Adult Critical Care Specialty Examination
Detailed Content Outline

- *Bank nomenclature depends on linkages of multiple-choice items to open cells on the right.*
- *Items are assembled into a minipool containing an item sampling group (ISG) for each combination of specifications.*
- *Forms will be administered by a linear-on-the-fly system produced from a set of ISGs.*

		Minimum Item Counts for Each Minipool			Item Counts for Each Form		
		Cognitive Levels			Cognitive Levels		
	Ethics	Recall	Application	Analysis	Recall	Integration	Total
I. RESPIRATORY CRITICAL CARE		1	42	37	1	79	80
A. Manage Airways		0	14	10	0	24	24
1. Airway clearance techniques							
a. non-pharmacologic therapies							
b. pharmacologic therapies							
2. Difficult airway recognition and techniques							
3. Intubation techniques, for example, • cricoid pressure • gum elastic bougie • video laryngoscopy							
4. Artificial airways							
a. specialty endotracheal tubes, for example, • subglottic suction • wire-reinforced • double lumen • Ring-Adair-Elwyn (RAE) nasal or oral tubes							
b. exchanging endotracheal tubes							
c. specialty tracheostomy tubes, for example, • speaking • t-tube • proximal or distal extended length							
B. Administer Specialty Inhalants – Nitric Oxide, Helium-Oxygen, Nitrous Oxide		0	2	2	0	4	4
1. Utilization of clinical protocols (initiation, weaning, liberation)							
2. Indications, contraindications, and complications							

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	Ethics	Recall	Application	Analysis	Recall	Integration	Total
C. Apply Techniques to Enhance Ventilation, Oxygenation, or Synchrony		1	24	23	1	47	48
1. Initial settings for any invasive or noninvasive technique							
2. Waveform analyses							
3. Rescue techniques							
a. recruitment maneuvers							
b. prone patient positioning • indications, contraindications, and complications							
c. extracorporeal life support, for example, • venovenous (VV) ECMO • venoarterial (VA) ECMO • $ECCO_2$ removal							
4. Strategies							
a. liberation from invasive mechanical ventilation							
b. prevention of lung injury from mechanical ventilation							
c. participation in the care of patients who meet diagnostic criteria for ARDS							
d. treatment of patients with traumatic injuries, for example, • head • cervical spine • chest • abdomen • long bone fractures • burn or inhalation							
e. mobilization, exercise, and rehabilitation while receiving ventilatory support							
f. PEEP management							
g. pharmacologic sedation and neuromuscular blockade							

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	Ethics	Recall	Application	Analysis	Recall	Integration	Total
h. participation in the care of patients experiencing pain, agitation, and delirium							
5. Differential or independent lung ventilation, for example, • indications • techniques							
6. Intrahospital transport of unstable and high-risk patients							
D. Deliver Pharmacologic Agents		0	2	2	0	4	4
1. Aerosolized agents other than bronchodilators, for example, • vasodilators • heparin • tranexamic acid (TXA) • antimicrobials							
2. Airway instillations other than for ACLS, for example, • epinephrine • prothrombotics • lidocaine							
II. GENERAL CRITICAL CARE		6	36	28	6	64	70
A. Evaluate Non-Pulmonary Systems to Manage Patient Care		1	3	2	1	5	6
1. Neurologic, for example, • EEG • neuromuscular function • level of consciousness • seizures • respiratory function • stroke • brain death criteria • elevated ICP • hypoventilation syndromes • targeted temperature management							

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2. Cardiovascular and hemodynamics, for example, • diagnostic testing and imaging (e.g., stress, left or right heart catheterization, echocardiography) • noninvasive assessment of volume status (e.g., leg raise) • coronary artery disease • systemic hypertension • dysrhythmias • heart failure • types of shock • preload, afterload, contractility							
3. Renal, for example, • fluid status • acute kidney injury • renal replacement therapy • urine output							
4. Metabolic, for example, • respiratory quotient • acid-base balance • electrolyte imbalances • nutrition or feeding • endocrine disorders							
5. Gastrointestinal, for example, • intra-abdominal hypertension (IAH) • bowel obstruction • ileus • feeding tube management • GI bleeding • stress ulcer prophylaxis							

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6. Hematology, for example, • lab assessments • heparin-induced thrombocytopenia (HIT) • transfusion-related complications • venous thromboembolic prophylaxis and treatment • complications of anticoagulants							
7. Musculoskeletal, for example, • spinal cord injury • rhabdomyolysis • muscle atrophy							
B. Manage Contributors to Respiratory Failure		0	9	6	0	15	15
1. Difficult airway predictors, for example, • airway patency • upper airway anatomy classification systems • inability to protect • musculoskeletal disorders							
2. Indices of respiratory physiology and mechanics, for example, • esophageal manometry • ratio of oxygen saturation (ROX) index							
3. Primary pulmonary etiologies							
a. ARDS							
b. aspiration							
c. atelectasis							
d. drug-induced							

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		Cognitive Levels			Cognitive Levels		
	Ethics	Recall	Application	Analysis	Recall	Integration	Total
e. infectious diseases							
f. mechanical airway obstruction							
g. obstructive lung disease							
h. pulmonary embolism							
i. pulmonary hypertension							
j. restrictive lung disease							
k. sleep-disordered breathing							
l. trauma							
C. Anticipate Care Based on Laboratory Results		0	5	4	0	9	9
1. CBC, for example, • transfusion threshold • transfusion refusal							
2. Cardiac biomarkers, for example, • troponin • BNP							
3. Non-cardiac biomarkers, for example, • d-dimer • procalcitonin • lactate							
4. Electrolytes, BUN, and creatinine							
5. Acid-base status, and anion and osmolar gaps							
6. Coagulation studies							
7. Gram stain, culture, and sensitivities							
8. Respiratory pathogen studies							

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	Ethics	Minimum Item Counts for Each Minipool: Cognitive Levels: Recall	Application	Analysis	Item Counts for Each Form: Cognitive Levels: Recall	Integration	Total
9. Hemoximetry (CO-oximetry)							
10. Body fluid analyses, for example, • pleural • CSF • urine • peritoneal							
D. Anticipate Care Based on Imaging and / or Reports of Imaging		0	2	2	0	4	4
1. Plain radiograph							
2. CT							
3. MRI							
4. Ultrasound							
5. Angiography							
E. Anticipate Effects of Pharmacologic Agents		1	4	3	1	7	8
1. Sedatives / hypnotics, for example, • induction • maintenance • indications, contraindications, and complications							
2. Opioid and non-opioid analgesia, for example, • induction • maintenance • indications, contraindications, and complications							

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	Ethics	Minimum Item Counts for Each Minipool – Cognitive Levels: Recall	Application	Analysis	Item Counts for Each Form – Cognitive Levels: Recall	Integration	Total
3. Neuromuscular blocking agents, for example, • induction • indications, contraindications, and complications • maintenance							
4. Reversal agents, for example, • indications, contraindications, and complications							
5. Vasoactive agents							
6. Drug toxicities							
7. Diuretics • indications, contraindications, and complications							
8. Influence of co-morbid conditions on drug metabolism and excretion							
F. Anticipate Care Based on Nutritional Status		0	1	1	0	2	2
1. Complications of malnutrition							
2. Route of feeding							
3. Complications of nutritional support, for example, • aspiration • catheter infection • refeeding syndrome • parenteral nutrition complications							

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		Cognitive Levels			Cognitive Levels		
	Ethics	Recall	Application	Analysis	Recall	Integration	Total
G. Manage Patients with Infections and / or Sepsis		0	2	2	0	4	4
1. Early recognition and supportive care							
2. Source control • removal of unnecessary lines, drains, airways • drainage (surgical, non-surgical)							
3. Anti-infectives administration							
4. Utilization of severity scoring systems • MODS • SOFA / Quick SOFA • APACHE • MEWS							
H. Manage End-of-Life Care		0	2	1	0	3	3
1. Types of care, for example, • symptom-directed • advance directive • hospice							
2. Determination of brain death							
3. Procedure for withdrawing life support							
4. Care of organ donor							
I. Plan for Disaster, Pandemic, and Mass Casualty Events		1	1	0	1	1	2
1. Procedures for patient movement and patient protection							
2. Triage procedures							
3. Equipment and supply management							

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	Ethics	Recall	Application	Analysis	Recall	Integration	Total
J. Advise an Interdisciplinary Team on Management of Challenging Cases		0	1	2	0	3	3
1. Suggested modifications to the care plan based on the respiratory assessment							
2. Response to modifications to the care plan from other team members							
K. Perform Procedures		0	2	2	0	4	4
1. Arterial line insertion and removal							
2. Mini-BAL							
3. Esophageal probe, for example, • transpulmonary pressure monitor • NAVA							
4. Ultrasound assistance							
L. Troubleshoot Systems		2	2	2	2	4	6
1. Chest tube drainage							
2. Bronchoscopy							
3. Hemodynamic monitoring, for example, • arterial pressure • CVP							
4. Intra-aortic balloon pump (IABP)							
5. Left or right VAD							
6. ECMO circuits							

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	Ethics	Recall	Application	Analysis	Recall	Integration	Total
M. Support Continuous Improvement		**1**	**2**	**1**	**1**	**3**	**4**
1. Regulatory environment • FDA Biomedical Device classification • IRB • device failure reporting • participation in management of sentinel event							
2. Policies and procedures • development of local protocols • utilization of evidence-based guidelines • adherence to national standards							
3. Quality improvement initiatives							
4. Contribution to research and / or education							
5. Evaluation of research literature							
Totals	*	7	78	65	7	143	150

*Each minipool will include at least 5 items that engage thinking about medical ethics; however, a form may be assembled by LOFT without an item linked to ethics.

Continued on the next page

Additional Specifications

Item nomenclature is also linked to the following table.

Patient Type	Minimum Item Counts for Each Minipool	Minimum Item Counts for Each Test Form
Pulmonary Conditions	**52**	**47**
Obstructive Lung Diseases	22	
ARDS	15	
Restrictive Lung Diseases	4	
Pulmonary Embolism	4	
Pulmonary Hypertension	4	
Massive Hemoptysis	1	
Drowning	1	
Burn/Inhalation Injury	1	
Other Medical / Surgical Conditions	**71**	**64**
Cardiac	12	
Post-Surgical	10	
Infection/Sepsis	8	
Trauma	6	
Immunocompromised	5	
Obesity	5	
Geriatric	4	
Shock	4	
Metabolic disorders	4	
Drug Toxicity	4	
Neurologic/Neuromuscular	4	
Toxins	2	
Psychiatric	2	
Transplantation	1	
General	**Balance**	
Total	**150**	

The Adult Critical Care Specialty Examination consists of 170 multiple-choice items (150 scored and 20 pretest) taken over a 4-hour period.