




 <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. COMPETENCIES SHARED BETWEEN CRITICAL AND GENERAL CARE</b>		10	32	17	59
<b>A. Assess Patient Information</b>		1	5	7	13
1. Patient history, for example, <ul style="list-style-type: none"> <li>• immunizations</li> <li>• pre-existing conditions</li> <li>• environmental</li> </ul>					
2. Physical examination					
3. Laboratory, for example, <ul style="list-style-type: none"> <li>• blood gas analyses</li> <li>• CBC</li> <li>• cultures</li> </ul>					
4. Imaging, for example, <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>					
5. Indices of respiratory physiology and mechanics, for example, <ul style="list-style-type: none"> <li>• oxygenation</li> <li>• work of breathing</li> <li>• sleep study results</li> </ul>					
6. Neurologic, for example, <ul style="list-style-type: none"> <li>• respiratory function</li> <li>• level of consciousness</li> </ul>					
7. Cardiovascular, for example, <ul style="list-style-type: none"> <li>• physical assessment</li> <li>• pulmonary hypertension</li> <li>• hemodynamics</li> <li>• congenital heart disease</li> </ul>					
8. Recognition of respiratory failure mechanisms					
a. primary pulmonary and airway diseases, for example, <ul style="list-style-type: none"> <li>• atelectasis</li> <li>• pneumonia</li> <li>• asthma</li> <li>• croup</li> </ul>					
b. other, for example, <ul style="list-style-type: none"> <li>• neuromuscular</li> <li>• respiratory control</li> <li>• flail chest</li> <li>• apnea of prematurity</li> </ul>					


 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
9. Renal, metabolic, endocrine, and nutrition, for example, <ul style="list-style-type: none"> <li>• fluid status</li> <li>• electrolytes</li> <li>• inborn errors of metabolism</li> <li>• acid-base balance</li> <li>• nutrition / feeding</li> <li>• diabetic ketoacidosis</li> </ul>					
10. Gastrointestinal, for example, <ul style="list-style-type: none"> <li>• congenital anomalies</li> <li>• feeding tube placement</li> <li>• abdominal distension</li> <li>• necrotizing enterocolitis</li> </ul>					
11. Musculoskeletal, for example, <ul style="list-style-type: none"> <li>• spinal cord injury</li> <li>• myopathy</li> <li>• scoliosis</li> <li>• myelomeningocele</li> </ul>					
<b>B. Evaluate Pulmonary Status</b>		<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>
1. Gas exchange, for example, <ul style="list-style-type: none"> <li>• SPO<sub>2</sub></li> <li>• end-tidal CO<sub>2</sub> tension</li> <li>• blood gases</li> </ul>					
2. Pulmonary function, for example, <ul style="list-style-type: none"> <li>• spirometry</li> <li>• MIP</li> <li>• peak flow</li> </ul>					
<b>C. Assess and Manage Airways</b>		<b>1</b>	<b>2</b>	<b>0</b>	<b>3</b>
1. Airway devices, for example, <ul style="list-style-type: none"> <li>• established tracheostomy tubes</li> <li>• oral and nasopharyngeal</li> </ul>					
2. Airway clearance devices and techniques, for example, <ul style="list-style-type: none"> <li>• high-frequency chest wall oscillation</li> <li>• PEP</li> <li>• postural drainage</li> <li>• IPV</li> <li>• cough assist</li> </ul>					
3. Airway challenges, for example, <ul style="list-style-type: none"> <li>• acute upper airway obstruction</li> <li>• unplanned extubation / decannulation</li> <li>• difficult / critical airway</li> <li>• congenital anomalies</li> </ul>					
<b>D. Select and Manage Equipment</b>		<b>1</b>	<b>6</b>	<b>0</b>	<b>7</b>
1. Oxygen administration devices, for example, <ul style="list-style-type: none"> <li>• heated high flow nasal cannula</li> <li>• patient-appropriate sizing</li> </ul>					
2. Aerosol delivery devices, for example, <ul style="list-style-type: none"> <li>• intermittent</li> <li>• continuous</li> </ul>					


 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
3. Airway devices, for example, <ul style="list-style-type: none"> <li>• oral and</li> <li>• nasopharyngeal</li> <li>• endotracheal</li> <li>• tracheostomy tubes</li> <li>• speaking valves</li> <li>• LMA</li> </ul>					
4. Transcutaneous monitoring systems					
5. Airway clearance devices, for example, <ul style="list-style-type: none"> <li>• insufflator-exsufflator</li> <li>• high-frequency chest wall oscillation</li> </ul>					
6. Home care devices, for example, <ul style="list-style-type: none"> <li>• mechanical ventilators</li> <li>• CPAP</li> <li>• humidifiers</li> <li>• apnea monitor</li> <li>• oxygen delivery</li> <li>• portable oxygen concentrators</li> </ul>					
<b>E. Facilitate Procedures and Evaluate Efficacy</b>		<b>1</b>	<b>2</b>	<b>0</b>	<b>3</b>
1. Bronchoscopy and associated procedures, for example, <ul style="list-style-type: none"> <li>• lavage</li> <li>• biopsies</li> <li>• brush</li> </ul>					
2. Sputum culture, for example, <ul style="list-style-type: none"> <li>• nasal swab</li> <li>• tracheal aspirate</li> </ul>					
3. Blood gas sampling, for example, <ul style="list-style-type: none"> <li>• CBG</li> </ul>					
<b>F. Manage and/or Anticipate Effects of Medication Administration</b>		<b>1</b>	<b>5</b>	<b>4</b>	<b>10</b>
1. Aerosolized agents					
2. Sedatives, hypnotics, and analgesia					
3. Neuromuscular blocking agents					
4. Reversal agents, for example, <ul style="list-style-type: none"> <li>• naloxone</li> <li>• neostigmine</li> </ul>					
5. Vasoactive and inotropic agents					
6. Diuretics					
7. Systemic smooth muscle relaxants, for example, <ul style="list-style-type: none"> <li>• magnesium sulfate</li> <li>• terbutaline</li> </ul>					
8. Drug interactions					
9. Influence of co-morbid conditions <ul style="list-style-type: none"> <li>• renal failure</li> <li>• hepatic failure</li> </ul>					

 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
<b>G. Anticipate Care Based on Laboratory Results</b>		1	3	2	6
1. Hematologic, for example, <ul style="list-style-type: none"> <li>CBC</li> <li>Hgb electrophoresis</li> </ul>					
2. Chemistry, for example, <ul style="list-style-type: none"> <li>electrolytes</li> <li>glucose</li> <li>albumin</li> <li>sweat test</li> </ul>					
3. Microbiology, for example, <ul style="list-style-type: none"> <li>nasal swab</li> <li>culture</li> <li>Gram stain</li> </ul>					
4. Toxicology, for example, <ul style="list-style-type: none"> <li>drug overdose</li> <li>neonatal abstinence syndromes</li> </ul>					
5. Blood gas analyses and hemoximetry (CO-oximetry)					
<b>H. Anticipate Care Based on Imaging and/or Reports of Imaging</b>		0	1	2	3
1. Radiographs, for example, <ul style="list-style-type: none"> <li>sail sign</li> <li>cardiac silhouette with CHD</li> <li>lateral views</li> </ul>					
2. Other, for example, <ul style="list-style-type: none"> <li>CT</li> <li>ultrasound</li> <li>MRI</li> </ul>					
<b>I. Manage Care Based on Nutritional Status</b>		1	1	0	2
1. Complications of feedings, for example, <ul style="list-style-type: none"> <li>intolerance</li> <li>malposition of feeding tube</li> <li>aspiration</li> </ul>					
2. Morbid obesity, for example, <ul style="list-style-type: none"> <li>airway management</li> <li>sleep disordered breathing</li> </ul>					
<b>J. Assist with or Perform Resuscitation</b>		1	1	0	2
1. Selection of appropriate equipment, for example, <ul style="list-style-type: none"> <li>T-piece resuscitator</li> <li>flow-inflating resuscitation bag</li> </ul>					
2. Following the appropriate protocol, for example, <ul style="list-style-type: none"> <li>NRP</li> <li>PALS</li> </ul>					

 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
<b>K. Prepare for Disaster and Mass Casualty Events</b>		1	2	0	3
1. Procedures for patient movement and protection					
2. Triage procedures					
3. Equipment and supply management					
<b>L. 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>M. Evaluate Patient and Family Understanding of Education</b>		1	2	0	3
1. Discharge and home, for example, <ul style="list-style-type: none"> <li>• tracheostomy care</li> <li>• monitoring</li> <li>• CPR</li> <li>• car seat challenge</li> </ul>					
2. Equipment and procedure instruction, for example, <ul style="list-style-type: none"> <li>• set-up</li> <li>• operation</li> <li>• troubleshooting</li> </ul>					
3. Medication administration					
<b>II. COMPETENCIES SPECIFIC TO CRITICAL CARE</b>		4	29	28	61
<b>A. Evaluate Pertinent Information</b>		1	2	1	4
1. Maternal history, for example, <ul style="list-style-type: none"> <li>• amniotic fluid index</li> <li>• maternal medication</li> </ul>					
2. Fetal and neonatal assessments, for example, <ul style="list-style-type: none"> <li>• biophysical profile</li> <li>• Apgar score</li> <li>• fetal lung maturity indices</li> </ul>					
3. Other diagnostic results, for example, <ul style="list-style-type: none"> <li>• transillumination</li> <li>• oxygen challenge test</li> </ul>					
<b>B. Assess and Manage Airways</b>		0	6	2	8
1. Establishment of a patent airway, for example, <ul style="list-style-type: none"> <li>• bag-mask ventilation</li> <li>• oral / nasal airway placement</li> </ul>					
2. Performing or assisting intubation, for example, <ul style="list-style-type: none"> <li>• equipment selection</li> <li>• CO<sub>2</sub> verification</li> </ul>					
3. Performing or assisting advanced intubation techniques, for example, <ul style="list-style-type: none"> <li>• specialty laryngoscopic visualization devices</li> </ul>					

 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
4. Artificial airways					
a. laryngeal mask airway					
b. endotracheal tube, for example,					
• securement                      • positioning					
c. newly placed tracheostomy tube					
<b>C. Manage Specialty Gas Administration</b>		<b>0</b>	<b>2</b>	<b>2</b>	<b>4</b>
1. Nitric oxide					
2. Helium-oxygen					
3. Other, for example,					
• isoflurane / sevoflurane      • subambient					
<b>D. Manage Ventilation and Oxygenation</b>		<b>1</b>	<b>7</b>	<b>16</b>	<b>24</b>
1. Selection of initial settings					
2. Conventional modes					
3. High-frequency ventilation, for example,					
• HFJV                                      • HFOV					
4. Alternative modes, for example,					
• volume-targeted                      • NAVA					
• APRV					
5. Noninvasive, for example,					
• CPAP                                      • bi-level					
6. Adjunct techniques					
a. lung recruitment maneuvers					
b. prone positioning					
c. extracorporeal life support, for example,					
• ECMO                                      • coagulation management					
• CO <sub>2</sub> removal					
7. Monitoring					
a. measures of lung disease severity, for example,					
• PaO <sub>2</sub> / F <sub>I</sub> O <sub>2</sub> • OI					
• SaO <sub>2</sub> / F <sub>I</sub> O <sub>2</sub>					
b. airway pressures and volumes, for example,					
• mean airway                      • minute ventilation pressure					
c. ventilator waveforms, for example,					
• NAVA catheter positioning					

 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
d. ventilator-patient interaction, for example <ul style="list-style-type: none"> <li>synchrony</li> </ul>					
e. pulmonary mechanics, for example, <ul style="list-style-type: none"> <li>compliance</li> <li>resistance</li> <li>VD / VT</li> <li>MIP</li> </ul>					
f. effects of mechanical ventilation on cardiac function					
g. cerebral oximetry, for example, <ul style="list-style-type: none"> <li>near infrared spectroscopy</li> </ul>					
8. Strategies					
a. weaning from mechanical ventilation, for example, <ul style="list-style-type: none"> <li>spontaneous breathing trials</li> <li>protocols</li> </ul>					
b. prevention of ventilator-induced lung injury					
c. lung-protective ventilation, for example, <ul style="list-style-type: none"> <li>permissive hypercapnia</li> </ul>					
9. Optimizing patient-ventilator interaction					
<b>E. Facilitate Procedures and Evaluate Efficacy</b>		<b>1</b>	<b>4</b>	<b>4</b>	<b>9</b>
1. Inter-hospital or intra-hospital transport					
2. Intravascular catheter insertion, for example, <ul style="list-style-type: none"> <li>through an umbilical or peripheral site</li> </ul>					
3. Intubation					
4. Extubation, for example, <ul style="list-style-type: none"> <li>planned decannulation</li> <li>endotracheal tube</li> </ul>					
5. Chest tube management, for example, <ul style="list-style-type: none"> <li>insertion</li> <li>troubleshooting</li> </ul>					
6. Needle decompression of pneumothorax					
7. Therapeutic hypothermia, for example, <ul style="list-style-type: none"> <li>total body / head cooling</li> <li>passive / active cooling</li> </ul>					
<b>F. Manage and/or Anticipate Effects of Medication Administration</b>		<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>
1. Surfactant replacement therapy, for example, <ul style="list-style-type: none"> <li>compliance changes</li> <li>airway obstruction</li> </ul>					
2. Airway instillations, for example, <ul style="list-style-type: none"> <li>lidocaine</li> <li>epinephrine</li> </ul>					

 <b>Neonatal/Pediatric Specialty Examination Detailed Content Outline</b> <i>Multiple-choice items are linked to open cells.</i>	Items				Total
	Ethics	Cognitive Level			
		Recall	Application	Analysis	
<b>G. Prevent Hospital-Acquired Conditions</b>		1	4	1	6
1. Ventilator-associated pneumonia					
a. oral care					
b. bed position					
c. minimizing intubation time, for example, <ul style="list-style-type: none"> <li>• determining extubation readiness</li> <li>• NPPV</li> </ul>					
d. ventilator circuit care, for example, <ul style="list-style-type: none"> <li>• closed suction</li> <li>• heated wire</li> </ul>					
2. Device-related pressure ulcers					
<b>H. Manage End-of-Life Care</b>		0	2	1	3
1. Types of end-of-life care, for example, <ul style="list-style-type: none"> <li>• palliative</li> <li>• hospice</li> <li>• advance directive</li> </ul>					
2. Determination of brain death					
3. Withdrawal of life support					
4. Care of organ donor					
<b>Totals</b>	<b>3*</b>	<b>14</b>	<b>61</b>	<b>45</b>	<b>120</b>

\* Each test form will include 3 items that engage thinking about ethics to select the best answer.

\* Each of these 3 items 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	Item Counts Across the Examination		
	Target	Acceptable Range for Each Test Form	
	120	Minimum	Maximum
GENERAL – No specific condition or disorder	29	24	34
NEO PULMONARY (Neonatal pulmonary, for example, meconium aspiration, pneumonia, PPHN)	9	7	11
INFECT DISEASE (Infectious disease, for example, pneumonia, croup)	9	7	11
CHRONIC LUNG (Chronic lung disease of prematurity)	9	7	11
ASTHMA	9	7	11
PREMATURITY (Prematurity acute phase, for example, surfactant deficiency apnea)	9	7	11
BRONCHIOLITIS	7	6	8
CON DEFECTS (Congenital defects that require surgical correction)	5	3	7
CON HRT DISEASE (Congenital heart disease)	5	3	7
NEUROLOGIC (for example, seizures, brain tumors, hydrocephalus)	5	3	7
PED AIRWAY (Pediatric airway, for example, tracheomalacia, vocal cord paralysis, vascular ring)	3	2	4
IMMUNOCOMPROMISED	3	2	4
SHOCK	3	2	4
TRAUMA	3	2	4
HEART FAILURE	3	2	4
CYSTIC FIBROSIS	3	2	4
NEUROMUSCULAR (for example, spinal muscle atrophy, muscular dystrophy)	3	2	4
SLEEP RELATED (sleep related disorders, for example, obstructive sleep apnea, central hypoventilation)	2	1	3
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