The role of leadership in leveraging tacit knowledge among healthcare professionals: an explorative ethnographic study

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Master's thesis for MSc Management van de Publieke Sector

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Foreword

In front of you lies my *pièce de résistanc*e: my master thesis on leadership, quality, and tacit knowledge in healthcare. This thesis is carefully researched and written, with joy, to obtain my master's degree in Management of the Public Sector from the University of Leiden. I have worked on this thesis from February to May 2025, under the thoughtful supervision of Dr. Eduard Schmidt.

I am very happy and proud that I was able to combine my great passion for healthcare with leadership. Fortunately, Eduard and his colleagues laid the groundwork for this study by shaping the general idea of this research and assisting in connecting with the hospital. By diving enthusiastically into my study, I have learnt much about the intensity of observational research and the analytical mindset required to interpret the emerging insights. Above all, I have learnt much about the daily practices of a hospital and specifically surgical work.

I have the greatest respect for everyone in the surgical team I was allowed to observe. One day, I came home from the hospital and asked myself whether I had chosen the right profession; perhaps I should have become a doctor. After all, I could say that doctors do research every day: into the complaints of their patients and into the treatments to make them better. I am thankful to all at the hospital who have shown me around and let me be a *fly on the wall*. They welcomed me like I was one of their own, and to that I am very appreciative.

I would furthermore like to thank my supervisor, Eduard, for his kind and encouraging feedback. As this study emerged from a broader research project, I also want to thank Prof. Dr. Jaap Hamming and Dr. Abbey Scheepers for welcoming me. A special thanks to Abbey for taking the time to show me around the surgical floor at LUMC to see if I could handle bloody surgeries. Last but certainly not least, I would like to thank my family and friends for their moral support and interest in my thesis – thanks dad, for fully reading these 50 or so pages. It hasn't been easy for me the last couple of years, and without their support, I'm not sure I would have decided to start a master's degree. Finally, Tom, thank you for your love, support, and confidence in me.

Summary

Tacit knowledge (TK) is based on experience, intuition, and know-how. It is used by healthcare professionals for decision-making in complex situations, still it is often overlooked as a contributing factor to healthcare quality. Leadership behaviors may help in creating the contexts that improve the leveraging of TK in healthcare. Existing literature reveals a gap, however, in understanding how informal practices unfold in healthcare settings and how leadership, as a contextual factor, may facilitate or hinder the use of TK in practice. This study therefore aims to address these gaps by exploring: *(a) how is TK leveraged by HPs for healthcare quality (improvement) and (b) what role does leadership play in facilitating this process?*

An exploratory ethnographic single typical case study was conducted in a surgical department of a hospital in the Netherlands. A total of 55 hours of non-participant observations and informal conversations were carried out, resulting in detailed fieldnotes that were subsequently coded and analyzed.

The results show that TK is deeply embedded in everyday clinical practice. It emerges through both formal settings, such as handovers and multidisciplinary meetings, as well as through informal interactions. Leadership behaviors, particularly task- and relation-oriented ones, facilitate the use and sharing of TK by fostering open dialogue, collaborative learning, and reflection. Furthermore, the types of leadership behaviors that facilitate TK vary depending on the formal or informal setting. From these insights, a taxonomy of leadership behaviors was developed that shows how leadership can create supporting contexts so that TK can be leveraged within surgical practice.

The findings advocate for a more balanced approach to quality improvement. We need an approach that values human interaction, relational dynamics, and intuitive expertise alongside protocols and indicators. Practically, this means investing in leadership development and organizational cultures that prioritize learning, reflection, and psychological safety.

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1. Introduction

Healthcare professionals (HPs: doctors and nurses) develop practical knowledge through experience, which contributes significantly to their work and the overall quality of healthcare. It is consequently increasingly recognized that much of the knowledge driving healthcare resides in the intuition, shared practices, and interactions of HPs (Kothari et al., 2011; Wieringa & Greenhalgh, 2015). They routinely share this so-called *tacit knowledge* (TK) through informal mechanisms such as handovers, mentorship, and peer discussions (Friedman & Bernell, 2006; Ghabban, 2024). These informal exchanges of TK are critical for maintaining and enhancing job performance and healthcare quality (Huie et al., 2020; Radević et al., 2023). TK is used for decision-making in complex situations, still it is often overlooked as a contributing factor to healthcare quality (Gabbay & le May, 2004; Kothari et al., 2012).

Improving healthcare quality remains a fundamental challenge in achieving universal health coverage by 2030 (World Health Organization [WHO], 2019). Over the years, healthcare quality has been defined in various ways by different organizations and experts, reflecting its multifaceted nature. Often, it includes terms in the range of effectiveness, safety, and responsiveness (WHO Regional Office for Europe et al., 2019). Initiatives to improve healthcare quality are generally structured and evidence-based, focusing on the improvement of particular outcomes through formalized guidelines or protocols (Puri et al., 2025). A dominant approach driving these structures is evidence-based medicine (EBM), which emphasizes objectivity and hierarchy of evidence in medical decision-making (Guyatt et al., 1992). EBM is not without success: it has improved patient outcomes and return on investment for healthcare systems (Connor et al., 2023).

However, EBM has also increased red tape and workload, as it requires the collection and monitoring of numerous quality indicators (Hesselink et al., 2023; Zegers et al., 2022). To illustrate, in an empirical study in the Netherlands, most of the collected quality indicators (57%) were gathered for accountability to external parties, such as governments and insurers, and 25% for quality improvement (Zegers et al., 2022). Respondents considered 36% of indicators to be useful for quality improvement. This supports Ewert's (2020) argument that HPs operate within hybrid accountability

structures, balancing multiple, and often inconsistent, responsibilities that are difficult to reconcile and that may be conflicting. This balancing act creates an increasing bureaucratic burden, which is often seen as "checking boxes" (Ewert, 2020). It moves HPs away from patient-centeredness and leads to lower overall performance and job satisfaction (Muylaert et al., 2022; Van Loon, 2017).

Medical leadership has partly emerged in response to this changing reality and the need for physicians to redefine their role: it implies a shift from individualistic clinical experts to collaborative leaders who are, among others, engaged in quality improvement (Keijser et al., 2019). Even more, leadership and organizational culture are associated with the effective implementation of quality improvement initiatives (Kaplan et al., 2010). With research showing that a HP's well-being directly impacts the quality of care (Scheepers et al., 2015; Wallace et al., 2009), appropriate leadership is essential. For instance, when HPs feel valued and supported, the quality of care improves (Dixon-Woods et al., 2014), and a strong correlation is found between leadership qualities and the level of job satisfaction of HPs (Shanafelt et al., 2015). More specifically, relational leadership styles (e.g., transformational) are associated with higher job satisfaction and improved workplace environments in healthcare, leading to lower adverse health events (Boamah et al., 2018).

Leadership thus appears to be a particularly relevant contextual factor (Rogers et al., 2020). By shaping workplace culture, professional interactions, and priorities, it is reasonable to expect that leadership not only affects formal quality improvement initiatives but also affects how TK is used. Leadership may help create the conditions under which TK can be leveraged for healthcare quality. At the same time, empirical research into this specific relationship remains limited and a clear understanding of how this occurs in practice is lacking.

1.1. Problem statement and research question

Current research predominantly focuses on formal, evidence-based quality improvement approaches that emphasize measurable outcomes, hierarchical reporting structures, and general knowledge management (Kothari et al., 2011). However, these formal mechanisms often fail to capture the nuanced, experience-based insights that

drive on-the-ground quality improvements. While TK is generally assumed to contribute to healthcare quality, there is a lack of empirical research investigating how this occurs in practice (Wieringa & Greenhalgh, 2015). This gap leaves healthcare organizations without a clear understanding of how they can leverage TK and optimize healthcare beyond standardized indicators and protocols. As a result, there is a growing need expressed in the literature to explore how HPs use and share TK, to enhance healthcare quality (Farr & Cressey, 2015; Ghabban, 2024; Kothari et al., 2012; Turner et al., 2014).

Additionally, research on the role of leadership in leveraging TK for better healthcare is scarce. As the level of sharing and leveraging of TK is dependent on context (Chuang et al., 2016; Coles et al., 2020), we can assume that leadership may contribute to or hinder this process. For instance, top-down leadership may create the structural conditions for TK utilization, while bottom-up leadership might empower HPs to articulate and apply their intuitive insights more effectively. However, little is known about how different leadership behaviors influence the sharing and use of TK for healthcare quality.

Taken together, these gaps highlight a need to explore how informal practices unfold in healthcare settings and how leadership, as a contextual factor, may facilitate or hinder the use of TK in practice. This study therefore aims to address these gaps by exploring the following research question: *(a) how is TK leveraged by HPs for healthcare quality (improvement) and (b) what role does leadership play in facilitating this process?*

1.2. Scientific relevance

This study makes three relevant scientific contributions. This study, first, contributes to the scientific knowledge of healthcare quality by shifting the focus from formal structures to informal practices. This shift enhances our understanding of the role of TK in healthcare quality by exploring how TK is shared and utilized among HPs. Despite the acknowledgement of earlier studies that HPs rely on their TK in complex decision-making (Gabbay & le May, 2004; Wieringa & Greenhalgh, 2015), little empirical research has explored how TK is actually shared and used in practice to support healthcare quality improvement (Kothari et al., 2012). Therefore, this study adds to the growing literature that questions strict EBM-approaches to quality and instead emphasizes the

human, intuitive, and interactional dimensions of healthcare quality (Fernandez et al., 2015; Tringale et al., 2022). In doing so, it provides new insights into the informal dynamics of quality achievement and development within hospitals.

Second, this study introduces the concept of TK into the field of public administration, where it remains underexplored. While public administration scholars have long studied policy implementation, street-level discretion, and organizational learning, they have rarely used TK as a lens to understand how knowledge is created, exchanged, or used in public service delivery (see for instance Møller, 2022). This research contributes to the knowledge governance and organizational behavior literature within public administration: it offers a new perspective on how informal (knowledge) practices contribute to performance in public institutions beyond rules, procedures, and formal reporting.

Third, this study connects with the literature on leadership and team interactions in healthcare, emphasizing the critical role of context in shaping quality efforts. While research has shown that leadership influences the success of quality improvement efforts (Kaplan et al., 2010; Dixon-Woods et al., 2014), the link between leadership and TK leveraging remains poorly understood. This study hereby bridges public administration literature on leadership with healthcare studies, identifying key leadership characteristics that support or hinder (tacit) knowledge sharing.

1.3. Practical relevance

In addition to contributing scientifically, the findings can practically inform healthcare managers, policymakers, and quality coordinators on how to better use TK for healthcare quality. The results may identify existing strengths in the contexts created by leadership that support interaction and TK leveraging. The results may also highlight potential areas for improvement. Together, this could lead to more sustainable healthcare quality improvements, as it then promotes a leadership culture that supports TK leveraging for better healthcare.

2. Theoretical background

This chapter starts by describing tacit and explicit knowledge and explores how TK functions within healthcare. It then discusses how both forms contribute to healthcare quality. Finally, this chapter explores how leadership can create organizational contexts that support the leveraging of TK.

2.1. Tacit and explicit knowledge

Polanyi (1966, p. 4) wrote in 1966 “we can know more than we can tell”, which captures the overall essence of TK: the knowledge that resides *within* people. It is personal, internal knowledge that is difficult to communicate. Polanyi was the first to describe this. He viewed TK as related to individual skills and embedded in context (Polanyi, 1966). TK is described by others as subjective insights, intuitions, and gut feelings, a form of “know-how”, primarily acquired through experience and practice rather than through formal language or instruction (Kothari et al., 2012; Nonaka et al., 2000). Bennet and Bennet (2008) depict TK as the knowledge stored in one’s subconscious. Individuals may not even be aware that they possess this knowledge, the authors say. TK is (thus) seen as the ability to perform tasks developed through experience (Kothari et al., 2012). TK is deeply rooted in action, procedures, routines, commitment, ideals, values, and even emotions (Nonaka et al., 2000). Nonaka et al. (2000) stated that it is context-specific: without context, it is merely information, not knowledge.

TK’s opponent is *explicit knowledge* (EK). EK can be easily expressed in formal and systematic language, and for instance shared in the form of data, textbooks, rules, or manuals. Polanyi (1966) considered explicit and tacit knowledge as distinct yet complementary forms of knowledge. He argued that EK is always grounded in TK: even the most formalized EK contains an underlying tacit dimension. Others, however, such as Nonaka & Von Krogh (2009), viewed tacit and explicit knowledge as part of a fluctuating continuum without clear boundaries. And there are still others, such as Bennet and Bennet (2008), who introduced implicit knowledge as in between tacit and explicit on the continuum, pertaining to knowledge that is not directly conscious but can

emerge and be vocalized when triggered. The subtle and context-dependent nature of TK makes it particularly significant in complex and dynamic settings such as healthcare.

Indeed, research suggests that TK plays an important role in healthcare. First, a significant study involving TK in health care decision-making is the ethnographic work by Gabbay and Le May (2004). The authors found that HPs frequently rely on their own, as well as their colleagues' internalized TK, rather than strictly adhering to protocols. The authors termed this phenomenon "mindlines", which are internalized guidelines shaped by (shared) experiences and interactions (Gabbay & le May, 2004). Since they can depend on this knowledge, HPs can adjust their actions for optimal patient outcomes.

Second, TK is crucial for the performance of healthcare teams. Friedman and Bernell (2006), for instance, examined how TK and related team characteristics influence the performance of cardiac surgery teams. They defined TK as the shared experience that enables team members to successfully anticipate each other's actions in both routine and unexpected situations. The study also identified team composition, communication, and trust as crucial factors for effective team performance in "high-performing healthcare" settings. Next to the performance of teams, Fernandez et al. (2020) identified relevant themes for collaboration, involving sensing others' motivations, recognizing their efforts, and contributing to a shared goal. They found face-to-face interactions to be especially valuable for exchanging TK insights and deepening HPs' understanding of patient cases.

All of this indicates that TK plays an important role in healthcare and that there is growing interest in, and recognition of, its value. However, to conclude this section, it also has to be recognized that not all TK is beneficial. Deeply ingrained TK can sometimes create barriers to accepting new insights or adapting to change (Turner et al., 2014). Critical reflection is essential to ensure that TK supports, rather than hinders, advancements in healthcare quality (Kothari et al., 2012). The following section, therefore, elaborates on the complementary roles of tacit and explicit knowledge in supporting healthcare quality.

2.2. Tacit and explicit knowledge for healthcare quality

While TK is increasingly recognized as valuable to healthcare quality. And, as this section explains, achieving and sustaining healthcare quality can be supported by both explicit and tacit knowledge.

The effective transfer of TK, for instance through mentoring programs, can help raise standards in patient care (Ghabban, 2024). Sharing TK and making it explicit is important for learning, team development, and the transfer of "best practices"; all of these are relevant for healthcare quality (Fernandez et al., 2020; Huie et al., 2020; Lyng et al., 2023). Moreover, healthcare quality is not only determined by measurable outcomes, but also by the values, motivations, and behaviors of HPs, as well as their interactions with patients (Farr & Cressey, 2015). The authors emphasize that understanding quality from the HPs' viewpoint is crucial for effectively managing and improving care in daily practice (Farr & Cressey, 2015).

Moreover, Turner et al. (2014) explored how tacit and explicit knowledge can be combined to improve patient safety in English hospitals. The aim was to study how TK could be externalized. The findings showed that EK can support learning by structuring the sharing of TK. However, organizational barriers, such as professional and managerial boundaries, hindered broader implementation. The authors concluded that the successful integration of these two forms of knowledge depends on bridging the gap between learning processes in clinical practice and the wider governance of the organization.

Leveraging TK is, in fact, highly valuable for organizational learning and innovation (Alerasoul et al., 2022; Castaneda & Cuellar, 2020; Tamer Cavusgil et al., 2003). Innovation and competitive advantage can occur because TK is firm-specific and difficult to imitate (Nonaka & von Krogh, 2009). However, it is precisely the invisible and experience-based character of TK that makes it difficult to exploit by articulation, sharing, and managing. Acknowledging this challenge, scholars and practitioners have developed tools, concepts, and models to "capture TK".

These efforts typically focus on making TK more explicit: they target the processes through which TK can be externalized, and vice versa, and transferred within organizations (see for instance the landmark SECI- model by Nonaka (1994)). For

example, in various healthcare settings in Norway, Lyng et al. (2023) found that workshops on resilience functioned as “mediating objects” that opened opportunities for shared understanding and language, joint focus, and shared reflection. The authors conclude that, for interventions seeking to improve healthcare quality, tools like these prove to be valuable for translating and transforming knowledge into practice (Lyng et al., 2023).

2.2.1. Healthcare quality (improvement)

Traditionally, the factors and indicators to measure healthcare quality rely mainly on EK. This reflects the healthcare sector’s EBM-preference for quantifiable, evidence-based data. However, even in the realm of “hard” science, there is no universally accepted method for accurately measuring the quality of care. Healthcare quality is therefore both difficult to define, measure, and improve. To enable monitoring, healthcare systems make use of *quality indicators*. According to Donabedian (as cited in De Vos et al., 2009), quality indicators are intended to detect suboptimal care in terms of structure, process, or outcome. They can therefore also be used as a tool to guide the process of quality improvement in healthcare.

Monitoring indicator data makes hospital care more transparent and provides information to help target quality improvement initiatives (De Vos et al., 2009). This is needed because quality improvement occurs at multiple levels within the healthcare system, from microsystems (teams) to macrosystems (organizations) and the broader national healthcare system. Achieving high-quality care is consequently challenged by unclear goals and overlapping priorities, induced by different stakeholders (Dixon-Woods et al., 2014; Farr & Cressey, 2015).

Quality improvement is then the next step. It often refers to systematic efforts and strategies aimed at enhancing the effectiveness, safety, patient-centeredness, timeliness, efficiency, and equity of healthcare services (WHO, 2019). This is also seen as a means to transform healthcare, since it involves a structured and continuous effort to enhance healthcare (Batalden & Davidoff, 2007). TK and quality improvement together ensure that efforts to enhance care are not only systematic and evidence-

based, but also grounded in the practical, experience-driven insights of healthcare professionals.

In this study, therefore, measurement of healthcare quality is intentionally not reduced to indicators, checklists, or protocol adherence alone. While such tools can be valuable for transparency and management, the focus here is on analyzing the actual delivery of good care. Healthcare quality, in this view, is about doing the right thing for the patient: improving patient outcomes. This requires a better view of not only EK, but also TK, judgment, and values of HPs.

2.3. Tacit knowledge and leadership in healthcare

Little is known about how leadership can facilitate the leveraging of TK for healthcare quality purposes. Yet, there are many reasons to assume that leadership is important in this pursuit, as research indicates how leaders and organizations can create environments that encourage recognizing, developing, and sharing TK to improve healthcare quality. Researchers have stressed that it all comes down to fostering the right context both for exploiting TK and improving healthcare quality (Chuang et al., 2016; Coles et al., 2020; Kaplan et al., 2010; Kringos et al., 2015). Leadership, particularly, can contribute to creating the right context.

2.3.1. Defining leadership

Leadership in public organizations can be defined in several ways. This study adopts Yukl's understanding of leadership, in which it is seen as a set of leadership behaviors: a social process of influencing others to reach an agreement on what needs to be done and how it should be done, in order to increase performance (Yukl, 2012). This includes, according to him, how a leader can facilitate individual and collective efforts to meet common goals. This can be seen in the actions of formal and informal leaders: anyone in the organization or team can show leadership. Leadership is seen as a behavior that can be observed. This should be contrasted with viewing it as a characteristic or a learned skill.

These leadership behaviors are ordered by Yukl (2012) into a taxonomy. The taxonomy integrates many different behavioral concepts used in the field of leadership behavior. Four meta-categories are differentiated, and each of them is further divided into specific component behaviors. Firstly, there is task-oriented behavior, which includes behaviors focused on the efficient and effective execution of tasks. Second, relations-oriented behavior includes behaviors aimed at maintaining and strengthening relationships with followers and creating a positive work environment. Then there is change-oriented behavior, which focuses on behaviors that promote innovation, adaptation, and change within the organization. Finally, external behavior includes behaviors related to interactions with the organization's external environment. The categories and components might contribute to an environment where TK is better leveraged for healthcare quality. These are explored in the next section.

2.3.2. Creating the right context for tacit knowledge leveraging through leadership

The literature identifies several contextual factors that improve the leveraging of TK in healthcare. Put together, these are (1) collaboration, interaction, and shared experiences; (2) communication; and (3) trust. Each of these is explored below, along with corresponding leadership behaviors that support them.

Collaboration, interaction, and shared experiences

TK is often shared through informal channels and requires close personal contact (Fernandez et al., 2020; Friedman & Bernell, 2006). Consequently, leaders should promote good collaboration and teamwork. Leadership behaviors such as *developing*, *empowering,* and *facilitating collective learning* foster these dynamics (Yukl, 2012).

Since TK is built through experience and practice, leadership behaviors that involve and support feedback and skill development are key to enabling its sharing and use. For instance, more experienced staff can transfer their TK to less experienced colleagues, reinforcing TK through hands-on learning. This is encouraged by *developing* behaviors, such as coaching and mentoring. Additionally, *empowering* behaviors, such as involving team members in decision making and delegating responsibilities, support

more horizontal leadership practices. These behaviors not only foster autonomy but also demonstrate trust in others' expertise, encouraging the use and sharing of their TK.

Next, and related to the above, *facilitating collective learning* involves creating opportunities for teams to reflect and learn from one another. Peer interaction is important for the quality of care (Valentine et al., 2014). TK is created and internalized through discussions and interactions among colleagues, as peers discuss experiences and interpret clinical situations together (Ghabban, 2024; Naseer et al., 2022). Such informal learning processes can result in "mindlines" (Gabbay & le May, 2004).

Communication

Effective communication is essential to the sharing of TK, which often occurs in informal conversations, observations, and subtle cues (Friedman & Bernell, 2006). Leadership fosters communication by creating diverse opportunities for dialogue, whether in formal settings or impromptu interactions. Communication can take various forms, including formal conferences, informal hallway conversations, and even body language (Friedman & Bernell, 2006). HPs value face-to-face meetings for exchanging insights about a case, leading to deeper understanding and improved patient care (Fernandez et al., 2020).

Recognizing behaviors facilitate communication through appreciating the contributions and expertise of their team members. Actively asking team members to speak up in meetings leads to more engagement and shared leadership when expertise is needed (Fernandez et al., 2020). Moreover, by acknowledging TK as a valuable form of clinical knowledge, leaders encourage employees to share their experiences and insights. Developing a shared language is important for articulating what works well, allowing TK to be transferred between teams and organizations (Lyng et al., 2023).

Furthermore, *clarifying* behaviors helps making more explicit what may be felt to be vague TK. This can be done by asking questions and summarizing discussions, adding to communication. Leaders who also facilitate collaborative *problem-solving* processes create opportunities for employees to contribute their different perspectives and experiences, including TK.

Trust

Trust underpins effective TK sharing and enhances team cohesion and common working methods (Friedman & Bernell, 2006; Ghabban, 2024; Turner et al., 2014). Trust improves knowledge transfer, promotes honest feedback, and enhances the quality of information (Huie et al., 2020; Radević et al., 2023). Leadership contributes to the psychological safety needed for enhancing trust, and this enables organizations to learn and perform better in vibrant settings (Edmondson & Bransby, 2023).

Leaders who foster a safe and respectful environment encourage employees to openly share their experiences and insights (Ghabban, 2024). *Supportive* and *empowering* leadership behaviors create such a context. *Empowering* behaviors grant employees their autonomy and responsibility, which is especially relevant for autonomous HPs. When they feel encouraged to take initiative and make decisions based on their TK, the leveraging of this knowledge is stimulated. TK often serves as a source of new ideas and solutions. Leaders who *encourage innovation* create an environment where TK can be applied and made explicit through both successes and failures. Such an environment creates space and trust for colleagues to engage more actively and take initiative (Farr & Cressey, 2015).

3. Methods

3.1. Research context

This study is an ethnographic single-case study of a surgical department in a general hospital in the Midwest of the Netherlands. To maintain anonymity details are omitted. The Dutch healthcare system is funded by both private and public sources, with regulations in place to ensure quality and accessibility. Within this system, general hospitals, such as the one in this study, operate under increasing pressure due to demographic changes, financial constraints, and scientific advancements. The hospital serves around 300,000 residents and is a teaching hospital. As such, it contributes to the education and professional development of (young) doctors, fostering a culture of continuous learning. Furthermore, it collaborates with other medical organizations in the region, ensuring integrated patient care.

This surgical department was selected for three reasons that align closely with the aims and design of this study. First, it provides a relevant setting to investigate TK and quality in an organizational context. The hospital and its surgical department have a strong internal culture of reflection, experimentation, and learning, which has been institutionalized through several initiatives. One of them is a project explicitly centering the expertise and experiential knowledge of nurses in improving care processes. The presence of such initiatives suggests a certain level of organizational awareness of the role of TK and distributed leadership in healthcare quality.

Second, its scale is more contained compared to larger academic hospitals, allowing for a focused examination of interaction among professionals and patterns of quality development. It is large enough to host diverse professional roles and interactions, yet small enough to allow an in-depth, focused observation. This makes it suitable for tracing how TK is developed, shared, and used in context, and how leadership manifests itself and contributes to the contexts for leveraging TK in practice.

Third, the hospital and its surgical department are known to have a warm, collegial, and open working culture. This reputation suggests that TK is likely to be exchanged through informal interactions. Such a context aligns strongly with the

methodological choice for ethnography, which seeks to capture exactly these kinds of tacit, everyday dynamics in practice.

3.2. Research design

3.2.1. Ethnography

An ethnographic approach is a well-suited and innovative approach for this study. It allows for an in-depth understanding and description of the daily and routine behaviors, values, and actions of people in their natural environment (Cupit et al., 2018; Savage, 2000). Black et al. (2021) reviewed the state of the art regarding the use of ethnography to study healthcare innovations. Ethnography can be valuable for healthcare quality as it uncovers “hidden practices” (Black et al., 2021). TK is such a form of hidden practice and, therefore, ethnography is particularly useful for exploring it.

This is especially so when it is contrasted with interviews or questionnaires. Moreover, their desirable responses can be a problem and complex realities are reduced to simplified, verbal explanations. Observations reveal daily business and contexts without disturbing them, showing the natural interactions and behaviors of participants. Hence, ethnography can help recognize the contextual factors that may facilitate or hinder quality improvement efforts (Black et al., 2021).

Furthermore, ethnography represents an innovative approach to studying leadership among HPs. Traditional leadership studies often rely on surveys or interviews (Fischer et al., 2023). Leadership, however, manifests itself in subtle interactions, decision-making processes, and everyday routines that are easily overlooked by distant (quantitative) methods, and therefore needs “improved contextual appreciation” (Johns, 2024). Ethnography can provide that appreciation as it enables a nuanced image through the direct observation of leadership in context (Sutherland, 2018).

3.2.2. Single case study

A single, typical case study is valuable when no clear hypotheses can be formulated upfront. According to Gerring (2004), case studies provide a rich, intensive analysis to uncover mechanisms that may not be easily observable in large studies. The current

study will look for such mechanisms by observing interactions, leadership behaviors, and work practices of HPs in the case study. The assumption here is that TK is frequently shared among HPs and (thus) that HPs are continuously contributing to healthcare quality. Yet the exact nature of these connections is unknown.

By focusing on this single typical case, this ethnographic research explores the potential mechanisms that facilitate or hinder the process of sharing tacit (and explicit) knowledge through specific leadership behaviors. Thus, choosing a typical case enables the exploration of this assumption within a relevant context. The findings from this study can hence serve as an illustrative example in healthcare settings.

Moreover, the ethnographic method is useful for studying leadership behavior in this specific case. Sutherland (2018, p. 268) states that leadership is often understood as a "socially constructed process embedded in context and culture." This means that how leadership is employed and perceived is highly dependent on the specific circumstances, norms, and values of the environment. To study inherently context-dependent leadership, a research method is needed that can unravel this specific context in detail (Johns, 2024). A case study is, therefore, particularly well-suited for this purpose.

3.2.3. Abductive analysis

This study adopts an abductive approach to analysis, which fits closely with both the research question and the ethnographic design of the study. Abductive analysis is an iterative process that creatively puzzles together empirical data and theoretical ideas (van Hulst & Visser, 2025). Unlike induction, which builds a general account from data, and deduction, which tests theories, abduction starts with surprising observations made during fieldwork that implicitly or explicitly conflict with existing expectations. The abductive approach was chosen because this study involves an interaction (between TK, healthcare quality, and leadership) that has not been studied yet. Through an abductive lens, the researcher remains attentive to subtle cues, contradictions, or informal practices that may reveal the mechanisms at play in TK sharing and leadership.

Van Hulst and Visser (2025) propose four principles to guide abductive analysis during the research process and subsequent analysis and reflection. First, researchers

should embrace surprises, tensions, and doubts, using unexpected observations as starting points for deeper inquiry. Second, existing knowledge should be applied creatively to interpret patterns and construct plausible explanations. Third, methodological flexibility is key, allowing for a combination of, for example, observations, informal conversations, and document analysis. Finally, an iterative engagement between data and theory throughout the research process is imperative. Interpretations based on initial observations will influence the focus of later observations, following a spiral process that leads to a deeper understanding of the phenomenon.

This flexible approach of abductive research is well aligned with ethnographic research, particularly with an interpretivist paradigm, which emphasizes the co-construction of meaning and the interpretation of social phenomena from the standpoint of participants (Ospina et al., 2018; Sutherland, 2018; Visser & van Hulst, 2024). TK is inherently experiential, embodied, and relational; it cannot be thoroughly researched through distance or detachment. Instead, it needs an immersive inquiry that attends to local meanings and practices (Ospina et al., 2018). Similarly, leadership is not a fixed or universal set of behaviors but a socially and context-dependent process (Sutherland, 2018).

In this study, this approach supports a dynamic and reflective engagement with the field. The open nature of ethnographic observation, combined with abductive reasoning in a single typical case study, enables the identification of practice-based leadership behaviors and TK leveraging that might otherwise remain invisible. This approach is therefore deemed to be sufficiently appropriate for addressing the research question.

3.3. Data collection

Unstructured observational data was collected over approximately 55 hours in April and May 2025. The observations covered formal meetings, informal meetings, and interactions among HPs, as well as daily work practices, including surgical procedures in the operating room. An overview of the hours and days, and what was observed at each time, is included in Appendix 7.1. The researcher observed as a non-participant

and adopted a *fly-on-the-wall* stance, either by shadowing surgeons or observing their meetings and interactions. Appendix 7.2 reflects the positionality as a researcher. In addition, informal conversations were conducted with participants to clarify observations and understand contextual nuances. Finally, member validation was conducted to enhance the credibility of the preliminary findings. This was an online meeting with two surgeons from the department, during which preliminary themes and interpretations were presented and discussed. Their responses were used to refine and nuance the analysis and to verify whether the interpretations resonated with their experiences and perspectives.

Fieldnotes served as the primary form of data and are considered the raw material from which the analysis was developed. Following Emerson, Fretz, and Shaw (2011), the fieldnotes do not only include descriptive accounts of events and interactions but also reflections, possible preliminary interpretations, and other researcher's reactions. These notes were written as soon as possible after observations. All fieldnotes were collected in a research journal and later transposed and edited in Word.

3.4. Participant selection

The participants are the staff of the hospital's surgical department, focusing on the surgeons themselves. Surgeons work in a high-pressure environment where TK is essential for effective and fast decision-making, teamwork, and patient outcomes (Friedman & Bernell, 2006). Surgeons often rely on non-verbal cues, situational awareness, and informal interactions to coordinate with colleagues and make time-sensitive decisions. These forms of knowing are not typically captured by formal protocols but are essential for delivering high-quality care in complex environments. The surgical department is therefore relevant for this study.

A convenience sampling strategy was used, based on access to the department and the willingness of staff to participate. While this approach limits generalizability, it allows for contextual insight into TK and leadership. To ensure a broader understanding, efforts were made to include a diverse group of surgeons in terms of experience levels (e.g., residents and supervisors) and gender. This variation offers insight into how TK is

acquired and expressed differently depending on professional experience and social positioning within the department.

An overview of included participants, their roles, and their modes of participation (e.g., observed, shadowed, or informally interviewed) is included in Appendix 7.3. Access was granted by the surgical department's group of medical specialists (*the vakgroep*), following internal review and alignment with the department's objectives. The study was exempted from formal medical ethical review by the Dutch Medical Research Involving Human Subjects Act (WMO), as no interventions or patient data were involved. Participation was voluntary, and all observed individuals were informed about the research and given the opportunity to opt out of observations at any time.

3.5. Data analysis

Following abduction, the data were analyzed in an iterative cycle between data and theory. This cycle allowed for a dynamic and flexible engagement and familiarization with the data. Braun and Clarke (2013) describe several steps for coding titled *Grounded Theory Lite*. The authors explain this as a simplified version of Grounded Theory, where only the early stages of the full process are followed, such as initial coding and concept development. The first step was open or initial coding; this is a method in which data is broken down into parts and labeled according to emerging themes or concepts (Braun & Clarke, 2013). Because of iteration, this step had already started while the fieldwork took place. Axial coding was, then, applied to explore relationships between codes and to organize them into larger overarching categories relevant to the research question. The patterns and concepts were further analyzed and refined into themes that represent the overarching meanings in the data in the next step.

3.6. Reliability and validity

Ensuring reliability and validity is crucial in qualitative research. They are achieved through consistency and transparency of the research processes (reliability) and the extent to which the research accurately represents what it intends to depict (validity)

(Braun & Clarke, 2013). Described below are ways this research tried to increase reliability and validity.

The research is as transparent as possible in reporting clearly and in detail how the data were collected, analyzed, and interpreted. A clear description of the steps in data analysis, such as coding processes, contributes to the reliability of the study. Critical reflection on this process and the role of the researcher is crucial for ethnography (Black et al., 2021). Researchers must be aware of their subjectivity, biases, and assumptions, and how these may influence the research process and interpretations. This is encompassed by adding Appendix 7.2 about the positionality of the researcher.

Moreover, qualitative research is based on "thick descriptions" of the researched settings and understanding the worldviews of participants (Braun & Clarke, 2013; Ospina et al., 2018). Credibility is increased by providing the thesis with sufficient evidence from the data, such as quotes, to support interpretations. Member validation also increased credibility as participants could provide feedback on the analysis. The iterative nature of abductive analysis further enhanced internal validity by continuously refining interpretations through empirical observations and theoretical reflection. Finally, while the study's external validity is inherently limited due to its single-case design, the selection of a typical case allows for analytical generalization.

4. Results

This chapter describes and analyzes the results of this ethnographic study. The analysis focused on two themes: the sharing and use of TK, and the leadership behaviors present that facilitate or hinder this process. This study distinguishes between formal or planned meetings, and informal or spontaneous interactions in which the using and sharing of TK takes place. The observations furthermore reveal that the daily tasks of the surgical department adhere to a relatively standardized and predictable structure. Throughout this routine, the staff in the surgical department consistently share TK through formal and informal meetings and interactions such as handovers, mentorship, and peer discussions, as this chapter will show.

4.1. Sharing and using tacit knowledge

4.1.1. Planned meetings

In planned meetings, the staff frequently shared and used TK. These meetings are intended to provide a formal setting for information exchange and ensure not only continuity of care and coordination but also learning opportunities. Generally, a designated chairperson, typically a senior resident, ensures the meetings are efficient and time managed.

The morning handover occasionally begins with a short educational presentation on a relevant clinical topic. Then, roles for the day, such as who is supervising or covering emergency cases, are projected on a screen and read aloud. Next, one resident presents each newly admitted patient briefly, with a summary of their medical condition, treatment plan, and any noteworthy issues. Medical imaging, such as X-rays or CT scans, and the patient file are projected and reviewed collectively, allowing the team to reassess and clarify the findings when necessary.

The “grand round”, held twice weekly, involves a discussion of all surgical patients, not just those newly admitted. The resident in charge of the patient’s care presents the patient’s status, while the team carefully listens. The team then

collectively assesses the treatment plan or the patient's progression, possibly collectively deciding on another direction.

Multidisciplinary meetings (MDMs) are another key element of clinical coordination. In these sessions, doctors from various specialties, and sometimes other hospitals via digital conferencing, review complex cases and determine treatment plans. Before the meeting, a list of patients to be discussed is circulated, so everyone can prepare accordingly (e.g., radiologists and pathologists need to indicate the type or degree of tumor). Again here, each case is presented briefly, with a collective review of diagnostic images.

In all these meetings, the discussions around diagnoses and treatment plans offer fertile ground for TK sharing and using. Mostly surgeons, and sometimes residents, ask questions and discuss treatment protocols, particularly when clarification is needed, or different interpretations arise. An example would be whether antibiotics are standard in a certain situation or what the expected effects of a medication are. The formal meetings typically allow time for this type of question and consideration: "When do you actually perform this procedure?" or "Why do we actually do it this way?" Doctors use phrases like: "I've seen this a few times before where…". These discussions, where explicit and tacit knowledge come together, allow for collaborative learning and validating clinical reasoning.

The discussions, logically, also often reveal differences in interpretation or tensions between guidelines and clinical reality. An example is a collective decision to prescribe antibiotics to a patient over the age of 80, drawing on shared experience and concern for patient outcomes, even though scientific guidelines do not strictly require it. In another example, guidelines offered little clarity. A doctor complained: "The guidelines state: you could consider this, you could consider that … It drives you crazy". Finally, clinical decisions are made together, based on the collected TK.

4.1.2. Unplanned interactions

In addition to the planned meetings, the staff are continuously in contact with each other. Throughout the day, TK is shared in unplanned meetings and spontaneous interactions. These include hallway conversations, phone calls, ad hoc meetings or

discussions, or simply sharing how the day went in the surgical lounge. All staff carry mobile phones and have fast-dial access to colleagues, facilitating instant consultation and coordination. Daily rounds form the practical core of patient care. These visits typically begin with brief informal consultations between doctors and nurses in the hallway to align expectations and clarify concerns. The team then visits each patient, discusses their condition, asks questions, and updates treatment plans. Findings and updates are recorded directly into the medical record via a mobile computer.

In all these informal processes, the more experienced staff often offer advice based on TK. This is for instance illustrated by the function of the supervising doctor of the day, who serves as a point of contact for residents to call and consult in case of questions or unusual cases. Surgeons, in these informal contexts, continuously provide tips and insights based on personal knowledge and experience, or (internalized) protocols. In an example, during surgery, a surgeon explains to a resident why they prefer a specific suturing technique: “That’s why I like doing it this way. With just that, it gets all bleh, but this way it turns out better.”

Also, in a learning environment where medical students are taught to adhere to protocols, supervisors enrich protocol-based training with personal tips. For instance, the surgeon explained to a medical student:

> “I recently heard a tip: make sure not to cover the ears. A patient is already stressed, and the brace makes it so they can’t move their neck and can only look upwards. If they also can’t hear properly, it just makes things worse for the patient.”

These informal, experience-driven exchanges illustrate how TK is embedded in everyday practice and plays a vital role in mentoring, decision-making, and patient-centered care.

4.1.3. Decision-making, tacit knowledge, and quality of care

Although formal guidelines and protocols are used, practice shows that they are often supplemented, interpreted, or even overridden by TK. It becomes clear that TK plays an important role in the decision-making process. Personal experience and input are frequently used to adapt or deviate from protocols. For example, a surgeon performed a

procedure without anesthesia at the patient's request, as the patient reported no pain. This deviates from protocol, answering the patient's request, and requires clinical judgment tailored to the specific context. The surgeon shared this experience with a colleague informally in the surgical lounge.

All of the above illustrates how using TK can enhance patient outcomes. These discussions or outcomes of the use of TK are however not systematically documented. For instance, during MDMs, a joint treatment plan is formulated, but the underlying reasoning is typically not recorded. Similarly, during handovers or rounds, discussions take place, but only the patient's attending physician continues working with the resulting decision, and likely only part of the rationale of the discussion enters the patient's file. One resident mentioned that they recently considered documenting these insights or learning points, but it is unclear which points are actually recorded and what is subsequently done with them. Altogether, this shows that TK adds to healthcare quality, but at the same time, it is not always considered how these quality improvements can be updated or applied in the daily routines more structurally.

4.2. Leadership behaviors

This section describes and analyzes how leadership behaviors encouraged the leveraging of TK by creating supportive organizational contexts. This analysis uses Yukl's taxonomy of leadership behaviors as described in Paragraph 2.3. Task and relation-oriented behaviors were most frequently observed in creating favorable contexts for the utilization and sharing of TK. From change-oriented behaviors, the component facilitating collective learning was also often observed.

4.2.1. Task-oriented behaviors

Task-oriented behaviors aim to strengthen the efficient and effective execution of tasks (Yukl, 2012). They were frequently observed in the daily interactions and structures of the surgical department. The planned meetings (handovers, grand rounds, and MDMs) are essentially set up to clarify, monitor operations, solve problems, and plan actions, yet the more spontaneous interactions are also a necessity for this coordination of care.

Planning and monitoring

Monitoring care and planning treatment is evidently a requirement in healthcare provision. By incorporating the use and sharing of TK into these behaviors, planning and monitoring strengthen the leveraging of TK. As such, planning behaviors are, among others, used in determining next steps, allocating responsibilities, and anticipating patient needs. These actions often rely on TK, particularly when decisions are not straightforward. For example, during a discussion about whether a patient is suitable for surgery, surgeons draw on their personal experience and clinical intuition to suggest treatment plans. Or, when a discussion did not provide a clear consensus, a resident asked: *"So, are we going for a CT scan or an ultrasound?"* Such behaviors help surface and clarify the reasoning behind clinical judgments, allowing others to access and learn from TK that might otherwise remain internalized.

Monitoring behaviors reinforce this dynamic by encouraging ongoing reflection and reassessment. One example is a discussion surrounding the load-bearing capacity of a leg. Initially, the plan of the resident was for the patient to be discharged. *"I wouldn't recommend putting any weight on that leg for now,"* a surgeon remarked, based on the patient presentation and their own TK. After the junior doctor mentioned that the patient lives on the first floor (without an elevator), the surgeon reconsidered the plan and felt that going home was not advisable under the circumstances. The monitoring of the patient led to a revision of the discharge plan by adding the surgeon's TK.

These planning and monitoring behaviors collectively create an environment where TK is actively used and shared in decision-making. Surgeons and residents demonstrate this by together reviewing imaging, discussing treatment plans, and directing actions. Leadership in this way adds to shared interaction, collaboration, and shared experiences.

Clarifying and problem-solving

Clarifying and problem-solving behaviors were frequently observed in the form of questions, explanations, and reflective discussions. Clarifying behaviors contribute to a learning environment by encouraging open dialogue and reducing ambiguity. The

sharing of TK comes into play through questions such as “When do you actually speak of pneumonia?” or “Why did that mesh become infected so quickly?” From a learning perspective, this clarifying behavior has two sides: surgeons explain procedures or hospital policies, and others ask clarifying questions to understand for their learning. Clarifying behaviors, in this way, help make vague TK more explicit by asking questions and summarizing discussions.

Problem-solving behaviors further support the leveraging of TK by providing opportunities for retrospective reflection, as illustrated by the following: *“I did try to address it beforehand, because it was prone to cause this,”* a surgeon said in response to the discussion about mild complications in a post-operative patient. By discussing this in hindsight, this type of reflection offers space to learn from each other’s experiences, which adds to the leveraging of TK.

Leadership behaviors, in this regard, are thus aimed at facilitating feedback-friendly processes. These create opportunities for staff to contribute their different perspectives and experiences, including TK. This continuous exchange strengthens both individual expertise and collective learning.

4.2.2. Relations-oriented behaviors

Relations-oriented behaviors aim to strengthen interpersonal relationships and create a positive work environment (Yukl, 2012). These leadership behaviors were frequently observed in the planned and unplanned interactions between staff. Developing and empowering were often observed, which suits the teaching hospital. Recognizing and supporting were also evident, albeit more indirectly.

Developing and recognizing

Supervisors serve as points of contact for questions, provide coaching, and give feedback. This role is a clear example of developing leadership behavior. For example, a supervising resident encourages medical students to express their opinions and asks questions to educate rather than simply assess. Or surgeons ask questions in ways that signal to junior doctors or medical students that making mistakes is acceptable and

part of the learning process. These behaviors add to the development of all staff and help create a positive learning environment.

Leaders value the contributions and expertise of team members, in which recognizing leadership behaviors are observed. This is implicitly reflected in the open atmosphere where questions are welcomed, and multiple perspectives are heard. Positive reinforcement also often occurs, e.g., saying “That’s a good question” to a resident. Another example is that handovers are not simply rigid handovers of patients. The day-to-evening handover also always includes questions like, “Any fun or interesting things to report from the OR, or other noteworthy cases?” This adds to the creation of a friendly environment in which people are, in the terms of Yukl, recognized.

Leadership behavior, in this regard, is thus aimed at creating an environment in which it is accepted and stimulated to ask questions and thereby help make TK more explicit. Surgeons and supervisors actively share their TK through coaching, feedback, and learning-oriented questioning. This helps younger doctors develop their own TK and learn how to apply experience-based insights. This leadership behavior adds to an open and trusting atmosphere in which people and their work are recognized, leading to a lower threshold to share TK.

Empowering and supporting

Involving team members in decision-making and delegating responsibility is part of the daily manner of working together, showing the presence of empowering leadership behaviors. Examples of empowering behavior include jointly determining treatment plans, inviting input, and explicitly welcoming differing views. Surgeons allow space for discussion, ask targeted questions, encourage junior doctors to think critically and express their opinions ("What would you do?"), and create opportunities for group reflection on cases and processes, where TK is prominently shared. Despite an official formal hierarchy, most meetings and informal interactions function without much visible hierarchy. Although supporting behaviors were not explicitly observed, all staff contribute to an open culture where professionals feel comfortable asking questions, expressing uncertainty, and even offering friendly critique of existing practices.

Leadership behavior, in this regard, is thus aimed at allowing and encouraging the sharing of TK. Although time is sometimes a limiting factor, leaders promote the interaction necessary for TK exchange. These behaviors create various opportunities for dialogue, both formal and informal. Humor also plays a role, contributing to a relaxed atmosphere and strong relationships. This, in turn, supports quality care and communication.

4.2.3. Change- and external-oriented behaviors

Change-oriented behaviors support both innovation and adaptability within the organization (Yukl, 2012). In this context, collective learning is actively facilitated and embedded within the structure of the teaching hospital. This is evident in various practices, such as proposals for improvement with the idea to set up a training for ICU members to update them on current patient care. Other practices include critical discussions about the effectiveness of current protocols in light of new guidelines, and reflections on surgical outcomes for learning points.

Leadership behaviors enable collective learning at both the individual and organizational levels. This process adds to leveraging TK, especially in the form of sharing experiences and translating tacit insights into more EK, or conversely, helping junior doctors internalize EK until it becomes tacit through practice and mentorship. Although not always formally documented, this exchange of TK reflects a commitment to continuous improvement in patient care.

While less dominant, external-oriented behaviors are also evident. Knowledge and expertise are exchanged not only within and between departments but also with other hospitals (in the region). Surgeons actively consult peers during MDMs and seek external expertise when necessary. Moreover, the hospital participates in national initiatives such as the Dutch Obesity Clinic. These networking and representing behaviors contribute to making TK more explicit, facilitating knowledge exchange, and ultimately improving patient outcomes.

5. Discussion and conclusion

This study explores how TK is leveraged by HPs for healthcare quality improvement and what role leadership plays in facilitating this process. The findings of this ethnographic single case study reveal that TK is not only an important resource for clinical decision-making and quality of care but is also leveraged in a structured manner, as a dynamic and integrated part of daily practice of the surgical department. Leadership emerged as an important facilitator in this process by creating the right context for sharing and using of TK.

5.1. How is tacit knowledge leveraged by HPs for healthcare quality?

HPs use their TK to serve quality objectives, or more specifically, to improve patient outcomes. First, using TK informs clinical decision-making, especially in complex, uncertain, or atypical situations where protocols do not offer sufficient guidance. In these moments, staff rely on their own experience, intuition, and shared mindlines of the team, which is in line with other studies (e.g., Farr & Cressey, 2015; Gabbay & le May, 2004; Kothari et al., 2012). Subsequently, acknowledging that guidelines are sometimes insufficient highlights the importance of being able to use TK and may even result in adapting treatment plans. This raises the question of what kind of *evidence* is needed within EBM (Gabbay et al., 2020; Wieringa et al., 2018; Wieringa & Greenhalgh, 2015), or in what way we should improve healthcare in general (Braithwaite, 2018).

Second, using and sharing TK facilitates collective reflection and learning. Similar to earlier studies (Farr & Cressey, 2015; Valentine et al., 2014), the current study underscores the importance of reflective dialogue and peer learning as mechanisms for the development of high-quality care. What this study adds is that it shows that TK is shared during both planned meetings and informal interactions. Both these interactions can serve as platforms to interpret cases together, share practical tips, and critically reflect on current protocols or practices. Learning and reflection contribute to the shared knowledge base and support continuous improvement of practice, which is also elaborated on by Huie et al. (2020), who link this with increased job performance.

The leveraging of TK thus contributes to a culture of continuous healthcare improvement. Asking questions, sharing experiences, and jointly exploring solutions are expressions of a learning culture that ultimately enhances quality, although not always formally documented. The informal, quick exchange of TK, via phone calls or brief ad-hoc interactions, allows HPs to respond rapidly, solve problems, and adjust processes. These exchanges of TK are critical for maintaining and enhancing job performance and healthcare quality (Huie et al., 2020; Radević et al., 2023). Ultimately, the use of TK is not an individual act, but one deeply embedded in the collaborative routines of this surgical department. It is shaped by their culture of trust, interaction, and communication. By facilitating this culture, leadership plays a critical role in enabling TK to flow, thus laying the groundwork for improved patient outcomes.

5.2. What role does leadership play in facilitating this process?

This study contributes to the understanding of leadership in healthcare quality improvement by providing a detailed account of how leadership behaviors enable TK leveraging. Prior research has established connections between leadership and improved healthcare, such as through enhanced job satisfaction or valuing and supporting HPs (Dixon-Woods et al., 2014; Shanafelt et al., 2015). This study contributes by specifying *how* leadership facilitates TK flows at both formal and informal interactions, which then contributes to patient outcomes.

These formal (planned) and informal (spontaneous) situations in which doctors share and use their TK are sometimes clearly defined. For example, handovers are structured, scheduled, and chaired meetings with an agenda. However, this boundary is not always as distinct: hallway conversations during rounds are unstructured yet essential for coordination and patient care. Moreover, discussions initiated during formal meetings often continue informally, as illustrated by a training idea that emerged during a formal meeting and was shaped further in a hallway conversation.

In these planned and unplanned contexts, the types of leadership behavior that enable the sharing and use of TK also differ. This led to the development of a taxonomy of leadership behaviors in surgical settings that support the leveraging of TK. Drawing from Yukl's framework, this taxonomy distinguishes between task-, relations-, and

change-oriented behaviors and how they manifest in planned and unplanned situations. A taxonomy of leadership behaviors observed in the two situations is presented below.

Leadership behavior	Planned situations	Unplanned situations
Task-oriented behaviors	**Clarifying:** • Asking clarifying and specific questions • Explaining roles (e.g., supervisor, on-call), tasks, procedures, and protocols **Planning:** • Jointly determining or adapting treatment plans • Setting priorities • Chairing meetings, keeping discussions time-bound **Monitoring:** • Monitoring and discussing patient progress • Identifying and articulating complications	**Clarifying:** • Asking clarifying and specific questions **Planning:** • Making quick decisions, ad-hoc coordination of tasks or patients • Providing concrete, direct advice or instructions **Problem-solving:** • Brief collaborative consultations in response to unexpected problems or uncertainties
Relations-oriented behaviors	**Empowering:** • Creating an open atmosphere where questions and feedback are encouraged • Encouraging junior doctors to think critically and voice their opinions **Recognizing:** • Acknowledging contributions and expertise **Developing:** • Questioning treatment choices for learning purposes • Explaining images or procedures • Providing constructive feedback **Supporting:** • Creating a culture of support and collegiality	**Empowering:** • Being approachable for questions or informal consultations **Developing:** • Providing constructive feedback and coaching **Supporting:** • Using humor to maintain a light atmosphere • Creating a culture of support and collegiality
Change-oriented behaviors	**Facilitating collective learning:** • Engaging in discussions about new guidelines or challenging existing practices • Sharing lessons learned from surgical outcomes • Facilitating mini presentations on clinical topics	**Facilitating collective learning:** • Spontaneously discussing outcomes or problems as learning opportunities • Bringing up ideas for improvement or training • Informally sharing new techniques or insights

Table 1. This taxonomy of leadership behaviors outlines how leadership actions, both in planned and unplanned situations, within the surgical department can support the leveraging of TK by HPs. The taxonomy draws from Yukl (2012).

The analysis shows that both task-oriented and relation-oriented behaviors support TK leveraging through establishing collaboration, interaction, and shared experiences, communication, and trust. These leadership behaviors were not confined to those in formal leadership positions but were distributed across team members, highlighting the contextual and relational nature of leadership. This furthermore aligns with Keijser et al. (2019, p. 16), who note that "collective co-leadership among all healthcare professionals is on the rise" as a strategy for sustaining quality and affordability in healthcare.

This view of leadership aligns closely with the conclusions of Klein et al. (2006, p. 617), who suggest that reliable performance in high-stake, time-pressured settings emerges from a dynamic interplay between "bureaucratic structure" and "flexibility-enhancing processes." In the current results, formal structures like scheduled meetings provide stability and clarity, enabling improvisational and adaptive leadership behaviors to emerge organically in informal settings. The flexibility-enhancing behaviors, in turn, ensure responsiveness and adaptability without undermining the order provided by formal roles and procedures. Together, this dynamic creates an environment where TK can be effectively shared, applied, and transformed into improved patient care.

In this way, this study deepens the understanding of leadership not as a static role, but as a flexible, distributed, and context-sensitive practice that actively creates the conditions for tacit learning and continuous improvement.

5.3. Strengths, limitations, and suggestions for further research

This study offers valuable exploratory insights into how TK is shared and utilized within a surgical department and how certain leadership behaviors support the contexts that facilitate this process in formal and informal situations. A key strength lies in the richness of the observational data, which allow for immersive observations of everyday practice. This methodology is well-suited to uncover the subtle ways in which TK circulates in healthcare settings. The ethnography in this single-case study enables a contextual understanding of leadership behaviors and TK leveraging that would likely be missed in more structured or quantitative research designs.

However, the relatively short timeframe restricted the ability to observe whether leveraged TK translated into quality initiatives. A longitudinal design might explore whether ideas generated informally lead to changes in formal protocols or measurable outcomes. Furthermore, while case study ethnography enables depth, it limits generalizability. This design focused on one surgical department, which may not reflect dynamics in other settings. Future studies could adopt a comparative case study design, examining similar dynamics in other departments or hospitals to explore patterns or differences.

A broader, unresolved question concerns the indications that leveraging TK does indeed contribute to improved patient care. Importantly, this study is not able to demonstrate a direct impact on patient outcomes. While the findings suggest potential in contributing to improved care and possibly reducing unnecessary bureaucratic burden, such conclusions require more robust, outcome-oriented research designs. Moreover, integrating patient perspectives could enrich our understanding of how TK and leadership jointly influence the quality of care delivery from the recipient's point of view (Tringale et al., 2022). Lastly, this study did not differentiate between various types of TK, nor did it apply formal conceptual frameworks (such as the SECI model (Nonaka, 1994)) to analyze how TK is internalized or externalized. Future research could explore how specific forms of TK are shared and utilized, and how these forms relate or translate to EK.

5.4. Conclusion

This study highlights how TK is actively leveraged within a surgical department in the Netherlands to improve patient outcomes. Leadership behaviors, both in formal and informal situations, create environments in which feedback, reflection, and experience-based reasoning occur naturally. This enables staff to question, adapt, and enrich EK with their TK. Guidelines, while essential, do not always capture the complexity of real-world cases. Then, collective judgment and practical experience, key components of TK, become vital. In shaping a culture that encourages the leveraging of TK, leadership not only facilitates continuous learning and improvement but also helps create the conditions under which patient outcomes can meaningfully improve.

These findings advocate for a more balanced approach to quality improvement: one that values human interaction, relational dynamics, and intuitive expertise alongside protocols and indicators. Practically, this means investing in leadership development and organizational cultures that prioritize learning, reflection, and psychological safety. By recognizing and supporting the processes through which TK is shared and used, organizations can better navigate complexity and improve care, not by rigidly formalizing every insight, but by nurturing the spaces where they emerge. By bridging the gap between formal systems and informal practice, this study contributes to a more holistic understanding of healthcare quality, one that is not just evidence-based but also experience-informed, relationally grounded, and context-sensitive.

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7. Appendices

7.1. Overview of research activities and hours

Date	Start	End	Activities	Total time
Wednesday, April 2	07:30	13:30	• Morning handover observation • Introduction and surgical ward round /supervisor shadowing • Fika (lunch) observation	6:00
Wednesday, April 9	07:30	17:00	• Morning handover observation • Surgical ward round /supervisor shadowing • Fika observation • Acute surgery (OR) shadowing • Afternoon handover observation	9:30
Thursday, April 10	07:30	14:00	• Morning handover observation • Resident supervisor shadowing • ED observation	6:30
Tuesday, April 15	11:30	18:00	• ED observation • Grand ward round observation • Surgery office observation • Afternoon handover observation • MDM observation	6:30
Wednesday, April 16	11:30	18:00	• ED observation • Surgery office observation • MDM observation	6:30
Friday, April 18	07:30	14:00	• Morning handover observation • Surgical ward round /supervisor shadowing • Grand ward round observation	6:30
Wednesday, April 30	08:30	15:00	• OR observation • Shared lunch with participants	6:30
Tuesday, May 6	11:00	15:00	• Grand ward round observation • Surgery office observation	4:00
Wednesday, May 7	15:00	18:00	• Surgery office observation • Afternoon handover observation • MDM observation	3:00
Wednesday, May 14	17:00	17:45	• Online discussion of preliminary results	0:45
Total hours				**55:45**

OR: Operating Room; ED: Emergency Department; MDM: Multidisciplinary Meeting

7.2. Positionality

In ethnographic research, and particularly in observational field work in more sensitive contexts such as hospitals, a notion of the role and relationship of the researcher and their participants is necessary (Black et al., 2021; Vindrola-Padros & Vindrola-Padros, 2018). *Positionality* refers to how the researcher's background, behavior, and presence shape both access to and interpretation of the data (Holmes, 2020). In this study, I did not contribute to any of the organizations' activities, assuming the role of passive participant observer (Agar 2008). The idea was to be a *fly on the wall,* to simply be present and observe.

I conducted this study's ethnographic fieldwork as a master student in public administration, with prior experience in policy and research in public health. Access was granted by the organization, and the participating individual practitioners were informed by the *vakgroep* via an information letter that I wrote. I made clear that I would not share personal or sensitive (patient) information. I quickly gained trust and was accepted in the day-to-day environment as if I were a new colleague. I was provided with an electronic access card and a white medical coat so I could blend into the hospital setting.

Therefore, being a fly on the wall was very well possible. In the meetings, usually with many participants, I situated myself in the room with a little distance, not all the way to the back, nor right next to the more important people. In hallways or when visiting patients, I was rarely introduced. But when I needed an introduction, they said I was a colleague, making it likely the patients thought I was a doctor too. However, in more intimate situations with doctors from other departments, I introduced myself as a student doing research for my master's thesis and took notes.

While my formal role was passive, there were also moments of informal interaction. After a meeting or patient consultation, doctors would often share some background information about what had just happened or what was said. Sometimes I would initiate these informal conversations by asking for clarity. I only did this in moments after the situation had concluded, for instance, when walking towards another patient or meeting. These interactions added valuable context and highlighted that my role was not strictly passive.

In general, the doctors were very interested in what I was doing and engaged in conversations with me themselves, asking what I had found out thus far. At times, they pointed me toward situations or meetings they thought would be particularly insightful. This engagement was generous and enriching, but it also introduced questions about the selectivity of what I was shown. Therefore, in the beginning, I usually went to what they thought was useful for my research, but when I knew more about their routines, I chose my own situations or meetings to observe.

My background as a non-medical observer shaped my perspective: I was naturally drawn to knowledge sharing, organizational dynamics, decision-making processes, and professional interactions, rather than clinical procedures or medical details. This policy-oriented lens influenced what I noticed and considered relevant. At the same time, being an outsider in the medical culture sometimes created uncertainty about how to interpret specific behaviors or terms. In the beginning, it took time to prioritize and understand what was said.

To give back to the participants and to prevent misinterpretation of the data, I debriefed two participants through member validation. This session's intent was to reflect together on the preliminary findings. This helped ensure my interpretations were grounded in the lived realities of the surgeons.

7.3. Overview of research participants

Participant #	Job title	Gender	Age	Observed	Followed	Informal conversation
1	Surgeon	Male	45-60	X	X	X
2	Surgeon	Female	30-45	X	X	X
3	Resident*	Female	30-45	X	X	X
4	Resident*	Male	30-45	X	X	X
5	Surgeon	Male	30-45	X	X	X
6	Resident*	Female	30-45	X		X
7	Resident*	Male	30-45	X		X
8	Surgeon	Female	45-60	X		X
9	Surgeon	Male	60+	X		X
10	Surgeon	Female	45-60	X		
11	Surgeon	Male	60+	X		
12	Resident*	Male	30-45	X		
13	Surgeon	Male	45-60	X		
14	Surgeon	Female	30-45	X		

* Resident includes junior doctors to ensure anonymity.

Chapters 4 and 5 refer to many different levels of people. The table below provides an overview of the terms used.

English term used	Dutch Term	Explanation
Medical student	Coassistent	Not yet a doctor; still in training at university
Junior doctor	ANIOS (Arts Niet In Opleiding tot Specialist)	Fully qualified doctor, not in a residency program
Resident	AIOS (Arts In Opleiding tot Specialist)	Doctor in specialist training (e.g., surgical resident)
Surgeon	Specialist (e.g., chirurg)	Fully trained (e.g., surgeon)
Supervisor	Supervisor	Surgeon, responsible for oversight