

PATIENT SAFETY IN SURGICAL PRACTICE

Safe Surgery Saves Lives



Definition

Patient safety is a science that promotes the use of evidence-based medicine and local wisdom to minimize the impact of human error on quality of patient care.

Science of Patient Safety

- James Reason stated that even the best people can make the worst errors as a result of latent conditions
- High risk systems are associated with high error rates.
- It is recognized that risks and errors are not always correlated.

(High reliability organization theory)

Characteristics of high reliability organizations

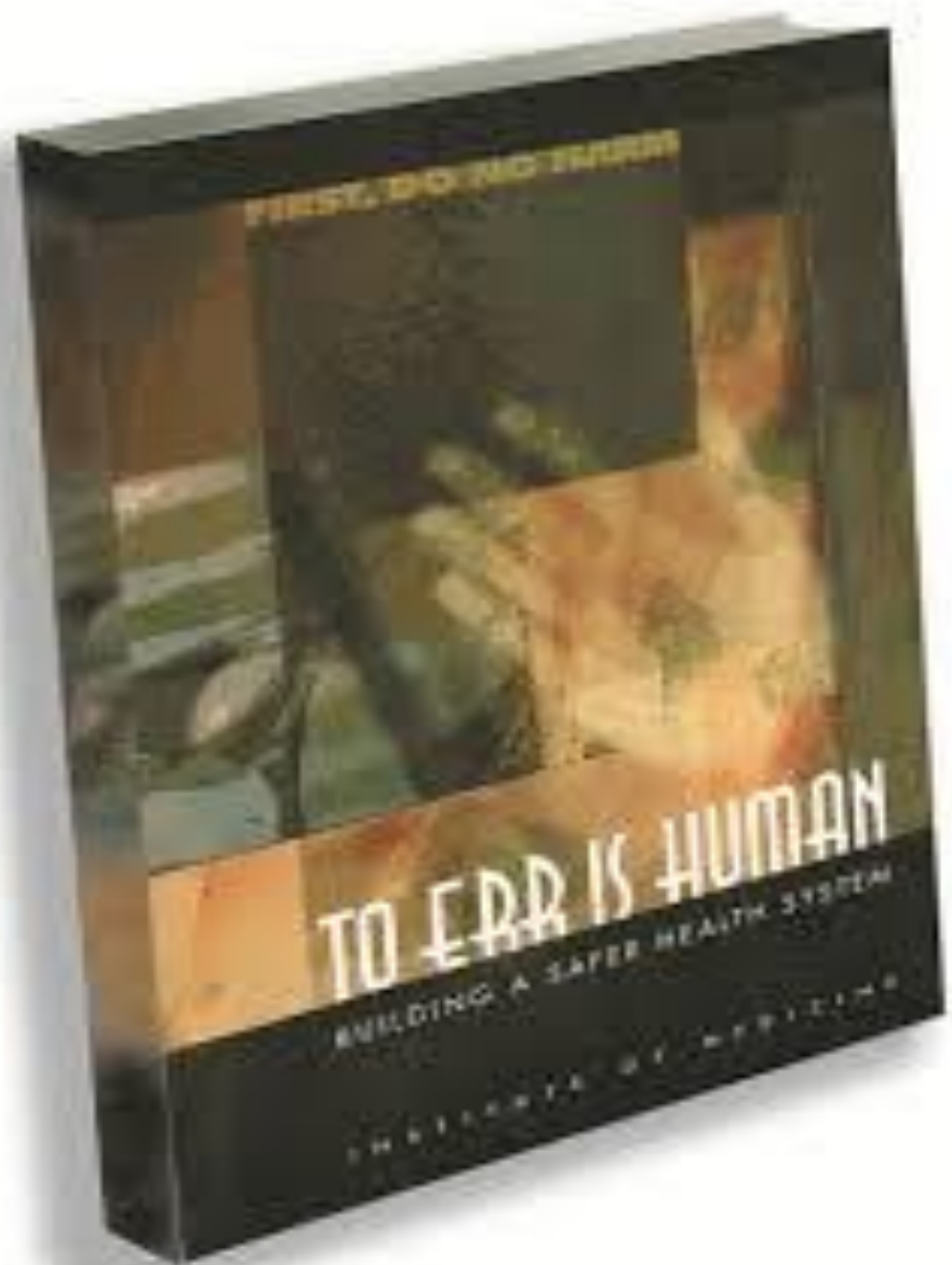
- People are supportive of one another.
- People trust one another.
- People have friendly, open relationships emphasizing credibility and attentiveness.
- The work environment is resilient and emphasize creativity and goal achievement, providing strong feelings of credibility and personal trust.

IOM Report (2000)

44,000 – 98,000
deaths and

Over one million
injuries

In American hospitals
Each year



WHO: Safe Surgery Safe Lives

- Adverse events due to medical care errors - estimated to affect 3–16% of all hospitalized patients
- More than half of such events are known to be preventable

- Surgical care is complex and involves dozens of steps which must be optimized for individual patients
- In order to minimize unnecessary loss of life and serious complications,
- WHO recommend 10 basic essential objectives for surgical teams

1. The team will operate on the **correct patient** at the correct site.
2. The team will use methods known to prevent harm from **anaesthetic** administration, while protecting the patient from pain.
3. The team will recognize and effectively prepare for life-threatening loss of **airway or respiratory function**.
4. The team will recognize and effectively prepare for risk of high **blood loss**.
5. The team will avoid inducing an allergic or **adverse drug** reaction known to be a significant risk to the patient.

6. The team will consistently use methods known to minimize risk of **surgical site infection**.
7. The team will prevent inadvertent **retention of sponges or instruments** in surgical wounds.
8. The team will secure and accurately identify all **surgical specimens**.
9. The team will effectively **communicate** and exchange critical patient information for the safe conduct of the operation.
10. Hospitals and public health systems will establish routine **surveillance** of surgical capacity, volume and results.

1. The team will operate on the correct patient at the correct site.

- Before induction of anaesthesia - the patient is correctly identified
- with the patient or family member / identity bracelet or other appropriate means of physical identification
- Check informed consent form
- Mark the site of surgery in cases involving bilaterality or multiple structures or levels (e.g. a finger, toe, skin lesion, vertebra)

- Time out or surgical pause before skin incision

Introducing among team members

Confirm patient identity, procedure, site of procedure

Confirm administration of prophylactic antibiotic

Ensure availability of blood and blood products

2. The team will use methods known to prevent harm from administration of anaesthetics, while protecting the patient from pain

- Continuous presence of a vigilant, professionally trained anaesthesia provider
- Anaesthesia safety checks before any anaesthetic
- Supplemental oxygen should be supplied for all patients undergoing general anaesthesia
- The adequacy of the airways , ventilation and circulation should be monitored continuously
- Body temperature and depth of anaesthesia

3. The team will recognize and effectively prepare for life-threatening loss of airway or respiratory function

- Objective evaluation of the patient's airway before induction of anaesthesia
- Planned strategy and facility for managing the airways
- **Difficult airway;** assistance during induction and backup plan for airway management, consider alternative methods of anaesthesia
- Fasting prior to anaesthesia to prevent aspiration

4. The team will recognize and effectively prepare for risk of high blood loss

- Anticipate and prepare for large-volume blood loss before operation in high risk cases
- Ensure intravenous access
- Confirm availability of blood and blood products
- Make sure availability of additional instruments required to control bleeding

5. The team will avoid inducing an allergic or adverse drug reaction for which the patient is known to be at significant risk

- Types of error in medication includes
 - omission
 - repetition
 - substitution
 - incorrect dose or rate of infusion
 - incorrect route
 - incorrect patient

- Fully understand the pharmacology
- Every patient identified clearly and explicitly
- A complete drug history
- Medications should be appropriately labelled, confirmed, checked and rechecked

6. The team will consistently use methods known to minimize the risk for surgical site infection

- SSI is used as a marker of the quality of surgical care
- 2/3 of SSI are incisional and 1/3 are organ space infection
- Multifactorial risk factors for SSI
 - Patient characteristic
 - Operational characteristic

- Evidence based practice to reduce SSI include
- Prophylactic antibiotics should be used routinely in all clean–contaminated surgical cases and considered for use in any clean surgical case

- Antibiotics used for prophylaxis should be given within one hour before skin incision
- Re-dosing with prophylactic antibiotics should be considered if the surgical procedure lasts more than 4 hours or if there is evidence of excessive intraoperative bleeding.
- Antibiotics used for prophylaxis should be stopped within 24 hours of end of operation

- Using of sterilization process that including means for verifying the sterility of all surgical instruments, devices and materials must be routine

- Hair should not be removed unless it will interfere with the operation
- Clipping the hair less than 2 hours before operation
(more recommended than shaving)

- Surgical patients should receive oxygen throughout the perioperative period according to individual requirements
- Normothermia should be maintained
- The skin of all surgical patients should be prepared with an appropriate antiseptic agent before surgery

- Surgical hand antisepsis should be assured with an antimicrobial soap
- The operating team should wear clean operating room scrubs, sterile gowns and sterile gloves during the operation
- Cap and mask reduce bacterial contamination at surgical site (Statements for OR Attire)

7. The team will prevent inadvertent retention of instruments and sponges in surgical wounds

- Serious consequences can be produced by retained sponges or instrument (never events)
- Emergency surgery, High BMI, Unplanned change in operation and high-volume blood loss during operation are major risk factors
- Novel techniques in surgical counts (incorporating radio-opaque material in sponges, automated counting and tracking systems using bar-coated sponges and radiofrequency-tagged sponges)

- Falsely correct count (75% of retained cases)
- There is no single tool to prevent all errors
- Development of multiple lines of defense and adhering to operating room safety protocol by all team members is necessary

- A full count of surgical tools
(sponges, needles, sharps, instruments and miscellaneous)
- Counts must be performed at least at two occasions
(at the beginning and end of every operation)

- Methodical wound/cavity exploration before closure of any anatomical cavity or the surgical site
- Counts should be recorded, with the names and positions of the personnel performing the counts and a clear statement of whether the final tally was correct

8. The team will secure and accurately identify all surgical specimens

- Inadequate or wrong labelling
- Missing or inadequate information and
- Lost specimens are the common errors

- Surgical specimens are confirmed by the team
- Specimen label must include the identity of the patient, the specimen name and location (site and side) from which the specimen was obtained
- One team member read the specimen label aloud and another verbally confirming agreement

9. The team will effectively communicate and exchange critical information for the safe conduct of the operation

- Communication breakdown is one of the commonest root causes of errors
- Communication and teamwork can be promoted by
 - Using check lists
 - Standard operating protocols
 - Team briefings and debriefings
 - Developing a culture of open communication and speaking up if a team member senses a safety concern

- Preoperative briefing facilitate the transfer of critical information and help to create an atmosphere of shared learning and responsibility

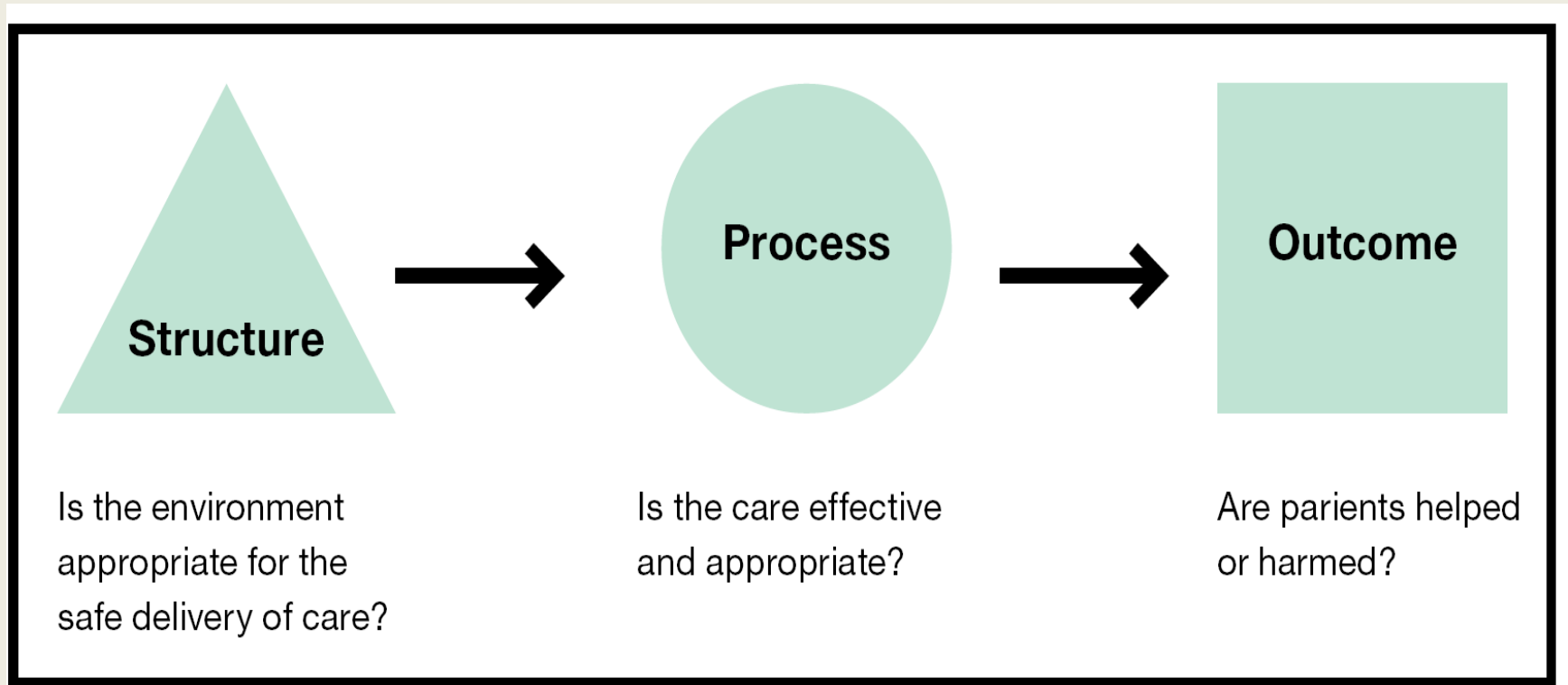
- Postoperative debriefing give the team an opportunity
 - To review what was done
 - To share critical events that arose during operation
 - To develop management plans for recovery

- Before skin incision, make sure that team members in particular, nurses, anaesthetists, and surgical assistants are aware of the critical steps of the procedure to be performed, the risk for heavy blood loss, any special equipment needed and any likely deviation from routine practice

- Necessary imaging is available and displayed in the operating room
- After operation, surgeon should inform team members of any alterations that were made to the procedure performed, any problems that may occur in the postoperative period and essential postoperative plans

- Anaesthetist should summarize the clinical condition of the patient during the operation and any other instructions needed to ensure a safe recovery.
- The nurse should notify the team of any additional concerns recognized during the operation or for recovery.
- An accurate, complete, signed surgical record should be maintained

10. Hospitals and public health systems will establish routine surveillance of surgical capacity, volume and results



WHO Patient Safety: Safe Surgery Save Lives
define **vital statistics** for surgery

surgical surveillance at the national level

- number of operating rooms,
- number of surgical procedures performed in an operating room,
- number of trained surgeons and number of trained anaesthetists,
- day-of-surgery mortality rate and
- postoperative in-hospital mortality rate.

Surgical surveillance at hospital and practitioner level

- Day-of-surgery mortality rate
- Postoperative in-hospital mortality rate
- Surgical site infection rate

Surgical Safety Checklist



World Health
Organization

Patient Safety
A World Alliance for Safer Health Care

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?

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

This checklist is not intended to be comprehensive. Addition



Before skin incision

(with nurse, anaesthetist and surgeon)

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☐ **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

and modifications to fit local practice are encouraged.

(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?

Conclusion

- Strong teamwork is at the core of any effective organization and is a key element to ensuring patient safety.
- Teamwork is dependent on the underlying culture and patterns of communication.

- The ability for all team members to “speak up” about patient safety concerns is one of the most important elements of creating a culture for patient safety.



THANK YOU
HAVE A NICE DAY