Acting between Checklists and Reality. Managers' Balancing between Standardization and Adaptive Behaviour in Patient Safety Work- an Interview Study

Mats Hedsköld
Karolinska Institutet
Magna Andreen Sachs
Karolinska Institutet
Thorleif Rosander
Sodersjukhuset AB
Mia von Knorring
Karolinska Institutet
Karin Pukk Harenstam (karin.pukk@ki.se)
Karolinska Universitetssjukhuset https://orcid.org/0000-0002-5502-2237

Research article

Keywords: First line managers, patient safety, patient safety culture, intensive care, hospital survey on patient safety culture

Posted Date: April 21st, 2020

DOI: https://doi.org/10.21203/rs.3.rs-19138/v1

Version of Record: A version of this preprint was published on January 8th, 2021. See the published version at https://doi.org/10.1186/s12913-020-06042-3.

Abstract

Background Safety culture can be described and understood through its manifestations in the organisation as artefacts, espoused values and basic underlying assumptions and is strongly related to leadership-yet it remains elusive as a concept. Even if the literature points to leadership as an important factor for creating and sustaining a mature safety culture, little is known about how first line managers' balance the different and often conflicting organizational goals in everyday practice. The purpose of this study was to explore how health care first line managers perceive their role and how they promote patient safety and patient safety culture in their units.

Methods Interview study with first line managers in intensive care units in in eight different hospitals located in the middle of Sweden. An inductive qualitative content analysis approach was used.

Results We present how first line managers view their role in patient safety and exemplify concrete strategies by which managers promote safety culture by acting as role models, designing everyday work and promoting psychological safety and a learning environment.

Conclusions Our study shows the central role of front-line managers in designing the everyday work in the ICU. In our study both of Safety − 1 and Safety − 2 aspects emerged in the analysis. Although promoted widely in Swedish healthcare at the time for the interviews, the HSOPSC was not mentioned by the managers as a central source of information on the unit's safety culture.

Background

Health care is a complex socio-technological system where the individual and collective work practices not only strive to produce the desired outcomes of the system, but also where system safety emerges [1]. The concept of safety culture was coined in the aftermath of the Chernobyl accident and the Challenger crash in 1986 and has been defined for healthcare as "The shared values, attitudes and behavioral norms that determine the degree to which all organizational members direct their attention and actions toward minimizing patient harm during delivery of care" [2]. Safety culture can be described and understood through its manifestations in the organisation as artefacts, espoused values and basic underlying assumptions [3] and is strongly related to leadership [4, 5] yet it remains elusive as a concept.

In Sweden, based on the Swedish patient safety law [6] the health care providers (whether county-owned or contracted private) are responsible for patient safety and should conduct systematic patient safety work. Tasks aiming at executing this imposed regulation are delegated to first line managers, who also are responsible for staffing of the unit round the clock and ensuring that work is done according to rules and that the mission and goals of the organization are adhered to. The work with improving patient safety and patient safety culture was intensified when a patient safety law [6] was launched along with a government-supported financial incentive plan for 2011–2014 aiming at improved patient safety. One of the performance-based requirements of this incentive plan was to measure patient safety culture and – based on the outcome of the measurements – make action plans and initiate improvement projects

aiming at development of the patient safety culture. A Swedish version of one of the most spread tools for the purpose of measuring patient safety culture - Hospital Survey on Patient Safety Culture (HSOPSC) developed by the Agency for Healthcare Research and Quality - had earlier been translated and reworked to Swedish conditions [7] and was used during these years for repeated measurements in hospitals and health care organizations in Sweden. Although widely implemented in Swedish healthcare, the actual use of the survey in local patient safety initiatives has not been explored.

The often-conflicting organizational goals under which healthcare happens put pressures on first line managers and staff [8]. Under these conditions, as highlighted by the challenger crash, shared values and work practices can drift towards acceptance of unsafe behaviors and violations of safety protocols. This phenomenon has been called “normalisation of deviance”[9]. In summary, even if the literature points to leadership as an important factor for creating and sustaining a mature safety culture, little is known about how first line managers’ balance the different and often conflicting organizational goals in everyday practice.

Aim

To explore how health care first line managers perceive their role and how they promote patient safety and patient safety culture in their units.

Methods

Participants and settings

Eight first line managers working in intensive care units (ICU) in eight different hospitals located in the middle of Sweden were interviewed. ICU first line managers were chosen for the study since intensive care is known to be an example of medical care with high risk of harm being done to the patients due to the advanced technology used in ICU:s and the frailness of the patients [10]. The hospitals differed in size from smaller district hospitals to larger county and region hospitals, of which some were university hospitals providing highly specialized care. The ICU ´s varied in size and were either focusing on acute coronary care, postoperative or trauma care. The ICU first line managers of this study were thus selected to get a purposive sample based on variation in size and type of ICU. An invitation to participate in the study was sent by email to the managers at 8 ICU units that met these selection criteria.

Inclusion criteria for interviewees were: 1) two years or more of experience as first-line manager and 2) the unit where they held their position should have participated in a patient safety culture survey between 2009 and 2011 using the HSOPSC instrument. In case the unit approached held more than one first line manager, the invitation to participate in the study was addressed to the manager whose name appeared first on the electronic contact list. In the mail the background and purpose of the study was described, and a presentation of the research team was given. Also, a letter was enclosed stating that participating in the interview was voluntary and that information given during the interview was to be regarded as

confidential material. Also, the letter contained information about how data would be used and stored. All persons who received this invitation letter agreed to participate in the study.

Among the participants, the experience as a first-line manager, ranged from two to ten years (average 4.6, median 4.5). Six of the eight participants were nurses and two were physicians. Further, six of the interviewees were women. The number of staffs per unit ranged between 19 and 140 (average 91, median 115).

Data collection

A semi-structured interview guide with open-ended questions was constructed based on current knowledge and discussions among the researchers. The guide was revised after the two first interviews to better correspond to the aim. All interviews are included in the analysis. The interviews were conducted in 2013.

The interviews took place at the informant´s own workplace or close to this place except one interview which was held over the telephone for practical reasons. All interviews were conducted under written informed consent, lasted between 30 and 55 minutes, were digitally recorded, and transcribed verbatim by the interviewer shortly after each interview.

Data analysis

An inductive qualitative content analysis approach, inspired by Graneheim and Lundman [11] was used to analyze data. In the first step, all interviews were read by all authors to obtain an in-depth understanding of the data. The authors then collectively identified meaning units in one of the interviews and discussed ideas about categories and themes. In the next step, two of the authors (MH and MAS) reread all transcripts and marked all passages – meaning units – that were related to the aim and research questions. These meaning units were then condensed and coded and through a process of negotiated consensus within the research group classified into categories and subcategories.

In the Results section below, quotations from the interviews are used to illustrate the findings. A number is given within parenthesis that connects the quotation to a specific interviewee. In the quotes /…/ indicates omissions and [ ] additions of text. Changes have only been made to enhance readability and have not altered the content of the quotations. All quotes have been translated from Swedish.

Results

Below, a description of the strategies used by the managers to promote patient safety and patient safety culture within their units will first be given. Thereafter we present how they perceive their own role and impact on patient safety and patient safety culture. Finally, we describe how patient safety culture surveys were used to guide patient safety improvement work.

A. Strategies used in order to promote patient safety and patient safety culture within the units

Three main strategies were identified in the analysis which are described in detail below.

1. Encouraging learning from incidence reporting

Fostering an active incidence reporting, preferably via the electronic system was mentioned as an important part of the first line managers´ efforts to maintain and develop patient safety within the unit. Speaking up around adverse events was said to promote safety by raising the level of attention to risks in daily work and underlining the necessity of adherence to safe work practices. One of the informants described the necessity of sharing information on adverse events like this:

" *It is done to make staff aware about what has happened, and that this is something that we need to be extra careful about"* (IP1)

Perceived work environment risks were also reported and handled via the same electronic reporting systems. However, these reporting systems were not without technical shortcomings and in case of temporary break downs reporting was done verbally directly to the manager as described by this manager:

" In that case the person simply contacts me and gives a direct, oral report for me to handle as I choose" (IP7)

Analysis of the reports was generally handled by one or more members of the unit including – in case of a serious incident – the head of the department. The suggestions for improvement emerging from these analyses were subsequently implemented through existing forums. The first line managers expressed an ambition to provide both a written feedback to each individual employee who had filed a report and also, orally, inform all staff members, in conjunction with staff meetings, about the outcome of the analysis of the incidence report and what measures that had been taken or were to be taken in order to prevent this incidence and similar others from occurring again. Due to an overload of reports, however, the ambition to analyze and give feedback on all reports that had been filed was not always possible to live up to. Those reports which were regarded as "minor" incidents thus had to be left unattended. This was generally regarded as a failure since windows for improvement might have been left unused. Further, to deepen the understanding of how patient safety is treated, the employees were not only provided with feedback from analyses of adverse events but also invited to take part in root cause analyses (RCA) teams or improvement efforts in order to learn the methodology and get a deeper understanding of the risks in health care and how to prevent harm.

" I think a lot of how I can reach as many as possible of my staff about ongoing patient safety work, but it is not that easy. So, what I can do is to tell them about the outcomes of the root cause analyses that we have done /…/. Also, I try to get as many members of my staff as possible included in root cause analyses teams as a learning opportunity" (IP6)

Sometimes, groups of employees were given the opportunity to analyze an incident on their own and afterwards compare their conclusions and suggestions with those of the formal RCA group. Involving co-workers in RCA activities or in group discussions around the results of such analyses was said to stimulate creativity among staff members i.e. further develop their capacity for solving problems and finding ways to provide safer care. This was described in the following way by one of the first line managers:

" It is formally me who makes the final registration in the system, but in this way we get more staff members engaged in the discussion on how to find good solutions on how to move ahead" (IP7)

The managers, however, regretted that their aim to create continuous learning often rested unattended since little or no time was set aside for performing follow up on changes that had been made. One of the managers formulated it like this:

" We are good at starting new projects, but we never evaluate the ones that we already have started" IP5

2. Balancing adherence to and questioning of standardized operative procedures

The first line managers described their responsibility for ensuring that constantly updated documents on evidence based, standard operative procedures were available and adhered to in daily work. One manager emphasized the role of these guidelines in providing high quality care to patients in the following way:

" Updating guidelines is also a part of the improvement work. Patients should be treated in accordance with new evidence and not according to old rules that have never been revised" (IP5)

Another manager expressed great personal pride in ensuring that guidelines were updated in the following way:

" For me it is important that we have updated guidelines and memos to follow. I am very proud that we have a good structure around that" (IP4)

However, in order to have a realistic view of the number of guidelines, the challenging task to keep them all updated, communicated and adhered to was also highlighted by the managers. They described that they sometimes took the responsibility not to introduce documents on standard operative procedures sent out from top management of the hospital because the procedures advocated from this level according to their opinion were not always applicable to intensive care. One manager said:

" It is like this: the kind of medical care that we provide does not always fit with the instructions sent out from the top." (IP1)

Also, in certain situations, when unexpected things happened and no written guidelines fully applied to the situation, the managers expressed a wish for employees not to be too dependent on guidelines but instead use their own creativity and try to focus on the best way of solving the situation without harm

being done and then, afterwards, decide whether a new guideline was needed or the old one was obsolete and in need of updating.

" We encourage staff members to act like this and then afterwards to engage in discussions and analysis of the situation. Maybe guidelines applicable to this type of situation need to be changed or there is need for a new guideline?" (IP2)

On the other hand, too creative staff members could also pose a risk and the managers underlined the importance of matching creativity with an explicit process for how to eventually decide on and launch a new routine in order to prevent uncontrolled methods and ways of working entering the scene. One of the managers formulated it like this:

" This [strategy] leads to my staff being fairly good at solving problems. But this can of course be hazardous in itself so you have to have structures for how to handle such situations" (IP2)

3. Supporting continuous development of skills and knowledge

The managers emphasized the importance of supporting continuous development of staff members, both in medical care and in-patient safety issues, in order for them to deliver safe care. One manager stated:

" It is in the end a patient safety issue that staff is well trained and competent" (IP4)

Thus, in order to meet this demand, they took great responsibility in ascertaining that all staff members regularly participated in relevant continuous education activities – also concerning patient safety issues.

They also produced written material for the employees to study for themselves on new evidence and related change of guidelines. Sometimes experts were invited to present new evidence or information calling for change of routines. This was said to have a greater impact than the manager giving the information.

" For example, if staff adherence to hygiene routines has been studied in our unit it is much better if an outside expert, involved in the study, comes and gives feedback on the results and not myself or anyone else within the unit. Listening and learning will be much better." (IP1)

B. Informants´ perceptions of their own role and impact on patient safety and patient safety culture within the units

Three main categories were identified in the analyses and are described in detail below.

In general, the first line managers were convinced that they personally had a great impact on patient safety and patient safety culture within the unit as was phrased by one of them in the following way:

" I believe I play a tremendous role in promoting patient safety" (IP2)

The managers also expressed a deep commitment to patient safety issues and viewed these missions as their main duties as exemplified by this quotation:

" Looking at my job in a wider perspective I think it is all about strengthening patient safety" (IP5)

1. Being a role model

Within this category, two subcategories were identified: the importance of taking part in daily work and, the importance of setting a good example. These will be described in detail below.

The importance of taking part in daily work

The managers stated unanimously that it was of great importance to be present and, as much as possible, take part in daily, clinical work because, by so doing, opportunities for picking up problems which might not otherwise have been communicated to the manager were created. One of the managers said:

" Two weeks out of four I am dressed in hospital working clothes and I take part in daily work. The other two weeks I wear private clothes and work administratively. When dressed in working clothes, staff members always come up to me and give comments and reflections on experiences and observations during work /…/ and they generally express a wish that I would be present like that every day." (IP7)

Also, it gave the managers excellent opportunities to exert a direct influence on attitudes and manners, as was expressed by one of the managers in this way:

" Communication /…/ and daring to take part in daily work, showing how things should be done /…/ that is really the most important part [*of patient safety work*]*"* (IP8)

Another manager explained it like this:

" It is quite another thing….I sit in the coffee room as one of the staff and listen and then they can ask and I sort of get a deeper understanding and see it from their perspective…" (IP6)

Also, when the managers participated in daily work potential risks were spotted by the manager him- or herself as e.g. shifts in routines having occurred and current opinions on how to execute certain care procedures having occurred.

The importance of setting a good example

The managers stated that they served as role models and that their way of acting and reacting in routine work as well as critical situations was copied by their staff.

" Always setting a good example /…/ in clinical work, in patient care/…/ For instance never deter from basic hygiene rules /…/ but also in my attitudes /…/ expressing a will to communicate and to speak up /…/ demonstrating an attitude /…/" (IP3)

2. Developing a positive patient safety culture

The managers strongly believed they played an important role in the development of a positive patient safety culture which also was looked upon as a never-ending mission. The importance of their personal attitudes in situations where they, themselves, might have put patients at risk or even worse, made them experience harm, was described as essential for building a supportive safety culture. One of the managers formulated this as follows:

" Yes, I do think it is very important that you dare to speak up about your own mistakes. Because I think that´s what it´s all about. To have psychological safety – yes, dare to show your own mistakes." (IP6)

Their way of fulfilling this mission was described in terms of keeping up correct routines and constantly encouraging incidence reporting. The informants also stated that they played an important role in encouraging and confirming good patient safety practice and especially in not condemning errors and mistakes as expressed by one of the managers:

" What is also important is to set a good example …. create a climate where everybody is comfortable with speaking up…for instance an assistant nurse might say to a senior doctor that that is not the correct way of doing this" (IP8)

Another manager reflected on the need of humbleness and supporting development of a blame-free environment by role modelling how staff could approach a situation where they felt uncertain about the correct way of doing things, in the following way:

" I do not hesitate to say" oh, I do not actually know how to do this. I have to check it up first!" or" this was not so well done /…/I should have known better". I am very prone to use these words /…/ in order to show humbleness." IP6

The managers stressed the importance of lifting up patient safety as everybody´s responsibility and recognizing the patient safety aspects in every detail of the job. As one of them phrased it:

" Everything we do, all our activities, should be done with patient safety in focus." (IP7)

3. Creating a positive working environment

The informants also stressed the importance of having a generally good and positive climate within the working place and said that it had effects not only on the way staff handled tasks but also how they communicated about observed risks. The ways in which this was achieved were mainly described in terms of being attentive to ideas and suggestions coming from the staff members, listening respectfully to everyone and also encouraging them to come forward and express their thoughts. As one of the managers said:

"….one has to include working climate when dealing with patient safety issues" (IP3)

Thus, promoting a positive and supportive working climate was an important task for the leaders which was explained by the same manager in the following way:

" If they do not feel comfortable and like it here then there is no joy in going to work and that effects how patients are treated" (IP3)

Furthermore, investing in competence development and making strategic use of staff members´ different competences was also described as important strategies for creating a positive working climate, as one manager stated:

"Also, make use of all competencies that each and every one among staff members possess /…/which makes them feel acknowledged for who they are /…/ what their contributions mean to the whole picture /…/" (IP5)

One central aspect in promoting a psychological safety, was to secure a sufficient number of staff were present during each shift and also ensuring that necessary competences were represented by the team.

" I think that a too heavy workload is absolutely devastating [for patient safety] because then you start to prioritize [and ignore basic safety routines]. And when you do that you are dissatisfied with your work" (IP7)

Finally, having routines and a structure in place for supporting staff members after they have been involved in an adverse event was stressed as an important factor in building a good working climate. One of the managers described this in the following way:

" We care for the staff member who has been involved in an adverse event /…/ sit down and talk /…/ listen /…/ provide support/…/" (IP1)

C. Experience of using HSOPSC surveys to guide patient safety improvement work

None of the managers described any systematic use of the patient safety culture measurements as a tool or a guide in their work to promote and improve patient safety culture and patient safety. The only exception was one manager who described that the Chief Medical Officer at the hospital had demanded that the survey outcome should be used as a basis for local patient safety improvement plans. Thus, action plans for improved adherence to handoff routines and improved feedback on incidence reporting were developed as an effect of poor outcomes in these areas in the recent patient safety culture survey.

"/… /all units were forced to come up with an action plan based on the survey outcome /…/to show that you had done something." (IP3)

The managers expressed that they were not involved in decisions on when to conduct a survey or in the communication of survey results. Timing of patient safety culture surveys seemed to be set by management higher up in the health care organization without any consultation with first line managers

to capture when and what information was needed in order to support and further develop ongoing patient safety initiatives.

The managers admitted that their motivation for working with HSOPSC was low, despite their focus on constantly improving patient safety and awareness of the importance of a strong patient safety culture. Also, the managers described difficulties in getting feedback on survey outcomes and said that they were not given the tools and training in how to interpret the results. This situation was described in this way by one of the managers:

" I would have liked to have a constructive discussion about all the questions…. also, a plan…what are we aiming at? What are our goals? And a toolbox…how should I interpret this picture... the spider diagram… what am I supposed to do with it? (IP7)

Measurements were said simply to be done to receive financial revenue through the national initiative plan, not as a part of a goal-oriented local improvement plan.

Discussion

In many aspects the managers in their own words describe how they strive to embody the different aspects of safety culture as defined in the background of this article [2]. They also shared thoughts on their insight, desire and commitment to work with patient safety. The respondents describe how they aim at recognizing work well done. They also describe how provision of constructive suggestions when/where appropriate, and reciprocal recommendations for professional growth can be incorporated in daily respectful conversations between them as leaders and the unit staff. Studies have highlighted that providing more feedback about performance may be a welcome process for the staff in clinical areas[12].

The interviewees in our study worked intuitively on advancing patient safety culture by using the same strategy as has been put forward by Gandhi et al 2017 [13], i.e. counteracting any form of punishment of human errors but at the same time holding staff members accountable for their actions or failures to act.

The importance of being present and visible as a leader in the sharp end while working with improvement of work practices has been highlighted earlier[5] in as well as in recent studies. Savage et al showed how the design, implementation and improvement of team work practices in safety critical tasks in perioperative care led to improvements in technical and non-technical skills as well as to safety culture [14]. The managers played a central role in the redesign of work practices by actively participating in and enabling staff to participate in the improvement teams, championing CRM and participating in the redesign of work practices. This presence led to that the staff perceived the leader's commitment to safety more clearly [14].

Another study from the Veteran Administration hospitals report similar findings; they suggest that the improvement in participants' perception or belief that their specific facilities were doing more for patient safety than they had was linked to that the staff that participated in the team training interventions knew, observed, and /or understood that their leadership supported efforts to enhance patient safety in their

clinical units [15]. The VA hospitals highlight briefing as a mechanism of communication before the start of shifts or procedures in clinical areas became part of the team's standardized communication [15]. Being present at daily meetings and in daily work is highlighted also by the managers in this study [15]. In a sense, safety culture is not a construction but something that is actively being constructed in all the different meetings and exchanges that the first line managers have during a workday.

Acting between checklists and reality - designing everyday work

The everyday organising of clinical work seems to dominate the work of the managers in this study. Many managers saw noticing and recognising the competencies of individual staff as central task. Both when scheduling shifts but also in guiding investments in their continuous learning and development. Making such early investments in the competencies of front-line staff have been highlighted as important for creating capacity for staff to be able to notice risks and respond resiliently [16]. The managers' focus on scheduling the right competencies can be seen as an important precondition for the team's capability to manage everyday work as well as to reorganise and respond to a variety of expected and unexpected situations in the complex ICU environment.

An important point made within the resilience engineering perspective is that safety can be managed by structure and control on one hand (i.e. Safety − 1) and adaptive behaviour on the other (Safety − 2)[17]. Two central Safety-1 strategies expressed in the interviews were having up to date work practices to support evidence-based practice and developing them by promoting immediate learning from adverse events. The shift in perspective from the operative to the more strategic plane is perhaps challenged by the immediate task to get the unit to function. Several of the managers expressed how they struggled with closing the loop with regard to learning from and reorganising work based on adverse events.

Several managers expressed pride in having updated guidelines and standardised operative procedures and in working with staff so that they feel informed when changes are introduced. However, the focus on adherence to guidelines and standardised operative procedures was balanced by the comments that emphasised the importance of questioning the feasibility of guidelines in the complex ICU context. The managers describe how teams adapt their work to changing preconditions or to unexpected developments and that they perceive their role as acting between promoting structure on the one hand and encouraging innovation and learning on the other hand. The awareness of this drift and the need to stop any drift in practice that could pose a risk to patient safety seemed to be a central task.

The work practices of the units were not only challenged by the adaptations made by staff. The managers describe how reorganisations of work or new routines promoted by higher management can be disruptive if they are misaligned with the ICU context. A recent Norwegian study did indeed show how reorganisation of ICU units can affect safety culture negatively [18]. Shielding their units from unnecessary change or unaligned guidelines is mentioned as an important part of the job by the managers. This constant mindful balancing act described by managers seems to be a central strategy in preventing normalisation of deviance [9].

Promoting psychological safety and a learning environment

The managers also express the importance of promoting a safe environment where staff members feel seen and listened to. This focus on supporting the staff in their everyday work to create a good work environment seems to be central. This intuitive connection expressed by the managers in our study is mirrored by a recently published systematic review, Braithwaite et al. that found positive associations between workplace culture and patient outcomes [19], has been linked to employee safety in other industries [20] and has been highlighted as an important precondition for safety culture and learning [21].

Conclusions

Our study shows the central role of front-line managers in designing the everyday work in the ICU. In our study both of Safety − 1 and Safety − 2 aspects emerged in the analysis. Although promoted widely in Swedish healthcare at the time for the interviews, the HSOPSC was not mentioned by the managers as a central source of information on the unit's safety culture. The use of patient safety culture surveys as well as what other sources of safety information would support front line managers in designing for safe care needs to be explored further.

Abbreviations

ICU
Intensive Care Unit
IP
Interview Person

Declarations

Ethics approval and consent to participate

Ethics approval was obtained from the Regional Ethics Committee of Stockholm (Number 2013/1300-31/5). All interviews were conducted under written informed consent.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests
The authors declare that they have no competing interests.

Funding

The participation of KPH and MH were funded by Vinnvård FORTE [grants nr A2008-012 and VF13-008]. The other authors received no financial support for the research, authorship, and/or publication of this article.

Authors' contributions

TR collected the data. All authors (MH, MAS, TR, MvK and KPH) participated in analysis of the data. All authors read and approved the final manuscript.

Acknowledgements

Not applicable.

References

1. Woods DD. EH, N. G. Leveson **Resilience Engineering: Concepts and Precepts**. New ed edn: Ashgate Publishing Limited; 2006.
2. Vogus TJ, Sutcliffe KM, Weick KE. Doing No Harm: Enabling, Enacting, and Elaborating a Culture of Safety in Health Care. Acad Manag Perspect. 2010;24(4):60–77.
3. Schein EH. Occupational socialization in the professions: the case of role innovation. J Psychiatr Res. 1971;8(3):521–30.
4. Squires M, Tourangeau A, Spence Laschinger HK, Doran D. The link between leadership and safety outcomes in hospitals. J Nurs Adm Manag. 2010;18(8):914–25.
5. Flin R, Yule S. Leadership for safety: industrial experience. Qual Saf Health Care. 2004;13(Suppl 2):ii45–51.
6. Socialdepartementet: **Patientsäkerhetslagen SFS 2010:659**. In. Edited by Socialdepartementet, vol. SFS 2010:659: Socialstyrelsen; 2010.
7. Hedskold M, Pukk-Harenstam K, Berg E, Lindh M, Soop M, Ovretveit J, Sachs MA. Psychometric properties of the Hospital Survey on Patient Safety Culture, HSOPSC, applied on a large Swedish health care sample. BMC Health Serv Res. 2013;13:332.
8. Cook R, Rasmussen J. "Going solid": a model of system dynamics and consequences for patient safety. Qual Saf Health Care. 2005;14(2):130–4.
9. Vaughn D. The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA. Chicago: University of Chicago Press; 1997.
10. Pronovost PJ, Sexton JB, Pham JC, Goeschel CA, Winters BD, Miller MR. Measurement of quality and assurance of safety in the critically ill. Clin Chest Med. 2009;30(1):169–79. x.
11. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse education today. 2004;24(2):105–12.

12. Sexton JB, Adair KC, Leonard MW, Frankel TC, Proulx J, Watson SR, Magnus B, Bogan B, Jamal M, Schwendimann R, et al: **Providing feedback following Leadership WalkRounds is associated with better patient safety culture, higher employee engagement and lower burnout**. (2044–5423 (Electronic)).
13. Gandhi TK, Berwick DM, Shojania KG. Patient Safety at the Crossroads. Jama. 2016;315(17):1829–30.
14. Savage C, Gaffney FA, Hussain-Alkhateeb L, Olsson Ackheim P, Henricson G, Antoniadou I, Hedskold M, Pukk Harenstam K. Safer paediatric surgical teams: A 5-year evaluation of crew resource management implementation and outcomes. International journal for quality in health care: journal of the International Society for Quality in Health Care / ISQua. 2017;29(6):853–60.
15. Schwartz ME, Welsh DE, Paull DE, Knowles RS, DeLeeuw LD, Hemphill RR, Essen KE, Sculli GL. The effects of crew resource management on teamwork and safety climate at Veterans Health Administration facilities. Journal of healthcare risk management: the journal of the American Society for Healthcare Risk Management. 2018;38(1):17–37.
16. Bergstrom J, Dekker S, Nyce JM, Amer-Wahlin I. The social process of escalation: a promising focus for crisis management research. BMC Health Serv Res. 2012;12:161.
17. Hollnagel E. Safety-I and Safety-II, The Past and Future of Safety Management. Surrey: Aschgate Publishing Limited; 2014.
18. Vifladt A, Simonsen BO, Lydersen S, Farup PG. The association between patient safety culture and burnout and sense of coherence: A cross-sectional study in restructured and not restructured intensive care units. Intensive critical care nursing. 2016;36:26–34.
19. Braithwaite J, Herkes J, Ludlow K, Testa L, Lamprell G. Association between organisational and workplace cultures, and patient outcomes: systematic review. BMJ open. 2017;7(11):e017708.
20. Chen Y, McCabe B, Hyatt D. **Impact of individual resilience and safety climate on safety performance and psychological stress of construction workers**: **A case study of the Ontario construction industry**. (1879 – 1247 (Electronic)).
21. Dieckmann P, Patterson M, Lahlou S, Mesman J, Nystrom P, Krage R. **Variation and adaptation**: **learning from success in patient safety-oriented simulation training**. (2059 – 0628 (Print)).