

<p style="text-align: center;"><b>NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program # _____)</b></p>	<p style="text-align: center;"><b>List Course Number(s)</b></p>
<b>I. PATIENT DATA</b>	
<b>A. Evaluate Data in the Patient Record</b>	
<p>1. Patient history , for example,  <ul style="list-style-type: none"> <li>• history of present illness (HPI) • orders      • medication reconciliation      • progress notes</li> <li>• DNR status / advance directives      • social, family, and medical history</li> </ul> </p>	
<p>2. Physical examination relative to the cardiopulmonary system</p>	
<p>3. Lines, drains, and airways, for example,  <ul style="list-style-type: none"> <li>• chest tube      • artificial airway      •vascular lines</li> </ul> </p>	
<p>4. Laboratory results, for example,  <ul style="list-style-type: none"> <li>• CBC      • electrolytes      • coagulation studies</li> <li>•sputum culture and sensitivities      • cardiac biomarkers</li> </ul> </p>	
<p>5. Blood gas analysis and/or hemoximetry (CO-oximetry) results</p>	
<p>6. Pulmonary function testing results, for example  <ul style="list-style-type: none"> <li>•spirometry •lung volumes •DLCO</li> </ul> </p>	
<p>7. 6-minute walk test results</p>	
<p>8. Imaging study results, for example,  <ul style="list-style-type: none"> <li>• chest radiograph      • CT scan      • ultrasonography and/or echocardiography      • PET scan      • ventilation / perfusion scan</li> </ul> </p>	
<p>9. Maternal and perinatal / neonatal history, for example,  <ul style="list-style-type: none"> <li>• APGAR scores      • gestational age      • L / S ratio</li> </ul> </p>	
<p>10. Sleep study results. for example,  <ul style="list-style-type: none"> <li>•apnea-hypopnea index (AHI)</li> </ul> </p>	
<p>11. Trends in monitoring results</p>	
<p>a. fluid balance</p>	
<p>b. vital signs</p>	
<p>c. intracranial pressure</p>	
<p>d. ventilator liberation parameters</p>	
<p>e. pulmonary mechanics</p>	
<p>f. noninvasive, for example,  <ul style="list-style-type: none"> <li>• pulse oximetry      • capnography      • transcutaneous</li> </ul> </p>	

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<p>g. cardiac evaluation/monitoring results, for •ECG •hemodynamic parameters</p>	
<p>12. Determination of patient's pathophysiological state</p>	
<p><b>B. Perform Clinical Assessment</b></p>	
<p>1. Interviewing a patient to assess</p>	
<p>a. level of consciousness and orientation, emotional state, and ability to cooperate</p>	
<p>b. level of pain</p>	
<p>c. shortness of breath, sputum production, and exercise tolerance</p>	
<p>d. smoking history</p>	
<p>e. environmental exposures</p>	
<p>f. activities of daily living</p>	
<p>g. learning needs, for example, • literacy • social/culture • preferred learning style</p>	
<p>2. Performing inspection to assess</p>	
<p>a. general appearance</p>	
<p>b. characteristics of the airway, for example, • patency • Mallampati classification • tracheal shift</p>	
<p>c. cough, sputum amount and character</p>	
<p>d. status of a neonate, for example • Apgar score • gestational age</p>	
<p>e. skin integrity, for example, • pressure ulcers • stoma site</p>	
<p>3. Palpating to assess</p>	
<p>a. pulse, rhythm, intensity</p>	
<p>b. accessory muscle activity</p>	

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<p>c. asymmetrical chest movements, tactile fremitus, crepitus, tenderness, tactile rhonchi, and/or tracheal deviation</p>	
<p>4. Performing diagnostic chest percussion</p>	
<p>5. Auscultating to assess</p>	
<p>a. breath sounds</p>	
<p>b. heart sounds and rhythm</p>	
<p>c. blood pressure</p>	
<p>6. Reviewing a chest radiograph to assess</p>	
<p>a. quality of imaging, for example,  <ul style="list-style-type: none"> <li>• patient positioning</li> <li>• penetration</li> <li>• lung inflation</li> </ul> </p>	
<p>b. presence and position of airways, lines, and drains</p>	
<p>c. presence of foreign bodies</p>	
<p>d. heart size and position</p>	
<p>e. presence of, or change in,</p>	
<p>(i) cardiopulmonary abnormalities for example,  <ul style="list-style-type: none"> <li>• pneumothorax</li> <li>• pleural effusion</li> <li>• pulmonary edema</li> <li>• consolidation</li> <li>• pulmonary edema</li> <li>• pulmonary artery size</li> </ul> </p>	
<p>(ii) diaphragm, mediastinum, and/or trachea</p>	
<p><b>C. Perform Procedures to Gather Clinical Information</b></p>	
<p>1. 12-lead ECG</p>	
<p>2. Noninvasive monitoring, for example,  <ul style="list-style-type: none"> <li>• pulse oximetry</li> <li>• capnography</li> <li>• transcutaneous</li> </ul> </p>	
<p>3. Peak flow</p>	
<p>4. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, and maximal inspiratory pressure, and vital capacity</p>	
<p>5. Blood gas sample collection</p>	

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6. Blood gas analysis and/or hemoximetry (CO-oximetry)	
7. Oxygen titration with exercise	
8. Cardiopulmonary calculations, for example, • P(A-a)O <sub>2</sub> • V <sub>D</sub> / V <sub>T</sub> • P / F • OI	
9. Hemodynamic monitoring	
10. Pulmonary compliance and airways resistance	
11. Plateau pressure	
12. Auto-PEEP determination	
13. Spontaneous breathing trial (SBT)	
14. Apnea monitoring	
15. Apnea test (brain death determination)	
16. Overnight pulse oximetry	
17. CPAP / NPPV titration during sleep	
18. Cuff management, for example, •tracheal •laryngeal	
19. Sputum induction	
20. Cardiopulmonary stress testing	
21. 6-minute walk test	
22. Spirometry outside or inside a pulmonary function laboratory	
23. DLCO inside a pulmonary function laboratory	
24. Lung volumes inside a pulmonary function laboratory	
25. Tests of respiratory muscle strength- MIP and MEP	
26. Therapeutic bronchoscopy	

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<p><b>D. Evaluate Procedure Results</b></p>	
1. 12-lead ECG	
2. Noninvasive monitoring, for example, • pulse oximetry • capnography • transcutaneous	
3. Peak flow	
4. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, maximal inspiratory pressure, and vital capacity	
5. Blood gas analysis and/or hemoximetry (CO-oximetry)	
6. Oxygen titration with exercise	
7. Cardiopulmonary calculations, for example, • $P(A-a)O_2$ • $V_D / V_T$ • $P / F$ • $OI$	
8. Hemodynamic monitoring	
9. Pulmonary compliance and airways resistance	
10. Plateau pressure	
11. Auto-PEEP	
12. Spontaneous breathing trial (SBT)	
13. Apnea monitoring	
14. Apnea test (brain death determination)	
15. Overnight pulse oximetry	
16. CPAP / NPPV titration during sleep	
17. Cuff status, for example, • laryngeal • tracheal	
18. Cardiopulmonary stress testing	
19. 6-minute walk stress testing	
20. Spirometry outside or inside a pulmonary function laboratory	

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22. DLCO inside a pulmonary function laboratory	
23. Tests of respiratory muscle strength-MIP and MEP	
<b>E. Recommend Diagnostic Procedures</b>	
1. Testing for tuberculosis	
2. Laboratory tests, for example, • electrolytes • CBC • coagulation studies • sputum culture and sensitives • cardiac biomarkers	
3. Imaging studies	
4. Bronchoscopy	
a. diagnostic	
b. therapeutic	
5. Bronchoalveolar lavage (BAL)	
6. Pulmonary function testing	
7. Noninvasive monitoring, for example, • pulse oximetry • capnography • transcutaneous	
8. Blood gas and/or hemoximetry (CO-oximetry)	
9. ECG	
10. Exhaled gas analysis, for example, • CO <sub>2</sub> • CO • FENO	
11. Hemodynamic monitoring	
12. Sleep studies	
13. Thoracentesis	
<b>II. TROUBLESHOOTING AND QUALITY CONTROL OF DEVICES, AND INFECTION CONTROL</b>	
<b>A. Assemble and Troubleshoot Equipment</b>	
1. Medical gas delivery interfaces, for example, • mask • cannula • heated high-flow nasal cannula	

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2. Long-term oxygen therapy	
3. Medical gas delivery, metering, and/or clinical analyzing devices, for example, <ul style="list-style-type: none"> <li>•concentrator •liquid system •flowmeter •regulator</li> <li>•gas cylinder •blender •air compressor •gas analyzers</li> </ul>	
4. CPAP/NPPV with patient interfaces	
5. Humidifiers	
6. Nebulizers	
7. Metered-dose inhalers, spacers, and valved holding chambers	
8. Dry powder inhalers (DPI)	
9. Resuscitation equipment, for example, <ul style="list-style-type: none"> <li>•self-inflating resuscitator    •flow-inflating resuscitator    •AED</li> </ul>	
10. Mechanical ventilators	
11. Intubation equipment	
10. Artificial airways	
12. Suctioning equipment, for example, <ul style="list-style-type: none"> <li>• regulator    • canister    • tubing    • catheter</li> </ul>	
14. Blood analyzer. for example, <ul style="list-style-type: none"> <li>• hemoximetry (CO-oximetry)    • point-of-care    • blood gas</li> </ul>	
15. Patient breathing circuits	
16. Hyperinflation devices	
17. Secretion clearance devices	
18. Heliox delivery device	
19. Portable spirometer	
20. Testing equipment in a pulmonary function laboratory	
21. Pleural drainage	

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22.. Noninvasive monitoring, for example, • pulse oximeter   • capnometer   • transcutaneous	
23. Bronchoscopes and light sources	
24. Hemodynamic monitoring devices	
a. pressure transducers	
b. catheters, for example, • arterial   • pulmonary artery	
<p align="center"><b>B. Ensure Infection Prevention</b></p>	
1. Adhering to infection prevention policies and procedures, for example, • Standard Precautions   • isolation   • donning/doffing	
2. Adhering to disinfection policies and procedures	
3. Proper handling of biohazardous materials	
<p align="center"><b>C. Perform Quality Control Procedures</b></p>	
1. Blood analyzers	
2. Gas analyzers	
3. Pulmonary function equipment for testing	
a. spirometry results	
b. lung volumes	
c. diffusing capacity (DLCO)	
4. Mechanical ventilators	
5. Noninvasive monitors	
<p align="center"><b>III. INITIATION AND MODIFICATION OF INTERVENTIONS</b></p>	
<p align="center"><b>A. Maintain a Patient Airway Including the Care of Artificial Airways</b></p>	
1. Proper positioning of a patient	



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2. Recognition of a difficult airway	
3. Establishing and managing a patient's airway	
a. nasopharyngeal airway	
b. oropharyngeal airway	
c. esophagealtracheal tubes / supraglottic airways	
d. endotracheal tube	
e. tracheostomy tube	
f. laryngectomy tube	
g. speaking valves	
h. devices that assist with intubation, for example, • endotracheal tube exchanger • video laryngoscopy	
4. Performing tracheostomy care	
5. Exchanging artificial airways	
6. Maintaining adequate humidification	
7. Initiating protocols to prevent ventilator-associated infections	
8. Performing extubation	
<p><b>B. Perform Airway Clearance and Lung Expansion Techniques</b></p>	
1. Postural drainage, percussion, or vibration	
2. Suctioning, for example, • nasotracheal • oropharyngeal	
3. Mechanical devices, for example, • high-frequency chest wall oscillation • vibratory PEP • intrapulmonary percussive ventilation • insufflation / exsufflation	
4. Assisted cough, for example, • huff • abdominal thrust	

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5. Hyperinflation therapy	
6. Inspiratory muscle training	
<p><b>C. Support Oxygenation and Ventilation</b></p>	
1. Initiating and adjusting oxygen therapy	
2. Minimizing hypoxemia, for example, • patient positioning    • secretion removal	
3. Initiating and adjusting mask or nasal CPAP	
4. Initiating and adjusting mechanical ventilation settings	
a. continuous mechanical ventilation	
b. noninvasive ventilation	
c. high-frequency ventilation	
d. alarms	
5. Recognizing and correcting patient-ventilator dyssynchrony	
6. Utilizing ventilator graphics	
7. Performing lung recruitment maneuvers	
8. Liberating patient from mechanical ventilation	
<p><b>D. Administer Medications and Specialty Gases</b></p>	
1. Aerosolized preparations	
a. antimicrobials	
b. pulmonary vasodilators	
c. bronchodilators	
d. mucolytics/proteolytics	

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e. steroids	
2.. Endotracheal instillation	
3. Specialty gases, for example, <ul style="list-style-type: none"> <li>• heliox</li> <li>• inhaled NO</li> </ul>	
<p><b>E. Ensure Modifications are Made to the Respiratory Care Plan</b></p>	
h. Treatment termination, for example, <ul style="list-style-type: none"> <li>• life-threatening adverse event</li> </ul>	
<p>2. Recommendations</p>	
a. starting treatment based on patient response	
b. treatment of pneumothorax	
c. adjustment of fluid balance	
d. adjustment of electrolyte therapy	
e. insertion or change of artificial airway	
f. liberating from mechanical ventilation	
g. extubation	
h. discontinuing treatment based on patient response	
i. consultation from a physician specialist	
<p>3. Recommendations for changes</p>	
a. patient position	
b. oxygen therapy	
c. humidification	
d. airway clearance	
e. hyperinflation	

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f. mechanical ventilation	
4. Recommendations for pharmacologic interventions	
a. bronchodilators	
b. anti-inflammatory drugs	
c. mucolytics and proteolytics	
d. Aerosolized antibiotics	
e. Inhaled pulmonary vasodilators	
f. cardiovascular	
g. antimicrobials	
h. sedatives and hypnotics	
i. analgesics	
i. narcotic antagonists	
j. benzodiazepine antagonists	
l. neuromuscular blocking agents	
m. diuretics	
n. surfactants	
o. changes to drug, dosage, administration, frequency, mode, or concentration	
<b>F. Utilize Evidence-Based Practice</b>	
1. Classification of disease severity	
2. Recommendations for changes in a therapeutic plan when indicated	
3. Application of guidelines, for example, • ARDSNet • NAEPP • GOLD	
<b>G. Provide Respiratory Care in High-Risk Situations</b>	

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1. Emergency	
a. cardiopulmonary emergencies, excluding CPR	
b. disaster management	
c. medical emergency team (MET) / rapid response team	
2. Interprofessional communication	
3. Patient transport	
a. land / air between hospitals	
b. within a hospital	
<b>H. Assist a Physician / Provider in Performing Procedures</b>	
1. Intubation	
2. Bronchoscopy	
3. Specialized bronchoscopy, for example, •endobronchial ultrasound (EBUS) •navigational bronchoscopy (ENB)	
4. Thoracentesis	
5. Tracheostomy	
6. Chest tube insertion	
7. Insertion of arterial or venous catheters	
8. Moderate (conscious) sedation	
9. Cardioversion	
10. Withdrawal of life support	
<b>I. Conduct Patient and Family Education</b>	
1. Safety and infection control	

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<p>2. Home care and related equipment</p>	
<p>3. Lifestyle changes, for example, •smoking cessation •exercise</p>	
<p>4. Pulmonary rehabilitation</p>	
<p>5. Disease/ condition management, for example, •asthma •COPD •CF •tracheostomy care •ventilator dependent</p>	