



College of Rehabilitation Sciences

Master of Physical Therapy Program: Year 2

LIST OF CARDIORESPIRATORY CLINICAL SKILLS LEARNED IN CLASS

Adapted from the National Association for Clinical Education in Physiotherapy (2013)

Students who are involved in cardiorespiratory clinical placements are in the second year of the program and have completed 12 weeks of clinical experience in the Neuromusculoskeletal area of practice. This experience may range from acute in-hospital practice to community based care. The foundational physiotherapy skills related to communication, health education, and general assessment and treatment principles have been introduced in the first year of the program.

Assessment Techniques

Cardiorespiratory History/Lab Results

The student will demonstrate knowledge of relevant history and lab results such as those listed below and incorporate them into assessment and treatment planning, in keeping with the practices of the clinical setting.

1. **Chart review:** accurate & complete for relevant data
2. **Arterial Blood Gas** interpretation
3. **Pulmonary Function Tests**/spirometry interpretation
4. Results of **cardiac/pulmonary diagnostic tests** (e.g. echocardiography, ECG arrhythmias)
5. Awareness of cardiorespiratory **precautions/contraindications** for treatment
6. Collection of **radiographic information**
7. **Blood work** findings (e.g. WBC, Hgb, platelets, INR, PTT, Troponin, BUN, Creatinine, Albumin, electrolytes)
8. **Pharmacological implications** of medications taken (e.g. ACE inhibitors, B-blockers, inhaled agents, analgesia, PCA, anesthesia)

Subjective

The student will demonstrate knowledge and/or use of a variety of subjective assessment tools such as those listed below, in keeping with the practices of the clinical setting.

1. **CR complaints** (e.g. shortness of breath, orthopnea, cough, angina, syncope, nausea)
2. **Pain/discomfort** (e.g. angina, musculoskeletal, surgical)
3. Use of patient **self-report measures** (e.g. McGill pain measure, VAS, Quality of Life Measures, Borg Rating of Perceived Exertion)
4. **Patient history** (with focus on respiratory and cardiac issues such as smoking, etc.)
5. Recent **activity history**

Objective: Inspection/Observation

The student will demonstrate knowledge and/or use of a variety of objective assessment measures such as those listed below, in keeping with the practices of the clinical setting.

1. **Lines and Tubes** (understand implications)
2. **Vital signs** (e.g. heart rate, oxygen saturation, blood pressure, respiration rate, temperature)
3. **Fluid Balance** (understand implications)
4. Elevated jugular venous pressure (distention), reduced peripheral pulses
5. Low flow and high flow **oxygen delivery systems**
6. Modes and parameters of **non-invasive and invasive ventilation**

Patient Assessment

1. Chest Assessment (IPPA)

- **Vital Signs** (e.g. heart rate, oxygen saturation, blood pressure, respiration rate)
- **Inspection** (e.g. cyanosis, clubbing; rate, rhythm, depth of respiration; in-drawing, accessory muscle use)
- **Palpation** (e.g. chest wall excursion, fremitus, sites of chest pain/tenderness)
- **Percussion** (e.g. resonant, hyper-resonant, dull)
- **Auscultation** (e.g. breath sounds, adventitia)
- **Cough** (e.g. effective, ineffective)
- **Sputum** (e.g. color, consistency)

2. EKG interpretation of common arrhythmias

3. Mobilization (independent; with supervision/assistance)

- Bed mobility
- Transfers
- Gait/Ambulatory status (with/without mobility aid; with supervision/assistance)

4. Functional Capacity Measures (6 MWT, self-paced walk, shuttle walk)

5. Balance (sitting, standing, walking)

6. Posture (affecting chest expansion)

7. Strength/Endurance (sufficient for safe mobilization)

8. Range of Motion (e.g. UE/thoracic ROM for thoracic/cardiac/abdominal surgery and COPD)

9. Graded exercise testing monitoring EKG, HR, SpO₂, RPE/RPD, and/or blood glucose

Analysis and Planning

The student will learn to collect and analyze assessment findings and apply these to the identification of goals and the development of treatment plans, in keeping with the practices of the clinical setting.

- **Formulate and articulate evaluation findings**
- Establish short and long-term **patient-centered goals**
- Develop **effective treatment plans**

Treatment Techniques

The student will become knowledgeable about a number of treatment methods, but may only practice some. All students should endeavour to obtain practice with a variety of treatment techniques, in keeping with the practices of the clinical setting.

1. Mobilization (e.g. bed mobility; transfers from bed to std., chair; walking within a room; stairs; prescription of mobility device)

2. Safe management of tubes and lines (including peripheral intravenous catheters, IVs, Foley, chest tubes, surgical drains, endotracheal tube)

3. Oxygen titration

4. Improved ventilation / breathing exercises - may include:

- Mobilization
- Deep Breathing (e.g. thoracic expansion exercises - diaphragmatic breathing, lateral costal breathing)
- Volume augmentation (e.g. sniffing, breath stacking, inspiratory holds)
- Facilitated Breathing / Manual Techniques (e.g. rib springing)

5. Secretion mobilization

- Mobilization
- Active Cycle Breathing Technique (ACBT)
- Forced expiratory technique/huffing, autogenic drainage
- Postural drainage, percussions (manual/mechanical), expiratory manual vibrations
- Devices (e.g. PEP, Acapella, VEST, etc.)

6. Secretion clearance

- Huff, cough, manual assisted cough, manual supported cough
- Suctioning –non-intubated, with/without oral or nasal airways
- Suctioning -intubated, endotracheal tube

Note: In-exsufflation/Cough Assist, lung volume recruitment, inspiratory muscle training, use of breath stacking mask are taught in the Neuro Block (January-March)

7. Managing dyspnea

- Pursed lips breathing,
- Positioning for SOB,
- Energy conservation

8. Implement Exercise Training

- Prescription of adapted programs appropriate for special CR populations such as the critically ill, acutely ill, chronic respiratory and cardiac patients – may include:
 - Aerobic exercise prescription
 - Resistance exercise
 - AROM, AAROM, PROM
- **Thoracic mobility:** supine and sitting postural exercises

9. Discharge planning

- Referrals to community programs/agencies
- Interprofessional collaboration

Patient Education/Self- Management

1. Post-MI activity progression
2. Managing dyspnea
3. Recognizing exacerbations of COPD condition and action plan
4. Nitroglycerine self-administration
5. Smoking cessation
6. Use of bronchodilators/puffers