

## Background

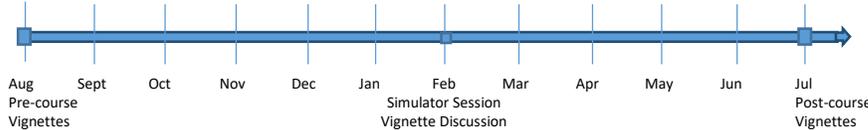
Non-technical surgical skills are as important as technical proficiency, yet rarely formally taught. In 2018, a leadership curriculum was initiated for orthopedic, plastic, urologic, and otolaryngologic subspecialty fellows. **The purpose of this study is to summarize the assessment of non-technical skills acquired during the course.**

## Methods

### 1 Leadership Course Design

- Monthly discussion sessions for Fellows with Dept Chiefs and Fellowship Directors
- Monthly fellow-led discussion of pre-class readings and videos
- One-time self-assessment inventories: PRISM profile, Kolb Learning Assessment.
- Simulator session to practice intra-operative scenarios.
- Examples of monthly topics: Self-awareness, Leadership styles, Disruptive behavior, Diversity in leadership, Coping with failure.

### 2 Evaluation Instrument



- Students in 2019-2020 leadership course were requested to reflect on five clinical case scenarios at the beginning and end of course.
- Define problem, describe how they would respond as attending surgeon.

1. During the surgical time out, when the patient is prepped and draped, the circulator informs attending that the patient consent form for the surgery is inaccurate. The procedure to be performed is not correctly described.
2. The scrub is clearly at odds with (and is speaking somewhat abrasively to) the new traveling nurse circulator who seems unfamiliar with the procedure and equipment needed for the procedure.
3. On morning rounds, attending surgeon discovers that their patient is an active smoker and had indicated this on their medical forms. The operation would not have been done for an active smoker if surgeon had noticed this.
4. Attending surgeon gets called from one OR to another urgently and leaves instructions for the resident who is staying behind in the first room only to find that they have not been followed upon attending's return.
5. During the operation a small (~2mm long 1mm wide) metallic part of an instrument breaks off in a patient. It resides in an anatomic place attending thinks will not be harmful long term.

## Methods (Continued)

### 3 Assessment Instrument

- Written case responses were compared from pre-to post-course by faculty member (IMG) and behavioral biostatistician (DNW)
- Answers ranked based on Non-technical Skills for Surgeons (NOTSS) system
- Thematic content was analyzed and tallied for each subcategory

#### NOTSS (Non-technical Skills for Surgeons)

Category	Examples
Situational Awareness	<ul style="list-style-type: none"> <li>• Gathering information</li> <li>• Understanding information</li> <li>• Projecting and anticipating future state</li> </ul>
Decision Making	<ul style="list-style-type: none"> <li>• Considering options</li> <li>• Selecting and communicating option</li> <li>• Implementing and reviewing decisions</li> </ul>
Communication and Teamwork	<ul style="list-style-type: none"> <li>• Exchanging information</li> <li>• Establishing a shared understanding</li> <li>• Coordinating team</li> </ul>
Leadership	<ul style="list-style-type: none"> <li>• Setting and maintaining standards</li> <li>• Supporting others</li> <li>• Coping with pressure</li> </ul>

## Results

- Ten respondents completed 50 vignettes/responses.
- Seven responses disqualified due to lack of answer or responding to incorrect question.

Of the 43 vignettes scored:

- 24 (56%) demonstrated "good" post-course improvement.
- 19 (44%) revealed only minor differences.

Fifty-six unique enhancements in responses were noted:

- Leadership (41%)
- Situational Awareness (30%)
- Communication (25%)
- Decision Making (4%).

## Results (Continued)

#### Thematic Scoring

Category (% of responses)	Most frequent subcategories and specific responses (number of answers citing this topic)
Leadership (41%)	<ul style="list-style-type: none"> <li>• Setting and maintaining standards (6)</li> <li>• Supporting other team members, adjusting to team needs (6)</li> <li>• Taking responsibility, apologizing were needed (4)</li> </ul>
Situational Awareness (30%)	<ul style="list-style-type: none"> <li>• Gathering information continuously from team members and others (7)</li> <li>• Maintaining dynamic awareness of OR and procedure (3)</li> <li>• Anticipating outcomes of actions (3)</li> </ul>
Communication and Teamwork (25%)	<ul style="list-style-type: none"> <li>• Importance of communicating with all stakeholders (OR team, family, etc) (7)</li> <li>• Importance of taking care in communicating (clarity, non-accusatory) (4)</li> </ul>
Decision Making (4%)	<ul style="list-style-type: none"> <li>• Gathering additional information from OR admin/legal (1)</li> <li>• Implementing and reviewing decisions with the team (1)</li> </ul>

## Conclusions

In the 2019-2020 leadership seminar for surgical subspecialty Fellows, participants completing both pre- and post-course vignettes demonstrated more nuanced responses and higher NOTSS scores on over 50% of the standardized clinical scenarios.

Further course feedback and review, coupled with long-term follow-up studies will help evaluate the impact of such a curriculum and to aid in future training that can enhance surgical non-technical skill acquisition.

## Authors and Disclosures

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