




 Neonatal/Pediatric Specialty Examination Detailed Content Outline <i>Multiple-choice items are linked to open cells.</i> <i>*Candidates will be asked to apply or analyze information.</i>	Item Count			
	Ethics	Cognitive Level		Total
		Recall	Integration*	
I. COMPETENCIES SHARED BETWEEN CRITICAL AND GENERAL CARE OF NEONATAL OR PEDIATRIC PATIENTS		16	64	80
A. Assess Information		3	9	12
1. Patient medical / surgical history				
a. current				
b. past				
2. Physical examination				
3. Laboratory values				
4. Imaging results, for example, <ul style="list-style-type: none"> • chest radiograph • cardiac catheterization and angiography • echocardiography • fluoroscopy • MRI • CT 				
5. Indices of respiratory physiology and mechanics, for example, <ul style="list-style-type: none"> • oxygenation • work of breathing • sleep study results 				
6. Cardiovascular, for example, <ul style="list-style-type: none"> • cyanosis • syncope • exercise dyspnea 				
7. Neurologic, for example, <ul style="list-style-type: none"> • muscle weakness • swallowing ability • level of consciousness 				
8. Musculoskeletal, for example, <ul style="list-style-type: none"> • chest wall deformity 				
9. Gastrointestinal, for example, <ul style="list-style-type: none"> • vomiting • reflux • failure to thrive 				
10. Renal / endocrine, for example, <ul style="list-style-type: none"> • fluid status • electrolytes • acid-base balance 				
B. Recognize Mechanisms Contributing to Respiratory Compromise		3	5	8
1. Pulmonary and airway diseases, for example, <ul style="list-style-type: none"> • atelectasis • pneumonia • asthma • croup • obstructive sleep apnea 				


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2. Cardiovascular, for example, <ul style="list-style-type: none"> • pulmonary hypertension • congenital heart disease 				
3. Neurologic or neuromuscular, including central breathing control, for example, <ul style="list-style-type: none"> • apnea of prematurity • muscular dystrophies 				
4. Musculoskeletal, for example, <ul style="list-style-type: none"> • spinal cord injury • scoliosis • Jeune syndrome • rib fractures / anomalies 				
5. Gastrointestinal, for example, <ul style="list-style-type: none"> • congenital anomalies • necrotizing enterocolitis • nutrition and feeding 				
6. Renal / endocrine, for example, <ul style="list-style-type: none"> • inborn errors of metabolism • diabetic ketoacidosis 				
7. Hematologic / immunologic disorders, for example, <ul style="list-style-type: none"> • anemia • sickle cell disease 				
C. Evaluate Pulmonary Status		0	4	4
1. Gas exchange, for example, <ul style="list-style-type: none"> • SpO₂ • end-tidal CO₂ tension • blood gases • transcutaneous 				
2. Pulmonary function, for example, <ul style="list-style-type: none"> • spirometry • MIP / MEP • F_ENO • peak flow • lung volumes • peak cough force 				
3. Home monitoring and discharge planning, for example, <ul style="list-style-type: none"> • mechanical ventilation • car seat challenge • apnea 				
D. Assess Airway Management		2	7	9
1. Establishment of a patent airway				
2. Performance of, or assistance with, intubation, for example, <ul style="list-style-type: none"> • equipment selection • CO₂ verification 				
3. Established airway devices, for example, <ul style="list-style-type: none"> • cuff management • stoma management 				


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4.	Airway clearance devices and techniques, for example, <ul style="list-style-type: none"> • high-frequency chest wall oscillation • PEP • insufflation / exsufflation • postural drainage and percussion • intrapulmonary percussive ventilation 				
5.	Airway challenges, for example, <ul style="list-style-type: none"> • acute upper airway obstruction • unplanned tube dislodgement • difficult / critical airway • congenital anomalies 				
6.	Artificial airways				
	a. supraglottic airway				
	b. endotracheal tube, for example, <ul style="list-style-type: none"> • securement • size • UPE prevention • positioning • cuff management 				
	c. newly placed tracheostomy tube				
E. Manage Equipment Selection and Troubleshooting		2	7	9	
1.	Oxygen administration devices				
2.	Aerosol delivery devices				
3.	Airway devices, for example, <ul style="list-style-type: none"> • oral and nasopharyngeal • tracheostomy tubes • speaking valves 				
4.	Transcutaneous monitoring systems				
5.	End-tidal monitoring devices				
6.	Devices that support patients who depend on technology				
	a. airway clearance devices, for example, <ul style="list-style-type: none"> • insufflation / exsufflation • PEP • high-frequency chest wall oscillation 				
	b. mechanical ventilation				
	c. other home care devices, for example, <ul style="list-style-type: none"> • PAP support • humidifier • apnea monitor • oxygen delivery • medication delivery • pulse oximetry • suction 				

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F. Facilitate Procedures Including the Evaluation of Efficacy		1	2	3
1. Flexible bronchoscopy and associated procedures, for example, <ul style="list-style-type: none"> • lavage • brush biopsy • transbronchial biopsy 				
2. Respiratory specimen sampling, for example, <ul style="list-style-type: none"> • nasal swab • double gag sputum • tracheal aspirate 				
3. Blood gas sampling				
G. Anticipate Effects and Interactions of Medications		2	7	9
1. Aerosolized agents				
2. Sedatives, hypnotics, and analgesia				
3. Reversal agents				
4. Vasoactive and inotropic agents				
5. Diuretics				
6. Systemic smooth muscle relaxants				
7. Targeted treatments for respiratory conditions				
a. asthma				
b. neuromuscular diseases				
c. cystic fibrosis				
H. Anticipate Care Based on Diagnostic Results		0	9	9
1. Laboratory				
a. hematology, for example, <ul style="list-style-type: none"> • CBC • Hb electrophoresis 				
b. chemistry, for example, <ul style="list-style-type: none"> • electrolytes • albumin • BNP • glucose • sweat test 				
c. microbiology, for example, <ul style="list-style-type: none"> • nasal swab • Gram stain • culture 				
d. toxicology				
e. blood gas analyses and hemoximetry (CO-oximetry)				

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2. Imaging				
a. radiographs, for example, <ul style="list-style-type: none"> • sail sign • lateral neck • abdomen 				
<ul style="list-style-type: none"> • cardiac silhouette with CHD 				
b. other, for example, <ul style="list-style-type: none"> • CT • MRI 				
<ul style="list-style-type: none"> • ultrasound • echocardiogram 				
c. fluoroscopy, for example, <ul style="list-style-type: none"> • diaphragm 				
<ul style="list-style-type: none"> • swallow function 				
I. Manage Care Based on Nutritional Status		0	2	2
1. Complications of feedings, for example, <ul style="list-style-type: none"> • intolerance • aspiration 				
<ul style="list-style-type: none"> • malposition of feeding tube 				
2. Morbid obesity, for example, <ul style="list-style-type: none"> • airway management 				
<ul style="list-style-type: none"> • sleep-disordered breathing 				
J. Assist with, or Perform, Resuscitation		1	2	3
1. Selection of equipment, for example, <ul style="list-style-type: none"> • T-piece resuscitator • flow-inflating resuscitation bag 				
<ul style="list-style-type: none"> • self-inflating bag • supraglottic mask 				
2. Following protocols, for example, <ul style="list-style-type: none"> • NRP • PALS 				
<ul style="list-style-type: none"> • pre-term delivery Golden Hour 				
K. Implement Patient Care Protocols		1	3	4
1. Prevention of hospital-acquired conditions				
a. ventilator-associated events				
b. skin injuries, for example, <ul style="list-style-type: none"> • adhesive injuries 				
<ul style="list-style-type: none"> • pressure ulcers 				
2. Preparations for events - pandemic, disaster, or mass casualty				
a. triage procedures				
b. equipment and supply management				

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		Recall	Integration*	
L. Interact with Members of an Interdisciplinary Team		0	5	5
1. Suggested modifications to the care plan based on the respiratory assessment				
2. Responses to proposed care plan modifications from other team members				
3. Communication of concerns leading to the escalation of care				
4. Supporting palliative care measures for patients and families				
5. Facilitating optimal team and patient interactions, for example, <ul style="list-style-type: none"> • patient-centered • trauma-informed • culturally aware 				
M. Evaluate Patient and Family Understanding of Education		1	2	3
1. Discharge and home, for example, <ul style="list-style-type: none"> • management of artificial airway • asthma plan • emergency plan • safe sleep • CPR • car seat positioning • signs of respiratory distress / infection 				
2. Equipment and procedure instruction, for example, <ul style="list-style-type: none"> • set-up • operation • cleaning / disinfection • troubleshooting 				
3. Medication administration				
II. COMPETENCIES SPECIFIC TO CRITICAL CARE OF NEONATAL OR PEDIATRIC PATIENTS		6	64	70
A. Evaluate Pertinent Information		3	3	6
1. Maternal history, for example, <ul style="list-style-type: none"> • amniotic fluid index • maternal medication 				
2. Fetal and neonatal assessments, for example, <ul style="list-style-type: none"> • biophysical profile • APGAR score • fetal lung maturity indices 				
3. Other diagnostic results, for example, <ul style="list-style-type: none"> • transillumination • oxygen challenge test 				
B. Manage Specialty Gas Administration		0	5	5
1. Nitric oxide				
2. Helium-oxygen				
3. Other, for example, <ul style="list-style-type: none"> • isoflurane / sevoflurane • subambient 				

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		Recall	Integration*	
C. Manage Ventilation and Oxygenation		0	30	30
1. Selection of initial settings				
2. Modes of invasive ventilation				
3. Modes of noninvasive ventilation				
4. Adjunct techniques				
a. prone positioning				
b. extracorporeal life support, for example, <ul style="list-style-type: none"> • VA vs. VV • ventilation management • complications 				
5. Monitoring				
a. measures of oxygenation, for example, <ul style="list-style-type: none"> • PaO₂ / F_IO₂ • OI / OSI • SaO₂ / F_IO₂ 				
b. airway pressures and volumes, for example, <ul style="list-style-type: none"> • mean airway pressure • optimal PEEP • minute ventilation 				
c. ventilator waveforms				
d. CO ₂ waveforms				
e. ventilator-patient interaction				
f. pulmonary mechanics, for example, <ul style="list-style-type: none"> • compliance • V_D / V_T • resistance • MIP 				
g. effects of mechanical ventilation on cardiac function				
h. near infrared spectroscopy				
6. Strategies				
a. liberation from mechanical ventilation				
b. prevention of ventilator-induced lung injury				
c. monitoring and support for early mobility				
7. Optimizing patient-ventilator interaction				
D. Facilitate Procedures Including Evaluation of Efficacy		2	15	17
1. Inter-hospital or intra-hospital transport				
2. Intravascular catheter insertion				
3. Intubation using advanced techniques				

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4.	Medication instillation into an airway, for example, <ul style="list-style-type: none"> • surfactant • lidocaine HCl • epinephrine 				
5.	Extubation				
6.	Chest tube management				
7.	Needle decompression of pneumothorax				
8.	Bedside surgical procedures, for example, <ul style="list-style-type: none"> • ECMO • chest closure • central line placement 				
9.	Prone positioning				
10.	Therapeutic hypothermia, for example, <ul style="list-style-type: none"> • total body / head cooling • passive / active cooling 				
E. Manage the Anticipated Effects of Medication Administration					
1.	Surfactant replacement therapy, for example, <ul style="list-style-type: none"> • delivery modalities • potential complications 				
2.	Airway instillations, for example, <ul style="list-style-type: none"> • lidocaine HCl • mucolytics • epinephrine • thrombolytics 				
3.	Neuromuscular blocking agents				
F. Support End-of-Life Care					
1.	Distinguishing types of end-of-life care, for example, <ul style="list-style-type: none"> • palliative • hospice • advance directives • DNR 				
2.	Determination of brain death				
3.	Withdrawal of life support				
4.	Care of organ donor				
Totals		**	22	128	150

**Each examination form may contain items that engage thinking about medical ethics.

Continued on the next page

Additional Specifications*Item content also can be linked to a patient disorder.*

Patient Type	Minimum Item Counts
Pulmonary (Airways, Parenchyma) Disorders	86
Neonatal pulmonary (for example, meconium aspiration, pneumonia, PPHN)	
Asthma	
Chronic lung disease of prematurity	
Infectious diseases (for example, pneumonia, croup)	
Prematurity acute phase (for example, surfactant deficiency, apnea)	
Bronchiolitis	
Pediatric ARDS	
Pediatric airway (for example, tracheomalacia, vocal cord dysfunction / inducible laryngeal obstruction, vascular ring)	
Congenital defects (for example, diaphragmatic hernia, transesophageal fistula, Pierre Robin sequence)	
Cystic fibrosis	
Inhalation injuries	
Non-Pulmonary Disorders	34
Neurologic (for example, seizures, brain tumors, hydrocephalus)	
Neuromuscular (for example, spinal muscle atrophy, muscular dystrophy)	
Congenital heart diseases	
Heart failure	
Shock	
Sleep-related health and disorders (for example, safe sleep, obstructive sleep apnea, central hypoventilation)	
Trauma	
Immunocompromised	
Congenital defects	
General	Balance
Total	150