

# UNDER GRADUATE ANESTHESIA COURSE (ORIENTATION AND OUTLINE)

**Dr. Jumana. M. Baaj**

Ass. professor , Anesthesia consultant

Dept. of Anesthesia

KKUH- KSU

Riyadh, Saudi Arabia

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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)

Week		Week 6 (19/12/2021 to 23/12/2021)			
Theme		Basic Anesthesia & Resuscitation			
Day	Time	8:00 – 10:00	10:00 – 11:00	11:00 – 4:00	
		LECTURES		PRACTICAL SESSIONS	
Sunday 19/12/2021		LONG WEEKEND			
		Lectures	O.R+PACU	Anesthesia clinic + pain rotation	Skill lab
Monday 20/12/2021	Course outline Dr.jumana	Role of anesthetist in preoperative evaluation + case discussion Dr . Jumana	Floor manager +Dr Imad Group C	Consultant in pain service Group D	Group A + B  Airway + Oxygen therapy Dr. Jumana Central line + Peripheral Dr. Waleed- Dr. Dalal
Tuesday 21/12/2021	Airway management and equipment Dr . A.Al Fadhel	General Anesthesia technique Dr . Altaf	Floor manager +Dr Imad  Group E	Consultant in pain service Group F	Group C+D  Airway + Oxygen therapy Dr . A.Al Fadhel Central line + Peripheral Dr. Waleed - Dr.Dalal
	case discussion Dr . A.Al Fadhel	case discussion Dr . Altaf			
Wednesday 22/12/2021	Vascular access Dr Mueen	Case discussions Dr Mueen	Floor manager +Dr Imad  Group G	Consultant in pain service Group H	Group E+F  Airway + Oxygen therapy Dr Mueen Central line + Peripheral Dr. Waleed- Dr.Dalal
Thursday 23/12/2021	Regional Anesthesia techniques Dr. Ahmed Thallaj	Case discussions Dr. Ahmed Thallaj	Floor manager +Dr Imad	Consultant in pain service Group B	Group G+H  Airway + Oxygen therapy Dr. Ahmed Thallaj Central line + Peripheral Dr. Waleed- Dr. Dalal
			Group A		

Week		Week 7 (26/12/2021 to 30/12/2021)						
Theme		Basic Anesthesia & Resuscitation						
Day	Time	8:00 – 10:00	10:00 – 11:00	11:00 – 4:00				
		LECTURES		PRACTICAL SESSIONS				
Sunday 26/12/2021		Monitoring during anaesthesia Dr.Imad	Case discussions Dr.Imad	OR +PACU	PAIN ROTATION + Anesthesia CLINIC	SKILL LAB		
				Direct after Lecture			Group A+B	
				Floor manager +Dr Altaf  Group F	Consultant in pain service Group E	Regional Dr.Imad	SIM MAN + Anesthesia assessment Dr. Jumana- Dr. Dalal	
Monday 27/12/2021		Intravenous resuscitation and blood transfusion Dr Manaa	Case discussions Dr Manaa	Floor manager Group D +Dr Altaf	Consultant in pain service Group C	Group C+D		
						Regional Dr Manaa	SIM MAN + Anesthesia assessment Dr. Jumana- Dr. Dalal	
Tuesday 28/12/2021		A cute pain management Dr . Tallawy	Case discussions Dr . Tallawy	Floor manager Group H +Dr Altaf	Consultant in pain service Group G	GroupE+F		
						Regional Dr . Tallawy	SIM MAN + Anesthesia assessment Dr. Jumana- Dr. Dalal	
Wednesday 29/12/2021		Pharmacology of anaesthesia Dr.Mansour	Case discussions Dr.Mansour	Floor manager Group A +Dr Altaf	Consultant in pain service Group B	Group G+H		
						Regional Dr.Mansour	SIM MAN + Anesthesia assessment Dr. Jumana- Dr.Dalal	
Thursday 30/12/2021		Intra & Postoperative complications Management Dr. Bilal  Case discussions Dr. Bilal	Patient Safety Dr. Jumana	Self-directed learning				

Curriculum Development & Research Unit  
4<sup>th</sup> Year Basic Anesthesia and Resuscitation

Week		Week 8(2/1/2022 to 6/1/2022)					
Theme		Basic Anesthesia & Resuscitation					
Day	Time	8:00 – 10:00	10:00 – 11:00	11:00 – 4:00			
		LECTURES		PRACTICAL SESSIONS			
Sunday 2/01/2022	Course outline Dr. Jumana	Role of an anaesthetist in the preoperative Dr. Jumana	O R +PACU	PAIN ROTATION + Anesthesia CLINIC	SKILL LAB		
			<b>Direct after Lecture</b>				
		Case discussions Dr.Jumana	Floor manager Group E +Dr Jumana	Consultant in pain service Group F	Airway + Oxygen therapy Dr. Jumana	Group A +B Central line + Peripheral Dr. Waleed - Dr.Dalal	
Monday 3/01/2022	Airway management and equipment Dr . A.Al Fadhel	Case discussions Dr . Al Fadheel	Floor manager Group G +Dr Jumana	Consultant in pain service Group H	Airway + Oxygen therapy Dr . A.Al Fadhel	Group C+D Central line + Peripheral Dr. Waleed- Dr.Dalal	
Tuesday 4/01/2022	General Anesthesia technique Dr . Altaf	Case discussions Dr . Altaf	Floor manager Group I +Dr Jumana	Consultant in pain service Group J	Airway + Oxygen therapy Dr. Mueen	Group E+F Central line + Peripheral Dr. Waleed - Dr.Dalal	
Wednesday 5/01/2022	Vascular access Dr Mueen	Case discussions Dr Mueen	Floor manager Group A +Dr Jumana	Consultant in pain service Group B	Airway + Oxygen therapy Dr. Imad	Group G+H Central line + Peripheral Dr. Waleed- Dr.Dalal	
Thursday 6/01/2022	Regional Anesthesia techniques Dr. Ahmed Thallaj	Case discussions Dr. Ahmed Thallaj	Floor manager Group C +Dr Jumana	Consultant in pain service Group D	Airway + Oxygen therapy Dr. Mansour	Group I+J Central line + Peripheral Dr. Waleed- Dr.Dalal	



Week		Week 10 (17/10/2021 to 21/10/2021)				
Theme		Basic Anesthesia & Resuscitation				
Day	Time	8:00 – 10:00	10:00 – 11:00	11:00 – 4:00		
		Lectures		PRACTICAL SESSIONS ( Direct after lecture )		
Sunday 16/01/2022	Monitoring during anaesthesia Dr.Imad	Case discussions Dr.Imad	O.R + PACU	Anesthesia Clinic + pain Rotation	SKILL LAB	
			Floor manager +Dr Mueen Group H		Consultant in pain service Group G	Group A+B
Monday 17/01/2022	Intravenous resuscitation and blood transfusion Dr Manaa	Case discussions Dr Manaa	Floor manager +Dr Mueen Group J	Consultant in pain service Group I	Regional Dr.Imad	SIM MAN + Anesthesia assessment Dr. Jumana- Dr.Dalal
					Group C+D	
Tuesday 18/01/2022	A cute pain management Dr . Tallawy	Case discussions Dr . Tallawy	Floor manager +Dr Mueen Group B	Consultant in pain service Group A	Regional Dr . Tallawy	SIM MAN + Anesthesia assessment Dr. Jumana- Dr.Dalal
					Group E+F	
Wednesday 19/01/2022	Pharmacology of anaesthesia Dr.Mansour	Case discussions Dr.Mansour	Floor manager +Dr Mueen Group D	Consultant in pain service Group C	Regional Dr.Mansour	SIM MAN + Anesthesia assessment Dr. Jumana- Dr.Dalal
					Group G+H	
Thursday 20/01/2022	Intra & Postoperative complications Management Dr. Bilal Case discussions Dr. Bilal	Patient Safety Dr. Jumana	Floor manager +Dr Mueen Group F	Consultant in pain service Group E	Regional Dr. Bilal	SIM MAN + Anesthesia assessment Dr. Jumana- Dr.Dalal
					Group I+J	

# 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

- ① Understand the principles of general anesthesia and the delivery of volatile anesthetics.
- ① 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

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

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

แบ่งตามระดับความรุนแรง

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

# 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***

# *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**

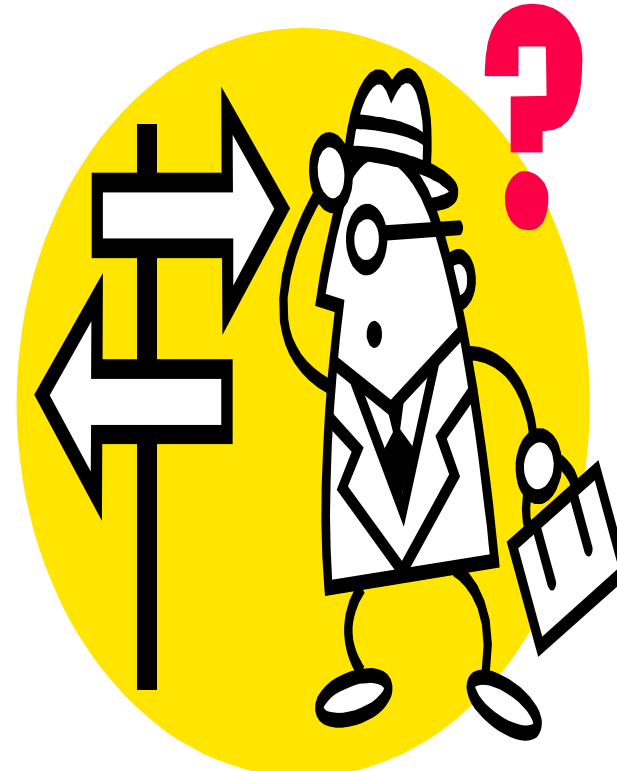
Postoperative ventilation

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

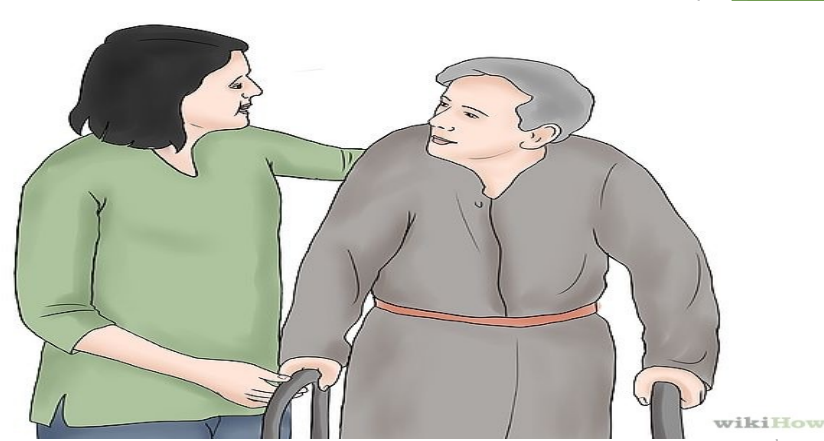
## *Professionalism*

- ❖ **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

## 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.



# 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.



**College of Medicine**  
**Department of Medical Education**  
**Curriculum Development & Research Unit**  
**4<sup>th</sup> Year Basic Anaesthesia and Resuscitation (MEDI-045)**

Theme		FEMALE GroupB1 (1ST cycle) Basic Anaesthesia 045		
Da	Time	8:00 – 9:30	9:30 -10:00	SKIL STATION ( 12:30 – 14:30 )
Sunday 17/1/2021	Course outline Dr. Jumana Pag 0320	Role of anaesthetist in the preoperative Case -discussions (Preoperative Evaluation) Dr. Jumana	GROUP A1	GROUP A2
			AIRWAY + OXYGEN THRRAPY Dr. Jumana	PREPHERAL I.V + CENTRAL Dr. Waleed
Monday 18/1/2021	Airway management and equipment Dr.Adel Elshemi	Case - discussions Dr.Adel Elshemi	GROUP B1	GROUP B2
			AIRWAY + OXYGEN THRRAPY Dr.Adel Elshemi	PREPHERAL I.V + CENTRAL Dr. Waleed
Tuesday 19/1/2021	Vascular access Dr Mueen	Case - discussions Dr Mueen	GROUP C1	GROUP C2
			AIRWAY + OXYGEN THRRAPY Dr Mueen	PREPHERAL I.V + CENTRAL Dr. Waleed
Wednesday 20/1/2021	Pharmacology of anaesthesia Dr.Mansour	Case – discussions Dr MANSOOR	GROUP D1	GROUP D2
			AIRWAY + OXYGEN THRRAPY Dr MANSOOR	PREPHERAL I.V + CENTRAL Dr. Waleed
Thursday 21/1/2021	GENERAL ANESTHESIA Dr.Altaf	Case – discussions Dr.Altaf	GROUP E1	GROUP E2
			AIRWAY + OXYGEN THRRAPY Dr.Altaf	PREPHERAL I.V + CENTRAL Dr. Waleed



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Day	Time	8:00 – 9:30	9:30– 10:00	SKIL STATION	
Sunday 24/1/2021		Regional anaesthesia techniques Dr. Ahmad Thallaj	Case - discussions Ahmad Thallaj	GROUP A1	GROUP A2
				Dr. Ahmad Thallaj Regional	DR.Jnmana SIM MAN
Monday 25/1/2021		Intra & Postoperative complications Management Dr Bilal	Case - discussions Dr Bilal	GROUP B1	GROUP B2
				Dr Bilal Regional	DR.Jnmana SIM MAN
Tuesday 26/1/2021		Intravenous fluid resuscitation and blood transfusion Dr Manaa	Case - discussions Dr Manaa	GROUP C1	GROUP C2
				Dr Manaa Regional	DR.Jnmana SIM MAN
Wednesday 27/1/2021		Monitoring during anaesthesia Dr.Imad	Case discussions Dr.Imad	GROUP D1	GROUP D2
				Dr.Imad  Regional	DR.Jnmana SIM MAN
Thursday 28/1/2021	8:00 – 9:30	9:30– 10:00	10:00– 11:00	GROUP E1	GROUP E2
	Acute pain management Dr.Tallawy	Case - discussions Dr.Tallawy	Patient Safety Dr.Jumana	Dr.Tallawy Regional	DR.Jnmana SIM MAN

# 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

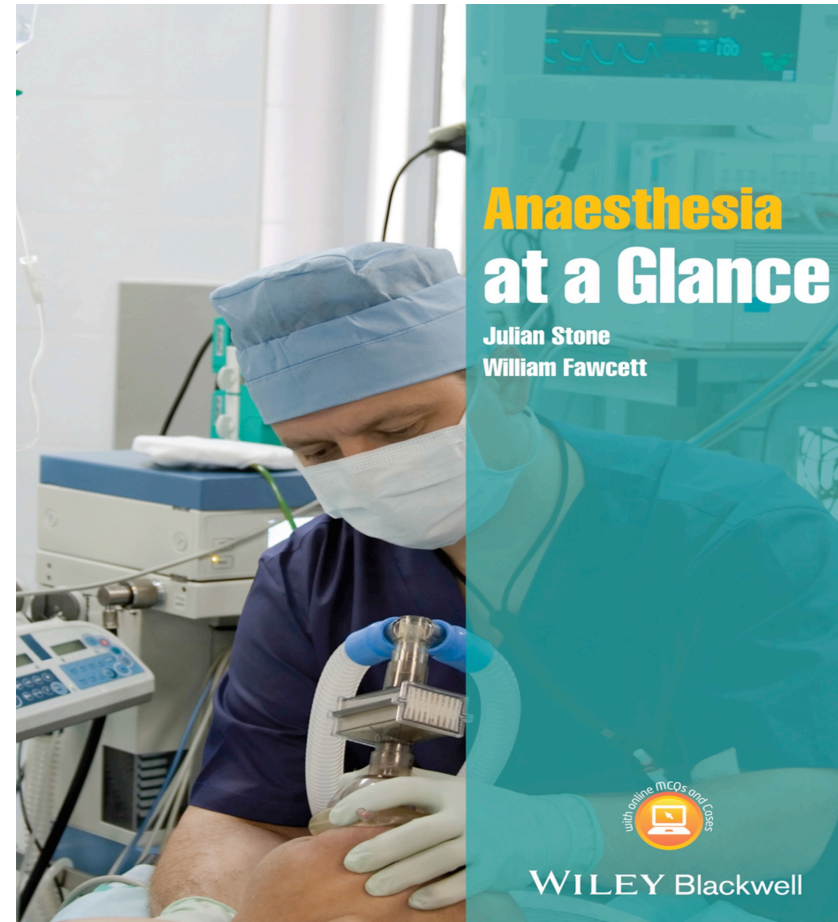
Consultant Anaesthetist

Royal Surrey County Hospital NHS Foundation Trust;

Senior Fellow

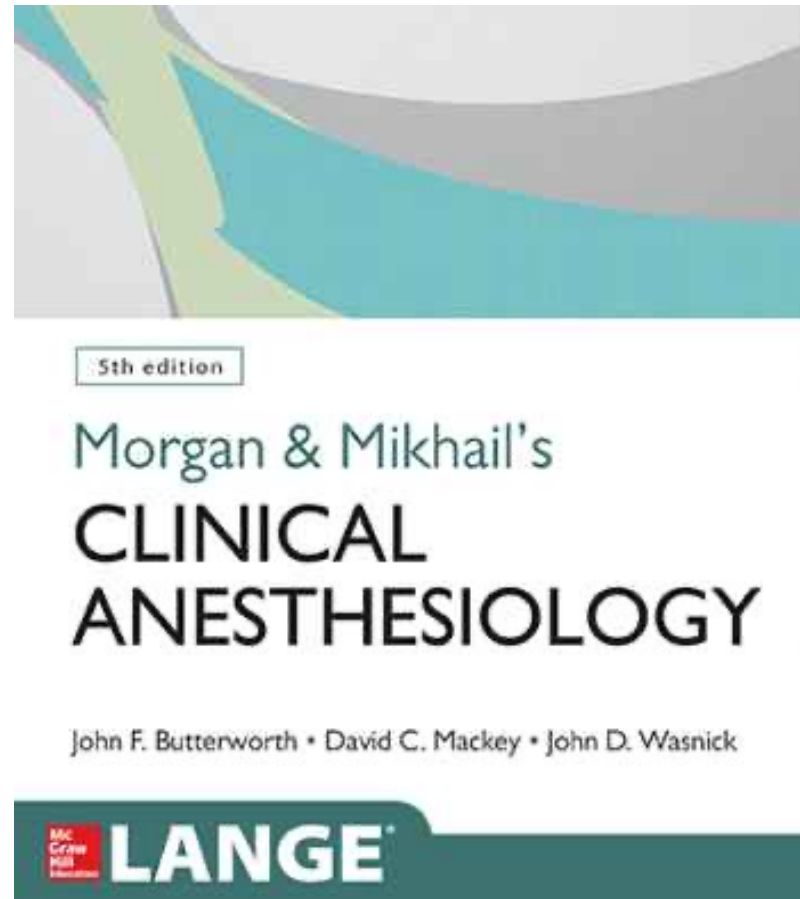
Postgraduate Medical School, University of Surrey

Guildford, UK



# 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**

