



I. GENERAL COURSE INFORMATION

Subject and Number: Respiratory Care 280
Descriptive Title: Respiratory Care of the Critically Ill Patient II
Course Disciplines: Respiratory Technologies
Division: Health Sciences and Athletics

Catalog Description:

This course continues with the treatment and management of adult patients that are critically ill. The course provides the student with the opportunity to develop more complex reasoning and patient care skills. Problem-oriented use of patient data including intermediate respiratory care assessment and decision-making using blood gases, x-rays, response to therapy and other appropriate clinical indicators will be emphasized.

Conditions of Enrollment

Prerequisite: Respiratory Care 178 with a minimum grade of C

Course Length:	X Full Term	Other (Specify number of weeks):
Hours Lecture:	4.00 hours per week	TBA
Hours Laboratory:	15.00 hours per week	XTBA
Course Units:	9.00	

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 Explain Ventilator & Life Support 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 Life Support & Rehab for 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. Perform therapeutic procedures in the critically ill adult patient to achieve adequate arterial and tissue oxygenation, maintain a patent airway, remove bronchopulmonary secretions, and provide adequate spontaneous and artificial ventilation.
2. Identify subjective and objective indicators of effective therapeutic modalities while providing respiratory care for critically ill adult patients.
3. Based on patient's response to oxygen therapy, identify and/or verbalize the pulmonary defect causing the response and appropriate therapy.
4. Given access to appropriate patient information and a single or series of xrays, identify and/or verbalize an interpretation of the patient's condition and appropriate treatment.
5. Provided with inspiratory values, identify and/or verbalize peak and plateau pressures, the type of pulmonary resistance to ventilation present and appropriate treatment.
6. Protect patient from nosocomial infections by adherence to infection control policies and procedures during the prolonged ventilation of ICU patients and other patient care settings as appropriate.
7. Identify patients that require prolonged artificial ventilation and those who do not based on objective clinical respiratory care data.
8. Identify and suggest changes in the amount of artificial ventilatory support the patient needs based on stated or identified objective clinical respiratory care data.

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	8	I	The practice of respiratory care from a problem-oriented perspective including the Patient Oriented Medical Record (POMR) and its use in assessing patient, analyzing problem and proposing a therapeutic plan. A. Subtopics 1. Difference between hard data and soft data. 2. What data is relevant to patient problems. 3. Electronic Medical Record for SOAPing Patients.
Lecture	12	II	Introduction and intermediate X-ray interpretation of chest films on Respiratory Care (RC) patients with common respiratory problems. A. Subtopics 1. Air/Tissue Ratios and the X-ray 2. Neumothorax on X-Ray vs atelectasis 3. Other Respiratory examples, pleurisy, emphysema, pulmonary edema & pneumonia
Lecture	14	III	Intermediate oxygen therapy administration and evaluation of its effectiveness. A. Subtopics: 1. Assessment using the results of arterial oxygen pressure and its response to oxygen inhalation to determine the type of pulmonary defect present. 2. Based on the above assessment recommend modifications and appropriate treatment to patients receiving RC in clinical settings to include Intensive Care Units (ICU's) and Emergency Department (ED) etc.
Lecture	14	IV	The initiation and weaning of ventilatory support from the adult critically-ill patient receiving prolonged artificial ventilation. A. Subtopics: 1. Traditional adult ventilators such as PB-840, PB-7200, Viasys Avea 2. Infant ventilators such as Maquet Servo 300 & Servol non-invasive ventilators such as BI-Pap 3. High frequency oscillating ventilation (HFOV)
Lecture	12	V	Resistance to ventilation and objective determination of optimal positive end expiratory pressures. A. Subtopics: 1. Determination of static and dynamic compliance based on peak inspiratory pressure (PIP) and plateau pressures 2. Determine optimal positive end expiratory pressure (PEEP) pressures using PIP and plateau pressures 3. Determine change in airway resistance and lung compliance using dynamic and static lung compliance

			measurements during prolonged artificial ventilation of the critically-ill respiratory patient
Lecture	12	VI	<p>Classification of artificial ventilators in order to predict the effect of changes in patient's pneumatic characteristics on oxygenation and ventilation.</p> <p>A. Subtopics:</p> <ol style="list-style-type: none"> 1. Predict changes in pressure, tidal volume, minute ventilation and other vital respiratory parameters as indicated. 2. Determine the functionality of newly introduced ventilators clinical settings and nationally to RC departments and patient care units. 3. Classify a ventilator on the four basic phases of artificial ventilation.
Lab	270	VII	<p>TO BE ARRANGED HOURS</p> <p>Alternative learning settings to include hospitals, ICUs, emergency departments, clinics, and other appropriate clinical settings in order to provide respiratory care, education and/ or rehabilitation to patients, families and other health care professionals as assigned and appropriate.</p> <p>RC 280(Adult Floor Therapies)</p> <ol style="list-style-type: none"> 1. Isolation 2. Charges 3. Chest assessment 4. Patient assessment 5. X-ray interpretation 6. Ultrasonic Nebulizer 7. Intrapulmonary Percussive Ventilation <p>There are specific competency procedures, skills and knowledge outlined in competency evaluation forms online thru DataArc, each student & instructor have access, if audited we can provide access to auditors or committee members.</p>
Total Lecture Hours		72	
Total Laboratory Hours		270	
Total Hours		342	

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:

7:00 am PIP - 30 Plateau - 25 PaO₂ - 40 PEEP - 0

8:00 am PIP - 34 Plateau - 30 PaO₂ - 65 PEEP - 5

9:00 am PIP - 38 Plateau - 33 PaO₂ - 85 PEEP - 10

10:00 am PIP - 45 Plateau - 40 PaO₂ - 105 PEEP - 15

What PEEP pressure provides the best tissue oxygenation?

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. Given access to data about patients' response to oxygen therapy, identify and/or verbalize the pulmonary defect present and the best way to treat it.

2. After reviewing patient data, look at X-ray films and identify the patient's respiratory condition.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Essay exams

Performance exams

Objective Exams

Quizzes

Written homework

Laboratory reports

Class Performance

Homework Problems

Term or other papers

Multiple Choice

Matching Items

True/False

Other (specify):

Case study

Computer assisted branching logic problems and patient management simulations.

Lab and clinical skill demonstrations on manikins and live patients in non-critical and critical care settings. Live performance at health fairs and teaching children about managing their Asthma.

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

V. INSTRUCTIONAL METHODS

Demonstration

Discussion

Group Activities

Guest Speakers

Laboratory

Lecture

Multimedia presentations

Role Play

Simulation

Other (please specify)

Alternate learning settings to include clinical rotations in ICUs, long-term ventilator care units, pulmonary rehabilitation clinics, health fairs and school visits for education of students with asthma.

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)
- Clinical rotations through clinical affiliate hospitals and public service events as well as education of elementary school children with Asthma.

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. 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-178	Sequential

B. Requisite Skills

Requisite Skills
A. Interpret arterial blood gases and classify according to clinical terms used in the management of patients on life support. RC 178 - Interpret arterial blood gases and classify according to clinical terms used in the management of adult patients on life support.
B. Calculate FIO2 and PaO2 when given patient results at room air levels or higher to predict accurate changes. RC 178 - When given patient results at room air levels or higher, calculate FIO2 and/or PaO2 as a result of requested changes.
C. Identify use, settings, problems and indications for all alarms and monitoring devices found on artificial ventilators.

RC 178 - Identify use, settings, problems and indications for all alarms and monitoring devices found on adult artificial ventilators.

D. Identify and/or verbalize basic changes in FIO₂, f, VT, VE, VA, IFR, IE ratio, VD etc., when given access to patient's ABG's, history, physical, and other appropriate information in order to manage patient ventilator interaction.

RC 178 - Identify and/or verbalize basic changes in FIO₂, f, Vt, VE, VA, IFR, IE ratio, VD etc., when given access to patient's ABGs, history, physical, and other appropriate information, in order to manage adult patient ventilator interaction.

E. 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

RC 178 - 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.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
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D. Recommended Skills

Recommended Skills

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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