and formal knowledge inscribed in record notes. Thus, although silent reporting did not silence the nurses, the lack of formal structures to ensure fruitful interplay between oral and written accounts represents a threat to nurses' cognitive work as a collective achievement and to the usefulness of electronic patient records as a mediator of knowledge about patients. Further, this has unintended consequences for the legitimacy and visibility of nursing knowledge, with real and visible implications for care provision.

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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Article 3

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Time to care - An ethnographic study of how temporal structuring affects caring relationships in clinical nursing

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ABSTRACT

This article explores how temporal structuring of clinical activities affects nurses' establishment of caring relationships with patients, based on an ethnographic study in a Norwegian cancer ward in January–June 2017. By drawing on practice-based perspectives on time and care, the article shows how 'medical time', 'patient time' and 'hospital time' represent three distinct but interconnected clinical rhythms affecting caring relationships. In this way, the article provides insights into how caring relationships are established in nurses' intermediate role as temporal agents, accommodation various temporal structures associated with the biomedical and person-centred care models. Second, it contributes insights into how caring practices are temporally structured and reproduced in a hospital context. Finally, the article describes factors that influence different ways of structuring time, emphasising the need for temporal reflexivity and flexibility in meeting patients' care needs, and the role time to care plays in facilitating this.

1. Introduction

> Nursing is about … It depends of course, but here at the cancer unit, I'd say that in addition to technical procedures it's mainly about being there, observing and assisting patients with basic needs, but also helping them to cope with the uncertainties of the future […]. It's about time actually, and that's a growing concern for us, you know, having enough time. Time to care.

This ethnographic study explores temporal dimensions of nurses' caring relationships with patients in a Norwegian cancer ward. As stated in the above quote by a cancer nurse, good nursing requires time to be with patients and to address their individual needs. However, expectations to treat more acutely ill patients more rapidly while cutting the cost of care provision have been said to lead to a discrepancy between the traditional nursing mandate as a caregiving profession and what nurses actually do (Allen, 2015; Latimer, 2000). Thus, the nurse's concern about lack of time to care concurs with a prevalent critique in the literature that current profit-oriented care policies are insensitive to the time and space needed to explore requirements of situated care, which cannot be prescribed and measured (Cohen, 2011; Davies, 1994; Gherardi and Rodeschini, 2016; Kleinman and Van der Geest, 2009; Schillmeier, 2017).

This critique forms part of a wider concern about recent transformations in healthcare claimed to rationalise and dehumanise caring relationships through objectification, commodification and standardisation (Timmermans and Almeling, 2009). In this literature, holistic patient-centred care is contrasted with and seen to suffer from bureaucratic control, optimisation through efficiency standards, and the emergence of evidence-based medicine, treating patients as objects of medical manipulation (Clarke et al., 2003; Diamond-Brown, 2018; Felder et al., 2016; Timmermans and Almeling, 2009). Thus, the proclaimed crisis of care seems to involve more than lack of time, representing also a shift in orientations to, and valuations of time, related to notions of what care is and should be in a modern hospital context. Temporality is, however, rarely treated as a research object in its own right in studies of healthcare organisations and caring relationships (Habran and Battard, 2019; Pedersen and Roelsgaard Obling, 2020). This study contributes to the literature on the current condition of care by exploring the temporal structuring of caring practices among nurses on a Norwegian cancer ward, and emphasising the need to rethink why and how time to care matters.

Cancer care involves tending to patients coping with and recovering from severe, acute and sometimes lifelong medical, physical, psychosocial and practical complications and constraints (Cancer Research UK,

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2020). At the study hospital, the focus on patients' medical urgency and immediate risk, combined with increased pressures regarding efficiency and patient throughput, implied an emphasis on medical events and a clock-based structuring of nurses' caring activities. Nurses' daily care for individual patients' complex medical responses and situated care needs, however, often resulted in disruptions of the pre-determined framework for treatment and recovery. This predicament made the cancer ward an interesting context for examining how the meaning of time to care goes beyond the problem of lack of time, encompassing the intertwinements between different clinical rhythms and care tasks in nurses' patient-related work. More specifically, the paper explores how temporal structuring of clinical activities affects nurses' establishment of caring relationships with patients.

To address this issue, the article applies a framework by Rowell et al. (2016), outlining how practices encompass temporal patterns, conceptions and orientations, and how these interact in guiding practice performance. Thus, drawing on a dynamic perspective on time, it discusses how caring relationships emerge through temporal structuring that connects activities and events in an organisational context (Ancona et al., 2001; Elias, 1992; Hernes and Schultz, 2020; Orlikowski and Yates, 2002; Reinecke and Ansari, 2015; Rowell et al., 2016). Furthermore, the article builds on a practice-based perspective on care as an emergent, situated and collective competence, and caring relationships as relationally constructed within different care models (Gherardi and Rodeschini, 2016; Liberati et al., 2015; Mulligan, 2017; Tanenbaum, 2015). The biomedical and person-centred models, embedded in practices aimed at 'caring for' and 'caring with' patients, are used as analytical categories to differentiate between different modes of valuation and ways of structuring time in nurses' caring practices (Habran and Battard, 2019; Mol, 2008; Tomkins and Simpson, 2015).

The findings are presented as three analytically derived ethnographic vignettes (Humphreys, 2005) to describe how 'medical time', 'patient time' and 'hospital time' represent three different ways of constructing time, evident as various rhythms in clinical practice. The article also shows how these observable patterns are underpinned by deeper conceptions of time as event-based and clock-based, and by various temporal orientations in tending to patients' complex needs. Furthermore, it reveals how the three rhythms produce dependency, partnership and reliability as distinct but interrelated constituents of caring relationships.

In this way, the article contributes new knowledge on how temporal structuring matters in meeting care requirements in modern hospital contexts, emphasising the need to enable conditions that ensure temporal reflexivity and flexibility in clinical practice (Rowell et al., 2016; Orlikowski and Yates, 2002). The article argues that by exploring temporal dimensions of caring relationships, apparent contradictions between objectifying biomedical interventions, holistic patient care, and reifying care policies are refined and nuanced, providing evidence of the complexity of situated care (Felder et al., 2016; Timmermans and Almeling, 2009).

1.1. Temporal structuring

Within dynamic perspectives on time, temporal structures are seen as socially constructed and enacted phenomena, reflexively reproduced and reflectively transformed in practices (Erickson and Mazmanian, 2017; Hernes and Schultz, 2020; Orlikowski and Yates, 2002; Pedersen and Roelsgaard Obling, 2020; Rowell et al., 2016). In order to explore the complex intertwinements of clinical rhythms in care practices and how these affect caring relationships, this article builds on the notion that temporal structuring takes place in the relation between three mutually reinforcing levels of temporal structures that, according to Rowell et al. (2016), interact and work to guide practices.

The first level is 'temporal patterns', which are the observable pacing, speed and timing of events (Zerubavel, 1979, 1981). The second, deeper level, 'temporal conceptions', refers to the properties ascribed to time, such as event-based and clock-based, enabling actors to comprehend and act upon time (Ancona et al., 2001). Finally, 'temporal orientations' denote the way time is valued and attended to, being embedded in activities, such as an emphasis on past, present or future, a focus on process or outcome, and time as a resource (Hernes and Schultz, 2020; Reinecke and Ansari, 2015; Rowell et al., 2016). These levels work to reproduce practices by imposing moral and cognitive constraints on practice deviation, "moderated by the extent to which they are tied to the meaning of a practice and shared across practices" (Rowell et al., 2016, 304).

The literature on time in organisations has been characterised by the schism between notions of time as an objective versus a subjective phenomenon (Orlikowski and Yates, 2002). Clock-time is described as consistent with a mechanical view of the world, associated with an emphasis on time commodification. It is the dominating temporal conception in Western contexts, used synonymously with time itself and treated as objective, external and linear (Orlikowski and Yates, 2002; Zerubavel, 1981). Time within this perspective is valued as a resource possible to own, manage and manipulate, thus engendering a set of values and norms about how time is best used in particular contexts (Ancona et al., 2001; Erickson and Mazmanian, 2017; Reinecke and Ansari, 2015). In contrast, event-time is conceived as qualitative and dynamic, inherent in processes and events and defined by the experiences of organisational members (Ancona et al., 2001; Jacques, 1982; Orlikowski and Yates, 2002; Starkey, 1989; Zerubavel, 1981).

This dichotomisation has also been prevalent in the literature on care, used to explain tensions and conflicts in care work (Cohen, 2011; Davies, 1994; Kleinman and Van der Geest, 2009; Schillmeier, 2017). Recent research has outlined how different care models imply variations in how time is conceived and attended to with implications for how it is constructed (Habran and Battard, 2019; Tomkins and Simpson, 2015). Habran and Battard (2019) show that practices aimed at 'caring for', based on the biomedical care model, create a temporality described as impersonal and abstract. The focus is on the past and present in prescribing the future on the clients' behalf, treating care recipients as passive objects of care. In contrast, person-centred models aimed at 'caring with' construct time by joining patients' journeys and facilitating an exploration and co-construction of future uncertainties (Habran and Battard, 2019).

In the present study, the notion that temporal structures not only take place in time, but also embody deeper temporal conceptions and orientations, is used in the analysis of how nurses accommodate and manage multiple temporal structures simultaneously to meet the complex challenges of hospital care. In this way, this article adds to previous research by aiming to avoid an 'a priori' normative stand on particular temporal structures, exploring and discussing how practices are reproduced, and the conditions that affect different ways of structuring time (Pedersen and Roelsgaard Obling, 2020; Rowell et al., 2016).

2. Methodology

2.1. Research context

In Norway, cancer care has since 2015 been organised in standardised pathways to meet the requirements of the government-initiated "Coordination reform – Proper treatment - at the right place and right time" (Norwegian Ministry of Health and Care Services, 2008–2009). In order to ensure efficiency and predictability in cancer care, diagnoses and treatments are provided by state hospitals, while rehabilitation takes place in primary healthcare (Norwegian Directorate of Health, 2016). In cancer patients, acute and long-term side effects of the disease and its treatments do, however, often coincide and might be difficult to differentiate. The formal sequencing of the cancer trajectory is therefore not always clear-cut, and many patients are frequently re-hospitalised. This makes a Norwegian hospital cancer ward an interesting context for exploring the complexity of care and how the managing of various temporal rhythms and horizons affects nurses' caring relationships with patients.

The hospital studied is defined as a large emergency hospital with about 5000 employees and a catchment area of over 300 000 inhabitants (Norwegian Ministry of Health and Care Services, 2017). Two years before the study, the hospital had been relocated and reorganised, with increased emphasis on patient safety and participation, and extensive use of information technology to ensure time optimisation according to set efficiency standards. This was also reflected in the physical structure and organisation of ward activities, with universally designed work sections, each serving nine single-patient rooms. The cancer ward had three work sections and 27 patient rooms. At the time of the study, 45 nurses worked in the unit, including two men.

2.2. *Creating data*

Fieldwork was conducted from January to June 2017, and involved participant observation of nurses and informal interviewing (Spradley, 1979). The ten nurses with whom I paired up during shifts were selected by snowball sampling after an introduction from the senior charge nurse at the study outset, ensuring variety in length of experience and involvement with different patient groups. Participating nurses were aged 25–50, with two to 25 years' experience, and had positions ranging from 60% to full-time.

The nurses were mainly attached to one section with a typical patient profile, and I observed all three sections, mostly attending entire 7-h shifts. With time, I was entrusted to perform tasks such as fetching food for patients and assisting them with personal care. This provided access to varied situations in everyday ward activities and interactions with patients, relatives and other clinicians. During the fieldwork, my roles ranged from complete observer to active participant, negotiating my way into the field (Spradley, 1980; Wind, 2008). The ethnographic approach taken in this study thus builds on the premise that data are created through participant observation as a performative practice (Gherardi, 2019, 2).

The fieldwork was followed by formal semi-structured interviews with nine of the ten nurses with whom I had already developed some rapport through observations, allowing for a free flow of information (Spradley, 1979). The tenth nurse was not interviewed due to illness. Based on field observations, the interviews explored the nurses' experiences of establishing caring relationships with patients, focusing particularly on temporal dimensions in the structuring of clinical care, such as optimisation measures, timing, and temporal orientations. The interviews were conducted in a hospital meeting room and were audio-recorded; they lasted about 60 min on average.

2.3. *Ethical considerations*

Appropriate ethical approval was obtained from the Norwegian Centre for Research Data. All ward nurses were informed about my role in the ward. None refused to participate in the study. Names and ages were anonymised to ensure internal and external confidentiality. All participating nurses signed non-disclosure agreements and gave informed consent. Oral and written information on the study goals was provided, and preliminary findings were discussed with the nurses throughout the study. The nurses worked as gatekeepers to patient encounters and all accounts of conversations involving patients have been anonymised in the analysis by producing 'typical' patient stories, altering age, sex and diagnosis.

2.4. *Data analysis*

The data analysis began immediately upon entering the research setting and was thus inductive, using temporality as a sensitising concept to orient my ethnographic gaze in the field (Blumer, 1954). In line with the first step of thematic analysis (Braun and Clarke, 2006), I then proceeded by thoroughly familiarising myself with the written field notes (Emerson et al., 1995), searching for interesting observations. Preliminary ideas formed the basis for inductively identifying and coding features in the data according to several temporal dichotomies such as process versus outcome orientation, scheduled versus unscheduled caring practices, and experiences of time as a resource or a journey. These initial categories were used to structure the interview guide, which contained open-ended, descriptive questions (Spradley, 1979). The interviews were transcribed verbatim and re-read in a search for additional ideas to enrich the observational data (Braun and Clarke, 2006). Field notes and interview transcripts were translated, with minor grammatical and aesthetic adjustments.

In the analysis of the entire empirical data, performed in NVivo 11 (QSR International, Brisbane), I started reviewing the literature on temporality and care in organisations, following the next steps in thematic analysis, i.e. generating, reviewing and naming overarching patterns of responses concerning the research question (Braun & Clarke, 2006, 2019, 2019). The framework of temporal structures of Rowell et al. (2016) was used as a theoretical lens in the analysis of caring practices, according to the categories 'caring for' and 'caring with' (Habran and Battard, 2019; Mol, 2008). The framework was also used in the analysis of how different temporal structures were balanced and combined through nurses' reflexive engagement with time in situated care (Erickson and Mazmanian, 2017; Orlikowski and Yates, 2002; Rowell et al., 2016).

In this abductive process, allowing empirical observations and existing theorisations to enhance each other (Tavory and Timmermans, 2014), three overarching analytical categories was identified to illuminate the temporal complexity in clinical cancer nursing: medical time, patient time and hospital time. The ways these represent different but interconnected clinical rhythms and how they affect the construction of caring relationships will now be presented in three ethnographic vignettes (Hammersley and Atkinson, 2019; Humphreys, 2005). The vignettes represent typical situations condensed from the analysis of the data and allow for contextual richness and a vivid presentation of the findings (Felder et al., 2016), supplemented by quotes from the formal interviews.

3. Findings

The first two vignettes describe the case of Mrs Doe, a patient who had stayed in the ward for some time, recovering from heavy chemotherapy. They outline three daily situations showing how medical time and patient time represent two different ways of structuring caring practices and how they affect nurses' caring relationships with patients. First, the pre-round meeting between doctor and nurse, discussing patient cases. Next, the doctors' patient round accompanied by the nurse, and finally, a nurse-patient care situation. The third vignette zooms out, contextualising these events in the hospital's clock-based schedule, outlining nurses' experiences of a new distribution of tasks to 'in-nurses' and 'out-nurses' and its effect on caring relationships.

3.1. *Medical time*

> The nurse meets up with the doctor in the haematologists' shared office space. They start going through the patient list. "Let me see," the doctor says, opening and studying the chart and medical notes of the first patient on the computer. "Positive indication of complete remission," he states, looking up at the nurse and adding, "How's she doing?" "The readings this morning were fine," the nurse replies, adding, "No fever or other signs of infection." "What about her intake?" the doctor asks. "Well, that's still the problem, she hasn't started eating yet," the nurse replies. She is about to continue when they both suddenly stop. An alarm is activated. The doctor opens the door. "It's a cardiac arrest," he states. They both run towards the

> room marked with a cone as the cardiac arrest team arrives and starts the compression, regularly switching turns. It's hectic but everyone seems to know their role. I hear some nurses in the corridor murmuring: "Why isn't he under a do-not-resuscitate order? He's old, and incurable. It's unethical, really". The patient could not be saved.
>
> The doctor and nurse return to the office. "Whew … That was a bit shaky. Well, where were we?" the doctor asks. The nurse looks at her notes: "Mrs Doe … She feels extremely nauseous and has difficulty in holding on to whatever she manages to eat," she adds. "Okay, that will be the main subject today then," the doctor says, adding, "No effect of the antiemetics?" "She claims that they work, but when she feels the texture of the food in her mouth, she starts retching," the nurse replies. The doctor makes some notes. They then discuss other patients before the round.
>
> We enter Mrs Doe's room. The doctor stands at the end of the bed, the nurse stays in the background leaning against the window sill, while I remain closer to the door. The doctor asks Mrs Doe how she is feeling and whether she has been able to eat anything. She replies quietly that she cannot manage even the smell of food. The doctor looks at the diet list on the bedside table, and points out how essential food is for her recovery, explaining how the treatment has set her back and that almost like a child she needs to get used to all the different flavours and textures of food again. "Start by eating neutral food and add in cream and nutritious smoothies," he says, glancing over at the nurse. "We'll also try another anti-sickness medicine for your nausea. I'm afraid gaining full appetite could take months. Try to comply with the diet list," he continues. Mrs Doe nods quietly as we leave the room and hurry to the next patient.

Numerous observations of such pre-round meetings during the fieldwork revealed that their main purpose was to define the most pressing issues and necessary immediate or future interventions, and decide how to communicate and discuss these with the patient. They thus involved framing a patient's complex condition according to what medical means were available, which should be implemented, when and by whom. This motivated a particular temporal patterning of subsequent caring activities based on the nature of the problem at hand as defined by clinicians. The sudden emergency of the cardiac arrest also reveals how even medical events that cannot be scheduled are prepared for, based on knowledge of the actions needed to save lives, triggering trained and coordinated responses.

The pre-round situation further shows how such understanding was established in nurses' and doctors' reflective engagement with time embedded in aggregated knowledge of the diagnosis and patient group, and the patients' timeline, as evidenced by their individual experiences and responses. The doctor evaluated the patient's past and recent developments, documented in the patient record and the medical chart, while the nurse provided clinical observations and experience with the patient concerning the relevant medical parameters. The nurses' role in constructing a medical understanding of the patients' complex treatment and recovery process, and how time spent with patients was an essential factor, also became evident in the interviews, as the following quote illustrates:

> You know many of our patients [haematology patients] are at risk of developing sepsis from their treatment. This is indicated by altered mental status, fast respiratory rate and low blood pressure, and perhaps a rising temperature. So, if we find for instance that a patient becomes absent-minded and his blood pressure drops, we must inform the doctor. That's information they wouldn't get elsewhere. Because they don't spend as much time with patients and don't really know them as we do. We make up a team with the doctors, in fact, and I find that they [the doctors] depend on us, you know, our clinical evaluations.

Field observations showed how nurses gained knowledge of such clinical indicators through frequent and scheduled patient encounters, such as daily measurements, providing food and medication, tending to wounds and administering catheters. These activities aimed at 'caring for' patients could be plotted into the nurse's schedule as manageable tasks defined by doctors or nurses themselves. Thus, the medical care model as a mode of ordering events structured doctors and nurses' time with patients, informing them about who to see first, the frequency of visits, and what indicators or interventions to focus on in engaging with their problems.

It also became evident during patient rounds how the medical care model determined patients' future actions. In the visit to Mrs Doe, the doctor addressed nourishment as the major worry, authoritatively explaining her situation, and outlining the measures she needed to take to restore her diet based on evidence of what works. Such instructions were comforting to many vulnerable patients, who expressed gratitude for good care. Furthermore, while talking to the patient, the doctor also communicated to the nurse, glancing over at her and using the term 'we', which indicated that the information provided was to be attended to, ensuring different anti-sickness medicines and nutritious food according to the diet list.

Medical time, then, defined and scheduled by clinicians, imposes a dynamic and flexible rhythm, patterning caring initiatives according to the problem at hand and focusing on how the present and familiar can be used to achieve particular outcomes. By determining future activities to ease patients' suffering, ensure their recovery, and save lives, caring relationships built on dependency are thus created. Sometimes, however, medical time was not in the best interest of the patient, as evidenced by the nurses' questioning of the ethics of performing cardiopulmonary resuscitation on the old patient. At other times it did not have the expected effect or countered patients' bodily rhythm and explicit wishes and needs, leading to a broadening of the temporal horizon.

3.2. *Patient time*

> "Good morning!" says the nurse, as we enter the patient room. "How are you doing this morning?" "As usual," Mrs Doe replies, "Not too well, I suppose." After the morning checks of temperature, systolic blood pressure and oxygen saturation, the nurse sits down next to her. "I know I promised not to go on about this, but still I have to," she says, pointing at the diet list on the table. "Just seeing that list makes me nauseous," says Mrs Doe. The nurse replies that she knows. "I'll put this out of your sight, then," she adds. For a while, nobody speaks. "Remember we talked about how there might be more to this than just the food? From what you've told me, you've been going through a lot. Have you thought about talking to someone?" the nurse asks. Mrs Doe replies that she could talk to her sister, but doesn't want to burden her. The nurse suggests that they can help her apply for home nursing for a period if she would like that. The patient nods. "You know, there are professionals out there that can help you work through everything that's been going on in your life these past years," the nurse suggests. Mrs Doe agrees, saying, "I think that could be a good idea." More silence. The nurse adjusts the sheets and fetches some laundry from the bathroom. She returns to the bedside. "Still, I'm afraid your first step to get out of here is to start eating," the nurse smiles. "Is there anything you might feel like having?" "You never give up, do you?" Mrs Doe replies, smiling faintly back and agrees to try porridge and some fruit.
>
> As we return to the section office we find another nurse just finishing a call. There is a problem with a patient who has completed her treatment and is to be discharged. She refuses to go to the nursing home where she has been accepted for personal reasons, and does not trust the home care nurses. Her family wants to pay for her to stay in another home under the neighbouring local authority but that is impossible because of local policies and financial arrangements. The

> patient's daughter was on the phone, exhausted after having to take care of her mother 24/7 for some time, asking the nurse for help. "I don't know how to get this patient on board. This has taken days," the nurse sighs.

These situations demonstrate that establishing caring relationships with patients go beyond the medically scheduled to-do list described in the first vignette, while still being closely entangled with the activities involved. One nurse explained in an interview: "It's like when I enter the room to administer a catheter or whatever and find the patient's upset, I like to have the time to ask how they are, what they need, and to listen to them. I never ask if I know I haven't got time to listen". Thus, giving the patient a voice, while performing other more tangible care interventions, means being committed and having the time to address whatever needs were expressed, also those outside medical issues.

In the case of Mrs Doe, entry into a more boundless space where a whole life was brought to the table and needed 'caring with' was initiated by an experienced lack of effect of medical treatments. Prior to the situation described in the vignette, both doctors and nurses had for some time aimed to deal with the non-compliance of Mrs Doe's sick body with the scheduled interventions and their expected outcome. Aiming to understand and solve this problem based on previous experience, the nurses seemed discouraged with the doctors' preoccupation with nutrition as a mere medical problem with prescribed and scheduled solutions, like antiemetics and diet lists. In a conversation between nurses, one explained, "We don't need screening to see when a patient's undernourished. What these patients need is some peace, and time to recover. They'll eat when they're ready".

The other patient case described in the vignette illuminates how patient time was also initiated by relatives, or by patients who were reluctant to accept solutions defined and decided on their behalf. Such cases could be considered time-consuming or troublesome by busy nurses, but also sometimes provided information useful to subsequent treatments or care interventions. One morning a visiting son informed a nurse about his recently admitted mother: "She probably won't tell you this, but she sleeps most of the day, and hardly eats. She thinks she's fine, but she's not". This information set the stage for the patient encounter and led to various examinations, starting with blood tests.

In all these patient cases, the structuring of caring activities involved building trust over time and establishing a partnership, where nurses included both the 'patient' and the 'person'. It meant attending to the process more than a defined outcome, exploring the patient's past and future anticipations in aiming to reach a common understanding of the complexity of their present situation. It also involved acknowledging disruptions to the nurses' fixed schedules, allowing for a flexible patterning of caring activities according to the patients' rhythm, representing a journey where things took the time that they needed to take. In cases like Mrs Doe's, the nurses aimed to open a space for a dialogue about life in its diversity to define other solutions than tablets and foodstuffs. Other cases involved responding to and guiding patients who openly expressed their wishes and needs, sometimes counteracting their own good.

Thus, while opening up for subjective experiences in exploring the unknown involved extending the temporal orientation beyond the scope of medical interventions and the caring relationships established on the cancer ward, it was not altogether detached from these. This demonstrates how nurses continuously needed to reflect on and balance the inherent tensions between medical time and patient time, keeping up with scheduled activities, dealing with requirements of situated care, and allowing for patients' responses and requests. The final vignette will present how this balancing act was also affected by the nurses' busy work schedule and their continuous race against the clock.

3.3. Hospital time

> 7 a.m.: The morning shift starts as the first oncoming nurse enters the ward. She logs in to the computer while getting brief oral updates from the night shift nurse.
>
> 7.30 a.m.: The remaining two morning shift nurses arrive. After quickly skimming through the patient record, the in-nurse starts preparing and distributing medication. This often elicits new requests. One patient needs painkillers, one wants juice, another needs toileting assistance. As we rush back and forth between patients and the section office, tasks are delegated to the out-nurses busy with morning care that needs to be completed before the doctor's round.
>
> 8.00 a.m.: We hurry on to the morning meeting where nurses from all three sections meet up to evaluate the patients' status. The charge nurse informs about a number of incoming patients, suggesting a swift dismissal for patients to be discharged. She later states that the ward has been obliged to cut costs. "All overtime must be recorded and accounted for. It must be reduced," she says.
>
> 8.15: The in-nurse rushes back to the section, "It's always time and money," she sighs, preparing medication for the remaining patients. One patient is optimistic and talkative, ready to go, and needs help packing. Another is in shock, having received devastating news about the progress of his disease. He has relatives visiting. Others request results from blood tests. Mrs Doe is feeling nauseous. No time to dawdle.
>
> 8.45: The charge nurse arrives at the section office where the in-nurse sits at the computer to cross off the tablets provided. She says that one of the incoming patients is waiting in the corridor. "I'm the in-nurse, shouldn't the out-nurses deal with that under the new arrangement?" she replies. "Well, now you know!" the charge nurse says and leaves. An out-nurse runs past to greet the new patient.
>
> 9.20 The nurse glances at her watch and realises she should have attended the pre-round meeting 10 min ago. She hurries along the corridor, while stating worriedly that she has had no time to update herself on the patients. "I'm sorry I'm late, busy morning," she says as we enter the doctors' office.

This final vignette, zooming out from the case of Mrs Doe, provides a glimpse of a typical busy morning, and the structuring of nurses' caring activities according to the clock, embedded in the hospital's 24-h shift system. Measurements were to be taken, meals served and medication provided at set time slots each day. Ward meetings were timed relative to each other, with the pre-round succeeding the doctors and nurses' separate morning meetings, which all led up to the patient round. Then, nurses from each section aimed to meet up for a brief report, coordinating tasks prescribed by doctors.

The system of in- and out-nurses had been implemented to enable a swift and more effective fulfilment of these obligations, while ensuring continuity and quality in patient care. Previously the three nurses operating a section split the responsibility for the nine patients between themselves, thus performing all required tasks for their patients, including measurements, daily care, medication and patient rounds. This was time-consuming for doctors who then came to the ward for separate pre-rounds with all nurses, and made upcoming requests from patients difficult to coordinate during rounds for nurses. However, the newly installed division of tasks also seemed to have its drawbacks.

On the one hand, nurses claimed that it had made their responsibilities clearer, with defined duties that could be patterned and managed according to a set time schedule and then crossed off. "A good day's work is when I have completed my duties, like when I know everyone got their medication on time, or, as out-nurse, that I've changed patients' bedsheets, tended to catheters, managed the antibiotics, you know, the medical and technical stuff," one nurse explained in an interview. This was also relevant to patients, who became anxious if daily routines were obstructed, such as lack of medication at the scheduled time.

On the other hand, nurses felt that the new arrangement prevented an overall understanding of the patients' situation and the interventions planned for them, due to an experienced loss of flexibility and hence a lack of control. The in-nurse found that when she arrived at the pre-round meeting, she had only spent a brief moment with patients, with no time to read notes or confer with the out-nurses. "It's not a good feeling to meet the doctor without updated knowledge of patients. It feels unprofessional, like we're not able to do our job, and it also affects how doctors can perform theirs," one nurse explained in an interview.

The out-nurses, on the other hand, lacked the insights provided by meetings with doctors in rounds and pre-rounds, which could be used to inform and explain and thus ease patients' worries. They also had responsibility for more patients than before, which meant constantly having to prioritise between tasks, as seen in the following quote: "Pain always comes first, but when someone's sad or just needs to talk, and we know others haven't been washed or they're waiting for tests … it's difficult".

Finally, independent of roles, nurses discussed how they felt squeezed between patients' need for time and stability and demands for time optimisation and reduction of costs. One nurse exclaimed: "When management start going on about encouraging patients to leave, and we know they're not ready, we protest! They're ill and vulnerable and need time. We end up sending patients home on a Friday, knowing they'll return on Monday. It doesn't make sense!" Another agreed: "I understand they have their financial considerations, but we must speak up for the patients! I'll spend an extra 5 min with a patient, and I'd rather work unpaid overtime to finish the report".

Thus, the structuring of caring activities according to a clock-based conception of time, conceived as an objective and measurable quantity and valued as a resource, established a task-oriented rhythm in nurses' caring practices. Hospital time then ensured a systematic and efficient patterning and distribution of care to patients, essential to their survival and recovery. Thus, it created predictability in caring relationships according to who was doing what, and when.

The focus on efficiency, however, involved less flexibility for nurses in managing tasks to be solved. Furthermore, loss of flexibility influenced the information flows essential for the construction of both medical time and patient time, and for reflective engagement with the inherent tensions between them. The resulting risk of losing sight of the whole picture was considered particularly worrisome for patients with complicated and composite diseases, for those whose conditions were undiagnosed, and for patients at particular risk of swift deterioration, such as haematology patients like Mrs Doe.

4. Discussion

This article adds to the literature on the conditions of care and caring relationships in modern healthcare by exploring how temporal structuring affects nurses' establishment of caring relationships with patients, an under-researched field (Habran and Battard, 2019; Pedersen and Roelsgaard Obling, 2020). The study shows how 'medical time', 'patient time' and 'hospital time' emerged as three different clinical rhythms, creating dependency, partnership and reliability as essential constituents of caring relationships. Furthermore, it illuminates tensions in hospital care that required an openness to other ways of structuring time. Finally, the study reveals factors that influenced complementarity or conflict between ways of structuring time and thus nurses' establishment of caring relationships with patients (see Table 1).

Based on these findings, the study's contribution to the literature is threefold. First, it develops prevailing understandings of the interplay between biomedical and person-centred care models by showing how nurses operate as temporal agents, reflexively accommodating several temporal structures simultaneously in the establishment of caring relationships. Second, it contributes insights into how temporal structures are reinforced and reproduced in a hospital context where predictability is emphasised over flexibility. Finally, the study adds to previous research by showing how a broadened understanding of what 'time to care' means can nuance existing notions of the conditions and complexities of care in modern healthcare contexts. These contributions will now be further developed and discussed.

4.1. *Temporal reflexivity and nurses' role as temporal agents*

The existing literature on time in organisations has stressed how temporal reflexivity involves organisational actors having the capacity to identify, analyse and change temporal structures that guide and reproduce practices (Orlikowski and Yates, 2002; Reinecke and Ansari, 2015). Thus, it implies the articulation and discussion of a shared understanding of 'what time is' in particular organisational contexts (Rowell et al., 2016). This article contributes to such reflexivity among practitioners and managers by identifying medical time, patient time and hospital time as three co-existing and interdependent clinical rhythms, which therefore need to be considered to reach a common

Table 1
Clinical rhythms, their effects on caring relationships and conditions affecting their intertwinements.

Temporal structures, effects and influencing factors	Clinical rhythms		
	Medical time	Patient time	Hospital time
Temporal conception	Event-based (defined by carer)	Event-based (lived by patient)	Clock-based (objective/linear)
Temporal orientation	Past/present to prescribe the future Focus on outcome	Past/future to grasp the present Focus on process	Time valued as a resource Focus on tasks
Temporal patterning	Dynamic according to biomedical evidence and clinical knowledge	Fluid according to uncertainties of lay experience and patient knowledge	Rigid according to what is manageable and measurable
Ways of valuing time in care models	'Caring for' (Biomedical)	'Caring with' (Person-centred)	Care efficiency (Care policy)
Effects on caring relationships	Dependency	Partnership	Reliability
Risks	Objectification	Relativism	Reification
Status in the organisation	Silent politics. - Closely tied to the meaning of main activities. - Widely shared among all staff.	Hidden and informal. - Loosely tied to the meaning of main activities. - Confined to carer-patient.	Loud and visible. - Organising principle for all activities. - Universally shared.
Tensions that require openness to other temporal structures	The medically unexplained and lack of response to/inadequacy of medical treatments	Lack of insight into one's own medical condition/unrealistic expectations for future trajectory	Means to ensure predictability in contrast to medical needs and holistic care
Factors that influence complementarity/conflict between rhythms	Recognition/lack of recognition for uncertainty and patient experience	Recognition/lack of recognition for the medically known and the manageable	Facilitating/lack of facilitating for uncertainty/fluidity in holistic care
		Temporal reflexivity and flexibility	
		Time to care	

Time to care – an ethnographic study.

understanding of time in a hospital context.

Furthermore, the article adds to existing research on the factors influencing care in modern healthcare by nuancing prevailing understandings of the interplay between care models and their effects on caring relationships. In this literature, dependency and partnership have been described as opposing outcomes of the biomedical and person-centred care models (Habran and Battard, 2019; Tanenbaum, 2015). While these are often normatively depicted as representing authoritarian versus inclusive interventions, treating patients as objects or subjects of care, both are also associated with risks if they become naturalised as automatic and default responses to care needs (Habran and Battard, 2019; Mol, 2008; Tomkins and Simpson, 2015).

The biomedical care model potentially leads to objectification by enacting a temporality experienced as abstract and impersonal to patients, while person-centred care, on the other hand, can lead to the notion that 'anything goes' by transforming abstract time into care recipients' time (Habran and Battard, 2019; Mol, 2008). What then constitutes 'good' or 'bad' care depends on the context, and must be empirically investigated. This ethnographic study of how temporal structuring affects caring relationships in clinical nursing illuminates how tensions and limitations associated with the two care models require an openness to other temporal structures, and how they can be made to complement each other in the care of patients with complex needs.

Tracing nurses' activities in pre-round meetings, patient rounds and various care situations demonstrated how nurses operated as temporal agents, accommodating multiple temporal structures simultaneously in their clinical work with patients (Rowell et al., 2016). The case of Mrs Doe shows how the medical framework and its prescribed interventions, such as a diet list, were sometimes inadequate, requiring an openness to lay experience and individual responses and timelines. In other cases, the relativist notion that 'anything goes' was balanced by nurses' advice to patients on the necessity of medically structured and prescribed interventions.

The study thus reveals how nurses enacted a temporal reflexivity in knowing when particular temporal structures were required and how to implement them in their ongoing and adaptive responses to care needs (Rowell et al., 2016). In this way, the article emphasises the essential role played by nurses in countering the risks of naturalisation of care models (Tomkins and Simpson, 2015), allowing the potential pitfalls of dependency to be balanced by the advantages of partnership and vice versa, as distinct but interrelated aspects of caring relationships. As will now be discussed, this was an ambivalent dynamics.

4.2. Predictability versus flexibility and the reproduction of temporal structures

A second contribution of this article is the insights it offers into the processes through which particular temporal structures becomes reinforced and reproduced in a hospital context. According to the framework on temporal structuring outlined by Rowell et al. (2016), temporal structures work to reproduce practices by imposing moral and cognitive constraints on practice deviation, moderated by the extent to which they are tied to the meaning of a practice and shared across practices (Rowell et al., 2016). In this article this framework is applied to explain how medical time gained prominence over patient time, affected by the emphasis on predictability over flexibility in the structuring of caring activities.

Medical time can be said to constitute the "silent politics of time" (Das, 1991) in hospitals, accepted as the main organisational principle of activities and events. Its dynamic and event-based conception of time as owned and managed by the carer was closely related to the main purpose of hospital activities to cure diseases and save lives and thus widely shared among hospital staff (Rowell et al., 2016). As communicated by the nurses in this study, deviations from medical time were experienced as both unprofessional and unethical, potentially putting lives at risk, and were thus morally sanctioned.

Implemented to meet defined and measurable outcomes, medical responsibilities and technical procedures were consequently incorporated into the formal schedule of hospital time, which represented a loud and visible rhythm with its universally shared clock-based conception and commodified valuation of time (Orlikowski and Yates, 2002). Adherence to or deviation from the set time schedule for medically defined tasks was thus also associated with norms such as punctuality and lateness (Zerubavel, 1981).

The study has shown how the resulting task orientation ensured a certain predictability in caring relationships, making the performance of multiple caring responsibilities manageable for nurses and reliable for patients, preparing them for what to expect, when and by whom. The focus on efficiency did, however, also make caring relationships prone to commodification and standardisation.

By reducing both in- and out-nurses' time with patients, but also their flexibility in managing caring tasks and the flow of information between professionals, the focus on efficiency affected the temporal structuring of both medical time and patient time. Furthermore, it influenced the intertwinement between care models with potential consequences for the balancing of dependency and partnership in caring relationships. Thus, it potentially worked to both objectify and reify patients, preventing a holistic understanding of their situations (Cohen, 2011; Gherardi and Rodeschini, 2016).

To counter these effects, nurses often prioritised a few extra minutes with patients, despite 'lack of time' and the risk of being reprimanded for working extra hours or deviating from the medically prescribed schedule. If not associated with medical immediacy, such patterning of caring activities represented a "temporal rebellion", stepping out of time to act according to the patients' rhythm (Erickson and Mazmanian, 2017). While experienced as agentic by particular nurses and as empathetic by patients, this modest revolt did, however, not shift the dominating and underlying conceptions of time as organised according to the clock. Impossible to prescribe, standardise or measure, deviations from patient time were thus only sanctioned by nurses' moral obligations towards patients, and remained a hidden and informal rhythm, used to balance predictability with flexibility in nurse-patient encounters.

5. Conclusion: time to care and caring relationships

This study has aimed to present a broadened understanding of what 'time to care' means in contemporary healthcare contexts, by exploring how temporal structuring affects caring relationships. This is important because the proclaimed crisis of care seems to involve more than 'lack of time', representing a shift in orientations to and valuations of time based on different notions of what care is and ought to be, and what types of care can be afforded (Cohen, 2011; Davies, 1994; Schillmeier, 2017).

Building on previous research on temporality in care (Davies, 1994; Habran and Battard, 2019; Pedersen and Roelsgaard Obling, 2020; Tomkins and Simpson, 2015), the article presents an analysis of the tensions and complexities in the construction and managing of different clinical rhythms and care tasks that can work to nuance prevailing notions of the effects of bureaucratic control and evidence-based medicine in healthcare (Felder et al., 2016; Timmermans and Almeling, 2009). This is achieved by providing insights into some of the factors affecting different ways of constructing time and their interrelationship, emphasising the role time to care plays in enabling temporal reflexivity (Orlikowski and Yates, 2002; Rowell et al., 2016).

The article argues that providing clinicians with the capacity to critically reflect on 'what time is' in a hospital context, the dynamics between different temporal structures and their effect on caring relationships requires, first, that the role of temporal agents in the structuring of caring practices is recognised and facilitated. Second, this does not only require time with patients but also time for clinicians to meet to discuss patient cases among themselves. Thus, it depends on a temporal patterning of caring activities that coordinates the enactment of various temporal conceptions and orientations (Rowell et al., 2016).

Finally, this patterning needs to involve a certain flexibility. This is vital in allowing informal rhythms to complement formalised time. It is also facilitated by entrusting practitioners with the autonomy to define and time care interventions according to individual patients' complex acute and long-term care needs in ways that are medically justifiable, meaningful to patients and organisationally acceptable. Thus, time to care matters in hospital care because it enables a temporal structuring of caring practices that safeguards patients' inevitable dependency, accommodates partnerships and secures reliability as essential constituents in caring relationships in modern healthcare contexts.

5.1. Limitations and research opportunities

This study draws on data from a particular social, professional and organisational context, and the analysis is therefore dependent on the specificities of the case. More studies are needed on the role of temporal structuring in the establishment of caring relationships, exploring how temporal patterns, conceptions and orientations interact and reinforce each other in different contexts of practice and from different perspectives, including experiences of care recipients and the use of communication technology.

Credit author statement

Corresponding author is the only author of this article.

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