



Broward Community College

Course Outline

STATUS: A

COMMON COURSE NUMBER: RET 2714 .

COURSE TITLE: PEDIATRIC and NEONATAL RESPIRATORY CARE

CREDIT HOURS: 3 .

CONTACT HOUR BREAKDOWN:

Lecture/Discussion: 48

Laboratory: 0

Other 0

CONTACT HOURS/WEEK: 3

CATALOG COURSE DESCRIPTION:

This course emphasizes pediatric and neonatal diseases, their etiology and treatment. It encompasses the newest equipment and latest techniques used in monitoring and maintaining the infant patient.

Prerequisite: RET 2418, RET 1833L

Corequisite: RET 2503 , RET 2414, RET 2834L

General Education Requirements - Associate of Arts Degree, meets Area(s): none
General Education Requirements - Associate in Science Degree, meets Area(s): none

UNIT TITLES:

1. Fetal development
2. Neonatal delivery
3. Neonatal pulmonary and related diseases
4. Ventilator and oxygen therapy
5. Management of respiratory failure
6. Cardiac diseases
7. Pediatric Evaluation

LAST REVIEW Academic Year 2002-2003

Interim Revision Dates:

NEXT REVIEW Academic Year 2007-08

I. Course Overview:

Upon successful completion of this course, the students should be able to identify the major disorders which affect neonatal and pediatric patients and list the therapeutic modalities which are most appropriate for their treatment.

II. Units:

Unit 1. Fetal Development

General outcomes:

- 1.0 The student will identify the stages of fetal development and the methods of assessing the developing fetus.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

- 1.1 Diagram the fetal circulatory system, showing the distribution of blood flow and oxygenation.
- 1.2 Describe the cardiopulmonary changes which occur during the adaptation to extrauterine life.
- 1.3 Identify the most significant events in fetal development of the lungs, heart, brain and pulmonary vascular systems.
- 1.4 Describe techniques and their purposes in fetal assessment by:
ultrasonic fetal examination
amniocentesis
- 1.5 Describe the significant data collected from maternal history.

Unit 2. Neonatal Delivery

General outcomes:

- 2.0 The student will describe the physiologic transition from intrauterine to extrauterine environment and the methods used to evaluate and assist the transitional period.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

- 2.1 Describe the techniques used to evaluate the newborn.
- 2.2 Describe thermoregulation and the specialized environmental needs of neonates.
- 2.3 Describe the therapeutic procedures used to oxygenate, suction and resuscitate neonates.
- 2.4 Describe asphyxia, breathing movements in utero and the onset of extrauterine ventilation.
- 2.5 Assign estimated gestational age based on physical findings.

Unit 3. Neonatal pulmonary and related diseases

General outcomes:

The student will describe the etiology, pathophysiology and treatment of the major neonatal pulmonary disorders and G. I. disorders which affect the pulmonary system.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

- 3.1 Describe the etiology, pathophysiology, clinical signs and treatment of:
 - infant respiratory distress syndrome (RDS)
 - transient tachypnea of the newborn
 - pulmonary interstitial emphysema
 - pulmonary air leaks
 - bronchopulmonary dysplasia
 - Group B streptococcal infections
 - pulmonary hemorrhage
 - meconium aspiration syndrome
 - apnea of prematurity, SIDS
 - persistent pulmonary hypertension of the newborn(PPHN)
 - Diaphragmatic Hernia
- 3.2 Compare bronchopulmonary dysplasia and Mikity Wilson Syndrome.
- 3.3 Compare Group B streptococcal infection and RDS
- 3.4 Describe the etiology and treatment of persistent fetal circulation
- 3.5 Differentiate between apnea and periodic breathing

Unit 4. Ventilator and oxygen therapy

General outcomes:

- 4.0 The student will identify the major ventilators and oxygen administration devices and will describe the performance characteristics of each.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

- 4.1 Classify and describe the performance characteristics of these ventilators:

Bear Cub
Sechrist
Infant Star
BP 200
Bunnell Jet Vent
Sensormedics Oscillator

- 4.2 Describe the appropriate use and potential hazards of oxyhoods, face masks and nasal cannulas with neonates.
- 4.3 Describe the etiology and effects of ROP

Unit 5. Management of respiratory failure

General outcomes:

- 5.0 The student will identify and describe the primary techniques used to monitor neonatal progress and to treat neonatal ventilatory dysfunction.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

- 5.1 Describe the advantages , hazards, and the proper placement of umbilical artery catheters.
- 5.2 Describe the methods used and the advantages and problems associated with monitoring blood oxygenation by indwelling Clark electrodes, transcutaneous monitors and saturation monitors
- 5.3 Describe the advantages and disadvantages of these treatment methodologies
pressure wave forms
HFPPV
inverse I:E ratios
prolonged I time vs. high respiratory rates
PEEP/CPAP
IMV
volume vs. pressure ventilation
- 5.4 Describe the administration, maintenance and complications of nasal CPAP.
- 5.5 Recommend appropriate ventilator adjustments for simulated arterial blood gas abnormalities.
- 5.6 Describe problems associated with weaning and extubating neonates.
- 5.7 Extracorporeal Life Support (ECLS)
5.7a Define infant candidates for ECLS
5.7b List the qualifying criteria which must be met
5.7c List the contraindications and hazards of ECLS
5.7d Describe the components of an ECMO
5.7e Name the vessels which are cannulated

Unit 6. Cardiac diseases

General outcomes:

- 6.0 The student will describe the etiology, pathophysiology and clinical manifestations of the major neonatal cardiac disorders.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

- 6.1 Discuss the pathophysiology of patent ductus arteriosus and its management
- 6.2 Describe the pathophysiology and management of the following heart diseases

ventricular septal defect
coarctation of the aorta
Tetralogy of Fallot
Truncus arteriosus
Total anomalous pulmonary venous return
Hypoplastic left heart

- 6.3 Describe the diagnostics used to determine these cardiac anomalies

Unit 7. Pediatric Evaluation

General Outcomes:

7.0 The student will describe the etiology, pathophysiology, and treatment of pediatric disorders.

SPECIFIC LEARNING OBJECTIVES:

To successfully complete this unit the student will:

7.1 Describe the physical findings of the pediatric patient:

- appetite
- physical activity
- presence of cough
- work of breathing
- vital signs

7.2 Describe the etiology, pathophysiology, clinical signs and treatment of:

- Croup
- Epiglottitis
- Respiratory Syncytial Virus
- Foreign Body Aspiration
- AIDS-HIV
- Asthma
- Cystic Fibrosis
- Drowning, Near Drowning

7.3 Compare the delivery of medicated aerosol to pediatric patients with that of the adult.