THE AMERICAN BOARD OF ANESTHESIOLOGY ®
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Sample Oral Examination 1

Session 1 (35 minutes)

Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 1

SESSION 1 – 35 Minutes (total time)

A 55-year-old 80 kg woman is brought to the operating room for an anterior communicating artery aneurysm clipping.

HPI: Severe headache and lapse of consciousness occurred 2 days ago.
No apparent neurological deficit at present time.
Cerebral angiogram yesterday did not show cerebral vasospasm.

MEDS: Nimodipine, enalapril and furosemide.

PMH: 20 year history of hypertension.
Patient told of difficulty with tracheal intubation for laparoscopic procedure 5 years ago.
No known allergies.

PHYS EXAM: P 92, BP 150/90 mmHg, R 16, T 37.2^{o} C
Awake and oriented, very apprehensive.
Micrognathic, full dentition and mildly limited TMJ mobility, cervical spine normal.
Neurologic exam normal.
No peripheral edema.

CXR: LV concentric hypertrophy.

ECG: LVH with nonspecific ST-T wave changes.

LABS: Hgb 12.2 gm/dL, Na 145 mEq/L, K 3.2 mEq/L, creatinine 0.9mg/dL, BUN 17 mg/dL.

ABA ORAL EXAMINATION QUESTION – SAMPLE 1 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Monitoring: Would you choose a CVP or PA catheter in this patient? Explain your choice. Will you insert preop? Why/why not? Assume subclavian approach. Subclavian artery is cannulated. What will you do? Assume subclavian vein cannulated. Is EEG monitoring of value in this patient? SSEPs? Why/why not? How will you use information from these monitors?
2. Airway mgmt and induction: Do you require further airway evaluation? If so, how will it alter your mgmt? Is IV induction followed by fiberoptic intubation acceptable? Why/why not? If awake intubation chosen, how will you minimize hemodynamic effects?
3. Anesthetic maintenance: Is propofol, N_2O, vecuronium an acceptable maintenance technique? Why/why not? Surgeon requests deliberate hypotension. Do you agree? Why/why not? How low will you bring the BP? Explain. Is isoflurane or sodium nitroprusside preferred for this? Explain your choice. Surgeon requests lumbar subarachnoid drain. Why? Risk/benefit?
4. Brain protection: Surgeon does not request deliberate hypotension but instead plans to temporarily clip the anterior cerebral artery. How does this change your mgmt? Can you provide brain protection with intravenous barbiturates? Explain. How do you determine appropriate dose? What does burst suppression mean? Is hypothermia of value? Why/why not?
5. Aneurysm rupture: During dissection, aneurysm suddenly ruptures. What will you do? Will you raise or lower BP? Why? Surgeon places clip and posterior tibial to vertex SSEPs disappear. What will you do? Why?

B. POST-OPERATIVE CARE – 15 Minutes

1. Hypothermia: At conclusion of surgery, patient's temperature is 34.5^{o}C. Is this a problem? Why/why not? Will you warm the patient? Why? How? Effect of hypothermia on muscle relaxant reversal?
2. Decision to extubate vs. ventilate: Are criteria for extubation different than for healthy patient after appendectomy? What are important differences? What are your criteria for extubation for this patient? Explain.
3. Persistent somnolence: On POD #2 patient is responsive only to painful stimuli. A few hours ago she was arousable to her name being called. Your concerns? How can cause be evaluated? Is transcranial doppler indicated? Angiography? Why for each?
4. Cerebral vasospasm: Cerebral angiogram reveals diffuse vasospasm. How will you treat? Barbiturate coma? Hypervolemia? Deliberate hypertension? How will you judge effectiveness of therapy? Patient develops progressive hypoxemia during hypervolemic therapy. How will you determine cause? Rx if pulmonary edema? Pneumonia?
5. SIADH: On POD #3, serum sodium is 125 mEq/dL. DDX? What is mechanism of SIADH in this patient? How will you confirm Dx? Rx? Why?
6. Severe hoarseness post-extubation: On day 5, patient's neurologic and physiologic status near normal. On extubation patient has severe hoarseness progressing to stridor. Your plan? Patient cyanotic. Your plan? Racemic epinephrine vs. steroids vs. cricothyroidotomy vs. re-intubation?

C. ADDITIONAL TOPICS – 10 Minutes

1. Cesarean delivery in a patient with asthma: A 38-year-old, 55 kg parturient with a history of asthma presents for urgent C-delivery due to cephalopelvic disproportion. What are effects of pregnancy on her pulmonary status? What of labor? How do these affect your choice of anesthetic technique? Suppose epidural. Following local anesthetic administration the level rises to C8 and she complains of difficulty breathing. How would you treat? Explain.
2. Complication of retrobulbar block: You are called STAT to the ophthalmology suite by the surgeon who has just performed a retrobulbar block on an 82-year-old woman for cataract extraction. The pt is unconscious and apneic. Cause? Evaluation? How proceed? Mgmt?
3. Liver disease: A 48-year-old man with cirrhosis and ascites is to undergo a right hemicolectomy for carcinoma. What tests would you require preop? Why? How induce anesthesia? Why? Choice of muscle relaxant? Why? Dose? Would normal saline be an appropriate fluid for the maintenance intravenous infusion? Why/why not? At what rate would you infuse fluids? Why? Patient becomes hypotensive coincident with peritoneal incision and loss of ascetic fluid. DDX? Rx?

ABA ORAL EXAMINATION QUESTION – SAMPLE 1

SESSION 2 – 35 Minutes (total time)

A 60-year-old 120 kg man scheduled for an exploratory laparotomy for a suspected ruptured diverticulum. 8-year history of chronic renal failure and is hemodialyzed 3 times a week. Meds include clonidine and metoprolol for hypertension and epoetin for anemia. BP 165/110 mmHg, P 90, R 24, T 38° C, Hgb 10.5 gm/dL, K 5.2 Meq/L.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Cardiovascular status: Is preop cardiac stress test indicated? Why/why not? What information do you require? Why? How does data alter your mgmt? Continue cardiac drugs? How? Why? How determine volume status? Why important? Assume EF of 55%.
2. Metabolic assessment: Concerned about his creatinine level? Why/why not? K^+? If it were 6.0 mEq/L, your plan? Why? What would you expect patient's arterial pHa, $PaCO_2$, HCO_3^- to be and why?
3. Obesity / anesthetic implications: Effect of obesity on pulmonary function? How evaluate pulmonary function in this patient? How will data help your mgmt? What will you tell patient about the risks of anesthesia?
4. Anemia: Why is patient receiving epoetin? Transfuse pre-op? Why/why not? How does Hgb level assist with decision? Cross match difficult. Proceed with anesthesia? Why/why not? How does anemia affect pulse oximetry? S_VO_2?
5. Febrile state: Is 38°C temperature of concern? Why/why not? Your plan? Most effective method to decrease temp in this patient? Why?

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Monitors: Arterial catheter attempted in arm without shunt without success. Your plan? What are advantages of mass spectrometry over capnography in this patient? Any patient? Pulse oximeter reading not obtainable in any extremity or ear. Your plan?
2. Selection and mgmt of anesthesia: Is a lumbar epidural indicated? Why/why not? You get a wet tap. What next? Assume epidural placed. Will you administer fentanyl or bupivacaine? Why/why not? Does ropivacaine offer any advantage?
3. Mgmt of intraop hypoxemia: Ten minutes after intubation, SpO_2 decreases to 94%. Possible causes? Your plan? Does capnograph help in DDX? How? Cannot pass suction catheter down tube. Your plan? Assume suction catheter passes. Breath sounds diminished on right. Your plan?
4. Fluid mgmt during colon resection: Assume minimal blood loss. How much fluid will you administer? Why? What are 3rd space losses? Why do they occur? What are consequences of 3rd space fluid in this patient?
5. Mgmt of intraop hypotension: BP continues to be in 80-90 mmHg systolic range despite fluid replacement. Why could this happen? How will you determine the Dx? Differentiate blood loss vs. cardiac cause vs. sepsis? Rx of each?
6. Electrosurgical Unit: Surgeon requests ESU power to be increased. Does this concern you? What will you do? Patient has a burn under dispersive pad at end of case. Could this happen without any intraop signs? How?

C. ADDITIONAL TOPICS – 10 Minutes

1. Carotid surgery: You are asked to evaluate a 60-year-old man scheduled for a right carotid thromboendarterectomy for TIA's. In the PACU following a left carotid TEA 2 weeks ago, he had an episode of ST segment depression in leads V4-6 that resolved with intravenous propranolol and nitroglycerin ointment. Do you desire further information? Be specific. Why? Will you insist on any further evaluation prior to surgery? Explain.
2. Pediatrics-pyloric stenosis: A 3-month-old infant has been vomiting for four days and is scheduled for a pyloromyotomy. How will you assess volume status? Endpoint of fluid therapy? Is awake intubation preferable? Why/why not? What technique would you select for induction and intubation? Why? What anesthetic circuit? Why?
3. Pain control: A 45-year-old man has low back pain with pain radiating down his left leg into his big toe of 4 weeks duration. How assess? Therapeutic options? Compare advantages/disadvantages of each. Suppose select epidural steroids. Choice of drug? Why? How to administer? Co-administer with local anesthetic? You do that and shortly thereafter patient complains of tingling upper extremities and difficulty breathing. What might have occurred? What will you do?

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Sample Oral Examination 2

Session 1 (35 minutes)

Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 2

SESSION 1 – 35 Minutes (total time)

A 50-year-old 58 kg woman is brought to the operating room for nephrectomy and transplantation of a cadaveric kidney harvested 16 hours ago.

HPI: Chronic renal failure secondary to hypertension.
Hemodialysis for 8 years; last dialysis 36 hours ago.
Hypertension for 24 years with an episode of acute pulmonary edema one year ago.

MEDS: Nifedipine, lisinopril (ACE inhibitor), ranitidine and antacids.

PMH: Symptomatic hiatal hernia for 4 years.
Allergy to PCN (hives).
Nonsmoker.

PHYS EXAM: P 95, BP 175/110 mmHg, R 20, T 37^{o} C
Airway appears adequate.
Lungs clear to auscultation.
AV fistula for dialysis in left forearm.

CXR: Left ventricular concentric hypertrophy.
Prominent vascular markings.

ECG: LVH with nonspecific ST-T wave changes.

LABS: Hgb 8.0 gm/dL; Na 135 mEq/L; K 5.6 mEq/L; BUN 49 mg/dL, creatinine 5.0 mg/dL.

On arrival to the operating room a 20 gauge IV catheter is present in the right dorsal hand. The patient is extremely anxious.

ABA ORAL EXAMINATION QUESTION – SAMPLE 2 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Monitoring: Does history suggest using other than the standard 3 lead ECG? Explain. Modification to the 3 lead ECG? Why? How use an ECG monitor that measured ST segment changes in mgmt? Surgeon asks to avoid radial artery catheterization. Reasonable request? Will an automated BP cuff be adequate?
2. Choice of anesthesia: regional vs. general: Any unique benefits to regional anesthesia in this patient for this operation? Spinal anesthetic? Why/why not? Any advantages over a continuous epidural? Does it matter which local anesthetics selected in the presence of renal failure? Patient requests general anesthesia. Your priorities in planning induction? How will you quickly secure the airway? Is patient at risk for aspiration? What will you do? How to control hypertension during RSI? If a RSI, what muscle relaxant? Explain choice.
3. Anesthetic maintenance: Would a total intravenous anesthetic technique with remifentanil be appropriate? Why/why not? Your choice of inhalation agent for anesthesia matter? Avoid nitrous oxide? Why/why not?
4. Severe hypertension: Coincident with the surgical incision, the BP increases to 240/140 mmHg. Why important to treat hypertension of this degree? If ST segments have changed, reasonable to deepen the inhalation anesthetic? What drugs to control the hypertension? Explain your choice.
5. Extubation: Special concerns for extubation result from renal failure? Muscle relaxants more likely to result in a prolonged block? Will a train of four give reliable results in a patient with renal failure? Concerns of a hiatal hernia present at this time?

B. POST-OPERATIVE CARE – 15 Minutes

1. Dyspnea and rales (CHF): After extubation in OR patient develops rapid and labored respirations and auscultation reveals diffuse rales (CHF). Reintubate? Why/why not? How would mechanical ventilation improve her problem? Would CPAP without intubation be as helpful? What drugs other than diuretics would be helpful? How so? If used CVP monitoring during operation, what would cause you to replace it with a pulmonary artery catheter? Explain.
2. Ventricular ectopy, tachycardia: Several hours after resolution of the respiratory problem, onset of frequent, multifocal PVCs. Metabolic problems in this setting contribute to the occurrence of PVCs? How could hypertension cause PVCs? Hypoxia? What indications to treat? What if the dysrhythmia is SVT? First drug choice? Explain. How to decide to use electrical cardioversion?
3. Oliguria (transplant): In the first few hours after transplantation, urine output is only 10 cc/hr. Would urine lab studies help with a Dx? Surgeon suggests increasing CO. Reasonable? Your approach in light of her heart disease? How to decide if filling pressures are adequate?
4. Postop analgesia: Does regional postop analgesia offer special advantages? Special concerns? Explain. Would a thoracic epidural offer any advantages over a lumbar epidural? The patient is agreeable but wants to be asleep for catheter placement. Your response? Infuse local anesthetic, opioids or both? How decide?
5. Nerve injury: 2 days later patient complains of numbness and tingling in the right 4th and 5th fingers. What motor deficits to look for? Diagnostic studies indicated? What is likely injury? What is likely mechanism? Recommended Rx? What to tell patient about the injury?

C. ADDITIONAL TOPICS – 10 Minutes

1. Increased intracranial pressure: A 48-year-old man with a head CT suggestive of increased ICP is to undergo resection of a brain tumor. BP increases from 130/90 to 160/110 during induction of anesthesia. Lower BP? Why? How? Would an inhalation agent be appropriate? Which? Why? Implications of increased ICP for anesthetic mgmt? Management of increased ICP intraop? Monitor ICP postop? Why? How?
2. Chronic pain: A 62-year-old man has severe abdominal pain produced by pancreatic carcinoma. You are asked to evaluate for long-term analgesia. Alternatives for predicted 6-12 month longevity? Recommendation? Why? Colleague suggests neurolytic celiac plexus block. Agree? Why/why not? What agent? Why? What to tell patient regarding complications? Is an implantable morphine pump indicated?
3. Regional anesthesia: A 37-year-old T_5 paraplegic patient scheduled for cystoscopy and crushing of bladder stones. Is spinal anesthesia contraindicated? Why/why not? Takes warfarin daily because of a prior mitral valve replacement. Does this change plan? What complication(s) concerned about? Criteria to use to decide to use spinal/epidural anesthesia in a patient with possible abnormal coagulation? Explain.

ABA ORAL EXAMINATION QUESTION – SAMPLE 2

SESSION 2 – 35 Minutes (total time)

A 58-year-old 55 kg woman is scheduled for exploratory laparotomy for ovarian cancer. She smoked 2-2.5 ppd until 2 years ago. Stopped because of increasing dyspnea and exercise intolerance. Uses nasal oxygen for night sleeping and cannot walk more than 30 steps without severe shortness of breath. Meds include albuterol and ipratroprium inhalers. She has moderate ascites. BP 130/85 mmHg, P 104, R 18, T 37.4°C, Hgb 14.8 gm/dL. ABG (room air) - pHa 7.36, PaO_2 54 mmHg, $PaCO_2$ 46 mmHg.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Analysis of ABGs: How to interpret her ABGs? What is the significance of hypercarbia to anesthetic mgmt? Why is she not acidemic? Receive nasal O_2 continuously rather than just for night sleeping? Why/why not?
2. Pulmonary evaluation: Presume last PFTs were done six months ago. Should new PFTs be ordered? Why/why not? What specific information do you seek that is not evident from the hx and ABGs? Can you rule out pulmonary infection without sputum culture? How? Why is this an important consideration preop?
3. Ascites - anesthetic implications: Why does the patient have ascites? Does ascites alter your plan for mgmt? How? Why? Should ascites be drained preop? Why/why not?
4. Preoperative medications: What medications would you continue/discontinue preop? Why for each? If extremely anxious, would you provide sedation? Why/why not?

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Monitoring: Is a central venous catheter necessary? Why/why not? Insert an arterial catheter? Why/why not? Is the information from oximetry and end tidal CO_2 monitoring adequate? Why/why not?
2. Induction: Colleague recommends RSI due to ascites. Agree? Why/why not? For induction, ketamine preferable to thiopental? Propofol? Explain. How to attenuate the tracheobronchial response to intubation in this patient? Important to do so? Why?
3. Severe bronchospasm, hypoxemia with intubation: Immediately after induction and tracheal intubation, PIP increases to 50 cmH_20. How to distinguish bronchospasm from endobronchial intubation? From tube obstruction? From pneumothorax? Bilateral wheezing present. How to manage? Compare deep anesthesia vs. albuterol rx. What if ↓ BP, and ↓ $PetCO_2$? Rx?
4. Anesthetic selection: Is N_2O-narcotic good choice? Why/why not? Is insoluble inhaled anesthetic preferable to a moderately soluble anesthetic? Compare desflurane vs. sevoflurane vs. isoflurane. Your choice? Why? Would you prefer pancuronium, vecuronium or rocuronium for relaxation? Defend choice.
5. Management of intraop ventilation, ABGs: Would ventilation settings of V_T = 550 ml, RR = 16, I:E ratio = 1:1 be appropriate for this case? Why/why not? Your preferred settings? Why? 45 min into case ABGs are PaO_2 202 mmHg, (FiO_2 1.0), $PaCO_2$ 52 mmHg, pHa 7.41. Appropriate? Would you alter ventilation? How? Why? What if $PaCO_2$ 65 mmHg and bilateral wheezing is prominent?
6. Extubate or ventilate at surgical end: Does early extubation minimize the risk of recurrent bronchospasm? Explain. Recommend overnight postop ventilation for this patient? Why/why not? If ventilated, use IMV or controlled ventilation? Why? At extubation, pulmonologist recommends no supplemental O_2 to avoid depression of respiratory drive. Agree? How would you manage?

C. ADDITIONAL TOPICS – 10 Minutes

1. Carotid surgery: You evaluate a 60-year-old man scheduled for right carotid thromboendarterectomy for TIA's. In PACU following a left carotid TEA 2 wks ago, he had an episode of ST segment depression in leads V4-6 that resolved with intravenous propranolol and nitroglycerin ointment. Further information? Be specific. Why? Any further evaluation prior to surgery? Explain.
2. Pediatrics-pyloric stenosis: A 3-month-old infant has been vomiting for four days and is scheduled for a pyloromyotomy. How to assess volume status? Endpoint of fluid therapy? Is awake intubation preferable? Why/why not? What technique selected for induction and intubation? Why? What anesthetic circuit? Why?
3. Regional anesthesia: A 23-year-old male is scheduled for shoulder arthroplasty. He is terrified of general anesthesia and desires to remain awake. You respond. What options are available for anesthesia? Which would you choose? Why? Compare an interscalene vs. supraclavicular block. Advantages/disadvantages. Could this procedure be done with an interscalene block alone? Why/why not?

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Sample Oral Examination 3
Session 1 (35 minutes)
Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 3

SESSION 1 – 35 Minutes (total time)

A 54-year-old 100 kg, 5'9" man is brought to the operating room for CABG.

HPI: The patient was asymptomatic until 4 days ago when he developed severe chest pain with exertion that responded to NTG and metoprolol. ECG demonstrates anterolateral ST segment depression. CK MB enzymes were elevated and cardiac catheterization revealed 90% left main coronary artery stenosis. EF is 45% and LVEDP rose from 18 mmHg to 28 mmHg during ventriculography. He has had hypertension for 15 years

MEDS: Nitroglycerin and heparin infusions, metoprolol, diltiazem, NPH insulin q AM and PM

PMH: Poorly controlled type 2 diabetes mellitus for 6 years.
Smoker 1 ppd for 30 years until 4 years ago.

PHYS EXAM: P 60, BP 130/82 mmHg, R 18, T 37.2^{o} C
Airway appears adequate, teeth intact.
Moderately obese.
Asymptomatic (R) carotid bruit.
Lungs clear.
No peripheral edema.

CXR: Left ventricular prominence, poor inspiratory effort.

ECG: V_3-V_6 ST segment depression, no Q waves.

LABS: Hgb 14 gm/dL, serum glucose 197 mg/dL, Na 140 mEq/L, K 4.2 mEq/L

ABA ORAL EXAMINATION QUESTION – SAMPLE 3 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Monitoring: Will you select a CVP or PA catheter? Why? Place before or after induction? Why? Would use of TEE obviate the need for a PA catheter? Why/why not? Does the heparin infusion need to be discontinued before insertion of a central catheter? Why/why not? Possible adverse consequences of discontinuing heparin? Does right carotid bruit lead you to avoid the right internal jugular vein? Why/why not?
2. Anesthetic induction: Assume all monitors in place. Is induction of anesthesia with thiopental acceptable? Why/why not? Your choice? Hemodynamic effects expected? How do you prevent response to laryngoscopy and intubation?
3. Post-induction bradycardia and hypotension: Prior to chest incision BP 80/50 mmHg, P 50. Etiology? Assume nodal rhythm. Do you need to treat? Why/why not? If sinus bradycardia, how treat? How do you rule out ischemia as a cause?
4. ST-segment alteration: During aortic root dissection, ST segments become depressed in II, aVF. How treat? Difference if P 60 vs. 90, BP normal vs. elevated?
5. CPB mgmt and weaning: Glucose is 300 mg/dL during CPB. Treat? Why/why not? How will you treat? Potential complications of hyperglycemia? Difficulty inflating/deflating lungs just prior to separation from CPB. How will you proceed? How do you determine need for inotropic support prior to separation? Explain.

B. POST-OPERATIVE CARE – 15 Minutes

1. Heart block after chest closure: Patient becomes hypotensive on arrival in ICU. BP 90/65 mmHg. DDx? ECG shows HR 40 with PVCs. Rx? Pacemaker wires in place. How to set? If not operating, what will you do?
2. Chest tube bleeding - surgical vs. coagulopathic: Chest tube drainage is 200 ml/hr for 2 hours. Does patient need more protamine? Platelets? How decide? Does patient need to go back to O.R. for surgical exploration? Difference if patient is hypotensive, normotensive, hypertensive? Explain.
3. Oliguria: Urine output 25 cc/hr x 2 hours. Why is patient oliguric? How will you treat? End point? Rationale?
4. Failure to awaken at 10 hours postop: 6 hours after arrival in ICU, patient has not yet shown any signs of awakening. Concerned? Possible causes? How will you investigate delayed emergence?
5. Ventilatory weaning and extubation: On POD #1 patient awakens. S_VO_2 is 60%, SpO_2 98% with F_IO_2 = 0.4. Reasonable to start weaning? Why/why not? Next steps?
6. Intraop awareness: Despite slow awakening, patient complains on POD #2 that he was awake during surgery. Reasons? Why did awareness possibly occur in this patient? What will you tell patient?
7. Ulnar nerve injury: Patient also complains of numbness over right ulnar nerve distribution. Etiology? Natural course? How treat?

C. ADDITIONAL TOPICS – 10 Minutes

1. Pediatrics: A 3 kg infant requires laparotomy for bowel obstruction. Specific problems related to this complication? How do you plan to deal with fluid status? Preop? Intraop? What anesthetic circuit will you choose? Why? What anesthetic agents will you choose? Why? Extubate or ventilate after surgery? How will you decide? Pain control?
2. Peritonsilar abscess: A 50-year-old man presents for urgent drainage of a peritonsilar abscess. Severe pain and anxiety make local anesthesia unrealistic. How would you assess patient preop? Able to open mouth 2 cm. How would you induce anesthesia and secure airway? Rationale.
3. Eye surgery: A 88-year-old man is to have a cataract extraction. He is anxious and he has chronic bronchitis. How would you make the decision whether to use regional or general anesthesia? Assume regional. Administer IV sedation while surgeon places block? Why/why not? Immediately following placement of block the patient becomes unconscious and apneic. DDx? Rx? Continue with case? Why/why not?

ABA ORAL EXAMINATION QUESTION – SAMPLE 3

SESSION 2 – 35 Minutes (total time)

A 20-year-old 60 kg, 5'4" tall primigravida is scheduled for urgent Cesarean delivery at 37 weeks gestation. She presented one hour ago in labor and is pre-eclamptic. She has received one dose of hydralazine and magnesium sulfate. She admits to frequent heroin use. The obstetrician has just notified you that late decelerations of FHR are occurring. P 110, BP 170/110 mmHg, R 22, T 37.5^{o} C, Hgb 9.8 gm/dL.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Pre-eclampsia: What are the anesthetic implications of pre-eclampsia? Why is the fetus at increased risk when pre-eclampsia occurs? Volume status of preeclamptic patient? Is this patient adequately treated? Additional therapy? Endpoint to Rx of BP?
2. FHR - late decelerations: Significance of late decelerations? Other diagnostic tests of fetal distress? Is the next 30 minutes better spent medically treating mother or delivering baby? Why?
3. Heroin use: Last heroin use was 24 hours ago. How will this affect anesthetic mgmt? How will this affect fetus? Affect neonate?
4. Preanesthetic management: No blood typed and crossed. Would you delay procedure until blood is available? What if antibodies are complicating cross-match? Additional lab tests required? Which? Why? Preop medications? Explain.

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Monitoring: Do you need a CVP catheter for procedure? Why/why not? Possible complications that are more likely to occur associated with CVP placement because of her medical history?
2. Anesthesia choice - regional vs. general: Is spinal anesthesia an appropriate choice? Why/why not? Epidural better? Benefits vs. risk of general anesthesia in this patient? Explain.
3. Induction of general anesthesia: Patient insists on general anesthesia. Assume normal airway. Problems anticipated during induction? How will you treat/avoid? Likelihood of intra-op awareness? Can you avoid? How?
4. Severe post-induction hypertension: Following intubation, BP 240/140 mmHg. Possible adverse consequences to mother, fetus? How treat?
5. Neonatal resuscitation: BP controlled, mother stable. Colleague relieves you to care for neonate. Apgar 2 with thick meconium. How will you proceed? Will you give naloxone? Why/why not?
6. Severe hemorrhage: Neonatologist arrives to care for neonate. During extraction of placenta, severe hemorrhage occurs. How proceed? Transfuse? Reason(s). What if cross-match not complete?

C. ADDITIONAL TOPICS – 10 Minutes

1. Posterior fossa craniotomy: A 58-yr-old man is to undergo craniotomy while in the sitting position for a posterior fossa tumor. Is isoflurane the preferred anesthetic for this procedure? Why/why not? Is N_2O useful in this procedure? Advantages/disadvantages? Is CVP essential? Why/why not? How verify correct placement? Can increase in ICP be prevented? How? Is mannitol more effective than furosemide to reduce ICP? Why/why not? Is there a limit to how low $PaCO_2$ should be taken? Explain. How will you differentiate brain stem ischemia from venous air embolism? Are there similarities? Explain.
2. Pain management: A 68-year-old woman is referred to you with acute herpes zoster and pain involving the T_6 – T_7 dermatomes on the right. She has COPD requiring nasal oxygen. How does her COPD affect your therapeutic options? Explain. What therapy would you offer her? Role of antiviral medications? Does your Rx plan differ if the herpes zoster is chronic vs. acute? Explain.
3. AICD: A 60-year-old patient with an AICD (automatic implantable cardiac defibrillator) in place presents for exploratory laparotomy for suspected acute appendicitis. Anesthetic implications? Should the device be disarmed? Why/why not? Should succinylcholine be avoided? If so, why? How will you proceed? Rationale.

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Sample Oral Examination 4

Session 1 (35 minutes)

Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 4

SESSION 1 – 35 Minutes (total time)

A 70-year-old 80 kg woman is brought to the operating room for urgent left carotid endarterectomy.

HPI: The patient has experienced recurrent unilateral transient ischemic attacks over the past week.
Carotid angiogram demonstrated 90% stenosis with an ulcerated plaque.

MEDS: Digoxin, furosemide, nifedipine, aspirin and NTG prn.

PMH: Hypertension for 20 years.
Anterior wall MI one year ago with mild CHF following infarct.
Cardiac catheterization 8 months ago demonstrated EF of 30%.
Occasional exertional angina and 2 pillow orthopnea.
No known allergies.

PHYS EXAM: P 68, BP 170/105 mmHg, R 20, T 37^{o} C
Airway appears adequate; edentulous.
Loud left carotid bruit.
Minimal rales at both bases.
Questionable S_3 gallop.
1+ peripheral edema.

CXR: Prominent vascular markings, cardiothoracic ratio 0.6.

ECG: NSR, LVH, Q waves V_1-V_4, nonspecific ST-T wave changes.

LABS: Hgb 12.5 gm/dL; Na 134 mEq/L; K 3.1 mEq/L; digoxin level 2.2 ng/ml (normal 0.5 ng/ml - 2.0 ng/ml)

ABA ORAL EXAMINATION QUESTION – SAMPLE 4 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Anesthetic technique - regional vs. GA: Is regional anesthesia your choice for this patient? Why/why not? Major risks of deep cervical block? How would you detect problems? Rx of total spinal (BP 80/40 mmHg, P 40)?
2. Monitoring: Assume patient refuses regional anesthesia. Will you monitor brain function intraop? Why? How? Compare EEG to SSEPs for ischemia detection. Will PA catheter data change your mgmt in this patient? How? If unable to place PA catch, will you proceed with case? Why/why not?
3. Induction (assume GA): Is remifentanil appropriate for this patient? Why/why not? Your choice. Defend. Unable to mask ventilate patient after etomidate. Your plan? Oral airway placed, patient develops stridor, will you give succinylcholine? Why/why not? After intubation, you note elevation in $ETCO_2$ (53 mmHg). What will you do? DDx? Assume resolution.
4. Mgmt of BP during procedure: During dissection pulse slows to 50. How will you evaluate? Rx? Carotid cross clamp is imminent. Is IV bolus of thiopental indicated? Why/why not? Should BP be increased or decreased during cross clamp? Why? Clamp is on and EEG slowing is noted bilaterally. Why? Rx?
5. ST segment depression in inferior leads: As surgeon is closing wound, you notice ST segment depression in inferior leads. What will you do? Why?

B. POST-OPERATIVE CARE – 15 Minutes

1. Severe hypertension with emergence: As patient emerges, BP increases to 190/120 mmHg. Of concern? Why? Mechanism? Rx? How will you determine whether patient has had an MI? Compare CK enzymes and ECG. Patient develops frequent PVCs. Etiology? Rx?
2. Delayed awakening: Patient does not follow commands at the end of anesthetic. DDx? How will you R/O intracranial problem? Patient received midazolam at beginning of anesthetic. Will you administer flumazenil? Why/why not?
3. Dyspnea and hypoxemia in PACU: Patient has awakened more and complains of shortness of breath. Respiratory rate 24/min. How will you evaluate? SpO_2 is 92% on face mask. DDx? Rx?
4. Cervical hematoma 4 hours postop: Assume patient has had an uneventful recovery for 4 hours. She now complains of pressure in her neck near incision. How will you determine dx? As you are examining her she complains of difficulty breathing. What will you do? Why? Will you open wound or reintubate? In PACU? In OR? Explain choices.
5. Ischemic left hand (arterial catheter location): Later in evening, nurse notifies you that left hand is cold and pale. DDx? Rx? Is local anesthetic infiltration at the wrist indicated? Why/why not? Are warm compresses advisable? What will you do? Why? Stellate ganglion block not effective. How will you determine if sympathectomy occurred? Your plan?

C. ADDITIONAL TOPICS – 10 Minutes

1. Obstetrics - placenta previa: A 25-year-old, 110 kg woman G-2, P-1, presents for emergency Cesarean delivery due to placenta previa with moderate bleeding. Her first baby was delivered by cesarean section. BP 100/80; P 110. What is the significance of the previous cesarean section? The patient had planned on an epidural for her delivery. How will you advise her regarding choice of anesthesia? Why? How would you induce general anesthesia if such is deemed best? Rationale? How manage massive blood loss? Cell-saver?
2. Pain management: An obese 23-year-old woman complains of severe abdominal pain and is nearly hysterical 5 hours after open cholecystectomy under general anesthesia. She has been addicted to meperidine and was receiving methadone. What would you recommend? Why? Would an epidural be appropriate now? Why/why not? Where place? Drugs? Why? Alternative approaches to mgmt? Could this be due to pancreatitis? How Dx? Would you proceed differently? Why/why not? If so, how? Rationale.
3. Mask anesthesia: You are asked to serve as an expert witness on a malpractice case. A 30-year-old woman with steroid-dependent asthma underwent a vaginal hysterectomy. She had a cup of black coffee 3 hrs previously. The anesthesiologist elected not to intubate the trachea and used a laryngeal mask airway. The patient aspirated during the procedure and developed pneumonia. Was the anesthesiologist negligent? Why/why not? Describe appropriate fasting guidelines.

ABA ORAL EXAMINATION QUESTION – SAMPLE 4

SESSION 2 – 35 Minutes (total time)

A 30-year-old 110 kg, 5'7" woman is scheduled for a repeat C-section at term pregnancy. History includes asymmetric septal hypertrophy (IHSS) and mental depression. Medications include propranolol and amitriptyline. CXR and ECG demonstrate left ventricular hypertrophy. P 64, BP 130/85 mmHg, R 18, T 37° C. Hgb 10.4 gm/dL.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Pregnancy anesthesia implications: What changes occur in cardiovascular physiology secondary to pregnancy? What implications do these changes have regarding IHSS? How to interpret Hgb of 10.4 gm/dL? Consistent with dilutional anemia of pregnancy? Implications of anemia in this patient? Transfuse preop? Why/why not?
2. Obesity airway assessment: Would you expect endotracheal intubation to be difficult? Why? Does obesity play a role here? How?
3. Cardiac assessment/IHSS: What is IHSS? Why important in this case? How to assess the pt's cardiac functional status? Why on propranolol?
4. Antidepressants anesthesia implications: What anesthetic implications of amitriptyline? Should this be discontinued preop? Why/why not? What side effects may occur in conjunction with amitriptyline?
5. Preop medication: Pre-medicate this patient? If so, why? What to use for pre-medications? Would the pre-medication have any effect on the fetus? Explain.

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Monitoring: Does this patient require any special monitoring? A colleague suggests that you place an arterial catheter and a PA catheter. Do you agree? Why/why not?
2. Induction: How will you induce anesthesia? Why did you select that technique? How would your choice affect a patient with IHSS?
3. Difficult intubation: You are unable to visualize the larynx at the time of laryngoscopy. What do you do? You are having difficulty ventilating the patient and the SpO_2 has fallen to 80%. What do you do? You can now ventilate the patient and attempt a fiberoptic assisted intubation. Will you select an oral or nasal approach? Why? Suppose you choose the nasal route and marked epistaxis occurs. What do you do now?
4. Anesthetic maintenance - choices: What is your choice for maintenance? Would N_2O-O_2-opioid-muscle relaxant be a good choice? Why/why not? If you select a volatile agent would you prefer isoflurane, desflurane or sevoflurane? Why?
5. Severe hypotension: Immediately after delivery of the fetus the patient's heart rate climbs to 140 bpm and the BP falls to 70/40 mmHg. DDx? How to differentiate? Rx?
6. Neonatal resuscitation: Neonate is limp and cyanotic. Gasping intermittently, with heart rate of 60 bpm and covered with thick meconium. An associate is able to manage the mother. How to resuscitate the baby? Mgmt of airway in relationship to meconium? Effects of meconium aspiration? When is cardiac massage indicated? You ventilate after suctioning the trachea and placing an endotracheal tube. Heart rate remains at 60 bpm despite ventilation and cardiac massage. Is drug therapy indicated? If so, what and why?

C. ADDITIONAL TOPICS – 10 Minutes

1. ICU consult - pulmonary insufficiency: You are consulted about a 72-year-old man being resuscitated from septic shock secondary to a urinary tract infection. Developed respiratory distress with bilateral pulmonary infiltrates and ABG shows PaO_2 50mmHg, $PaCO_2$ 33mmHg, pH 7.32 while breathing 100% oxygen by mask. DDx? Differentiate cardiogenic edema from ARDS? Assume ARDS, how manage? Intubate? Controlled ventilation vs. IMV vs. pressure support? What is "best PEEP"?
2. Regional anesthesia: A 24-year-old man having hand surgery requests intravenous regional block. Is premedication necessary? Why/why not? What anesthetic for a 60 minute procedure? Why? Add epinephrine? Why/why not? 10 minutes after injection of local anesthetic tourniquet accidentally deflates. What now? Pt begins having a grand mal seizure? Response? Shortly after ECG shows ventricular fibrillation. Immediate Rx? How to set defibrillator? Is IV lidocaine indicated? Why/why not? Alternative drug therapy?
3. Sickle cell disease: A 10-year-old child with sickle cell disease requires anesthesia for repair of a tendon laceration in his forearm. Discuss anesthetic implications of sickle cell disease. How to anesthetize? Defend choice. Surgeons wish to use tourniquet. Agree? Would your concerns be different if patient had sickle cell

trait? Why/why not?

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Sample Oral Examination 5

Session 1 (35 minutes)

Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 5

SESSION 1 – 35 Minutes (total time)

A 68-year-old 110 kg man is brought to the operating room for cervical laminectomy in the prone position.

HPI: The patient has long-standing, severe osteoarthritis and symptomatic cervical stenosis.
Bilateral upper extremity pain and paresthesias have been present for 6 months.
Mild cervical extension increases symptoms.

MEDS: Diltiazem, furosemide and aspirin.

PMH: Hypertension since age 40.
Inferior wall MI 10 years ago without CHF or subsequent symptoms.
Type 2 diabetes for 3 years under poor dietary control.
Anesthetic record from cholecystectomy 8 years ago unavailable.
No known allergies.

PHYS EXAM: P 80, BP 170/95 mmHg, R 18, T 37^{o} C
Anxious appearing obese man.
TMJ mobility mildly restricted, tongue large, full dentition, base of uvula visualized.
C-spine extension minimal due to paresthesias.
Chest exam WNL.
No peripheral edema.

CXR: LV concentric hypertrophy.

ECG: NSR, Q waves - lead II, III, AVF; nonspecific ST-T wave changes.

LABS: Fasting a.m. blood sugar 210 mg/dL; Hgb 14.0 gm/dL; SpO_2 (room air) 94%.

The patient has a 16 gauge peripheral IV catheter.

ABA ORAL EXAMINATION QUESTION – SAMPLE 5 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Monitoring: Assume pt in 10 degree head-up position. Does patient require a CVP or PA catheter? Why/why not? What modalities are available for insuring the integrity of the cervical cord during the surgical procedure? What are SSEPs? Reliable for monitoring spinal cord function? Why/why not? Does anesthesia affect interpretation of SSEPs? If so, how? Explain.
2. Initiation of anesthetic: Securing airway - is direct laryngoscopy contraindicated in this patient? If so, why? What mechanism for potential cord injury? Intubate? Does his diabetes and/or heart disease influence plan? If so, how? Can hemodynamic response to awake intubation be lessened? Explain. Induction - how to induce anesthesia? Why? Evidence that thiopental is hazardous in patients with this degree of heart disease? Evidence that other induction agents are safe? Explain. Positioning of patient - special requirements when positioning patient prone? Explain. If ventilation being controlled, still necessary for the abdomen to be "free"? Why/why not? Is application of lubricant to the eyes necessary? Why/why not?
3. Anesthetic choices for maintenance: Is high-dose opioid technique most appropriate for this patient? Why/why not? Choice for maintenance? Why? Patient's minimum acceptable BP during procedure? Why? Muscle relaxant necessary for procedure? Why/why not?
4. Diabetic management: One hour after induction blood glucose is 300 mg/dL. Necessary to treat? If so, why/how? If excess insulin inadvertently administered, what would be manifestations of hypoglycemia during anesthesia? How treat?

B. POST-OPERATIVE CARE – 15 Minutes

1. Criteria for extubation: Spinal cord was traumatized during surgical procedure and SSEPs were lost for 30 minutes. How to decide whether or not to extubate patient at end of procedure? If choose to wait until patient is responsive, how prevent coughing on tube, tachycardia and hypertension? How does a NIF of -25 cm H_2O compare to that achievable by an awake healthy person? Implications?
2. Pressure support in PACU prior to extubation: Assume pt weak. Elect to keep ET tube in place. What ventilator settings would you order? Why? How do values you choose for V_T and ventilatory rate differ from the pt's awake values? If different, why? Advantage to pressure support, CPAP or PEEP? Why/why not? Explain.
3. Severe hypertension: While endotracheal tube in place and patient being ventilated, BP rises abruptly to 250/110 mmHg and HR is 120. DDx? Rx? Choice for therapy be different if the HR = 75? If so, how/why?
4. ST segment depression in anterior leads: While nurse is obtaining medications to treat elevated BP, ST segment depression in anterior leads on ECG. Would this alter your therapy? If so, how/why? Is PA catheter indicated at this time? Why/why not? Assume TEE available, what would you look for? Draw blood for any lab analyses at this time? If so, which/why?
5. Pain management: How to assess and manage the pt's pain while being mechanically ventilated? Would protocol change after the pt extubated? If so, how/why? Does meperidine offer any advantages or disadvantages in this patient? Why/why not? Dilaudid (hydromorphone)?
6. Nausea and vomiting: 24 hrs postop the patient has been extubated but he has nausea and occasionally vomits. How would you assess and treat this problem?

C. ADDITIONAL TOPICS – 10 Minutes

1. Mitral stenosis: A 30-year-old woman to undergo emergent laparotomy for a perforated viscus. Pt has mitral stenosis, orthopnea, and basilar rales. Meds include digoxin and warfarin. BP 90/70; HR 100 (irregular); T 39°C. Surgeon asks OK to proceed. Agree? Why/why not? Preop evaluation and Rx(s)? Which? Why? Reverse warfarin? Why/why not? How? Insert PA catheter? Why/why not? Choice of anesthesia? Why?
2. Pediatrics-pyloric stenosis: A 3-month-old infant has been vomiting for 4 days and is scheduled for a pyloromyotomy. How to assess volume status? Endpoint of fluid therapy? Awake intubation preferable? Why/why not? Technique to select for induction and intubation? Why? What anesthetic circuit? Why?
3. Carotid surgery: You evaluate a 60-year-old man scheduled for right carotid thromboendarterectomy for TIA's. In PACU following a left carotid TEA 2 wks ago, he had an episode of ST segment depression in leads V4-6 that resolved with intravenous propranolol and nitroglycerin ointment. Further information? Be specific. Why? Any further evaluation prior to surgery? Explain.

ABA ORAL EXAMINATION QUESTION – SAMPLE 5

SESSION 2 – 35 Minutes (total time)

An 11-year-old 65 kg boy is scheduled for urgent ORIF of an open fractured olecranon sustained in motor vehicle accident 90 minutes ago. He has a history of asthma treated with cromolyn sodium and an albuterol inhaler. He required hospitalization and prednisone for status asthmaticus 6 weeks ago. He ate a full lunch before the accident. Bilateral diffuse expiratory wheezes are noted. BP 125/80 mmHg, P 104, R 22, T 36.8^{o} C.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Implications of obesity: Anesthetic implications of obesity? Does obesity alter the amount of anesthetic drugs required? Explain. Does obesity increase incidence of difficult intubation? Explain.
2. Pulmonary assessment: How will you assess status of asthma? Does child require ABGs before surgery? Why/why not? Does presence of bilateral wheezing contraindicate anticipated ORIF? Why/why not? Assume neurovascular compromise and surgery proceeding.
3. Assessment of associated trauma: Additional assessment given recent MVA? Which? If trauma limited to elbow fx, do you need any lab studies? Explain.
4. Preop meds (steroid, bronchodilator, gastrokinetic, etc.: Is steroid rx indicated? Purpose(s)? Can you empty stomach preop? Why/why not? Role of metoclopramide? Child is in moderate pain. Is it appropriate to give an intravenous opioid? Why/why not?

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Regional vs. general anesthesia: If child cooperative and calm, would you consider upper extremity block? Why/why not? If so, axillary vs. interscalene? Explain. Presume parents and patient request general anesthetic. Your priorities for patient as you plan for GA?
2. Assume general - induction, airway mgmt: Colleague suggests inhalation induction because of asthma. Agree? Why/why not? Is thiopental a reasonable choice for induction? Why/why not? If not, your choice. Explain. Is succinylcholine appropriate for paralysis? Why/why not? Is use of laryngotracheal lidocaine by an LTA kit contraindicated given recent lunch? What benefit does it offer? How does it prevent bronchospasm?
3. Severe bronchospasm after intubation: Assume lidocaine via LTA kit not used. Ventilation is very difficult following intubation. Airway pressures are high. What will you do? What drugs will you give? Epinephrine? Why/why not? Does pattern of ventilation during bronchospasm make a difference? How?
4. Anesthetic maintenance - choices: Bronchospasm improved. Is halothane your choice for maintenance? Why/why not? Colleague states halothane contraindicated because of obesity. Agree/disagree? Your choice and reason(s). Does patient require muscle relaxant during procedure? Why/why not?
5. Temperature elevation intraop - assessment: Temperature during procedure increases to 38^{o} C. What will you do? ABGs normal. Further diagnostic tests? Change anesthetic? Why/why not?
6. Vomiting at emergence, extubation - mgmt: Patient opens eyes and vomits with ETT still in place. What will you do? Is patient at risk for aspiration? Why? How will you prevent?

C. ADDITIONAL TOPICS – 10 Minutes

1. Transplant anesthesia: A 55-year-old woman requires anesthesia for a cadaveric kidney transplant for chronic renal failure. How to evaluate cardiac function, coagulation? K^+ is 5.6mEq/L. Treat? Why/why not? Regional vs. general? Why? Assume general. Choice of agents for maintenance? Why? Choice of relaxant(s)? Why?
2. Anaphylactic reaction: You are called urgently to radiology where you find a 25-year-old woman undergoing an arteriogram for upper extremity ischemia. Hypotensive with urticaria, stridor and sternal retraction. What to do? Likely cause? Mechanism of signs and symptoms? Rationale. How proceed if cardiac arrest ensues?
3. Emergent burn management: A 71-year-old male fell asleep while smoking in bed brought to ER with third degree burns over his face, neck and upper trunk. He is obtunded, stridorous with face and neck swelling. He has O_2 saturation of 91% while receiving 40% oxygen by mask, and stable vital signs (BP 140/80, P 95). How to assess airway? Why? Respiration? How might a 30% carboxyhemoglobin level be relevant? How could this be consistent with the SpO_2? Mgmt of his airway?

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Sample Oral Examination 6
Session 1 (35 minutes)
Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 6

SESSION 1 – 35 Minutes (total time)

A 58-year-old 90 kg, 5'4" woman is brought to the operating room for resection of a 10 cm infrarenal AAA.

HPI: The patient was admitted 2 hours ago with severe back pain.
Vital signs have been stable but workup, including aortogram, demonstrates a 10 cm infrarenal AAA.

MEDS: Metoprolol, Dyazide, diltiazem, NPH insulin q a.m. and p.m., occasional NTG.

PMH: Hypertension and obesity for more than 20 years.
Occasional angina began 3 years ago. Cardiac catheterization at that time revealed a 60% RCA stenosis and normal LV ejection fraction.
Type 2 diabetes mellitus for 7 years treated with insulin; control is described by patient as erratic.

PHYS EXAM: P 80, BP 160/95 mmHg, R 22, T 37.2^{o} C.
Obese, apprehensive woman with back pain.
Airway - full dentition, uvula visible to tip, TMJ mobile, C-spine extension mildly limited.
Chest exam WNL.
No peripheral edema.

CXR: Prominent left ventricle, poor inspiratory effort.

ECG: NSR, nonspecific ST-T wave abnormalities.

LABS: Hgb 12.8 gm/dL, creatinine 2.4 mg/dL, BUN 32 mg/dL, Na 142 mEq/L, K 3.8 mEq/L, blood sugar 215 mg/dL.

PT, PTT, platelet count WNL.

The patient has two 16 gauge peripheral IV catheters in place. She ate lunch approximately 5 hours ago.

ABA ORAL EXAMINATION QUESTION – SAMPLE 6 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Monitoring: Central vascular access required? Why? CVP vs. PA catheter? Reason(s) for choice. Right atrial pressure an accurate measure of cardiac filling? Why/why not? How to monitor diabetes intraop? Blood glucose vs. pHa vs. urine ketones? Which? Why?
2. Anesthetic selections: Induction and airway mgmt-is RSI indicated? Why/why not? Fiberoptic intubation through an LMA appropriate? Why/why not? Propofol appropriate for induction? Which/why? Choice and reason(s). Anesthetic maintenance-is a combined technique with GA and continuous epidural appropriate? Why/why not? Use a volatile GA for maintenance? Why/why not? Isoflurane vs. sevoflurane vs. desflurane? Reason. Should nitrous oxide be avoided? Why/why not?
3. Aortic cross clamp - implications: Hypertension with aortic cross clamp application. BP increases from 135/75 to 195/105 without arrhythmia or ST segment changes when cross clamp applied. Does this increase risk? How? Should it be treated by increasing anesthetic depth? Why/ why not? NTG vs. SNP? Your choice/why? Preparation for aortic cross clamp removal. Why can there be hemodynamic instability with aortic declamping? Colleague suggests large fluid bolus before declamping? Agree? Why/why not? Should vasopressors be administered immediately before declamping? Why/why not? Bicarbonate? Why/why not?
4. Diabetic management intraop: Blood glucose increases to 295mg/dL after start of surgery. Colleague recommends glucose not be regulated until emergence from anesthesia in the recovery room. Agree/disagree? Why? Should insulin be administered? Explain. Does insulin therapy mandate administration of dextrose? Why/why not? Other concerns for intraop insulin therapy?

B. POST-OPERATIVE CARE – 15 Minutes

1. Extubation vs. ventilation: Should trachea be extubated in the OR? Why/why not? Does anesthetic technique influence this decision? How? Is decision to extubate altered by presence of continuous epidural analgesia? How? Your criteria for discontinuing mechanical ventilation and extubating at this time? Explain.
2. Mechanical ventilation and weaning: You elect continued mechanical ventilation in the early postop period. Order IMV or controlled ventilation? Which? Why? What orders to write to minimize postop atelectasis in this obese patient? Why? Patient now awake, alert and thrashing about. Extubate? What criteria do you use? Are these criteria altered by patient's obesity? How?
3. Oliguria - dx and mgmt: During first 3 hours in recovery room, urine output is 40 ml. Adequate? Why/why not? Cause(s)? How to investigate etiology? PAoP is 14 mmHg and CO is 4.0 L/min. Should fluids be administered? Which? How much fluid appropriate? Surgeon recommends furosemide. Agree/disagree? Explain. Therapy if oliguria continuous?
4. ST segment changes and ventricular tachycardia: 6 hours postop you are called to ICU for new ST segment depression and T-wave inversion in $V_{4\text{-}5}$. Consistent with RCA stenosis? Explain. Possible causes? Is NTG indicated? Why/why not? While examining pt, ventricular tachycardia with moderate hypotension (BP 100/65) occurs. Recovery room nurse suggests lidocaine. Agree? Why/why not? Is cardioversion indicated? Why/why not? Your mgmt? Why? Would mgmt be different if BP 70/40? How/why?
5. Pain mgmt - thoracic epidural: 4 hours after extubation pt complains of increasing abdominal pain despite T_6 thoracic epidural with fentanyl and bupivacaine infusion. Should opioid be changed to morphine? Why/why not? Should intravenous PCA be administered? Why/why not? Mgmt? If epidural appears nonfunctional, should lumbar epidural be attempted? How does this change medication and infusion? Explain.

C. ADDITIONAL TOPICS – 10 Minutes

1. Obstetrical anesthesia/amniotic fluid embolism: A 28-year-old primigravida parturient suddenly becomes hypotensive and cyanotic following a severe contraction. How to evaluate cause? Manage? Rationale. Fetal distress is noted and emergent C-section is required. How to induce anesthesia? Explain.
2. Monitored anesthesia care: A 48-year-old cachectic woman with metastatic breast cancer to undergo a Hickman catheter placement. You are asked to provide monitored anesthesia care. BP 90/40, P 92. Preferred drugs for sedation and analgesia? Why? During procedure becomes anxious and cannot lie still. What to do? Explain. Administer IV sedation and surgery continues. Pt no longer follows commands and is apneic. Evaluation? Mgmt? Could this be a pneumothorax? Hemothorax? How to tell? How would this alter your mgmt?
3. Laryngoscopy: A healthy 25-year-old vocalist for laryngoscopy and removal of recurrent vocal cord

papillomas. Surgeon requests no endotracheal tube. Agree? How to anesthetize and ventilate the pt's lungs? Succinylcholine infusion acceptable? Why/why not? How determine dose? How manage if dual block develops? Prefer alternate relaxant? Why/why not? Which? Why? Would your mgmt of pt differ if surgeon was to use laser? How? Why?

ABA ORAL EXAMINATION QUESTION – SAMPLE 6

SESSION 2 – 35 Minutes (total time)

A 5-year-old boy is scheduled for bilateral inguinal hernia repair. Mother states the child was febrile a week ago and has had a "runny nose". Several relatives are known to have experienced fever during surgery and one cousin died 15 years ago in an operating room. The patient has not had a prior anesthetic. P 100, BP 95/60 mmHg, R 22, T 37.5° C. Hgb 14 gm/dL.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Significance of recent fever: Should procedure be postponed due to upper respiratory infection? Why/why not? Does a URI increase intraop risks? Which? What are your criteria for postponement on a case such as this? What to tell family about the fever one week ago and the rhinorrhea?
2. Family MH history: Should procedure be postponed to explore family history? Why/why not? What family info would be helpful? Lab tests (CPK, muscle bx) indicated? How is info used? Reliable? If history of extended family unavailable, safe to proceed? Why/why not? Can procedure be done in the outpatient surgical unit? Why/why not? Does duration of postop observation change with presumptive family history? Why/why not?
3. Additional preop assessment: CXR indicated? Why/why not? Order a CBC to check WBC count or diff? Why/why not? How would the info change your anesthetic plan? Explain.
4. Preop medication: Should dantrolene be administered preop? Why/why not? Is it effective prophylactically? Risks with preop dantrolene? Will you administer preop sedation? Why/why not? Should child receive drying agent such as atropine or glycopyrrolate preop? Why/why not?

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Choice of anesthetic techniques: Would you recommend local field block for this patient? Why/why not? Local anesthetics safe in this patient? Explain. Concerns about providing general anesthesia in this patient? Explain.
2. Assume general anesthesia - mgmt of induction: Assume child is uncooperative and requires general anesthesia. Is an intravenous induction preferred to a volatile anesthetic induction? Why/why not? Child is extremely anxious, frightened and crying without an IV. Is intramuscular ketamine appropriate for induction? Why/why not? Rectal methohexital? Assume pre-induction IV in place. How to induce? Reason(s) for your choice. Is tracheal intubation indicated? Why/why not? Can LMA be utilized without volatile anesthetic? Explain.
3. Anesthetic maintenance: Which anesthetic to use for maintenance? Advantages/disadvantages of your choice? Does presence of a URI alter your choice? How? Does concern for MH alter your choice? How?
4. Hyperthermia 30 minutes after induction: Rectal temperature increases to 38.9°C 30 min after induction. Could this be due to viral upper respiratory infection? Could it be MH? How will you decide? Lab tests indicated? Which? Why? Is emperic Rx indicated? Rectal acetaminophen vs. intravenous dantrolene? How decide?
5. Severe bronchospasm and hypoxemia: Fever adequately controlled, but child develops severe coughing, wheezing and SpO_2 decreases to 88% on emergence. Cause of airway reactivity? Mgmt? Is tracheal intubation indicated? Why/why not? Subcutaneous epinephrine? Why/why not? Nebulized racemic epinephrine? Why/why not? Albuterol? Why/why not?
6. Postop pain relief: Is a caudal injection of local anesthetic appropriate for postop analgesia? Risks/benefits for child? Surgeon asks if recent viral infection a contraindication to caudal technique? Your response? Possible to produce a subarachnoid block when doing a caudal technique? Explain. How would you know that it occurred? What would you do?

C. ADDITIONAL TOPICS – 10 Minutes

1. Increased intracranial pressure: A 48-year-old man with a head CT suggestive of increased ICP is to undergo resection of a brain tumor. BP increases from 130/90 to 160/110 during induction of anesthesia. Lower BP? Why? How? Would an inhalation agent be appropriate? Which? Why? Implications of increased ICP for anesthetic mgmt? Management of increased ICP intraop? Monitor ICP postop? Why? How?
2. Chronic pain: A 45-year-old woman with invasive cervical cancer is referred to you because her pelvic pain is not controlled by oral or parenteral opioids. Alternative therapy? Factors influencing choice? Explain. What minimum work-up would be required before you begin therapy? Explain.

3. Hypothyroidism: A 30-year-old woman scheduled for emergency drainage of a perirectal abscess while in the prone position. Hypothyroidism was diagnosed 12 hours preop. Total T_4 was less than 3 mcg/dL (normal value is 6.1-11.8 mcg/dL). Anesthetic concerns? Anesthetic technique you select? Why? Are there specific post-op complications you would anticipate? How to minimize the sequelae? Rationale.

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Sample Oral Examination 7
Session 1 (35 minutes)
Session 2 (35 minutes)

ABA ORAL EXAMINATION QUESTION – SAMPLE 7

SESSION 1 – 35 Minutes (total time)

A 55-year-old 52 kg woman is brought to the operating room for an urgent exploratory laparotomy for small bowel obstruction.

HPI: The patient presented 2 days ago with vomiting and abdominal distention.
She underwent a hemicolectomy for colon cancer 2 years ago and current workup has demonstrated small bowel obstruction, probably secondary to adhesions.
She is very uncomfortable and has required intravenous hydration since admission.

MEDS: Digoxin, furosemide, KCl.

PMH: Long-standing mitral stenosis with limited exercise tolerance.
Episode of pulmonary edema with new-onset Afib 8 months ago.
Tolerated general anesthetic for colectomy 2 years ago without difficulty.
No known allergies.

PHYS EXAM: P 108 - irregular, BP 100/70 mmHg, R 30, T 38^{o} C
Patient appears cachectic, dyspneic with a grossly distended abdomen.
Airway appears adequate for intubation.
Lungs - slight basilar rales bilaterally.
1+ pitting edema at distal lower extremities.

CXR: Right ventricular prominence, increased pulmonary vascular markings.

ECG: Atrial fibrillation.

LABS: Hgb 10.5 gm/dL, Na 132 mEq/L, K 2.8 mEq/L. ABG (room air): PaO_2 50 mmHg, $PaCO_2$ 28 mmHg, pHa 7.36.

On arrival to the operating room, the patient has an 18 gauge peripheral IV catheter and a right internal jugular vein double lumen CVP catheter in place.

ABA ORAL EXAMINATION QUESTION – SAMPLE 7 - SESSION 1 (Continued)

A. INTRA-OPERATIVE MANAGEMENT – 10 Minutes

1. Monitoring: Unable to establish left or right radial arterial catheter. Is BP cuff adequate? If not, what will you do? Change CVP to PA catheter prior to induction of anesthesia? Why/why not? Patient unable to lie flat? Unclear from waveform that PA catheter in wedged position. How to determine? Blood gas from PA port useful? How?
2. Immediate pre-induction management: Thoracic epidural? Why/why not? Possible problems associated with current potassium level? What will you do?
3. Induction and airway management: Is awake intubation appropriate? Why/why not? Ketamine appropriate choice for induction? Why/why not? How to induce anesthesia? Explain choices of induction agents. Succinylcholine an appropriate relaxant for intubation? Why/why not? If airway is difficult to secure, is LMA acceptable? Why/why not?
4. Anesthetic choices: Assume induction/intubation successful. Is isoflurane suitable for maintenance? Why/why not? Propofol infusion? Why/why not? Your choices and reasons.
5. Pulmonary edema - management: During procedure, Afib occurs with heart rate 150 bpm. Dangers? Rx? Despite FiO_2 1.0, SpO_2 decreases 98% to 85% over 15 minutes. Etiology? How to treat? Assume pulmonary edema. Rx? PEEP decreases BP. Response? $P_{ET}CO_2$ 32 mmHg but $PaCO_2$ 48 mmHg. Cause of increase difference?

B. POST-OPERATIVE CARE – 15 Minutes

1. Extubation vs. ventilation: Assume hemodynamic stability with pulmonary edema resolved. Do you plan to extubate at end of surgery? Why/why not?
2. Ventilatory mgmt for 24-48 hours: Assume post-op ventilation. What kind of ventilator? What mode of ventilation? Explain choices. Role for pressure support ventilation? Explain. Patient "bucking" and fighting ventilator. Reason(s)? Will you paralyze? Why/why not?
3. Pain management during controlled ventilation: Patient awake and indicating pain. Is IM morphine appropriate? Why/why not? Your choice for analgesia? Explain. Does presence of controlled ventilation influence choice? Explain.
4. Extubation criteria: How will you wean from ventilator? What if on PEEP? Extubation criteria? With F_IO_2 0.4, PaO_2 70 mmHg, $PaCO_2$ 45 mmHg, pHa 7.33 during spontaneous ventilation. Interpret. Is this adequate? Why/why not?
5. Oliguria - dx and management: Urine output 0.5 ml/kg/hr. Is this adequate? Why not? How will you decide between fluid and a diuretic? Is dopamine appropriate? Why/why not?
6. Intraop awareness: On POD #3, patient is extubated and states that she was awake during the surgery. How is this possible? What will you tell her?
7. Postop delirium: On POD #4 patient becomes disoriented. Etiology? Rx?

C. ADDITIONAL TOPICS – 10 Minutes

1. Pediatric anesthesia: A 3-year-old child is scheduled for a laparotomy for possible resection of a kidney tumor. What anesthetic circuit to choose? Why? Use a closed system? Why/why not? Disadvantages? Parents and child prefer no needles while awake. Agree? Would you do a mask induction? Why/why not? If so, which inhalation agent? Why? What fluids would you give? Why? Consider transfusing patient when blood loss exceeds 20% of blood volume? Why/why not? If not, when? Why?
2. Cholecystectomy: A 40-year-old 100 kg woman is scheduled for a laparoscopic cholecystectomy. Any premeds indicated? Which? Why? Use RSI? Why/why not? Method for induction? Explain? How maintain anesthesia? Why? Use opioids? Why/why not? During creation of pneumoperitoneum pt's SpO_2 falls to 80%. DDx? Rx? Thirty minutes into procedure pt begins to "override" ventilator. Your response? Explain. Is patient at increased risk for postop nausea? Why/why not? How avoid? Use ondansetron? Why/why not?
3. Pediatrics - epiglottitis: You are called to the ER for consultation for a 5-year-old girl with a sore throat, high fever, sternal retraction and stridor on inspiration. DDx? How to determine Dx? Immediate mgmt prior to Dx? Rationale. Suppose Dx of epiglottitis is made and stridor worsens with SpO_2 intermittently as low as 91%. What to do now? Why? Airway obstruction worsens. How proceed? Explain.

ABA ORAL EXAMINATION QUESTION – SAMPLE 7

SESSION 2 – 35 Minutes (total time)

A 23-year-old, 130 kg, 5'10" man was involved in a motor vehicle accident 2 hours ago sustaining a femoral fracture. He is scheduled for insertion of an intramedullary rod. He complains of pain in the posterior cervical area and is slightly dyspneic. He has a history of hypertension treated with captopril (ACE-inhibitor) for 2 years. P 120, BP 90/60 mmHg, R 28, T 37°C. Hgb is 10.5 gm/dL.

A. PRE-OPERATIVE EVALUATION - 10 Minutes

1. Hemodynamic assessment: What impression do you have concerning the patient's hemodynamic state from the above vital signs? Why? Do you need more information to assess hemodynamic status? If so, what? Why?
2. Dyspnea - assessment, implications: Why is patient dyspneic? How will you evaluate further? Is a pulmonary contusion likely? How will you confirm or rule out? Why is it important to diagnose if present? Is fat embolic disease likely? What is it? How do you diagnose? Treat? Explain.
3. Obesity, airway: What are the anesthetic implications of patient's weight? How will you assess airway? Does assessment minimize anesthetic risk? Explain.
4. Cervical pain - implications: The patient has had no evaluation of neck pain. Is this of concern? Why? What would you consider to be minimally acceptable for evaluation of C-spine? Explain.

B. INTRA-OPERATIVE MANAGEMENT – 15 Minutes

1. Monitoring: How will end-tidal CO_2 assist your anesthetic mgmt? Does the history of hypertension and/or the presence of obesity impact your monitoring plans? How? Explain?
2. General vs. regional anesthesia: Surgeon inquires if regional anesthesia appropriate for procedure. Your response? Explain. Benefits vs. risks of general anesthesia? Assume general anesthetic chosen.
3. Induction and airway management: Assume you were able to visualize uvula preop. Does this influence your approach to general anesthesia? How? Explain. Should patient be intubated awake? Why/why not? Assume awake intubation not indicated. Is ketamine indicated for induction? Why/why not? Your choice of induction agent(s) and reasons.
4. Anesthetic maintenance - choices: What anesthetic agent(s) will you select for maintenance? Why? Will you need a muscle relaxant for the procedure? Why/why not? Will you use N_2O? Discuss reasons for decision.
5. Difficult to ventilate - increased PIP: You have successfully intubated patient, but note increased inspiratory pressure over next 15 minutes. Discuss your evaluation. Breath sounds are decreased over left chest. What is your Dx? How will you determine cause? You aspirate blood from ET tube and breath sounds improve. What will you do now? Rationale.
6. Blood loss, transfusion: During rodding the patient loses 1500 ml of blood. Will you transfuse? Why/why not? If not, how do you determine need for transfusion? Is cell saver indicated? Why/why not?
7. Oliguria - causes, management: Towards end of this 2 hour procedure you note only 60 ml of urine. Discuss your evaluation, likely causes and mgmt of patient's low urine output.

C. ADDITIONAL TOPICS – 10 Minutes

1. Posterior fossa craniotomy: A 58-year-old man to undergo craniotomy while in the sitting position for a posterior fossa tumor. Is isoflurane the preferred anesthetic for this procedure? Why/why not? Is N_2O useful in this procedure? Advantages/disadvantages? Is CVP essential? Why/why not? How verify correct placement? Can increase in ICP be prevented? How? Is mannitol more effective than furosemide to reduce ICP? Why/why not? Is there a limit to how low $PaCO_2$ should be taken? Explain. How will you differentiate brain stem ischemia from venous air embolism? Are there similarities? Explain.
2. Pediatrics - ventriculo-peritoneal shunt: A 10-month-old presents for emergency V-P shunt. Anterior fontanelle is bulging and child is irritable. Pt drank milk 2 hours ago. BP is 110/60, HR 80. Anesthetize using inhalation technique? Why/why not? Different if apple juice? Use a pediatric circle system? Why/why not? If not, what system? Explain. How to maintain anesthesia? Why? Muscle relaxant? If so, how monitor?
3. Myasthenia gravis: A 45-year-old woman with well-controlled myasthenia gravis is scheduled for cholecystectomy. Her only medication is pyridostigmine 60mg q 6h. How does Dx influence your anesthetic mgmt? If surgery scheduled for 11 am? Regional or general? Assume general. Administer a muscle relaxant? Why/why not? If so, which? Why? Assume atracurium given but one hour later, after 5 mg neostigmine, train-of-four remains absent. How proceed? How differentiate myasthenic vs. cholinergic crisis?