



SAFE SURGERY

WHO GUIDELINES FOR SAFE SURGERY

By

Egyptian Group for Surgical Science and Research

Nabil Dowidar, EGSSR Moderator

Ahmed Hazem, EGSSR Secretary General

Said Rateb

Mohamed Farid

Ahmed Hussein

Correspondence to: Nabil Dowidar, Email: nabil_dowidar@hotmail.com

In response to the worldwide interest in surgical safety the Egyptian Journal of Surgery is dedicating a specific section for surgical safety. In the forthcoming issues of the journal the WHO guidelines for safe practices in surgical theatres will be presented with audit criteria (standards) through which any member of the surgical team can assess the degree of compliance of the surgical team with the recommended safe practices inside their surgical theatre.

Standard 2:

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

Degree of Recommendation: Highly recommended

1. The first and most important component of peri-anaesthetic care is the continuous presence of a vigilant, professionally trained anaesthesia provider. If an emergency requires the brief temporary absence of the primary anaesthetist, judgement must be exercised in comparing the threat of an emergency to the risk of the anaesthetized patient's condition and in selecting the clinician left responsible for anaesthesia during the temporary absence.
2. Supplemental oxygen should be supplied for all patients undergoing general anaesthesia. Tissue oxygenation and perfusion should be monitored continuously using a pulse oximeter with a variable-pitch pulse tone loud enough to be heard throughout the operating room.
3. The adequacy of the airways and of ventilation should be monitored continuously by observation and auscultation. Whenever mechanical ventilation is employed, a disconnect alarm should be used.
4. Circulation should be monitored continuously by auscultation or palpation of the heart beat or by a display of the heart rate on a cardiac monitor or pulse oximeter.
5. Arterial blood pressure should be determined at least every 5 minutes and more frequently if indicated by clinical circumstances.

6. A means of measuring body temperature should be available and used at frequent intervals where clinically indicated (e.g. prolonged or complex anaesthesia, children).
7. The depth of anaesthesia (degree of unconsciousness) should be assessed regularly by clinical observation.

Degree of Recommendation: Recommended

8. Inspired oxygen concentration should be monitored throughout anaesthesia with an instrument fitted with a low-oxygen concentration alarm. In addition, a device to protect against the delivery of a hypoxic gas mixture and an oxygen supply failure alarm should be used.
9. Continuous measurement and display of the expired carbon dioxide waveform and concentration (capnography) should be used to confirm the correct placement of an endotracheal tube and also the adequacy of ventilation.
10. The concentrations of volatile agents should be measured continuously, as should inspiratory or expired gas volumes.
11. An electrocardiograph should be used to monitor heart rate and rhythm.
12. A cardiac defibrillator should be available.
13. Body temperature should be measured continuously in patients in whom a change is anticipated, intended or suspected. This can be done by continuous electronic temperature measurement, if available.
14. A peripheral nerve stimulator should be used to assess the state of paralysis when neuromuscular blocking drugs are given.

Audit criteria (Developed by Alexandria Patient Safety Alliance-APSA)

1. Number of qualified anesthetists available in relation to number of functioning operating rooms.
2. Availability of central and local oxygen supply
3. Availability of pulse oximetry instruments per operating room.
4. Anaesthetic machines with the following capabilities:
 - a. Airway pressure
 - b. Tidal volume
 - c. Minute volume
 - d. Inspired oxygen concentration analysis (fractioned inspired oxygen concentration alarm)
 - e. Analysis of expired CO₂ (capnography)
 - f. Volatile agent (multi-gas) analyser
5. Availability of a hemodynamic monitor for each operating room.
6. Documentation of arterial blood pressure in anaesthetic sheet and the use of lower and upper blood pressure alarms values with monitors.
7. Availability of skin or oesophageal temperature probes.
8. Availability of body warmers.

9. Availability of computerized electroencephalography.
10. Availability of cardiac defibrillator per operating room or surgical suite.
11. Availability of nerve stimulator.

Complete WHO Guideline for Safe Surgery document can be downloaded from the Alexandria Patient Safety Alliance website: www.mri.edu.eg.

Acknowledgment: We would like to thank Professor Khaled Yassen, MD, FFARCST for his contribution in developing the audit criteria related to this standard.