RSPC A196: INTRODUCTION TO MECHANICAL VENTILATION

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	121000 - Respiratory Care/Therapy
Units	.5 Total Units
Hours	9 Total Hours (Lecture Hours 9)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Introduction to the foundational elements of mechanical ventilation. Includes initiation, modalities, physiologic assessment and patient weaning in addition to the basic clinical preparation and legal documentation necessary in the care of patients requiring ventilatory support. COREQUISITE: RSPC A192. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Apply basic theory of mechanical ventilation and essential knowledge of the preparation for patient care in the critical care setting including: indications, hazards, introductory modes, airway and weaning assessments, non-invasive ventilation, clinical application and legal documentation.

Course Objectives

- 1. Describe and recognize the indications for and hazards associated with positive and negative pressure mechanical ventilation.
- 2. Describe the clinical manifestations that could indicate a patients need for mechanical ventilation assistance.
- 3. Describe the theory of operation of both positive and negative mechanical ventilators.
- 4. Describe the basic modes of ventilation and their clinical application: A/C (VC and PC), CMV (VC and PC), PS, CPAP.
- 5. Describe the steps necessary to determine a patients readiness for weaning, identify the core parameters used in measuring weaning and their acceptable values.
- 6. Determine dynamic and static compliance using peak and plateau pressures, identify how changes in airway resistance affects these pressures and how to graphically interpret these lung mechanics.
- 7. Describe the indications for and safely implement non-invasive ventilation.
- 8. Identify the components of the ventilator flowsheet.
- 9. Describe the basic data and patient assessment to be included in giving and verifying in receiving clinical hand-off report.
- 10. Identify the equipment and supplies necessary for set up of a patient on mechanical ventilation in both routine and emergency scenarios.

Lecture Content

Indications for Mechanical Ventilation Clinical Manifestations Types of Respiratory Failure Types of Mechanical Ventilators Negative Pressure Positive Pressure Theory of Operation of both Hazards of positive pressure ventilation Recognition Prevention and Treatment Modes of Positive pressure ventilation Breath Types Mandatory Assisted Spontaneous Modalities A/C (VC and PC) CMV (VC and PC) PS CPAP Clinical Application of all modes Weaning from Mechanical Ventilation Assessment of Patient Readiness Tests (Weaning Parameters) Negative Inspiratory Force Forced Vital Capacity Rapid Shallow Breathing Index (f/Vt) Monitoring changes in airways Peak and Plateau Pressures Dynamic and Static Compliance Airway Resistance Graphical Interpretation of Lung Mechanics Use of non-invasive ventilation Clinical application Initial settings Hazards Introduction to Charting / Reporting Ventilator flowsheet Receiving and giving clinical hand-off report Critical Care Patient and Room Preparation Equipment and supplies Routine vs Emergency

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)

Instructional Techniques

Lecture, demonstration, case studies.

Reading Assignments

Students will read on average 1-2 hours per week from assigned textbooks and course materials.

Writing Assignments

Students will spend approximately 1 to 1 1/2 hour per week on writing assignments such as homework and case studies.

Out-of-class Assignments

Students will spend approximately 1 hour per week on homework assignments and case studies.

Demonstration of Critical Thinking

Content based written assignments and case studies, objective final examination.

Required Writing, Problem Solving, Skills Demonstration

Written assignments, case studies and final examination.

Eligible Disciplines

Respiratory technician: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Cairo, J.M.. Mechanical Ventilation: Physiological and Clinical Applications, 6th ed. Elsevier, 2016

Other Resources

1. Ventilator flowsheets