



**DEPARTMENT OF ANESTHESIOLOGY**  
**College of Medicine and Philippine General Hospital**  
**University of the Philippines Manila**



**ANESTHESIOLOGY 251**  
**Integrated Clinical Clerkship in Anesthesiology II**  
**(Academic Year 2021 – 2022)**

**Course Description**

Basic competencies in anesthesia and analgesia with supervised participation in the administration of general and regional anesthesia, sedation, and airway management

The College of Medicine of the University of the Philippines is one of the few medical schools in the country wherein the specialty of Anesthesiology is taught extensively. A required clinical rotation in Anesthesiology during clerkship in the medical curriculum ensures that all students are exposed to fundamental clinical material. The course provides didactics and activity-oriented clinical participation which focuses on principles of anesthesia and analgesia; basic skills in sedation, airway management, and regional block; and recognition of the different stages of anesthesia and its corresponding management.

**Learning Objectives**

At the end of the course, the student should be able to:

1. Integrate clinical data to determine peri-operative requirements for anesthesia given a simulated patient for surgery.
  - a. Conduct a comprehensive pre-anesthesia evaluation.
  - b. Perform a thorough assessment of the airway.
  - c. Stratify properly the risks of the patient according to the American Society of Anesthesiologists (ASA) Physical Status classification.
  - d. Appraise effectively a patient's requirement for pre-anesthetic medications.
  - e. Determine the appropriate type of anesthesia for the patient and the type of surgery.
  - f. Outline the appropriate drugs in the anesthetic induction, maintenance, and emergence.
  - g. Outline the fluid management of the patient in the peri-operative period.
  - h. Interpret intra-operative monitors accurately.
  - i. Assist in the management and intervention of common complications of general and regional anesthesia during intra-operative management.
  - j. Outline an evidence-based postoperative pain management plan.
2. Perform anesthesia workstation check to ensure preparedness to administer anesthesia.
3. Demonstrate management of the airway of patients for general anesthesia.
4. Demonstrate lumbar puncture for patients to undergo regional anesthesia – subarachnoid blocks.
5. Communicate effectively with the various members of the anesthesia management, operative team, patients, and their relatives.

**Course Outline**

- I. Clinical Practice of Anesthesia
  - A. Preoperative Evaluation and Management
  - B. Airway Management
  - C. Fluids and Electrolytes
  - D. General Anesthesia
  - E. Regional Anesthesia
- II. Scientific and Technical Foundations of Anesthesia
  - A. The Anesthesia Workstation
  - B. Standard Anesthesia Monitoring Techniques and Instruments
  - C. Inhalational Anesthetic Agents
  - D. Intravenous Anesthetics and Sedatives
  - E. Analgesics
  - F. Neuromuscular Blocking Agents
  - G. Local Anesthetics

## Mode of Delivery

Anesthesiology 251 is a two-week rotation in the Department of Anesthesiology for Learning Unit (LU) 6 students. It is divided into two parts, one week in the first semester and another week in the second semester. Didactics and self-directed learning on the basic principles and clinical practice of anesthesia shall be conducted in the first semester. This will be delivered through the course site Anesth 251 Integrated Clinical Clerkship in Anesthesiology AY 2020-2021 on the university's learning management system vle.upm.edu.ph. During the second semester, the clinical clerks shall be exposed to the clinical practice of anesthesia in a hands-on manner through clinical simulation and actual patient care albeit on a limited scale and under strict supervision.

A faculty member will be available daily for consultation on the topics for the day at designated times in the afternoon through a virtual meeting via Zoom. However, the students may also use module-specific forums on the course site should they have questions on the course materials. Course coordinators and assigned faculty members will be responding to discussion topics posted.

## Course Materials

### I. Clinical Practice of Anesthesia

#### A. Preoperative Evaluation and Management

##### 1. Study guide

- Target learning outcomes:
  - Define preoperative evaluation.
  - Describe the components of preoperative evaluation.
  - Stratify the risks of patients before anesthesia
  - Determine if a patient requires preoperative laboratory testing.
  - Discuss the preparation of a patient for anesthesia.
  - Appraise effectively a patient's requirement for preoperative medication.
- Read: Holt NF. (2015). Preoperative Evaluation and Management. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Video lecture on Preoperative Evaluation
- Dig deeper: ASA Inc. (2012). Practice Advisory for preanesthesia evaluation: An updated report by the American Society of Anesthesiologists Task Force on Preanesthesia Evaluation. Retrieved from <http://www.asahq.org/quality-and-practice-management/standards-and-guidelines>.

##### 2. Activity guide

- Exercise on ASA-PS classification: Based on what the clinical clerk has learned on ASA-PS classification system, different clinical scenarios will be provided to assess how well they are able to apply these concepts on theoretical patients.
- Consultant's Hour: An assigned consultant will be available between 3:00-4:00 pm through a virtual meeting via Zoom to provide additional information and clinical integration, as well as to clarify issues with the clinical clerks.
- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

##### 3. Assignment guide

- Task: Fill out the UP-PGH Anesthesiology Cardiopulmonary Risk Assessment and Pre-Anesthesia Evaluation form as completely and correctly as possible given a simulated patient for surgery.
- Procedure: Download the UP-PGH Anesthesiology Cardiopulmonary Risk Assessment and Pre-Anesthesia Evaluation form. Identify an individual, whether a family member, a classmate, or a friend who will serve as your mock patient for preanesthesia evaluation. Try to come up with a hypothetical pre-operative diagnosis and proposed surgical plan for your patient. Perform a preanesthesia evaluation and fill out the form as completely and correctly as possible. Submit your accomplished form on the provided portal.
- Evaluation Criteria:

Criterion	5	3	1
Clinical database	History, physical examination, and available laboratory tests are accurate and included.	History, physical examination, and available laboratory tests are accurate but has	History, physical examination, and available laboratory results are inaccurate and lacking.

		some missed components.	
<b>Risk stratification</b>	ASA-PS, cardiac, and pulmonary risk stratifications are correct.	ASA-PS, cardiac, and pulmonary risk stratifications are partially correct.	ASA-PS, cardiac, and pulmonary risk stratifications are incorrect.
<b>Informed consent</b>	Both the patient's signature and name appear on the form.	Either the patient's signature or name appears on the form.	Neither the patient's signature nor name appears on the form.

- Due date: Week 2, Day 7

## B. Airway Management

### 1. Study guide

- Target learning outcomes:
  - Apply airway anatomy in the clinical setting.
  - Perform a thorough assessment of the airway.
  - Discuss various techniques in the clinical management of the airway.
  - Recognize difficult airway and possible interventions.
- Read: Abrons RO and WH Rosenblatt. (2015). Airway Management. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch:
  - Video lecture on Airway Management
  - Airway Evaluation
  - Steps in Intubation using Direct Laryngoscopy
- Dig deeper: ASA Inc. (2013). Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. Retrieved from <http://www.asahq.org/quality-and-practice-management/standards-and-guidelines>.

### 2. Activity guide

- Exercise on Mallampati classification: Based on what the clinical clerk has learned on airway evaluation, different photos of airways will be provided to assess how well they can correctly classify patients' airways using the Mallampati system.
- Consultant's Hour: An assigned consultant will be available between 4:00-5:00 pm through a virtual meeting via Zoom to provide additional information and clinical integration, as well as to clarify issues with the clinical clerks.
- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

### 3. Assignment guide

- Task: Perform a thorough airway assessment given a simulated patient for surgery.
- Procedure: Record a video of you performing the airway evaluation on your selected patient in the preoperative evaluation module. Annotate what you are doing and describe your findings. Submit the video on the provided portal.
- Evaluation Criteria:

<b>Criterion</b>	<b>5</b>	<b>3</b>	<b>1</b>
Completeness	All relevant airway evaluation maneuvers were performed by the clinical clerk.	Most relevant airway evaluation maneuvers were performed by the clinical clerk.	Few relevant airway evaluation maneuvers were performed by the clinical clerk.
Accuracy	Airway evaluation maneuvers and findings were accurate and correct.	Some airway evaluation maneuvers and findings were accurate and correct.	Airway evaluation maneuvers and findings were inaccurate and incorrect.
Communication	The clinical clerk displayed excellent communication and courtesy with the patient at all times.	The clinical clerk displayed excellent communication and courtesy with the patient most of the time.	The clinical clerk did not display excellent communication and courtesy with the patient at all times.

- Due date: Week 2, Day 1

C. Fluids and Electrolytes

**1. Study guide**

- Target learning outcomes:
  - Summarize acid-base balance and its disturbances.
  - Interpret an arterial blood gas analysis systematically.
  - Discuss the physiology of fluid management.
  - Outline the fluid management of the patient in the perioperative period.
  - Enumerate the presentation of common electrolyte disturbances.
- Read: Fink Hankinson EE and AM Joffe. (2015). Fluids and Electrolytes. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Video lecture on Fluid and Electrolytes

**2. Activity guide**

- Consultant's Hour: An assigned consultant will be available between 4:00-5:00 pm through a virtual meeting via Zoom to provide additional information and clinical integration, as well as to clarify issues with the clinical clerks.
- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

**3. Assignment guide**

- Task: Fluids from Dr Shiela Espina-Bertosio
- Procedure: Answer the questions to the case provided. Submit your report on the provided portal.
- Due date: Week 2, Day 7

D. General Anesthesia

**1. Study guide**

- Target learning outcomes:
  - Define general anesthesia.
  - Describe the goals of general anesthesia.
  - Understand the pre-anesthetic preparation process.
  - Understand the intraoperative management during general anesthesia.
  - Enumerate immediate postoperative care goals.
- Read: Norris MC and R Saffary. (2015). General Anesthesia. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch:
  - Video lecture on General Anesthesia
  - Basic Setup for General Anesthesia
- Dig Deeper: Guedel's Signs and Stages of General Anesthesia. In Dripps RD, JE Eckenhoff, and LD Vandam. (1957). *Introduction to Anesthesia: The Principles of Safe Practice*. W B Saunders Company.

**2. Activity guide**

- Consultant's Hour: An assigned consultant will be available between 4:00-5:00 pm through a virtual meeting via Zoom to provide additional information and clinical integration, as well as to clarify issues with the clinical clerks.
- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.
- Actual patient care: In Week 2, the clinical clerk will be able to participate in the anesthetic management of patients for general anesthesia from the preoperative, intraoperative, and immediate postoperative period.

**3. Assignment guide**

- Task: Case discussion on General Anesthesia
- Procedure: Select one from your patients who underwent general anesthesia in Week 2. Discuss the case of your patient within a maximum of two pages, A4 paper size, single-spaced, Arial/Times New Roman 10, bearing in mind the criteria provided. Submit your report together with the preanesthesia evaluation and intraoperative record on the provided portal.
- Evaluation Criteria:

Criterion	5	3	1
Clinical Database	History and physical examination are	History and physical examination are mostly	History and physical examination are

	complete, accurate, relevant to the patient's problems, and well-organized. Laboratory findings are correctly interpreted and well-correlated with clinical findings.	complete, accurate, relevant to the patient's problems, and organized. Laboratory findings are somewhat correctly interpreted and correlated with clinical findings.	incomplete, inaccurate, irrelevant to the patient's problems, and poorly organized. Laboratory findings are incorrectly interpreted and poorly correlated with clinical findings.
Evaluation of Patient Problems	Surgical diagnoses and co-existing diseases impacting anesthetic management are fully recognized, understood, and considered.	Surgical diagnoses and co-existing diseases impacting anesthetic management are mostly recognized, understood, and considered.	Surgical diagnoses and co-existing diseases impacting anesthetic management are poorly recognized, understood, and considered.
ASA Physical Status Classification	Clinical risks are evaluated logically based on clinical findings.	Clinical risks are partially considered based on clinical findings.	Clinical risks are poorly considered based on clinical findings.
Preanesthetic Preparation	Preoperative instructions are organized and well-prioritized.	Preoperative instructions are mostly organized and prioritized.	Preoperative instructions are poorly organized and prioritized.
Patient Monitoring	Special concerns and monitoring needs of the patient are recognized and taken into account.	Most concerns and monitoring needs of the patient are recognized and taken into account.	Special concerns and monitoring needs of the patient are not recognized.
Induction of Anesthesia	Decision-making in the anesthetic technique, drug selection, airway management, and equipment preparation is correct, rational, and logical.	Decision-making in the anesthetic technique, drug selection, airway management, and equipment preparation is somewhat correct, rational, and logical.	Decision-making in the anesthetic technique, drug selection, airway management, and equipment preparation is incorrect, or irrational.
Intraoperative Period	Intraoperative management including surgical requirements, intravenous fluid therapy, and possible complications is sound and rational.	Intraoperative management including surgical requirements, intravenous fluid therapy, and possible complications is mostly sound and rational.	Intraoperative management including surgical requirements, intravenous fluid therapy, and possible complications is unsound and irrational.
Postoperative Period	Plans for postoperative care including a multimodal approach to pain management and patient disposition are organized and well-integrated.	Plans for postoperative care including a multimodal approach to pain management and patient disposition are somewhat organized and integrated.	Plans for postoperative care including a multimodal approach to pain management and patient disposition are poorly organized.
Written Report	Report is structured, systematic, interesting, and relevant, with proper citation of references and sources.	Report is structured with proper citation of most references and sources.	Report lacks structure relevance, and proper citation of references and sources.
Medical Record	Records are accurate, complete, and organized.	Records are mostly accurate, and complete.	Records are inaccurate, and incomplete.

- Due date: Sunday after Week 2

E. Regional Anesthesia

1. Study guide

- Target learning outcomes:
  - Discuss the anatomy of the spinal cord and epidural space.
  - Discuss the techniques used for neuraxial blocks.
  - Discuss the pharmacology of the commonly used local anesthetics.
  - Discuss the physiological consequences of neuraxial blockade.
  - Discuss the complications associated with neuraxial blockade.
- Read: Epidural and Spinal Anesthesia (2013). In Barash PG et al (Ed). Handbook of Clinical Anesthesia (7<sup>th</sup> ed). Philadelphia, PA: Wolters Kluwer Health/Lippincott Williams & Wilkins.
- Watch:
  - Video lecture on Regional Anesthesia
  - Steps in Performing Lumbar Tap for Spinal Anesthesia
- Dig Deeper: ASRA (2018). Regional Anesthesia in the Patient Receiving Antithrombotic or Thrombolytic Therapy: American Society of Regional Anesthesia and Pain Medicine Evidence Based Guidelines (4<sup>th</sup> ed.). Retrieved from <http://www.asra.com/advisory-guidelines>

2. Activity guide

- Consultant's Hour: An assigned consultant will be available between 4:00-5:00 pm through a virtual meeting via Zoom to provide additional information and clinical integration, as well as to clarify issues with the clinical clerks.
- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.
- Actual patient care: In Week 2, the clinical clerk will be able to participate in the anesthetic management of patients for regional anesthesia from the preoperative, intraoperative, and immediate postoperative period.

3. Assignment guide

- Task: Case discussion on Regional Anesthesia
- Procedure: Select one from your patients who underwent regional anesthesia in Week 2. Discuss the case of your patient within a maximum of two pages, A4 paper size, single-spaced, Arial/Times New Roman 10, bearing in mind the criteria provided. Submit your report together with the preanesthesia evaluation and intraoperative record on the provided portal.
- Evaluation Criteria:

Criterion	5	3	1
Clinical Database	History and physical examination are complete, accurate, relevant to the patient's problems, and well-organized. Laboratory findings are correctly interpreted and well-correlated with clinical findings.	History and physical examination are mostly complete, accurate, relevant to the patient's problems, and organized. Laboratory findings are somewhat correctly interpreted and correlated with clinical findings.	History and physical examination are incomplete, inaccurate, irrelevant to the patient's problems, and poorly organized. Laboratory findings are incorrectly interpreted and poorly correlated with clinical findings.
Evaluation of Patient Problems	Surgical diagnoses and co-existing diseases impacting anesthetic management are fully recognized, understood, and considered.	Surgical diagnoses and co-existing diseases impacting anesthetic management are mostly recognized, understood, and considered.	Surgical diagnoses and co-existing diseases impacting anesthetic management are poorly recognized, understood, and considered.
ASA Physical Status Classification	Clinical risks are evaluated logically based on clinical findings.	Clinical risks are partially considered based on clinical findings.	Clinical risks are poorly considered based on clinical findings.
Preanesthetic Preparation	Preoperative instructions are organized and well-prioritized.	Preoperative instructions are mostly organized and prioritized.	Preoperative instructions are poorly organized and prioritized.
Patient Monitoring	Special concerns and monitoring needs of the	Most concerns and monitoring needs of the	Special concerns and monitoring needs of the

	patient are recognized and taken into account.	patient are recognized and taken into account.	patient are not recognized.
Induction of Anesthesia	Decision-making in the anesthetic technique, drug selection, airway management, and equipment preparation is correct, rational, and logical.	Decision-making in the anesthetic technique, drug selection, airway management, and equipment preparation is somewhat correct, rational, and logical.	Decision-making in the anesthetic technique, drug selection, airway management, and equipment preparation is incorrect, or irrational.
Intraoperative Period	Intraoperative management including surgical requirements, intravenous fluid therapy, and possible complications is sound and rational.	Intraoperative management including surgical requirements, intravenous fluid therapy, and possible complications is mostly sound and rational.	Intraoperative management including surgical requirements, intravenous fluid therapy, and possible complications is unsound and irrational.
Postoperative Period	Plans for postoperative care including a multimodal approach to pain management and patient disposition are organized and well-integrated.	Plans for postoperative care including a multimodal approach to pain management and patient disposition are somewhat organized and integrated.	Plans for postoperative care including a multimodal approach to pain management and patient disposition are poorly organized.
Written Report	Report is structured, systematic, interesting, and relevant, with proper citation of references and sources.	Report is structured with proper citation of most references and sources.	Report lacks structure relevance, and proper citation of references and sources.
Medical Record	Records are accurate, complete, and organized.	Records are mostly accurate, and complete.	Records are inaccurate, and incomplete.

- Due date: Sunday after Week 2

## II. Scientific and Technical Foundations of Anesthesia

### A. The Anesthesia Workstation

#### 1. Study guide

- Target learning outcomes:
  - Describe the functional anatomy of the anesthesia workstation.
  - Discuss the delivery of gases in the anesthesia workstation.
  - Describe the anesthesia breathing systems and relevant considerations.
  - Define the scavenging system.
  - Perform an anesthesia workstation check to ensure preparedness to administer anesthesia.
- Read: Nathan N and TC Krejcie. (2015). The Anesthesia Workstation. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: The Anesthesia Workstation

#### 2. Activity guide

- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

#### 3. Assignment guide

- Task: Quiz on the different parts of the anesthesia workstation
- Procedure: The clinical clerk will be asked to identify different parts of the anesthesia workstation within two attempts.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

## B. Standard Anesthesia Monitoring Techniques and Instruments

### 1. Study guide

- Target learning outcomes:
  - Describe the functional anatomy of the anesthesia workstation.
  - Discuss the delivery of gases in the anesthesia workstation.
  - Describe the anesthesia breathing systems and relevant considerations.
  - Define the scavenging system.
  - Perform an anesthesia workstation check to ensure preparedness to administer anesthesia.
- Read: Fink RJ and JB Mark. (2015). Standard Anesthesia Monitoring Techniques and Instruments. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Video lecture on Monitoring
- Dig deeper: ASA Inc. (2015). Standards for Basic Anesthetic Monitoring. Retrieved from <http://www.asahq.org/quality-and-practice-management/standards-and-guidelines>.

### 2. Activity guide

- Consultant's Hour: An assigned consultant will be available between 4:00-5:00 pm through a virtual meeting via Zoom to provide additional information and clinical integration, as well as to clarify issues with the clinical clerks.
- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

### 3. Assignment guide

- Task: Quiz on different cardiac rhythms and capnography waveforms.
- Procedure: The clinical clerk will be asked to identify different rhythms on the cardiac monitor and different scenarios of capnography waveforms.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

## C. Inhalational Anesthetic Agents

### 1. Study guide

- Target learning outcomes:
  - Discuss the pharmacology of inhalational anesthetic agents.
  - Describe the effects of inhalational anesthetic agents on the different organ systems.
  - Select the appropriate volatile and nonvolatile anesthetics for clinical use.
- Read: Ramaiah R and SM Bhananker. (2015). Inhalational Anesthetic Agents. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Drugs in Anesthesia Part 1

### 2. Activity guide

- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

### 3. Assignment guide

- Task: Quiz
- Procedure: The clinical clerk will be asked to correctly answer items on inhalational anesthetic agents.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

## D. Intravenous Anesthetics and Sedatives

### 1. Study guide

- Target learning outcomes:
  - Discuss the pharmacology of intravenous anesthetics.
  - Describe the effects of intravenous anesthetic on the different organ systems.
  - Select the appropriate intravenous anesthetics and sedatives for clinical use.
- Read: Connor CW, B Sadighi and J Black. (2015). Intravenous Anesthetics and Sedatives. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Drugs in Anesthesia Part 1

### 2. Activity guide



- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

### 3. Assignment guide

- Task: Quiz
- Procedure: The clinical clerk will be asked to correctly answer items on intravenous anesthetics.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

## E. Analgesics

### 1. Study guide

- Target learning outcomes:
  - Discuss the pharmacology of nonopioid and opioid analgesics.
  - Describe the effects of opioid analgesics on the different organ systems.
  - Select the appropriate nonopioid and opioid analgesics for clinical use.
- Read: Thackeray EM and ED Egan. (2015). Analgesics. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Drugs in Anesthesia Part 2
- Dig Deeper: Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. (2015). Acute Pain Management: Scientific Evidence (4<sup>th</sup> ed.). Retrieved from <http://www.anzca.edu.au/resources/college-publications>

### 2. Activity guide

- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

### 3. Assignment guide

- Task: Quiz
- Procedure: The clinical clerk will be asked to correctly answer items on analgesics.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

## F. Neuromuscular Blocking Agents

### 1. Study guide

- Target learning outcomes:
  - Discuss the physiology and pharmacology of neuromuscular blocking agents.
  - Differentiate between non-depolarizing and depolarizing neuromuscular block agents.
  - Describe monitoring neuromuscular blockade.
  - Discuss reversal for neuromuscular blockade.
  - Select the appropriate neuromuscular blocking and reversal agents for clinical use.
- Read: Brull SJ and C Claudius. (2015). Neuromuscular Blocking Agents. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*. Philadelphia, PA: Wolters Kluwer Health.
- Watch: Drugs in Anesthesia Part 2

### 2. Activity guide

- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

### 3. Assignment guide

- Task: Quiz
- Procedure: The clinical clerk will be asked to correctly answer items on neuromuscular blocking agents.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

## G. Local Anesthetics

### 1. Study guide

- Target learning outcomes:
  - Discuss the pharmacology of local anesthetics.
  - Select the appropriate local anesthetics for clinical use.
- Read: Salinas FV. (2015). Local Anesthetics. In Barash PG et al (Ed). *Clinical Anesthesia Fundamentals*.

Philadelphia, PA: Wolters Kluwer Health.

**2. Activity guide**

- Forum: Participate in answering the study questions provided by the course coordinators in 100 words or less. Post your own questions on the topic and try answering queries of your classmates.

**3. Assignment guide**

- Task: Quiz
- Procedure: The clinical clerk will be asked to correctly answer items on local anesthetics.
- Evaluation Criteria: The average score after two attempts will be recorded.
- Due Date: Week 2, Day 7

**Study Schedule**

Week	Day	Topic	Learning Resource/s	Learning Task/s
1	1	Orientation	Course Guide	Introductory Video
		Preoperative Evaluation	Reading Lecture Consultant's Hour (3:00-4:00 pm) Forum Additional reading	Exercise on ASA-PS Classification Cardiopulmonary Risk Assessment and Pre-Anesthesia Evaluation
		Airway Management	Reading Lecture Videos Consultant's Hour (4:00-5:00 pm) Forum Additional reading	Exercise on Mallampati Classification Video submission of airway evaluation
	2	The Anesthesia Workstation	Reading Lecture Video Forum	Quiz on Anesthesia Workstation
		Standard Anesthesia Monitoring Techniques and Instruments	Reading Lecture Consultant's Hour (4:00-5:00 pm) Forum Additional reading	Quiz on Cardiac Rhythm and Capnography
	3	Fluid and Electrolytes	Reading Lecture Consultant's Hour (4:00-5:00 pm) Forum	Assignment on Fluids
		Intravenous Anesthetics	Reading Video Forum	Quiz on Intravenous Anesthetics
	4	General Anesthesia	Reading Lecture Video Consultant's Hour (4:00-5:00 pm) Forum	
		Inhalational Anesthetic Agents	Reading Video Forum	Quiz on Inhalational Anesthetic Agents

		Neuromuscular Blocking Agents	Reading Video Forum	Quiz on Neuromuscular Blocking Agents
	5	Regional Anesthesia	Reading Lecture Video Consultant's Hour (4:00-5:00 pm) Forum	
		Local Anesthetics	Reading Forum	Quiz on Local Anesthetics
		Analgesics	Reading Video Forum	Quiz on Analgesics
	6		Independent Study Time	
	7		Independent Study Time	
2	1-7		Actual Patient Care Clinical Simulation	
	3		Clinical Case Conference	Reflection Paper
	4		Actual Patient Care	
	5		Actual Patient Care	Small Group Discussion
	6		Anesthesia Jeopardy	
	7		Independent Study Time	

### Course Requirements

- |                            |     |
|----------------------------|-----|
| 1. Airway Evaluation Video | 10% |
| 2. E-portfolio             | 15% |
| 3. Reflection papers       | 5%  |
| 4. Case Discussions        | 20% |
| 5. Small Group Discussion  | 10% |
| 6. Final Examination       | 30% |
| 7. Comprehensive Exam      | 10% |

- **E-portfolio** – This includes all submissions done by VLE – exercises, quizzes, and assignments during week 1. This will also include physical copies of all preanesthesia evaluation and anesthesia intraoperative records of actual patients managed by the clinical clerk during Week 2.
- **Reflection Paper** – The clinical clerk must submit a two-page reflection paper (A4 paper size, single-spaced, Arial/Times New Roman 10) on a patient/s discussed during the Wednesday clinical case conference of Week 2.

- Evaluation Criteria:

Criterion	5	3	1
Organization	Information is very well organized with well-constructed paragraphs.	Information is organized but paragraphs are not well-constructed.	Information is disorganized.
Quality of Information	Information clearly relates to the patient/s discussed and includes several supporting details.	Information clearly relates to the patient/s discussed but with no supporting details given.	Information has nothing to do with the patient/s discussed.
Mechanics	No grammatical, spelling, or punctuation errors	A few grammatical, spelling, or punctuation errors	Numerous grammatical, spelling, or punctuation errors
Sources	All references are properly cited.	Most references are properly cited.	References are not properly cited

- Due date: Sunday after Week 2

- **Case Discussions** – The clinical clerk must submit two (2) case discussions on patients seen during the rotation, one for general anesthesia and one for regional anesthesia. This must be accompanied by their respective PATEC Cardiopulmonary Risk Assessment and Pre-Anesthesia Evaluation, and Anesthesia Intraoperative Record.
- **Small group discussion** – Each block will be divided into two groups. Each group must select one from any of the patients personally managed by one of the members of the block in Week 2. Prepare a presentation discussing the case of your selected patient bearing in mind the criteria provided. The SGD may be done in person or virtually using Zoom on an agreed day in Week 2 with the assigned consultant for your block.
  - Evaluation Criteria:

<b>Criterion</b>	<b>5</b>	<b>3</b>	<b>1</b>
Clinical Database	History and physical examination are complete, accurate, relevant to the patient's problems, and well-organized. Laboratory findings are correctly interpreted and well-correlated with clinical findings.	History and physical examination are mostly complete, accurate, relevant to the patient's problems, and organized. Laboratory findings are somewhat correctly interpreted and correlated with clinical findings.	History and physical examination are incomplete, inaccurate, irrelevant to the patient's problems, and poorly organized. Laboratory findings are incorrectly interpreted and poorly correlated with clinical findings.
Diagnosis	Diagnosis is correct and complete with logical differentials.	Diagnosis is correct and mostly complete with some logical differentials.	Diagnosis is incorrect and incomplete with irrelevant differentials.
Pathophysiology	The impact of the disease process and co-existing diseases on anesthetic management is understood and recognized.	The impact of the disease process and co-existing diseases on anesthetic management is somewhat understood and recognized.	The impact of the disease process and co-existing diseases on anesthetic management is poorly understood and recognized.
ASA Physical Status Classification	Patient is risk stratified correctly.	Patient is risk stratified somewhat correctly.	Patient is risk stratified incorrectly.
Anesthetic Management	Plan for anesthetic technique, induction, monitoring, fluid therapy, and acute pain management is rational and sound.	Plan for anesthetic technique, induction, monitoring, fluid therapy, and acute pain management is mostly rational and sound.	Plan for anesthetic technique, induction, monitoring, fluid therapy, and acute pain management is irrational and unsound.
Intellectual Integrity	The clinical clerk consistently shows intellectual honesty, accepts limitations, makes a conscious effort to improve, and is receptive to new ideas.	The clinical clerk occasionally shows intellectual honesty, somewhat accepts limitations, and is receptive to new ideas.	The clinical clerk does not show intellectual honesty, and is not receptive to new ideas.
Attendance	The clinical clerk is punctual and fully participates.	The clinical clerk is punctual but is not fully participating.	The clinical clerk is late and does not willingly participate.
Professional Ethics	The clinical clerk is considerate and respectful of others.	The clinical clerk is mostly considerate and respectful of others.	The clinical clerk is inconsiderate and disrespectful of others.
Oral Report	The clinical clerk speaks confidently and is able to express thoughts in a comprehensive manner.	The clinical clerk speaks somewhat confidently and is able to express thoughts in an understandable manner.	The clinical clerk speaks inaudibly, and is unable to express thoughts in a comprehensive manner.

Presentation	The presentation is structured, systematic, and interesting, with proper citation of references and sources.	The presentation is structured with proper citation of most references and sources.	The presentation lacks structure relevance, and proper citation of references and sources.
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- **Final Examination** – This is a 60-item multiple choice question (MCQ) type examination to be scheduled on the Friday of the second week of the rotation. The coverage of the exams will include topics, lectures, and assigned readings during the rotation. This will be done online.

**About the Faculty-in-Charge**

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**References**

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