The program OR XChange (http://or-xchange.com) is funded by Merck and seeks to bring together and facilitate improved communication between perioperative team members.1 Following The Joint Commission’s “Speak Up” initiative and The Universal Protocol2 guidance for healthcare professionals for preventing wrong site, wrong procedure, and wrong person surgery,2 OR XChange seeks to support collaborative communication between and among team members throughout the perioperative period.

The results of a recent Merck survey3 (Table 1) demonstrate that an overwhelming percentage of perioperative team members value interdisciplinary communication, but the question is: Do we always engage effectively? The OR XChange program has contributed to a better understanding of communication in our work environment.

OR XChange offers a forum to focus on interdisciplinary communication and collaboration with a goal of improved patient care and outcomes while minimizing error and adverse events. Surgeons, nurse anesthetists, anesthesiologists, and other operating room (OR) team members always seek to provide the best care for their patients, but do we always provide the best and most supportive environment to promote good communication?

Support at the Organizational Level
The American Association of Nurse Anesthetists (AANA), Association of Perioperative Registered Nurses, Centers for Disease Control and Prevention, and The Joint Commission, among others, recognize the importance of effective communication as evidenced by policies, guidelines, and tools addressing this issue. Considering that poor communication is implicated in nearly 80% of adverse events in healthcare,4 it is prudent that this area be one of prioritized focus.

System Procedures and Tools
The healthcare system has begun to implement training strategies borrowed in large part from the airline industry and its use of crew resource management. Crew resource management is designed to create a climate of openness that fosters communication and employs system tools to streamline communication. The value placed on effective communication in

Table 1. Results of Merck Survey on Communication Between Surgical and Anesthesia Professionals

<table>
<thead>
<tr>
<th>Survey statement</th>
<th>Nurse anesthetists (%)</th>
<th>Anesthesiologists (%)</th>
<th>Surgeons (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication with surgeons impacts my ability to manage the anesthesia plan to some degree</td>
<td>86</td>
<td>93</td>
<td>NA</td>
</tr>
<tr>
<td>Communication with the anesthesia provider impacts my ability to manage the surgical procedure to some degree</td>
<td>NA</td>
<td>NA</td>
<td>88</td>
</tr>
<tr>
<td>The following strategies and/or tools could be either very or somewhat effective at improving collaboration and communication in the OR:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgeon’s understanding of the anesthesia plan</td>
<td>92</td>
<td>91</td>
<td>85</td>
</tr>
<tr>
<td>Anesthesia provider’s understanding of the surgical plan</td>
<td>96</td>
<td>97</td>
<td>95</td>
</tr>
<tr>
<td>Agreement on the overall anesthesia plan before the surgery begins</td>
<td>80</td>
<td>91</td>
<td>92</td>
</tr>
<tr>
<td>Having a checklist of guidelines to streamline communication at all stages of an operation</td>
<td>72</td>
<td>70</td>
<td>69</td>
</tr>
</tbody>
</table>

Abbreviations: OR, operating room; NA, not applicable.
healthcare has led to the development of procedures and tools to optimize the delivery of care and ensure transfer of requisite information.

- **Preoperative Communication Tools.** Kaiser Permanente Orange County [California] hospitals have formalized a preoperative briefing to discuss important components of the surgery and anesthetic (Table 2). These briefings bring together surgeons, anesthesia providers, circulator nurses, and scrub nurses and have demonstrated successful results. Wrong-site surgeries have been avoided, employee satisfaction has increased almost 20%, and nursing staff turnover has decreased 16%. These positive changes have been directly attributed to the institution of a system of enhanced communication among healthcare providers.

The Joint Commission has long been a leader in promoting improved communication in healthcare. Through its National Patient Safety Goals, The Joint Commission continues to promote the widespread use of effective communication tools, believing these can make a positive impact on our current healthcare safety culture. An open and supportive work environment is one in which team members feel comfortable asking questions, clarifying statements, and sharing knowledge, and it is essential in industries where decisions must be made based on facts rather than assumptions.

One of the most important communication tools used in the OR today is The Joint Commission’s Universal Surgical Safety Protocol. This surgical safety protocol incorporates 3 essential components to facilitate the achievement of established patient safety goals. These include a pre-procedure verification of the procedure, an anatomical site marking when applicable, and a time-out. Developed from the 2003-2004 Joint Commission Patient Safety Goals, the time-out component is a structured, quiet, and focused event in which all key perioperative team members are present to communicate and verify essential information before the start of a surgical case. Items such as the patient’s identity, procedure site and correct side, and informed consent are confirmed. Time-out procedures can be more comprehensive to include allergies, antibiotics, special equipment needs, radiologic studies, deep venous thrombosis prophylaxis, fire hazards, and any other concerns of team members.

The Joint Commission advocates for the continued development of tools, resources, and software systems designed to improve communication. The Joint Commission and other healthcare leaders have suggested the use of checklists as a way to standardize and coordinate steps of a process to improve performance and safety. Lingard et al sought to evaluate the effectiveness of pre-procedure communication led by checklist guidelines. In a study of 128 perioperative team members using a preoperative checklist for 302 patient procedures, the researchers found that the mean number of communication failures per procedure declined from 3.95 before the intervention to 1.31 after the intervention (P < .001).

In 2009, The Joint Commission, in partnership with 10 US hospitals, launched The Hand-Off Communications Project based on evidence that miscommunication contributes to nearly 80% of adverse events occurring when patient care is transferred from one provider to the other. In anesthesia practice, the unpredictable nature of OR activities and schedules mandates that an incoming anesthesia

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**Table 2. Kaiser Permanente Orange County Operating Room Briefing**

<table>
<thead>
<tr>
<th><strong>Surgeon</strong></th>
<th><strong>Circulator</strong></th>
<th><strong>Scrub</strong></th>
<th><strong>Anesthesia</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- ID patient and site</td>
<td>- X-ray available and other services, (ie, x-rays, pacemaker, cell saver, sales rep, laser)</td>
<td>- What special instrumentation do we need?</td>
<td>- Any special needs – positioning, medications?</td>
</tr>
<tr>
<td>- What type of surgery?</td>
<td>- Blood available?</td>
<td>- Do they have a question about the instruments?</td>
<td>- Special lines driven by anesthesia</td>
</tr>
<tr>
<td>- Realistic time estimate</td>
<td></td>
<td>- Any special intraoperative requests, ie, wake-up and hypothermia?</td>
<td></td>
</tr>
<tr>
<td>- What is the desired position?</td>
<td></td>
<td>- Plan to transfuse? “Wet versus dry”?</td>
<td></td>
</tr>
<tr>
<td>- Any special equipment needed?</td>
<td></td>
<td>- Use of drugs on the field?</td>
<td></td>
</tr>
<tr>
<td>- Is this a standard procedure or are there special needs?</td>
<td></td>
<td>- Do you want lines?</td>
<td></td>
</tr>
<tr>
<td>- Are there any anticipated problems?</td>
<td></td>
<td>- Postop pain management- special request (CLE, block, etc)</td>
<td></td>
</tr>
<tr>
<td>- Will we need pathology?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: Cell saver, intraoperative cell salvage machine (Haemonetics); ID, identify; postop, postoperative; rep, representative. (Reprinted with permission)
provider must relieve an outgoing anesthetist for circumstances such as breaks, meals, and the end of scheduled work shifts. This transfer of care is a “transfer of responsibility” event. It can pose a threat to patient safety in the OR largely because of the potential for communication failures and diminished situation awareness by the incoming anesthetist regarding the current patient, surgical, and OR conditions.

- **Intraoperative Communication Tools.** To improve communication for the transfer of care in the perioperative period, Wright developed and tested the PATIENT Protocol, a transfer-of-care protocol that systematically facilitates swift communication and requests action, if necessary, between providers, thereby promoting situation awareness and creating an opportunity for improved patient safety. The PATIENT transfer-of-care protocol involves the communication of key components of an anesthetic case during the transfer of care of an anesthetized patient from one provider to another. These key components include:

  - **P** = Patient (preoperative assessment and current condition) and positioning
  - **A** = Airway (level of difficulty, current management), antibiotics, allergies, and anesthetic type
  - **T** = Temperature (including type of monitoring and warming and/or cooling adjuncts)
  - **I** = IV (including type of access, invasive lines, infusions, blood products) and intake and output
  - **E** = End-tidal carbon dioxide (including ventilatory parameters such as respiratory rate, peak inspiratory pressure, oxygenation, and ventilation mode)
  - **N** = Narcotics (including those administered as well as those that the oncoming anesthetist is responsible for reconciling)
  - **T** = Twitches (including type of neuromuscular monitoring and degree of paralysis)

By adopting a communication tool such as the PATIENT checklist, anesthetists may be able to minimize variation in the type of information that is communicated while transferring care. Standardization promotes automaticity, and automaticity is recognized as a contributing factor to achieving situation awareness. When information and processes are standardized, variation, and all of its unknown consequences, is minimized and each team member knows what to expect from the other. Wright’s study identifies vital parameters that nurse anesthetists agree are essential to communicate when transferring care of the anesthetized patient from one provider to another.

- **Postoperative Communication Tools.** SBAR is an acronym for “Situation, Background, Assessment, and Recommendation” and can be an effective handoff communication tool when a patient is transferred from the OR to the postanesthesia care unit. The SBAR communication tool was created to standardize the communication between healthcare specialties and personnel. Effective use of SBAR, like other patient handoff tools, requires education and training but once incorporated into practice becomes a useful and appreciated tool. If your institution does not use these or other patient handoff tools, consider introducing them to colleagues and policy makers.

**Good Communication Practices**

Tools, checklists, and time-out procedures are only effective when communicated well. The development of good communication skills, as with anesthesia and surgical skills, requires training and practice. Effective communication involves the accurate and timely transfer of meaningful information. Such information is conveyed from sender to receiver through 3 mechanisms: the words, the tone or inflection of the words, and nonverbal body language. Ideally, effective verbal messages are directive, succinct, clear, and as accurate as possible. The sender’s message should be unhurried, calm, and reassuring. Similarly, body language (nonverbal messages) has significant potential to affect communication. For example, in most cultures it is important to make eye contact and maintain an awareness of other body and facial expressions that may add to or take away from the verbal message. Do your eyes become wide with acknowledgment or squint in disagreement? Is the recipient or others hearing the message or the tone? Are we sharing information or an emotion? The manner in which we say something is as important as what we say. Effective communication requires everyday practice so that we may be best prepared to communicate effectively during the management of a critical clinical situation.

Listening is also an essential component of communication between 2 or more team members. Information delivered but not received translates to a failure of communication. Reflective listening, defined as paraphrasing or repeating that which was heard, is an effective communication strategy and serves several purposes in the perioperative environment. Reflective listening (1) confirms to the sender the message was received, (2) verifies the message is understood, and (3) repeats the information for the receiver to consolidate it in memory. By repeating a message out loud, the receiver allows others to question and share concerns about the message and clarifies the message. For example, an audible repeat of a message such as “Ancel 2 grams IV” (cefazolin, 2 g, intravenously) by the receiver may create an opportunity for the perioperative nurse to remind the provider of the patient’s allergy to Ancel. Similarly, “retractor down” spoken by the surgeon in a chaotic or noisy environment.
OR may be heard as “table down”; by repeating the heard message, the receiver creates an opportunity for the surgeon to clarify the intended message “retractor down.”

Clarifying and assessing the situation may also avoid unnecessary treatment or intervention. Surgeons often ask, “Can you [anesthesia] give more muscle relaxation?” The surgeon’s observation of muscle relaxation may or may not correlate with the anesthesia provider’s assessment of muscle relaxation using the peripheral nerve stimulator. Good communication between the surgeon and anesthesia provider is paramount in such a situation to avoid the unwanted scenario of the administration of too much or too little muscle relaxant, potentially resulting in delays at the end of the case or other untoward and adverse events.12

Barriers to Communication

Multiple elements in the perioperative environment have the potential to create major barriers to communication and can occur throughout the communication process. Primary physical barriers include myriad noise sources, such as multiple conversations in small areas, music, public address systems, monitor alarms, and telephones, all of which foster a poor environment for communication. A unique consideration in the OR environment is face masks worn by healthcare workers. Face masks obscure facial movements and may serve as a sound barrier. Physical barriers present in the OR setting were identified as the third most important practice issue of concern by AANA member nurse anesthetists.13

Psychological factors such as tension, fatigue, lack of interest, distraction, and inattention can contribute to hesitancy, confusion, or misunderstanding of the intended message.14–17 Personal experience and expectations equally affect communication in that people may hear what they expect to hear rather than what was actually said. This can lead to incorrect assumptions, and the intended message is missed.

Given the rapidly changing demographics of our nation’s population, language barriers pose a substantial threat to effective communication. It can be challenging to provide high-quality healthcare when the spoken language varies between provider and patient. Relatively speaking, strong accents and unfamiliar dialects have the potential to alter the intended message and, in industries where important decisions are made, the intended message must be clearly articulated and understood.18

Conclusion

Communication checklists, guidelines, and policies are essential and useful to building a culture of perioperative communication and collaboration, but they are only a start. Good communication skills are equally important. Awareness and “buy in” that good communication is essential by all care team members are ultimately needed for improved patient safety. Although in one study, Certified Registered Nurse Anesthetists are likely to support (86%) and use (50%) specific communication points or tools,19 there is still room to improve.

All team members must promote effective communication by creating an open and nonjudgmental working environment, in which team members feel they can “speak up.” Effective communication and collaboration require active involvement from all team members.20

Merck’s OR XChange and The Joint Commission’s Speak Up initiatives along with time-out procedures and standardized tools, such as the PATIENT transfer of care protocol, and other resources, promote the effectiveness of interdisciplinary communication and collaboration in the perioperative environment.

Consider exploring the OR XChange program. Engage your perioperative team members and let’s create a culture of good communication. The safety of our patients depends on it. OR XChange can start the conversation; together we make it meaningful and effective.

REFERENCES


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DISCLOSURES
Dr Welliver is a paid consultant to Merck and a member of the OR Xchange expert panel.

Dr Wright has no conflicts of interest to disclose.