



I. GENERAL COURSE INFORMATION

Subject and Number: Respiratory Care 178
Descriptive Title: Respiratory Care of the Critically Ill Patient I
Course Disciplines: Respiratory Technologies
Division: Health Sciences and Athletics

Catalog Description:

This course is an introduction to the practice of respiratory care in intensive care units with an emphasis on patient ventilator interaction. The student will manage critically ill patients on prolonged artificial ventilation using microprocessor-driven ventilators, alarms, arterial blood gases and other appropriate techniques and equipment. Students are rotated through evening, night, and day critical care units in hospitals.

Conditions of Enrollment:

Prerequisite: Respiratory Care 176 with a minimum grade of C

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|--------------------------|-----------------------------|---|
| Course Length: | X Full Term | Other (Specify number of weeks): |
| Hours Lecture: | 4.00 hours per week | TBA |
| Hours Laboratory: | 12.00 hours per week | X TBA |
| Course Units: | 8.00 | |

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: Yes **Effective Date:**

Transfer UC: No **Effective Date:**

General Education:

El Camino College:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

SLO #1 Appropriate and Competent FIO₂ Management

Given an in-class patient care scenario during an oral examination based on assigned reading, demonstrate appropriate and competent FIO₂ management using guidelines set in clinical competencies section of the Data Arc system for clinical practice.

SLO #2 Demo ICU RC Procedures

During classes & labs, students will demonstrate and explain appropriate respiratory care competencies such as FIO₂ monitoring and managing patients receiving prolonged artificial ventilation, pulmonary rehabilitation, life support procedures, bronchial hygiene and oxygen therapy.

SLO #3 Comprehensive Final Exam on RC Procedures for ICU RC Patients

Students who stay in the course till the end of semester will take a comprehensive final multiple choice examination and 80% will obtain a grade of 70% or better.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below)

1. Interpret arterial blood gases and classify according to clinical terms used in the management of adult patients on life support.
2. When given patient results at room air levels or higher, calculate FIO₂ and/or PaO₂ as a result of requested changes.
3. Identify use, settings, problems and indications for all alarms and monitoring devices found on adult artificial ventilators.
4. Identify and/or verbalize basic changes in FIO₂, f, V_t, V_E, V_A, IFR, IE ratio, V_D etc., when given access to patient's ABGs, history, physical, and other appropriate information, in order to manage adult patient ventilator interaction.
5. Conduct therapeutic procedures on critically-ill patients to achieve adequate arterial and tissue oxygenation; maintain a patent airway; remove bronchopulmonary secretions; and provide adequate spontaneous and artificial ventilation and other appropriate RC procedures, equipment or therapies.
6. Protect patient from nosocomial infections by adherence to infection control policies and procedures when providing RC to patients in clinical settings.

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

| Lecture or Lab | Approximate Hours | Topic Number | Major Topic |
|----------------|-------------------|--------------|---|
| Lecture | 27 | I | Arterial blood gas interpretation in the critically-ill respiratory patient. A. Use of the a/A Ratio to predict accurate FIO ₂ needs of patients receiving oxygen. B. Understanding the generalizable basics of ventilator-patient interaction. C. Determining initial ventilator patient and alarm settings. |

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|------------------------|-----|-----|--|
| Lecture | 18 | II | Maintain desired pH & PaCO ₂ during prolonged artificial ventilation of the critically-ill respiratory patient using FIO ₂ , f, V _t , VE, VA, IFR, IE ratio, VD, etc. |
| Lecture | 27 | III | Managing the patient/ventilator system during prolonged artificial ventilation of the critically-ill respiratory patient. A. Preventing nosocomial infections in the critically-ill respiratory patient. |
| Lab | 216 | IV | TO BE ARRANGED HOURS Monitoring, charting, delivering medications, resuscitation, suctioning, artificial ventilation and other respiratory techniques, therapy and equipment used as indicated in the respiratory care of patients a. Hospital intensive care units b. Emergency rooms c. In other appropriate locations as assigned |
| Total Lecture Hours | | 72 | |
| Total Laboratory Hours | | 216 | |
| Total Hours | | 288 | |

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

Patient's PaO₂ comes back from lab at 55. Physician wants to increase FIO₂ 30% to get patient's PaO₂ to 95. Patient is now on room air. Will 30% get PaO₂ to 95? Answer in a one-page paper and if yes, show proof. If no, what FIO₂ would you suggest, and show proof.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. Given access to the data of a critically-ill patient receiving life support, determine if ventilation and oxygenation goals are being met and identify or suggest modifications in ventilator settings. Submit to instructor in a one-page paper.
2. Demonstrate and verbally explain how and why we check tracheostomy tube cuff pressure, and verbalize or identify appropriate actions based on the results of the cuff pressure measurement.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Performance exams
Other exams
Quizzes
Reading reports
Written homework
Laboratory reports
Field work
Class Performance
Homework Problems
Term or other papers

Multiple Choice

Completion

Matching Items

True/False

Other (specify):

Case study workup on patients and reporting in writing and orally the information gathering and decision-making in managing the patient's care.

Clinical performance at the patient's bedside in our clinical affiliate hospitals and clinics.

Multiple true/false, Patient Management Problems, and branching logic computer-assisted clinical simulations.

V. INSTRUCTIONAL METHODS

Demonstration

Discussion

Group Activities

Guest Speakers

Laboratory

Lecture

Multimedia presentations

Role Play

Simulation

Other (please specify)

Alternate learning environments such as hospitals, clinics, health fairs, schools and other appropriate environments to provide supervised clinical and educational opportunities to students in class.

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study

Answer questions

Skill practice

Required reading

Problem solving activities

Written work

Journal

Observation of or participation in an activity related to course content

Other (specify)

Group active learning assignments simulating equipment situations that require information collection and decision making in order to solve malfunction problems and determine course of action.

Estimated Independent Study Hours per Week: 8

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Robert L. Wilkins. Egan's Fundamentals of Respiratory Care. . 10th ed. ed. Elsevier, 2013.
Discipline Standard

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

| Requisites | Category and Justification |
|---|----------------------------|
| Course Prerequisite Respiratory Care-176 | Sequential |

B. Requisite Skills

| Requisite Skills |
|--|
| a. Interpret existing clinical data and determine the appropriateness of the prescribed respiratory care plan and participate in the development of the respiratory care plan. RC 176 - Given existing clinical data, collect or recommend obtaining additional pertinent data relevant to a respiratory care plan. RC 176 - Given existing clinical data, suggest or identify appropriate actions to modify or develop a respiratory care plan. RC 176 - Evaluate and monitor patient's response to respiratory care and identify or verbalize appropriate action for a Respiratory Care Practitioner. |
| b. Explain planned therapy goals to the patient; maintain records and communicate relevant information to members of the health care team concerning the respiratory care plan. RC 176 - Explain planned therapy goals to the patient; maintain records and communicate relevant information to members of the health care team concerning a respiratory care plan. |
| c. For non-critically ill patients, conduct therapeutic procedures to achieve: 1. adequate arterial and tissue oxygenation 2. maintenance of a patent airway 3. removal of bronchopulmonary secretions 4. adequate spontaneous and artificial ventilation RC 176 - Conduct ventilation and oxygenation procedures on non-critically ill patients to achieve adequate arterial and tissue oxygenation. RC 176 - Perform respiratory care procedures to maintain a patient's airway, remove bronchopulmonary secretions and provide adequate spontaneous and artificial ventilation. RC 176 - Evaluate and monitor patient's response to respiratory care and identify or verbalize appropriate action for a Respiratory Care Practitioner. |
| d. Evaluate and monitor patient's response to respiratory care and identify or verbalize appropriate action for the Respiratory Care Practitioner. RC 176 - Evaluate and monitor patient's response to respiratory care and identify or verbalize appropriate action for a Respiratory Care Practitioner. |
| e. Protect patient from nosocomial infections by adherence to infection control policies and procedures. RC 176 - Protect patients from nosocomial infections by adherence to infection control policies and procedures. |

C. Recommended Preparations (Course and Non-Course)

| Recommended Preparation | Category and Justification |
|-------------------------|----------------------------|
|-------------------------|----------------------------|

D. Recommended Skills

| Recommended Skills |
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E. Enrollment Limitations

| Enrollment Limitations and Category | Enrollment Limitations Impact |
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Course created by Louis M. Sinopoli on 12/1990

BOARD APPROVAL DATE:

LAST BOARD APPROVAL DATE: 05/18/2020

Last Reviewed and/or Revised by: Roy Mekar

Date: February 2020

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