



South Portland, Maine 04106

Respiratory Therapy

Title: Clinical Mechanical Ventilation

Catalog Number: RESP-220

Credit Hours: 3

Total Contact Hours: 60

Lecture: 30 hours Lab: 30 hours

Instructor: Heather Higgins, MS, RRT

Office Hours: Wed 10-12 pm,

E-mail: hhiggins@smcme.edu

Thursday 10-12 pm, or by appointment

Phone: 741-5592 Office: 205C HSC

Course Syllabus - Fall 2016

Course Description

This course is designed to be a continuum of Introduction to Mechanical Ventilation, RESP-170. In this course advanced topics covering the management of invasive and noninvasive mechanical ventilation will be studied. Monitoring of the critically ill adult patient will also be presented. This course will focus students on practicing evidence-based lung protective strategies, analyzing and interpreting ventilator graphics, and discussing ventilator weaning strategies. Each of these topics will be studied in detail with an emphasis on the clinical application. Nonconventional ventilator modes will also be explored. Laboratory sessions will help the student learn the technical aspects of the role, with topics in equipment management and trouble shooting. Students will apply principles learned in this course through patient case studies and participating in clinical simulation. The goal of this course is to teach the skills required to become a competent entry level respiratory therapist as well as to cultivate critical thinking skills that are essential in the advanced practice of respiratory care.

Prerequisites: RESP-170, RESP-175

Corequisites: RESP-200, RESP-210, RESP-225

Course Objectives

Upon successful completion of this course the student will be able to:

- Demonstrate competence in management and troubleshooting of ventilator equipment
- Discuss indications and contraindications of mechanical ventilation for adult patients

- Interpret graphical clinical data and make appropriate adjustments.
- Perform essential respiratory calculations and apply concepts in the clinical setting
- Categorize volume-limited, pressure-limited, and dual control modalities
- Describe ideal candidates for noninvasive positive pressure ventilation
- Compare and contrast lung protective strategies
- List the effects of Positive Pressure Ventilation (PPV) on the following systems: cardiovascular, renal, hepatic, neurological, gastrointestinal and nutritional
- Discuss how changes in heart rate, preload, contractility and afterload can alter cardiac function and cardiac output
- Explain the proper technique for insertion and maintenance of a systemic arterial line, and list the most common complications that can occur with this type of monitoring system
- List normal values for measured and derived hemodynamic variables
- Compare the effects of spontaneous and PPV breathing on hemodynamic values
- Differentiate between cardiogenic and non- cardiogenic pulmonary edema using hemodynamic parameters
- From a patient case, describe how patient monitoring can be utilized to assist in the diagnosis and treatment of selected cases
- Explain how to initiate appropriate airway pressure therapy including Positive End Expiratory Pressure (PEEP), recruitment maneuvers, and Airway Pressure Release Ventilation (APRV)
- Determine which patients might benefit from high frequency oscillatory ventilation
- Develop a care plan for a terminally ill patient who is being withdrawn from mechanical ventilation
- Summarize current practices in ventilator weaning protocols
- Discuss pros and cons of transport ventilators, and how to safely transport critically ill ventilated patients

Teaching Methods:

This course is taught using a combination of lectures, patient case studies, simulation, question and answer opportunities, audio/visual aids, demonstrations and computer resources.

Student Evaluation and Grading:

- Journal Review Project 15%
- 3 Exams 45%
- Comprehensive Final Exam 30%
- Self-assessments 10%
- Lab: Pass/Fail

Texts:

- Pilbeam, Mechanical Ventilation: Physiological and Clinical Applications and Workbook, Mosby, 6th Edition
- Wilkins, Egan's Fundamentals of Respiratory Care, Mosby, 10th Edition
- **Recommended reading:** Hess and Kacmarek, Essentials of Mechanical Ventilation; Chatburn, Fundamentals of Mechanical Ventilation
- Selected handouts from instructor

Attendance Policy

Attendance is strongly advised at every class to be successful with managing challenging course material. If you cannot make class for any reason please email me. **Any absences beyond 3 in one semester will drop your grade by one letter grade.** Any student who arrives greater than 10 minutes late will be considered tardy. **If any student accumulates more than 2 tardiness occurrences in a given semester this will result in an absence.** Quizzes or assignments missed as the result of an unexcused absence cannot be made up, and will result in a grade of zero points for that day. Exams are to be taken as scheduled. Missed exams may be made-up with a 10% penalty if the student contacts the instructor prior to missing the exam. The make-up exam format will be altered.

Device Etiquette

Please adhere to the following rules:

- Cell phones should be placed in silent mode while in class
- No text messaging during class time
- No phone calls during class time except in the case of an emergency
- No internet access unless it pertains to the class topic and is assigned by the instructor

Tentative Lecture Schedule:

(May change at the discretion of the instructor or due to logistics)

Week	Topic	Reading due
Aug 29	Review Set Point ventilation What is Dual Control?	Chapter 480-485 Pilbeam pages 1018-1039 Egan
Sep 5	Ventilator Graphics, what they can do for you- applied review	Chapter 9 pages 1177-1183 Egan
Sep 12	Indications for Mechanical Ventilation and NIPPV	Chapter 4,5,6,7,19 Pilbeam Chapter 41,43 & 44 Egan
Sep 19	The setup, assessment and monitoring of the mechanically ventilated patient	Chapter 8,10 Pilbeam Chapter 46 Egan
Sep 26	Journal Review 1 Case based approach to patient initiation and monitoring	
Oct 3	Exam 1	
Oct 10	ARDS, concepts in lung protective ventilation Journal Review 2	Chapter 12, 13 Pilbeam Chapter 41 Egan
Oct 17	Clinical application of lung protective concepts	
Oct 24	Advanced concepts, bringing it all together Journal Review 3	
Oct 31	Exam 2	
Nov 7	Complications of mechanical ventilation Journal Review 4	Chapter 14, 16, 17 Pilbeam Chapter 47 Egan
Nov 14	Liberation from mechanical ventilation	Chapter 20, 21 Pilbeam
Nov 21	Journal Review 5	
Nov 28	Journal Review 6	
Dec 5	Review/ case studies	
Dec 12	Final exams	

Tentative Laboratory Schedule:

(May change at the discretion of the instructor or due to logistics)

Date	Topic	Assignment
Aug 30	Airway Review	Chapter 33 Egan Hung and Murphy Ch 1-3 DSI study
Sep 6	Airway Skills Lab Guest: Marshall Higgins CRNA	Combined Lab- Sim Lab 8:30-10:30
Sep 13	Meet the Drager Vent – Drager Evita XL	
Sep 20	Vent – Drager Evita XL	
Sep 27	Applied case studies	
Oct 4	SMHC Campus PB-840	Times to be announced
Oct 11	Sim Lab	Times to be announced
Oct 18	Transport vents	
Oct 25	APRV and ARDSNet Protocol: what you need to know	
Nov 1	Open Lab Practice	
Nov 8	Drager Check-Off	Times to be announced
Nov 15	Drager Check-Off	Times to be announced
Nov 22	Sim Lab	Times to be announced
Nov 29	NRP- No lab this week	Times to be announced
Dec 6	Applied case studies	

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 PM following the last day of the class. You will receive an email to your student email account when course evaluations are available.

ADA Syllabus Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call 207-741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

SMCC Pay-for-Print Policy

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an e-mail to helpdesk@smccme.edu.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Add-Drop Policy

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of

the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses (usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct.