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Major Article

The Safe Hands Study: Implementing aseptic techniques in the operating room: Facilitating mechanisms for contextual negotiation and collective action

Ewa Wikström [a], Lisen Dellenborg PhD [b], Lars Wallin [b,c,d], Brigid M. Gillespie [e,f], Annette Erichsen Andersson PhD [b,g,*]

[a] Department of Business Administration, School of Business, Economics, and Law, University of Gothenburg, Gothenburg, Sweden
[b] Institute of Health Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
[c] School of Education, Health, and Social Studies, Dalarna University, Falun, Sweden
[d] Department of Neurobiology, Care Sciences, and Society, Division of Nursing, Karolinska Institutet, Sweden
[e] School of Nursing & Midwifery, Griffith University, Gold Coast, Queensland, Australia
[f] Gold Coast Hospital and Health Service, Queensland, Australia
[g] Sahlgrenska University Hospital Mölndal, Gothenburg, Sweden

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Background: Even though hand hygiene and aseptic techniques are essential to provide safe care in the operating room, several studies have found a lack of successful implementation. The aim of this study was to describe facilitative mechanisms supporting the implementation of hand hygiene and aseptic techniques.
Methods: This study was set in a large operating room suite in a Swedish university hospital. The theory-driven implementation process was informed by the literature on organizational change and dialogue. Data were collected using interviews and participant observations and analyzed using a thematic approach. The normalization process theory served as a frame of interpretation during the analysis.
Results: Three facilitating mechanisms were identified: (1) commitment through a sense of urgency, requiring extensive communication between the managers, operating room professionals, and facilitators in building commitment to change and putting the issues on the agenda; (2) dialogue for co-creation, increasing and sustaining commitment and resource mobilization; and (3) tailored management support, including helping managers to develop their leadership role, progressively involving staff, and retaining focus during the implementation process.
Conclusions: The facilitating mechanisms can be used in organizing implementation processes. Putting the emphasis on help and support to managers seems to be a crucial condition in complex implementation processes, from preparation of the change process to stabilization of the new practice.

In this article, we focus on understanding implementation processes in the operating room (OR) at a large university hospital by examining the implementation of a specific intervention. The intervention was to improve practices associated with hand hygiene (HH) and aseptic techniques (AT), both of which are prerequisites for safe care during invasive procedures in the OR. AT refers to using practices and procedures to prevent contamination of medical devices with pathogens to protect the patient from microbial inoculations during invasive procedures. Several studies have found that the uptake of these preventive measures has not been fully implemented in the OR.[1-4] The consequences of low adherence are serious for both patient and the health care system, leading to increased risks of

* Address correspondence to Annette Erichsen Andersson, PhD, Institute of Health Care Sciences, Arvid Wallgrens backe 2, 413 46, Gothenburg, Sweden.
E-mail address: annette.erichsen.andersson@gu.se (A. Erichsen Andersson).
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cross-contamination, device-related infections, unnecessary high costs, and patient suffering.[5-8] Thus, the need for effective implementation processes is critical for the safety of patients undergoing surgery.

Within the area of implementation science, researchers and clinicians have invested much effort in identifying barriers and facilitators, as well as explanatory factors for successful implementation of evidence-based practices.[9-13] There has also been extensive research into the effectiveness of a variety of implementation activities aimed at changing health care professionals' behaviors, most of which show only modest effects.[14-17] Several models and frameworks for implementation have been developed.[18,19] However, there are few theories that explain the mechanisms for the successful embedding and routinization of new or modified practices in health care.

One coherent theory of implementation is the normalization process theory (NPT), which has its roots in sociology and empirical research.[20] It consists of 4 constructs and 10 components, as shown in Figure 1. The propositions that are linked to the constructs are given in Table 1.[20]

NPT highlights the importance of contextual characteristics and how they need to be negotiated and restructured to allow for commitment to change and collective action.[21] Other theories emphasize the individual intention and action for change,[22] whereas NPT focuses on collective action. In health care, professional subcultures are strong,[23] and professional roles can be viewed as being socially constructed.[24] As such, physicians and nurses are socialized into specific ways of thinking and acting that reflect the group's norms and basic assumptions.[25] Thus, the focus on collective action may be advantageous, because health care professionals in the OR work interdependently and so are highly dependent on each other in change processes. Social norms, roles, and relationships are strong in the OR; but, as in all cultures, the OR culture can be renegotiated and transformed, especially if the survival of the organization depends on it.[25] However, the literature on how the qualities of negotiation work can enable resource mobilization and collective action is scarce.

In the next section, we review the literature on negotiation and dialogue that offers an approach to studying how the capacity for contextual negotiation (eg, restructuring norms, relationships, and collective action) is constructed during an implementation process.

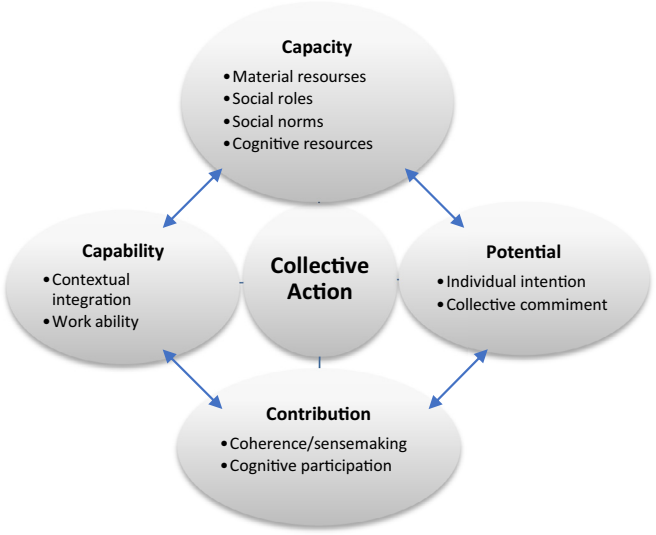

Fig 1. Components and generative mechanisms of the normalization process theory (26 words).

Table 1
Constructs of normalization process theory expressed through propositions

Construct	Propositions (May 2013)
Capability	The capability of agents to operationalize a complex intervention depends on its workability and integration within a social system.
Potential	The incorporation of a complex intervention within a social system depends on agents' capacity to cooperate and coordinate their actions. More specifically, the ability to work with (ie, renegotiate) social norms and roles, as well as mobilize material and cognitive recourses.
Capacity	Translation of capacity into collective action depends on agents' potential to enact the intervention.
Contribution	The implementation of a complex intervention depends on agents' continuous contributions that carry forward in time and space.

CONTEXTUAL NEGOTIATION AND COLLECTIVE ACTION

Contextual negotiation and collective action are central activities in NPT.[21] The literature on implementation processes often highlights the difficulties and meaning of context and complexity as factors that influence the process and the reactions toward the innovation and the implementation activities.[26-31] NPT defines context as a complex adaptive system, and as a process rather than a place, and implementation processes as nonlinear, emergent, and dynamic events within systems. As a consequence, *contextual negotiation* means that the context can be negotiated, and social norms, roles, resources, and relationships can be restructured during the implementation process to increase the capacity on which collective action is founded.[21] The space for restructuring norms and relationships is expressed in NPT as intervention plasticity and the context elasticity.[21] Intervention and innovation rigidity can hinder participants in the implementation process of routinizing a new or modified practice such as HH and AT, because it leaves little room to modify the intervention and the context to enable embedment. In this way, the work of contextual negotiation (ie, the renegotiation of institutionalized norms and social relationships related to the new practice) becomes a crucial aspect of agents' implementation work that lead to normative restructuring.[20] These activities involve the translation of new knowledge into collective action, which depends on agents' potential to enact the new practice. Isaacs[32,33] and Schein[34] have elaborated on the action theory of dialogic negotiation and collective action, involving learning about the context and processes from which people form their paradigm and thus take action.[35-37] Isaacs[36] argues that "In practice people often approach one another with non-negotiable positions that they adamantly hold as 'necessary'" (p. 711).[36] The consequences of non-negotiable positions in implementation process are that people "often fail to inquire into the other's reasoning, history, and background to context of meanings" (p. 711).[36] In contrast, negotiable positions between the participants in an implementation process are mechanisms that support dialogic exchange and invite the participants to reflect and inquire about the normative and relational context of their practices. Bushe and Marshak[38] also suggest the use of a dialogic implementation process to focus on complexity and interaction among the participants. Grill et al[39] (p. 439) describe dialogue as a special form of interpersonal communication "aiming at greater interpersonal understanding, forming decisions together, or bringing personal and cultural transformation." This reflects a definition of dialogue as a form of communication that supports the free flow of meaning (p. 711).[36]

Schein[34] advocates a "collaborative inquiry," pointing out that "unless some level of such collaboration is achieved both in the design and in the process the results will neither achieve optimum

effectiveness nor quality" (p. 155). Thus collaborative inquiry involves learning about your own context, that is, the institutionalized norms and relationships that come into play during implementation processes (p. 38).[35] Isaacs[35,36] emphasizes the importance of also involving managers and their learning when setting up an environment—a container or safe space in which the practitioners' learning can take place.

Overall, the question of *how* to, in practice, enable contextual negotiation and collective action within complex and high-risk environments such as the OR remains underexplored. Assuming that contextual negotiation and collective action play a crucial role in an implementation process,[21,25,36,40] we saw the need for a more-detailed investigation of how different mechanisms facilitate contextual negotiation and collective action during a longitudinal implementation process of HH and AT in an OR. In this article, we address this research gap by focusing on mechanisms supporting the mobilization of resources and collective action through contextual negotiation during a nonlinear and adaptive implementation process for improving the use of HH and AT during invasive procedures in anesthetic care. The aim of this study was to describe facilitative mechanisms supporting the implementation of HH and ATs. Our research question was: What characterizes the mechanisms facilitating contextual negotiation and restructuring of relationships, norms, and roles during the implementation process?

METHODS

This article is part of the Safe Hands Study: ClinicalTrials.gov (ID: NCT02983136), published elsewhere.[41] The implementation intervention description is found in Table 2.

Design, setting, and participants

A prospective design including qualitative interviews and participant observations was used to understand mechanisms for contextual negotiation and collective action. The setting was an orthopedic OR suite within a large university hospital in southwest Sweden. The OR suite employed about 150 registered and specialized nurses, nurse assistants, and anesthesiologists and was also served by 25 specialized orthopedic surgeons employed by the hospital and belonging to the department of orthopedics. Those health care professionals who worked during the daytime participated in the intervention.

Data collection

Prospective data were collected between spring 2015 and autumn 2017 with different qualitative methods: ethnographic fieldwork[42] using participant observations and semi-structured interviews.

Participant observation[43] during the intervention was conducted by an experienced social anthropologist not involved in the design of the study or delivery of the intervention. The method included unobtrusive observations of interactions and natural conversations, informal interviews during and after the intervention, and observation of everyday work in the OR with the intent of keeping an open mind to understand social roles, norms, and patterns of interactions (ie, the context) from within. The data consisted of transcribed notes derived from 121 hours of fieldwork. The purpose of using interviews and participant observations was to document the process support provided and to gain a deeper understanding of what characterized the mechanisms that enabled contextual negotiation and collective action.

A researcher not involved in the design of the study or delivery of the intervention conducted in-depth semistructured interviews after the intervention. The questions were explorative and open-ended, to allow participants to talk freely about their experiences of participating in the intervention. The choice of participants was strategic, with the intent of gaining a variety of experiences and perspectives on the implementation process. The data consisted of transcribed interviews with 6 managers on different levels from top managers to first-line clinical leaders. The lengths of the interviews ranged from 40 to 70 minutes.

Table 2
A summary of the implementation intervention

Theoretical standpoint	Theories on dialogue and organizational culture, learning, and leadership underpinned the implementation intervention. Important propositions in line with these theories were the following: • Front-line health care professionals and managers are experts in their own reality, and so any changes in practice need to stem from this expertise to become sustainable and meaningful. • Change of practice means a transformation in how participants think about HH and AT and how they relate and interact.
Facilitation	The intervention was led by 2 external facilitators, experts in organizational development and infection prevention. To facilitate contextual negotiation and collective action, the intervention was framed by 2 components, both with theoretical underpinnings: dialogue and collective inquiry. Within this frame, the intervention was designed to be flexible and adaptive to allow for modifications. Consequently, the way the facilitators worked with participants depended on how the latter responded to the goal of implementing HH and AT. The process consisted of 3 overlapping and partly iterative phases.
Phase I	Phase I was directed toward all line managers. Informal face-to-face meetings were held to present clinical outcomes, investigate the interest in participating, and gain more knowledge about the current state of the context. Two full-day workshops were conducted after phase I. The aim was to create a sense of urgency regarding prevention of postoperative infections and to start the process of co-creating commitment to change and shared goal setting among managers of the 2 departments. This phase also aimed to increase participants' understanding of the social roles, norms, relationships, and resources of the context relative to the proposed change, which was an important factor in starting the negotiation process.
Phase II	In phase II, the OR team members were invited to participate. This phase included a traditional state-of-the-art lecture on infection prevention and HH, followed by several meetings with OR nurses, orthopedic surgeons, and anesthesiologists in cooperation with their managers to discuss infection prevention and HH. Next, 2 persons from each professional group and their front-line managers formed a learning lab group, which met 11 times over 1 year. The learning labs were designed and facilitated to allow for dialogue between the professional groups within the OR team: OR nurses, nurse anesthetists, nurse assistants, anesthesiologists, and orthopedic surgeons. The aim was also to enable collective inquiry regarding perspectives and assumptions on infection risks related to participants' everyday practice and how their social norms, roles, and relationships might influence the safety of patients.
Phase III	Phase III was the postintervention phase during which, if the intervention had been successful, embedment and normalization would occur.

AT, aseptic techniques; *HH*, hand hygiene; *OR*, operating room.

Data analysis

The observational and interview data were analyzed using a thematic approach.[44,45] Initially, all field notes were transcribed by the anthropologist and then read independently by 3 coauthors to gain a sense of the whole. The transcripts of the semistructured interviews were read several times by 2 authors, and each author undertook

tentative coding separately with a focus on the aim and keeping the research question in mind. For both datasets, tentative codes were assigned according to areas of content, and then meaning units were condensed and inductive codes were created. This process resulted in an interpretation of the data in terms of themes and subthemes. The themes and subthemes were discussed among all authors, and mirrored against the text and initial codes to ensure internal validity (ie, credibility).

Ethical approval

The study was approved by the Gothenburg Regional Ethics Review Board, (Gothenburg, Sweden, reference number 166-15). This ethics approval stipulated that we could only collect data on the profession of the participants and no other identifying information. Participants were given written and oral information in line with the 4 principal requirements of the Helsinki Declaration: autonomy, nonmalfeasance, beneficence, and justice. The study was approved by the hospital chief executive officer and the department managers.

RESULTS

The analysis of the observational and interview data identified 3 themes expressed as interdependent mechanisms that facilitated contextual negotiation and collective action: commitment through a shared sense of urgency; dialogue for co-creation; and tailored management support (Table 3). The findings are outlined first through the presentation of the 3 themes and second through the description of 2 scenarios illuminating contextual negotiation and collective action.

Commitment through a shared sense of urgency

Creating a shared sense of urgency regarding infectious complications worked as an initial mechanism for ensuring management and health professionals' commitment to improved practice. One of the participants described the initial process:

> "The facilitators assembled various relevant people at the manager workshops and tried to give us the same information. We then created a common objective that we would work towards. Preparation is the beginning and end of such work.
>
> Then other managers and important people were identified. The facilitators had binders that contained background material relevant to the intervention. The aim was to make the process very transparent so that people could really engage with the problem. The facilitators worked at all levels of the management structure. They adapted the message and provided support to spread the managers' common objective throughout the management culture." [High-level manager]

Participants found the 2 initial workshops (at the end of phase I), which brought together managers from different departments, to be crucial for the forthcoming work and to build further commitment. In addition, the importance of focusing on the creation of a common objective and jointly planning the process of reaching that objective was stressed by many as a new and fruitful way of working.

Both interviews and observations indicated that it was important a real problem was identified from the perspective of the managers to motivate resource mobilization. Observational data showed that this was initially not the case; the manager did not consider postoperative infections and lack of HH issues. Neither managers nor health care professionals were aware of the level of postoperative infections and how these were linked to lack of HH and AT. Several managers said that feedback on adherence rates and discussions with the facilitators helped them to understand the extent of the problem and the issues that needed to be addressed and created the sense of urgency that motivated the managers (and later the OR professionals) to prepare for and initiate the implementation of improved practices during invasive procedures: "They (the facilitators) explained the problem and placed it in a scientific context. This led to a discussion of our goals and our ways of achieving those goals. They were the catalysts who made the process work. [High-level manager]" In the interviews, the managers said that without this motivation, they would not have invested the required time and effort in the project.

Some managers expressed that they were very hesitant at the beginning of the implementation process. They were skeptical of the possibilities to achieve change, because there were other organizational changes going on simultaneously that required their attention. Other managers, however, said there was never an ideal time to work with changes in this complex organizational setting, because there were always many other things happening. The managers who were initially hesitant were persuaded to participate because they were encouraged—and also pressured—by the high-level managers: "It was impressive that the project was legitimized by senior management. . . . I understood that this was going to happen." [Front-line manager]

The work to create a sense of urgency needed to be maintained throughout the entire year of the implementation process, as the commitment to change fluctuated depending on difficulties and challenges concerning staffing problems and "production" issues that arose during everyday work. Observational data revealed that some of the participants (managers, nurses, and physicians) doubted the value of improving HH and AT and investing time and resources in the project. In fact, some managers doubted the benefits of HH but

Table 3
Activities, content, and mechanisms for implementing hand hygiene and aseptic techniques in the OR

Activities	Content	Mechanisms
Supporting top-level managers in their leadership roles in preparing the implementation	Relating the intervention to workplace issues; planning implementation activities	Commitment through a sense of urgency between facilitators and top-level managers
Supporting top-level managers and front-line managers Resource mobilization and starting the implementation Supporting inquiry and negotiation for restructuring norms and relationships, working toward integration/workability/reflexive monitoring	Knowledge and legitimacy building through using processual collaborative techniques models, facts, and knowledge to overcome protective, entrenched routines, and different interpretations, ideas, and enactment in relation to the intervention targeted to improve use of aseptic techniques	Facilitated dialogue for co-creation between facilitators, front-line managers, and OR professionals
Supporting front-line managers in progressively involving the OR professionals	Alignment of the implementation process to the different OR professional groups	Tailored management support for front-line managers in their leadership role in involving different OR professional groups

OR, operating room.

believed it was a good project to learn how to drive change. Thus the facilitators needed to work to create and sustain a sense of urgency among the participants throughout the process. This was achieved by refocusing on the scientific evidence supporting HH and AT by providing feedback on patient outcome data (infectious complications), and by drawing the attention back to the initially agreed-upon shared goals. The most doubtful professional group was the physicians. Observational and interview data indicated that this was partly because the issue was regarded as less relevant or important for this group.

Facilitated dialogue for co-creation

Several managers described the conflicts that arose during the process. These conflicts were often related to norms, roles, and relationships between professional groups. Thus, the managers needed support from the facilitators to explore the changes in relationships and norms that came with the implementation. This was achieved by encouraging dialogue on norms and social relationships related to practices among the participants in the formal and informal meetings and in the learning labs. Observational data show that such dialogues were an intrinsic part of the process. In the learning laboratories, the managers and OR professionals learned more about their own taken-for-granted assumptions regarding HH, AT, their own professional roles, and the perspectives of others. For the participating managers, the process of co-creating standard operational procedures (SOP) was important:

> Throughout my professional life, I've been quite sure I knew how leadership functions best. However, I've learned more about leadership from the facilitators' approach to management. Their way of working is to take an idea, massage it in the team, toss the idea around, and let it develop through dialogue. That's an insight. That's what inspires motivation. It takes longer, but it can be much more effective. [Front-line manager]

The dialogic way of exploring issues also encouraged transparency around problems and the reasons for uncertainty and questions.

> They [the facilitators] attended the meetings and participated. They conducted the dialogues so the OR professionals didn't need to initiate the discussions about problems and so on. In these dialogue meetings, questions could be asked about various issues, including the hierarchical management structure, in a civil and respectful manner. [Front-line manager]

The data also highlighted the relation between the dialogues and restructuring of norms that were important in the OR professionals' work practice.

> "Why do we do it?" is a very important question in healthcare. This question leads to another question, "Is there any evidence for what we do?" You hear this sort of question all the time. I think my professional group, the physician group, needs this kind of investigation or research in order to return to the most basic of all questions in healthcare: "Does this really matter?" [Front-line manager]

Tailored management support

The data showed that the managers turned to the facilitators for support to handle difficult situations that arose during the process. This tailored management support was a central component of the design of the implementation intervention, but it was also developed over time in the relation between the managers and the facilitators. It enabled the managers to ask for and receive help and support, as well as to use the facilitators for different purposes. Initially, managers expressed the need for support in progressively involving the OR professionals and linking the insufficient use of HH and AT to patient safety. That is, to the potential for injury to patients, which would result in pain and trauma, as well as extra costs. Dialogue was used to reframe the issues and create an imperative for commitment among OR professionals: "I used the facilitators as communicators. They attended our morning meetings where they could participate in the discussion." [Front-line manager]

In general, the managers believed the 2 facilitators helped to maintain the focus during the implementation intervention and to encourage the commitment and participation of all OR professionals. As time passed, everyday problems overshadowed the focus of the project, and the facilitators' role changed to supporting the managers in maintaining the focus on the implementation process: "A great deal of dedication and focus was required from the facilitators and the managers in this project. In some respects, this was a challenge for the managers, who have many other areas that require prioritization." [Front-line manager]

Two scenarios that illuminate contextual negotiation and collective action

The following description illuminates 2 different scenarios: the co-creation and routinized use of an SOP and the development of an SOP that was not followed by successful implementation.

The first scenario started during one of the initial meetings, at which the OR professionals themselves raised an issue regarding how to work with an invasive procedure in a safer way. The manager did not want to address this issue owing to fear of increasing conflict in the OR, because there were strong and conflicting opinions about this issue among OR professionals. One of the facilitators started the process of negotiating with the manager by offering different perspectives on the benefits and risks associated with bringing up the issue and incorporating it into the project. By listening to the manager, the facilitators could understand the concerns and specific difficulties in the OR that needed to be managed. Subsequently, the manager and facilitators came to a shared decision to work on this issue. Through interprofessional dialogue, allowing different perspectives to come forward, and presentation of new knowledge, the norms related to the issue were slowly challenged. One of the facilitators negotiated with key anesthesiologists, whose commitment was confirmed through aligning the goals with problems they had previously not been able to address successfully. Thus the process of co-creating an SOP was initiated. The surgeons were also involved, because the implementation of the new SOP meant that at least initially the time between 2 surgical procedures could be prolonged, which was a potential cause of conflict. According to the participants, in the third (postintervention) phase of the implementation process, the SOP was now in routine use in the OR and had led to decreased postoperative infections.

In the second scenario, the learning lab participants identified a potential risk during 1 specific invasive procedure related to anesthesia. Through the search for new knowledge, questioning current norms in relation to risk and safety, and observing oneself and other team members, the risk of bacterial transmission to patient and medical devices became evident. After reasoning, the lab group concluded that it was not possible to work in a safe way relative to this complex procedure without well-functioning teamwork. Roles and tasks during the procedure needed to be clarified to secure a new and safer way to work. All participants in the lab group agreed on this. At this point, the lab participants had started to get to know each other and the facilitators, which had resulted in new ways of talking and relating to each other. Field notes showed that the boundaries that existed

between different professional groups were becoming weaker and that those lab participants with the lowest status in the group were freely expressing their opinions and perspectives and could also suggest solutions to those higher in rank. However, things became difficult because this procedure was clearly linked to professional identity. The anesthesiologists and nurses had learned to do this task in what they considered to be the correct manner. By questioning this way of working, discussions on *how* the work should be done and by *whom* arose in the lab group. The OR nurses suggested that they could assist the nurse anesthetists and anesthesiologists to minimize the risk of bacterial contamination and to improve team effectiveness. This was well received by some nurse anesthetists but clearly not appreciated by others: "No, this is our task, we manage fine without your help." To some anesthesiologists, this strategy was seen as an intrusion on their territory. In the end, the lab group created a final draft of the new SOP, but it was only put into use by some OR professionals, not all. According to the participants and facilitators, the nurse anesthetists and anesthesiologists would have needed more dedicated time to test and discuss the new way of working, but the implementation did not provide them with resources related to this type of learning. However, during the postintervention phase, one key informant said that even though not all changes had been implemented in the OR, there was a new and more open climate on the ward; it was now considered acceptable to discuss potential risks and to "speak up" about possible issues.

DISCUSSION

This study revealed 3 important facilitating mechanisms for collective action and contextual negotiation in the OR. The first facilitating mechanism, commitment through a shared sense of urgency, required extensive communication among the managers, OR professionals, and facilitators in building commitment to change and putting the issues on the agenda. The second facilitating mechanism, facilitated dialogue for co-creation, increased and sustained commitment and resource mobilization. The third mechanism, tailored management support, included helping managers to develop their leadership role, progressively involving OR professionals, and retaining focus during the implementation process.

This study supports the importance of the constructs and propositions suggested in NPT: capability, potential, capacity, contribution, collective action, and contextual negotiation.[20,21] Furthermore, the results from this study contribute to this implementation science framework by putting the focus on facilitating mechanisms highlighting *how* to, in practice, enable contextual negotiation and collective action within complex and high-risk environments such as the OR. The results also demonstrate the importance of working with collaborative inquiry and co-creation during the iterative phases and are in line with other work.[46] We have shown that it is essential to relate the implementation of new/developed practices simultaneously to institutionalized norms of best practice and to institutionalized social relationships among different professional groups to facilitate collective action.

The OR professionals in this study questioned and reconstructed their institutionalized norms while trying a new practice and created new SOPs. In organizing the implementation of new practices, the institutionalized social relationships between the different groups involved had to be discussed and renegotiated to create a capacity to embed the implementation and achieve collective action. In the inquiry into social relationships, power asymmetry and taken-for-granted conceptions needed to be further explored.

Our findings demonstrate the importance of involving staff in implementation using collaborative techniques and legitimacy building based on measurement and feedback of outcomes. This was vital to create commitment to change. Implementation frameworks based on classical psychological theories highlight the importance of intrinsic motivation, self-efficacy, social norms, and role models to promote the intention to change and commitment[47]; however, *how* to achieve this has seldom been described.[48]

The necessity of leadership support during implementation has been highlighted by Langley and Denis,[49] who showed that the political microprocesses of the facilitators, moving the question from peripheral to central by commitment and extensive interaction with the managers involved, are crucial in the implementation processes. This is especially true in complex settings with many different processes going on at the same time, such as in health care organizations. In this instance, HH was moved from the periphery to the center of the organizational narrative. According to Bushe and Marshak[38] (p. 88), the reconstruction of the institutional narrative underpins change processes, and similar to Langley and Denis,[49] these authors describe how power and micropolitical processes influence the narrative and thus the accepted ways of thinking and acting (p. 89).

Managers' need for help and support during implementation processes has not previously been studied largely. According to our informants, it is likely that senior-level managers would not have initiated the implementation without the facilitators' time, engagement, and presence. Our study findings highlight the importance of creating trustful relationships between managers and facilitators, because this was a decisive factor for the implementation process to move forward. This is in line with the theories of Schein[50] of help in organizational change processes. According to Schein,[50] giving and receiving help is complex, because there are many things that can go wrong; the facilitator can offer help when it is not needed, or the wrong kind of help, and thus the help will be refused. Moreover, the receiver/partner can be offended if more help than necessary is offered, because this can diminish the competence of the receiver/partner. There has to be an equity and trust between partners if the help and support are to be accepted and useful.[50] In our experience, establishing a partnership between managers and facilitators is a fruitful way to gain trustful relationships that can enable contextual negotiations. This can be more easily achieved if the facilitator can both trust their own expertise and also be humble towards those things that are unknown; and, as a consequence, trust in the expertise of the managers and health professionals.

Limitations

There are some limitations to this study; specifically, the data collection was limited to a single site. However, it could be argued that a single case study format of research can provide an opportunity to gain deep knowledge and allow for explanation of the phenomena observed, thus contributing toward transferable scientific knowledge.

Suggestions for future research

First, further research is needed on the impact of implementation processes on the use of safety measures and on patient outcomes. Second, we need to know more about the sustainability of implementation interventions aimed at changing safety procedures.

CONCLUSIONS

Our contribution to the literature on implementation science is twofold. First, by examining how facilitating mechanisms support contextual negotiation and collective action in a real workplace implementation, we have drawn attention to 4 mechanisms that may be used in organizing implementation processes at the workplace level. The 3 finer-grain mechanisms—commitment through a sense of urgency, facilitated dialogue for co-creation, and tailored

management support—contribute to NPT by showing the crucial conditions that need to be in place to allow collective action and normalization of new routines. Second, we conclude that putting the emphasis on help and support to managers seems to be a crucial condition in complex implementation processes, from preparation of the change process to stabilization of the new practice. Further studies are warranted to confirm our results and to enhance the theoretical base for implementation in complex settings.

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