Teamwork in the OR: enhancing communication through team-building interventions

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Abstract
Errors in the operating room (OR) can have disastrous consequences for patients, their families and healthcare institutions. Communication failures are the leading causes of inadvertent patient harm, and have been identified as the root cause in 80% of OR sentinel events. Retained sponges, wrong-site surgery and mismatched blood transfusions and organ transplants can be the result of interpersonal dynamics, where communication failures occur between members of the surgical team. Consequently, within the patient safety movement there is a growing urgency to improve communication processes among healthcare professionals as a means of addressing patient safety.

There is a litany of evidence that supports the imperative to improve communication among teams in the OR. For instance, effective communication processes have been linked to fewer and shorter delays, a reduced number of surgical cancellations, increased efficiency, lower stress and increased patient and staff satisfaction. Introducing team-building interventions will assist surgical teams in developing a shared understanding of goals, work roles and functions. Interventions such as pre- and post-briefings provide an open forum for discussion and the opportunity to identify potential or actual clinical issues. The implementation of such interventions is an essential precursor to evaluating the potential to improve the quality and safety of healthcare provided by surgical teams.

Introduction
Today's hospitals are both busy and complex places where nurses and other health professionals work in a knowledge intensive environment to deliver patient care. In this era, patient safety has emerged as a primary focus in the delivery of health services, partially as a result of a three-fold recognition that patients face considerable risk when they access these services, adverse events are costly, and a considerable proportion of adverse events are potentially preventable. For instance, adverse events occur in up to 17% of hospital admissions, with about 18,000 hospital deaths per year associated with adverse events. At a State level, the total cost of adverse events over a 12 month period was in excess of $460.311 million, representing 18.6% of the total expenditure on additional inpatient costs (Victorian data 2003-04) 1.

Further, it has been estimated that over 60% of sentinel events reported occur as a consequence of miscommunication between doctors to nurses, nurses to nurses and nurses to doctors. During the period 2004-05, failures in communication processes contributed to nearly 50% of sentinel events that occurred in Australian public hospitals.

Within the patient safety movement, there has been a growing awareness of the imperative to improve teamwork as a means of developing a safety culture in healthcare. Some researchers have identified a connection between team performance, communication and patient outcomes. Recently, improving communication and the transfer of knowledge from one hospital care provider to another have been seen as key in the quest for patient safety, with nurses identifying a failure of communication as a major barrier to improving safety in healthcare.

Effective communication is increasingly recognised as essential in high risk environments such as the OR. Surgical teamwork involves complex interpersonal dynamics among highly specialised professionals – nurses, anaesthetists, surgeons and technicians. There is much evidence to suggest that communication failures can have disastrous consequences, leading to the potential for human error. Communication failures have been identified as the primary cause in 80% of OR sentinel events. Retained sponges, wrong-site surgery and mismatched blood transfusions and organ transplants can be the result of interpersonal dynamics, where communication failures occur among members of the OR team.

In response to this escalating problem, the Joint Commission on Accreditation of Healthcare Organisations in the United States recommended that hospitals implement formal team-building interventions to improve communication in teams. The benefits of improved teamwork in the OR context are well documented in the literature. For instance, effective teamwork results in fewer and shorter delays, a reduced number of surgical cancellations, increased efficiency, lower stress and increased patient and staff satisfaction.

Team climate in the OR
The OR is a unique social microcosm with established hierarchies and complex social relations. Power and status differentials between nurses and doctors and their effect on group relations in...
this context have previously been identified. Because of the interdisciplinary nature of the context, the surgical team is besieged with discordant elements such as gender, politics, economics and differing professional models of care. Moreover, nurses and doctors have been socialised into different communities of practice, therefore have different faci and communication styles. Accordingly, there is the potential for communications to derail, culminating in communication failures.

In a series of Canadian observational studies, Lingard and colleagues identified problematic issues in relation to surgical team communications; communication was often too late to be effective, content was inconsistent or incomplete, issues were left unresolved until the point of urgency, and key individuals excluded from discussions. Consequently, up to 30% of procedurally relevant information exchanges were obscured or lost as a result of communication failures among the surgical team. Additionally, communication failures often resulted in negative ramifications such as delays in surgery, cancellation of procedures and clinical incidents. Effective communication in surgical teams is viewed as a critical determinant in health service delivery and has the potential to mitigate against errors and adverse events. Fewer errors occur when communication processes are standardised and carefully orchestrated.

However, communication is not standardised in the OR and will naturally vary depending on team member familiarity. Communications among the multidisciplinary team may be based on 'tribal' affiliations that have the potential to constrain team cohesion and effectiveness. This is especially so when team members are transient and there is a heavy reliance on casual or agency staff. While surgeons control the workflow, nurses sometimes have to shift the flow of control if an issue regarding patient safety or performance issue becomes evident. One field study illustrated professional dissonance that emanated from the day-to-day clinical practices, such as breaches in aseptic technique by surgical residents, which were viewed by the majority of nurses as compromising patient safety. It is likely that these differences in perspectives held by doctors and nurses will negatively influence communication processes and, therefore, team performance.

Ineffective communication causes ambiguity of team structure and consequently contributes to discord in surgical teams vis-à-vis authority, task allocation, roles and responsibilities. Therefore, for teams to be cohesive, team performance and training require specified guidelines that clearly define exactly what each member's focus should be. Just as a textbook on surgery specifies the precise sequential stages of a complex operation, it follows that models of teamwork should also specify teamwork tasks, their sequences and protocols of communication. Hence, communication within teams needs to be orchestrated using standardised processes to ensure agreement among team members in relation to their respective roles and responsibilities within the team.

Team communication and task performance also depend on the bidirectional exchange of information and artefacts. For example, during surgery, both the nurse and the surgeon require skills in timing their exchanges and ensuring that what is communicated is clear, comprehensible and of an appropriate tone and volume. In order to effectively coordinate, there needs to be synergy between the surgeon and the scrub nurse during the operative procedure. That is, the scrub nurse must anticipate the surgeon's procedural needs while the surgeon must appreciate that the nurse depends on others (i.e. scrub nurse) to work effectively. A failure in communication between the nurse and the surgeon has the potential to impact on the delivery of patient care during this critical intraoperative juncture.

Nonetheless, there may be occasions when there are implicit demands that dictate a variation in team process. For instance, during a crisis situation when the surgeon bypasses the scrub nurse and takes instruments directly off the Mayo table. One of the scrub nurse's roles is to maintain an orderly operative work area; however, there are situations that override this role function and dictate a change in communication process based on a greater need. Arguably, this team is not working in splendid isolation, but is embedded within a larger social system. During surgery, both the scrub nurse and the surgeon may have to attend to other peripheral matters. Mid-operation, another team member may ask the scrub nurse a question regarding stock, or the surgeon a question about the remaining number of cases of the day. In brief, the interdependent nature of the surgical team demands that there is a high level of shared understanding among members of the behaviours and skills required to work effectively. However, achieving a high level of shared understanding does not happen automatically; members need to develop skills that increase group cohesion through team-building.

What is team-building?

Team-building or team development are commonly used short hand terms describing interventions that enhance the capacity of groups to work cooperatively towards their goals. In this sense, team-building can be understood as an activity that seeks to remove obstacles, potential and existing, to effective group functioning. Evidence suggests that teaching team-building concepts is almost non-existent among surgical teams because of the historical emphasis on individual technical skills in isolation. Therefore, designing team-building interventions for task-based surgical teams needs to be centred on a related set of purposes. These are usually described in terms of setting team goals (what are we trying to achieve), clarifying roles and responsibilities of members (what are our roles and how do they interface), establishing working rules and procedures (how do we organise) and developing relationships between members (how well do we know and trust each other).

The effective application of task oriented team development requires an understanding of the influence of hierarchy and status on team culture. Authority gradients and status differentials among surgeons, nurses, anaesthetists and technicians have historically constrained team communication and development. Previous work identified that team cohesion in the OR environment was influenced by the position of individual members in the team, and the particular situations that arose. In this instance, team-building interventions need to focus on assisting a team to identify and set its goals as a necessary precursor to meaningfully clarifying or negotiating members' roles. Consequently, it is necessary to understand member roles before team working procedures can be clarified. Similarly, developing relationships between members is a context dependent judgement.
as to the type and depth of interpersonal understandings between members that will optimally support achieving the team goals. Many dysfunctional team processes attributed to 'relationship problems' and 'personality clashes' between team members may simply be symptomatic of implicit differences in goals, ambiguous roles and unclear or inappropriate working procedures.

It is also important to distinguish between team-building interventions that are appropriate to reviewing and improving the functioning of existing teams and those interventions that are focused on establishing and preparing new teams to work together. The former involves intervening in and changing established patterns of team member behaviour (e.g. communication processes); the latter involves team members engaging in activities designed to build the adaptive capacity of the team and prevent, or at least minimise, predictable challenges to team effectiveness. In the OR, team stability, and therefore team effectiveness, is dependent on members' working knowledge of contingencies, and knowledge of each others' skills, behaviour patterns and preferences. Clearly, while members' collective understanding of their task and equipment may be relatively stable over time and membership changes, team interactions may be seriously eroded as a function of team turnover.

How effective are team-building interventions in improving group cohesion?

The unique nature of the OR environment necessitates team-building interventions that specifically address the cultural nuances of this environment. For instance, the particular situation frequently determines the various ways in which information is exchanged, and the types of verbal and non-verbal cues used. Employing generic, 'off the shelf' or 'one size fits all' team-building interventions can and will lead to sub-optimal and even negative outcomes. Accordingly, the appropriateness of a particular intervention depends upon the purposes and context of a specific team. What may be useful and appropriate in one situation may be counterproductive in another. Therefore interventions to enhance team performance must be based on a realistic understanding of the work done by a team and the contextual demands upon team members.

In designing team-building interventions appropriate to the OR context, it is particularly important to understand the interdependent nature of the work roles and how they interface, and the extent to which team members are working towards the same goals. Thus, the more complex the interdependence of the team, the more its effective performance will depend on team members engaging in coordinated and collaborative actions and positively responding to feedback from each other.

Two team-building interventions that acknowledge the interdependent nature of OR work are pre- and post-briefings. In many instances, OR teams come together on an ad hoc basis where team members may be unfamiliar with one another, with the patient's history, and with the specific requirements of the procedure. The use of pre- and post-briefings provide the team with an opportunity to establish a forum for open and interactive communication and feedback, emphasise the importance of questions and critique, cover pertinent safety and operational issues, and provide guidelines for workload distribution. This structured discussion promotes a culture of experiential learning, and deficiencies are regarded as opportunities for learning. Preliminary findings from research conducted in the United States demonstrated that communication and team work improved in the OR after pre- and post-briefings were implemented. Table 1 outlines the ways in which these two team-building interventions may enhance the overall performance of OR teams.

Conclusion

The potential benefits of better teamwork are compelling. Teamwork skills, developed through team-building interventions, have significant capacity to prevent and mitigate the impact of communication failures, and consequently decrease the occurrence of clinical incidents in the OR. Team-building in OR contexts has the capacity to increase the ability of surgical teams to work collaboratively towards their objectives. Customising team-building interventions for surgical teams must be based on identifying group goals, determining how members' roles converge with one another, and establishing trust. Preliminary research indicates that pre- and post-briefings have improved communication processes and teamwork in ORs in the USA, and therefore may have utility in the Australian context.

References


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