



Department of Respiratory Care

Course Specification of Neonatal-Pediatric Respiratory Care

Course No. (08 05 878)

2023/2024

LXXX. Course Description:

This course equips respiratory care students with comprehensive knowledge and specialized skills for providing effective care to neonates and pediatric patients. The course explores the unique anatomical and physiological differences in this population, emphasizing their impact on respiratory function and disease presentation. Students will learn to assess, diagnose, and manage common and complex respiratory disorders in neonates and children, including respiratory distress syndrome, congenital anomalies, and chronic conditions like asthma and cystic fibrosis. They will develop expertise in specialized techniques such as neonatal resuscitation, mechanical ventilation, airway management, and aerosol therapy, tailored to the specific needs of young patients. Ethical considerations, family-centered care, and the importance of interprofessional collaboration are emphasized throughout the course.

IV Course Content:

A – Theoretical Aspect: (if any)

S	Units/ Topics List	No. of Weeks	Contact hours	
1	Introduction to Neonatal and Pediatric Respiratory Care:	1	2	
2	Fetal Lung Development and Transition to Extrauterine Life:	2	2	
3	Maternal and Fetal Assessment:	3	2	
4	Neonatal Stabilization and Resuscitation:	4	2	
5	Respiratory Diseases of the Newborn:	5	2	
6	Congenital Disorders of the Respiratory System:	6	2	
7	Neonatal Disorders Resulting from Respiratory Care:	7	2	
8	Med-term exam	8	2	-
9	Congenital Heart Defects and their Impact on Respiratory Function:	9	2	

10	Evaluation of the Child:	- History taking and physical examination specific to pediatric patients - Growth charts and developmental milestones - Red flags for respiratory dysfunction	10	2	
11	Acute Respiratory Disorders in Children:	- Croup, bronchiolitis, asthma exacerbations - Assessment, management, and indications for hospitalization	11	2	
12	Chronic Respiratory Disorders in Children:	- Asthma, cystic fibrosis - Long-term management, adherence, and quality of life	12	2	
13	Mechanical Ventilation in Neonates and Pediatrics:	- Indications, ventilator settings, and modes of ventilation - Monitoring and troubleshooting - Weaning and extubation	13	2	
14	Respiratory Care Therapeutics	- Airway Management - Oxygen Therapy - Aerosol Therapy - Airway Clearance and Lung Expansion Therapy - Transport of the Neonate and Child	14-15	4	
15					
16	Final Exam		16	2	-
TOTAL			16	32	-
Number of Weeks /and Units Per Semester			16 weeks	2 Credits	-

B - Practical Aspect: (if any)

S	Tasks/ Experiments This lab series offers a combination of hands-on practice, simulation, and case-based learning to equip students with the skills they need for neonatal and pediatric respiratory care.	Number of weeks	contact hours	
1	<u>Neonatal and Pediatric Airway Anatomy and Physiology Lab:</u> - Hands-on exploration of infant and child airway models, comparing sizes and differences. - Practice intubation techniques on mannequins specific to neonates and children. - Demonstration of laryngoscopy and visualization of pediatric airways.	1	2	
2	<u>Surfactant and Lung Development Lab:</u> - Microscopic examination of lung tissue samples to observe developmental stages. - Experiment demonstrating the role of surfactant in reducing surface tension in a model lung. - Case studies analyzing surfactant deficiency disorders in neonates.	1	2	
3	<u>Fetal Monitoring and Assessment Lab:</u> - Simulation of fetal heart rate monitoring and interpretation of patterns. - Practice using Doppler ultrasound to assess fetal heart rate and movement. - Case studies on interpreting antenatal test results (ultrasound, amniocentesis).	1	2	
4	<u>Neonatal Resuscitation Simulation Lab:</u> - High-fidelity simulation of neonatal resuscitation scenarios. - Practice airway management, positive pressure ventilation, and chest compressions on mannequins. - Team-based training on coordinating resuscitation efforts.	1	2	
5	<u>Respiratory Distress Syndrome (RDS) Management Lab:</u> - Demonstration of surfactant administration techniques. - Observation and interpretation of neonatal chest X-rays with RDS. - Simulation of ventilator management for neonates with RDS.	1	2	
6	<u>Congenital Respiratory Disorders Lab:</u> - Use of anatomical models and videos to understand choanal atresia, tracheoesophageal fistula, and congenital diaphragmatic hernia. - Simulation of pre- and post-operative care for these conditions.	1	2	
7	<u>Air Leak Syndromes Lab:</u> - Chest tube insertion and management simulation. - Interpretation of X-rays and clinical signs of pneumothorax, pneumomediastinum, etc.	1	2	
8	<u>Congenital Heart Defect Assessment Lab:</u> - Auscultation of heart sounds in infants and children with congenital heart defects. - Case studies on the impact of specific heart defects on respiratory function.	1	2	
9	<u>Pediatric Physical Assessment Lab:</u> - Practice performing respiratory assessments on pediatric mannequins and standardized patients. - Identification of red flags for respiratory dysfunction in children.	1	2	

10	<u>Asthma and Bronchiolitis Management Lab:</u> • Demonstration of inhaler and nebulizer techniques for children. • Simulation of acute asthma or bronchiolitis exacerbation management. • Practice peak flow monitoring and interpretation.	1	2	
11	<u>Cystic Fibrosis Care Lab:</u> • Hands-on practice with airway clearance techniques (e.g., vest therapy, postural drainage). • Discussion and demonstration of inhaled medication administration. • Case studies on the multidisciplinary management of cystic fibrosis.	1	2	
12	<u>Mechanical Ventilation Lab (Neonatal and Pediatric):</u> • Hands-on experience with neonatal and pediatric ventilators. • Practice setting ventilator parameters and adjusting settings based on patient response. • Troubleshooting common ventilator alarms and complications.	1	2	
13	<u>Oxygen Therapy and Aerosol Delivery Lab:</u> • Selection and setup of oxygen delivery devices for neonates and children. • Demonstration of aerosol delivery techniques using various devices (e.g., MDI, nebulizer).	1	2	
14	<u>Neonatal and Pediatric Transport Simulation:</u> • Simulation of the transport of a critically ill neonate or child. • Practice packaging and securing the patient for transport. • Monitoring and managing the patient during transport.	1	2	
15	<u>Final lab- Exam</u>	1	2	-
TOTAL		15	30	-
Number of Weeks /and Units Per Semester		15 weeks	1 Credits	-

VI. Teaching strategies of the course:

116. Lecture method
117. Practical Evaluation
118. Physical Assessment
119. Clinical exam
120. Brainstorming
121. Demonstration
122. Case study discussions

Schedule of Assessment Tasks for Students during the Semester

Theoretical part

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Attendance and Activities	15 th week	5	5%	
2	Student assignment	5 th and 12 th week	5	5%	
3	Mid-term exam	7 th or 8 th week	10	10%	
4	Final exam	16 th -17 th week	40	40 %	
Total Theory Weight			60	60%	