Northwest Community EMS System

May 2017 CE: Pediatric Respiratory Emergencies
Credit Questions

Name:	Date submitted:
EMS Agency/hospital:	Credit awarded (date):
EMSC/Educator reviewer:	Returned for revisions:
	Revisions received:

This packet should take 2 hours to complete – which earns you the equivalent of the 2 hour live CE class.
Sources: May CE handout, slide deck handout; video on Respiratory Distress vs. Failure; Pediatric SOPs

1. In what special needs child is the tongue generally large for the size of the oral cavity a particular concern for airway management?

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2. What is the optimal positioning of an infant/small child to open their airway?

   A. Padding under occiput
   B. Padding under shoulders/torso
   C. Head flat on stretcher, neck slightly hyperextended

3. Because of size alterations of a pediatric airway, what are the implications for deterioration and EMS care if a child has airway swelling?

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4. Why is pulmonary reserve decreased in an infant?

   A. Infants cannot increase RR to meet oxygen demands
   B. Infants deplete all reserves by increasing their ventilatory depth when in distress
   C. Intercostal muscles are weaker so tidal volumes can't increase to meet demands
   D. The chest wall is less compliant because ribs and sternum are composed of denser bone

5. Because breath sounds are easily transmitted through a child's thin chest wall, what adjustment needs to be made when listening to lung sounds?

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6. Why can children be hemodynamically stable until 25%-30% of their blood volume is lost?

   A. They require less oxygen and glucose than an adult
   B. They vasoconstrict more effectively to maintain BP longer than an adult
   C. They can sustain lower SpO_2 values for longer periods of time than an adult
   D. Children can carry more oxygen on their RBCs than an adult so can lose more blood

7. In addition to AVPU, what should be assessed about cerebral function/level of consciousness?

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8. What are the criteria that suggest the need for an advanced airway in a child?

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9. Which of these is true and is a point of consideration when intubating a small child?

   A. The epiglottis is easily lifted so a curved blade is preferred
   B. Children tend to become very tachycardic when being intubated
   C. The larynx is higher and the epiglottis is omega shaped in children
   D. Children are less prone to gastric distention while being preoxygenated with a BVM

10. What sedative is indicated prior to DAI in children?

   A. Etomidate 0.2 mg/kg up to 40 mg IVP/IO
   B. Ketamine 2 mg/kg slow IVP over 1 minute
   C. Benzocaine 1-2 second spray, 30 seconds apart X 2 to posterior pharynx
   D. Midazolam 0.1 mg/kg IVP/0.2 mg/kg IN (max single dose 5 mg) if BP > 80

11. Using the pneumonic DOPE, what should be suspected if an intubated child begins to deteriorate?

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12. Why is it important to assess chest/abdominal contour as a component of the pulmonary assessment in a small child?

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13. What is the room air pulse oximetry target in a child? _____

The following questions refer to content presented in the videotape on the S&S of respiratory distress vs. failure in a child. Link: https://www.youtube.com/watch?v=VQiqgLZVUK4

14. Why is the early recognition of respiratory distress and/or failure in children critically important?

_____

15. Which of these characterizes respiratory failure?

   A. Severe respiratory distress with normal SpO_2 and $ETCO_2$ values
   B. Inadequate elimination of CO_2 and/or inadequate oxygenation of the blood
   C. Compensated state of respiratory dysfunction with increased rate and effort of breathing

16. What S&S indicate an increased work of breathing in a child? (List at least 3)

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Back to class materials

17. If a child presents with fever and cough, what PPE precautions are indicated?

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18. List at least 3 possible causes of stridor besides croup and epiglottitis.

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19 A 2-year old child presents with a low grade fever (101° F), minor respiratory distress, a loud seal-bark cough, intermittent stridor, and a very hoarse and raspy cry. There are NO drooling, grunting, head bobbing, wheezing, retractions, or cyanosis present. VS: BP 94/60; P 140; R 32, SpO2 97% on RA, EtCO2 34 with square waveform; lungs are clear. Which of these is indicated?

A. Initial medical care and transport
B. Albuterol 2.5 mg/HHN with O_2 at 6 L
C. 2 chewable ASA and immediate intubation
D. Nebulize epinephrine (1mg/10mL) 0.5 mg with 6 L O_2/HHN or mask

The following 3 questions refer to this scenario

A 5 y/o male presents with a history of fever, noisy breathing, and drooling. Mom states that the fever began this morning and has spiked this afternoon. The noisy breathing was alarming to the child's parents so 911 was called. Mom states that the child has not taken anything by mouth since he became ill. The child complains that his throat hurts in a soft, muffled voice (dysphonia).VS: BP 100/66; P 144; RR 32 & shallow; SpO_2 90% on RA; T 103° F. The child is alert, awake, in acute respiratory distress, and prefers an upright and forward leaning position. Skin: is hot and moist without a rash. Lung sounds: clear bilaterally; inspiratory stridor with retractions.

20. What should EMS suspect?

A. RSV virus
B. Epiglottitis
C. Bronchiolitis
D. Spasmodic croup

21. Which of these is indicated for the above child now?

A. Intubate and ventilate with 15 L oxygen/peds BVM
B. Position the child supine for better access to the airway
C. Nebulize epinephrine (1 mg/10mL) 0.5 mg w/ 6 L O2/HHN/mask
D. Examine the child's throat with a tongue blade to inspect for redness and swelling

22. If the above child goes into ventilatory failure and cannot be ventilated with a BVM, what intervention is indicated?

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_____

The following 9 questions refer to this scenario

An 8-y/o male is brought to school nurse after developing increased WOB while in the cafeteria. The patient has red blotchy hives on his face and neck. The nurse learns he has a peanut allergy and may have ingested a cookie with peanuts. Patient's voice is becoming slightly hoarse and the hives are becoming more pronounced including on the hands.
Realizing the patient's condition is worsening and having no diphenhydramine or epinephrine on hand, the RN calls 9-1-1. EMS arrives on scene four minutes later and finds the patient anxious and pale with difficulty breathing, beginning retractions and complaining of intense itching on his face, lips, throat and hands.

VS: BP 85/40; HR 120, RR 30, SpO_2 92% on RA; $ETCO_2$ 30. Urticaria is now widespread, his lips are swollen, and cap refill is 3 seconds. He weighs 55 lbs (25 kg) and is 50" tall (Orange zone of Broselow tape)

23. How should oxygen be delivered to this child?

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24. What drug is indicated first?

    A. Diphenhydramine 1 mg/kg IM
    B. Epinephrine 1mg/1mL 0.25 mg IM
    C. Epinephrine 1mg/10mL 0.1 mg IVP
    D. Albuterol & ipratropium via HHN

Assume that IMC has been completed and vascular access is in place for ALS care.

25. What long-acting antihistamine is indicated (Drug, dose and route *for this child?*)

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26. The child's level of consciousness and respiratory effort rapidly deteriorate, what interventions are needed now?

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    _____

    _____

27. Once inside the ambulance, the patient becomes completely unresponsive and apneic. Pulseless V-Fib is apparent. Is prolonged CPR indicated while S&S of anaphylaxis resolve?

    Yes / No (circle one)

28. Rhythm is shockable. At how many Joules should the pt be defibrillated _____

29. How much IVF is indicated for this patient?) _____

30. What drug is now indicated? (List drug, concentration, dose, and route)

    _____

    _____

31. What drug dose and route is indicated next for this child?

    _____

32. A 10 y/o child presents with diffuse wheezing in all lung fields and mild respiratory distress from an asthma attack. He can speak in full sentences. Room air SpO_2 is 95%. There is no orthopnea or use of accessory muscles. HR and BP are within normal limits for the child's age and size. Which of these is indicated first?

    A. Magnesium 25 mg/kg slow IVP/IO
    B. Ketamine 2 mg/kg slow IVP (over 1 min)
    C. Albuterol and ipratropium via nebulizer with O_2 at 6 L
    D. Epinephrine (1mg/1mL) 0.01 mg/kg IM to a max of 0.3 mg IM

33. An 8 y/o child has a history of asthma. Currently, the child presents with severe SOB, orthopnea, use of accessory muscles; speaks in syllables, has tachypnea; lung sounds are bilaterally diminished; and the patient appears exhausted. HR & BP are dropping and RA SpO2 is ≤92%. Which of these is indicated first?

    A. CPAP at 5 cm PEEP
    B. Magnesium 25 mg/kg slow IVP/IO
    C. Albuterol and ipratropium via nebulizer with O_2 at 6 L
    D. Epinephrine (1mg/1mL) 0.01 mg/kg IM to a max of 0.3 mg IM

34. A young child presents with a continuous dry, hacking cough that persisted 15 minutes following excitement and running around at a birthday party. Lung sounds are clear. Her mother states that she has cough variant asthma. How should this child be treated?

    _____

35. A 2 y/o presents with AMS following a severe respiratory infection and high fever. There is ↑ respiratory effort and expiratory grunting with retractions, and cyanosis. Capillary refill is 5 seconds; legs are cold and knee caps are mottled. VS: BP 64/40; P corresponds to ECG; RR 66; SpO_2 88; lungs sounds: bilateral wheezing; capnography 65; glucose is 80.

What intervention is indicated FIRST?

A. IV NS 20 mL/kg IV bolus
B. Norepinephrine 8 mcg/min
C. Atropine 0.02 mg/kg rapid IVP/IO
D. BLS airway and assist ventilations with O_2 15 L/peds BVM

36. Per the Peds Respiratory Arrest SOP, at what rate should a paramedic ventilate a child with a BVM when chest compressions are not required?

A. 6-8 breaths/minute
B. 8-10 breaths/minute
C. 10-12 breaths/minute
D. One breath every 3 to 5 seconds

37. A 3-month old infant presents with paroxysmal cough, increased respiratory effort that has progressively worsened over the past two days. The child prefers a sitting position. He has a runny nose, fever, and wheezing in all lung fields and expiratory grunting. VS: P 160; RR 60; SpO_2 84%; T 102° F. The child is not tugging on his ear and there is no stridor, hoarseness, or drooling. What should EMS suspect?

A. Pneumonia
B. Bronchiolitis
C. Aspiration
D. Asthma

38. What EMS interventions are indicated for the above child?

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39. A febrile (105° F) 6-month-old infant presents with a poor appetite and decreased activity over the past 3 days. On exam, the patient appears lethargic, is warm to the touch, and is taking rapid shallow breaths at a rate of 70 /min. He has crackles in the right lower lung field. What should EMS suspect?

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40. Bottom line: Uncorrected hypoxia & acidosis in children lead to…

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