Learning Strategies Worksheet

For each week, there is:

- 1) A selected phase of anesthesia and/or area of clinical focus
- 2) A selected "high priority" topic or topics

Each week, the student will progress through the phases of anesthesia, using instructor-selected "high-priority" topics in which to apply knowledge of anesthesia management.

Learning Strategies Worksheet		
Week	Selected Phase or Focus High-Priority Topic(s)	Learning Activity
1	Lecture focus:	Lecture activities: N/A
	Introduction & course overview	Instructor Lecture
	Online focus:	Online activities:
	Selected Phase or Focus	In a Word document:
	Pre-op evaluation	Develop a pre-op evaluation for a
	High-Priority Topic(s)	patient with Marfan syndrome. Include:
	Marfan syndrome	Relevant history that should be addressed for a patient with this condition.
		Appropriate physical assessment components (including airway assessment) and potential physical assessment findings.
		The types of studies that would be anticipated for a patient with this condition and why.
		Relevant documentation that must be included in this patient's pre-surgical record.
		Rationale for why a thorough history and physical examination is critical for

2	Lecture focus: Selected Phase or Focus • Pre-op evaluation High-Priority Topic(s) • Marfan (or other skin)	developing appropriate anesthesia management plans. **Complete conditions table for assigned topics Lecture activities: Instructor Lecture Select a student(s) to present their online activity - discuss with the rest of class.
	Selected Phase of Focus Induction & maintenance High-Priority Topic(s) Pseudohypertrophic Muscular Dystrophy (Duchenne Muscular Dystrophy) Myasthenia Gravis Myasthenic Syndrome Macroglossia	In a Word document: Briefly describe what happens during the induction and maintenance phases of anesthesia. • What are key activities that a CRNA must perform? • What other team members will be involved? Develop an induction and maintenance plan for each high-priority condition. • Pseudohypertrophic Muscular Dystrophy (Duchenne Muscular Dystrophy) • Myasthenia Gravis • Myasthenia Gravis • Macroglossia **Complete conditions table for assigned topics
3	Lecture focus: Selected Phase of Focus	Lecture activities: Instructor Lecture

Induction & maintenance

High-Priority Topic(s)

- Pseudohypertrophic Muscular Dystrophy (Duchenne Muscular Dystrophy)
- Myasthenia Gravis
- Myasthenic Syndrome
- Macroglossia

Online focus:

Selected Phase or Focus

- Pre-op evaluation, induction, and maintenance
- A&P review on GI,liver, biliary, etc
- Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas.

High-Priority Topic(s)

- GERD
- Liver disease
- Varices
- Liver transplant
- Porphyrias

Select student(s) to explain their rationale for their plans - providing evidence (texts, etc)

Review activity (games, etc) for Test #1

Online activities:

Complete the activities for each provided condition below:

GERD:

Describe this condition and how you would manage it during the induction and maintenance phases of anesthesia (medications, positions, monitoring, etc).

State the most commonly performed surgery for GERD. Describe the procedure and explain your role during the procedure.

Liver disease:

Briefly state the 5 major functions of the liver and describe how the liver gets its blood supply.

Explain how liver diseases can affect anesthesia and actions you will need to take to manage a patient with liver disease.

Varices:

What are varices?
Why do they matter?
What is your role in managing them before, during, and after surgery?

4	Lecture focus: Selected Phase or Focus • Pre-op evaluation, induction, and maintenance • A&P review on GI,liver, biliary,	What is/are the procedures to treat this condition? Liver transplant: Describe the 3 main surgical phases of a liver transplant and explain the anesthetic considerations for each of these phases. Porphyrias: State the potential symptoms of an acute attack of porphyria and list the anesthetic medications that should be avoided due to their likelihood to provoke an attack. **Complete conditions table for assigned topics Lecture activities: **Test #1: Skin & MSK Instructor Lecture
1	· · · · · · · · · · · · · · · · · · ·	Student(s) selected to present their
	 town of critical, blindry, etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. 	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant, and porphyrias).
	 etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who 	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,
	 etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. 	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,
	 etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. High-Priority Topic(s) 	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,
	 etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. High-Priority Topic(s) GERD 	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,
	etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. High-Priority Topic(s) GERD Liver disease	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,
	etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. High-Priority Topic(s) GERD Liver disease Varices	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,
	etc Common procedures that might occur for GI, liver, and biliary conditions and/or how to prepare for procedures for people who have conditions in these areas. High-Priority Topic(s) GERD Liver disease Varices Liver transplant	online activity followed by class discussion (learning related to GERD, liver disease, varices, liver transplant,

Selected Phase or Focus

- Pre-op, induction, maintenance, and anticipation for emergence, recovery, and/or post-op phases
- Labs arterial blood gases, O2, and anticipating difficulties in emergence or post-op due to conditions.

High-Priority Topic(s)

- Anemias
- Polycythemia
- Venous hypercoagulable disorders
- Allergic reactions: Anaphylactic rxs, Hypersensitivity responses, angioedema

Develop a concept map for angioedema. Be sure to demonstrate how it starts, progresses, and is managed. Relate to anesthesia management (labs, 02 monitoring, drugs, anesthetics, potential problems, management, etc)

Develop a concept map for hypercoagulability (the coagulation cascade) and how this relates to anesthesia management.

**Complete conditions table for assigned topics

5 Lecture focus:

Selected Phase or Focus

- Pre-op, induction, maintenance, and anticipation for emergence, recovery, and/or post-op phases
- Labs arterial blood gases, O2, and anticipating difficulties in emergence or post-op due to conditions.

High-Priority Topic(s)

- Anemias
- Polycythemia
- Venous hypercoagulable disorders
- Allergic reactions: Anaphylactic rxs, Hypersensitivity responses, angioedema

Online focus:

Lecture activities:

Instructor Lecture

Student(s) selected to present their online activity (concept maps)

Review activity (games, etc) for Test #2

Online activities:

Selected Phase or Focus

 labs, physiology of kidneys, meds, fluid balance, I&O

High-Priority Topic(s)

- Renal (specifically transplant)
- Labs:
 - acidosis and alkalosis (metabolic and respiratory)
- Labs:
 - Renal GFR, creatinine, BUN)
 - Fluid and electrolytes (sodium, potassium, calcium, magnesium)

Describe how rocuronium is processed in the renal system. Explain the effects that end-stage renal disease would have on the half-life of this drug.

Explain how arterial and venous circulation affects urine production. Draw this and upload your picture. Bring or have access to your drawing for lecture next week.

**Complete conditions table for assigned topics

6 Lecture focus:

Selected Phase or Focus

 labs, physiology of kidneys, meds, fluid balance, I&O

High-Priority Topic(s)

- Renal (specifically transplant)
- Labs:
 - acidosis and alkalosis (metabolic and respiratory)
- Labs:
 - Renal GFR, creatinine, BUN)
 - Fluid and electrolytes (sodium, potassium, calcium, magnesium)

Online focus:

Selected Phase or Focus

• Labs: Endocrine

High-Priority Topic(s)

Lecture activities:

**Test #2 Liver, GI, hematology, immune, & allergy

Instructor Lecture

Student(s) will present their drawings and explain how arterial and venous circulation affects urine production.

Online activities:

For a patient having a procedure for pheochromocytoma, state what pre-procedure medications must be given, the correct order, and why.

	 DM Thyroid Pheochromocytoma Adrenal gland Parathyroid Pituitary 	Explain how to manage insulin-dependent diabetics who are uncontrolled before and during surgery. **Complete conditions table for assigned topics
7	Lecture focus:	Lecture activities:
	Selected Phase or Focus	Instructor Lecture
	 Labs: Endocrine High-Priority Topic(s) DM Thyroid Pheochromocytoma Adrenal gland Parathyroid Pituitary 	Students will take a pop quiz where they will match conditions with their associated clinical manifestations, appropriate labs, etc.
	Online focus:	Online activities:
	 Selected Phase or Focus All phases anesthetic devices labs (including blood gases) oxygen measuring and delivery devices oxygen meds High-Priority Topic(s) Sleep-related breathing 	You have been assigned to perform the anesthesia for two patients. One patient has a history of obstructive sleep apnea, a sleep-related breathing disorder. The other has COPD, an obstructive respiratory disorder. Beginning with the pre-op evaluation phase, outline the activities that you will need to perform for all phases of anesthesia management including, but not limited to:
	disorders CV during NREM Obstructive sleep apnea Central sleep apnea Hypoventilation disorders Obstructive respiratory disorders URI	not limited to: • Pre-op tests needed for evaluation of severity and/or associated complications • Anticipated choice of anesthetic device (anesthesia delivery

method) and why

gases) and why

Labs needed (including blood

Asthma

COPD

		 Anticipated oxygen needs and why Anticipated choice of anesthetic meds and why you would choose them Potential problems that might arise during maintenance and your plan for addressing those problems Potential problem(s) with emergence and/or extubation and your plan for avoiding or addressing those problems Plans for the recovery phase **Complete conditions table for assigned topics
8	Lecture focus:	Lecture activities:
	Selected Phase or Focus	Instructor Lecture
	 All phases Anesthetic devices Labs (including blood gases) Oxygen, oxygen measuring, and oygen delivery devices Meds High-Priority Topic(s) Sleep-related breathing disorders CV during NREM Obstructive sleep apnea Central sleep apnea Hypoventilation disorders Obstructive respiratory disorders URI Asthma COPD 	Game: focusing on all phases and respiratory conditions covered in this unit. Optional: Review activity (games, etc) for Test #3 renal and endocrine

Online focus:

Selected Phase or Focus

- Same as week 7, plus
- procedures
- extubation and concerns
- post-op mgt
- handing off to ICU or other
- anticipating post-op complications

High-Priority Topic(s)

- Acute respiratory failure
- Acute respiratory distress syndrome (ARDS)
- Chronic interstitial lung disease (such as pulmonary fibrosis)

Online activities:

You have been asked to evaluate a patient that is developing acute respiratory distress syndrome (ARDS).

- What do you anticipate that the ABGs would show for a patient with this condition? Why?
- Explain what is happening during that process (acidosis, alkalosis).
- What ventilator settings would you anticipate?
- What would be some post-op concerns you would have for a patient with this condition?
- How would you know when it is safe to extubate this patient? (clinical signs, testing, ABGs, ventilator settings, ICU staff report, etc)
 - If the patient is not ready to be extubated, what is your role in safely transferring care (the report, guidance, etc)?

You have been asked to evaluate a patient that has pulmonary fibrosis.

- What do you anticipate that the ABGs would show for a patient with this condition? Why?
- Explain what is happening during that process (acidosis, alkalosis).
- What ventilator settings would you anticipate?
- What would be some post-op concerns you would have for a patient with this condition?
- How would you know when it is safe to extubate this patient? (clinical signs, testing, ABGs, ventilator settings, ICU staff report, etc)
 - If the patient is not ready to be extubated, what is your role in safely transferring care (the report, guidance, etc)?

		**Complete conditions table for assigned topics
9	Lecture focus:	Lecture activities:
	Selected Phase or Focus	Test #3: Renal and endocrine
	 Same as week 7, plus procedures extubation and concerns post-op mgt handing off to ICU or other anticipating post-op complications 	Instructor Lecture Incorporate quiz type questions over ABC analysis, ABG interpretation, and ventilator settings into lecture.
	High-Priority Topic(s)	
	 Acute respiratory failure Acute respiratory distress syndrome (ARDS) Chronic interstitial lung disease (such as pulmonary fibrosis) 	
	Online focus:	Online activities:
	Review of cardiac conduction ECG's - pre-op and cardiac monitoring during and after Treatments for conditions r/t conduction (meds, procedures, devices, etc) High-Priority Topic(s) Acute coronary syndrome and/or MI Valvular diseases Procedures to treat valvular diseases Congenital heart diseases Surgeries and mgt strategies Dysrhythmias Wolff-Parkinson-White syndrome Atrial fibrillation	For the following conditions, answer the questions below. Wolff-Parkinson-White syndrome Atrial fibrillation Ventricular fibrillation Prolonged QT syndromes 1) What are the key ECG findings? 2) In regards to cardiac conduction, where is the abnormality occurring (what is causing it)? 3) As a CRNA, how do you monitor and manage these conditions pre, peri, and post-operatively? **Complete conditions table for assigned topics

	 Ventricular fibrillation Prolonged QT syndromes Surgery in patients with cardiac implantable electronic devices 	
10	Lecture focus:	Lecture activities:
	Selected Phase or Focus	Instructor Lecture
	 Review of cardiac conduction ECG's - pre-op and cardiac monitoring during and after Treatments for conditions r/t conduction (meds, procedures, devices, etc) 	Jeopardy or Kahoot: quiz for rhythm recognition and acute/chronic treatment.
	High-Priority Topic(s)	
	 Acute coronary syndrome and/or MI Valvular diseases Procedures to treat valvular diseases Congenital heart diseases Surgeries and mgt strategies Dysrhythmias Wolff-Parkinson-White syndrome Atrial fibrillation Ventricular fibrillation Prolonged QT syndromes Surgery in patients with cardiac implantable electronic devices 	
	Online focus:	Online activities:
	 Selected Phase or Focus All phases with pertinent cardiac condition(s) High-Priority Topic(s) 	In a table, compare and contrast the different types of cardiomyopathies. Create an algorithm based off of this information that would help a CRNA distinguish between them.
	 Heart failure Signs and symptoms Diagnosis Classification 	Be prepared to answer quiz questions on: The key differences between types of heart failure and how

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	 Cardiomyopathies Hypertrophic Dilated Apical ballooning Peripartum Cor pulmonale Pericardial effusion and cardiac tamponade Vascular diseases Thoracic and abdominal aneurysms and dissections CAD and stroke PAD Subclavian steal syndrome 	these differences impact anesthesia management Pericardial effusion and cardiac tamponade CAD and stroke Thoracic and abdominal aneurysms and dissections Subclavian steal syndrome **Complete conditions table for assigned topics
11	Lecture focus:	Lecture activities:
	Selected Phase or Focus	Instructor Lecture
	 All phases with pertinent cardiac condition(s) High-Priority Topic(s) Heart failure Signs and symptoms Diagnosis Classification Mgt Cardiomyopathies Hypertrophic Dilated Apical ballooning Peripartum Cor pulmonale Pericardial effusion and cardiac tamponade Vascular diseases Thoracic and abdominal aneurysms and dissections CAD and stroke 	 Quiz or Kahoot over: The key differences between types of heart failure and how these differences impact anesthesia management Pericardial effusion and cardiac tamponade CAD and stroke Thoracic and abdominal aneurysms and dissections Optional: Review activity (games, etc) for Test #4

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 Subclavian steal syndrome

Online focus:

Selected Phase or Focus

- Overall changes with age
- Pharmacokinetics and anesthesia mgt

High-Priority Topic(s)

- Age-related anatomic physiologic changes per body system
- Age-related pharmacological changes (drug pharmacology)
 - Inhalation anesthetics
 - Nonvolatile anesthetics
 - Muscle relaxants

Online activities:

Open book quiz over:

- Pharmacodynamic changes with aging and corresponding management of anesthetic drugs
- Intraoperative management of anesthesia for the elderly patient
- Postoperative management for the elderly: post-op cognitive dysfunction and pain control
- Care of the elderly in the ICU

12 Lecture focus:

Selected Phase or Focus

- Overall changes with age
- Pharmacokinetics and anesthesia mgt

High-Priority Topic(s)

- Age-related anatomic physiologic changes per body system
- Age-related pharmacological changes (drug pharmacology)
 - Inhalation anesthetics
 - Nonvolatile anesthetics
 - Muscle relaxants

Lecture activities:

Test #4 respiratory and CV

Instructor Lecture

Online focus:

Selected Phase or Focus

Culminating assignment

High-Priority Topic(s)

Online activities:

Introduce culminating assignment

For your assigned topic, create a case study/anesthesia management plan to

^{**}Complete conditions table for assigned topics

	**instructor assigns topic to each student	present to the class. (Present as a PowerPoint presentation or other acceptable presentation format) Incorporate: (rubric will list) All 7 phases of anesthesia Evidence of ability to meet all objectives of the course. Creation of 10 test questions to ask your peers about your content and to potentially be selected for the final exam A study guide or handout to share (sharing presentation slides is acceptable) Begin independent study for final exam
13	Spring Break	Spring Break
		Continue work on culminating assignment
		Independent study for final exam
14	Lecture focus:	Lecture activities:
	Finals review: (½) course content	Student presentations of culminating assignment
	Online focus:	Online activities:
	Culminating assignment	Culminating assignment (if not presented)
	Continue independent study for final exam	Independent study for final exam
15	Lecture focus:	Lecture activities:
	Selected focus/topics:	Student presentations of culminating assignment
	Finals review: (½) course content	
	Online focus:	Online activities:
	Continue independent study for final exam	Independent study for final exam

16	Lecture focus:	Lecture activities:
	Review week (independent study)	Review week (independent study)
	Online focus:	Online activities:
	Prepare for final exam	Prepare for final exam
17	Final Exam	Final Exam