** Online Registration for REMAC Refresher Exam – see below **

** From the Editor **

** New Online Registration for REMAC Refresher Exam **

Go to [www.planetReg.com/E31112555131510](http://www.planetReg.com/E31112555131510) (or [www.nycremsco.org](http://www.nycremsco.org) & click the REGISTER link under “News & Announcements”).

*See the last page of this journal for details.*

** July 1, 2012 REMAC Protocol revisions in effect **

Only the July 1, 2012 protocols are in effect in the field and on certification exams. (See page 2 for outline of changes.)

Always see [nycremsco.org](http://nycremsco.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. *No fee is collected at the exam.* After successfully completing a REMAC exam, candidates will receive an email directly from NYC REMSCO requiring a completed application 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*
Outline of July 2012 NYC REMAC protocol changes
see REMAC Advisory 2012-01 at nycremsco.org

General Operating Procedures

- Transport: changes stroke criterion to 3½ hours from onset

BLS Protocols

- 400 WMD: updates language of evaluation and autoinjector configuration

ALS Protocols

- 500-A Smoke Inhalation: changes name of protocol and indication for its use
- 500-A Smoke Inhalation & 500-B Cyanide Exposure: adds Table 2 to clarify different hydroxocobalamin bottle configurations; removes administration time per individual bottles
- 503-A V-fib/V-tach: removes dilution of amiodarone
- 511 AMS: adds glucagon to note specifying glucometer levels for treatment
- 513 Seizures: clarifies that seizures must be generalized; adds glucagon to note specifying glucometer levels for treatment; adds glucagon option for diabetic patients
- 553 Peds Non-Traumatic Arrest: updates endotracheal intubation to advanced airway management
- 557 Peds Seizures: adds glucagon to note specifying glucometer levels for treatment; moves midazolam to Standing Orders for initial administration, increases dose, and specifies preference for intranasal route; defers rectal diazepam until all other options are exhausted
- 559 Peds Traumatic Arrest: updates endotracheal intubation to advanced airway management

Appendices

- Appendix R - Stroke Criteria: changes criterion to 3½ hours from onset
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 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 - Clinical rotations
    - Lectures / Symposiums / Conferences - Associated Certifications:
      - Journal CME
      - 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.

New March 2013: REMAC Basic Written and Scenario examinations are held monthly. Registration is limited to the first 25 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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Asaeda, Glenn 80276  Isaacs, Doug 80299
Barbara, Paul 80306  Jacobowitz, Susan 80297
Bayley, Ryan 80314  Jameson, Angus 80309
Ben-Eli, David 80298  Kaufman, Bradley 80289
Cox, Lincoln 80305  Lai, Pamela 80311
Freese, John 80293  Munjal, Kevin 80308
Friedman, Matt 80313  Redlener, Michael 80312
Giordano, Lorraine 80243  Schenker, Jose 80296
Gonzalez, Dario 80256  Schneitzer, Leila 80241
Hansard, Paul 80226  Silverman, Lewis 80249
Hegde, Hradaya 80262  Soloff, Lewis 80302
Hew, Phillip 80267  Van Voorhees, Jessica 80310
RAISING THE BAR

Over the course of the past ten years, there have been a number of changes to the New York City Regional Emergency Medical Advisory Committee’s (REMAC’s) prehospital protocols. Some of these changes were made for the safety of the patient, such as the removal of ipecac from the BLS protocols or the more limited use of endotracheal intubation among pediatric patients in the ALS protocols. Some of these changes were made for the purpose of improving the quality of patient care by reducing unnecessary patient discomfort – the use of selective spinal immobilization (that eliminates its unnecessary use and discomfort for patients that it will not benefit) in the BLS protocols or the use of morphine for pain management in the ALS protocols. But some of those changes have been truly life-saving, including the use of epinephrine autoinjectors for the treatment of critical asthma by BLS providers and the changes to both the BLS and ALS protocols related to cardiac arrest.

It is this last subject – cardiac arrest – on which this month’s article will focus. A number of past CME articles have focused on this topic, and many of the changes to the BLS and ALS protocols in recent years were directed at this group of patients as well. This article is not meant to repeat the medical education provided in those articles. But in looking back at the past decade (and beyond), perhaps it is time to try to appreciate just how far the system has come… to realize just how high you have raised the bar… and in doing so to realize just how great a difference you are making in the outcomes of patients whose lives are truly in your hands.

Where It All Started

On August 21, 1974, the graduates of the City’s first paramedic class, offered through Jacobi Hospital, assembled in front of a New York City EMS ambulance (Figure 1). Seated in the middle of the front row, arms crossed, was a newly trained paramedic by the name of Gary Lombardi – a man who would go on to later define the starting point for what we know about cardiac arrest survival in New York City.

Figure 1: NYC’s First Paramedic Class
Nearly twenty years later, now an emergency medicine physician at the same hospital, Dr. Gary Lombardi was the lead author on a paper in the Journal of the American Medical Association: Outcome of Out-of-Hospital Cardiac Arrest in New York City: The Pre-Hospital Arrest Survival Evaluation (PHASE) Study. Dr. Lombardi, two other physicians, and six paramedics had spent six months tracking every out-of-hospital cardiac arrest (OOHCA) treated by EMS personnel in the New York City 9-1-1 system. And they used what at the time was a newly defined mechanism for categorizing cardiac arrest data – the Utstein template. That template, which is still in use throughout the world today, allows us to compare OOHCA outcomes today to what they published back then, and it allows us to compare this City to others across the nation and around the world – making it possible to compare “apples to apples.”

The work that Dr. Lombardi and his colleagues did was beyond impressive - interviewing the EMS providers after every arrest, following every cardiac arrest in the City for six months and losing track of not even a single patient, even reviewing all 493,000 PCRs generated during that time to ensure that no cases were missed… and all of that in the age of paper PCRs, paper medical charts, and no internet.

Unfortunately, the survival rates that they found were not as impressive. To understand this, and to allow us to compare their findings to where you and the New York City 9-1-1 System are today, we’ll look at the Utstein template numbers that they published (Figure 2).

There were 3,243 OOHCA cases for which resuscitation was attempted, and this is where the analysis always begins. Of those, 914 were described by the on-scene EMS personnel as having a non-cardiac cause such as drowning, trauma, etc. These cases are always excluded (and this is why we continue to interview you after each cardiac arrest today and, among the questions that you are asked, are questions about the cause of the arrest).

That left 2,329 cases of OOHCA that were cardiac in nature, of which 1,237 (53.1%) were witnessed by
bystanders. Those not witnessed by bystanders are also excluded (and is why questions about who witnessed the arrest are still asked of you today). And it is this remaining group – OOHCA patients for whom resuscitation was attempted, for which the arrest is thought to be primarily cardiac in nature, and for which the onset of the arrest was witnessed by someone – that define the “apples” or the group that we will compare.

What Dr. Lombardi found in 1994 was that this group had a couple of characteristics that were notable: the EMS response time for these patients averaged 9.3 minutes, 418 (33.8%) of those patients presented with shockable rhythms (ventricular fibrillation / VF or ventricular tachycardia / VT) and 452 patients (36.5%) received bystander CPR prior to EMS arrival. These numbers will be important later as we consider where you have brought us to today.

When we talk about survival from OOHCA, there are four points that are considered: return of spontaneous circulation or ROSC (defined as restoration of a pulse for >30 seconds), sustained ROSC (defined as the patient having a pulse upon arriving at the emergency department), survival to hospital admission, and survival to hospital discharge. In 1994, the ROSC rate for OOHCA in NYC was 28.2% - meaning that just over 1 in every 4 patients “got a pulse back.” Despite that number, and with 15.5% surviving to hospital admission, only 2.1% (26 patients) survived to hospital discharge.

Over the course of the next ten years (1994-2003), several things changed about the NYC EMS system and the way that it responded to / treated cardiac arrest. Foremost among these changes was the merger of then New York City EMS and the Fire Department of New York (FDNY), a move designed in part to improve the response time to medical emergencies and, specific to OOHCA, to increase the number of defibrillators in the NYC 9-1-1 system through the development of the CFR-D program. And to analyze the impact of those changes, Dr. Neal Richmond and colleague from the New York Academy of Medicine designed the Prehospital Evaluation of New York Cardiac Survival (PHENYCS) study.
Using the same Utstein template and definitions as were used by Dr. Lombardi, Dr. Richmond and the PHENYCS group discovered the changes that had come about over the preceding ten years. In the course of one year, there were 6,974 resuscitations attempted in the NYC 9-1-1 System. Of those 4,653 were considered cardiac in nature, and 1,746 (37.5%) of those were witnessed. Some things had changed during those ten years and some had not: the EMS response time had been cut in half from 9.3 minutes to 4.7 minutes, fewer patients (432, or 24.7%) presented with shockable rhythms and the percentage of patient who received bystander CPR prior to EMS arrival had decreased (477, or 27.3%).

And so, despite the reduction in response time, the less frequent CPR and less common shockable rhythms combined with other factors produced the survival numbers at that time. The ROSC rate for OOHCA in NYC had dropped to 20.2% - meaning that just over 1 in every 5 patients “got a pulse back,” 13.4% surviving to hospital admission and only 3.5% (26 patients) survived to hospital discharge. (It should be noted that this was not a finding specific to the FDNY merger – when Seattle dramatically increased the number of AEDs in their system and in doing so reduced response time, they too saw a decrease in survival rates, likely because too much emphasis was placed on the defibrillator and not enough on the CPR.)

All of this said another way, prior to 2003, somewhere between three out of every four or four out of every five resuscitations failed to restore circulation, and nearly every patient (>95%) died. And if that were the end of the story, it would be a sad story indeed.

A Decade of Change – Part I – Getting Back to Basics

From 2003 until 2007, several things changed in the EMS system. Emergency medical dispatch (EMD) began to utilize compressions-only CPR pre-arrival instructions in an attempt to improve upon the number of patients receiving bystander CPR. This was possible because it had been shown that such a change could improve outcomes, and it is medically appropriate because we know that the body maintains enough of an oxygen reserve to allow for compressions without ventilation for at least 3-4 minutes, which is enough time in our system to allow for EMS arrival. In addition, because higher defibrillation energies were shown to be safe for children and because of our own system’s data showing greater first-shock success (defined as terminating ventricular
fibrillation and allowing for restoration of an “organized rhythm”), they began to allow for the use of adult AEDs for pediatric OOHCA patients. And to the credit of those overseeing EMD, each of these changes were years ahead of the American Heart Association (AHA) recommendations.

The most important changes happened at the BLS level. Based upon the science that became the 2005 AHA Guidelines, and under the leadership of FDNY Assistant Chief of EMS John McFarland, enormous effort was put into retraining everyone in the basics of CPR. Attention was paid to the proper depth and rate of compressions, EMS Officers were assigned to cardiac arrests to ensure the proper rotation of people in the role of performing chest compressions and to limit the interruption of compressions, and the FDNY began to perform OOHCA research, beginning with the SmartCPR Trial. In addition, and also critical to the BLS care being provided, changes were made by the FDNY with regard to CFR response: requiring release of the CFR unit by EMS personnel, adding to their responses those cardiac arrests in medical facilities, etc.

And on an ALS level, proper attention was given to ensuring the correct timing of ALS interventions including medication administration and airway management. The medications used in managing resuscitation were changed including the defined preference of epinephrine versus vasopressin (preferring the latter and its V1-receptor-mediated vasoconstriction to the alpha-receptor-mediated vasoconstriction of epinephrine and its associated beta-receptor-mediated increase in myocardial oxygen demand), a change that resulted from data from our own system showing higher ROSC rates with that strategy. And additional “tools” were added to the resuscitation: alternative airways, intraosseous access, and secondary confirmation devices for advanced airways.

The results of those changes were not insignificant, as the numbers showed us. And while getting these patients out of the hospital and back to their lives is the ultimate goal,
this cannot happen unless pulses are restored (ROSC is achieved) in the field. And so we began to look at this number as a surrogate for the success or failure of our efforts.

In the year following these changes (2008), there were 7,435 resuscitations attempted in the NYC 9-1-1 System. Of those 5,365 were considered cardiac in nature, and 1,787 (33.3%) of those were witnessed. Response times had improved yet again (from 4.7 minutes to 4.2 minutes), even fewer patients (18.1%) presented with shockable rhythms and the percentage of patient who received bystander CPR prior to EMS arrival had increased slightly (33.7%). As a result of the changes to the system, and despite very little change in EMS response time and a dramatic drop in the number of patients presenting with shockable rhythms (and who are much more likely to survive), the ROSC rate for OOHCA in NYC increased substantially. That year there were 632 patients who achieved ROSC – making the percentage 35.4%. More than one in three patients were now having pulses restored by the care that you were providing, and factors such as the presence of an EMS Officer and a CFR unit remaining on scene to assist with CPR could be linked to better outcomes. (And among those patients who survived to hospital admission, 15.7% appeared to leave the hospital alive - 34.9% of those presenting with shockable rhythms and 7.31% of those who presented in nonshockable rhythms such as asystole or PEA.)

A Decade of Change – Part II – NYC Project Hypothermia

In January 2009, the system changed yet again. Because of the hard work of a number of people working with the Greater New York Hospital Association (GNYHA) including Dr. Stephan Mayer (Columbia Presbyterian) and Dr. Scott Weingart (Elmhurst), the NYC REMAC, the New York State Department of Health, and within the FDNY, a new program was initiated that partnered the EMS system with the hospitals in an attempt to increase the number of patients who received the standard of care for post-resuscitation management, specifically therapeutic hypothermia.
As you know, Phase I of NYC Project Hypothermia involved the transport of OOHCA patients who had been successfully resuscitated (ROSC achieved) to “cardiac arrest centers,” hospitals that had developed protocols and policies that provided therapeutic hypothermia as part of the standard post-resuscitation care for cardiac arrest patients. Nothing changed about the prehospital management of OOHCA during that time, and so we did not expect to see any change in ROSC rates (which remained essentially the same at 36.6%). But this was an important step that would lead to Phase II of Project Hypothermia, a change that we hoped would again raise the bar with respect to survival, and it did improve the likelihood that OOHCA patients who were successfully resuscitated in the field would be discharged alive and neurologically intact.

It was mentioned earlier that among those patients who survived to hospital admission in 2008, 15.7% left the hospital alive - 34.9% of those presenting with shockable rhythms and 7.31% of those who presented in nonshockable rhythms. In 2009, as a result of Phase I of Project Hypothermia, those numbers increased. Among patients who survived to admission, 20.4% survived to hospital discharge – 11.3% of those with nonshockable rhythms and 45.9% with shockable initial rhythms. And when you look at those patients who received therapeutic hypothermia, the numbers were even better – 38.2% leaving the hospital alive, including 13.5% of the patients with nonshockable rhythms and 61.5% of those with shockable initial rhythms. (Notice that the benefit was not limited to patients which shockable rhythms, but it actually benefitted all patients regardless of initial rhythm!) And perhaps most importantly, two-thirds of those patients (65%) left the hospital neurologically intact.

On August 1, 2010, the New York City 9-1-1 System initiated Phase II of Project Hypothermia. Again, you know what this meant for you and for the patient. Ice-cold saline was carried from the ambulance to the patient and infused rapidly in an attempt to induce therapeutic hypothermia during the resuscitation. The thought was that this could maximize the benefit to the patient by initiating all of the benefits of hypothermia early – even before ROSC was achieved.
Therapeutic hypothermia improves the likelihood that an OOHCA patient will leave the hospital neurologically intact (returning to life as a functional person who can be a productive part of their family, work, etc). It does this through a number of mechanisms that act to protect the cells (particularly neurons) from damage that would otherwise result from the body’s response to the arrest. And while some of these mechanisms (such as suppressing inflammation and improving glucose use by the cells) can be utilized by cooling the patient even hours after the arrest, others begin to damage the cells within 10 minutes of the onset of the arrest. And so by cooling the patient during the arrest, we hoped to provide an even greater benefit to the patient’s neurologic recovery.

But there was another objective that we hoped to accomplish by inducing hypothermia during the resuscitation and by doing so through the infusion of large-volume, ice-cold saline: to even further improve upon ROSC rates. The thought was that by inducing mild hypothermia, we would cause the body to work in our favor, particularly for the witnessed arrest whose physiology hadn’t yet greatly changed and would therefore act like yours or mine when it is cold – constricting the vessels in the periphery to improve blood flow in the core organs, thereby assisting with what CPR was trying to accomplish. If this were true, we would not only benefit the patients who achieved ROSC by cooling them earlier, but we might be benefitting all patients by increasing the likelihood that they would achieve ROSC. Figure 8 shows the preliminary results and the benefit that we desired.

In Phase II, as a result of the infusion of large-volume, ice-cold saline, 42% of patients (better than two out of every five) who had an OOHCA of cardiac nature that was witnessed by bystanders were achieving ROSC. But this was regardless of how much fluid they received. And remember that the protocol called for 30cc/kg, up
to a maximum of two liters (2,000cc). And so we looked at those patients who achieved something approaching the intended therapy. And among patients receiving >1,500cc of cold saline, 47.2% achieved ROSC.

Now prior to our beginning the Project and even throughout, there was concern that giving that much volume to a patient may result in pulmonary edema and worsen their outcomes / cause harm, so we have been following that closely. And while it is true that ~8% of patients do experience pulmonary edema, their outcomes seem to negate the concern for harm. As shown in Figure 9, their outcomes are as good as those patients who receive >1,500cc of saline or more!

![Figure 9: NYC Project Hypothermia Phase II Results including patients who experience pulmonary edema](image)

In addition to this outcomes benefit, the infusion of ice-cold saline during the resuscitation is also effective at reducing core body temperature to the desired range. Using an esophageal temperature probe connected to their ALS monitor, FDNY paramedics have been monitoring the temperature of these patients. Among a sample of nearly 500 patients, the average core temperature on arrival at the emergency department was 33.4°C, in the middle of the target range (32-34°C) for therapeutic hypothermia.

The question that remains to be answered about this Project is its effects on hospital discharge rates and the neurologic status of those who are discharged, and while that data is not yet available, the initial results from Phase I are encouraging.
A Decade of Change – Part III – CPR Feedback

The last change to take place in this decade focused on improving OOHCA survival was the acquisition of ALS monitors that provide real-time, comprehensive CPR feedback. Although this change applies only to the FDNY (and other who may have purchased the same equipment), its effects are still able to be measured.

We know from the data in other systems that quality CPR is essential to the successful resuscitation of a patient and that a number of parameters specific to the CPR are instrumental to that success: depth of compressions, compression rate, not leaning on the chest between compressions / allowing for complete chest wall recoil, limiting ventilation, and not interrupting compressions unless absolutely necessary. And so in 2011, the FDNY introduced an ALS monitor that provided real-time feedback on all of these things, instructing providers when their CPR could be improved through both visual and audible feedback.

Among other things, Figure 10 provides the ROSC rate for 2011-2012 among OOHCA cases, limited to those cases for which FDNY paramedics were on scene and treated the patient using an ALS monitor that provided CPR feedback / instruction (now at an impressive 51.2%!). But what it also does is give some perspective to what you have accomplished over the past decade.

![Figure 10: ROSC rates for bystander-witnessed OOHCA cases of a cardiac nature in NYC, 1990-2012](image)

Just a decade ago, barely one in every five resuscitations in NYC resulted in ROSC. Now, just ten years later, the changes in care that you implemented and carried out have resulted in a system in which more than half
of your patients achieve ROSC and are, in doing so, given a second chance at life. By taking advantage of the existing science and incorporating it into the care that you provide, you are saving more lives in this system than ever before. And for that, you are to be commended.

Conclusion

Not every change that is made to a system will result in the desired effect. There have been changes along the way that, based upon our data and your willingness to provide it, have been found to be ineffective or even harmful. Those were immediately removed from the system, and those that had been shown to make a positive difference were maintained. The end result of all of this is that you have raised the bar to an entirely new level – one, in fact, that many people in other parts of the country thought was not possible. Once a city with one of the worst OOHCA outcomes, NYC is now viewed as a leader in resuscitation medicine because of the care that you provide. And that’s something that you should all be proud of and remember the next time you lay your hands on a patient and begin to provide them with truly life-saving care.

Written by: John Freese, M.D.
Director of Quality Assurance and Prehospital Research
Fire Department of New York

1. Which of the following is true regarding cardiac arrest data when comparing two time periods or two cities?
   a. Comparisons cannot be made because everyone reports the data differently.
   b. The Lombardi Template provides a standard data set for New York City.
   c. An international template (Utstein) allows for comparisons in and among cities.
   d. Comparison of “apples to apples” is not possible.
   e. Comparisons are unfair because Seattle reports their data different from everyone else.
2. In 1994, out-of-hospital cardiac arrest outcomes in New York became known because of:
   a. The work of Dr. Gary Lombardi and the PHASE study group.
   b. The graduation of the first paramedic class.
   c. Publication of the results of the PHENYCS study.
   d. Required reporting of cardiac arrest survival data to the REMAC.
   e. Federal regulations governing the development of the NEMSIS data set.

3. Which of the following is **false** regarding the initiation of therapeutic hypothermia during a resuscitation through the infusion of large-volume, ice-cold saline?
   a. Neurologic outcome may be improved through earlier reduction in temperature.
   b. Patients may experience pulmonary edema leading to dramatically worse outcomes.
   c. Core body temperature, on average, is within the goal range for therapeutic hypothermia upon arrival at the hospital.
   d. Return of spontaneous circulation is improved.
   e. All of the answers shown here are correct.

4. Which of the following was **not** among the changes or technologies introduced between 2003 and 2007 that resulted in improvements in out-of-hospital cardiac arrest outcomes:
   a. Impedance threshold device
   b. Compressions-only CPR pre-arrival instructions provided by dispatchers
   c. Focus on BLS aspects of CPR
   d. Use of vasopressin prior to epinephrine by ALS providers
   e. CFR and EMS Officer presence at the scene of resuscitations

5. Return of spontaneous circulation is defined as:
   a. Presence of a pulse at any time during a resuscitation
   b. Presence of a pulse for more than 30 seconds at any time during a resuscitation
   c. Presence of a pulse upon hospital arrival
   d. Presence of spontaneous respirations and a pulse at any time during a resuscitation
   e. A patient who leaves the hospital alive

6. In the 1990s, the likelihood that a resuscitation would result in return of spontaneous circulation (ROSC) was:
   a. Just above one out of every four
   b. Just above one out of every three
   c. Just below one out of every five
   d. Unknown
   e. Just above two out of every three
7. Which of the following was the most recent change (implemented in some parts of the New York City 9-1-1 System) that resulted in a significant improvement in return of spontaneous circulation rates?
   a. Merger of NYC EMS and the FDNY
   b. CPR feedback devices
   c. Post-resuscitation therapeutic hypothermia
   d. EMS Officers being assigned to cardiac arrest calls
   e. Allowing for the use of adult AEDs in treating pediatric patients

8. The goal of therapeutic hypothermia when used as part of the post-resuscitation care of a patient is to:
   a. Improve neurologic outcome upon hospital discharge
   b. Improve cardiac function in the days following the resuscitation
   c. Improve kidney function in the days following the resuscitation
   d. Make the patient’s core temperature close to the usual temperature of a hospital room
   e. Preserve the patient’s organs in the event of brain death

9. Which of the following was a result of the merger of NYC EMS and the FDNY, as described in the PHENYCS study:
   a. Improved response time to medical emergencies, including cardiac arrest
   b. Change in cardiac arrest response time from 4.7 minutes (pre-merger) to 9.3 minutes (post-merger)
   c. Reduction in the number of AEDs available to respond to a cardiac arrest
   d. Significant improvement in the rates of bystander CPR
   e. Increase in the number of patients found to be in shockable rhythms

10. Which of the following is not true today regarding out-of-hospital resuscitation care in New York City?
    a. Patients with a witnessed arrest of a cardiac nature are more than 50% likely to achieve ROSC.
    b. Survival among patients admitted to the hospital has been improved through the use of therapeutic hypothermia.
    c. Approximately two out of every three patients who survive and are discharged from the hospital are neurologically intact.
    d. The use of intra-arrest hypothermia through the infusion of large-volume, ice-cold saline has improved ROSC rates.
    e. The increasing number of patients found in shockable rhythms is responsible for all of the improvements seen over the past decade.
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

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<tr>
<th>April 2013</th>
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<td>8.</td>
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<td>9.</td>
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<td>10.</td>
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</tbody>
</table>
## Citywide CME - April 2013

*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>
<th>Host</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK</td>
<td>Kingsbrook</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>ED Conference Room</td>
<td>Dr Hew</td>
<td>Manny Delgado 718-363-6644</td>
</tr>
<tr>
<td></td>
<td>LICH</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>Avram Conference Rooms</td>
<td>Dr Brandler</td>
<td>Aaron Scharf 718-780-1859</td>
</tr>
<tr>
<td></td>
<td>Lutheran</td>
<td>4th Wed</td>
<td>1730-1930</td>
<td>Call Review RSVP →</td>
<td>Call for location →</td>
<td>Dr Chitnis</td>
<td>Dale Garcia 718-630-7230 <a href="mailto:dgarcia@lmcmc.com">dgarcia@lmcmc.com</a></td>
</tr>
<tr>
<td>MN</td>
<td>NY Presbyterian</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>Weill Cornell Campus TBA</td>
<td>Dr Williams</td>
<td>RSVP: <a href="mailto:ssamuels@nyp.org">ssamuels@nyp.org</a> Ana Doulis 212-746-0885 x2</td>
</tr>
<tr>
<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 30 Street</td>
<td>TBA</td>
<td>Jessica Kovac 212-263-3293</td>
</tr>
<tr>
<td>QN</td>
<td>Elmhurst Hosp</td>
<td>1st Wed</td>
<td>1300-1400</td>
<td>Call Review: Trauma Rounds</td>
<td>A1-22 Auditorium</td>
<td>TBA</td>
<td>Anju Galer, RN 718-334-5724 <a href="mailto:galera@nychhc.org">galera@nychhc.org</a></td>
</tr>
<tr>
<td></td>
<td>Mt Sinai Qns</td>
<td>last Tues</td>
<td>1800-2100</td>
<td>Lecture or Call Review</td>
<td>25-10 30 Ave, conf room</td>
<td>Dr Dean</td>
<td>Donna Smith-Jordan 718-267-4390</td>
</tr>
<tr>
<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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<tr>
<td></td>
<td>Queens Hosp</td>
<td>2nd Thurs</td>
<td>1615-1815</td>
<td>Call Review</td>
<td>Emergency Dept</td>
<td>TBA</td>
<td>718-883-3070</td>
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<tr>
<td></td>
<td></td>
<td>4th Thurs</td>
<td>1830-2030</td>
<td>TBA: call to inquire →</td>
<td>Board Room</td>
<td>TBA</td>
<td>Judith Brown 718-869-7223 <a href="mailto:jbrown@ehs.org">jbrown@ehs.org</a></td>
</tr>
<tr>
<td>SI</td>
<td>RUMC</td>
<td>TBA</td>
<td>1400</td>
<td>TBA: call to inquire →</td>
<td>MLB conf room</td>
<td>TBA</td>
<td>William Amaniera 718-818-1364</td>
</tr>
<tr>
<td></td>
<td>SIUH North</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>Regina McGinn Center 475 Seaview Ave</td>
<td>TBA</td>
<td>Andrea Kleboe 718-226-7878</td>
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<tr>
<td></td>
<td>SIUH South</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA: call to inquire →</td>
<td>346 Seguine Ave</td>
<td>Dr Barbara</td>
<td><a href="mailto:pbarbara.md@gmail.com">pbarbara.md@gmail.com</a> 917-903-7475</td>
</tr>
</tbody>
</table>
## 2013 NYC REMAC Examination Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Registration Deadline</th>
<th>Refresher exams</th>
<th>Basic exams</th>
<th>NYS/DOH Written Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Written exam only</td>
<td>Written &amp; Scenario exams</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CME letter required</td>
<td>Sundays 09:30-16:00</td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>1/1/13</td>
<td>1/16 @10:00</td>
<td>1/27 @10:00</td>
<td>1/17/13</td>
</tr>
<tr>
<td>February</td>
<td>2/1/13</td>
<td>2/14 @18:00</td>
<td>2/21 @18:00</td>
<td>---</td>
</tr>
<tr>
<td>March</td>
<td>3/1/13</td>
<td>3/19 @18:00</td>
<td>3/24 @18:00</td>
<td>3/24/13</td>
</tr>
<tr>
<td>April</td>
<td>4/1/13</td>
<td>4/14 @10:00</td>
<td>4/25 @18:00</td>
<td>4/14/13</td>
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<tr>
<td>May</td>
<td>5/1/13</td>
<td>5/15 @18:00</td>
<td>5/22 @18:00</td>
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<tr>
<td>June</td>
<td>6/1/13</td>
<td>6/16 @10:00</td>
<td>6/19 @18:00</td>
<td>6/16/13</td>
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<tr>
<td>July</td>
<td>7/1/13</td>
<td>7/21 @10:00</td>
<td>7/24 @18:00</td>
<td>7/21/13</td>
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<tr>
<td>August</td>
<td>8/1/13</td>
<td>8/16 @10:00</td>
<td>8/21 @18:00</td>
<td>8/18/13</td>
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<tr>
<td>September</td>
<td>9/1/13</td>
<td>9/12 @18:00</td>
<td>9/18 @18:00</td>
<td>9/15/13</td>
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<tr>
<td>October</td>
<td>10/1/13</td>
<td>10/17 @18:00</td>
<td>10/23 @18:00</td>
<td>10/20/13</td>
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<tr>
<td>November</td>
<td>11/1/13</td>
<td>11/14 @18:00</td>
<td>11/20 @18:00</td>
<td>11/17/13</td>
</tr>
<tr>
<td>December</td>
<td>12/1/13</td>
<td>12/15 @10:00</td>
<td>12/19 @18:00</td>
<td>12/15/13</td>
</tr>
</tbody>
</table>

The **REMAC Refresher Written examination** is offered for paramedics who meet CME requirements and whose REMAC certifications are either current or expired less than 30 days. To enroll, go to the REGISTER link under “News & Announcements” at nycremsco.org before the registration deadline above. Candidates may attend an exam no more than 6 months prior to expiration.

The **REMAC Basic Written & Scenario examination** is for initial certification, or for inadequate CME, or for certifications expired more than 30 days. Seating is limited and registrations must be postmarked by the deadline above. A $100 exam fee by money order is required. Email swansoc@fdny.nyc.gov for instructions.