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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| **I. PATIENT DATA** |
| **A. Evaluate Data in the Patient Record** |
| 1. Patient history , for example,
	* history of present illness (HPI) • orders • medication reconciliation • progress notes
	* DNR status / advance directives • social, family, and medical history
 |       |
| 2. Physical examination relative to the cardiopulmonary system |       |
| 1. Lines, drains, and airways, for example,
	* chest tube • artificial airway •vascular lines
 |       |
| 1. Laboratory results, for example,
	* CBC • electrolytes • coagulation studies
	* sputum culture and sensitivities • cardiac biomarkers
 |       |
| 5. Blood gas analysis and/or hemoximetry (CO-oximetry) results |       |
| 6. Pulmonary function testing results, for example•spirometry •lung volumes •DLCO |       |
| 7. 6-minute walk test results |       |
| 1. Imaging study results, for example,
	* chest radiograph • CT scan • ultrasonography and/or echocardiography • PET scan • ventilation / perfusion scan
 |       |
| 1. Maternal and perinatal / neonatal history, for example,
	* APGAR scores • gestational age • L / S ratio
 |       |
| 10. Sleep study results. for example,•apnea-hypopnea index (AHI) |       |
| 11. Trends in monitoring results |
| a. fluid balance |       |
| b. vital signs |       |
| c. intracranial pressure |       |
| d. ventilator liberation parameters |       |
| e. pulmonary mechanics |       |
| f. noninvasive, for example,* pulse oximetry • capnography • transcutaneous
 |       |

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

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| c. asymmetrical chest movements, tactile fremitus, crepitus, tenderness, tactile rhonchi, and/or tracheal deviation |       |
| 4. Performing diagnostic chest percussion |       |
| 5. Auscultating to assess |
| a. breath sounds |       |
| b. heart sounds and rhythm |       |
| c. blood pressure |       |
| 6. Reviewing a chest radiograph to assess |
| a. quality of imaging, for example,* patient positioning • penetration •lung inflation
 |       |
| b. presence and position of airways, lines, and drains |       |
| c. presence of foreign bodies |       |
| d. heart size and position |       |
| e. presence of, or change in, |
| 1. cardiopulmonary abnormalities for example,
	* pneumothorax • pleural effusion •pulmonary edema
	* consolidation • pulmonary edema •pulmonary artery size
 |       |
| (ii) diaphragm, mediastinum, and/or trachea |       |
| **C. Perform Procedures to Gather Clinical Information** |
| 1. 12-lead ECG |       |
| 1. Noninvasive monitoring, for example,
	* pulse oximetry • capnography • transcutaneous
 |       |
| 3. Peak flow |       |
| 4. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, and maximal inspiratory pressure, and vital capacity |       |
| 5. Blood gas sample collection |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 6. Blood gas analysis and/or hemoximetry (CO-oximetry) |       |
| 7. Oxygen titration with exercise |       |
| 1. Cardiopulmonary calculations, for example,
	* P(A-a)O2 • VD / VT • 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 |       |
| 1. 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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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| **D. Evaluate Procedure Results** |
| 1. 12-lead ECG |       |
| 1. 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 |       |
| 1. Cardiopulmonary calculations, for example,
	* P(A-a)O2 • VD / VT • 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 |       |
| 1. 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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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 22. DLCO inside a pulmonary function laboratory |       |
| 23.Tests of respiratory muscle strength-MIP and MEP |       |
| **E. Recommend Diagnostic Procedures** |
| 1. Testing for tuberculosis |       |
| 1. 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 |       |
| 1. Noninvasive monitoring, for example,
	* pulse oximetry • capnography • transcutaneous
 |       |
| 8. Blood gas and/or hemoximetry (CO-oximetry) |       |
| 9. ECG |       |
| 1. Exhaled gas analysis, for example,
	* CO2 • CO • FENO
 |       |
| 11. Hemodynamic monitoring |       |
| 12. Sleep studies |       |
| 13. Thoracentesis |       |
| **II. TROUBLESHOOTING AND QUALITY CONTROL OF DEVICES, AND INFECTION CONTROL** |
| **A. Assemble and Troubleshoot Equipment** |
| 1. Medical gas delivery interfaces, for example,
	* mask •cannula •heated high-flow nasal cannula
 |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 2. Long-term oxygen therapy |       |
| 1. Medical gas delivery, metering, and/or clinical analyzing devices, for example,
	* concentrator •liquid system •flowmeter •regulator
	* gas cylinder •blender •air compressor •gas analyzers
 |       |
| 4. CPAP/NPPV with patient interfaces |       |
| 5. Humidifiers |       |
| 6. Nebulizers |       |
| 7. Metered-dose inhalers, spacers, and valved holding chambers |       |
| 8. Dry powder inhalers (DPI) |       |
| 1. Resuscitation equipment, for example,
	* self-inflating resuscitator •flow-inflating resuscitator •AED
 |       |
| 10. Mechanical ventilators |       |
| 11. Intubation equipment |       |
| 10. Artificial airways |       |
| 1. Suctioning equipment, for example,
	* regulator • canister • tubing • catheter
 |       |
| 1. Blood analyzer. for example,
	* hemoximetry (CO-oximetry) • point-of-care • blood gas
 |       |
| 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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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 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
 |       |
| **B. Ensure Infection Prevention** |
| 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 |       |
| **C. Perform Quality Control Procedures** |
| 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 |       |
| **III. INITIATION AND MODIFICATION OF INTERVENTIONS** |
| **A. Maintain a Patient Airway Including the Care of Artificial Airways** |
| 1. Proper positioning of a patient |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 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 |       |
| **B. Perform Airway Clearance and Lung Expansion Techniques** |
| 1. Postural drainage, percussion, or vibration |       |
| 1. Suctioning, for example,
	* nasotracheal • oropharyngeal
 |       |
| 1. Mechanical devices, for example,
	* high-frequency chest wall oscillation • vibratory PEP
	* intrapulmonary percussive ventilation • insufflation / exsufflation
 |       |
| 1. Assisted cough, for example,
	* huff • abdominal thrust
 |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 5. Hyperinflation therapy |       |
| 6. Inspiratory muscle training |       |
| **C. Support Oxygenation and Ventilation** |
| 1. Initiating and adjusting oxygen therapy |       |
| 1. 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 |       |
| **D. Administer Medications and Specialty Gases** |
| 1. Aerosolized preparations |       |
| a. antimicrobials |       |
| b. pulmonary vasodilators |       |
| c. brochodilators |       |
| d. mucolytics/proteolytics |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| e. steroids |       |
| 2.. Endotracheal instillation |       |
| 1. Specialty gases, for example,
	* heliox • inhaled NO
 |       |
| **E. Ensure Modifications are Made to the Respiratory Care Plan** |
| 1. Treatment termination, for example,
* life-threatening adverse event
 |       |
| 2. Recommendations |
| 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 |       |
| 3. Recommendations for changes |
| a. patient position |       |
| b. oxygen therapy |       |
| c. humidification |       |
| d. airway clearance |       |
| e. hyperinflation |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program # )** | **List Course Number(s)** |
| 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 |       |
| **F. Utilize Evidence-Based Practice** |
| 1. Classification of disease severity |       |
| 2. Recommendations for changes in a therapeutic plan when indicated |       |
| 1. Application of guidelines, for example,
	* ARDSNet • NAEPP •GOLD
 |       |
| **G. Provide Respiratory Care in High-Risk Situations** |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 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 |       |
| **H. Assist a Physician / Provider in Performing Procedures** |
| 1. Intubation |       |
| 2. Bronchoscopy |       |
| 1. 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 |       |
| **I. Conduct Patient and Family Education** |
| 1. Safety and infection control |       |

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| **NBRC Therapist Combined Detailed Content Outline Comparison with Proposed Curriculum (Program #** **)** | **List Course Number(s)** |
| 2. Home care and related equipment |       |
| 3. Lifestyle changes, for example,•smoking cessation •exercise |       |
| 4. Pulmonary rehabilitation |       |
| 5. Disease/ condition management, for example,•asthma •COPD •CF •tracheostomy care •ventilator dependent |       |