Human factors, patient safety and quality improvement

Dr. Ali Abdul Kareem

MBChB FICMS CAB(Oph) FICO(Lon) MRCS(Ed) ISCRS

Clinical Ophthalmologist

Lecturer at Al-Kindy College of Medicine/University of Baghdad

INTRODUCTION

- In recent years, increased emphasis has been placed on the study of healthcare systems to better understand the relationship of how management and administrative systems best support clinical practice and promote quality improvement and patient safety.

Porter proposed six principles that support a value-based approach to health care:

- **1** Organise care around medical conditions – care should be based upon the medical needs of a community.
- **2** Measure outcomes and costs for every patient.
- **3** Align reimbursement with value – to support better outcomes and more efficient care.
- **4** Systems integration – organise treatment around matching patient, treatment and location.
- **5** Geography of care – provide centres of excellence for complex care.
- **6** Information technology – provide integration of the healthcare system.

HUMAN FACTORS

- The healthcare setting has become increasingly complex. Patient and societal demands for transparency in defning and justifying treatment decisions impact on all healthcare workers, who need to understand their professional responsibilities when working within complex social and work environments.
- Healthcare workers must understand that patients are increasingly better informed and wish to be included more fully within the decision-making processes regarding treatment options.
- Likewise, when performance and clinical outcomes are less than expected, patients and their supporters are entitled to timely and honest appraisal of ‘what went wrong’ and to be part of the discussion regarding ongoing care.

SPECIFIC ISSUES IN COMMUNICATION

- **Professional behavior and maintaining fitness to practice**
- **Communicating openly with patients and their carers and obtaining consent**
- **When things go wrong: open disclosure**
- **Situational awareness: understanding the work environment and working well within it**
- **Prescribing safely**

PATIENT SAFETY

- Medicine will never be risk-free. From the beginning of training, doctors are taught that errors are unacceptable and that the philosophy of *primum non nocere* (first, do no harm) should permeate all aspects of treatment. Yet, worldwide, despite all the improvements in treatment and investment in technologies, training and services, there remains the challenge of dealing with unsafe practices, incompetent healthcare professionals, poor governance of healthcare service delivery, errors in diagnosis and treatment and non-compliance with accepted standards.

TABLE 15.1 Factors that contribute to patient safety incidents.

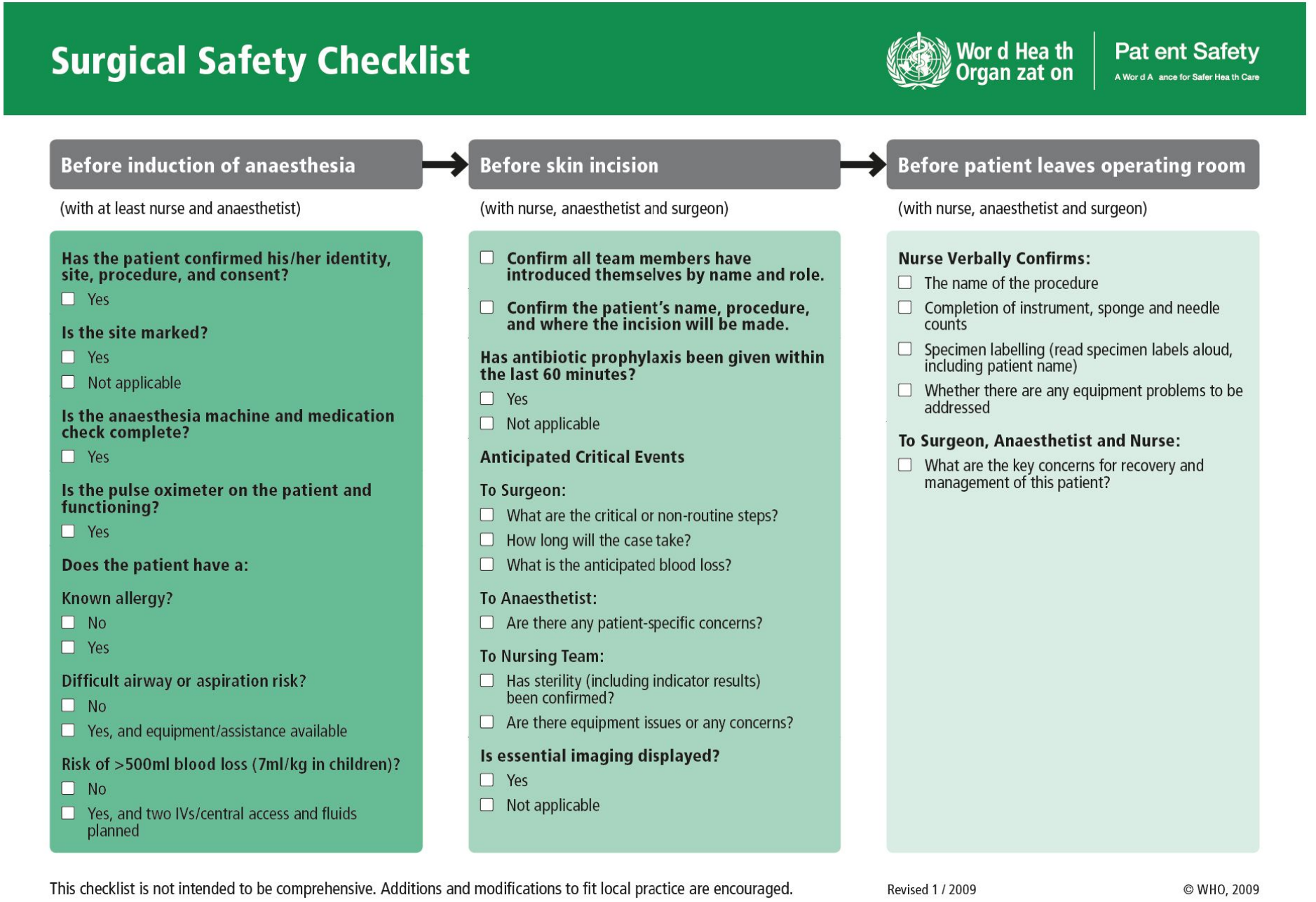
Human factors	• Inadequate patient assessment; delays or errors in diagnosis • Failure to use or interpret appropriate tests • Error in performance of an operation, treatment or test • Inadequate monitoring or follow-up of treatment • Deficiencies in training or experience • Fatigue, overwork, time pressures • Personal or psychological factors (e.g. depression or drug abuse) • Patient or working environment variation • Lack of recognition of the dangers of medical errors
System failures	• Poor communication between healthcare providers • Inadequate staffing levels • Disconnected reporting systems or over-reliance on automated systems • Lack of coordination at handovers • Drug similarities • Environment design, infrastructure • Equipment failure owing to lack of parts or skilled operators • Cost-cutting measures by hospitals • Poor governance structures and inadequate systems to report and review patient safety incidents
Medical complexity	• Advanced and new technologies • Potent drugs, their side effects and interactions • Working environments – intensive care, operating theatres

Experience has shown, however, that for successful implementation of a checklist considerable attention is required to the following factors:

- early engagement of staf;
- active leadership and identifcation of local champions;
- extensive discussion, education and training;
- multidisciplinary involvement;
- coaching;
- ongoing feedback;
- local adaptation.

Resource-rich countries

- Many countries and professional bodies in resource-rich countries have developed various strategies to improve outcomes in surgical practice. These include:
- ● regulatory systems for the licensing of physicians and healthcare institutions;
- ● national/statutory policies for patient safety;
- ● standard setting by surgical professional bodies;
- ● national clinical audits and quality improvement pro-grammes;
- ● statutory reporting of adverse events.



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?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1 / 2009

Figure 15.1 World Health Organization's surgical safety checklist (https://www.who.int/teams/integrated-health-services/patient-safety/research/safe-surgery/tool-and-resources).

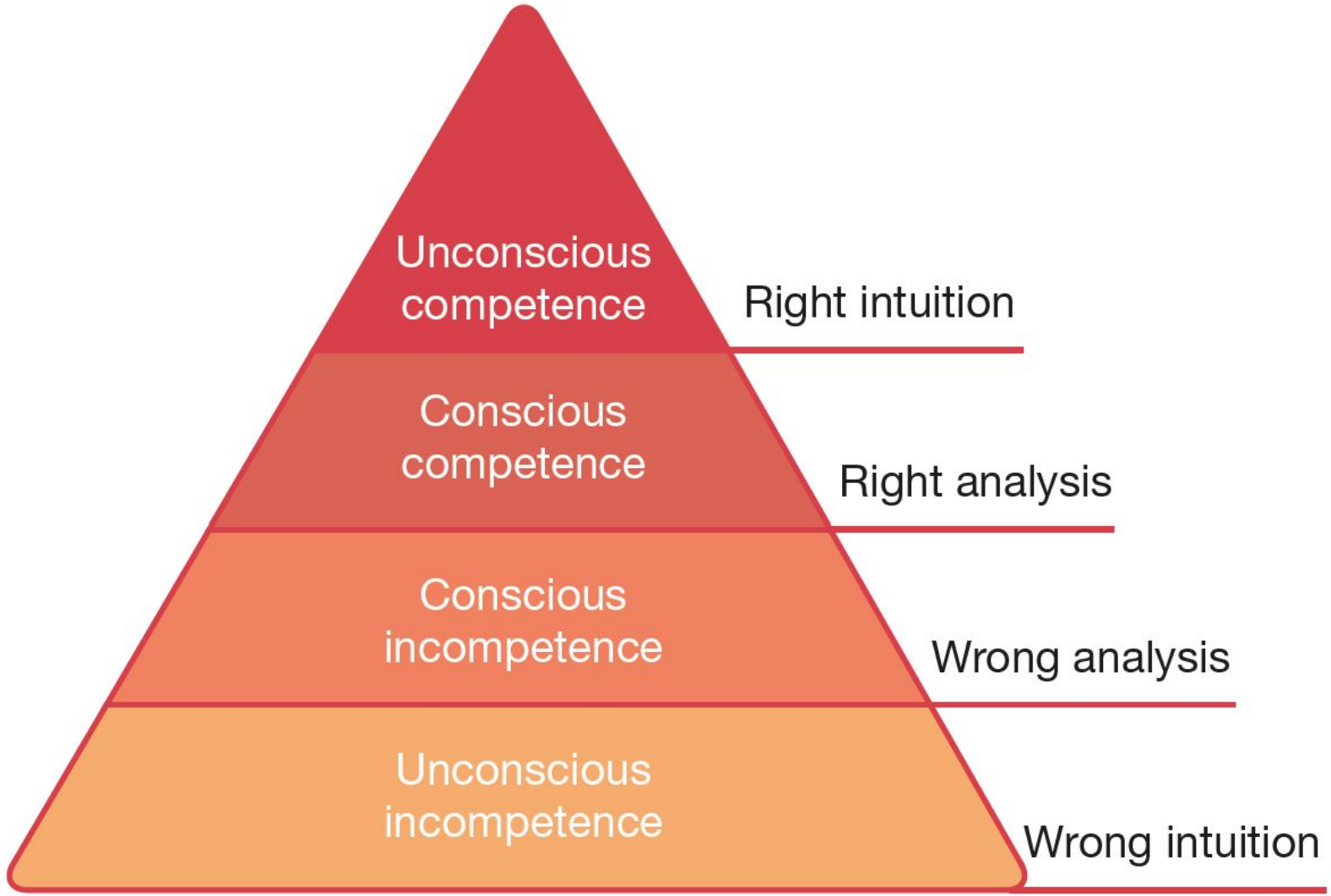


Figure 15.4 Hierarchy of competence.

TABLE 15.3 Four stages of high value quality improvement or clinical audit activity

- Preparation and planning
- Measurement of performance
- Implementation of change
- Sustainment and evaluation of the improvement

THE QUALITY IMPROVEMENT PATHWAY

- Quality improvement can be applied to almost any step, process or activity. The science of improvement is an applied science that prioritises innovation, rapid-cycle testing and spread with the aim of identifying what changes, and in what contexts, will result in improvement. Healthcare Improvement Scotland identifes seven stages when undertaking improvement:
- **1 discovering** – is about defning the aims and vision; understanding what the problem is and what data are available;
- **2 exploring** – is about defning the present state and visualising the future state;
- **3 designing** – is about defning how to move from the present state to the future state and identifying the priorities;
- **4 refning** – is about testing change, learning from the data and identifying the benefts;
- **5 introducing** – is about managing communications and building the will and culture to change;
- **6 spreading** – is about showing the improvements, telling the story and disseminating the message;
- **7 closing** – is about capturing and sustaining the learning.

Summary box 15.5

Understanding quality improvement and its application in health care

- The definition of quality improvement and its relationship to clinical audit
- The different kinds of quality measures
- The patient's surgical journey and its potential for improvement
- Examples of quality improvement pathways, organisational methodologies and tools
- What systems thinking is and its importance alongside leadership
- The requirement for more education and training in quality improvement

Global health and surgery

Dr. Ali Abdul Kareem

MBChB FICMS CAB(Oph) FICO(Lon) MRCS(Ed) ISCRS

Clinical Ophthalmologist

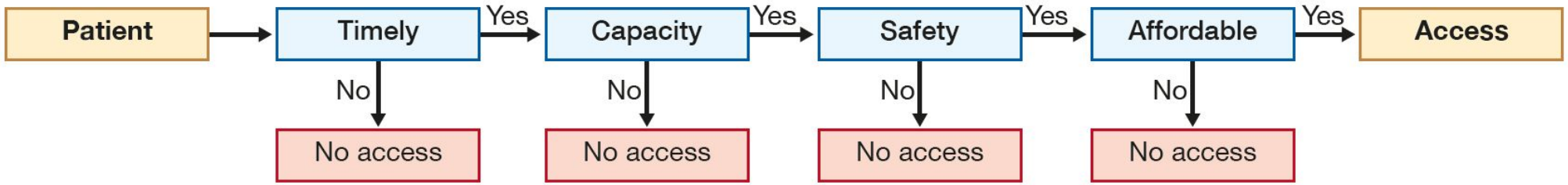
Lecturer at Al-Kindy College of Medicine/University of Baghdad

INTRODUCTION AND DEFINITION

- Global health is the health of populations in the global context. Global surgery is surgery with an understanding of public health. Surgeons understand the needs of their individual patients, while public health adds the understanding of the surgical operations needed in the population. Global surgery aims to provide equitable and improved surgical care across the world.

SURGERY AS AN ESSENTIAL AND COST-EFFECTIVE INTERVENTION

- With the decline in the burden of communicable diseases in the world, one-third of the total disease burden is now due to surgical disease, with the majority being injury and cancers.
- In 2015, responding to this epidemiological transition, the World Health Organization (WHO) declared surgery to be a part of public health at the World Health Assembly, a meeting of all health ministers.
- Previously, surgical and anaesthesia care were perceived as too expensive and too complex to be a public health priority in resource-poor settings.



$p(\text{access}) = p(T \cap C \cap S \cap A)$
Probability of access is the *joint probability* of timely care, surgical capacity, safe surgery and affordability

Figure 16.1 Access to surgery: the four dimensions.

TABLE 16.1 Core indicators to monitor the realisation of universal access to safe, affordable surgical and anaesthesia care.

Preparedness	a	Access to timely essential surgery (proportion of population within 2 hours of a facility that can perform the bellwether procedures)
	b	Density of surgeons, anaesthetists and obstetricians working per 100 000 population
Surgical service delivery	a	Procedures done in an operating theatre, per 100 000 population per year
	b	All-cause death rate before discharge of patients who have undergone a procedure in an operating theatre, divided by the total number of procedures
Affordability of surgery		Proportion of households protected against impoverishment and catastrophic expenditure from direct out-of-pocket payments for surgical care

Core packages for strengthening emergency and essential surgical care and anaesthesia

- ● *Emergency procedures packages* include:
- ● Basic trauma package (e.g. fracture treatment, trauma laparotomy, debridement)
- ● Basic obstetric package (e.g. caesarean section)
- ● Basic emergency general surgical package (e.g. laparotomy, incision and drainage)
- ● *Planned care packages* can include:
- ● General surgical package (e.g. hernia repair, bowel resection)
- ● Obstetric and gynaecological package (e.g. hysterectomy)
- ● Specialist surgical package (e.g. cataract, clubfoot correction)
- ● Palliative surgical package (e.g. diversion colostomy, analgesics)

Key messages from the Lancet Commission on Global Surgery

- ● 5 billion out of the 7 billion people on the planet cannot access the surgeons who read this book for safe and affordable surgery
- ● 143 million more surgical procedures are needed each year in the world
- ● 33 million people each year will be impoverished because of paying for the surgery and anaesthesia that they need
- ● Investing in surgery is affordable, saves lives and promotes economic growth
- ● Surgery is an indivisible, indispensable part of health care. Surgical and anaesthesia care should be an integral component of a national health system in countries at all levels of development

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