

Acute Respiratory Care of the Neonate, 3rd Edition—Course 3

TEST DIRECTIONS

1. Please fill out the answer form and include all requested information. We are unable to issue a certificate without complete information.
 2. All questions and answers are developed from the information provided in the book. Select the one best answer and fill in the corresponding circle on the answer form.
 3. Mail the answer form to NICU INK, 1425 N. McDowell Blvd., Ste. 105, Petaluma, CA 94954-6513 with a check for \$25.00 (processing fee) made payable to NICU INK. This fee is non-refundable.
 4. You will be notified of your test results within 6 weeks. Please retain the test for your records.
 5. An answer key is available upon request with completion of the exam.
 6. A total of 5.4 contact hours* for the course (including 0 hours of pharmacology credit) may be earned as CNE credit for reading the material and for completing a posttest and evaluation. To be successful the learner must obtain a grade of at least 80% on the test.
 7. No relevant financial interest or affiliation with any commercial interests was disclosed by members of the activity test panel. No commercial support/sponsorship was provided for this education activity. The Academy of Neonatal Nursing (ANN)/American Nurses Credentialing Center (ANCC) does not endorse any commercial products discussed in conjunction with this educational activity.
The Academy of Neonatal Nursing is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.
Provider, Academy of Neonatal Nursing, approved by the California Board of Registered Nursing, Provider #CEP 6261; and Florida Board of Nursing, Provider #FBN 3218, content code 2505.
Accredited status does not imply endorsement by ANN or ANCC of any commercial products displayed or discussed in conjunction with an educational activity.
- * Contact hours based on a 60-minute hour.

COURSE OBJECTIVES

After reading the book and taking the test, the participant will be able to:

1. Interpret pulmonary function data.
2. Correctly analyze neonatal blood gases.
3. Explain the principles of mechanical ventilation.
4. Discuss the special aspects of the nursing care of neonates on various types of noninvasive ventilation.
5. Compare two types of mechanical ventilation as to which infants respond best to which therapy.

-
1. In the clinical setting it is most useful to measure:
 - a. dynamic compliance
 - b. static compliance
-

2. Flow-volume loops can be used to measure flow restrictions caused by:
 - a. bronchospasms
 - b. pneumothorax
 - c. surfactant deficiency
-

3. Transpulmonary pressure refers to pressure from the airway opening to the:
 - a. alveoli
 - b. pleural space
 - c. terminal bronchiole
-

4. The unit change in volume per unit change in pressure is known as pulmonary:
 - a. compliance
 - b. elastance
 - c. resistance
-

-
5. The slope of a line between any two points on a pressure-volume curve represents:
 - a. compliance
 - b. resistance
 - c. volume
-

6. The product of compliance and resistance is known as the:
 - a. flow rate
 - b. inspiratory capacity
 - c. time constant
-

7. The effort required to overcome the elastic and resistive forces of the lung is termed:
 - a. compliance
 - b. dynamic flow
 - c. work of breathing
-

8. The normal phase angle between the rib cage and abdomen is:
 - a. 0
 - b. +2
 - c. +4
-

-
9. When lung inflation exceeds the upper inflection point of the pressure-volume relationship:
 a. compliance is decreased c. resistance is increased
 b. compliance is increased
-
10. Flow that drops off abruptly during expiration is a sign of:
 a. airway collapse c. stiff lungs
 b. high opening pressure
-
11. Which of the following measurements is altered when the face mask fits too tightly?
 a. airway resistance c. lung volume
 b. lung compliance
-
12. Which of the following factors does not directly affect oxygen transport?
 a. alveolar shunting c. renal function
 b. body temperature
-
13. PaO₂ measures the amount of oxygen:
 a. bound to carriers in the blood
 b. crossing the alveolar-capillary membrane
 c. dissolved in plasma
-
14. Compared to oxygen saturation levels, PaO₂ is a more accurate measure of oxygen level when the PaO₂ is:
 a. between 60 and 90 mmHg
 b. <60 mmHg
 c. >90 mmHg
-
15. The majority of carbon dioxide in the blood travels:
 a. bound to proteins c. within red blood cells
 b. dissolved in plasma
-
16. Buffer systems consist of a combination of:
 a. strong acid and weak base
 b. weak acid and strong base
 c. weak acid and weak base
-
17. The normal range for base excess/base deficit is:
 a. -2 to +2 c. -4 to +4
 b. -3 to +3
-
18. Which of the following pH values would be found in a compensated blood gas?
 a. 7.32 c. 7.47
 b. 7.36
-
19. Fetal acidosis is indicated by a pH of < _____.
 a. 7.20 c. 7.30
 b. 7.25
-
20. Which PaO₂ values (in mmHg) best represents a normal range for a term infant?
 a. 40–60 c. 70–90
 b. 50–70
-
21. When used, the dose of sodium bicarbonate is _____ mEq/kg.
 a. 1 c. 3
 b. 2
-
22. Indications for intubation and mechanical ventilation include a:
 a. base excess of more than -4
 b. PCO₂ of more than 50
 c. pH of less than 7.25
-
23. During pressure-cycled ventilation the presence of a mucous plug may result in:
 a. delivery of excessive volume
 b. loss of positive and expiratory pressure
 c. shortening of the inspiratory time
-
24. With the use of a time-cycled, pressure-limited ventilator, gas flow is terminated when a preset _____ is reached.
 a. pressure c. volume
 b. time
-
25. For time-cycled ventilation a normal inspiratory time (T_I) is _____ second.
 a. 0.3–0.5 c. 0.7–0.9
 b. 0.5–0.7
-
26. In mechanical ventilation the major determinant of oxygenation is:
 a. mean airway pressure
 b. peak inspiratory pressure (PIP)
 c. positive end expiratory pressure (PEEP)
-
27. During conventional mechanical ventilation the primary variables controlling PaCO₂ levels are rate and:
 a. flow c. P
 b. T_I
-
28. Hypocapnia increases an infant's risk of developing:
 a. cerebral palsy
 b. patent ductus arteriosus
 c. retinopathy of prematurity
-
29. In an infant receiving mechanical ventilation, increasing the PEEP is unlikely to improve oxygenation once the PEEP exceeds _____ cmH₂O.
 a. 4–5 c. 6–7
 b. 5–6
-
30. When compliance is high, the slope of the compliance curve is:
 a. depressed c. steep
 b. flat
-
31. In the lungs, viscous resistance is generated by:
 a. air movement c. tissue friction
 b. gas flow
-

-
32. During spontaneous breathing, airway resistance is greater on:
a. inspiration
b. expiration
-
33. When compliance decreases (as in respiratory distress syndrome [RDS]), time constants are:
a. longer
b. shorter
c. the same
-
34. The most common, purely obstructive newborn lung condition is:
a. meconium aspiration syndrome
b. congenital diaphragmatic hernia
c. respiratory distress syndrome
-
35. Factors affecting the amount of pressure delivered to the infant with a high-flow nasal cannula include:
a. amount of humidity
b. infant's weight
c. type of lung disease
-
36. Which of the following is a side effect of high levels of continuous positive airway pressure (CPAP)?
a. decreased venous return
b. chest wall distortion
c. fall in minute ventilation
-
37. The mechanism by which CPAP is thought to improve respiratory drive is through stimulation of:
a. central chemoreceptors
b. stretch receptors
c. vagal nerve fibers
-
38. There is no benefit from CPAP levels < ____ cmH₂O.
a. 5
b. 6
c. 7
-
39. Compared to nasal prongs, CPAP given via an endotracheal (ET) tube results in:
a. higher airway resistance
b. lower airway resistance
c. similar airway resistance
-
40. According to De Paoli and colleagues, the most effective delivery device for noninvasive ventilation (NIV) is:
a. ET tube
b. nasopharyngeal tube
c. short binasal prongs
-
41. Which of the following is a contraindication to the use of NIV?
a. obstructive apnea
b. omphalocele
c. RDS
-
42. Which of the following is not a characteristic of benign CPAP belly?
a. presence of loops
b. skin discoloration
c. upward pressure on the diaphragm
-
43. For stable infants on NIV, the recommended interval for respiratory assessments is every ____ hours.
a. 1–2
b. 3–4
c. 5–6
-
44. Stockinette caps used to hold NIV tubing should be replaced every ____ hours.
a. 12–24
b. 24–36
c. 36–48
-
45. A ventilator trigger device that is too sensitive can result in:
a. auto triggering of breaths
b. loss of PEEP
c. prolonged breath
-
46. In an infant with a spontaneous respiration rate of 50 on assist/control ventilation with a rate of 30, how many breaths per minute are supported?
a. 30
b. 50
-
47. In volume guarantee ventilation, the amount of pressure delivered is determined by the:
a. average pressure of the previous four breaths
b. exhaled tidal volume (VT) of the previous breath
c. operator
-
48. With synchronized ventilation, the PIP required for adequate VT is determined by the infant's:
a. gestational age
b. lung condition
c. size
-
49. The recommended PEEP for infants requiring an FiO₂ of 0.4 is ____ cmH₂O.
a. 5
b. 6
c. 7
-
50. To avoid air trapping in larger infants it is recommended that ventilator rates be maintained below ____/minute.
a. 60
b. 70
c. 80
-
51. In small infants, the use of ventilator rates of <10 breaths per minute results in:
a. inadvertent PEEP
b. increased dead space
c. increased work of breathing
-

ANSWER FORM: Acute Respiratory Care of the Neonate, 3rd Edition—Course 3

Please completely fill in the circle of the **one best answer** using a dark pen.

Questions are numbered vertically.

- 1. a. 7. a. 13. a. 19. a. 25. a. 31. a. 37. a. 43. a. 49. a.
- b. b. b. b. b. b. b. b.
- c. c. c. c. c. c. c. c.

- 2. a. 8. a. 14. a. 20. a. 26. a. 32. a. 38. a. 44. a. 50. a.
- b. b. b. b. b. b. b. b.
- c. c. c. c. c. c. c. c.

- 3. a. 9. a. 15. a. 21. a. 27. a. 33. a. 39. a. 45. a. 51. a.
- b. b. b. b. b. b. b. b.
- c. c. c. c. c. c. c. c.

- 4. a. 10. a. 16. a. 22. a. 28. a. 34. a. 40. a. 46. a.
- b. b. b. b. b. b. b. b.
- c. c. c. c. c. c. c. c.

- 5. a. 11. a. 17. a. 23. a. 29. a. 35. a. 41. a. 47. a.
- b. b. b. b. b. b. b. b.
- c. c. c. c. c. c. c. c.

- 6. a. 12. a. 18. a. 24. a. 30. a. 36. a. 42. a. 48. a.
- b. b. b. b. b. b. b. b.
- c. c. c. c. c. c. c. c.

Acute Respiratory Care of the Neonate, 3rd Edition—Course 3

Name _____
Please Print

Address _____

City _____ State _____ Zip _____

Nursing License # _____ State(s) of License _____

Phone # _____ E-mail _____
(optional)

FOR OFFICE USE ONLY
RECEIVED
CHECK
GRADE
PASSED / FAILED
CERTIFICATE ISSUED
MAIL DATE IF DIFFERENT
REFERENCE #

Test expires
 May 20
 2018

Mail with \$25.00 non-refundable processing fee for 5.4 contact hours
 (0 hours of pharmacology credit) payable to NICU Ink.[®]
 NICU Ink.[®] 1425 N. McDowell Blvd., Ste. 105, Petaluma, CA 94954-6513.
Include an additional \$10.00 for rush processing.
 International Participants: International Money Order drawn on U.S. Bank only.

I have enclosed an additional \$10 for rush processing.

Evaluation Directions

Thank you for taking the time to assist us in evaluating the effectiveness of this course. Using the scale below, darken the circles corresponding to your responses. If an item is not applicable, leave it blank.

①	②	③	④	⑤
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Objectives:

I am able to:

1. Interpret pulmonary function data. ① ② ③ ④ ⑤
2. Correctly analyze neonatal blood gases. ① ② ③ ④ ⑤
3. Explain the principles of mechanical ventilation. ① ② ③ ④ ⑤
4. Discuss the special aspects of the nursing care of neonates on various types of noninvasive ventilation. ① ② ③ ④ ⑤
5. Compare two types of mechanical ventilation as to which infants respond best to which therapy. ① ② ③ ④ ⑤

Presentation

1. The material presented is relevant to my practice. ① ② ③ ④ ⑤
2. The content of this activity is likely to engender a change in my clinical practice. ① ② ③ ④ ⑤
3. The questions on the test reflected the content of the book. ① ② ③ ④ ⑤
4. The book content was comprehensive. ① ② ③ ④ ⑤
5. The test directions were clear. ① ② ③ ④ ⑤
6. The CNE activity was free of commercial bias. ① ② ③ ④ ⑤
7. I would recommend this CNE activity to colleagues. ① ② ③ ④ ⑤
8. I perceive the education level of this course to be: ① ② ③
 1 = Basic; 2 = Intermediate; 3 = Advanced

9. How long did it take you to complete the course? _____ hours _____ minutes

10. In what level unit do you practice? I___ II___ III___

I am a staff nurse NNP nurse manager _____ other (please state)

What subjects would you like to see offered for CE courses? _____

Additional comments: _____
