

How to Prevent and Manage a Major Complication: **Non-Technical Skill** (Concept of MTT - Physiological Approach and Recovery)



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Non-technical Skills

- 30–50% of surgical complications are thought to be preventable.

Healey MA, 2002

- To improve safety, health care is increasingly looking for guidance from other high-risk industries such as aviation and nuclear technology where non-technical skills are important.

Non-technical Skills

- The skills not related directly to technical expertise, but crucial for maintaining safety (e.g. teamwork), have been categorized as non-technical skills.
- Non technical skills are additional **cognitive** and **social skills** in order to improve operational task.

Non-technical Skills

- For many years, the surgical community believed that postoperative outcomes were predicted by surgical technical skills alone.

More recently we have come to appreciate the importance of

- Leadership
- Communication
- Teamwork



NON-TECHNICAL SKILLS

- These skills are fundamental to rescuing patients, and the effective application often predicts postoperative outcomes.

-Communication-

- An organizational culture that emphasizes safety will work to flatten hierarchies

For example;

- Junior residents and nursing staff should be let to inform senior residents or attending physicians without any fear of **ridicule or insult** whenever they are concerned about a patient's postoperative progress.



-Leadership-

- Strong leadership will promote a culture wherein senior surgeons are kept informed about the status of all patients under their care, both during and after rounds.
- Especially for unresolved and unexpected problems about the patients.

-Teamwork-

Teamwork will lead to;

- Better communication
- Earlier recognition of complications
- Aggressive diagnostic and therapeutic interventions when necessary
- **But needs, formal training in effective behaviors**

Non-Technical Skill Assessment Tools

- *Observation Teamwork Assessment for Surgery (OTAS)*
- *Oxford Non-Technical Skills (NOTECHS)*
- *Revised NOTECHS*
- *Line Operations Safety Audit Checklist*
- *(LOSA; selected elements)*
- *State Trait Anxiety Inventory (STAI)*
- *Imperial Stress Assessment Tool (ISAT)*
- *Communication-based Objective Structured Clinical Examination (OSCE)*

Non-technical Skills for Surgeons (NOTTS) Skills Taxonomy

Category	Element
Situation awareness	Gathering information Understanding information Projecting and anticipating future state
Decision making	Considering options Selecting and communicating option Implementing and reviewing decisions
Task management	Planning and preparation Flexibility/responding to change
Leadership	Setting and maintaining standards Coping with pressure Supporting others
Communication and teamwork	Exchanging information Establishing a shared understanding Co-ordinating team activities

Fig. 1: Non-technical skills for surgeons (NOTSS) rating form. Version 1.0

Cat	Cat rating*	Element	Element rating*	Feedback on performance
Situation awareness		Gathering information		
		Understanding information		
		Projecting and anticipating future state		
Decision making		Considering options		
		Selecting and communicating option		
		Implementing and reviewing decisions		
Task management		Planning and preparation		
		Flexibility/ responding to change		
Leadership		Setting and maintaining standards		
		Supporting others		
		Coping with pressure		
Communication and teamwork		Exchanging information		
		Establishing a shared understanding		
		Co-ordinating team activities		

*Rating scale: 1 Poor; 2 Marginal; 3 Acceptable; 4 Good; NO Not observed

1 Poor: Performance endangered or potentially endangered patient safety, serious remediation is required

2 Marginal: Performance indicated cause for concern, considerable improvement is needed

3 Acceptable: Performance was of a satisfactory standard but could be improved

4 Good: Performance was of a consistently high standard, enhancing patient safety; it could be used as a positive example for others

NO Not observed

- ‘Optimally functioning processes of health care might be likened to a **symphony orchestra, clearly interdependent on specialized individual performances, but centralized around a leader responsible for the symphonic interpretation and overall synthesis.**’

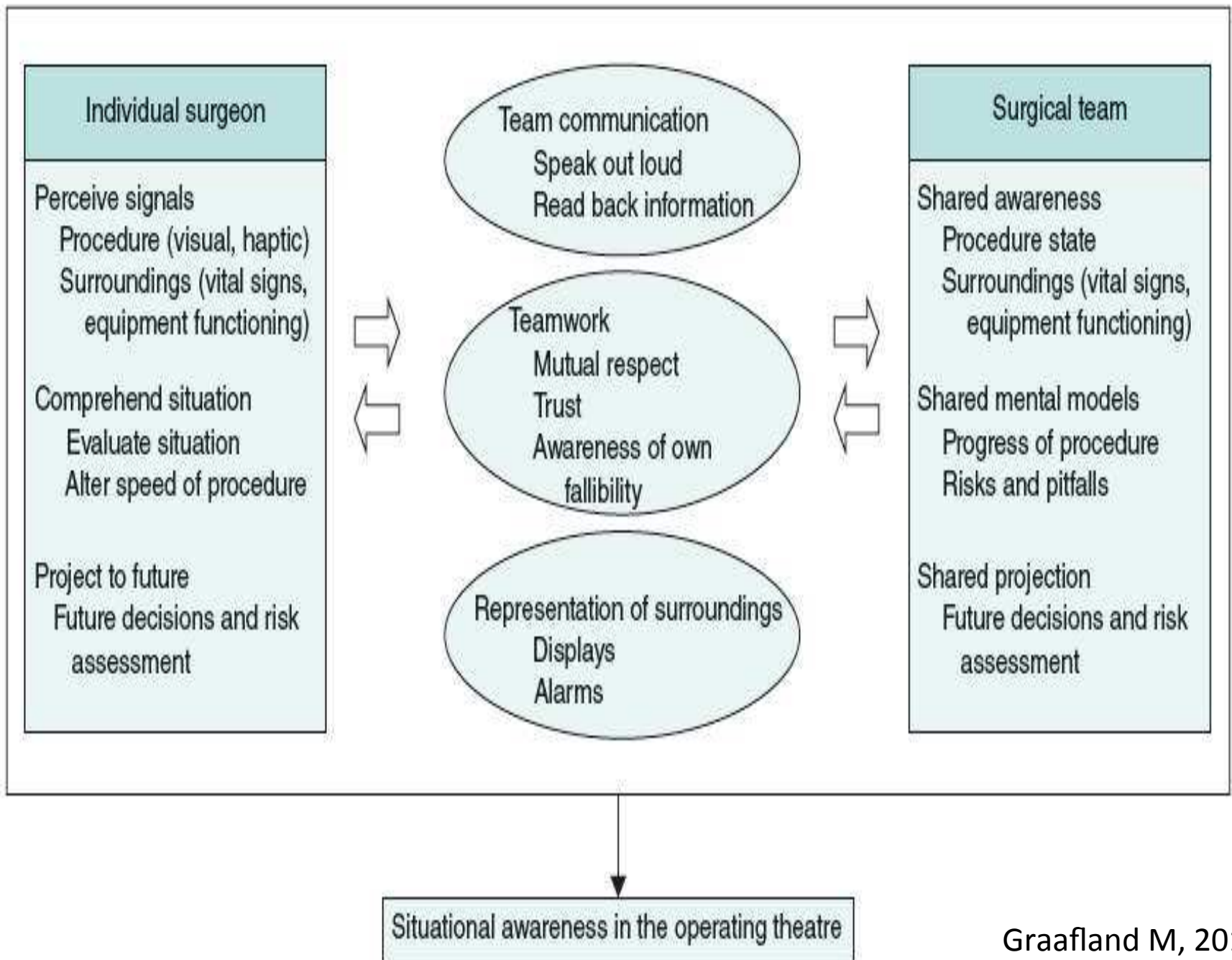
Donald W. Moorman, MD, FACS

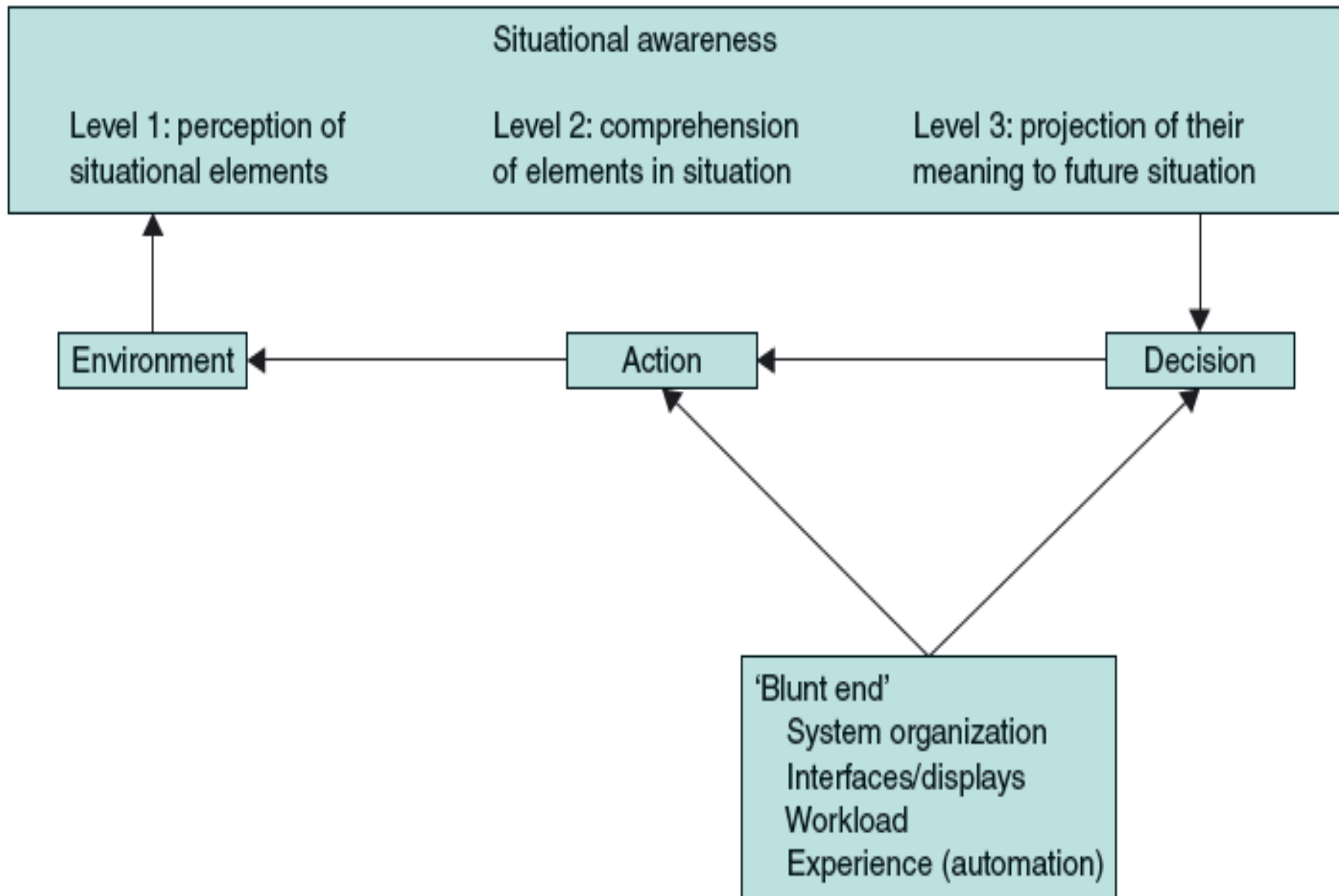


The point of view;

- No issue can be regarded as;

“not an area we deal with” because all of the patient’s care issues belong to the entire team, and any single issue will impact overall care.





Surgical Safety Checklist

Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?

Yes

Is the site marked?

Yes

Not applicable

Is the anaesthesia machine and medication check complete?

Yes

Is the pulse oximeter on the patient and functioning?

Yes

Does the patient have a:

Known allergy?

No

Yes

Difficult airway or aspiration risk?

No

Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?

No

Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist and surgeon)

Confirm all team members have introduced themselves by name and role.

Confirm the patient's name, procedure, and where the incision will be made.

Has antibiotic prophylaxis been given within the last 60 minutes?

Yes

Not applicable

Anticipated Critical Events

To Surgeon:

What are the critical or non-routine steps?

How long will the case take?

What is the anticipated blood loss?

To Anaesthetist:

Are there any patient-specific concerns?

To Nursing Team:

Has sterility (including indicator results) been confirmed?

Are there equipment issues or any concerns?

Is essential imaging displayed?

Yes

Not applicable

Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:

The name of the procedure

Completion of instrument, sponge and needle counts

Specimen labelling (read specimen labels aloud, including patient name)

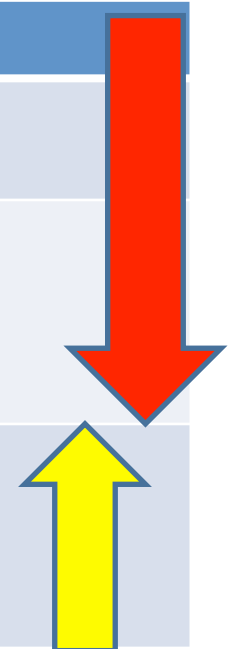
Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:

What are the key concerns for recovery and management of this patient?

WHO Surgical Safety Checklist usage was associated with;

Complications	11%	7%
All-cause mortality	1.5%	0.8
Appropriate antibiotic use	56%	83%



Safety Checklist

- Checklists should be modified according to needs of the department or hospital;

For gynecological theatres;

- Technical staff should check whether the laparoscopic or hysteroscopic equipment is working or not?
- Insulation should be checked for electric leakage !
- Are energy sources are in good condition (laser, harmonic scalpel, bipolar, monopolar, ligasure, thunderbeat)

Safety Checklist

- Is sterilization procedure completed appropriately?
- Does patient have any metallic material on her (rings, necklace etc.) ?
- For the anesthesia, does the patient have chronic diseases such as allergy, DM, HT, diaphragmatic hernia, bleeding diathesis etc)
- For the operator, naso/orogastric tube should be advised to be inserted before Palmer entrance!

Safety Checklist

- Previous abdominal surgeries should be known in detail for optimum entrance and surgical programming !
- Ultrasonographic or Hysterosalpingographic imaging of the patients should be in the operating room in case needed.
- The assistant should have enough experience and skillsto help to surgeon.
- Is recording system fully working should be checked before the operation!

Communication



Communication

Communication errors in theatres result with;

- Wasted resources,
- Inefficiency,
- List delays,
- Patient inconvenience,
- Increased rate of procedural errors.



Communication



In a retrospective review of 258 closed malpractice claims;

- Systems factors contributed to error in 82% of cases
- Communication breakdown was responsible for 24% of these

Hand off !

- Transfer of professional responsibility and accountability
- Poor handoffs can cause a range of problems from reducing efficiency, delays in discharge or time to operation and even contribute to patient harm.

Weiser TG, 2008



Leadership

This interest in leadership and managerial skills is reflected in the relevant evidence base, where leadership features amongst other key non-technical skills in most if not all assessment and improvement Instruments & included in:



Professionalism & Personal values of the surgeon

Surgeons should offer;

- Care that is patient-centered and takes a holistic view of the patient without being solely disease-focused.



Professionalism & Personal values of the surgeon

Factors which influence confidence and trust in the patient-physician relationship in a hand clinic;

- Patients viewed respect for autonomy and verbal communication skills as **MORE** important than technical proficiency.

Medical Team Training (MTT)

- Fortunately, teamwork and communication skills (non-technical skills) can be **LEARNED, PRACTICED, AND ENHANCED.**
- The MTT Program improves these non-technical skills among providers, delivering on the promise of a safer health care system.

Medical Team Training (MTT)

- Preoperative briefings, gives the surgical team “a final chance” to correct potential problems.
- Post-operative briefings lead directly to the prompt resolution of glitches that occurred during surgery.

The Impact of Nontechnical Skills on Technical Performance in Surgery: A Systematic Review

Louise Hull, MSc, Sonal Arora, PhD, MRCS, Rajesh Aggarwal, PhD, FRCS, Ara Darzi, MD, FACS, Charles Vincent, PhD, Nick Sevdalis, PhD

- Systematic review

RESULTS;

- Receiving feedback and effectively coping with stressful events in the operating theatre had a beneficial impact on technical performance.
- Conversely, high levels of fatigue and teamwork failure were strongly associated with technical error.

Finally;

Being a good surgeon is more than just being a good “pair of hands”,

It's about being a **good team player**, who listens and communicates well with patients and colleagues and empowers them to reach their full potential.

