LEARNING SAFE MEDICAL PRACTICES: THE UNSOCIABLE FABRIC OF AN ORGANISATION?

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ABSTRACT

This paper concerns social participation within and across organisational units, and the role of contextual conditions in learning safe medical practices within specialised health care services. The research design is a case study approach within a regional Norwegian hospital. The paper describes positive safety practices within organisational units related to openness and communication, teamwork, non-punitive attitudes, and supervisor/manager expectations and actions. Despite these positive tendencies, issues of underreporting, collegial mechanisms and differences in safety perception and work norms among physicians and nurses are also present. Safety practices across organisational units create unfavourable conditions for learning in the case hospital, based on problems with handoffs and transitions, and lack of collaboration between units and divisions. Taken together with results on contextual conditions such as staffing, work pressure, environmental uncertainty in forms of economic pressure, and challenges related to collaborative climate (physician/nurse) and top management support, the picture becomes a complex web of related issues that contribute to the creation of what in this paper has been called an unsociable fabric for learning.

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1. INTRODUCTION

This paper concerns the role of social participation in learning safe medical practices within specialised health care services. Patterns of social participation should be viewed as important contributors to the creation of safe medical practices within health care, requiring informal learning activities as well as institutionalised learning arenas (Wenger, 1996). Given the growing complexity of specialised health care services involving diverse patients, multiple work processes, various professional disciplines with increased levels of specialisation, sophisticated technology, and dangerous medicines (Spath, 1999; Currie & Watterson, 2007), social participation across professions and organisational units should furthermore be characteristics of safe medical practices. This study describes the problems in achieving such social participation within and across organisational units within the context of creating safe medical practices in health care.

So far, research has shown that learning in health care organisations tends to be fragmented consisting of independent processes within and across units and levels (Edmondson, 2004; Tamuz et al, 2005; Wiig & Aase, 2007). Studies have documented that cultural factors make physicians in training reluctant to disclose their errors for fear of appearing unprepared or incompetent (Hoff et al, 2004), and that errors without consequences for the patient are less likely to be shared with colleagues by both physicians and physicians in training (Paulsen & Brattebø, 2006). A few studies have been directed towards identifying the factors that promote organisational learning among physicians (Tamuz et al, 2005; Hoff et al, 2004), and towards addressing the role of emotions in how physicians and hospitals learn from errors (Tamuz et al, 2007). Still, there is a substantial need for empirically based research in different cultures and contexts to establish a common knowledge of the learning structures and practices within health care.

2. PREVIOUS RESEARCH

2.1 The social fabric of learning

The notion of “unsociable fabric” in the title of this paper is borrowed from one of Etienne Wenger’s works (1996) focusing on the opposite denotation. In his article, Wenger describes communities of practice as the “social fabric” of a learning organisation, highlighting the importance of social participation and informal learning activities. Learning is seen as a matter of engagement in socially defined practices, and therefore the communities that share these practices play an important role in shaping learning. These communities are not always easily identifiable because they often remain informal, and the concept of communities of practice is useful to capture the wide variety of forms such emergent groups take. As communities of practice form, they create boundaries between those who have been engaged in the practice and those who have not. These boundaries are created by differences in perspectives, languages, and styles that characterize each practice. Wenger argues that much of the learning in an organisation happens when boundaries are rich in interactions, whether they occur formally, as in a multidisciplinary team meeting, or informally at a coffee break (1996, p. 24).

Some of the same issues are described and further developed by Lipshitz & Popper (2000) although not conceptualized under the social fabric (communities of practice) heading. The authors have developed five dimensions or values described as essential for learning in an organisation (p. 348):

1. Transparency means exposing one's thoughts and actions to others in order to receive feedback.
2. Inquiry means persisting in a line of inquiry until a satisfactory understanding is achieved.
3. Integrity means giving and receiving full and accurate feedback without defending oneself and others.
4. Issue orientation means focusing on the relevance of information to the issues regardless of the social standing (e.g. rank) of recipient or source.
5. Accountability means assuming responsibility both for learning and for implementing lessons learned.

The five elements clearly relate to the social fabric of learning described by Wenger (1996, 1998) by identifying values that are required for participation in sound learning practices. In addition, the authors posit that certain contextual conditions increase the likelihood of instituting learning including environmental uncertainty, the costs and salience of potential errors, organisational members' professionalism, and leadership that is committed to learning. Hoff et al (2004) also highlight the role of context for creating a learning environment, defining the nature of work context for physicians in training by including time, work/non-work balance, fatigue, supervisor structure/access, workload, and physician/nurse collaborative climate (p. 534).

2.2 Challenges in learning safe medical practices

According to the social fabric perspective described above, safe medical practices can be viewed as a competence that should be continuously learned and developed in different communities in the health care setting, affected by changes and the current work context in which medical practices occur (Wiig & Aase, 2007). Research has documented that this learning in many instances is flawed within health care for several reasons. Leape & Berwick (2005) claim that the combination of complexity, professional fragmentation, and a tradition of individualism, enhanced by a hierarchical authority structure and diffuse accountability, forms a daunting barrier to creating the habits and beliefs of common purpose, teamwork, and individual accountability that safe medical practices requires (p. 2387). Similarly, Ramanujam & Rousseau (2006) refer to four factors that shape organization and practices within hospitals: their conflicting missions, a distinctive and largely professional workforce, demanding external environments, and a complex day-to-day task environment.

Other studies document that learning in health care is typically viewed as individually focused training (Wiig & Aase, 2007), continuing medical education to transfer best practices, and repetition to enhance skills (Carroll & Edmondson, 2002). The dominant system of beliefs that governs the learning practices is the application of a body of knowledge derived from medical science and perfected by the physician's own personal experience (Bohmer & Edmondson, 2001). Challenging these systems of beliefs, current research advocates that learning safe medical practices should be seen as a team process. In a study of 16 hospitals implementing a new technology for minimally invasive cardiac surgery, those in which surgeons empowered the operating room team, explicitly recognising the importance of each member's role and contribution to the learning effort, had better outcomes (Carroll & Edmondson, 2002).

Much in line with Wenger's communities of practice approach, research on patient safety has applied the concept of clinical microsystems for approaching learning (Mohr et al, 2004). Fostering collaborative relations among microsystems should be an important goal for health care organisations, and it is argued that opportunities for

cross-microsystem learning are essential for learning about the systemic errors within health care. Given the interdisciplinary nature of health care and the need for collaboration between those who deliver care, teamwork is critical for learning safe medical practices, regardless of the choice of concepts such as microsystems or communities of practice. One of the major challenges in enhancing quality and safety in medical practices is the aspects of this interdisciplinary system. Each of the major disciplines physicians, nurses, allied health providers, and health administrators represent qualitatively distinct sets of goals and professional values, influencing not only current behaviour but also who chooses these roles in the first place (Garman et al, 2006). Once a career is selected, the educational process further fortifies these differences, such that new professionals enter the workplace with fundamentally divergent perspectives on how care should be provided and how medical practices should be improved (p. 829).

3. THE CURRENT STUDY

The paper is based on a case study research design (Ragin & Becker, 1992; Yin, 1994; 1999; 2004) within a regional Norwegian hospital with the objective of gaining in-depth knowledge of learning safe medical practices, and belonging contextual conditions. The case study approach was chosen because it is applicable for gaining insight into, and understanding the structure of, a complex health care institution and how its individuals, groups, and organisational components function (or fail to function) together (Berkwits & Inui, 1998; Hurley, 1999). In this paper, data concerning social participation within and across organisational units, and contextual conditions have formed the main basis for analysis.

3.1 Main research questions

Informed by Wenger's social fabric of learning perspective and the challenges to learning safe medical practices reported in different research studies, two main exploratory research questions emerged:

A. Is learning of safe medical practices at the case hospital characterised by values of social participation such as transparency, inquiry, integrity, issue orientation, and accountability (social fabric of learning)?

B. What is the role of contextual factors (e.g. environmental uncertainty, time, costs and salience of potential errors, workload, professionalism, leadership, supervisory structure/access, and physician/nurse collaborative climate) in learning safe medical practices at the case hospital?

The choice of specific research questions in this paper emerged from the results of previous studies of the case hospital (Wiig & Aase, 2007; Olsen, 2007; Høyland & Aase, 2008, Aase et al, 2008) along with the current theoretical framework.

3.2 Context/case description

The Norwegian health care system consists of mainly state funded hospitals, where Norwegian citizens are treated with minimal costs. There is no system of additional private health insurance, as the hospitals are funded through the state. However, the private sector is growing and clinics and small hospitals specializing in services within plastic surgery, orthopedics, cardiology, ear-nose-throat, in-vitro fertilization, etc. are emerging. This new competition calls for market awareness and service improvements in the public health care sector. Over the last decade, Norwegian health care has been subject to structural changes involving reorganizations and cost effectiveness with the

objective of treating more patients with better quality without an increase in work force. Three structural reforms have been essential in this matter (Krogstad, 2005): 1) A change in hospital financing with the main purpose of reducing patient waiting lists (1997). The reform altered the financial transfer from the state to the hospitals from a previous lump sum to a system that was based on the number of patients treated. 2) A change in institutional management with the objective of strengthening leadership as a response to the growing complexity in hospital organisations (1997-1999). The reform represented an explicit desire for increased efficiency and an inexplicit shift from clinical to managerial rationality. 3) A change in hospital ownership and central management involving a transfer of hospital ownership from counties to central government (2002). The reform placed responsibility with one owner, and furthermore organised hospitals as legal enterprises no longer subject to local political interference or influence.

The current case study is conducted at a regional university hospital with over 5500 employees offering specialised health care services to a population of more than 300 000. The hospital is one of the largest in Norway, and is organised in traditional divisions such as acute care medicine, paediatrics, gynaecology and obstetrics, internal medicine, general and orthopaedic surgery, haematology and oncology, psychiatry, rehabilitation, radiology and laboratory medicine, multiple clinical sciences, and service and facilities. In 2006, more than 45 000 inpatients received treatment and care at the hospital, and more than 300 000 outpatients were present at the hospital for same day surgery or consultations. Over 70 per cent of the hospital admissions are presentations to the emergency ward. There exists an overall focus on safety and quality in the case hospital with the objective of improving safety for both patients and employees "… *to strengthen our reputation and to offer patients and relatives high quality health care services*". On the other hand, the current health care reforms have changed the framework conditions for the case hospital, resulting in changes in hospital financing and demands to reduce waiting lists. The current focus on financial issues, efficiency, and competition continuously influences decisions affecting medical practices in all parts of the organisation, resulting in a cross pressure where production and safety are perceived as competing goals by many employees (Wiig & Aase, 2007).

3.3 Methods

Data has been collected using a method triangulation of interviews, document analysis, and questionnaires (Quinn Patton 1990; 1999).

3.3.1 Interviews. A total of 54 semi-structured interviews have been conducted with managers, physicians (senior and junior), and nurses (senior and junior) within different departments/wards at three hospital divisions (division A: n=16, division B: n=16, division C: n=16). In addition, interviews were conducted with top managers at the hospital (n=6). The interviews lasted between 20 to 90 minutes and were voluntary and confidential. No names or specification of locations are used to protect the confidentiality of the individuals working at the hospital. There was an even mix of male and female informants (overweight of female nurses and male physicians), and of junior and senior informants. Semi-structured interview guides covered the topics of human and organisational factors in safety, error reporting and prevention, learning, risk perception, power issues, and professional attitudes. Interview guides differed slightly according to group of informants (top managers, managers, senior personnel, junior personnel). The interviews were conducted by a research team (two nurses, two safety researchers) in the period between 2005 and 2007. All interviews were tape-recorded and transcribed in detail.

3.3.2 Document analysis. Document analysis included review of inspection reports, annual reports, policy documents, procedures and guidelines to gain general insight into the case hospital and their safety practices.

3.3.3 Questionnaire survey. A patient safety survey was carried out at all divisions at the case hospital in 2006 using "Hospital Survey On Patient Safety Culture" (Sorra & Nieva, 2004) translated into Norwegian. The survey instrument measures 11 dimensions: supervisor/manager expectations and actions promoting safety (4 items), organisational learning and continuous improvement (3 items), teamwork within units (4 items), communication and openness (3 items), feedback and communication about error (3 items), non-punitive response to error (3 items), staffing (4 items), hospital management support for patient safety (3 items), teamwork across hospital units (4 items), hospital handoffs and transitions (4 items), and reporting of incidents (4 items). The instrument satisfies conventional validity criteria (Flin et al, 2006; Olsen & Rundmo, 2008). 1919 questionnaires were returned, resulting in a response rate of 55%. In the sample 11% were physicians and 50% nurses.

3.3.4 Analysis. Interviews were analysed by using standard qualitative research methodology for coding variables based on textual (transcribed interviews) data (Miles & Huberman, 1994). Questionnaires were analysed using ANOVA, cross-tables, chi-squared test, and Persons r in SPSS 13.0. The data material was analysed for different purposes (see Wiig, 2008; Wiig & Aase, 2007; Olsen, 2007; Høyland & Aase, 2008) by different participants in the research team, involving analyst triangulation (Quinn Patton, 1990; 1999). In this paper data analysis has been carried out by the author using the dimensions of the questionnaire survey as a basis for systematizing data, grouped in three categories: (1) *safety practices within organisational units* (supervisor/manager expectations and actions, non-punitive responses to errors, teamwork within units, communication and openness, organisational learning and continuous improvement, feedback and communication about errors, and reporting of incidents), (2) *safety practices across organisational units* (hospital handoffs and transitions, collaboration across hospital units), and (3) *contextual conditions* (staffing, hospital management support for patient safety). In addition, environmental uncertainty, collaborative climate, professionalism, and training/supervisory access have been added to the contextual conditions category.

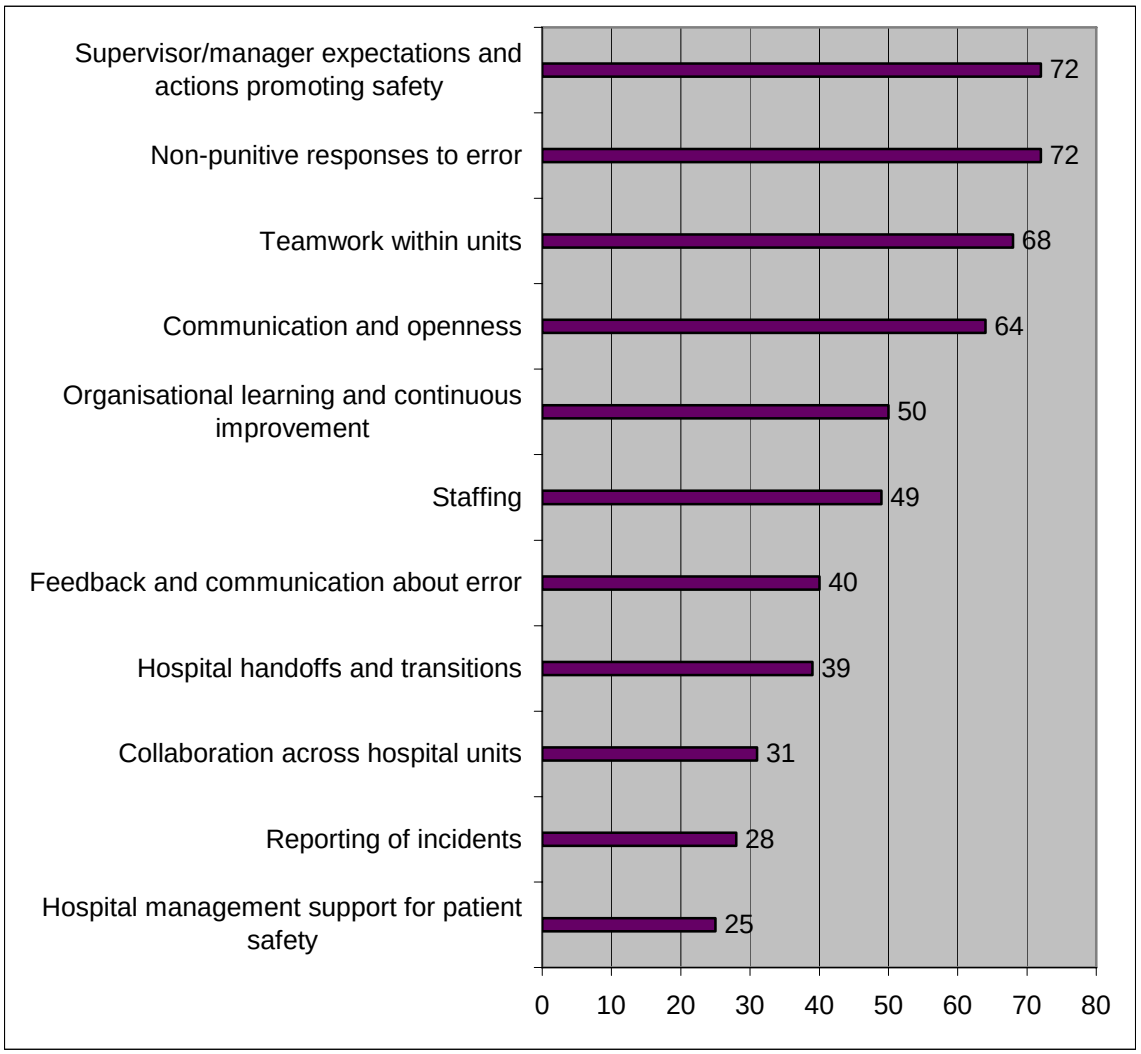
4. RESULTS

Results will be presented according to elements of safety practices within and across organisational units in the case hospital. In addition, contextual factors of importance for learning safe medical practices will be highlighted. The chapter will start with an overview of these issues as reported in the questionnaire survey at the case hospital in 2006.

4.1 A snapshot of issues relevant for safe medical practices

Figure 1 summarises the results from the questionnaire survey on patient safety at the case hospital (n=1919) in 2006. The figure displays mean values for agreement to positive items and disagreement to negative items in percentage for the 11 different patient safety dimensions. Results can be valued as good if 75%, medium if 50%, and poor if 25% (AHRQ, 2007; Olsen, 2007).

Figure 1. Patient safety dimensions, mean scores in percentage (n=1919)



The figure indicates that respondents at the particular time of the survey perceive hospital management's support for patient safety, reporting of incidents and collaboration across hospital units as poor in the case hospital. Hospital handoffs and transitions, and feedback and communication about error are valued as relatively poor, while the dimensions of staffing and organisational learning/ continuous improvement are valued as medium. Communication and openness, and teamwork within units are valued as relatively good, while respondents perceive non-punitive responses to error and supervisor/ manager expectation and actions promoting safety as good. In the following a deeper understanding of some of these issues will be searched for.

4.2 Safety practices within organisational units

As displayed in figure 1, most issues related to safety practices within organisational units (the upper five dimensions) are valued as good (supervisor/manager expectations an actions promoting safety, non-punitive responses to error), relatively good (teamwork within units, communication and openness) or medium (organisational learning and continuous improvement) by the respondents in the questionnaire survey. Issues related to feedback and communication about errors and reporting of incidents are valued as relatively poor and poor respectively.

Both questionnaire data and interview data document that there is little fear of sanctions and legal consequences related to errors in the case hospital. In addition, most respondents and informants express that a general openness for communicating and discussing safety is present within hospital units. Interview data nuances the issue of openness somewhat by referring to attitudes like "*admitting errors, your own as well as others, is a threshold to overcome*" and "*the tone is open, but errors are difficult to deal with*". Qualitative data further refer to a certain difference in the level of openness between nurses and physicians, in the sense that physicians are less open than nurses.

Despite relatively good scores on non-punitive responses to errors and openness for communicating about errors, the data material unambiguously shows that reporting of incidents is poor in the case hospital. Even though an overall electronic reporting system for accidents and incidents with belonging procedures and routines is established in the case hospital, results show that in 2006 45% of the respondents had not reported any accident/incident during the last 12 months, while 20% had reported one or two incidents. All informants in the qualitative studies revealed that they had experienced incidents themselves or observed others making mistakes. Underreporting is referred to as common and informants point at time pressure, low degree of feedback on reported incidents, low perceived utility value, and fear of reputation as the main reasons for underreporting. Attitudes towards incident reporting can be summarised through following quotations:

> *"I do not report incidents using the reporting scheme unless it is extremely serious and has consequences for the patient. I rather discuss it informally with my colleagues"* (head physician)
>
> *"I myself find it of little use with a paper* [incident report] *in the shelf*" (head physician)
>
> *"If a near-miss occurs it's an eye-opener for yourself, but it does not get reported"* (head physician)

The quotations reveal that attitudes towards underreporting are more common among physicians than nurses. Interviews with physicians reveal that one of the reasons for this underreporting is their desire to spend time on patient contact and treatment instead of on time-consuming reporting procedures. In addition there is a variation in perception between physicians and nurses as regard to what should be reported, where to report it, and how to report it.

In order to learn from errors, improve medical practices, and increase the reporting of accidents and incidents, feedback and communication about errors is essential. This dimension scores relatively poor in the questionnaire survey, which is confirmed by the interview data. There exist no structured mechanisms for feedback and implementation of preventive measures based on reported accidents/incidents. As one senior nurse expresses it: "*It would have been a strength to see that it* [incident reports] *led to something, that it* [incident reports] *was used. We would like somebody to come to our department meetings and go through our errors and mistakes and explain. That you had a feeling that somebody was working with these issues*". Data further reveals that learning related to errors and incidents in most cases is characterised by informal one-on-one conversations, while incidents of a certain severity are discussed at department meetings, complication meetings, etc. There are few formalised arenas where learning from errors and incidents is a main topic. According to the informants, learning is based on informality, spontaneity and necessity. Especially junior physicians seek appropriate forums for discussing errors and incidents.

4.2 Safety practices across organisational units

As displayed in figure 1, issues related to safety practices across organisational units (hospital handoffs and transitions, collaboration across hospital units) are valued as relatively poor by the respondents. Results regarding collaboration across hospital units show that 42% of the respondents totally agreed or agreed to the statement "Hospital units do not coordinate well with each other", and results regarding hospital handoffs and transitions show that 30% of the respondents totally agreed or agreed to the statement "Things 'fall between the cracks' when transferring patients from one unit to another". Also the qualitative data material document that interfaces between shifts, wards, and divisions represent a challenge concerning the delivery and continuity of patient care. Transition issues arise when work processes are complex involving several professions and hospital units delivering patient treatment and care. The quality of hospital handoffs and transitions is affected by a number of individual and organisational factors such as experience, communication skills, time pressure, number of patients, etc.

Based on an analysis of regulatory inspection reports, results show that the case hospital only to a certain degree applies these reports with the aim of improvement and learning across organisational boundaries. The following quotation made by a manager within the regulatory agency exemplifies the issue: "*The hospital is not a learning organisation and it is quite unbelievable. It's like they're happy that their neighbour departments are caught and not themselves. Instead we want the hospital as a whole to read the inspection reports and correct deviations often current in all departments. Today, we write good reports, but we don't get the hospitals to read them"*. The lack of collaboration and learning across hospital units is also visible in results concerning accident/incident reporting, analysis, and development of preventive measures. At best, learning loops related to reported accidents/incidents are satisfactorily at a local level, while learning across hospital units is scarce.

Even though shift handovers should not be included in the "across organisational units" category since, technically, they appear within units, data show that these transitions also involve challenges. Even though only 16% of the respondents in the questionnaire survey totally agreed or agreed to the statement "Shift changes are problematic for patients in this hospital", a qualitative study of the transition between nursing shifts at two wards at the case hospital (see Aase et al, 2007) nuanced this finding. The study found that there are different work routines related to handover at the hospital, and that the quality of these work routines are affected by a number of internal (information amount, individual communication skills, and experience) and external (handover time frame, interruptions, ward size/ patient capacity, and patient type) conditions. Quality enhancing factors were identified as sufficient time, minimum of external interruptions, experience (patient type, diagnosis, professional), match between patient number and patient capacity, and individual communication skills (clarity, structure, attention). In the observed shift handovers, several of these conditions were not satisfactorily.

4.3 Contextual conditions

As displayed in figure 1, respondents in the questionnaire survey value issues related to contextual conditions for safety practices (staffing, hospital management support for patient safety) as medium and poor respectively. Results regarding staffing show that 24% totally agreed or agreed to the statement "We work in 'crisis mode', trying to do too much, too quickly". Results regarding hospital management support for patient safety show that 34% totally disagreed or disagreed to the statement "The actions of hospital management show that patient safety is a top priority".

Many of the questionnaires (about 150) included qualitative free text commentaries on time, efficiency, and resources. The commentaries involved following issues: number of patients exceeding the hospital capacity is negative for patient safety, an increase in the number of "corridor patients", lack of time, work pressure, lack of qualified personnel, and extensive use of temporary posts threatens safety. Also interviews document that work pressure, efficiency demands, and scarce resources create delimitations for the learning efforts related to safe medical practices. A senior physician refers to a constant under-capacity as the biggest challenge: "*…[]... to live with a number of patients that exceeds 100% means that you have patients in the corridor. There are too many patients according to how the department is staffed. That you constantly have to conduct extra work tasks to give the patients what they should have. That's the single most threatening issue*". To exploit professional knowledge and create multi-disciplinary collaboration patterns require time, and time is the single factor most informants value as the biggest threat towards safe medical practices.

Qualitative data explain the main reason for the low score on hospital management support for patient safety to be a perceived cross pressure between production and safety. Changes in hospital financing and demands to reduce waiting lists have been challenging and caused internal conflicts. The hospital management encourages all divisions to report errors and prioritize patient safety, yet simultaneously express the importance of cost savings and budget balance. This compound pressure causes conflicts and limited time to error reporting, follow-up and feedback to the involved medical personnel. Department managers refer to the pressure for budget balance and express feelings of powerlessness and worries about understaffing and corridor patients due to lack of space: "*…there is a higher focus on deviation from budget, than on deviation from safety…*". In other words, the hospital organisation has limited resource slack such as time, personnel, and economy, and in practice, patient safety loses against budget balance. The hospital is organised to manage normal daily work operations, but has low reserve capacity to manage activities outside the short-term production perspective, such as error reporting, feedback, and training.

Even though teamwork within units scores relatively good in the questionnaire survey (figure 1), qualitative data reveal differences in safety practices (risk perception, thresholds to report and discuss errors, work norms, etc) between physicians and nurses. For instance, differences concern what is defined as an error or not, where physicians often define incidents as complications and therefore treat them in patient journals instead of the incident reporting system. Nurses have a lower threshold for reporting, and report what physicians denote as trivialities. While none of the physicians have received supervision and training related to incident reporting and patient safety, some nurses have attended such training. Results also indicate that nurses more openly discuss errors among themselves than physicians. In sum, the qualitative data material indicates that the collaborative climate across occupational groups such as physicians and nurses have room for improvement. In the case hospital, differences in perceptions and work norms related to safe practices between the two groups are not valued and exploited as a learning asset, and instead create collegial mechanisms resulting in protectiveness, and a tendency towards reporting each other instead of learning from each other.

Behind the apparent lack of motivation and understanding of the importance of some of the hospital's patient safety efforts (such as reporting of incidents) data reveals that employees exercise a professionalism that is characterised by a high degree of integrity and accountability. Despite different contextual conditions, and despite the complexity in delivering patient care, health care employees are perfectionists and hold

comprehensive knowledge to do the right things. A senior physician explains some of the complex conditions for delivering safe medical practices:

> "*If you take medicine today and 20-30 years ago, you do things differently. For instance with acidity and ulcer, they cut away two thirds of the stomach 30 years ago and 20 years ago they cut the nerves. Today, they use medication to suppress secretion of stomach acid. And then you have the possibility of infection, addressed by attacking the helicobacter pylori bacterium. And treatment of ulcer, ulcus dyspepsia, has changed completely. Surgery is developing more and more into endoscopy, a more gentle surgery that has its initial difficulties. …[]… Within anaesthesia we develop newer, more adapted methods. That is quicker in-and-out anaesthesia for day surgery, better pain relieving post operative treatment, quicker turnover of patients, etc. Everything is completely changed. We are influenced by financial incitements. …[]… Most of these issues are not learned by reporting errors and incidents, but as a consequence of our inquiry into the international development within medicine*".

5. DISCUSSION

Results from the case study reveal that issues related to safety practices across organisational units create unfavourable conditions for learning in the case hospital, based on problems with handoffs and transitions, and lack of collaboration between units and divisions. Issues related to safety practices within organisational units involve positive tendencies based on questionnaire data related to openness, non-punitive attitudes, and supervisor/manager expectations and actions. Qualitative data give a more nuanced picture of issues such as underreporting (and the reasons for it) despite openness and non-punitive attitudes, and collegial mechanisms and differences in safety perception despite gratifying teamwork within organisational units. Taken together with results on contextual conditions such as staffing, work pressure, environmental uncertainty in forms of economic pressure, and challenges related to collaborative climate (physician/nurse) and top management support, the picture becomes a complex web of related issues that contribute to the creation of what in this paper has been called an unsociable fabric for learning.

Wenger (1996; 1998) highlights social participation and informal learning activities in his description of the social fabric of a learning organisation. He furthermore attributes these qualities to communities of practice being the driving force in shaping learning. Learning safe medical practices in the case hospital seems driven by informality, there is an open tone for discussing safety issues, and social participation (teamwork) within organisational units is regarded as positive by informants. Nevertheless, communities of practice based on occupational belonging seem stronger or more successful than those based on interdisciplinary relations, and the boundaries between them seem solid. This is also confirmed by previous studies describing the distinct characteristics of different disciplines within health care (Garman et al, 2006; Carroll & Edmondson, 2002; Bohmer & Edmondson, 2001).

Boundaries between communities in practice that are rich in interactions are furthermore described by Wenger (1996) as important assets for learning in an organisation. In this study, boundaries between communities of practice based on occupation are influenced by a certain degree of protectiveness and collegial mechanisms, and boundaries between communities of practice across hospital units seem to be characterised by problems related to communication and collaboration due to a complex day-to-day task environment.

Returning to Lipshitz & Poppers (2000) values for sound learning practices within an organisation (transparency, inquiry, integrity, issue orientation, and accountability),

several of the values are present in occupationally based communities of practice in the case hospital, and in local work environments or groups. The professionalism that characterises the health care system as described in this study also holds many of the same values. Moving our focus upwards in the health care organisation of this study, these values become transformed by conflicting missions, demanding external environments, complexity, and diffuse accountability, as described also by Leape & Berwick (2005) and Ramanujam & Rousseau (2006). This leads to the conclusion that contextual conditions (time, workload, physician/nurse collaborative climate, environmental uncertainty in forms of financial pressure, and leadership) have a major negative influence on the social fabric of learning in this study.

6. CONCLUSION

Revisiting the research questions, this study has shown that learning safe medical practices in the case hospital to a certain degree is characterised by values of transparency (openness and communication), inquiry, integrity, and accountability. The latter three being important parts of the professionalism the studied health care workers hold. The value of issue orientation (issue before person) is influenced negatively by differences between occupational groups at the case hospital (research question A). The study has furthermore documented that contextual conditions (in specific time, workload, physician/nurse collaborative climate, environmental uncertainty, and leadership) influences the learning of safe medical practices in the case hospital so strongly that they counterbalance the values of social participation described above in a negative sense. Professionalism as a contextual condition plays a positive role in learning safe medical practices (research question B).

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