NAVIGATE Respiratory Care

JONES & BARTLETT LEARNING
NAVIGATE™

Foundations of Respiratory Care

Course Description

Navigate Respiratory Care: Foundations of Respiratory Care is one of the 10 online courses in the **Navigate Respiratory Care** curriculum. This course introduces the students to the basic science they will need to function as respiratory therapists. The physical and mechanical laws that form the foundation of respiratory care are examined in detail. Coverage includes the metric system, math, physics, chemistry, microbiology, and research and statistics.

Course Content

- NBRC Correlation Matrix
- Course Objectives
- Interactive Lectures with Audio
- Interactive Practice Activities and Quizzes
- Icons to highlight important information— infection control, safety, caution, legal, and ethical
- Lesson Case Study
- Lesson Assignment
- Lesson Summary
- Lesson Discussion Questions
- Final Quiz
- Web Links and References

Course Outcome

Navigate Respiratory Care: Foundations of Respiratory Care will help students understand the physics, mathematics, and chemistry as related to respiratory care.

Course Objectives

1. Examine all aspects of the metric system and perform calculations relating to respiratory therapy.
2. Describe mathematics as used in respiratory care and understand the ways in which different mathematical methods are used to take measurements and make calculations.
3. Understand states of matter, work, and kinetic energy.
4. Identify how temperature conversions are made and examine thermodynamics, thermal energy, and temperature.
5. Describe gas laws and ideal gas laws and define Boyle's law, Charles' law, and Gay-Lussac's law.
6. Understand and apply Dalton's law of partial pressures to gas mixtures.
7. Examine Graham's law, Henry's law, and Fick's law and relate the ones that apply to diffusion and osmosis.
8. Explain the role of water vapor, humidity, and evaporation and how all three are useful in respiratory therapy.
9. Apply knowledge of Boyle's law, Charles' law, and Gay-Lussac's law to the behavior of gas under varying temperatures and pressures.
10. Describe and calculate patterns of flow, airway length, and resistance using Poiseuille's law and Reynold's number.
11. Discuss fluid entrainment and the Bernoulli principle, the Venturi effect, and Ohm's law in relation to respiratory care.
12. Compare compliance and elastance and define LaPlace's law, surface tension, and surfactant.
13. Understand chemistry in relation to respiratory therapy and in particular the Henderson-Hasselbalch equation.
14. Explain the aspects of microbiology that play an important role in respiratory disease and treatment.
15. Apply the scientific method to research and statistics in respiratory care.

Optional Textbooks to Accompany Course

Respiratory Care: Principles and Practice, Second Edition
by Hess, et al.
ISBN-13: 978-0-7637-6003-8 • © 2012

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