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

  http://www.jointcommission.org/Sentinel_Event_Statistics/
Most Frequently Identified Root Causes of Sentinel Events

- Leadership
- Human factors
- Communication
- Assessment
- Physical Environment
- Information Management

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

Scheduling Desk

Pre-op Holding

OR

PACU
Observed Sites of Vulnerability to Information Loss

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

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- Surgeon’s Office
- PATC
- Schedule Desk
- Pre-op Holding
- OR
- PACU

- Urgent Contact

DEPARTMENT OF SURGERY
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH
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
Groups vs. Teams

- 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 leaders 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>
</tr>
<tr>
<td>Follower reaction</td>
<td>Compliance</td>
<td>Commitment</td>
</tr>
<tr>
<td>Time frame</td>
<td>Short term</td>
<td>Long term</td>
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<tr>
<td>Rewards</td>
<td>Pay, promotion, etc.</td>
<td>Pride, self-esteem, etc.</td>
</tr>
<tr>
<td>Supervision</td>
<td>Important</td>
<td>Less important</td>
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<tr>
<td>Performance Focus</td>
<td>Evaluation</td>
<td>Development</td>
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<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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<tr>
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<tr>
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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

<table>
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<tr>
<th>Team Behavior/Hr</th>
<th>Transaction.</th>
<th>Mix</th>
<th>Transformation</th>
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<tbody>
<tr>
<td>Cooperation</td>
<td>5.4</td>
<td>10.7</td>
<td>10</td>
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<tr>
<td>Exhaustion</td>
<td>0.38</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Information Sharing</td>
<td>33.1</td>
<td>31.1</td>
<td>36.7</td>
</tr>
<tr>
<td>Voice</td>
<td>3.1</td>
<td>13.0</td>
<td>15.6</td>
</tr>
</tbody>
</table>
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
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 .”
“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.”
Development and Pilot Evaluation of a Preoperative Briefing Protocol for Cardiovascular Surgery

Sarah E. Hendrickson, MD, Rohit K. Wadhwa, MD, Andrew W. Elbardissi, MD, MPH,
Douglas A. Wiegmans, PhD, MD, and Thoralf M. Sundt III, MD

Is the “sterile cockpit” concept applicable to cardiovascular surgery critical intervals or critical events? The impact of protocol-driven communication during cardiopulmonary bypass

Rohit K. Wadhwa, BS, Sarah Hendrickson Parker, MS, Harald M. Bushholt, MD, Kevin L. Gracanin, MD, James R. Naal, CCP, Katherine M. Lenwik, CCP, Douglas A. Wiegmans, PhD, MD, and Thoralf M. Sundt III, MD

Identifying methods to improve heart surgery: an operative approach and strategy for implementation on an organizational level

Andrew W. Elbardissi, MD, Douglas A. Wiegmans, MD, Sarah Hendrickson, MD, Rohit Wadhwa, MSc, Thoralf M. Sundt, MD


Abstract

Background: Previous research has found teamwork failures to be strongly associated with the occurrence of surgical errors. There have been few efforts to systematically collect data regarding teamwork failures and to identify organizational structures that would minimize the occurrence of these errors. The aim of this study was to evaluate the effectiveness of a preoperative briefing protocol to reduce teamwork failures in the operating room. To test our hypothesis, we developed and evaluated a protocol-driven communication during cardiopulmonary bypass (CPB) to improve teamwork failures.

Methods: Data were retrospectively collected over a 1-year period from November 2015 to October 2016. The study was conducted at a tertiary care center in the United States with 800 beds. The protocol was implemented postoperatively to improve teamwork failures during CPB. The data were analyzed using descriptive statistics and logistic regression analyses.

Results: A total of 100 cases were analyzed, of which 50 were control cases and 50 were protocol cases. The protocol was found to significantly reduce the occurrence of teamwork failures (p < 0.01). The protocol was associated with a reduction in the occurrence of teamwork failures (p = 0.001), and teamwork failures were significantly lower in the protocol group (OR: 0.01, 95% CI: 0.001–0.005) compared to the control group.

Conclusion: The protocol-driven communication during CPB significantly reduces teamwork failures. The results support the use of protocol-driven communication to improve teamwork failures during cardiac surgery. The findings also support the development and implementation of similar protocols in other surgical specialties to improve teamwork failures.

Keywords: Teamwork, Communication, Cardiac surgery, Cardiopulmonary bypass

“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

- Ability for rapid upsizing or downsizing
- Adapt to high turnover
- Promote vigilant communication

Need for different skills at different stages

Flexible allocation of personnel

Provide career development opportunity

Avoid collusive behavior

Barriers to Effective Team Functioning

- Loss of individual knowledge
- Lack of shared mental model
- Low individual commitment to group success
- Lack of cohesion

Barriers to Effective Operative Performance

- Environmental distraction
- Inadequate communication
- Inadequate preparation of technology/instruments
- Exchange of personnel with less technical skill and/or experience

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

Communication Rate (events/hour shared room time)

Number of Shared Cases, Ever

Rho = 0.259
R² = 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>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarity Score</td>
<td>1.02 (0.94, 1.09)</td>
<td>-</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>
</tr>
<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>
<td>6.4</td>
</tr>
<tr>
<td>Cross-Discipline Dyad</td>
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<tr>
<td>Status</td>
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<tr>
<td>ID (N=28)</td>
<td>-</td>
<td>10.0</td>
</tr>
<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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</tbody>
</table>

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

greenberg@surgery.wisc.edu