




 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				
	Ethics	Cognitive Level			Total
		Recall	Application	Analysis	
<b>I. CRITICAL CARE</b>		<b>6</b>	<b>35</b>	<b>34</b>	<b>75</b>
<b>A. Evaluate Pertinent Information</b>		<b>0</b>	<b>6</b>	<b>6</b>	<b>12</b>
1. Maternal history					
2. Neonatal assessment e.g., <ul style="list-style-type: none"> <li>• Apgar</li> <li>• fetal lung maturity indices</li> </ul>					
3. Patient history					
4. Physical examination					
5. Laboratory e.g., <ul style="list-style-type: none"> <li>• blood gas analyses</li> <li>• cultures</li> <li>• CBC</li> </ul>					
6. Imaging e.g., <ul style="list-style-type: none"> <li>• chest radiograph</li> <li>• cardiac catheterization and angiography</li> <li>• echocardiography</li> <li>• fluoroscopy</li> <li>• MRI</li> <li>• CT</li> </ul>					
7. Other diagnostic results e.g., <ul style="list-style-type: none"> <li>• transillumination</li> <li>• oxygen challenge test</li> </ul>					
<b>B. Assess and Manage Airways</b>		<b>2</b>	<b>6</b>	<b>4</b>	<b>12</b>
1. Establishment of an airway e.g., <ul style="list-style-type: none"> <li>• bag-mask ventilation</li> <li>• oral/nasal airway placement</li> </ul>					
2. Difficult airway recognition					
3. Performing or assisting standard intubation e.g., <ul style="list-style-type: none"> <li>• equipment selection</li> <li>• CO<sub>2</sub> verification</li> </ul>					
4. Performing or assisting advanced intubation techniques e.g., <ul style="list-style-type: none"> <li>• cricoid pressure</li> <li>• tube changers</li> <li>• specialty laryngoscopic visualization devices</li> </ul>					
5. Artificial airways					
a. laryngeal mask airway					
b. cuff management					
c. tracheostomy tubes					
d. airway clearance techniques e.g., <ul style="list-style-type: none"> <li>• secretion removal</li> </ul>					
<b>C. Administer and Monitor Specialty Gases</b>		<b>0</b>	<b>2</b>	<b>2</b>	<b>4</b>
1. Nitric oxide					
2. Helium-oxygen					

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3. Other e.g., <ul style="list-style-type: none"> <li>isoflurane</li> <li>carbon dioxide</li> <li>subambient</li> </ul>					
<b>D. Manage Ventilation and Oxygenation</b>		<b>0</b>	<b>10</b>	<b>15</b>	<b>25</b>
1. Selection of initial settings					
2. Conventional modes					
3. Alternative modes e.g., <ul style="list-style-type: none"> <li>volume-targeted</li> <li>airway pressure release ventilation</li> <li>high frequency</li> <li>neurally adjusted ventilatory assist</li> </ul>					
4. Noninvasive e.g., <ul style="list-style-type: none"> <li>CPAP</li> <li>bilevel</li> </ul>					
5. Adjunct techniques					
a. lung recruitment maneuvers					
b. prone patient positioning					
c. extracorporeal gas exchange e.g., <ul style="list-style-type: none"> <li>ECMO</li> <li>CO<sub>2</sub> removal</li> </ul>					
6. Monitoring					
a. measures of lung disease severity e.g., <ul style="list-style-type: none"> <li>OI</li> <li>PaO<sub>2</sub> / F<sub>I</sub>O<sub>2</sub> ratio</li> </ul>					
b. airway pressures and volumes e.g., <ul style="list-style-type: none"> <li>mean airway pressure</li> <li>minute ventilation</li> </ul>					
c. gas exchange e.g., <ul style="list-style-type: none"> <li>S<sub>P</sub>O<sub>2</sub></li> <li>ETCO<sub>2</sub></li> </ul>					
d. ventilator waveforms					
e. ventilator-patient interaction e.g., <ul style="list-style-type: none"> <li>synchrony</li> </ul>					
f. pulmonary mechanics e.g., <ul style="list-style-type: none"> <li>compliance</li> <li>resistance</li> <li>V<sub>D</sub> / V<sub>T</sub></li> <li>MIP</li> </ul>					
g. effects of mechanical ventilation on cardiac function					
7. Strategies					
a. liberation from mechanical ventilation e.g., <ul style="list-style-type: none"> <li>protocols</li> <li>spontaneous breathing trials</li> </ul>					
b. prevention of ventilator induced lung injury					
c. lung-protective ventilation e.g., <ul style="list-style-type: none"> <li>permissive hypercapnea</li> </ul>					
8. Optimizing patient-ventilator interaction					

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<b>E. Prevent Ventilator Associated Pneumonia</b>		1	1	1	3
1. Oral care					
2. Bed position					
3. Minimizing intubation time e.g., <ul style="list-style-type: none"> <li>• determining extubation readiness</li> <li>• noninvasive positive pressure ventilation</li> </ul>					
4. Ventilator circuit care e.g., <ul style="list-style-type: none"> <li>• closed suction</li> <li>• heated wire</li> </ul>					
<b>F. Select, Assemble, and Troubleshoot Equipment</b>		2	4	2	8
1. Oxygen administration devices e.g., <ul style="list-style-type: none"> <li>• high-flow nasal cannula</li> <li>• oxygen hood</li> </ul>					
2. Aerosol delivery devices e.g., <ul style="list-style-type: none"> <li>• continuous medication nebulizers</li> <li>• in-line administration</li> </ul>					
3. Nitric oxide delivery devices					
4. Transcutaneous monitoring systems					
5. Mechanical ventilators					
<b>G. Assist or Perform Procedures</b>		0	3	2	5
1. Inter- or Intra-hospital transport					
2. Intravascular catheter insertion e.g., <ul style="list-style-type: none"> <li>• through an umbilical or peripheral site</li> </ul>					
3. Bronchoscopy and associated procedures e.g., <ul style="list-style-type: none"> <li>• lavage</li> <li>• brush</li> <li>• biopsies</li> </ul>					
4. Intubation					
5. Extubation					
<b>H. Deliver Pharmacologic Agents</b>		0	2	1	3
1. Aerosolized agents e.g., <ul style="list-style-type: none"> <li>• antimicrobials</li> <li>• mucolytics</li> <li>• vasodilators</li> <li>• bronchodilators</li> <li>• anti-inflammatories</li> </ul>					
2. Airway instillations e.g., <ul style="list-style-type: none"> <li>• surfactant replacement therapy</li> <li>• lidocaine</li> </ul>					
<b>I. Assist or Perform Resuscitation</b>		1	1	1	3
1. Selection of appropriate equipment e.g., <ul style="list-style-type: none"> <li>• T-piece resuscitator</li> <li>• flow-inflating resuscitation bag</li> </ul>					
2. Following the appropriate protocol e.g., <ul style="list-style-type: none"> <li>• NRP</li> <li>• PALS</li> </ul>					

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<b>II. GENERAL CARE</b>		<b>3</b>	<b>26</b>	<b>16</b>	<b>45</b>
<b>A. Assess Patient Status and Changes in Status</b>		<b>0</b>	<b>7</b>	<b>5</b>	<b>12</b>
1. Specific airway challenges e.g., <ul style="list-style-type: none"> <li>acute upper airway obstruction</li> <li>congenital anomalies</li> </ul>					
2. Chest imaging e.g., <ul style="list-style-type: none"> <li>radiograph</li> <li>CT</li> </ul>					
3. Indices of respiratory physiology and mechanics e.g., <ul style="list-style-type: none"> <li>oxygenation</li> <li>work of breathing</li> <li>sleep study results</li> </ul>					
4. Neurologic e.g., <ul style="list-style-type: none"> <li>respiratory function</li> <li>apnea of prematurity</li> <li>level of consciousness</li> </ul>					
5. Cardiovascular e.g., <ul style="list-style-type: none"> <li>physical assessment</li> <li>hemodynamics</li> <li>pulmonary hypertension</li> <li>congenital heart disease</li> </ul>					
6. Recognition of respiratory failure mechanisms					
a. primary pulmonary and airway diseases e.g., <ul style="list-style-type: none"> <li>atelectasis</li> <li>pneumonia</li> <li>asthma</li> <li>croup</li> </ul>					
b. other e.g., <ul style="list-style-type: none"> <li>neuromuscular</li> <li>respiratory control</li> <li>flail chest</li> </ul>					
7. Renal, metabolic, endocrine, and nutrition e.g., <ul style="list-style-type: none"> <li>fluid status</li> <li>electrolytes</li> <li>nutrition/feeding</li> <li>acid-base balance</li> <li>inborn errors of metabolism</li> <li>diabetic ketoacidosis</li> </ul>					
8. Gastrointestinal e.g., <ul style="list-style-type: none"> <li>congenital anomalies</li> <li>abdominal distension</li> <li>feeding tube placement</li> <li>necrotizing enterocolitis</li> </ul>					
9. Musculoskeletal e.g., <ul style="list-style-type: none"> <li>spinal cord injury</li> <li>myopathy</li> <li>scoliosis</li> <li>myelomeningocele</li> </ul>					
<b>B. Select, Assemble, and Troubleshoot Equipment</b>		<b>1</b>	<b>5</b>	<b>4</b>	<b>10</b>
1. Airway clearance devices e.g., <ul style="list-style-type: none"> <li>In-exsufflator</li> <li>high frequency chest oscillation</li> </ul>					
2. Oxygen administration devices e.g., <ul style="list-style-type: none"> <li>high-flow nasal cannula</li> <li>oxygen hood</li> </ul>					

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3. Aerosol delivery devices					
4. Mechanical ventilators e.g., <ul style="list-style-type: none"> <li>• home</li> </ul>					
<b>C. Anticipate Care Based on Laboratory Results and Nutritional Status</b>		<b>0</b>	<b>4</b>	<b>2</b>	<b>6</b>
1. Hematologic e.g., <ul style="list-style-type: none"> <li>• CBC</li> <li>• Hgb electrophoresis</li> </ul>					
2. Chemistry e.g., <ul style="list-style-type: none"> <li>• electrolytes</li> <li>• glucose</li> <li>• albumin</li> </ul>					
3. Microbiology e.g., <ul style="list-style-type: none"> <li>• RSV swab</li> <li>• culture</li> <li>• Gram stain</li> </ul>					
4. Blood gas analyses and hemoximetry (co-oximetry)					
5. Complications of feedings e.g., <ul style="list-style-type: none"> <li>• intolerance</li> <li>• malplacement of feeding tube</li> <li>• aspiration</li> </ul>					
<b>D. Anticipate Care Based on Imaging and Reports of Imaging</b>		<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>
1. Radiographs					
2. Other e.g., <ul style="list-style-type: none"> <li>• CT</li> <li>• Ultrasound</li> <li>• MRI</li> </ul>					
<b>E. Anticipate Effects of Pharmacologic Agents</b>		<b>2</b>	<b>3</b>	<b>2</b>	<b>7</b>
1. Sedatives, hypnotics, and analgesia					
2. Neuromuscular blocking agents e.g., <ul style="list-style-type: none"> <li>• succinylcholine</li> <li>• cisatracurium</li> </ul>					
3. Reversal agents e.g., <ul style="list-style-type: none"> <li>• naloxone</li> <li>• neostigmine</li> <li>• flumazenil</li> </ul>					
4. Vasoactive and inotropic agents					
5. Diuretics					
6. Aerosolized agents e.g., <ul style="list-style-type: none"> <li>• bronchodilators</li> <li>• antimicrobials</li> <li>• anti-inflammatories</li> <li>• mucolytics</li> </ul>					
7. Drug interactions					
8. Influence of co-morbid conditions e.g., <ul style="list-style-type: none"> <li>• renal failure</li> <li>• hepatic failure</li> </ul>					

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<b>F. Manage End-of-Life Care</b>		0	1	1	2
1. Differentiation of the potential need for end-of-life care e.g., <ul style="list-style-type: none"> <li>• palliative</li> <li>• hospice</li> </ul>					
2. Withdrawal of life support					
3. Care of organ donors					
<b>G. Prepare for Disasters</b>		0	2	0	2
1. Procedures for patient movement and protection					
2. Triage procedures					
3. Equipment and supply management					
<b>H. Interact with Members of an Interdisciplinary Team</b>		0	1	1	2
1. Suggested modifications to the care plan based on the respiratory assessment					
2. Responses to proposed care plan modifications from other team members					
<b>I. Evaluate Patient and Family Understanding of Education</b>		0	2	0	2
1. Discharge and home e.g., <ul style="list-style-type: none"> <li>• tracheostomy care</li> <li>• CPR</li> <li>• monitoring</li> </ul>					
2. Equipment and procedure instruction					
3. Medication administration					
<b>Totals</b>	<b>3</b>	<b>9</b>	<b>61</b>	<b>50</b>	<b>120</b>

**Secondary Test Specifications**

Item content also will be classified by the condition or disorder described for each patient

Conditions or Disorders	Item Counts Across the Examination		
	Target	Acceptable Range for Each Test Form	
	120	Minimum	Maximum
01-GENERAL <i>No specific condition or disorder</i>	30	24	36
02-ASTHMA	10	8	12
03-PREMATURITY (prematurity acute phase e.g., surfactant deficiency, apnea)	10	8	12
04-INFECT DISEASE (infectious disease e.g., pneumonia, croup)	10	8	12
05-NEO PULMONARY (neonatal pulmonary e.g., meconium aspiration, pneumonia, PPHN)	10	8	12
06-CHRONIC LUNG (chronic lung disease of prematurity)	7	6	8
07-BRONCHIOLITIS	7	6	8
08-CON HRT DISEASE (congenital heart disease)	4	3	5
09-CON DEFECTS (congenital defects that require surgical correction)	4	3	5
10-NEUROMUSCULAR (e.g., spinal muscle atrophy, muscular dystrophy)	4	3	5
11-SHOCK	4	3	5
12-TRAUMA	4	3	5
13-CYSTIC FIBROSIS	4	3	5
14-PED AIRWAY (pediatric airway e.g., tracheomalacia, vocal cord paralysis, vascular ring)	4	3	5
15-NEUROLOGIC (neurologic e.g., seizures, brain tumors, hydrocephalus)	3	2	4
16-IMMUNOCOMPR (immunocompromised)	2	2	2
17-HEART FAILURE	2	2	2
18-INHALATION (inhalation injuries)	1	0	1
<b>Total</b>	<b>120</b>		

### Neonatal/Pediatric Specialist Admission Requirements

1. Applicants shall be a Registered Respiratory Therapist (RRT).  
OR
2. Applicants shall be a Certified Respiratory Therapist (CRT) for at least one year prior to applying for the Neonatal/Pediatric Specialty Examination.

### Neonatal/Pediatric Specialist Examination Fees

New Applicant	Repeat Applicant
\$250	\$220