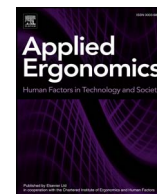




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## Characteristics of team briefings in gynecological surgery

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### ABSTRACT

Preoperative briefings have been proven beneficial for improving team performance in the operating room. However, there has been minimal research regarding team briefings in specific surgical domains. As part of a larger project to develop a briefing structure for gynecological surgery, the study aimed to better understand the current state of pre-operative team briefings in one department of an academic hospital. Twenty-four team briefings were observed and video recorded. Communication was analyzed and social network metrics were created based on the team member verbal interactions. Introductions occurred in only 25% of the briefings. Network analysis revealed that average team briefings exhibited a hierarchical structure of communication, with the surgeon speaking the most frequently. The average network for resident-led briefings displayed a non-hierarchical structure with all team members communicating with the resident. Briefings conducted without a standardized protocol can produce variable communication between the role leading and the team members present.

### 1. Introduction

Teams are now ubiquitous in high consequence environments. In the health care setting, teams—considered as team members with specific roles that are interdependent upon each other to complete their tasks (Salas et al., 1992)—are critical to providing safe patient care. Yet care teams can threaten patient safety when there is a mismatch or lack of awareness in team and individual goals, commonly caused by poor communication (Ashoori and Burns, 2013; Sutcliffe et al., 2006; Gawande et al., 2003; Gandhi, 2005). Across multiple domains, research has shown that higher performing teams will exhibit distinct patterns and structure to their communication (Bowers et al., 1998; Cooke et al., 2005; Kanki et al., 1989; Xiao et al., 2003). Teams that have difficulty with communication in the OR may be resultant from a lack of standardization and team integration (Awad et al., 2005). As a result, initiatives to promote team communication, such as team briefings have been studied (Henrickson et al., 2009).

Briefings have shown individuals and team benefits by facilitating effective communication (Einav et al., 2010; Whyte et al., 2008) and thus, have the potential to reduce medical errors (Awad et al., 2005; Lingard et al., 2008; Lyons and Popejoy, 2014; Russ et al., 2013). Pre-

operative briefings provide a predictable opportunity to plan collaboratively and exchange information (Whyte et al., 2008; Papaspyros et al., 2010). This can include introductions—as the composition of OR teams can change throughout the day—and discussion of any deviations in routine procedures so that a shared situation awareness of the case is established (Russ et al., 2013; Whyte et al., 2008). Initiating structured communication, such as pre-operative briefings, around critical events for operative teams can alleviate cognitive workload and reduces breakdowns in team communication (Wadhwa et al., 2010) by way of interactive team cognition (Cooke et al., 2013). Yet, their adoption in the healthcare setting has been slow (Henrickson et al., 2009).

On the other hand, the WHO Surgical Safety Checklist has experienced widespread adoption and acclaim in a short amount time (Weiser et al., 2010). Since the launch of the WHO Surgical Safety Checklist over 4000 hospitals across the world have adopted and actively use the checklist in their facility (Walker et al., 2012) and its use is endorsed by national and international healthcare safety organizations (Institute for Healthcare Improvement, 2013; The Joint Commission, 2012; World Health Organization, 2008). However, subsequent research findings have identified weaknesses with the implementation fidelity of the WHO surgical safety checklist suggesting that the checklist is not

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always applied as intended (Levy et al., 2012; Rydenfält et al., 2013) and used with varying compliance (Fourcade et al., 2012; Henderson et al., 2012; Levy et al., 2012; Rydenfält et al., 2013). Although checklists have quickly become the standard of care in the operating room (McConnell et al., 2012), there are still weaknesses and missed opportunities to increase communication and improve shared understanding and team coordination, which could be accounted for by implementing a team briefing prior to the surgical procedure.

Despite briefings generally being accepted as beneficial, their lack of implementation may be due to a dearth of specialized and standardized protocols. Henrickson et al. (2009) developed a team briefing protocol specifically for cardiovascular surgery using focus groups with surgical team members. Following implementation, there was a significant decrease in patient-related errors and equipment issues, and increase in procedural knowledge and miscommunication events (Henrickson et al., 2009). That study introduced the need and provided rationale for surgery specific protocols. Based on the benefits provided by briefings in general, surgery-specific protocols would likely increase perceived relevance for team members and thus, better support team cognition, shared mental models, and situational awareness for that given surgery. Additionally, briefing information that is relevant may be more effective in preventing errors in any subsequent surgery by that team.

Overall, a solid foundation of work has been building in the field of surgical team briefings. However, there is still variation in the approaches and methodology for conducting the briefings. Whereas the research that has been accomplished on briefings has focused mostly on compliance and feasibility of implementation, there has been significantly less research regarding team briefings in specific surgical domains. No research to date has related specific characteristics of team briefings (e.g. who led the briefing, who was present, who contributed, how long it lasted, etc.) to the quality of teamwork (Russ et al., 2013). Understanding how the quality of a team briefing and variations in practice impact team-related outcomes is necessary for designing effective methods (e.g. checklists or protocols) to improve the process. Our previous work has addressed the methodological process to conducting research on operative briefings (Law et al., 2014) as well as the informational needs of teams and individuals for briefings in gynecological surgery (Hildebrand et al., 2014). As part of a larger project to develop a model of team briefings (Hildebrand et al., 2014), the purpose of this study was to understand the characteristics of pre-operative team briefings and how it relates to the quality of teamwork while situated in the gynecological surgical domain.

## 2. Methods

### 2.1. Setting and participants

This observation-based, prospective study was conducted in the surgical gynecology department of a quaternary care academic hospital located in the Midwest. Participants were members of the surgical teams, which included the following roles: surgeon, resident, anesthesiologist, certified registered nurse anesthetist (CRNA), circulating nurse (RN), certified surgical assistant (CSA), and certified surgical technologist (CST). Because anesthesiologists in this department are responsible for overseeing multiple operating rooms at a time, the CRNA was considered the “in-room provider” for the anesthesia team. The observed surgical procedures included minimally invasive laparoscopic surgeries, general open surgeries, and robotic surgical procedures. The Institutional Review Board approved this study.

### 2.2. Briefing procedure

Team briefings for each operating room (OR) are conducted in the morning prior to all gynecological surgical cases. During the team briefings, all of the surgical cases that take place in that specific OR for the day are reviewed. For this study, a surgical case was defined as the

surgical procedures for an individual patient, and surgical teams often completed 1–3 cases per day. Gynecological surgery team members often varied between cases and within cases (due to handoffs, shift changes, etc.), so different teams and team members were observed throughout the data collection period. While the team briefings had mandated start times for when the team briefing should occur, there was no formal protocol instructing teams how to appropriately conduct the briefings. Briefings are not currently implemented across all departments at this institution; however, this department had conducted team briefings for the past two years.

### 2.3. Gaining buy-in

Prior to data collection for this study, the principal investigator (RCB) and research team met with the larger department for each role on the surgical team (e.g. Nursing, Anesthesiology, etc.) during scheduled morning meetings (Law et al., 2014). At these meetings, a presentation was given regarding the research objectives and plans for data collection, and surgical team members were able to raise questions and concerns about the nature of the research. Clarifying the purpose of the research and data collection plans to participants helped alleviate concerns over use of the videos for briefing evaluation.

### 2.4. Research protocol

On observation days, experienced human factors researchers arrived to the OR in the morning in time to video-record the team briefing. Briefings were held either outside of the operating room in the hallway or inside the operating room, just prior to the start of a surgical procedure. At the team briefing, the researchers would be introduced and remind the surgical team of the research objectives. When the team briefing began, the researcher held the camera and video-recorded the entirety of the team briefing (see Fig. 1). Following the team briefing, all surgical team members assigned to the OR being observed were asked to complete a survey that recorded demographic information.

### 2.5. Data analysis

Descriptive statistics were performed to calculate means (*M*), medians (*Mdn*), and standard deviations (*SD*) of team members present



Fig. 1. Hero3 Black Edition GoPro Camera used for observational data collection.

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