**On May 1, 2014 REMAC Protocol revisions take effect – see below**

**From the Editor**

**On May 1, 2014 REMAC Protocol revisions take effect**

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

Beginning May 1, 2014, protocols revisions are in effect in the field and on REMAC certification exams (See page 2 for outline of changes)

Always see nycremsco.org for the current approved protocols

**Online Registration for REMAC Refresher Exam**

Go to http://www.planetReg.com/E91194150131422

or www.nycremsco.org & click the REGISTER link under “News & Announcements”

See the last page of this journal for details

**Mandatory REMAC Card 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.

For inquires on cards call NYC REMSCO at 212-870-2301
Outline of May 2014 NYC REMAC protocol changes
see REMAC Advisories 2014-01 & 2014-02 at nycremsco.org

General Operating Procedures

- Medical Control at the Scene
  - deletes AED note
  - clarifies non-solicited intervention
- Prehospital Sedation
  - increases Etomidate dose
  - adds \textit{O}_2 via nasal cannula
- Transport Procedures
  - deletes stroke center distance
  - deletes LBBB to PCI facility
  - adds LVAD as specialty care
- CPR
  - adds medical criteria
  - clarifies CPR for pediatrics
- Pediatric Patients
  - clarifies age of patients
- IO Administration
  - adds shock indication
  - limits attempts
  - adds Lidocaine
- IN Administration
  - adds Glucagon & Fentanyl
- Drug Guidelines
  - adds Ondansetron caution
- Pediatric Protocols
  - adds Broselow tape

BLS Protocols

- 400 – WMD
  - updates table
- 411 – AMS, 413 – Seizures, 415 – Shock
  - removes note on immobilization
- 414 – Poison/Drug Overdose
  - removes obtaining sample
  - updates venomous bite
- 426 – Soft Tissue Injuries
  - adds tourniquet

ALS Protocols

- 503A, 503-B – Cardiac Arrests
  - changes vasopressin to if available
- 507, 554 – Adult & Pediatric Asthma
  - clarifies MCO epinephrine
- 510 – Allergic/Anaphylactic Reaction
  - changes name of protocol
- 515-B – Septic Shock
  - new protocol

Appendices

- Appendix H – Specialty Care
  - updates specialties
- Appendix I – Hospital Listings
  - adds available services
- Appendix U – Septic Shock
  - new appendix
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
35% Adult Med. Emerg.
10% BLS
10% Adult Arrest
10% Adult Trauma
15% Pediatrics

Certification & CME Information

- 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 # 2007-11:
  - 36 hours - Physician Directed Call Review
    - ACR Review
    - QA/I Session
    - Emergency Department Teaching Rounds - Maximum of 18 hours
  - 36 hours - Alternative Source CME - Maximum of 12 hours per venue
    - Online CME (see examples below) - 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, by the first day of the month of your exam go to http://www.planetReg.com/E91194150131422 or www.nycremsco.org & click the REGISTER link under “News & Announcements.”

REMAC Basic Written and Scenario examinations are held monthly. Registration is limited to the first 25 applicants with a postmarked deadline of the first day of the month. 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 Christopher.Swanson@fdny.nyc.gov

REMSCO: www.NYCREMSCO.org
www.MedicEd.com www.EMINET.com
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<td>Citywide ALS</td>
<td>718-999-1738</td>
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<td>Lt. Evan Suchecki</td>
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<td>212-964-4518</td>
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<td>Kornelia Haynes</td>
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<td>EMS Fellowship &amp; Rescue Medic Director</td>
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<tr>
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<td>718-968-9750</td>
<td>Dr. Bradley Kaufman</td>
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PART I – HYPERTENSION

Hypertension is a major cause of heart disease, stroke and kidney disease in America today. About half of patients who suffer myocardial infarction and two-thirds who suffer a stroke have hypertension. About one in four adults has hypertension, but only about one-third of those are aware that their blood pressure is high. In fact, hypertension usually doesn’t have any warning signs and has been called "the silent killer." Among the major risk factors are:

- Age (over 35)
- Excessive weight
- Physical inactivity
- Family history of hypertension
- Diabetes, gout and kidney diseases
- Excessive salt intake
- Excessive alcohol intake
- Pregnancy, and
- Race - African-Americans are at higher risk than Caucasians

When performing a physical exam, we typically start by assessing the patient’s vital signs including blood pressure (BP). Everybody’s BP should fluctuate throughout the day. It goes up and down depending on the person’s emotional level, hydration status, medications (e.g., caffeine), and countless other factors. These fluctuations are normal. In the field of emergency medicine, we are typically most concerned when our patients’ BPs are too low, as rapid intervention is often required. In reality, we know that most of our patients will actually have an elevated BP when we do our measurement. This elevation may be part of the patient’s normal fluctuations or may actually be attributable to the fact that you are there, which almost always causes an adrenergic response in patients (fight or flight response). A third possibility is a phenomenon referred to as “white coat hypertension.” It occurs only when the patient’s blood pressure is measured in a health care setting. While it has been attributed to the stress of the medical encounter, some doctors believe that it might indicate a patient at risk of developing hypertension. Rarely is an acute elevation in blood pressure a cause for concern (more on this below). On the other hand, chronically elevated blood pressure is indeed a risk factor for many medical problems, including kidney disease, coronary artery disease (CAD) and strokes.

The most commonly referenced treatment guidelines for management of elevated BP are from the Joint National Committee on Prevention, Detection, and Treatment of High Blood Pressure (typically known as the JNC). A few weeks ago, the 8th JNC released long awaited updated hypertension guidelines (7th JNC guidelines released
back in 2003). The new guidelines emphasize control of systolic blood pressure (SBP) and diastolic blood pressure (DBP) with age- and disease-specific comorbidity treatment cutoffs. These new guidelines have generated a lot of discussion, particularly the recommendation for target BP and treatment-initiation thresholds in elderly patients and in patients under age 60 with diabetes and kidney disease, which are now more lenient compared to the JNC 7 recommendations. Among the JNC 8 recommendations:

- In patients 60 years or over, the goal is to maintain the BP at less than 150 mm Hg systolic and less than 90 mm Hg diastolic.
- In patients less than 60 years, the goal is less than 140/90 mmHg
- In patients 60 years of age or older who have diabetes or chronic kidney disease, the goal is less than 140/90 mmHg.

While you may have seen the new recommendations, or read some of the news headlines they have generated, they are NOT particularly relevant to emergency care and acute BP elevations that are measured by EMS providers. Rather, they are long term BP goals for patients and physicians. Regardless, we know that patients are often concerned by acute elevations, and in many cases, seeing an elevated reading on a home BP monitor was the sole reason they called for an ambulance. So while JNC 8 guidelines are not pertinent to your practice, you should be aware of them because, undoubtedly, they will lead to EMS responses and subsequent opportunities for us to explain to patients the reason that we are not concerned by a spurious BP elevation.

Now that I have said that asymptomatic BP elevations are rarely of acute medical concern, we should review the rare hypertensive emergencies that do require emergent treatment and BP lowering. Damage of organs fed by the circulatory system due to uncontrolled hypertension is called end-organ damage. The longer you have hypertension, the greater your chances of developing end-organ damage. It can lead to an enlarged heart, kidney failure, brain or neurological damage, and changes in the retina at the back of the eyes. Below is an excerpt from an article about uncontrolled blood pressure that was published on the Medscape website that addresses the treatment of these serious complications to uncontrolled hypertension.

Written by: Bradley Kaufman, MD, MPH
Medical Director, FDNY Bureau of Training

CONTINUES NEXT PAGE
PART II – HYPERTENSIVE EMERGENCIES

Hypertension emergencies encompass a spectrum of clinical presentations in which uncontrolled blood pressures (BPs) lead to progressive or impending end-organ dysfunction (EOD). In these conditions, the BP should be lowered aggressively over minutes to hours.

Neurologic end-organ damage due to uncontrolled BP may include hypertensive encephalopathy, cerebral vascular accident/cerebral infarction; subarachnoid hemorrhage, and/or intracranial hemorrhage. Cardiovascular end-organ damage may include myocardial ischemia/infarction, acute left ventricular dysfunction, acute pulmonary edema, and/or aortic dissection. Other organ systems may also be affected by uncontrolled hypertension, which may lead to acute renal failure/insufficiency, retinopathy, eclampsia, or microangiopathic hemolytic anemia.

With the advent of antihypertensives, the incidence of hypertensive emergencies has declined from 7% to approximately 1% of patients with hypertension. In addition, the one-year survival rate associated with this condition has increased from only 20% (prior to 1950) to a survival rate of more than 90% with appropriate medical treatment.

History and physical examination

The history and the physical examination determine the nature, severity, and management of the hypertensive event. The history should focus on the presence of end-organ dysfunction, the circumstances surrounding the hypertension, and any identifiable etiology.

The most common clinical presentations of hypertensive emergencies are cerebral infarction (24.5%), pulmonary edema (22.5%), hypertensive encephalopathy (16.3%), and congestive heart failure (12%). Other clinical presentations associated with hypertensive emergencies include intracranial hemorrhage, aortic dissection, and eclampsia, as well as acute myocardial infarction.

The duration and severity of the patient’s preexisting hypertension (including the degree of BP control) should be evaluated, as well as the patient's medication history. Details of antihypertensive drug therapy and compliance, intake of over-the-counter (OTC) preparations such as sympathomimetic agents [mostly cold and weight loss products], and use of illicit drugs such as cocaine are important elements of the medication history. In addition, it is important to elicit information about the presence of previous end-organ dysfunction, particularly renal and cerebrovascular disease, and any other medical problems (e.g., thyroid disease, Cushing disease, systemic lupus). In female patients, determine the date of their last menstrual period.
Patients may complain of specific symptoms that suggest end-organ dysfunction may be present. Chest pain may indicate myocardial ischemia or infarction, back pain may denote aortic dissection; and dyspnea may suggest pulmonary edema or congestive heart failure. The presence of neurologic symptoms may include seizures, visual disturbances, and altered level of consciousness and may be indicative of hypertensive encephalopathy.

The physical examination should assess whether end-organ dysfunction is present. BP should not only be measured in both the supine position and the standing position (assess volume depletion), but it should also be measured in both arms (a significant difference may suggest aortic dissection). The presence of new retinal hemorrhages, exudates, or papilledema suggests a hypertensive emergency. Evaluate for the presence of heart failure, which may be indicated by jugular venous distention, crackles on auscultation, and peripheral edema. Central nervous system (CNS) findings may include changes in the patient's level of consciousness and visual fields, and/or the presence of focal neurologic signs. Abdominal masses or bruits [audible vascular sounds associated with turbulent blood flow] may be noted.

**Malignant hypertension**

Malignant hypertension and accelerated hypertension are both hypertensive emergencies, with similar outcomes and therapies. Malignant hypertension may or may not be associated with clinical conditions present in hypertensive urgency. A patient with malignant hypertension always has retinal papilledema (as seen in the image below), as well as flame-shaped hemorrhages and exudates. Other clinical features of malignant hypertension may include encephalopathy, confusion, left ventricular failure, intravascular coagulation, and impaired renal function, with hematuria and weight loss.

The pathologic hallmark of malignant hypertension is fibrinoid necrosis of the arterioles, which occurs systemically, but specifically in the kidneys. These patients develop fatal complications if untreated, and more than 90% will not survive beyond 1-2 years.

![Papilledema seen on ophthalmoscope exam. Note the swelling of the optic disc, with blurred margins.](image-url)
Management of Hypertensive Emergencies

Up to 45% of adult patients have at least one incident of increased BP during their stay in the emergency department (ED). The fundamental principle in determining the necessary ED care of the hypertensive patient is the presence or absence of end-organ dysfunction. Many patients present to the ED with elevated BPs; however, only a small proportion of patients will require emergency treatment. An important point to remember in the management of the patient with any degree of BP elevation is to "treat the patient and not the number."

The primary goal is to determine which patients with acute hypertension are exhibiting symptoms of end-organ damage and require immediate intravenous (IV) parenteral therapy. In contrast, patients presenting with acutely elevated BP (systolic BP [SBP] >200 mm Hg or diastolic BP [DBP] >120 mm Hg) without symptoms and whose BP stays significantly elevated to this level on discharge should have initiation of medical therapy and close follow-up in the outpatient setting.

Thus, optimal control of hypertensive situations balances the benefits of immediate decreases in BP against the risk of a significant decrease in target organ perfusion. The EMTs, medics, and emergency physicians must be capable of appropriately evaluating patients with an elevated BP, correctly classifying the hypertension, determining the aggressiveness and timing of therapeutic interventions, and making disposition decisions.

Acutely lowering BP in the ED for clinical situations other than those listed below is controversial and generally should be avoided.

**Neurologic emergencies**

Rapid BP reduction is indicated in neurologic emergencies, such as hypertensive encephalopathy, acute ischemic stroke, acute intracerebral hemorrhage, and subarachnoid hemorrhage.

In hypertensive encephalopathy, the treatment guidelines are to reduce the mean arterial pressure (MAP) by 25% over 8 hours [MAP is defined as the average arterial blood pressure during a single cardiac cycle. The reason that it is so important is that it reflects the hemodynamic perfusion pressure of the vital organs. MAP = [(2 x diastolic) + systolic] divided by 3. A MAP of at least 60 is necessary to perfuse the coronary arteries, brain, and kidneys. The normal range is around 70 – 110 mmHg.]

**Cardiovascular emergencies**

Rapid BP reduction is also indicated in cardiovascular emergencies, such as aortic dissection, acute coronary syndrome, and acute heart failure.
**Cocaine toxicity/pheochromocytoma**

Hypertension and tachycardia from cocaine toxicity rarely require specific treatment. [Unless presenting with symptoms of acute coronary syndrome or stroke.]

**Preeclampsia/eclampsia**

In women with eclampsia or preeclampsia, the SBP should be < 160 mm Hg and the DBP should be < 110 mm Hg in the antepartum and intrapartum periods. Patients with eclampsia or preeclampsia should also be treated with IV magnesium sulfate to avoid seizures.

**Summary**

As discussed, EMTs and paramedics have little ability to treat acute or chronic hypertension in the prehospital setting. So, as a prehospital care provider, you may be thinking, “How does this affect my care of the patient?” The answer is two-fold. First, while hypertension alone may not cause symptoms, there are a multitude of comorbid ailments (some of which are listed above) that can be life-threatening. This is why hypertension is colloquially known as “the Silent Killer.” The second reason is that the patient’s care doesn’t end after we go available. Hypertension is a long-term illness that often requires repeated follow-up visits, and it is important for EMS personnel to understand how the disease is managed after the patient leaves our care. Just as you can use the “teachable moment” to remind an MVA patient of the need to always wear a seatbelt, you can gently encourage a patient with elevated BP to stay on top of their medication, eat well and exercise to avoid future health emergencies. You can also help to dispel a great deal of anxiety (which, in turn, can lead to more hypertension) by telling the patient what to expect when they get to the ED. Our care isn’t just about treating the symptoms we can see; it’s part of a comprehensive network of short- and long-term care for the New York community that is becoming more and more individualized to the needs of patients.

**Written by:** Christy Hopkins, MD, MPH  
Associate Professor, Department of Surgery, University of Utah School of Medicine  
Medical Director, Division of Emergency Medicine, University Health Care

**Source:** Hopkins, Christy MD “Hypertensive Emergencies” Medscape WebMD LLC 2 Apr. 2013
All questions for all providers

1. Hypertensive emergencies occur when elevated BP leads to:
   a. Medication failure
   b. Headache
   c. Increased visits to the doctor
   d. End-organ dysfunction

2. The most common presentation of hypertensive emergencies is:
   a. Cerebral infarction (CVA)
   b. Pulmonary edema
   c. Hypertensive encephalopathy
   d. Congestive heart failure (CHF)

3. Which recreational drug is most associated with hypertensive emergencies?
   a. ecstasy
   b. cocaine
   c. marijuana
   d. LSD

4. Heart failure may be suggested by the presence of:
   a. Altered mental status
   b. Visual disturbances
   c. Jugular venous distention (JVD)
   d. Inability to be sympathetic

5. Only a small proportion of patients with elevated BP will require emergency treatment.
   a. True
   b. False
6. For hypertensive encephalopathy, the goal is to reduce the mean arterial pressure (MAP) by 25% over how long?
   a. 30 minutes
   b. 1 hour
   c. 8 hours
   d. 24 hours

7. The JNC 8 recommends that treatment be started for patients 60 years or over who have a systolic BP of:
   a. >90 mm Hg
   b. <90 mm Hg
   c. >150 mm Hg
   d. <150 mm Hg

8. In women with preeclampsia, the diastolic BP should be kept below:
   a. 80 mm Hg
   b. 90 mm Hg
   c. 100 mm Hg
   d. 110 mm Hg

9. Patients should call for an ambulance when their home monitor reports a systolic BP of 180 mm Hg, even if they are otherwise asymptomatic?
   a. True
   b. False

10. Chronically elevated BP, while often not an emergent concern, is important for EMS providers to ascertain since it can be a risk factor for other critical conditions?
    a. True
    b. False
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 March 2014

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**February – March 2014 CME Quiz**

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# Citywide CME - December 2013 - January 2014

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

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<td>ED Conference Room</td>
<td>Dr Hew</td>
<td>Manny Delgado 718-363-6644</td>
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<td>Dr Brandler</td>
<td>Aaron Scharf 718-780-1859</td>
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<td>4&lt;sup&gt;th&lt;/sup&gt; Wed</td>
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<td>Dr Chitnis</td>
<td>Dale Garcia 718-630-7230 <a href="mailto:dgarcia@lmcmc.com">dgarcia@lmcmc.com</a></td>
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<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>
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<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>
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<td>Elmhurst Hosp</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; 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>
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<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>
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<td>East bldg, courtyard flr</td>
<td>Dr Sample</td>
<td>Mary Ellen Zimmermann RN 718-670-2929</td>
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<td>Call Review</td>
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<td>Judith Brown 718-869-7223 <a href="mailto:jbrown@ehs.org">jbrown@ehs.org</a></td>
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<td>MLB conf room</td>
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<td>William Amaniera 718-818-1364</td>
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<td>SIUH North</td>
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<td>Regina McGinn Center 475 Seaview Ave</td>
<td>TBA</td>
<td>Andrea Kleboe 718-226-7878  <a href="mailto:pbarbara.md@gmail.com">pbarbara.md@gmail.com</a></td>
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<td>SIUH South</td>
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<td>346 Seguine Ave</td>
<td>Dr Barbara</td>
<td>917-903-7475</td>
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<td>Month</td>
<td>Registration Deadline</td>
<td>Refresher exams*</td>
<td>Basic exams**</td>
<td>NYS/DOH Written Exam***</td>
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* 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.

** REMAC Basic Written & Scenario examination is for initial certification, or inadequate CME, or certifications expired more than 30 days. Seating is limited. Registrations must be postmarked by the deadline above. Exam fee is $100 by money order. Email Christopher.Swanson@fdny.nyc.gov for instructions.

*** NYS/DOH exam dates are listed for information purposes only. Scheduling is through your paramedic program or contact NYS DOH for more information.