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Tools for establishing a sustainable safety culture within maternity services. A retrospective case study

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Abstract

Objective: This article reports the findings from a single case study on the long-term sustainability of a quality system in a large maternity unit.

Method: The empirical basis is an analysis of documents related to the development, implementation, maintenance and outcome of the system over two decades. The main elements of the quality system are reported as findings, and the possible effects of the different elements are presented and discussed based on theories on safety management and leadership.

Result: The findings suggest that the quality system served as the basis for a meaningful workplace community. The structure of meetings, research, training and budget input were all central factors for the development of the system. It resulted in systematic ongoing improvement, participation from all levels of the organization and trust within the organization. The effects of the system may still be seen after the end point of this study.

Conclusions: It remains the responsibility of the management to ensure an adequate professional standard of services by a continuous internal quality assurance system for enhanced patient safety.

Keywords

Quality system, maternity unit, sustainability, patient safety

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Introduction

In Norway, as in several other countries, the current regulations on management and quality improvement in the healthcare services, with accompanying guidelines, clarify the management's responsibility for assurance of safety and quality of the services provided.[1,2] In Europe, we may trace a systematic and specific development related to these issues at least back to an initiative from the WHO Regional Office for Europe in the early 1980s.[3]

For managers in the health industry, safety and quality efforts are an important part of their managerial responsibilities.[4] In Norway, the legal requirements for sound professional practice encompass safety and quality aspects related to provision of healthcare services. The legal requirements also cover maternity services. They are specified in the health personnel act and the specialist health services act.[5,6]

A national action plan for patient safety and quality improvement 2019–2023 was launched to support compliance with the requirements in the regulations on management and quality improvement.[7,8] However, the theoretical basis for the measures described in this plan is not new at all. The current action plan actually is a continuation of two previous plans, of which the first was launched in 1995.[9–11] However, the current plan focuses more on specific tools than previous plans did.

During the 1990s, several hospitals, including the maternity units, enhanced their work related to quality assurance. Different tools have been developed and scientifically tested, but the combination of them and their sustainability in

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clinical practice have scarcely been evaluated. Few, if any, in-depth studies are published on the long-term effects of comprehensive safety and quality systems within hospitals. The aim of this article is to describe and analyse the tools of a safety and quality system and discuss the prerequisites for its use and sustainability in a clinical setting. Research is designed as a single case study of a maternity unit annually covering approximately 5000 deliveries.

Theoretical basis

The current regulations on management and quality improvement in the healthcare services, together with the guidelines, aim to provide managers a legislative basis and indicate proper tools for systematic management and leadership.[1,2] The regulatory norms and specific tools recommended are largely built around the principles of Deming's model for systematic improvement work: plan, do, study, act – also called the 'PDSA' circle.[7,8] The purpose of the guidelines is to contribute to professional and safe provision of services, including continuous quality improvement and user involvement.

Studies of contemporary experiences with a comprehensive set of specific tools for systematic management and leadership at this particular maternity unit were described in 1999.[12] The present article is a follow-up of the study from 1999.

According to the normal accident theory (NAT), it is likely that system accidents might happen in advanced systems due to human 'normal' errors, hence the term 'normal accidents'.[13] 'High reliability organizations' (HROs) have proved to be effective to avoid accidents through intelligent organizational design and good management.[14] However, NAT and the HROs show different perspectives that may complement each other in understanding the causes of accidents and thereby provide a broader approach to the work with risk-reducing measures.[15,16]

Safety cultures enable a common understanding of dangers and risks and provide knowledge to identify and prevent dangers and risks to cause adverse events. Managements should build a safety culture that is informed, reporting, fair and flexible, and helps promote a learning culture. In a good safety culture, these components are perceived as a totality, called 'an informed culture'.[17] Traditionally, safety theories have focused on avoidance of unwanted incidents and sought to investigate what went wrong and why (Safety I). The more recent Safety II-theory focuses on safety as the ability to succeed under varying conditions, from what goes well.[18]

'The human envelope' is a model used to describe what it takes to create a robust organization, which is able to deliver safe and sound services.[17] The model illustrates the importance of interaction between the training of teams and the complex systems. The social structure must be organized in a way that permits people to speak out if they are in doubt, worried or find that something is disturbing. Team members actively search for mistakes, and 'messengers' are rewarded.

This model is based on a 'maestro' role, where the maestro works in line with her/his own high expectations, asks key questions, follows up both large and small events and shapes the culture with her/his presence. A maestro is also characterized as a skilled communicator and has a 'hands-on' leadership style. A maestro has sufficient 'requisite imagination' to anticipate where unexpected events may occur. A proactive organizational culture actively seeks information, focuses on good education and training of its employees, and facilitates learning by experience. A proactive leader will stimulate an active desire for improvement among employees.[17] In this way, the leader will be able to strongly influence the narratives inside the organization, and thus the organizational culture.[19]

Organizational knowledge management completely depends on the commitment and ideas of the employees. A leader who involves her/his employees informs them about the basis for his/her decisions, has clear expectations, goals and clarifications of responsibilities and can create a process where one achieves trust and voluntary cooperation. Commitment will most likely increase and lead to employees performing better by sharing their knowledge and applying their creativity.[20] Employees who experience the decision-making process as fair and transparent will more likely accept that a result might not be in their favour. Otherwise, the employees' mistrust might result in greatly reduced motivation. A negative consequence may be that initiatives are not supported and that good ideas do not see the light of day.[20]

There is an increasing focus on the importance of 'joy in work'. A framework is developed to guide healthcare organizations to engage in processes enhancing the well-being of employees, by enabling them to understand barriers to joy in work and find meaningful strategies for increased well-being. Lower levels of staff engagement are related to lower-quality patient care, including lower patient safety.[21]

A recent article on adverse events in maternity care in Norway argues that approximately half of the events were preventable.[22] The authors question why similar types of events happen repeatedly and what the underlying causes of substandard care might be. Adequate professional standards are regarded as key factors for quality assurance and patient safety, which is the responsibility of the executive management. The Norwegian Board of Health Supervision found that only 19% of events with very serious adverse outcomes were reported in the internal quality assurance system, which may signal lack of awareness related to deviations in clinical practice. The authors argue that we must create a culture where quality assurance is prioritized, and that we must recommend a stronger focus be given to quality assurance, by establishing the necessary barriers to prevent similar adverse events in the future.

Service quality comprises five categories of good practice: collaborative hands-on leadership, well-planned services, respect for patients and relatives, and a culture of continuous improvement and professionalization.[23] It is

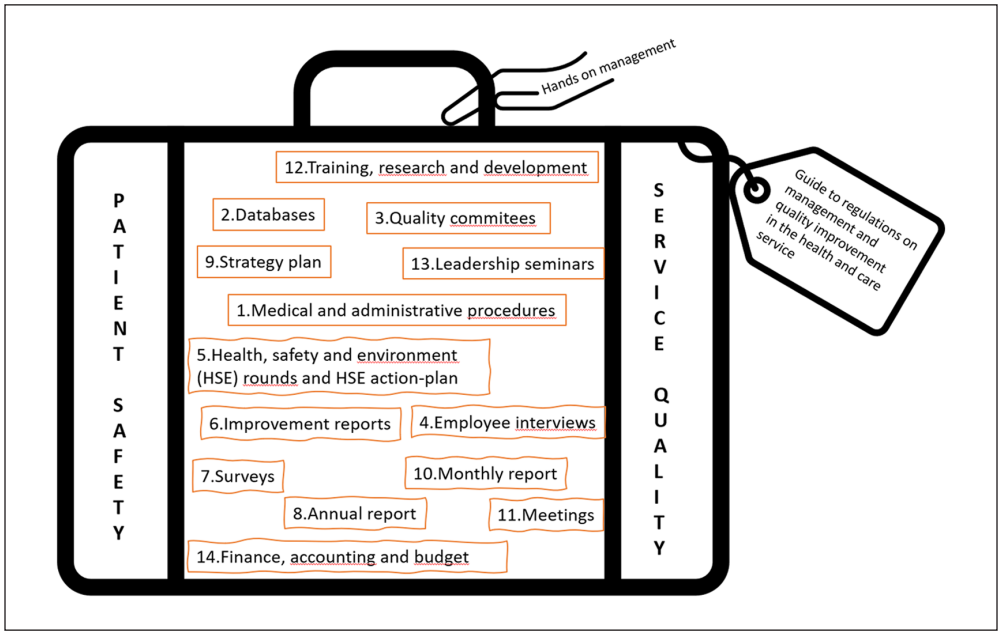

Figure 1. A toolbox for quality assurance.

claimed that the frontline staff are valuable resources of information and should have a say about how to improve service quality.

Methods

This study is designed as a single case analysis of lasting traits of a safety and quality system after two decades in function. A single case study can be justified here as we are aiming to study longitudinal effects and the practical use of existing theories in a quite typical maternity unit.[24]

A document analysis was carried out to investigate whether it was possible to trace the effects of the quality assurance system. This document analysis was done for a thesis in the master's programme of risk and safety management, which was finished in 2015 in Norway.[25] The aim was to identify concrete traces of sustainability of the management strategy at the maternity unit studied based on documentation from the period from 1990 to 2010.[25] End point was defined to 2010 as the set of documents available to study was complete up to this point of time, and because we did not want to interfere with the current managerial work in the unit. An indication of the outcome in the subsequent years is given by the clinical research based on data from the established safety and quality system.

When presenting and discussing the findings, we have applied a model described by Gerard Genette.[26] The model aims to make a relationship between the underlying facts (the story), the involved actors and the existing narratives, so to say, how do the lasting narratives relate to the underlying activities on which the narratives are built? Existing narratives in organizations are commonly regarded as tacit elements of organizational learning and knowledge, thus a backbone of the organizational culture.[19]

In the document analysis, drivers for the development and application of a safety-oriented quality system were described and investigated. This was possible because archived documents described the system and how various measures were implemented throughout the period. Document analysis made it possible to get an overall picture of the development of a safety-oriented quality system in the maternity unit. As a follow-up, validating interviews were conducted with three informants who had been employed at the maternity unit during the actual period. They were strategically selected due to their knowledge of and experience with the quality assurance system. The aim of the interviews was to confirm the activities described in the documents.

Results

The 14 tools described below (Figure 1) are based on a reanalysis of findings from a preliminary study aiming to reveal which tools were applied in the maternity unit's quality system.[25] They constitute the different parts of a comprehensive quality system that collectively reflect a HRO-inspired approach of avoiding accidents through intelligent organizational design and good management.[14] The tools can also be found in the regulations on management and quality improvement with the accompanying guide and the national action plan.[1,2,7]

Medical and administrative procedures

Method books or medical procedures are often referred to as collections of procedures or guidelines within a given field.

Interdisciplinary and easily accessible standardized procedures can contribute to patient treatment being professionally sound and not depending on who is on duty. In emergency situations, the procedures must be available electronically. The method books have been available electronically since the early 90s.[25] Additionally, method books on administrative procedures such as job descriptions, patient administrative routines, deviation reports and HSE routines were developed and made available in the same period. The administrative procedures were an important part of the quality assurance system.[25]

Databases

To be able to conduct continuous results control and have an overview of the quality of the services, all aspects of the organization should be registered and documented electronically. Easily accessible reports from the databases can facilitate quality assurance work and evaluation for improved patient safety. Clinical databases (from 1996 onwards) formed an important basis for professional development and research.[14,17,18,25]

Quality committees

As part of internal control, healthcare trusts have a duty to establish quality committees.[5] Quality committees should be interdisciplinary, and they should be an arena for discussion of procedures, results, deviations and suggestions for improvement. The management should actively participate in the committee. All employees should have the opportunity to report matters directly to the chair of the committee, and minutes must be made available in order to contribute to learning and improvement within the organization.[14,17,18,25]

Employee interviews

Employee interviews are considered a useful management tool to map the individual employee's learning and development needs.[17,18,25]

Health, safety and environment (HSE) rounds and HSE action-plan

HSE rounds are carried out to map the working environment to identify areas for improvement. HSE action plans describe in detail measures for which improvement have to be implemented.[25]

Improvement reports

In order to provide the best possible patient treatment, it is important to know historical development features and map existing conditions in a separate unit to develop suggestions for improvement. By having strategies for future development, one can be at the forefront of the development. Internal improvement reports as part of organizational planning and can be helpful when allocating resources.[25]

Surveys

Written surveys among patients and employees were used for quality improvement purposes.[25]

Annual report

Annual reports are useful as a summary and evaluation of results from the previous year. These reports can be used as evaluation and adjustment of the organization's activities.[2,25]

Strategy plan

A strategy plan is the overall management document, based on various guidelines and statutory requirements. The strategy plan is the basis for further planning and prioritization within the organization. Strategy plans describe proposals for measures that have to identified and undertaken for the development of each unit within the organization.[25]

Monthly report

Monthly summaries of various operating figures, quality indicators, sickness absence, deviations, ongoing projects etc. provide an overview of operations and form the basis for adjusting operations and initiating risk-reducing measures.[25]

Meetings

In order to provide predictability, it is important to prepare an overall meeting plan. The plan should be shared with managers, safety representatives in the organization, and elected representatives from the staff. These meetings are appropriate for discussions that do not require immediate solutions. A complete overview should be prepared for describing the purpose and frequency of the meetings; place and time; details about those who are participating on a regular basis; details about who is chairing the meeting, the speaker; and when to invite, when to share the minutes and with whom. In various joint meetings, important matters/input and discussions related to quality, deviations, working environment and safety can be addressed.[14,17,18,20,25]

Training, research and development

Teaching, skills and simulation training, and research are some of the core tasks of the hospital, and they should reflect in the objectives, action plans and various reports of the organization.[27] Teaching and multi-professional simulation training are important activities to ensure the best possible

and uniform patient treatment. Long-term teaching and education plans for all occupational groups should be prepared. Courses and training plans for new employees and temporary staff should also be prepared, as for various groups of students. In order to stimulate research and development, resources should be set aside for research coordination. A description of the unit's routines for internal and external research projects should be prepared.[14,17,18,20,25]

Leadership seminars

The management of the entire unit should attend interdisciplinary leadership seminars. Joint seminars for the leads of the various wards, day wards, outpatient clinics, office staff and management team of the units can be of support to the leader. The support can be carried out by creating commitment and being an arena for networking and discussions about common challenges.[25]

Finance, accounting and budget

Good financial management can take place through regular financial meetings with financial consultants and managers, as well as internal courses and meetings to enhance understanding of financial systems, accounting and budgeting. Representatives from the management of the entire unit should attend decentralized finance meetings. Dialogue with managers for each individual ward can provide input for finding out the causes of deviations, for example, overconsumption. Budget should be prepared on the basis of input from the head of the wards in line with strategies and measures proposed in improvement reports. According to a fixed annual plan, managers of different functions should be asked to prepare an overview of the need for equipment, personnel, building upgrades, etc.[14,17,18,20,25]

Discussion

Our findings show that the measures implemented over a 20-year period can be justified in terms of safety and management theories.[12] The system that was established from the early 1990s had elements that now are specified in the current regulatory requirements.[1,2,7,12,25] The documents studied as well as the interviews indicate that quality system served as the basis for a meaningful workplace community. The structure of meetings, research, training and budget input were all central factors for the development of the quality system. The quality system resulted in systematic ongoing improvement, participation from all levels of the organization and trust within the organization. Forums represented all cadres to make decisions of general interest. Members of the quality assurance committee represented the multi-professional administrative, clinical and academic staff to make sure that everyone's perspectives were heard. Systematically developing a culture of mutual respect is of vital importance for a good working environment. The importance of joy in work should not be underestimated, realizing the strong connection between content employees and patient safety.[21]

One possible measure on 'hard end points' of a managerial system may be its ability to perform according to explicit service quality demands. This may be evaluated by external organizations, for example, through governmental supervisory activities. On basis of a nationwide governmental audit of maternity hospitals in 2004, no deviations were discovered at this actual maternity unit. However, a remark was given concerning 3rd to 4th degree perineal tears of 5.6% after childbirth patients during the last 6 years.[28] The current quality system was able to follow up on this by carrying out a project that updated routines and organized skills training for midwives and doctors. In 2013, the percentage of 3rd to 4th degree perineal tears was reduced to 1.5%.

Another way to assess effects of the management system is to refer to the results of research related to the clinical activity in the maternity unit studied. The quality assurance system that was established three decades back has enabled clinicians to engage deeply in clinical research. For example, the databases at the maternity unit provided reliable data for research on the following: obstetric anal sphincter injuries,[29,30] second-trimester ultrasound dating,[31] ultrasound scanning to assess labour progress[32] and effects of multiprofessional simulation training on bleeding after birth.[33] The quality assurance system enabled the clinicians also to engage in clinical research within gynaecology. The databases established on basis of the quality system have provided reliable data for research on regression of cell changes[34] and prognostic factors for endometrial-adenocarcinoma.[35,36]

A safety culture reaches a common understanding of risk and how to reduce patient safety incidents. A good safety culture is fair, flexible, based on relevant information, using reports and learning from mistakes to keep patients safe.[14] Investigations of possible areas for improvement show that a stronger focus from the managers should be given for quality assurance.[22] The national action plan for patient safety and quality improvement reflects the same recommendations and requirements.[7]

This study concerns one single maternity unit. This may be regarded as a limitation. We cannot claim the findings and judgements to be generally valid. But the findings, in connection with relevant theories on safety management and leadership, signify that it is possible to orchestrate a multitude of single tools to become an effective safety and quality system.

Conclusion

The findings in this case study indicate that the approach described in the current Norwegian regulatory norms on management and quality improvement in the healthcare services can be expected to have intended effects, especially when implemented systematically over a certain period of time.

It also appears to be of importance that the system for ensuring safety and quality is a part of the total governance

system for the relevant unit, not least because the safety and quality aspects are closely related to staffing and financial issues. The system should encompass mechanisms for continuous monitoring not merely adherence to procedures, but also clinical outcome. The system must be regularly followed up on some topics especially related to safety, even on a daily basis.

It is the responsibility of the executive management at each healthcare facility to identify causes of errors, ensure a good working environment and an adequate professional standard of services by an internal quality assurance system to enhance patient safety.

This kind of quality assurance system resembles a symphony orchestra. A symphony orchestra comprises musicians who can conduct music individually based on sheet music. However, it takes a maestro to interact with the musicians to perform excellent music. Using this metaphor, the leadership challenge is to ensure that the melody defined on the sheet music is heard live. This is a building up of an organizational culture in practice.

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Author Contributions

ML designed the project and did the fieldwork under supervision of GSB. The initial manuscript was drafted by ML and SE before adjustments were made by GSB and SML. All authors took part in the evaluation of the findings. SML designed the original safety management system used as a basis for this analysis and was therefore included in the finalization of the project.

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Ethics approval

Not applicable. No patients involved. The interviews were based on consent and not concerning personal information.

Informed consent

The interviews were based on verbal consent and not concerning personal information, cfr. GDPR.

Trial registration

Not applicable.

Declaration

ML (previously MLV) collected the data from the documentation and prepared a first version of the chapter on the findings. SML, SE and GSB added the theoretical basis and elaborated the analysis of the findings and the discussion together with ML. SML, SE and ML has been working in the maternity unit concerned.

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