

UNDER GRADUATE ANESTHESIA COURSE (ORIENTATION AND OUTLINE)

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course aim

- ▶ To graduate medical students having the basic knowledge & clinical skills to deal with the peri-anaesthetic measures for simple surgical procedures.

Welcome

- ▶ Welcome to this **two week** introduction to Clinical Anesthesiology.
- ▶ You will learn the use **technical and analytical skills** to look after patients in many situations.

Goals and LEARNING objectives

⦿ Academic and Clinical skills:

- ❖ Preoperative evaluation and clinical skills
- ❖ Patient safety
- ❖ Airway and ventilation
- ❖ Fluid and volume resuscitation , blood transfusion
- ❖ Pharmacology of anesthetic drugs
- ❖ Principles of general anesthesia
- ❖ Principles of regional anesthesia
- ❖ Pain management
- ❖ Monitoring in anesthesia
- ❖ Anesthesia emergencies (intraoperative , Post operative period)

Specific Objectives:

- ▶ Know the role of anesthetist in preoperative assessment and the implications of pre-existing disease for the patient who is to undergo anaesthesia.
- ▶ Describe the basic airway and circulatory management in patients under anaesthesia including resuscitative measures as well as post-operative care.
- ▶ Recognize the clinical application of physiology and pharmacology in anaesthesia.
- ▶ Manipulate some anaesthesia-related problems and their management.
- ▶ Acquire some clinical skills in patient assessments and to demonstrate competence in the performance of basic technical procedures related to anesthesia practice

Preoperative evaluation and Clinical skills

- Students should be able to:
 - ❖ Obtain a relevant medical, surgical and **anesthetic history** and examination on the patient. (Airway assessment, and factors predisposing to difficult intubation)
 - ❖ Provide a summary and **formulate a relevant problem list**.
 - ❖ Understanding of the **indications for** both routine and special **pre-operative investigations**.
 - ❖ Understand the **basics of an anesthetic plan** and how it relates to the clinical work-up, **ASA classification of pre-operative physical status**.



Clinical Objectives for Medical Students in (045) Anesthesia

At the end of the course the student will be able to understand

► Pre-anesthesia assessment and evaluation

1. *History from patient*
2. *Open iSHi System to get information and investigation.*
3. *Interpretation of preoperative data relevant to anaesthetic plan.*
4. *Consultations*

► Orientation with anesthesia equipment in O.R

1. Anesthesia machine
2. Anesthesia circuits
3. Laryngoscopes - tubes - LMA - Airways
4. Epidural set and Spinal set
5. Monitors- Anesthesia Record
6. Anesthetics Drugs- I.V. Inhalational and Muscle Relaxants
7. Resuscitation Drugs During Anesthesia
8. fluids (Crystalloids & Colloids Fluids)



Airway and ventilation

- Know the anatomy of the airway and basic airway assessment.
- Be familiar with the various techniques of airway management and equipment involved in routine and difficult intubation.
- Review basic respiratory physiology in the context of anesthesia.
- Be familiar with the principles of manual and mechanical ventilation.



Fluid and electrolyte balance

- ◉ Know the main principles of:
 - ❖ Fluid replacement and volume resuscitation (crystalloid, colloid, blood transfusion)
 - ❖ Electrolyte and acid-base balance



Pharmacology of anesthetic drugs

► **AQUIRE** a basic knowledge of **COMMONLY USED DRUGS IN ANESTHESIA**

- ❖ Intravenous agents (sedative/hypnotics, narcotics, muscle relaxants)
- ❖ Volatile agents.
- ❖ Local anesthetics



Principles of general Anesthesia

- Understand the principles of general anesthesia and the delivery of volatile anesthetics.
- Have a basic understanding of the structure, function and safety features of the anesthesia machine.



Regional anesthesia and Pain management

- ◉ Be familiar with the **concept of local and regional anesthesia and commonly used local anesthetic agents.**
- ◉ Be familiar with perioperative **pain management** techniques and drugs.
- ◉ Ultra-sound guided peripheral nerve block
- ◉ Local anesthesia toxicity



Monitoring In anesthesia

Be familiar with the **BASIC international monitoring standards** and be able to interpret basic information gained from the monitoring of:

- ▶ Blood pressure
 - ❖ Pulse oximetry
 - ❖ ECG
 - ❖ Capnography
 - ❖ Ventilation (parameters, spirometry)
 - ❖ Temperature
 - ❖ Invasive pressure monitoring (CVP, arterial line, pulmonary artery catheter)
 - ❖ Neuromuscular functioning monitoring
 - ❖ Bispectral index
 - ❖ Non invasive advance monitoring cerebral oximetry , pressure variation index , non invasive hemoglobin monitoring



Intra and post operative management

- ▶ Learn basic management of common intra-operative problems such as:
 - ❖ Hypoxia, hypercarbia,
 - ❖ Hyper/hypotension, cardiac arrhythmias,
 - ❖ High and low airway pressure alarm.
- ▶ Understanding of the requirements for safe emergence from general anesthesia and common problems and complications in the PACU
 - ❖ Pain
 - ❖ Post -op nausea and vomiting, pain etc

Hypoxemia

$\text{PaO}_2 < 80$ mmHg (room air)

$\text{PaO}_2 = 100 - (\text{age}/4)$

แบ่งตามระดับความรุนแรง

- ▶ Mild hypoxemia: PaO_2 65-79 mmHg
- ▶ Mod hypoxemia: PaO_2 50-64 mmHg
- ▶ Severe hypoxemia: $\text{PaO}_2 < 50$ mmHg

Vascular access

- ▶ Indication
- ▶ Types and size of intravenous Cather
- ▶ Intravenous compartments
- ▶ Steps for IV Cather insertion complications and complication related
- ▶ Central venous access , technique anatomical and Ultra sound giuded centra- line insertion
- ▶ Indication , contraindications
- ▶ Complication related
- ▶ Arterial line catheterization indication , contraindication complication



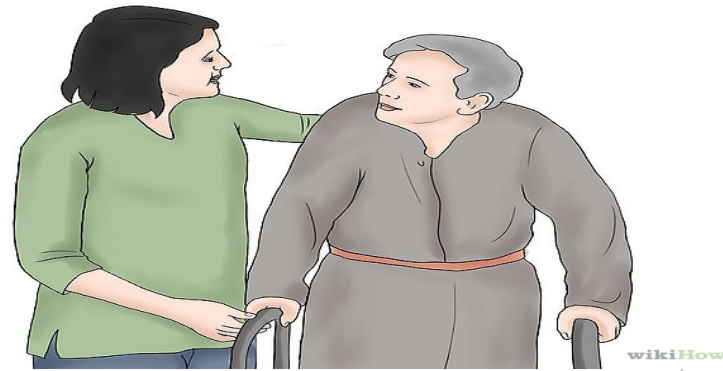
The anesthetic plan



Code of conduct

1. *Professionalism and Respectful Workplace*

1. All students are expected to demonstrate **respect for the patients and staff** encountered during the rotation.
2. We also expect all **students to be treated with respect** during their rotation.
3. Health has clear policies regarding:
 1. Maintenance of patient confidentiality.
 2. Mutual respect in the workplace.



The anesthetic plan

Type of anesthesia

▶ **General**

Induction

Airway management

Maintenance and analgesia

Muscle relaxation

▶ **Sedation**

Supplemental oxygen

Agents

▶ **Local or regional anesthesia**

Technique

Agents

The anesthetic plan

▶ **Intraoperative management**

Monitoring

Positioning

Fluid management

Special techniques

▶ **Postoperative**

Oxygen therapy

Pain control

Complication management

Intensive care

Postoperative ventilation

Hemodynamic monitoring



Stages of the Peri-Operative Period

Pre-Operative

- ▶ From time of decision to have surgery until admitted into the OR theatre.



Stages of the Peri-Operative Period

Intra-Operative

- ▶ Time from entering the OR theatre to entering the Recovering Room or Post Anesthetic Care Unit (PACU)



Stages of the Peri-Operative Period

Post-Operative

- ▶ Time from leaving the PACU until time of follow-up evaluation (often as out-patient)



Code of conduct

Professionalism

- ❖ **Attendance and punctuality are mandatory.**
- ❖ Students are expected to be aware of the limitations of their role in the operating room and to be diligent in the OR environment.

Code of conduct

Dress code

- ❖ When in the OR, students must respect the rules of the sterile environment and **wear greens, mask, gloves and booties**.
- ❖ If you have not previously been in the OR, please notify us so we can make you aware of appropriate protocol.
- ❖ You are expected to bring your stethoscope to the OR. Other medical instruments are not mandatory.

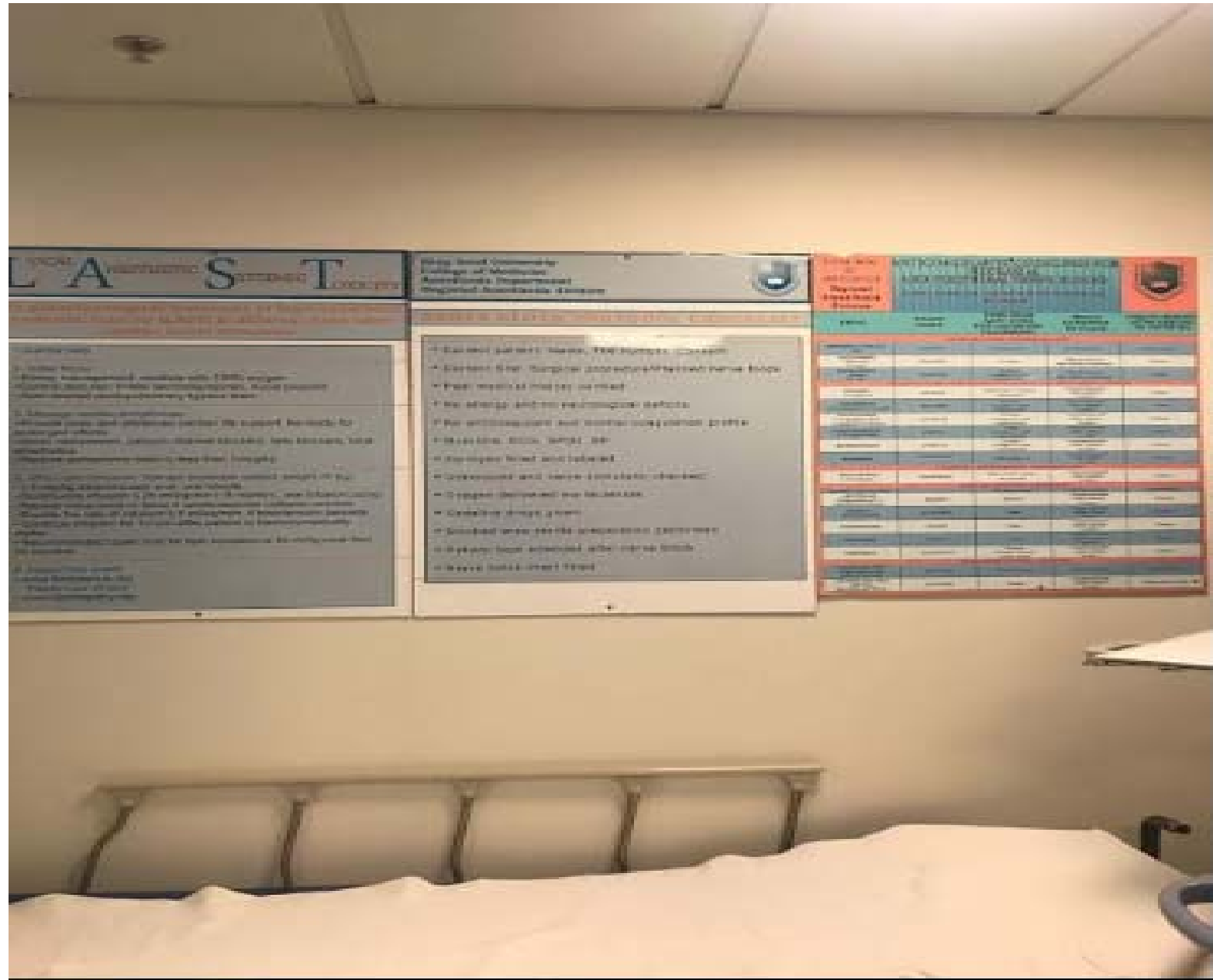












LEARNING RESOURCES Anesthesia course

- ⦿ Exposure to anesthesia learning in the following areas:
 - ❖ Adult OR
 - ❖ Pediatric OR
 - ❖ Teaching at the bedside in the OR:
 - ❖ Clinical teaching modules to cover basic anesthesia knowledge.
 - ❖ Enabling objectives for technical skills.
 - ❖ Case based clinical teaching
 - ❖ Independent learning:
 - ❖ Reference material- texts and web-based
 - ❖ Simulator based learning:
 - ❖ Low and high fidelity simulation to facilitate technical skills, crisis resource management, and critical anesthesia events.

Key Success Factors

- ▶ Attendance
- ▶ Realistic Expectations
- ▶ Maintains communication with the faculty member
- ▶ Good organizational skills
- ▶ Expect to work beyond the classroom
- ▶ Stay on track/understand commitment required
- ▶ Ask questions

Books recommended

Anaesthesia at a Glance

Julian Stone

Consultant Anaesthetist

Great Western Hospital NHS Foundation Trust

Swindon, UK;

Senior Clinical Lecturer University of Bristol, Bristol
UK

William Fawcett

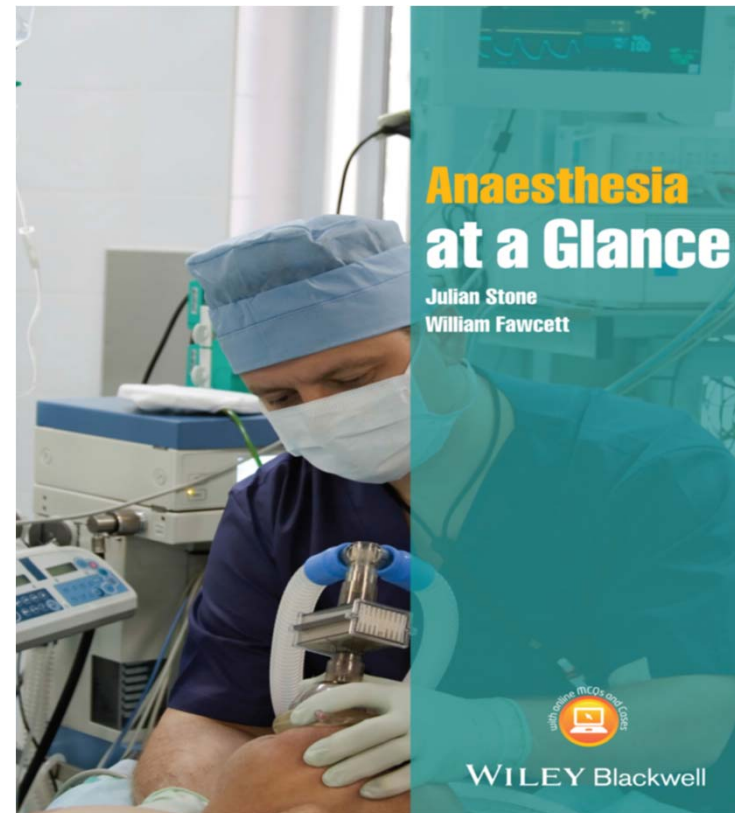
Consultant Anaesthetist

Royal Surrey County Hospital NHS Foundation Trust;

Senior Fellow

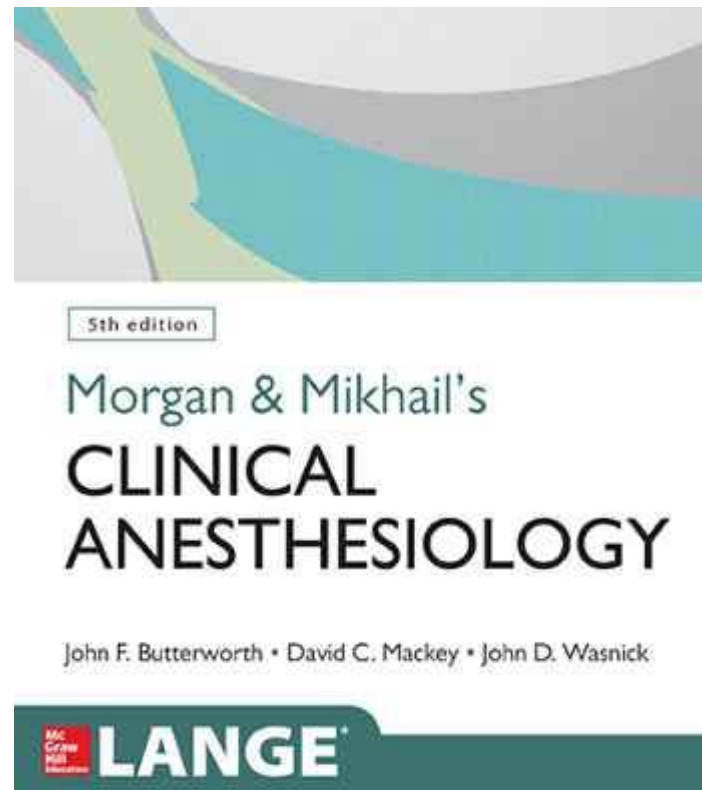
Postgraduate Medical School, University of Surrey

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Books recommended as a Text

- ▶ Morgan and Mekhails clinical anesthesiology *5th Edition* .
John Butterworth,
G. Morgan,
John Wasnick,
Mikhail Maged,
David C. Mackey,
Hans-Joachim Priebe



End of the course **ASSESSMENT**

- ▶ **LOG BOOK SUBMISSION**
- ▶ **OSCE EXAMINATION**
- ▶ **WRITTEN EXAMINATION**

