



Continuing Medical Education - News & Information

July 2011 - Volume 17, Issue 7

Multi-Agency Edition

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(bold = new content)

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Journal CME Newsletter

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From the Editor

**** 2011 REMAC Protocol revisions take effect August 1 ****

Although normally scheduled for April 1, this year's NYC REMAC protocol update has been changed for August 1 implementation in the field and on certification exams.

Until August 1, only the 2010 protocols are in effect.

Always see nycremasco.org for the current approved protocols.

REMEMBER: the protocols on the street are the protocols on the exam!

Mandatory REMAC Credentialing Fee

A \$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 inquires on this process to NYC REMSCO at 212-870-2301

Outline of August 2011 NYC REMAC protocol changes

see REMAC Advisories 2011-02, 2011-03, 2011-04 at nycremsco.org

General Operating Procedures

- CPR: clarifies that REMAC follows AHA except as specified
- Advanced Airway Management: adds section making use of ETI and alternative airways equal except in non-cardiac arrest situations, limiting ETI to 2 total attempts
- Definition of Unstable Dysrhythmias: removes chest pain, SOB, possible MI from definition

CFR Protocols

- 300 WMD, 301 Resp Distress/Failure, 320 Traumatic Arrest, 328 Burn: updated to match BLS protocols
- 304 Non-Traumatic Chest Pain: removes blood pressure assessment and assistance or patient with NTG admin

BLS Protocols

- 403 Non-Traumatic Arrest: mandates AED availability & use; moves transport order to step 8
- 407 Wheezing: removes wheezing from list of assessment criteria; mandates OLMC contact for epinephrine to patients over 33 years-old
- 410 Anaphylaxis: mandates OLMC contact for patients over 33 years-old
- 413 Seizures: removes list of signs/symptoms
- 414 Poisoning or Drug OD: removes OLMC contact, information list, & order for dilution
- 426 Soft Tissue Injuries: adds tourniquet option
- 430 EDP: removes GCS from assessment

ALS Protocols

** “ETI” changed to “Advanced Airway Management”

- 500-A Smoke Inhalation**: changes dopamine admin to Standing Order
- 500-B Cyanide Exposure**: removes note on indications; changes dopamine admin to Standing Order
- 501 Resp Arrest: protocol deleted
- 503 Non-traumatic Arrest: limits switching from AED to ALS monitor only at the end of CPR cycle
- 503-B PEA/Asystole**: removes atropine

- 504-A Suspected MI: moves aspirin to step 1; makes total doses of NTG unlimited under Standing Orders; removes morphine & Medical Control Options
- 504-B Cardiogenic Shock: moves fluid bolus and dopamine to Standing Order
- 505-A, B & C Dysrhythmias: adds note: if defibrillator’s maximum joule setting is less than 360, use equivalent cardioversion energies
- 506 APE: makes total doses of NTG unlimited under Standing Orders
- 507 Asthma & 508 COPD: makes total doses of albuterol unlimited under Standing Orders; mandates mixing of albuterol & ipratropium, limited to 3 doses
- 510 Anaphylaxis: changes methylprednisolone and dexamethasone to Standing Orders
- 515 Non-Cardiogenic Shock & 520 Traumatic Arrest: removes repeat of fluids under Medical Control Options
- 521 Head Injuries**: clarifies indication for advanced airway management & moves it to step 2
- 528 Burns & 529 Pain Management: adds fentanyl to Medical Control Options
- 531 Severe Nausea/Vomiting: new protocol
- 543 Neonate Resus: removes meconium aspiration; moved IV/IO access, epi and fluid bolus admin to Standing Orders; removes Medical Control Options
- 550 Peds Resp Arrest: adds note referring to Peds AMS protocol; changes naloxone to weight-base dosing with titration; removes ET admin of naloxone
- 551 Peds Obstructed Airway: clarifies procedure with cuffed ET tube
- 553 Peds Non-Traumatic Arrest**: increases joule settings
- 559 Peds Traumatic Arrest**

Appendices

- Appendix B Patient Assessment: clarifies transport decision; removes CUPS
- Appendix D AED Guidelines: appendix deleted
- Appendix I Hospital Listing: adds pediatric ages
- Appendix T Use of Tourniquets: appendix added

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 | 40% Adult Med. Emerg. |
| 10% BLS | 10% Adult Trauma |
| 10% Adult Arrest | 15% Pediatrics |

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
 - Journal CME
 - Clinical rotations
 - 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

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July 2011 Journal CME Article

2011 REMAC PROTOCOL UPDATE: INCORPORATING THE GUIDELINES

I think that the timing of this year's release of the latest REMAC protocols speaks to the interest and effort put forth by the REMAC committee and its subcommittees (particularly Medical Standards and the Protocol Committee). If you remember last year's protocol update, it was mentioned that the REMAC had set a new April 1 implementation date for the 2010 protocols and that it intended to use that date in future years in order to standardize the release of new protocols. Well, clearly it isn't April 1.

But that is actually a compliment to the people who serve on those committees. Last year, in the midst of state budget cuts, the SEMAC (the State Emergency Medical Advisory Committee, which must review and approve the REMAC's protocol changes) cancelled one of its meetings and brought into question its ability to hold others. Rather than simply sticking to an arbitrary deadline and not having new protocols for this year, the REMAC members acted on their belief that your patients deserve the best, most up-to-date care and pushed these new changes through as soon as possible, leading to the new protocols that will now take effect on August 1, 2011.

This article, as with past protocol updates, will review these latest changes and provide some of the rationale (or at least my version of it) for each of addition, deletion, or modification. And so, in order, we will cover the changes to the Certified First Responder (CFR) protocols (because it is important to understand what was done before you arrive), the BLS portions of the General Operating Procedures (GOPs) and protocols, the ALS portions of the GOPs and protocols, and the appendices. Happy reading, and have a wonderful and safe summer!

CFR PROTOCOLS

For the most part, the changes to the CFR protocols this year were designed to reflect those made within the BLS protocols, including some that were made in recent years but had not yet been carried over to the CFR protocols. This type of mirrored protocol is important because of the coordinated care that we attempt to provide for the types of potentially critical patients to which CFRs typically respond – allowing CFRs to hand off care to BLS, BLS to hand off care to ALS, and ALS to hand off care to the hospital staff. And so it is important to understand who may have done what before you arrive.

300 – Weapons of Mass Destruction / Nerve Agent Exposure

You may recall that the BLS protocols were changed with respect to the treatment of Yellow tag patients in 2008 because of the anticipated purchase of the Duodote autoinjectors (which combine 2-PAM, or pralidoxime,

- **RED TAG** - may be treated simultaneously with decontamination.
- **YELLOW TAG** - will be treated as soon as possible following decontamination.
- **GREEN TAG** (asymptomatic) - will be decontaminated and receive close observation.

Initial Treatment (Table 1)

Tag Color	Signs & Symptoms	Auto-injector Administration	Atropine Dose and Monitor Interval
RED	Severe Respiratory Distress, Agitation SLUDGEM	3 Auto-injector Kits	6 mg Monitor every 5 minutes.
YELLOW	Respiratory Distress, SLUDGEM	2 Auto-injector Kits	4 mg Monitor every 10 minutes
GREEN	Asymptomatic None	None	None Monitor every 15 minutes.

NOTE: Do not give more than three auto-injector kits to any patient.

Figure 1: Initial management for nerve agent exposure, REMAC Protocol 300 (effective 08/01/2011).

and atropine) in a single autoinjector. With the actual purchase of these devices now imminent, the CFR protocols were changed to reflect this same issue, meaning that yellow tag patients will receive two “autoinjector kits” (either two Mark-I kits or two Duodote autoinjectors) for the initial management of a nerve agent exposure. (Figure 1)

301 – Respiratory Distress

Much as we changed the BLS protocol last year to eliminate the arbitrary use of respiratory rates as the trigger for initiating bag-valve-mask ventilation, the CFR protocol was changed for the same reason. Respirations that are fast or slow should not be used as the reason for artificial ventilation. Rather, even if the respiratory rate is “normal,” signs and symptoms of inadequate oxygenation and/or ventilation should be used.

The sentence stating, “If the respiratory rate is less than 8 or greater than 24 times per minute and/or exhibiting signs of inadequate respiration, assisted ventilations may be required...” has been removed. It is now consistent with other areas of our protocols and states “For the patient with signs of on-going hypoxia, inability to adequately protect their airway, and/or exhibiting signs of inadequate respiration, assisted ventilations may be required.”

303 – Cardiac Arrest

A new note has been added to this protocol regarding the use of AEDs with ventricular fibrillation waveform analysis programming. As this same change is being made to BLS Protocol 403, the rationale and specifics of this change will be discussed below in the BLS Protocol section. But suffice it to say that, beginning August 1, 2011, the FDNY’s CFRs should immediately apply an AED for cardiac arrests and follow the direction of the device.

304 – Non-Traumatic Chest Pain

Although CFRs are dispatched for CARDIAC calls in our system, the interval between their arrival and the arrival of the first EMS unit remains small. As such, the likelihood that they will assist a patient with the administration of nitroglycerin is small. And as this is the only protocol for which CFRs are required to assess

blood pressure, the decision was made to remove these two items from the non-traumatic chest pain protocol. So, when you arrive, unless the patient has taken it on their own, nitroglycerin will not have been administered and, though they may have, the CFRs should not be expected to have obtained a blood pressure.

320 – Traumatic Cardiac Arrest

Now that AEDs are universally used by CFRs, the words “if available” were no longer necessary in this protocol. Furthermore, consistent with the BLS protocols, the wording of this protocol has now been changed to say “excluding patients with penetrating chest trauma, apply AED as described in Protocol 303.” As you will recall, this is because of the cases each year in which trauma (MVA, fall) occurs as a result of ventricular fibrillation and the need to recognize and immediately treat that rhythm.



Figure 2: Case-in-point regarding cardiac arrests that cause a traumatic incident. Not applying an AED may result in a missed opportunity to save a life.

328 – Burns

Consistent with the most recent guidelines, the management of burns has been changed to include the routine use of sterile, dry dressings as opposed to sterile, saline-moistened dressings. The use of moist dressings is still appropriate for - but limited to - burns that are hot or smoldering and cover less than 20% of the total body surface area.

BLS PROTOCOLS – GENERAL OPERATING PROCEDURES

There was only one change made this year to the sections of the GOPs that pertain to BLS care, and that was a change made to clarify the language relating to the American Heart Association (AHA) Guidelines. This section previously stated that “Basic Cardiac Life Support in adults, children, infants, and newborns should conform to the current guidelines set forth by the American Heart Association and the American Red Cross.” But this is no longer exactly true.

While the AHA guidelines represent an expert consensus as to how resuscitations and life-saving care should be administered, they are exactly what they claim to be – guidelines. And as more and more large EMS systems are beginning to recognize, the implementation of every aspect of those guidelines may not be universally appropriate for every EMS system, and in some areas the AHA recognizes this and offers options from which EMS systems must choose. And so the language of this section of the GOPs was changed to read, “Basic Cardiac Life Support in adults, children, infants, and newborns, when not specifically described in these protocols, should otherwise conform to the current guidelines set forth by the American Heart Association and the American Red Cross.”

For example, while the AHA guidelines recommend immediate application of an AED for non-traumatic cardiac arrest, our protocols require two minutes of CPR prior to defibrillation (with two exceptions that will be discussed

below). In contrast, our protocols do not specifically state compression depths, and so providers should conform to the current Guidelines.

BLS PROTOCOLS

Changes were made to seven of the BLS protocols this year. These include modifications to the resuscitation protocols, some of which were based upon a study recently completed in this system, and changes to a number of other non-resuscitation protocols.

Protocol 403 – Non-Traumatic Cardiac Arrest

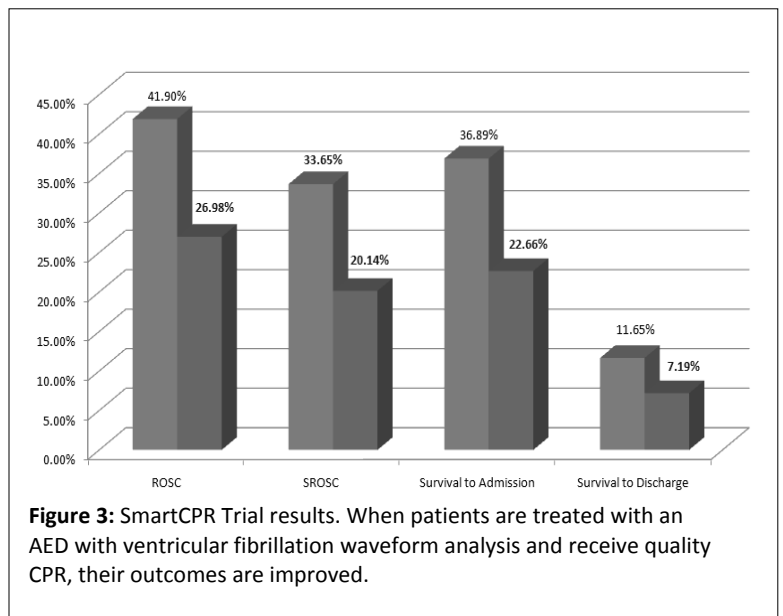
Three modifications were introduced in this protocol. First, as AEDs are now standard BLS equipment, the wording in the protocol requiring the presence of “appropriately trained personnel” was no longer necessary and has been removed. Second, because early transport may interrupt CPR and delay subsequent defibrillation, transport has been moved to the end of the protocol and only follows three full cycles of CPR. Finally, we have introduced a change that was recommended from the results of the SmartCPR Trial, as described in more detail below.

In 2007, the FDNY joined the London Ambulance Service and took the lead in conducting the SmartCPR Trial, a study designed to assess the ability of a new technology to improve cardiac arrest survival. In short, the study was based upon the idea that some patients with shockable rhythms (ventricular fibrillation) are best treated with an immediate shock, and some patients with shockable rhythms are best treated with CPR prior to the initial shock. But figuring out which patients are which is difficult – one of the reasons that the AHA Guidelines have gone back and forth in the past 10 years about whether we should immediately use a defibrillator or do a few minutes of CPR prior to using the AED.

The study inserted a novel program into the AEDs that looked at the patient’s rhythm, determined if it was “shockable” and then determined how likely the patient was to achieve a pulse (return of spontaneous circulation, or ROSC) if they were shocked immediately. If they were likely to do so, the AED would recommend a shock. If they were not likely to achieve ROSC with an immediate shock, the AED would recommend a two minute period of CPR.

What the study found is that the technology was in fact able to identify those patients who should receive an immediate shock and those who would not benefit, suggesting that they may benefit from CPR before defibrillation. And when this latter group appeared to receive quality CPR, their survival was improved. (Figure 3)

So, after discussing the data from this study, the



REMAC decided (consistent with the treatments recommended for consideration in the AHA guidelines) to modify the CFR and BLS cardiac arrest protocols to address three possible situations: 1) if the arrest is witnessed by CFR / EMS, providers should immediately apply an AED and follow its recommendations, 2) if the arrest is not witnessed by CFR / EMS, perform two minutes of CPR prior to applying the AED and following its recommendations, or 3) if using an AED that utilizes a ventricular fibrillation waveform analysis technology, immediately apply the AED and follow its recommendations in all circumstances (EMS-witnessed arrest or not).

For the FDNY, all AEDs are being programmed with this technology. And so all FDNY providers (CFR, BLS, and ALS working as BLS) should immediately apply the AED and follow its recommendations. With this technology, patients who are likely to respond best to an immediate shock will receive it, and those who are not likely to benefit from immediate shock will be recommended to “CPR first,” allowing you a chance to perform quality chest compressions that may improve the likelihood that they will respond favorably to that first shock and ultimately survive.

407 – Wheezing

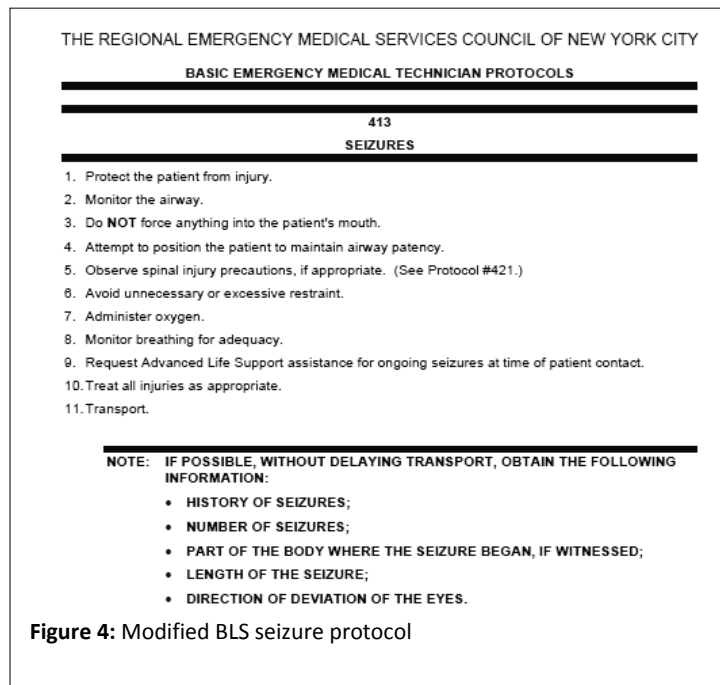
Over the past year, since allowing for the use of epinephrine autoinjectors for the treatment of critical patients with wheezing, the majority of the patients for whom on-line medical control (OLMC) has been contacted and to whom epinephrine has been administered by BLS providers were over the age of 33. Although the OLMC contact was allowable and appropriate, as was the order to administer the epinephrine, the protocol did not really address this issue. And so the protocol was modified to include this option “for administration of Epinephrine via an auto-injector to a patient who is 33 years of age or older” for which OLMC contact is still required.

410 – Anaphylactic Reaction

For the same reason as that cited above for Protocol 407, this protocol was modified to include this option “for administration of Epinephrine via an auto-injector to a patient who is 33 years of age or older” for which OLMC contact is still required.

413 – Seizures

The change to this protocol was a rather simple one and has little to do with the care that we provide to seizure patients, but it seems silly to include in a medical protocol the type of history that you should obtain from these patients. And so the note at the end of the protocol, which described the type of information that you should obtain from the patient, has been removed. (Figure 4)



414 – Poisoning or Drug Overdose

Similar to the change in BLS Protocol 413, the section of this protocol that describes the information that you should provide upon contacting OLMC has been removed. In addition, because OLMC should not provide recommendations specific to attempting to “dilute the ingested substance with water,” this section of the ingested substances section has been removed.

426 – Soft Tissue Injuries

As often happens in the civilian EMS world, it is the experience of our colleagues in the military that contributed to this next protocol change. Specifically, we have introduced the use of tourniquets for the management of severe extremity hemorrhage that is not controlled by direct pressure.

While many of us grew up in EMS being told that tourniquets were a last resort, the recent military experience finds that they may actually be more useful than once thought. One study published in 2009 found that the use of tourniquets for severe hemorrhage in combat injuries significantly improved survival, that no amputations resulted from their use, and that less than 2% of patients developed complications (specifically nerve injury / altered sensation or movement).

Because of studies such as this and other work by the military, tourniquets have now gained acceptance for use in the civilian world and are taught as part of trauma life support courses for the early management of severe hemorrhage. Protocol 426 now includes this language we well: “If early extremity hemorrhage cannot be controlled by direct pressure, apply a tourniquet (Appendix T).” Appendix T was obviously also added.

As per Appendix T, wider tourniquets are preferred because they require less pressure to control hemorrhage and are less likely to cause injury to underlying vessels and nerves. Although no particular brand of tourniquet is required for this protocol (and even a standard latex or similar tourniquet, such as what ALS providers might use for IV starts, may be used), a variety of military-style tourniquets are on the market today. The particular device used by each agency will not be specified by this protocol.

Regardless of the type of tourniquet used, it should only be applied if attempts to control the hemorrhage via direct pressure have failed. If that is the case, and without having to try elevation, indirect pressure, and/or pressure points, a tourniquet should be applied just proximal to the wound / hemorrhage site. You will know if the tourniquet is applied tightly enough because a pulse will no longer be felt distal to the tourniquet.

If the bleeding continues despite the application of a tourniquet, a second tourniquet may be applied just above (proximal to) the first. Be sure to document the time that the tourniquet was applied. And most importantly, once a tourniquet is applied in the prehospital setting, it should not be removed until the patient has arrived in the emergency department.

430 – Emotionally Disturbed Patient

This is a simple change. Because the initial assessment of an EDP begins with the assessing for any underlying medical or traumatic condition that may be the cause of the patient’s mental status, and having now concluded that

the patient has none of these conditions (which is why you would still be treating them under this protocol), the Glasgow Coma Scale has nothing to do with the assessment of an EDP. So it was removed.

ALS PROTOCOLS – GENERAL OPERATING PROCEDURES

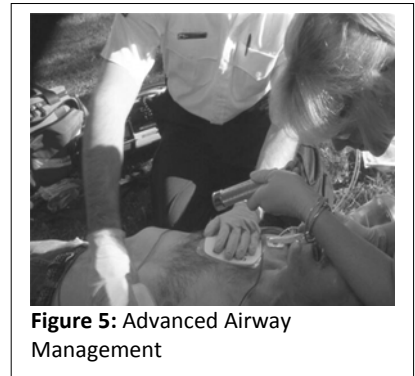
There are two changes to the GOPs in areas related to ALS care this year. The simplest of these changes is to the section dealing with the Definition of Unstable Dysrhythmias. Because the treatment of unstable dysrhythmias includes the use of electrical therapy (pacing for bradycardia, cardioversion for tachycardias), we should be conservative about which patients receive these treatments for the initial management of their rhythm disturbance – limiting their use to those patients who are truly at risk of deteriorating rapidly. This is why the mere presence of a dysrhythmia and symptoms (persistent chest pain, shortness of breath, possible myocardial infarction) has been removed. The result is that only patients with altered mental status and/or hypotension are considered to have unstable dysrhythmias and should be considered candidates for electrical therapy.

The second change was the addition of a new section pertaining to Advanced Airway Management. This term has replaced use of the term Endotracheal Intubation throughout our protocols, and the language placed in the GOPs was meant to define this term and its intended application to patient care. It reads as follows:

When the term ‘advanced airway management’ is used in these protocols, this is meant to refer to the use of endotracheal intubation and/or alternative airways (dual-lumen esophageal / tracheal intubation, laryngotracheal tubes, and other non-visualized airways that have been approved for use by the Regional Emergency Medical Advisory Committee (REMAC) of New York City).

In the non-arrest situation, the use of alternative airways is not allowed.

In the arrest setting, no preference is given to the use of either airway type. However, if endotracheal intubation is selected as the primary method of advanced airway management, CPR must not be interrupted for an extended period of time, and a total of no more than two intubation attempts may be made. If after two attempts endotracheal intubation is unable to be performed, an alternative airway must be placed.



This new section has several implications. First, it clearly defines the use of alternative airways as being limited to patients in cardiac arrest. And second, it no longer requires endotracheal intubation as the first line airway for cardiac arrests, allowing the paramedic to choose the advanced airway management technique with which they are

most comfortable and that is most appropriate for the patient (e.g. a morbidly obese patient with a small mouth and very anterior airway may be initially managed with an alternative airway as opposed to attempting what will certainly be a difficult intubation).

Third, it limits endotracheal intubation to two attempts, meaning two by a single provider or one attempt by each of two providers (with the definition of an “attempt” to be set by the agency medical director – for the FDNY, where this has been policy for several years, the definition will remain placing an endotracheal tube beyond the teeth in an attempt to intubate). Although this may not seem necessary, we have seen several cardiac arrests in recent years for which as many as nine intubation attempts were made, demonstrating the difficulty of some of the airways that you encounter. Finally, if endotracheal intubation is to be attempted, it includes the reminder that CPR interruptions must be limited (ideally to no more than 15 seconds).

While some may view this GOP change as an attempt to remove intubation, the change is really meant to empower each paramedic and to allow them to make decisions that are best for their patient, their skill set, and the situation at hand. This is done recognizing that endotracheal intubation has not been shown to improve cardiac arrest survival, and so the primary use of alternative airways (particularly in cases of difficult intubations) is currently acceptable. This may change in coming years as we learn more about these airways and their effect on blood flow during CPR, but for now, endotracheal intubation and alternative airways are considered equivalent for the airway management of the cardiac arrest patient.

ALS PROTOCOLS

There have been a lot of changes to the ALS protocols in recent years. This year, many of the changes reflect the recent trends that you may have noticed: incorporating the latest science into our protocols, moving more treatments from the Medical Control Options into standing orders, and eliminating those skills or medications that were not used or may have been found to be harmful. In all, 23 protocols were changed this year and one entirely new protocol was added.

500A – Smoke Inhalation and/or Suspected Carbon Monoxide Exposure

Two changes were made to this protocol. First, as with all other protocols, the words "Endotracheal Intubation" have been replaced with the words "Advanced Airway Management" (see ALS GOPs section above). Second, the administration of dopamine for continued hypotension has been moved from the Medical Control Options to standing orders.

500B – Cyanide Exposure

Three modifications were made to this protocol. First, as with all other protocols, the words "Endotracheal Intubation" have been replaced with the words "Advanced Airway Management" (see ALS GOPs section above). Second, the note stating, “If there are not signs of cardiac / respiratory arrest, hypotension, AMS...” has been removed as this was felt to be a training issue. And finally, the administration of dopamine for continued hypotension has been moved from the Medical Control Options to standing orders.

501 – Respiratory Arrest

This protocol **has been removed**. Because the management of respiratory distress, respiratory conditions, and tension pneumothoraces are covered in the GOPs and other protocols, it was felt that this protocol was no longer needed. Not that this change will alter your management of these patients, but their treatment will simply come under the protocol specific to the cause of their respiratory arrest.

503 – Non-Traumatic Cardiac Arrest

One of the things seen repeatedly over the past few years is the preference among paramedics for ALS monitors over AEDs in managing a cardiac arrest. Often this means that, when BLS or CFR are on scene prior to ALS, upon the arrival of the paramedics a two minute cycle of CPR is interrupted in order to apply the ALS monitor. This results in an unnecessary interruption of chest compressions and, in the case of ventricular fibrillation, can lead to the early delivery of, delayed delivery of, or failure to deliver a defibrillatory shock.

Rather than switching monitors as soon as possible, the preferred time to quickly transition from an AED to an ALS monitor would be at the conclusion of a two minute cycle of CPR. And so this protocol has been changed to include language to that effect: “If BLS care is already being provided, transition from AED use to ALS monitor use must occur only after the completion of the next analysis / shock decision.”

Also, consistent with the AHA Guidelines, the use of atropine has been removed from this protocol.

504A – Drug Therapy of Myocardial Ischemia

The treatment of myocardial ischemia is a simple thing, given the evidence of what works and what does not. Aspirin is the only medication that we currently use in the prehospital setting that has ever been shown to improve outcome for patients with myocardial ischemia. That is why the administration of two (2) chewable aspirin (162mg total) was moved to the top of the protocol.

The administration of nitroglycerin was also altered, allowing for the continued administration of sublingual nitroglycerin so long as the patient still has pain and the patient’s blood pressure remains higher than 100mmHg. There is no more limit of three doses.

Finally, given its lack of benefit and actual potential for harm, the administration of morphine has been removed from this protocol. And given all of these changes, there was no longer a need for Medical Control Options for this protocol, so that section has been removed.

504B – Cardiogenic Shock

When you are faced with a patient with presumed cardiogenic shock, one of the last things that you want to be doing is spending time on the phone with OLMC to receive orders for a small fluid bolus or the administration of dopamine. So, consistent with the types of changes that we have mentioned already with some of these protocols, this one was also changed to address this issue.

Under standing orders, the initial management of cardiogenic shock should be a 250mL bolus of normal saline, and this may be repeated once for a total of 500mL. If that does not improve the patient’s blood pressure, dopamine

should be initiated, also under standing order. And so there are no longer any Medical Control Options for the management of these patients, and this section has been removed.

505A – Supraventricular Tachycardia

The incorporation of biphasic waveforms into most ALS monitors has led to confusion about what energy settings should be used for cardioversion. Because the recommended and allowable energies vary between manufacturers, language has been added to this protocol that states, “When using a defibrillator for which the maximum joule setting is less than 360 joules, utilize equivalent cardioversion energies.” If 360 joules is available, it should be used. If not, escalating energies for cardioversion should proceed according to the equivalent energies as defined by the agency medical director.

505B – Atrial Fibrillation / Atrial Flutter

This change is identical to that described for Protocol 505A (above). The incorporation of biphasic waveforms into most ALS monitors has led to confusion about what energy settings should be used for cardioversion. Because the recommended and allowable energies vary between manufacturers, language has been added to this protocol that states, “When using a defibrillator for which the maximum joule setting is less than 360 joules, utilize equivalent cardioversion energies.” If 360 joules is available, it should be used. If not, escalating energies for cardioversion should proceed according to the equivalent energies as defined by the agency medical director.

505C – Ventricular Tachycardia with a Pulse / Wide Complex Tachycardia of Uncertain Type

This change is identical to that described for Protocol 505A and 505B (above). The incorporation of biphasic waveforms into most ALS monitors has led to confusion about what energy settings should be used for cardioversion. Because the recommended and allowable energies vary between manufacturers, language has been added to this protocol that states, “When using a defibrillator for which the maximum joule setting is less than 360 joules, utilize equivalent cardioversion energies.” If 360 joules is available, it should be used. If not, escalating energies for cardioversion should proceed according to the equivalent energies as defined by the agency medical director.

506 – Acute Pulmonary Edema

Similar to the change in Protocol 504A, the limit of three nitroglycerin has been removed. Nitroglycerin can now be administered as a standing order every five minutes so long as the patient is symptomatic and has a blood pressure >100mmHg. The medical control option pertaining to continued nitroglycerin has been removed.

507 – Asthma

The “limit of three doses” has also been removed from this protocol, this time related to albuterol. So long as a patient is symptomatic, albuterol nebulizer treatments may be continued every 5-15 minutes under standing orders (though this should not be done on scene). The medical control option for additional doses of albuterol was no longer needed and has been removed.

With respect to ipratropium, two changes have been implemented. First, the language has been changed to state that this medication “shall” (not “may”) be mixed with albuterol for administration via the nebulizer. Second, because its efficacy is limited with additional doses, the administration of this drug (unlike albuterol) is limited to three doses.

508 – Chronic Obstructive Pulmonary Disease

Does this sound familiar? The limit of three doses has also been removed from this protocol, this time related to albuterol. So long as a patient is symptomatic, albuterol nebulizer treatments may be continued every 5-15 minutes under standing orders (though this should not be done on scene). The medical control option for additional doses of albuterol was no longer needed and has been removed. For this protocol, this also eliminated the need for a Medical Control Options section.

As with Protocol 507, with respect to ipratropium, two changes have been implemented. First, the language has been changed to state that this medication “shall” (not “may”) be mixed with albuterol for administration via the nebulizer. Second, because its efficacy is limited with additional doses, the administration of this drug (unlike albuterol) is limited to three doses.

510 – Anaphylactic Reaction

The administration of methylprednisolone or dexamethasone has been moved from the Medical Control Options to standing orders for the management of patients with anaphylaxis with decompensated shock and should be followed by a rapid infusion of up to three liters of saline.

515 – Non-Cardiogenic Shock

Given our short transport times, it is incredibly rare that more than one liter (let alone three liters) of saline is infused into a patient with non-cardiogenic shock. Therefore, it seemed silly to have a medical control option that allowed for an additional three liters of saline to be infused. Add this to the controversy over large volume saline infusions for shock states and the difficulty differentiating among the various forms of shock in some patients, and the net result is that this medical control option is not needed. So it was removed and resulted in the elimination of the medical control options section in this protocol.

520 – Traumatic Cardiac Arrest

Even more so than with other forms of shock, the administration of large volumes of saline can be harmful to the trauma patient. So, when combined with our comments above about the limited volumes typically infused given our transport times, this protocol also saw the elimination of the medical control options, specifically the option of administering an additional three liters of normal saline.

521 – Head Injuries

While endotracheal intubation may be an equivocal skill in cardiac arrest, its use in patients with head injuries has been clearly linked to worsened outcomes. And yet there is a population of head injury patients for whom airway management is necessary, even with our short transport times in most cases.

With this in mind, advanced airway management has been emphasized in this protocol, placing it immediately after BLS / cervical spine management. At the same time, the emphasis has shifted away from advanced airway management. In short, airway management must be a priority but its must be limited to those patients for whom the airway cannot otherwise be managed.

And so the wording for the second step of the head injury protocol now reads, “Perform Advanced Airway Management in patients for whom the Glasgow Coma Scale is less than 8 AND if less invasive methods of airway management are not effective.”

528 – Burns

Based upon the recent approval at the State level, fentanyl may now be used for pain management. While morphine is sufficient for most patients, those who are hypotensive may not receive morphine due to the histamine-mediated vasodilation that occurs and its potential for worsening blood pressure / perfusion. Because fentanyl is a synthetic narcotic that does not cause this histamine release, its use for burn patients who are hypotensive may be appropriate, and so a medical control option allowing for the administration of 1mcg/kg to a maximum of 100mcg has been added. Just keep in mind that hypotensive burn patients are critically ill / injured, and initiating transport should not be delayed simply to obtain this order.

529 – Pain Management for Isolated Extremity Injury

Similar to the burn protocol, a medical control option allowing for the administration of 1mcg/kg to a maximum of 100mcg has been added to this protocol as well. But this protocol change comes with an additional word of caution.

In recent months, there have been several cases in which paramedics have administered morphine under standing orders for the management of pain resulting from an extremity injury in a patient for whom the mechanism of injury was a significant fall, motor vehicle accident, or pedestrian who was struck by a vehicle. For such cases, particularly when the patient is hypotensive, the clinical suspicion for other injuries must be high.

Keeping in mind that this protocol is intended for use only with a patient who has an isolated injury to a single extremity and pain resulting from that injury, if the patient is hypotensive and there is no other cause for concern that the hypotension may be due to other injuries, the administration of fentanyl may now be allowable as a medical control option.

531 – Severe Nausea / Vomiting (NEW PROTOCOL!!)

Thousands of times each year, paramedics in this system are called to care for patients whose symptoms include severe nausea and vomiting. While these symptoms can clearly be distressing for the patient, they can also place providers at risk for exposure to body fluids and can compromise the airway management of some patients. As a

result, reducing the incidence of severe nausea and vomiting is in the best interests of our patients and the providers in the system.

This new protocol will allow for the management of such symptoms with a new medication that will be added to the regional formulary – ondansetron (trade name = Zofran). While we will prepare a formal Medical Affairs Directive to introduce this new medication shortly, a few words about this medication now seem appropriate.

Serotonin, a powerful antiemetic that was first used for the management of severe nausea resulting from chemotherapy, is an injectable antiemetic that acts via the 5-HT₃ (serotonin) receptor antagonist. Although the drug's exact mechanism remains unclear, serotonin is known to play a role in both the vagus nerve-mediated vomiting and the chemotactic trigger zone (CTZ) – an area in the brain that is responsible for triggering the vomiting reflex. By reducing serotonin activity in these two areas, ondansetron is believed to reduce the likelihood that the vomiting reflex will be triggered.

As described in the protocol, the dosing for ondansetron is 0.1mg/kg (not to exceed 4mg) which may be repeated once if the patient's symptoms continue. The drug may be used safely in pregnancy, it has very limited side effects, and it has no significant drug interactions. And the dosage was written as a mg/kg dosing because this drug may be used in adults and for pediatrics patients.

543 – Neonate Resuscitation

This protocol has been drastically revised. First, performing meconium aspiration is no longer recommended, and so it has been removed from the protocol. Second, the initiation of IV/IO access and the administration of parenteral epinephrine has been moved from the Medical Control Options to standing orders. And this resulted in the elimination of the Medical Control Options section.

The final change is really not a change at all, but it seemed like it might require a quick explanation. In recent years, we removed the administration of endotracheal drugs from all adult protocols because of the lack of any data suggesting that there is any benefit to the patient and some suggestion that it may be harmful. However, in pediatrics, endotracheal drug administration may provide some benefit. And so the use of endotracheal intubation and endotracheal drug administration remain in this protocol. That being said, please keep two things in mind: 1) endotracheal intubation of a neonate is a very rare event in our system, with last year's data suggesting that most paramedics will never perform this skill during their career and those that do will likely do it only once and so 2) the use of waveform capnography for these smallest and least frequently performed intubations is critical.

550 – Pediatric Respiratory Arrest

Naloxone is the subject of the changes in this protocol. First, a note was added reminding providers that, “If overdose is suspected, refer to Protocol 556.” Second, the dosing of naloxone was changed to more accurately reflect the recommended titration of this drug.

4. Administer naloxone, titrate in increments of 0.8mg, IM, up to response, up to 2mg, in patients two (2) years of age or older. In patients less than two (2) years of age, titrate up to 1mg.

Additionally, the administration of naloxone has been moved from Medical Control Options to standing orders.

551 – Pediatric Obstructed Airway

One simple (and intuitive) change is made to this protocol. In the section dealing with the intentional right mainstem displacement of a foreign body, the cuff must be deflated before moving the endotracheal tube. But because this is a pediatric protocol, many patients may not be intubated with a cuffed tube, so the language was changed to address both situations.

4. If able to confirm intubation via direct visualization but unable to ventilate:
 - a. Note the Endotracheal Tube depth
 - b. If using a cuffed tube, deflate the Endotracheal Tube cuff.
 - c. Advance the Endotracheal Tube to its deepest depth
 - d. Return the Endotracheal Tube to its original depth
 - e. If using a cuffed tube, re-inflate the Endotracheal Tube cuff and attempt ventilation again
 - f. If unable to effectively ventilate the patient using the above maneuvers, immediately initiate transport

Figure 6: Right mainstem displacement procedure

553 – Pediatric Non-Traumatic Cardiac Arrest

Two changes to mention for this protocol. First, the Advanced Airway Management wording (see discussion above) has replaced Endotracheal Intubation. Second, the defibrillation energy for pediatrics has been increased. For pediatric patients in ventricular fibrillation, the first defibrillation setting will now be 4J/kg (rounded up to the nearest available energy setting) with all subsequent defibrillation attempts to be performed at 10J/kg.

559 – Pediatric Traumatic Cardiac Arrest

The only change to this protocol was once again the use of the Advanced Airway Management wording (see discussion above) to replace the words Endotracheal Intubation.

Written by: John Freese, MD
Chief Medical Director
Fire Department of New York



1. When treating an adult, non-traumatic cardiac arrest for which ALS is not available, transport by BLS providers should be initiated after:
 - a. The first shock
 - b. The first round of CPR
 - c. The first "no shock indicated" prompt
 - d. The third shock
 - e. The third round of CPR
2. With respect to OLMC orders to "dilute ingested substances with water", which of the following is correct?
 - a. It is no longer recommended
 - b. It is only recommended for strong alkalais
 - c. It is only recommended for strong bases
 - d. Milk is preferred to water
 - e. It is recommended for any known ingestion
3. If severe hemorrhage is not controlled with direct pressure, which of the following is the next recommended intervention?
 - a. Elevation
 - b. Indirect pressure
 - c. Additional direct pressure
 - d. Pressure points
 - e. Tourniquet
4. Which of the following items was removed from the BLS Emotionally Disturbed Patient Protocol?
 - a. Glasgow Coma Scale
 - b. Broselew Coma Scale
 - c. Assessment of mental status
 - d. Assessment of underlying medical conditions
 - e. Consideration of ALS for combative patients
5. When arriving on the scene of a CARDIAC patient for whom ALS is not yet available and for which CFR is already on scene, which of the following will CFR have not performed prior to your arrival?
 - a. Patient assessment
 - b. Pulse and respiratory rate assessment
 - c. Administration of oxygen
 - d. Assisting the patient with administration of nitroglycerin
 - e. More than one of the above
6. Other than hypotension, which of the following is an indication for the treatment of an unstable dysrhythmia with electrical therapy?
 - a. Chest pain
 - b. Shortness of breath
 - c. Possible myocardial infarction
 - d. Palpitations
 - e. Altered mental status
7. For which of the following protocols was dopamine not moved to standing orders for the August 1, 2011 Protocols?
 - a. 500A – Smoke Inhalation and/or Suspected Carbon Monoxide Exposure
 - b. 500B – Cyanide Exposure
 - c. 504B – Cardiogenic Shock
 - d. 506 – Acute Pulmonary Edema
 - e. It was moved to standing orders in all of the above
8. Which of the following steps is no longer required for the treatment of cardiogenic shock?
 - a. OLMC contact
 - b. 250mL normal saline bolus
 - c. Repeat 250mL normal saline bolus
 - d. Initiation of dopamine infusion
9. In addition to a Glasgow Coma Scale of less than eight (8), which of the following is required for advanced airway management for a head injury patient?
 - a. Lidocaine must be administered
 - b. The nearest hospital is not a trauma center
 - c. Traumatic cardiac arrest
 - d. Seizures
 - e. Less invasive methods of airway management are not effective
10. Which of the following is **not** true regarding the use of fentanyl for the management of pain related to burns or isolated extremity injuries?
 - a. It is now allowed in New York State
 - b. It is allowable as a standing order
 - c. It is allowable as a Medical Control Option
 - d. The dose is 1mcg/kg
 - e. The maximum is 100mcg

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

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.

July 2011 CME Quiz		
1.		Required for BLS & ALS providers
2.		
3.		
4.		
5.		
6.		Required for ALS providers only
7.		
8.		
9.		
10.		

Citywide CME – July 2011

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

Boro	Facility	Date	Time	Topic	Location	Host	Contact
BK	Kingsbrook	TBA	TBA	TBA: call to inquire →	ED Conference Room	Dr Hew	Manny Delgado 718-363-6644
	LICH	TBA	1200-1500	TBA: call to inquire →	Avram Conference Room "G"	Dr Vlasica	Aaron Scharf 718-780-1859
		TBA	0900-1200	TBA: call to inquire →	Avram Conference Room "A"		
	Lutheran	4 th Wed	1730-1930	Call Review RSVP →	Call for location →	Dr Chitnis	Dale Garcia 718-630-7230 dgarcia@lmcmc.com
MN	NY Presbyterian	TBA	TBA	TBA: call to inquire →	Weill Cornell Campus A-950	Dr Ewy	RSVP: ssamuels@nyp.org Ana Doulis 212-746-0885 x2
	NYU School of Medicine	TBA	TBA	TBA: call to inquire →	Schwartz Lecture Hall 401 E 30 Street	TBA	Jessica Kovac 212-263-3293
QN	FDNY-BOT	Cancelled until further notice		---	---	---	---
	NYH Queens	Thursdays	0800-0900	Call Review/Trauma Rounds	East bldg, courtyard flr	Dr Sample	Mary Ellen Zimmermann RN 718-670-2929
	Mt Sinai Qns	last Tues	1800-2100	Lecture or Call Review	25-10 30 Ave, conf room	Dr Dean	Donna Smith-Jordan 718-267-4390
	Parkway Hosp	3 rd Wed	1830-2130	Call Review	Board Room, 1st flr		pabruzzo@capitolhealthmgmt.com
	Queens Hosp	2 nd Thurs	1615-1815	Call Review	Emergency Dept		718-883-3070
4 th Thurs							
SI	RUMC	TBA	1400	TBA: call to inquire →	MLB conf room	Dr Ben-Eli	William Amaniera 718-818-1364

2011 NYC REMAC Examination Schedule

Month	<u>REMAC Refresher Exam</u> (Written only - CME letter required)		<u>REMAC Quarterly Exam - \$100 fee</u> (Written & 3 Orals Scenarios)			NYS/DOH Written Exam
	Registration Deadline	Exam Date (on Wednesdays)	Registration Deadline	Written @18:00	Orals @09:00	
January	12/31/10	1/19/11	Thursday 1/6/11	Thursday 1/20/11	Thursday 1/27/11	1/20/11
February	1/31/11	2/23/11				
March	2/28/11	3/23/11				3/24/11
April	3/31/11	4/20/11	Thursday 4/7/11	Thursday 4/21/11	Tuesday 4/26/11	
May	4/30/11	5/25/11				5/20/11
June	5/31/11	6/22/11				6/16/11
July	6/30/11	7/20/11	Thursday 7/7/11	Thursday 7/21/11	Thursday 7/28/11	
August	7/31/11	8/24/11				8/18/11
September	8/31/11	9/21/11				
October	9/30/11	10/26/11	Thursday 10/6/11	Thursday 10/20/11	Tuesday 10/25/11	
November	10/31/11	11/16/11				11/17/11
December	11/30/11	12/21/11				12/15/11

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.