No (Wo)man is an Island: Culture, Teams, and Communication

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Overview

• Do interpersonal skills and communication matter?
• How do we define a team?
• What is the role of leadership?
• How do we optimize the use of fluid teams?
• What can individual surgeons do to optimize interpersonal skills and team communication?
INTER-PERSONAL SKILLS AND TEAM COMMUNICATION MATTER
TJC Sentinel Events

- Sentinel events are reported to The Joint Commission voluntarily or via a complaint

- Root cause analysis is performed
  - Identify fundamental reasons for the failure
  - Points in the process where an intervention could be implemented
  - Majority of events have multiple root causes

Most Frequently Identified Root Causes of Sentinel Events

http://www.jointcommission.org/Sentinel_Event_Statistics/
Surgical Root Causes (2004 – 2012)

Op/Post-op Complication Events
Reviewed by The Joint Commission (N = 719)
(Resulting in death or permanent loss of function)

Wrong-patient, wrong-site, Wrong-procedure
Events Reviewed by The Joint Commission (N = 928)

Unintended Retention of Foreign Object Events
Reviewed by The Joint Commission (N = 773)
Peri-operative Communication

- Communication failure is common
  - Study 1 = mean of 9 per case (range 3-18)
  - Study 2 = mean of 28 per case
  - 1 failure every 8 – 10 minutes of operative time

- Documented impact on safety and efficiency

- Failure most often related to purpose (46%), audience (34%), system of care (27%)

- Cross-disciplinary communication is more common than intra-disciplinary and the attending surgeon is most often involved.

  http://www.jointcommission.org/Sentinel_Event_Statistics/
Forms of Information & Sites of Utilization

- Consent
- Pre-op Clearance
- Consultations
- Laboratories
- Radiographic Studies
- Procedure Planned
- Estimated Operative Time
- Special Equipment

- Consent
- Pre-op Clearance
- Consultations
- Anesthesia Pre-op
- Laboratories
- Radiographic Studies

- Medications
- Laboratories
- Radiographic Studies
- Pathology: Correlation
- Procedure Planned

- Pre-operative Info
- Intra-operative Events
- Plan of Care
- Urgent Contact

Surgeon’s Office

- PATC
- Schedule Desk

Pre-op Holding

- OR

PACU
Observed Sites of Vulnerability to Information Loss

- Consent
- Pre-op Clearance
- Consultations
- Laboratories
- Radiographic Studies
- Procedure Planned
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Surgeon’s Office
PATC
Schedule Desk
Pre-op Holding
OR
PACU
Contributing Factors

Status Asymmetry
Ambiguity in responsibility
Hand-off
Transfer in Location

Percent of Cases
A TEAM IS MORE THAN THE SUM OF ITS PARTS
What is a team?

- Individuals (a) who see themselves and who are seen by others as a social entity, (b) who are interdependent because of the tasks they perform as members of a group

Teams generally have...
- Task interdependence
- Distributed expertise and roles
- Hierarchically Organized
- Common goal
• In *groups* performance depends mostly on individual contributions. People might all have the same roles and skills.

• In *teams* skills are complimentary, roles are highly defined, members are mutually accountable to each other and need each other to succeed. They work toward a common goal and are interdependent.
Group vs. Team Performance

• In *groups* productivity may be only as good as the most productive individual.

• In *teams* productivity is an emergent property of teamwork and task work and therefore total productivity can be greater than individual parts.
Taskwork vs. Teamwork

- Taskwork relates to member jobs
- Teamwork supports relationships and functional interactions
  - Communication, coordination, cooperation
  - Teamwork supports taskwork
What is required for effective teams?

TEAM REQUIREMENTS

- Attitude
  - “Feelings”
- Knowledge
  - “Thinking”
- Skills
  - “Doing”

TEAM PERFORMANCE
Attitude requirements

- Collective efficacy
- Shared vision
- Team cohesion
- Mutual trust
- Collective/team orientation
- Value of teamwork
Knowledge requirements

- Shared Task Models; Situation Assessment
- Teammate Characteristics; Familiarity
- Knowledge of Team Mission; Objectives; Norms; Resources
- Roles and expectations
- Individual-task proficiency
Skill requirements

- Mutual performance monitoring
- Supporting/Back-up behavior
- Team leadership
- Task-related assertiveness
- Conflict resolution
- Closed-loop communication
Building Good Teams

• Ensure team members know their role

• Ensure members know how their jobs intersect with other team members

• Set goals at the team-level as well as individual-level

• Provide timely individual and feedback on goals
Frontline Perspectives

• Discipline-specific differences in team identity:
  – Nursing/ surgical techs: Other techs and nurses
  – Anesthesia: Anyone assisting in provision of anesthesia care - Pre-op nursing; block team; intra-op anesthesia providers including those giving breaks; surgeon; PACU nursing and anesthesiologist
  – Surgeons: “Sub-teams” for pre-, peri- and post-operative periods - Likely reflect longitudinal role of surgeon

• Surgeon as key player in “setting the tone” during room set-up/ operative time-out
TRANSFORMATIONAL LEADERSHIP
Effective Teams and Leadership

• Are led by someone with good leadership skills, not just technical competence
• Have team members who believe the leader cares about them
• Provide situation updates
• Foster teamwork, coordination and cooperation
• Leader self-corrects first
Leadership

• Recognized by professional societies as a critical skill for surgeons

• Style impacts team performance
  • Transactional (task-oriented)
  • Transformational (team-oriented)

• Based on limited data, most surgeon leadership behaviors are task-based

[Bass and Avolio, Mind Garden, 2004.]
## Transactional vs. Transformational Leadership

<table>
<thead>
<tr>
<th>Categories</th>
<th>Transactional</th>
<th>Transformational</th>
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<tbody>
<tr>
<td>Leader’s source of power</td>
<td>Rank, position</td>
<td>Character, competence</td>
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<td>Follower reaction</td>
<td>Compliance</td>
<td>Commitment</td>
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<td>Time frame</td>
<td>Short term</td>
<td>Long term</td>
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<td>Rewards</td>
<td>Pay, promotion, etc.</td>
<td>Pride, self-esteem, etc.</td>
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<td>Supervision</td>
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<td>Less important</td>
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<tr>
<td>Performance Focus</td>
<td>Evaluation</td>
<td>Development</td>
</tr>
<tr>
<td>Where change occurs</td>
<td>Follower behavior</td>
<td>Follower attitude, values</td>
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## Surgeon Behaviors

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<thead>
<tr>
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<tr>
<td>Communicating</td>
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<td>4%</td>
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Transactional Leadership

• Enters OR
• Starts time-out while everyone is preoccupied with other tasks
• Pressures everyone to move faster
  – “Quick, quick, quick” (snapping)
  – “We gotta get going. Gotta fly here.”
• Gives specific directions about what he wants
  – “4 clips, 4 towels, regular drape, no loban, no chest press”
Transformational Leadership

• Enters OR
• Greets everyone individually
  – “Good morning…I’m delighted to see you.”
• Communicates about case outside of time-out
  – “It’s going to be quite a day…Very straightforward, very simple.”
• Asks if ok to do time-out
  – “You guys ready for the blessing?”
• Starts time-out with introductions
• Asks if everyone ok with plan
## Impact on Team Performance

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<th>Team Behavior/Hr</th>
<th>Transaction.</th>
<th>Mix</th>
<th>Transformation.</th>
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<tr>
<td>Cooperation</td>
<td>5.4</td>
<td>10.7</td>
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<td>Exhaustion</td>
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<td>0</td>
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<tr>
<td>Information Sharing</td>
<td>33.1</td>
<td>31.1</td>
<td>36.7</td>
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<tr>
<td>Voice</td>
<td>3.1</td>
<td>13.0</td>
<td>15.6</td>
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OPTIMIZING INTER-PERSONAL SKILLS AND TEAM COMMUNICATION
Conclusion: “The evidence for technical or clinical benefit from teamwork training in medicine is weak. There is some evidence of benefit from studies with more intensive training programmes [such as simulation], but better quality research and cost-benefit analysis are needed.”

Training Guide: Using Simulation in TeamSTEPPS Training
http://www.ahrq.gov/teamsteppstools/simulation/index.html
Pre-operative Briefings

The goal of this project was to “...develop, implement, and evaluate a preoperative briefing for cardiovascular surgery.”

“After implementation..., there was a reduction in total surgical flow disruptions per case including miscommunication events ...On average, briefed teams experienced fewer trips to the core and spent less time in the core ...and there was a trend toward decreased waste.”
Development and Pilot Evaluation of a Preoperative Briefing Protocol for Cardiovascular Surgery

Sarah E Henriksen, MS, Rishi K Wadhena, BS, Andrew W ElBardissi, MD, MPH, Douglas A Wiegmann, PhD, Thoralf M Sundt III, MD

**BACKGROUND:** Preoperative briefings have been adopted in many high consequence environments, but have not been widely adapted to medicine. Mistakes in surgery, infection, and adverse outcomes...

**Objective:** To assess intraoperative communication during cardiovascular bypass surgery... We measured cognitive demands among operating room staff.

**Methods:** With the National Anesthesia and Space Administration Task Load Index and semistructured focus groups, we identified common critical stages of cardiac surgical cases. Intraoperative communication was assessed during (n = 18) and after (n = 16) introduction of a structured communication protocol...

**Results:** Cognitive workload measures demonstrated high temporal diversity among caregivers in various roles. Eight critical events during cardiopulmonary bypass were then defined. A structured, unambiguous verbal communication protocol for these events was then implemented. Observations of 18 cases before implementation including 246 hours of cardiopulmonary bypass with 632 total communication exchanges (average 35.1 exchanges/case; F = 0.8). Frequency of communication breakdowns per case decreased significantly after implementation (11.5 vs 7.3 breakdowns/case; P = 0.003). We also noted a significant decrease in the frequency of communication breakdowns per case...

**Conclusions:** Because of wide variations in cognitive workload among caregivers, effective communication can be structured around critical events rather than defined intervals analogous to the sterile cockpit, with reduction in communication breakdowns. (J Thorac Cardiovasc Surg 2010;139:3:12-9)

**Intraoperative communication was assessed before (n = 18) and after (n = 16) introduction of a structured communication protocol... Frequency of communication breakdowns per case decreased significantly after implementation.”**

“communication failures,” as defined by poor timing, inaccurate or incomplete information, failure to include key team members or failure to resolve issues, in 34% of OR communications. A third of these failures resulted in demonstrable inefficiency, increase workload, delays, interruption of flow, and increased time, as well as wasted resources. Despite their negative impact on the work environment, such failures may remain unaddressed because staff members often use process work-arounds that may resolve immediate challenges but do not address long-term systemic inadequacies. Specifically, within the domain of cardiovascular surgery, our group has previously shown that communication failures adversely affect technical surgical performance. Unfortunately, consistent with the observations of others, we have also identified that only a third of nonphysician caregivers in our ORs consider surgeon communication to be effective. The cardiovascular surgical OR is clearly a high-consequence working environment, where effective communication is essential. Therefore, development of structured communication protocols can help improve communication breakdowns.
Team Familiarity

“Teams made up of members that were familiar with the operating surgeon had significantly fewer... total teamwork failures in comparison to those teams where the majority of members were unfamiliar with the operating surgeon.”
TEAM FLUIDITY
Team Fluidity

• The OR is a high risk environment

• Many surgical AEs involve a breakdown in teamwork or communication
  – Interventions have been adapted from other disciplines
  – No consideration of differences in OR teams

• Exacerbated by use of surgical teams with changing (fluid) membership and intra-operative hand-offs
  – No real assessment of frontline providers’ perceptions
  – No assessment of the confluence of unfamiliarity, hand-offs, communication

Definitions

- **Intra-Operative Hand-off**
  - The exchange of personnel in which one person transfers control over, or responsibility for, the performance of specific tasks associated with the surgical care of a patient and then departs the OR

- **Team Fluidity**
  - Members are considered interchangeable based on roles
  - Team membership is unstable
Fluid Team = work toward a common goal but unstable membership

Advantages
- Need for different skills at different stages
- Flexible allocation of personnel
- Provide career development opportunity
- Avoid collusive behavior

Barriers to Effective Team Functioning
- Ability for rapid upsizing or downsizing
- Adapt to high turnover
- Promote vigilant communication
- Loss of individual knowledge
- Lack of shared mental model
- Low individual commitment to group success
- Lack of cohesion
- Inadequate preparation of technology/instruments
- Exchange of personnel with less technical skill and/or experience

Barriers to Effective Operative Performance
- Environmental distraction
- Inadequate communication

Methods

• Focus groups:
  – 6 to 8 providers
  – Separate for each discipline of interest (nursing, surgery, anesthesia)
  – Semi-structured format lasting approximately an hour
• Facilitated by systems engineer experienced with operating rooms and patient safety
• Analysis
  – Audio recorded, transcribed, and de-identified
  – Inductive qualitative analysis using constant comparative method
Results: The Ideal Hand-Off

• No consensus

• Some providers felt it should be unobtrusive and confined to a single discipline
  
  “You never really notice when a good transition happens… the best transition would be one that’s seamless and not even noticed.” (Surgery)

• Others felt it should include a notification to the rest of the room
  
  “… a surgeon mentioned to me that they really, really appreciate when you leave, you say, ‘[this person] is relieving me now’…. Just to let them know.” (Nursing)
Results: The Ideal Hand-Off

• The hand-off may represent an opportunity to re-anchor the entire room

“… if the circulator wasn’t necessarily sure what’s going on deep in the hole … the surgeon could overhear that and be like, ‘oh no we’re going to be doing this,’ it kind of brings everyone back in the whole room.” (Surgery)
Results: “Setting the Tone”

- Emerged empirically from the data
- Surgeons’ behavior in the pre-operative period and during the time-out can “set the tone” for the rest of the case

“When a surgeon will verbally say, ‘[nurse’s name], do you have everything that you need today?’ Or ‘[tech’s name] do you have everything that you need?’ … It’s nice when they acknowledge, I have a nurse and I have a tech and I need them to do my case… So I think that can definitely set the tone of a room.” (Nursing)

“I’ve noticed a very stark difference when you go into the room. If there’s somebody that you don’t know, if you introduce yourself it changes the entire tone of the room … and the nurses are willing to … voluntarily be part of your team instead of being forced to be in that room that day.” (Surgery)
Results: Managing Unfamiliarity

• In all disciplines, providers agreed that the presence of unfamiliar team members required increased verbal communication

“I think a lot more communication needs to happen.” (Nursing)

“I try to be very clear about what it is that I want or I think is going on… and communicate that more in layman’s terms” (Anesthesia)
AV Recording

• Screen inpatient OR schedule

• Inclusion criteria:
  – Open operation
  – Case estimated >3 hours

• Record case from room set-up to patient exit
  – GoPros x2
  – Sports glasses x1 (surgeon)
Communication Event Content

- Directly Case-Related: 81.4%
- Other work-related: 6.3%
- Hand-Off: 5.6%
- Social/Non-work related: 3.0%
- Project/recording-related: 2.1%
- Unknown: 1.7%
Familiarity and Communication Rates, All Dyads

- **Number of Shared Cases, Ever**:
  - 1
  - 2-5
  - 6-10
  - 11-20
  - 21-30
  - 30-40
  - > 40

- **Communication Rate** (events/hour shared room time)

- **Correlation Statistics**:
  - $\rho = 0.259$
  - $R^2 = 0.0152$
  - $p = 0.002$
Table 3. Predictors of Dyad Communication Rate Using Poisson Regression.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>IRR (95% Confidence Interval)</th>
<th>Predicted Average Communication Rate (events/ h shared room time)</th>
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<tbody>
<tr>
<td>Familiarity Score</td>
<td>1.02 (0.94, 1.09)</td>
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<tr>
<td>Across-Sex Dyad Status</td>
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<tr>
<td>MM (N=42)</td>
<td>-</td>
<td>4.7</td>
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<tr>
<td>FF (N=29)</td>
<td>1.11 (0.81, 1.51)</td>
<td>5.2</td>
</tr>
<tr>
<td>MF (N=74)</td>
<td>1.37 (1.11, 1.84)</td>
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<td>Cross-Discipline Dyad Status</td>
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<td>ID (N=28)</td>
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<td>10.0</td>
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<tr>
<td>AN (N=35)</td>
<td>0.28 (0.18, 0.43)</td>
<td>2.8</td>
</tr>
<tr>
<td>AS (N=37)</td>
<td>0.52 (0.37, 0.74)</td>
<td>5.2</td>
</tr>
<tr>
<td>NS (N=37)</td>
<td>0.58 (0.44, 0.77)</td>
<td>5.8</td>
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IRR, Incident Rate Ratios; MM, Male-Male; FF, Female-Female; MF, Male-Female; ID, intra-disciplinary; AN, Anesthesiology-Nursing; AS, Anesthesiology-Surgery; NS, Nursing-Surgery
FINAL THOUGHTS
Simple Things to Consider

- Introduce yourself to new or unfamiliar personnel
- Consider writing names on the white board so you can identify your audience for verbal communication
- Ask team to call you by your first name
- Encourage your team to speak up if they have a concern
- Standardize “things” that don’t really matter to decrease cognitive workload
- Seek feedback from your colleagues on your style – 360 degree evaluations
- Consider leadership training or coaching
Conclusions

• Communication is a major contributor to poor patient outcomes in surgery

• The surgeon plays a critical role in “setting the tone” in the OR

• Interpersonal and leadership style is a critical determinant of team behavior in the OR

• There are simple things that you can do tomorrow to improve your interpersonal skills and team communication that can have major impact on patient safety, operative efficiency, and provider burn out
Thank You

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