Learning Non-Technical Skills Might Save a Patient's Life

Human factors, leadership, and communication are the top three contributors to unexpected events in a healthcare setting that kill or harm patients.

By **Margaret Cary, MD, MBA, MPH** -
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I turned the corner and there it was. The Death Star, as locals call it, because it's star-shaped, imposing, and has a helipad on the roof. Also known as the Queen Elizabeth University Hospital in Glasgow—a state-of-the-art, 14-floor hospital completely interlinked, part of the National Health Service in Scotland—it was the site of the NOTSS Master Course I was invited to join.

In my exploration of what makes a good surgical team, I came across "Teamwork Assessment Tools in Modern Surgical Practice." That article inspired me to write Can Surgery Teamwork Save Your Life?, describing one of the best assessments, Non-technical Skills for Surgeons (NOTSS).

Any excuse to travel is all right with me. So when the Royal College of Surgeons-Edinburgh offered a NOTSS Master course on a day I could be available, I headed to Glasgow for a few days of Scottish music, single malt scotch, and museums before the course.

Training surgeons in non-technical skills

NOTSS is a program to train surgical residents (and more senior physicians) in non-technical skills—the behavioral pieces of optimal surgical performance. Mr. Simon Paterson-Brown (UK surgeons who are accepted into the Royal College are called Mr, Miss, Ms, or Mrs rather than doctor) and Mr. Simon Gibson kicked off the day with the usual medical statistics about using checklists in the operating room, or theatre, as it's known in the UK. Routine use of checklists halves surgical mortality, from 1.5% to 0.8%

Using a checklist might have prevented Sheila Hynes death in March 2017, after her new heart valve was put in upside down. The two Simons asked us, "*What goes wrong in your theatre?*" Reasons for errors include the pressure of time, distractions, last minute changes, inadequate preparation, assumptions, inadequate help, incomplete information, and the "system"—people, resources, and how they are dispersed.

Human factors, leadership, and communication, all included in non-technical skills, are the top three contributors to Sentinel Events, unexpected events in a healthcare setting that kill or harm patients and that are unrelated to the patients' illness.

As I learned, NOTSS is not about bad guys, remediation, catastrophic failure, blame/attribution, or extraordinary events. And there is no single vaccination for immunity.

NOTSS *is* about normal people, places, organizations, and systems. It's about recognizing complexity and optimizing performance.

Situational awareness

High on the list of necessary skills for effective surgeons is situational awareness, or being aware of what's around you even as you focus on the task of surgery. Check out this video to test your own situational awareness.

How can we enhance situational awareness?

1. Pre-task briefing
2. Sterile cockpit concept: Avoid unnecessary distractions
3. Active information gathering through scanning
4. Self-checking
5. Cross checking: Ask other team members
6. Re-check information after interruption or distraction
7. Use open rather than leading questions
8. Encourage junior staff to speak up if concerned

9. Realize that even experts can make errors…and put a heart valve in upside down
10. Have a safe word, such as “watermelon,” which means stop. And then use it. And stop

Self-check and CUSS

I’M SAFE is the mnemonic for a self-check list at the beginning of the day and when starting new or major procedures. Are you having any negative effects from the following?

- Illness
- Medication (e.g., codeine for a toothache, antihistamines for a cold, coping with a runny nose behind a surgical mask)
- Stress (personal relationships and time pressures)
- Abuse (substance and alcohol, and its after-effects)
- Fatigue
- Emotion (rudeness, anger, aggression, and personal grief) and Eating (impact of hypoglycemia)

While observing surgeons, use CUSS for graded assertiveness:

1. I am Concerned about what you’re doing
2. I don’t Understand why you are doing what you’re doing
3. I am Seriously worried about what you’re doing
4. Please Stop what you are doing

In 1977, KLM Flight 4805 and Pan Am Flight 1736 collided on the runway in Tenerife, killing 583 people, the deadliest airplane accident in history. Captain

Veldhuyzen van Zanten, KLM's chief of flight training, and one of their most senior pilots took off without clearance, smashing into the other 747 on the runway. In 2009, Captain Chesley "Sully" Sullender landed a crippled airplane on the Hudson River, with no loss of life. In the former, other crew members were reluctant to question the captain. They died. In the latter, the team concentrated on doing the right thing at the right time. They lived.

What do high-performing teams have in common?

According to TeamSTEPPS, they

1. Are responsible for ensuring that team members are sharing information, monitoring situational cues, resolving conflicts, and helping each other when needed;
2. Manage resources to ensure the team's performance;
3. Facilitate team actions by communicating through information exchange sessions, such as after-action reviews;
4. Develop norms for information sharing; and
5. Ensure that team members are aware of situational changes to plans

Good quality operating room leadership leads to decreased errors, reduced costs, improved safety, and increased compliance with standard operating procedures (SOPs). Despite that, 47% of surgeons believe decisions of the "leader" should not be questioned, as did the crew members of Captain van Zanten. Contrast that with the current 7% of pilots, a smaller percentage after changes were implemented following the Tenerife crash.

One solution for the 47% is to send your surgeons to Scotland for training. Another is for them to take the course at the annual American College of Surgeons meeting, where there is often a workshop on this topic. The book, Enhancing Surgical Performance, offers a detailed road map for "structuring observation, rating, and feedback of surgeons' behaviors in the operating theatre." Anyone involved in surgery—surgeons, nurses, residents, students—will learn what to look for and how to perform to increase staff well-being and decrease patients' deaths and errors in the surgical suite. I use this assessment with my surgeon coaching clients as I observe them in the operating room with their teams. The experience changes how they approach the surgery process. Becoming adept at non-technical skills literally changes lives for the better—patients' lives.

As the great sage Yoda said,

"Do. Or do not. There is no try."

References

1. Industrial Psychology Research Centre, University of Aberdeen (all handbooks)
2. Royal College of Surgeons of Edinburgh (NOTSS details)
3. Intercollegiate Surgical Curriculum Project (NOTSS handbook)

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