Continuing Medical Education - News & Information

September 2010 - Volume 16, Issue 9

Multi-Agency Edition

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(bold = new content)

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FDNY - Office of Medical Affairs
9 Metrotech Center 4th fl
Brooklyn, NY 11201
718-999-2671
swansoc@fdny.nyc.gov

From the Editor

New Mandatory REMAC Credentialing Fee

A new $25 fee has been instituted by NYC REMAC for all new or recertifying paramedic credentials. On successfully completing a REMAC exam, candidates will receive a temporary letter verifying certification. They will soon after be mailed a memo directly from NYC REMSCO requiring a completed application, proof of NY State paramedic certification, and credentialing fee by money order only. On receipt, a permanent NYC REMAC certification card will be issued.

Please direct inquiries on this process to NYC REMSCO at 212-870-2301

Important Change to Protocol Updates

A new protocol update schedule has been adopted for both the field and the certification process. Rollouts now take place only once per year. The final version will be published January 1, beginning a three month training period. The new protocols are then implemented for all agencies on April 1.

During January, February and March, only the prior version is in effect, not the new April protocol changes. Only on April 1 will the new version be available for use in the field and on certification exams.

Exceptions make take place when it is urgent that a specific life-saving treatment be available right away. In such a case, the change would be implemented on a selected date for both the field and REMAC exams.

Always see nycremsco.org for the current approved protocols.

REM记忆: the protocols on the street are the protocols on the exam!
Effective April 1, 2010, NYC REMAC protocol revisions are to be implemented by paramedics updated by their Medical Director.

Per REMAC, ambulance services in NYC are responsible to provide copies of the protocols to their personnel. REMAC Advisories and Protocols are available to all at www.nycremsco.org

After April 1, only the April 2010 protocols may be used in the field and on NYC REMAC exams.
Questions may be referred to the REMAC Liaison at swansoc@fdny.nyc.gov or 718-999-2671.

Outline of April 2010 NYC REMAC protocol changes
see REMAC Advisory 2010-01 at nycremsco.org:

General Operating Procedures

• Oxygen Admin: removes respiratory rate as criterion for ventilation; removes mouth-to-mouth & mouth-to-nose ventilation
• Prehospital sedation: adds etomidate for cardioversion and pacing
• Communication with Medical Control: removes 20 minute on-scene time limit

BLS Protocols

• 401 Resp Distress: removes respiratory rate as criterion for ventilation; removes mouth-to-mouth & mouth-to-nose ventilation
• 407 Wheezing: adds epinephrine under Standing Orders with repeat Medical Control Option
• 410 Anaphylaxis: changes initial epinephrine dose to Standing Orders
• 421 Head & Spine Injuries: clarifies criteria for immobilization
• 423 Chest Injuries: removes bulky dressings for flail segments
• 425 Bone & Joint Injuries: note to request ALS for pain management; clarifies traction splint for closed injuries
• 428 Burns: note to request ALS for pain management; clarifies bandaging by BSA
• 430 EDP: note to request ALS for sedation
• 431 Heat-related Emergencies: removes saline PO

ALS Protocols

• 500-A Smoke Inhalation & 500-B Cyanide Exposure: clarifies sodium thiosulphate preparation
• 502 Obstructed Airway: removes needle cricothyroidotomy; adds procedure for right-mainstem bronchus displacement
• 503 Non-traumatic Arrest: removes reference to paddles
• 503-A V-fib/V-tach: changes joule setting
• 503-B PEA/Asystole: adds dextrose administration
• 504 Suspected MI: adds prompt OLMC contact; changes transport prior to IV admin
• 505-A, B & C Dysrhythmias: removes biphasic
• 505-D Brady Dysrhythmias: removes epi drip
• 506 APE: changes furosemide to Medical Control Option
• 510 Anaphylaxis: removes epi drip
• 521 Head Injuries: clarifies use of hyperventilation
• 540 Severe Pre-Eclampsia/Eclampsia: renames protocol; removes treatment for post-partum hemorrhage
• 551 Peds Obstructed Airway: removes needle cricothyroidotomy; adds procedure for right-mainstem bronchus displacement
• 554 Peds Asthma: clarifies ipratropium use
• 555 Peds Anaphylaxis: removes epi drip

Appendices

Appendix N Needle Cricothyrotomy: deleted
REMAC Exam Study Tips

REMAC candidates have difficulty with:
* Epinephrine use for peds patients
* 12-lead EKG interpretation
* ventilation rates for peds & neonates

REMAC Written exams are approximately:
* 15% Protocol GOP
* 10% BLS
* 10% Adult Arrest

Certification & CME Information

- Of the 36 hours of Physician Directed Call Review CME required for REMAC Refresher recertification, at least 18 hours must be ACR/PCR Review (which may include QA/QI Review). The remaining 18 hours may include ED Teaching Rounds and OLMC Rotation.

- Failure to maintain a valid NYS EMT-P card will invalidate your REMAC certification.

- By the day of their refresher exam all candidates must present a letter from their Medical Director verifying fulfillment of CME requirements. Failure to do so will prevent recertification.

- FDNY paramedics, see your ALS coordinator or Division Medical Director for CME letters.

- CME letters must indicate the proper number of hours, per REMAC Advisory # 2000-03:
  - 36 hours - Physician Directed Call Review
    - ACR Review, QA/I Session (minimum 18 hours of ACR/QA review)
    - Emergency Department Teaching Rounds, OLMC Rotation
  - 36 hours - Alternative Source CME - Maximum of 12 hours per venue
    - Online CME
    - Lectures / Symposiums / Conferences - Associated Certifications:
      - BCLS / ACLS / PALS / NALS / PHTLS

REMAC Refresher Written examinations are held monthly, and may be attended up to 6 months before your expiration date. See the exam calendar at the end of this Journal. To register, call the Registration Hotline @ 718-999-7074 by the last day of the month prior to your exam.

REMAC Quarterly Written and Oral examinations are held every January, April, July & October. Registration is limited to the first 50 applicants. See the exam calendar at the end of this journal.

REMAC CME and Protocol information is available, and suggestions or questions about the newsletter are welcome. Call 718-999-2671 or email swansoc@fdny.nyc.gov

           www.EMINET.com
FDNY ALS Division Coordinators

- Citywide ALS 718-999-1738
  Lt. Rudy Medina
- Division 1 212-964-4518
  Andrea Katsanakos
- Division 2 718-829-6069
  John Langley
- Division 3 718-968-9750
  Matthew Rightmeyer & Gary Simmonds
- Division 4 718-281-3392
  Mike Romps
- Division 5 718-979-7175
  Russell Shewchuk
- Bureau of Training 718-281-8325
  Hector Arroyo
- EMS Pharmacy 718-571-7620
  Cindy Corcoran

FDNY EMS -Division Medical Directors

- Dr. Dario Gonzalez 718-281-8473
  Field Response Divisions 1 & 2
  USAR/FEMA/OEM/HAZMAT Director
- Dr. John Freese 718-281-3861
  Medical Director of EMS Training
  On-line Medical Control Director
  Director of Prehospital Research
- Dr. Glenn Asaeda 718-999-2666
  Field Response Divisions 3, 4 & 5
  USAR/ FEMA/OEM/HAZMAT Assoc. Director
  REMSCO/REMAC Coordinator
- Dr. Doug Isaacs 718-281-8428
  Associate Medical Director of Training
- Dr. Bradley Kaufman 718-999-1872
  System-wide Quality Assurance Director
  Medical Director of Emergency Dispatch
  and Pre-Arraignment Screening Unit
- Dr. Kevin Munjal 718-999-2670
  EMS Fellow

FDNY OLMC Physicians and ID Numbers

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BACKGROUND

We have discussed this in the past – when compared to the average EMS provider in this country, you care for a higher percentage of pediatric patients than most. EMS textbooks commonly refer to the “fact” that 10% of patients cared for by EMS providers are pediatric patients, and 10% of those are “sick” (by which we mean unstable or critically ill). A quick look through your ePCRs shows that the NYC story is a bit different.

In calendar year 2009, there were 703,878 ePCRs written by BLS and ALS providers. And while other EMS providers may see 10% pediatrics, nearly 13% (89,942/703,878) of the patients to whom you provide care are pediatric patients. You have more pediatric experience than the average EMS provider in the country. But among those pediatric patients, just how many are truly “sick?”

One way to assess the severity of the patients that you treat is to look at the skills and/or medications that are required for their prehospital care. So let’s look at that for pediatric patients last in 2009, treatments consistent with a critically ill / injured child (i.e. CPR, airway management, traction splint, AED use, etc) were performed for only 628 patients. Similarly, among those same 90,000 patients, medications other than those used for mild asthma and diabetic emergencies were only given to 490 patients.

The point is that you, as an FDNY EMS professional, see a fair number of pediatric patients. But most of them are not “sick.” And this makes having the knowledge set to help you identify that “rare” sick child is all the more important.

In last month’s CME article, Dr. Isaacs provided a fantastic review of pediatric assessment. In this month’s article, we will apply the lessons from that article to the assessment of one particular group of pediatric patients. Of the nearly 90,000 infants, children and adolescents that you cared for last year, one of the most common presenting problems was fever (15,531 / 89,942 or 17.3% of all pediatric patients), and so we will focus on this presenting problem with the goal of suggesting ways to distinguish the “sick” from the “not sick.”

INTRODUCTION

As it is among the pediatric patients for whom you are called, fever is a common chief complaint in all of pediatric medicine (20% of all pediatric emergency department visits). And yet the vast majority of children who have a fever are not “sick.” So, after seeing dozens or even hundreds of cases of pediatric fever, it may be tempting to downplay febrile illness as a routine and benign call. However, there are a few important causes of fever that can masquerade as the “common cold” or the “flu.”

Finding the truly “sick” patients can be like finding a needle in a haystack of runny noses, coughs, and body aches. But it is important to recognize when a child’s fever may have a greater chance of being caused by a serious underlying
infection. (Fever in a 2 week-old is not the same as fever in a 2 year-old; the seriousness of fever depends on the age and immunization status of the child.) This recognition can be important for dealing with the immediate consequences of that particular illness, for dealing with the transport of children in whom these illnesses have already been identified, for explaining your concerns to the patient and their family, and particularly for discussions with the parents / guardians when they decide to RMA – something that happens hundreds of times each year.

**DEFINITION OF FEVER**

When assessing a patient (adult or pediatric) who you have been told has a fever, there are three questions that you should ask the patient or caregiver about the fever: Was it that the patient “felt feverish” or had a recorded temperature? If there was a recorded temperature, how was the temperature taken? And what was the exact number that was recorded?

Patients will often be described as having a fever when, in fact, no one has actually taken their temperature. That said, these subjective or tactile fevers (“he/she felt warm”) are not entirely inaccurate, and they certainly do not require a “medical professional” to assess. Studies have found that, when a parent / caregiver describes a child as having “felt warm” or “felt feverish”, they are right nearly 2/3 of the time. And they are no more or less accurate than medical professionals who assess the same child. So while a subjective or tactile fever is not ideal, it should not be disregarded – the child likely did / does have a fever.

If the child’s temperature was actually documented, it is important to know how it was assessed. Fever is a core temperature greater than 100.4 °F (38 °C), most accurately measured via the rectum. This is important because axillary (armpit), tympanic (ear), and surface (those “dot” skin sensors) temperatures are notoriously unreliable, especially in young children (though we do not intend to add rectal temperature assessment to the protocols!). This means that any of these are useful for demonstrating when a fever is present (temperature >100.4 °F), but only a rectal temperature can reliably demonstrate when a fever is absent.

Finally, it is important to clarify with the parent or caregiver the exact numbers that were recorded then the temperature was assessed. A child’s temperature will often be reported as “a hundred and two”, when the caregiver actually means “100.2” not “102.0.” Sometimes this is obvious (i.e. “a hundred and nine”), but at other times it can mean the difference between having a fever and not having one (“one hundred and three” = 100.3 or 103.0?).

**WHEN “FEVER” = “SICK”**

As we have already said, and as you have no doubt experienced with your patients and maybe even your own children, most children who have a fever are not “sick.” But there are some situations in which a fever defines a child as sick. And this can be particularly important to remember because some of these children can appear quite well.

The seriousness of fever and the potential for a serious underlying infection depend upon the patient’s age, immunization status, and past medical history, and each of these factors work together. For example, a febrile child who is four years old most likely has a fever because of a viral infection, but an unimmunized four year-old child who is being treated for a childhood cancer or who has HIV / AIDS is susceptible to a number of life-threatening infections.
Children are commonly split into four groups when it comes to the likely causes of a fever: newborns (0-28 days old), young infants (1-3 months old), older infants / toddlers (3-36 months old), and preschool / school age (3-18 years). The likely source for a fever in each of these groups varies, but the group that is at greatest risk for a serious underlying infection is the newborns.

Fever in a newborn baby is taken very seriously, because there is a higher risk of sepsis and death, even if the patient looks relatively well. Febrile infants often exhibit no specific signs or symptoms but rather have nonspecific irritability, poor feeding, or a change in sleep pattern. Not only is their immune system not yet fully functional, but they are exposed to unique potential pathogens at birth and have not yet begun to receive any vaccinations. For this reason, all newborns with a documented fever require hospital evaluation (and admission!).

Similarly, because immunization series have not been completed, young infants (1-3 months old) require evaluation in the emergency department. Although they may not require extensive testing or admission to the hospital, evaluation for potentially life-threatening infections must be done before a viral / less serious cause is presumed. As many as one out of every ten febrile children in this age group will have a serious bacterial illness, and as many as one in four may have a significant infection that, although viral, can lead to significant complications including death.

In older children who have had their immunizations, most fevers are due to viral infections, but a complete physical examination by a physician is still recommended. Thanks in part to successful immunization programs, the risk of a serious bacterial infection as the cause of a fever in this group (> 3 months of age) drops to less than one in five hundred.

Immunizations

Setting aside for a moment the issue of vaccinations and their safety / links to other conditions, the immunization programs in this country have lead to a significant decline in the number of serious viral and bacterial infections in children and the deaths associated with them. Figure 1, provided purely for informational purposes, shows the latest immunization recommendations from the Centers for Disease Control (CDC).

![Recommended Immunization Schedule for Persons Aged 0 Through 6 Years—United States • 2010](image)

**Figure 1: CDC recommendations for childhood immunizations**
The important thing to note about this table is that prior to one month of age, the only disease against which immunizations have been started is Hepatitis B. All of the other common and potentially serious bacterial infections against which children should be immunized are not addressed with vaccinations until the second month of life, and they are not completed until the six month of life.

Despite these recommendations, some children do not receive immunizations at the appropriate times because of illness, parental concern for side effects, financial concerns, immigration status, and/or country of residence. In New York City, these are all concerns that must be considered when assessing the febrile child. While we should not put ourselves in a position of discussing the recommendations, we must ask about the status of the patient’s immunizations as a factor to be considered when thinking about the potential for a serious underlying infection. Children who have not received or completed the recommended immunizations are at higher risk for potentially life-threatening infections.

**Past Medical History**

Though most children are otherwise healthy, questions must be asked about the patient’s past medical history in order to assess the potential severity of the illness that is causing their fever. Children with HIV/AIDS, organ transplant recipients, and pediatric cancer patients (particularly if they are receiving chemotherapy, radiation therapy, or bone marrow transplants) are at higher risk for a serious underlying cause. Similarly, children with sickle cell disease are at higher risk because of the damage to and eventual loss of their spleen that occurs with this disease, putting them at greater risk for certain bacterial infections. The same is true with children whose chronic medical problems may be complicated by the apparent cause of their fever (e.g. asthmatics with respiratory infections, children with “V-P shunts” to treat their central nervous system abnormality who have fever and headache, children with congenital heart disease due to the likelihood of complications or even specific infections within the heart).

**Assessment of the Febrile Child**

The prehospital assessment of a febrile pediatric patient should begin as with any other assessment – a quick evaluation via the Pediatric Assessment Triangle and primary assessment, followed by a more detailed secondary assessment.

**Pediatric Assessment Triangle**

The appearance of the infant or child, as Dr. Isaacs mentioned in his article, is the most important item to consider when it comes to making a “sick” or “not sick” determination. Pediatric patients who are limp, who do not interact at an age-appropriate level, and in particular an infant or child who is irritable (crying and unable to be consoled / calmed by a provider or parent / guardian) should be considered “sick” and transported immediately.

Because ventilation is one of the mechanisms that the body uses to combat elevated body temperature and to expel the excess carbon
dioxide produced by the increased metabolism within the body, febrile pediatric patients are likely to be slightly tachypneic. But this should not affect their work of breathing.

Increased work of breathing and/or abnormal respiratory sounds suggest a more serious cause for the patient’s fever. Stridor may occur with bacterial or viral infections of the upper airway, but stridor in either case is a sign of more serious illness. Grunting, nasal flaring, retractions, and/or head bobbing in infants suggests that the child is “sick” and needs urgent evaluation.

And although a fever will often result in flushed skin, the decreased perfusion and shock that may accompany more serious infections can occur and present as mottling, pallor or cyanosis. Any of these findings is a sign of a serious and advanced underlying infection and indicates the potential for respiratory and/or circulatory collapse.

**Initial Assessment**

The initial assessment of the febrile pediatric patients is not much different than the initial assessment of any other patient, but there are a few important things to note.

In assessing the patient’s airway, a febrile child who presents with stridor and/or drooling (particularly if the child is unimmunized) may have a significant upper airway infection. This is critically important to recognize because attempts to manage the airway of such a patient with endotracheal intubation or an oropharyngeal airway may result in sudden and complete collapse of the airway. These patients should be placed in a position of comfort, provided with humidified oxygen if they are accepting of it or albuterol if there is also wheezing, and transported immediately.

We have already mentioned that febrile pediatric patients may be slightly tachypneic simply as a result of the fever, and infections that involve the respiratory system (whether they are viral or bacterial) may cause additional tachypnea and/or abnormal lung sounds that will be found when assessing the patient’s breathing. And since last month’s article mentioned that we would discuss abnormal breath sounds in this month’s article, let’s do that now…

**Stridor** – Mentioned above, stridor is a typically high-pitched sound, is usually noted on inspiration, and indicates upper airway obstruction. It may be “audible” or heard without the aid of a stethoscope, but when using a stethoscope it can be heard loudest when placing the stethoscope over the larynx or “Adam’s apple” (as compared to when listening to lung sounds). In the setting of a fever, the most common cause is a viral infection known as “croup”, though it may be heard in other viral infections, in the setting of life-threatening bacterial infections (see above), or even foreign body airway obstruction.

**Wheezing** – This is the sound created when air moves through smaller airways (bronchioles) that are constricted or partially obstructed. They are more commonly heard on exhalation (expiratory wheezes), but inspiratory wheezes may also occur with more significant small airway obstruction / constriction. In the setting of a fever, wheezing may indicate a pulmonary infection (bacterial or viral) or a worsening / exacerbation of the patient’s underlying lung disease (i.e. asthma). In either case, for patients age one and older, albuterol may be administered for the treatment of the patient’s wheezing.
**Expiratory grunting** – This ominous sound, which is lower pitched than stridor and heard on exhalation rather than inhalation (the opposite of stridor) is an attempt by the patient to keep their lungs (alveoli) open by creating a small amount of positive pressure by exhaling against a closed epiglottis or airway that is narrowed by the tongue. Whether the child has a fever or not, grunting is a sign of impending respiratory failure / arrest and you should be prepared to have to assist ventilations / manage the airway.

**Inspiratory crackles** – Just as in a patient with pulmonary edema, inspiratory “crackles” or rales are fine breath sounds create by the airways (alveoli) popping open with inhalation. (This sound is easily simulated by placing a few hairs between your fingers, placing your fingers next to your ear, and rubbing your fingers together.) In the setting of a fever, pulmonary infections (e.g. bronchitis, pneumonia) may result in fluid accumulation in the alveoli. Because these are different than wheezes, albuterol does not have a role in the treatment of a patient who has inspiratory crackles / rales.

**Rhonchi** – These are course, low-pitched (even gurgling) sounds that result from fluid in the larger airways. In a febrile child, these abnormal breath sounds may indicate either a viral or bacterial infection and, like crackles, should not be treated with albuterol unless accompanied by wheezing.

**Decreased / absent lung sounds** – Decreased lung sounds over one area of the chest, in the setting of a fever, indicates that air is either not entering that section of the lung (i.e. it is obstructed / filled with fluid – often this will be heard along with other abnormal lung sounds in the same area) or that the sound created by air entering that part of the lung is not able to be heard because of fluid collected between the lung and the chest wall (an effusion), or it could even be both. In either case, supplemental oxygen should be provided because of the likely impaired oxygenation in the affected area of the lung.

Elevation of body temperature (fever) will cause an increase in heart rate as well. On average, a young child’s heart rate will increase 9-10 beats per minute for every degree that their temperature is elevated above 38oC. In addition, fever results in increased fluid loss from the body (e.g. increased evaporation / sweating, increased respiratory loss due to tachypnea) and may be further complicated by other fluid loss that accompanies the infection (i.e. diarrhea, vomiting).

Although the normal heart rate of even an infant does not exceed 160 beats / min, a child’s heart rate may compensate for fever and fluid loss by increasing to a maximum of (220-age in year) beats / min. This means that an infant’s or even child’s heart rate may easily exceed 180-200 without being due to a dysrhythmia. So in the setting of a fever, ALS treatment for the heart rate (“SVT”) is not needed and may actually harm the patient.

**Secondary Assessment**

There are few things in the secondary assessment that will alter the care that you provide to a febrile pediatric patient, but there are a few worth noting because of their importance as physical exam findings.

**Skin** – In a febrile child, moving beyond the pediatric assessment triangle, one important physical examination finding (particularly for an unimmunized child) are
petechia. Petechia are small (1-3mm) deep red or even purple lesions within the skin that do not fade / blanche / go away when you press on the skin with a gloved finger. This skin finding, which almost appears as though the patient has been repeatedly poked with a small needle, is seen in a variety of viral illnesses, but it is also seen with infections by one of the more serious causes of meningitis (N. meningitidis) which may be found in as many as 7-11% of patients with fever and petechiae. Because of the concern for your own health, you should check with the physician treating these patients in the emergency department to determine if follow-up, prophylactic treatment, and exposure reporting are necessary for you.

**Head** – In infants, particularly those that are irritable / inconsolably crying, it is important to gently palpate the fontanelles ("soft spots") in the skull. Because the anterior fontanelle closure varies from child to child (closure between 4-26 months, most commonly between 7-19 months), you may or may not be able to palpate it in a particular patient. When a child is crying, coughing, or vomiting, the anterior fontanelle will normally bulge. But if this is palpated in an infant who is not doing one of these things, particularly in the setting of a fever, it indicates increased intracranial pressure due to the infection. This should be immediately reported to the hospital and, like petechia, should suggest a need to speak with the treating physician in the emergency department regarding implications for yourself and your partner.

**Eyes** – It may be tempting to “write off” a red eye with or without some crusting as “pink eye”, but there are certain eye infections that can actually threaten the vision of the patient. Therefore, this always requires further evaluation in the emergency department.

**Nose / Ears / Mouth** – Although our system does not utilize it, there are areas in the country where EMS providers (paramedics) perform ENT examinations using an otoscope.

**Neck** – We all know that neck stiffness in the setting of a fever (and headache) can be a sign of meningitis. But keep in mind that infants and toddlers typically do not have this finding, so its absence does not make a serious underlying infection less likely.

**Chest** – See above for a description of lung and heart findings and their meaning.

**Abdomen** – Any abdominal pain in the setting of a fever is concerning. And while pain in the right lower quadrant of the abdomen is often associated with appendicitis, many patients will present without this “classic” finding. For this reason, fever with abdominal pain should always be evaluated in the emergency department.

**Extremities** – See above regarding examination of the skin. In addition, fever with joint pain (one or more) can be a sign of several potentially serious infections and should be further evaluated in the emergency department.

**DIAGNOSIS**

As Dr. Isaacs mentioned in his article, “Diagnosis is a secondary goal.” In the case of the febrile child, it is not a goal at all. While we need to be concerned about particular serious infections and may even be able to identify them, the actual diagnosis requires examination and testing that we just do not do in the field. But that does not eliminate the need to be
aware of the potential for these serious infections or to advocate for evaluation of the febrile child in the emergency department.

**COMPlications Of A Fever – EMS Implications**

There are few complications of a fever that need to be treated in the prehospital setting, but those that are worth mentioning are described below…

**Rigors**

Rigors are uncontrolled shaking that occurs in response to a fever. As the body resets its thermostat and tries to raise body temperature in response to the fever, the patient may actually feel cold until their body temperature rises to that new set point. In response the patient may actually begin to shiver, and rigors can be considered an exaggerated form of shivering. It is important to recognize that patients do not lose or have an alteration of consciousness with rigors, something that helps to distinguish them from febrile seizures (see below). Children who are experiencing rigors should be kept warm, even though this may seem counterintuitive in a patient who has a fever.

**Febrile Seizures**

Febrile seizures are a common complication of fever, occurring at some point in 3-5% of children. They are more common in males (2/3 of cases) and occur most commonly in one year-olds, though they typically occur in children up to five years of age. They are also more common in children who have a family history of febrile seizures or who have had a febrile seizure themselves in the past.

Febrile seizures may be divided into two categories: simple (80%) and complex (20%). Simple febrile seizures are generalized (Grand Mal), last less than fifteen minutes, and occur only once in a 24-hour period. These seizures, because they are self-limited, do not require treatment and have often resolved prior to EMS arrival (if that was the reason for the call). Complex febrile seizures are those that are focal (no loss of consciousness), last longer than 15 min, or happen two or more times in a 24 hour period. Prolonged generalized seizures and recurrent seizures witnessed by EMS providers should be treated as any other on-going seizure with airway maintenance, supplemental oxygen, positioning to prevent injury, and benzodiazepines.

**Croup**

We discussed croup (otherwise known as laryngotracheobronchitis – inflammation from the larynx to the bronchioles) above, but there is one more point worth mentioning. Croup occurs most often in the late fall, winter, and early spring, and it is most common in the age range from six months to six years. The inflammation that it causes in the airway may result in stridor, wheezing, respiratory distress, and a “barking” or “seal-bark” cough.
Though the mere act of moving the patient to the ambulance (and into the cool night air, since most exacerbations happen at night) may relieve the patient’s symptoms, patients with severe respiratory distress may require additional ALS treatment (do not delay transport to call for them!).

In the setting of delayed or prolonged transport of a child that you suspect of having croup and who is in severe respiratory distress (stridor at rest, increased work of breathing, hypoxia, retractions), contacting OLMC for a discretionary order for nebulized epinephrine (but never epinephrine via auto-injector) is appropriate. To do this, mix 0.5mg (0.5cc) of a 1:1,000 solution of epinephrine in 3-5cc of saline and administer via nebulizer – but keep in mind that this can only be done at present as a discretionary order.

### CONCLUSION

You and your colleagues transport over 15,000 children every year who have a fever. Fortunately, nearly all of them are not critically ill and most do not require hospital admission. But the ability to recognize those children who are potentially “sick” and to treat the few complications of fever that require prehospital intervention is what provides them with prehospital medical care and not simply a means of getting to the emergency department.

**Written by:**

Jessica Van Voorhees, M.D.  
John Freese, M.D.  
EMS Fellow  
Director of Prehospital Research / OLMC

**References**

2010 Child and Adolescent Immunization Schedules – accessed via the CDC website (http://www.cdc.gov/vaccines/recs/schedules/downloads/child/2010/10_0-6yrs-schedule-pr.pdf)


### CME JOURNAL 2010_J09: PEDIATRIC FEVER QUIZ

1. **Which of the following is the most accurate method of assessing a child’s temperature?**
   a. oral  
   b. tympanic  
   c. skin  
   d. rectal  
   e. tactile

2. **Which of the following is not true regarding pediatric patients and FDNY EMS?**
   a. More than 15,000 pediatric patients with a presenting problem of fever were transported in 2009.  
   b. Pediatric patients comprised more than 13% of all patient contacts in 2009.  
   c. The majority of febrile pediatric patients in 2009 were RMA’d.  
   d. Less than 1,000 patients received skills consistent with a critical illness or injury in 2009.  
   e. Less than 1,000 patients received medications consistent with a critical illness in 2009.
3. **Which of the following is true if a parent or caregiver states that a child “felt like they had a fever?”**
   a. The child is likely to have not had an actual fever.
   b. Parents are as good as medical professionals at assessing fever by touching the skin.
   c. Tactile assessment of fever is only reliable in older children.
   d. Without a recorded numeric temperature, reports of a tactile fever may be disregarded.
   e. All of the answers listed here are true.

4. **Which of the following breath sounds is **not** correctly described?**
   a. Wheezes – high-pitched, typically inspiratory sounds
   b. Rhonchi – low-pitched, almost gurgling sounds caused by fluid in the larger airways
   c. Stridor – high-pitched sound heard over the neck more than chest, indicating airway obstruction
   d. Rales – popping open of alveoli, sounds like rubbing hairs between your fingers
   e. All of the answers listed here are true.

5. **In which of the following groups is a fever always a cause for hospital evaluation (and admission) due to the high likelihood of a serious underlying infection?**
   a. 0-28 days
   b. 1-3 months
   c. 3-36 months
   d. 3 years – 10 years
   e. 10 years – 18 year

6. **When a patient suspected of having croup is in moderate to severe respiratory distress and transport is delayed or prolonged, which of the following may be useful in treating the patient’s respiratory condition?**
   a. nebulized epinephrine
   b. position of comfort
   c. cool night air
   d. humidified air
   e. All of the answers listed here are true.

7. **Which of the following patients should not have endotracheal intubation performed in the event of respiratory distress / arrest for fear of immediate airway loss?**
   a. 3 year-old male with a “seal-bark” cough
   b. 2 year-old male with diffuse expiratory wheezes
   c. 10 year-old female who was drooling with stridor
   d. 12 year-old male with diminished left-sided breath sounds
   e. 13 year-old female with rhonchi and diminished right-sided breath sounds

8. **Benzodiazepines are **not** appropriate for which of the following types of febrile seizures?**
   a. Focal seizures
   b. Seizures lasting more than 15 minutes.
   c. Recurrent seizures.
   d. Witnessed, generalized seizures.
   e. All of the answers listed here are true.

9. **Which of the following is incorrect about petechia?**
   a. Typically 1-3mm in size
   b. Light pink or brown in color
   c. Associated with both viral and bacterial infections
   d. Do not blanche / clear with direct pressure
   e. Should raise concern for healthcare provider exposure

10. **Which of the following is **not** correct about the pediatric assessment triangle?**
    a. Does not require vital signs
    b. Includes assessment of general appearance
    c. Includes an assessment of lung sounds
    d. Includes an assessment of the skin (circulation)
    e. Can be performed without touching the patient
Journal CME Credit Answer Sheet

Based on the CME article, place your answers to the quiz on this answer sheet. Respondents with a minimum grade of 80% will receive 1 hour of Online/Journal CME.

Please submit this page only once, by one of the following methods:
- FAX to 718-999-0119 or
- MAIL to FDNY OMA, 9 MetroTech Center 4th flr, Brooklyn, NY 11201

Contact the Journal CME Coordinator at 718-999-2790:
- three months before REMAC expiration for a report of your CME hours.
- for all other inquiries.

Monthly receipts are not issued. You are strongly advised to keep a copy for your records.

Note: if your information is illegible, incorrect or omitted you will not receive CME credit.

check one: □ EMT □ Paramedic □ _______________ other

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<tr>
<th>September 2010 CME Quiz</th>
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Name

NY State / REMAC # or “n/a” (not applicable)

Work Location

Phone number

Email address

Submit answer sheet by the last day of this month.
# Citywide CME - September 2010

Sessions are subject to change without notice. Please confirm through the listed contact.

<table>
<thead>
<tr>
<th>Boro</th>
<th>Facility</th>
<th>Date</th>
<th>Time</th>
<th>Topic</th>
<th>Location</th>
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<tbody>
<tr>
<td>BK</td>
<td>Brooklyn Hospital</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Wed</td>
<td>0800-0900</td>
<td>Nov 1 Lecture</td>
<td>121 Dekalb Ave, Mazer Lecture Room near ED</td>
<td>Dr Lehrfeld</td>
<td>David Lehrfeld MD 503-961-5113</td>
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<td>9/16</td>
<td>1530</td>
<td>Drug Interactions</td>
<td>ED Conference Room</td>
<td>Dr Hew</td>
<td>Manny Delgado 718-363-6644</td>
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<td></td>
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<td>10/21</td>
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<td>History of Present Illness</td>
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<td>LICH</td>
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<td>9/13</td>
<td>1000-1200</td>
<td>Lecture &amp; Call Review RSVP</td>
<td>Avram Conference Room &quot;G&quot;</td>
<td>Dr Vlasica</td>
<td>Aaron Scharf 718-780-1859</td>
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<td>10/4</td>
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<td>TBA: call to inquire →</td>
<td></td>
<td>Dr Chitnis</td>
<td>Dale Garcia 718-630-7230</td>
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<td>4&lt;sup&gt;th&lt;/sup&gt; Wed</td>
<td>1730-1930</td>
<td>Call Review RSVP →</td>
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<td>MN</td>
<td>NY Presbyterian</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>Stanley Children’s Hospital 3959 Broadway</td>
<td>Dr. Schleien</td>
<td>Ana Doulis 212-746-0885 x2</td>
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<td></td>
<td>NYU School of Medicine</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>Schwartz Lecture Hall 401 E. 30th Street</td>
<td>TBA</td>
<td>Jessica Kovac 212-263-3293</td>
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<tr>
<td>QN</td>
<td>FDNY-BOT</td>
<td>8/25</td>
<td>1030-1430</td>
<td>Call Review or Lecture</td>
<td>Fort Totten Bldg 325</td>
<td>TBA</td>
<td><a href="mailto:swansoc@fdny.nyc.org">swansoc@fdny.nyc.org</a></td>
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<td>3&lt;sup&gt;rd&lt;/sup&gt; Wed</td>
<td>1330-1530</td>
<td>Call Review</td>
<td>Board Room</td>
<td>Dr Crupi</td>
<td>Mordechai Lax 718-240-5570</td>
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<td>Flushing Hosp</td>
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<td>Call Review</td>
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<td>Dr Crupi</td>
<td>Mordechai Lax 718-240-5570</td>
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<td></td>
<td>NYH Queens</td>
<td>Thursdays</td>
<td>0800-0900</td>
<td>Call Review/Trauma Rounds</td>
<td>East bldg, courtyard flr</td>
<td>Dr Sample</td>
<td>Mary Ellen Zimmermann RN 718-670-2929</td>
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<td></td>
<td>Mt Sinai Qns</td>
<td>last Tues</td>
<td>1800-2100</td>
<td>Lecture</td>
<td>25-10 30 Ave, conf room</td>
<td>Dr. Dean</td>
<td>Donna Smith-Jordan 718-267-4390</td>
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<td>Parkway Hosp</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Wed</td>
<td>1830-2130</td>
<td>Call Review</td>
<td>Board Room, 1st flr</td>
<td><a href="mailto:Pabruzzino@capitolhealthmgmt.com">Pabruzzino@capitolhealthmgmt.com</a></td>
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<td>Queens Hosp</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Thurs</td>
<td>1615-1815</td>
<td>Call Review</td>
<td>Emergency Dept</td>
<td>718-883-3070</td>
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<td>4&lt;sup&gt;th&lt;/sup&gt; Thurs</td>
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<td>SI</td>
<td>RUMC</td>
<td>9/8</td>
<td>0900</td>
<td>Call Review &amp; CPAP</td>
<td>SIPP auditorium</td>
<td>Dr. Ben-Eli</td>
<td>William Amaniera 718-818-1364</td>
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<td>10/7</td>
<td>1400</td>
<td>Call Review &amp; CPAP</td>
<td>MLB conference room</td>
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## 2010 NYC REMAC Examination Schedule

<table>
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<tr>
<th>Month</th>
<th>REMAC Refresher Exam</th>
<th>REMAC Quarterly Exam - $100 fee</th>
<th>NYS/DOH Written Exam</th>
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<tr>
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<td>(Written only - CME letter required)</td>
<td>(Written &amp; 3 Orals Scenarios)</td>
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<td><strong>Registration Deadline</strong></td>
<td><strong>Written @18:00</strong></td>
<td><strong>Orals @09:00</strong></td>
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<td><strong>Exam Date (on Wednesdays)</strong></td>
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<td><strong>Orals @09:00</strong></td>
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The **REMAC Refresher Written examination** is offered monthly for paramedics who meet CME requirements and whose REMAC certifications are either current or expired less than 30 days. To enroll, call **718-999-7074** before the register registration deadline above. Candidates may attend an exam no more than 6 months prior to expiration. Refresher exams are held at 07:00 or 18:00 hours at FDNY-EMS Bureau of Training, Fort Totten, Queens.

The **REMAC Quarterly Written & Orals examination** is for initial certification, or for inadequate CME, or for certifications expired more than 30 days. Registrations must be postmarked by the deadline above. Email **swansoc@fdny.nyc.gov** for instructions. You are encouraged to register at least 30 days prior to the exam - seating is limited. The exam fee as above is by **money order only**. The Quarterly is held at FDNY-EMS Bureau of Training, Fort Totten, Queens.