Credential Maintenance Program

Adult Critical Care Specialty Assessment Detailed Content Outline

Multiple-choice items are linked to open cells.

*Test takers will be asked to integrate (apply or analyze) information.

	Items			
		Cognitive Levels		
	Ethics	Recall	Integration*	Total
First Quarter of the Calendar				5
I. RESPIRATORY CRITICAL CARE		0	6	6
A. Manage Airways		0	2	2
1. Airway clearance techniques				
2. Difficult airway recognition and techniques				
3. Advanced techniques during intubation, for example, • cricoid pressure • specialty visualization devices • tube changers				
4. Artificial airways				
a. specialty endotracheal tubes, for example, • subglottic suction • double lumen • wire-reinforced				
b. exchanging endotracheal tubes				
c. specialty tracheostomy tubes				
B. Administer Specialty Gases		0	1	1
1. Nitric oxide, for example, • initiation • withdrawal				
2. Helium-oxygen, for example, • indications				
C. Manage Ventilation/Oxygenation		0	3	3
1. Initial settings				
2. Advanced modes, for example, • techniques to enhance ventilation • techniques to enhance oxygenation • techniques to enhance synchrony				
3. Noninvasive, for example, • high flow nasal cannula • NPPV • mask CPAP				
4. Waveform analyses				
5. Rescue techniques				
a. recruitment maneuvers				
b. inhaled vasodilators, for example, • nitric oxide • prostacyclin				
c. high frequency ventilation				
d. prone patient positioning				

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	Items			
	Ethics	Cognitive Levels		Total
		Recall	Integration*	
e. extracorporeal life support, for example, • ECMO				
Second Quarter of the Calendar				**5**
6. Strategies				
a. liberation (weaning) from mechanical ventilation				
b. prevention of lung injury from mechanical ventilation				
c. management of ARDS				
d. treatment of patients with traumatic injuries, for example, • head • abdomen • cervical spine • long bone fractures • chest • burn/inhalation				
e. exercise and rehabilitation while receiving ventilatory support				
f. PEEP management, for example, • mild hypoxemia • severe hypoxemia				
7. Differential / independent lung ventilation, for example, • indications • techniques				
8. Intrahospital transport of unstable and high-risk patients				
9. Optimizing patient-ventilator interaction				
D. Deliver Pharmacologic Agents		**0**	**0**	**0**
1. Aerosolized agents other than bronchodilators, for example, • vasodilators • antimicrobials				
2. Airway instillations other than for ACLS, for example, • epinephrine • cold saline • lidocaine • topical thrombin				
3. Optimization of aerosol delivery, for example, • during mechanical ventilation • high flow nasal cannula • NPPV				
II. GENERAL CRITICAL CARE		**2**	**12**	**14**
A. Assess Patient Status and Changes in Status		**0**	**3**	**3**
1. Difficult airway issues, for example, • patency • protection • Mallampati classification • thyromental distance				

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	Items			
		Cognitive Levels		
	Ethics	Recall	Integration*	Total
2. Chest imaging, for example, • radiograph • ultrasound • CT • ventilation/perfusion scan • echocardiograph				
3. Indices of respiratory physiology and mechanics, for example, • oxygenation • capnometry • ventilation • work of breathing • capnography				
4. Neurologic, for example, • EEG • neuromuscular function • level of consciousness • seizures • respiratory function • stroke • brain death criteria				
5. Cardiovascular, for example, • physical assessment • dysrhythmias • coronary artery disease • systemic hypertension • diagnostic testing • CHF • pulmonary hypertension				
6. Hemodynamics, for example, • preload • rate control • afterload • cardiac output • contractility • oxygen delivery				
7. Differentiation among types of shock, for example, • anaphylactic • hypovolemic • cardiogenic • neurogenic • septic				
8. Recognition of respiratory failure mechanisms				
a. ARDS				
b. aspiration				
c. atelectasis				
d. drug-induced				
e. hypoventilation syndromes				
f. neuromuscular				
g. obstructive lung disease				
h. pneumonia				
i. post-surgical				
j. pulmonary contusion				

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	Items			
		Cognitive Levels		
	Ethics	Recall	Integration*	Total
k. pulmonary edema, for example, • cardiogenic • noncardiogenic				
l. pulmonary embolism				
m. restrictive lung disease				
n. sleep apnea				
o. transfusion-related lung injury				
p. upper airway obstruction				
9. Renal function, for example, • fluid status • acid-base balance • acute kidney injury • urine output				
10. Metabolic, for example, • respiratory quotient • nutrition/feeding • acid-base balance • endocrine disorders				
11. Gastrointestinal, for example, • abdominal compartment syndrome • feeding tube placement • GI bleeding / endoscopy • ileus				
12. Coagulation, for example, • indices • risk for deep vein thrombosis • platelet count				
13. Musculoskeletal, for example, • spinal cord injury • ICU myopathy • rhabdomyolysis • muscle atrophy				
14. Therapeutic hypothermia, for example, • targeted temperature management • indications and contraindications • methods • complications				
B. Anticipate Care Based on Laboratory Results		0	0	0
1. Albumin				
2. CBC, for example, • transfusion trigger • transfusion refusal				
3. Cardiac markers, for example, • troponin • BNP				
4. Non-cardiac biomarkers, for example, • d-dimer • procalcitonin • lactate				
5. Electrolytes, magnesium, calcium, and phosphate				

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	Items			
	Ethics	Cognitive Levels		Total
		Recall	Integration*	
6. Acid-base status, anion gap, ketones, and lactate level				
7. Coagulation studies, for example, • platelets • PT • PTT • INR				
8. Culture and sensitivities, for example, • blood • sputum • stool • urine				
9. Sputum Gram stain				
10. Hemoximetry (CO-oximetry), for example, • carboxyhemoglobin • methemoglobin				
11. Endocrine assessment, for example, • cortisol • thyroid function • glucose				
12. BUN and creatinine				
13. Liver function, for example, • bilirubin • AST • ammonia • ALT				
14. Fluid analyses, for example, • pleural • CSF • urine • peritoneal				
C. Anticipate Care Based on Imaging and/or Reports of Imaging		0	0	0
1. Plain radiographs, for example, • chest • abdominal • spine				
2. CT, for example, • brain • abdomen • chest				
3. MRI				
4. Ultrasound, for example, • lung • vascular • pleural • echocardiography • abdominal				
5. Nuclear scans, for example, • ventilation/perfusion • cerebral blood flow				

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	Items			
	Ethics	Cognitive Levels		Total
		Recall	Integration*	
6. Angiography, for example, • pulmonary • gastrointestinal • coronary • cerebral • bronchial				
D. Anticipate Effects of Pharmacologic Agents		0	1	1
1. Sedatives / hypnotics, for example, • continuous or intermittent • propofol • dexmedetomidine • benzodiazepine				
2. Analgesia, for example, • continuous or intermittent • opioids • regional or systemic • ketamine				
3. Neuromuscular blocking agents, for example, • vecuronium • succinylcholine • cisatracurium • rocuronium				
4. Reversal agents, for example, • naloxone • neostigmine • flumazenil • edrophonium • sugammadex				
5. Vasoactive and inotropic agents				
6. Drugs that may induce methemoglobinemia, for example, • lidocaine • nitroprusside • dapsone • benzocaine • nitric oxide				
7. Prophylaxis for				
a. deep vein thrombosis				
b. stress ulcers				
c. delirium				
8. Diuretics				
9. Drug interactions				

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*Test takers will be asked to integrate (apply or analyze) information.

	Items			
		Cognitive Levels		
	Ethics	Recall	Integration*	Total
10. Influence of co-morbid conditions on drug metabolism and excretion, for example, • renal failure • hepatic failure				
Third Quarter of the Calendar				**5**
E. Anticipate Care Based on Nutritional Status		**0**	**1**	**1**
1. Complications of malnutrition, for example, • protein wasting • respiratory muscle catabolism • hypoglycemia				
2. Complications of nutritional support, for example, • aspiration • malplacement of feeding tube • central line infection • refeeding syndrome				
3. Route of feeding, for example, • enteral • parenteral				
4. Morbid obesity				
5. Metabolic study, for example, • caloric requirements • exhaled gas analysis				
F. Prevent Ventilator-Associated Events		**1**	**1**	**2**
1. Oral care				
2. Bed position				
3. Minimizing intubation time, for example, • aggressive weaning protocols • NPPV				
4. Ventilator circuit care, for example, • minimizing disruption • closed suction • optimal position • heated wire/HME				
5. Using specialty airways, for example, • polyurethane cuff • subglottic suction endotracheal tube				
6. Assessment of endotracheal / tracheostomy cuff integrity and pressure				
G. Recognize and Manage Patients with Infections and/or Sepsis		**0**	**2**	**2**
1. Recognition of clinical and laboratory signs consistent with infections and severe sepsis, for example, • catheter-associated • CBC • culture data				

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*Test takers will be asked to integrate (apply or analyze) information.

	Items			
		Cognitive Levels		
	Ethics	Recall	Integration*	Total
2. Management of patients with infections and sepsis, for example, • pneumonia • catheter-associated				
3. Prevention measures, for example, • standard and advanced precautions • personal protective equipment • isolation procedures • catheter care • skin integrity				
Fourth Quarter of the Calendar				**5**
H. Manage End-of-Life Care		**0**	**0**	**0**
1. Types of end-of-life care, for example, • palliative • hospice • advance directive				
2. Determination of brain death				
3. Withdrawal of life support				
4. Care of organ donor				
I. Prepare for Disaster and Mass Casualty Events		**1**	**0**	**1**
1. Procedures for patient movement and protection				
2. Triage procedures				
3. Equipment and supply management				
J. Interact with Members of an Interdisciplinary Team		**0**	**1**	**1**
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**	**1**	**1**
1. Arterial line insertion and monitoring				
2. Mini-BAL				
3. Esophageal probe, for example, • transpulmonary pressure monitor • NAVA				
L. Troubleshoot Systems		**0**	**2**	**2**
1. Chest tube drainage				
2. Bronchoscopy				
3. Hemodynamic monitoring, for example, • arterial pressure • CVP				

Credential Maintenance Program **Adult Critical Care Specialty Assessment Detailed Content Outline** *Multiple-choice items are linked to open cells.* *Test takers will be asked to integrate (apply or analyze) information.	Items			
	Ethics	Cognitive Levels		Total
		Recall	Integration*	
4. Inhaled vasodilator delivery, for example, • nitric oxide • prostaglandins				
Totals		**2**	**18**	**20**

*****Each test form will include 1 item that engages thinking about ethics to select the best answer. The item also will

- include content from a task that shows an open cell under the ***Ethics*** column.
- be written to a cognitive level permitted for the task to which the item is linked.

Additional Specifications by Patient

Item content also will be classified by a patient's condition or disorder.

Condition or Disorder	Maximum items per form
GENERAL *No specific condition or disorder*	balance
ARDS	2
COPD	2
CARDIAC	2
POST-SURGICAL	2
ASTHMA	2
TRAUMA	1
INFECTION/SEPSIS	1
PULM EMBOLISM (pulmonary embolism)	1
SHOCK	1
BARIATRIC	1
NEUROLOGIC/NEUROMUSCULAR	1
PULM HYPERTENSION (pulmonary hypertension)	1
GERIATRIC	1
IMMUNOCOMPROMISED	1
PSYCHIATRIC	1
MASSIVE HEMOPTYSIS	1
BURN/INHALATION (burn/inhalation injury)	1
CYSTIC FIBROSIS	1
TRANSPLANTATION	1
Total	**20**