LUCAS COUNTY

September 17, 2013

TO: ALL LUCAS COUNTY PARAMEDICS

FROM: Brent Parquette, NREMT-P
Lucas County EMS Continuing Education

RE: **October CE 2013**

October will be the last month of training for 2013. During the month we will present information on EMS response to **"Pediatric Emergencies."** We will once again have skill stations to emphasize concepts and techniques discussed during class lecture. Please take time to review the pediatric section of your protocols to help better prepare you.

I have included a 15-question pre-test for you to complete before attending class. An aswer sheet has been provided with response rationale for you to check your own work. If you have any questions or comments please do not hestitate to contact me. Look forward to seeing you in the coming month.

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Lucas County EMS Paramedic Continuing Education
October 2013

Pre-Test

1. Which is a true statement about the anatomical differences of the pediatric airway?
    a. They have a proportionally larger tongue
    b. Softer, more flexible trachea
    c. Their trachea is more anterior, and superior
    d. All of the above

2. Recently there have been several outbreaks of this disease, which can be fatal especially in children 1 year of age and younger.
    a. Diphtheria
    b. Pertussis
    c. RSV
    d. Croup

3. You are dispatched at 2300 hours for an ill child. On arrival you find a 4-year-old child sitting in a tripod position on the couch next to his grandmother. She states that he came home from day care earlier, didn't feel well, and went to bed early without eating. He woke her up and said he couldn't breathe. His voice is raspy when he tells you," My throat hurts!"
    His vital signs are: HR- 130, RR- 30 shallow, SPO2- 90% RA, Temp- 39.7 C°, Lung Sounds- clear.
    What do you believe is the cause of this patient's illness?
    a. Epiglottitis
    b. Pertussis
    c. Croup
    d. RSV

4. What is the correct treatment for the patient in question 3?
    a. 3ml normal saline nebulized, followed by 0.25mg Epinephrine 1:1,000 nebulized with 2ml normal saline (max of 5ml).
    b. 2.5mg nebulized Albuterol, may be performed once more if no improvement; 20mg Prednisone PO or 1mg/kg Solu-Medrol IV.
    c. High Flow Oxygen via NRB mask; rapid transport to a pediatric facility while trying to keep patient as calm as possible.
    d. 2.5mg nebulized Albuterol, followed by nebulized mixture of Albuterol and Atrovent.

5. In suspected cases of epiglottitis and severe croup, which of the following actions may result in total airway obstruction?
    a. Withholding painful procedures, like IV placement, unless absolutely necessary.
    b. Allowing caregivers to remain with the child to make them more comfortable.
    c. Providing Oxygen by Blow-by, NRB mask, or BVM as needed
    d. Attempting direct visualization of the airway

6. You are dispatched for a child with difficulty breathing. On arrival you find a father holding his 16 month-old child. He states," I think she caught the 'bug' going around her day care. I thought it was just a cold for the past few days, but she really seems to be struggling to breathe now."
   Her vital signs are: HR- 140, RR- 32 labored, SPO2- 89% RA, Temp- 38.7, Lung Sounds- diminished with wheezing in the bases
   What do you believe is making this child ill?
    a. Croup
    b. Pertussis
    c. RSV
    d. Asthma

7. Correct treatment of the patient from Question 6:
    a. High Flow Oxygen via NRB mask, rapid transport to a pediatric facility while trying to keep patient as calm as possible.
    b. Nebulized Epinephrine 1:1,000- 0.25mg/kg mixed with 2mL normal saline (max of 5mL).
    c. 3ml nebulized normal saline, followed by 0.25mg Epinephrine 1:1,000 nebulized with 2ml normal saline (max of 5ml).
    d. 2.5mg nebulized Albuterol, may be performed once more if no improvement; 20mg Prednisone PO or 1mg/kg Solu-Medrol IV

8. You are dispatched for difficulty breathing. On arrival you find an 8-year-old girl who is in severe respiratory distress. Your patient is a known asthmatic. Her Aunt states they were playing at the park when your patient said she couldn't breathe. The patient's rescue inhaler was left at home.
   Her vital signs are: HR- 120, RR-32, SPO2- 88% RA, Lung Sounds- diminished with wheezes throughout.
   Correct treatment of this patient includes:
   a. 2.5mg nebulized Albuterol, may be performed once more if no improvement; 20mg Prednisone PO or 1mg/kg Solu-Medrol IV; consider Epinephrine 1:1,000 0.01mg/kg SQ (max. of .3mg).
   b. 2.5mg nebulized Albuterol, may be performed once more if no improvement; 20mg Prednisone PO or 1mg/kg Solu-Medrol IV; Magnesium Sulfate drip (2G in 50mL D5W).
   c. 2.5mg nebulized Albuterol, followed by nebulized Epinephrine 1:1,000 0.25mk/kg mixed with 2mL of normal saline (max of 5mL).
   d. CPAP set a 5 cmH_2O with in-line nebulized Albuterol; 20mg Prednisone PO or 1mg/kg Solu-Medrol IV.

9. Stridor, or hoarseness is a common symptom for patients with croup, because croup:
   a. Releases toxins into the lower airways that cause inflammation and paralyzes respiratory cilia
   b. Causes increased mucus production, bronchial constriction, and swelling
   c. Creates swelling in the larynx and subglottic tissue
   d. Can make the epiglottis swell, and potentially cause a total airway obstruction

10. To open and maintain the pediatric airway, proper positioning may require padding underneath their shoulders because:
   a. This stabilizes their large, floppy epiglottis
   b. It prevents the pinching shut of their flexible trachea
   c. This aligns their airway, since pediatric patients have a proportionally larger head than adults.
   d. Makes their airway more anterior, and therefore easier to visualize

11. You respond to an injured person at the local high school. On arrival you are directed onto the football field for an injured player. Your patient is a 15-year-old 70kg male who was tackled and is now complaining of severe ankle pain. His left ankle is found to be swollen and deformed. You patient denies any other complaints. His vital signs are stable, and there was no loss of consciousness.
    How would you manage this patient's pain?
    a. Fentanyl 50mcg IVP, repeat dose by med control order only.
    b. Morphine 7mg IVP, repeat dose by med control order only.
    c. Fentanyl 70 mcg IVP, repeat dose by med control order only.
    d. Morphine 10mg IVP, repeat dose by med control order only.

12. You are treating a 4-year-old 25kg female who has partial thickness burns to her right arm and chest area from falling into an open fire pit. Her airway is intact and her vital signs are stable.
    How would you manage this patient's pain?
    a. Fentanyl 50mcg IVP, repeat dose by med control order only.
    b. Fentanyl 25 mcg IN, repeat once if needed.
    c. Fentanyl 25mcg IN, repeat dose by med control order only.
    d. Fentanyl 50mg IVP, repeat once if needed.

13. Which of the following patients can CPAP be used on?
    a. 8-year-old near drowning
    b. 10-year-old carbon monoxide poisoning patient
    c. 5-year-old asthma patient
    d. 13-year-old pneumonia patient

14. After administering a correct dose of pain medication to a 30kg female pediatric patient, she becomes unresponsive and respirations decrease. You would administer:
    a. Narcan 3mg IN
    b. Narcan 1.5mg IV
    c. Narcan 2mg IN
    d. Narcan 3mg IV

15. Which of the following patients SHOULD receive pain medication according to LCEMS protocol?
    a. 4-year-old patient with severe abdominal pain.
    b. 7-year-old with a femur fracture and B/P of 80/50.
    c. 9-year-old with head trauma from a bicycle accident.
    d. 5-month-old airway burn victim.

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Pre-Test Answer Key with Rationale

1. Correct Answer D. All these are statements are true about the pediatric airway. These anatomical differences contribute to the difficulty in advance airway placement in the pediatric patient.

2. Correct Answer B. Pertussis infections have recently been on the rise due to changes in vaccines. Pertussis can be fatal to infected patients, but infants are at the greatest risk.

3. Correct Answer A. It can be difficult to differentiate Epiglottitis from Croup, however many of the hallmarks of Epiglottitis are present in this patient presentation. High fever, rapid onset, hoarseness, and throat pain all indicate Epiglottitis.

4. Correct Answer C. Epiglottitis can rapidly become a complete airway obstruction, and upsetting or agitating a child may precipitate this. Oxygenation, immediate transport to a pediatric facility, and keeping the child as calm as possible are the key treatments of these patients.

5. Correct Answer D. NEVER attempt direct visualization of a patient's airway that has either severe Epiglottitis or Croup.

6. Correct Answer C. RSV is a common cause of Brochiolitis in children under 2 years of age. It is highly contagious, and often spread quickly through day care facilities.

7. Correct Answer B. Patients with Brochiolitis often don't respond to Albuterol Treatments, so it's recommended that they receive nebulized Epinephrine instead.

8. Correct Answer A. The use of Magnesium Sulfate in children is not well studied, and therefore this treatment is not in LCEMS protocol.

9. Correct Answer C. Some of the most well recognized characteristics of Croup, seal-like cough, and hoarseness, are created by laryngeal and subglottic swelling.

10. Correct Answer C. Due to their proportionately larger heads a child lying flat on their back may have difficulty breathing. Placing padding underneath their shoulders helps to align their airway and keep it open.

11. Correct Answer A. The dose of Fentanyl for pediatric patients is 1mcg/kg to max of 50mcg. All repeat doses are by Medical Control orders only.

12. Correct Answer C. In adult patients the maximum dose of pain medications for burns is higher; in pediatrics it is not whether given IV or IN.

13. Correct Answer D. The use of CPAP requires that the patient being treated is over 12 years of age, and that the CPAP mask fits correctly on their face.

14. Correct Answer C. The pediatric dose of Narcan is .1mg/kg to a max of 2mg whether given IV, IM, or IN.

15. Correct Answer A. Abdominal pain is not a contraindication for pain medication, but head injuries, hypotension, and respiratory compromise are.