From The Desk of the Medical Director
James Mitchell, MD

A Newsletter by and for the Employees of Charles County Emergency Medical Services

James Mitchell, MD, Medical Director, ©703-231-4425
Kristian Larsen, PA, Assistant to the Medical Director, ©301 -642-6764

On 12/6/07 there was a call in Charles County for a patient that had a previous C-2 fx and was in a Halo Brace. This patient had slipped on the ice and was complaining of severe neck pain. The EMS crew was having a difficulty arranging a receiving hospital.

A three way consult obtained through SYSCOM (PG, SMH and FWH) and the patient was accepted by PG Trauma. These types of patients require Neurosurgery care and this is usually available at trauma centers. So if possible and patient is not a priority one please consider transporting these types of patients to a trauma center by air or ground. Thanks. Merry Christmas and Happy New Year.

Kris Larsen, PA-C

A MESSAGE FROM THE OFFICE OF THE CHIEF
BY CHIEF FILER

Have a safe and happy holiday!

I just wanted to take this time to wish you and all of your families a very safe and happy holiday season. Remember the reason for the season, take time out to be thankful this busy time of year, drop a dollar in the charity bucket, hug your neighbor, cherish your loved ones and don't forget about your fur kids. I thank you for all you do and I thank your families for allowing you to be a part of us.

Holiday Tip: Stay warm with a new set of Department fleece ear muffs or wool beanie and remember, a Nintendo wii is worth no more before Christmas then it is after.

VOLUME 1, ISSUE 4
DECEMBER 2007

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HAPPY BIRTHDAY!
-To everyone with a December birthday or anniversary, happy day!
Mass Casualty 16 Placed In Service

As of 11-26-2007, CCES placed “Mass Casualty 16” in service. The unit will be available both to the county and for mutual aid.

TRT will be dispatched when MC 16 is utilized as they are trained to tow it and to set it up. A duty supervisor will accompany it as they are trained in advanced ICS, MCI protocol and MC 16 set up.

Many of you saw MC 16 set up and in use at the recent “Pan Flu” drill.

MC 16 carries temporary sheltering capabilities in the form of 3 climate controlled tents (10 non-ambulatory patients on litters each). It is an NCR Level I MCI Unit capable of treating 100 patients and can treat 40 CBRN/WMD patients.

I SPY

NAME (S)       DATE       EVENT
-Cheryl Rasmussen and Ray Richards       -December 2007 -working outside @ 11’s Christmas tree sale
-Charles (Petey) Hicks and Tom Raley      - 10-04-07 -PI in Mechanicsville with thank you letter from patient (see p. 13)
-Ginger Barnes and B. Baur       - 12-08-07 -Childbirth
- Pat Moore and Rob Steinen       - 11-07 -“Out of the box” thinking on leg FX (see p. 13)

See I Spy page 13
I have had several people ask me recently, “why do the flight medics on the helicopter get upset when we give them a patient with a saline lock?” Although I promised myself that I would not mix MSP with Charles County when it came to writing this column, the question itself seemed to expose a lack of understanding of the protocol and the equipment being used; and therefore I felt it was important to address this question.

Everywhere in the “Treatment” section of the protocols that addresses the initiation of an IV, it states either “IV/IO LR KVO” or “IV/IO LR 20ml/kg Bolus”. It is only in the “Procedure” section that allows the use of a saline lock, and that section states “Saline locks may be substituted for IV KVO anywhere in the protocol with the understanding that if the patient needs a fluid challenge or medication, the saline lock is converted to an IV of LR”.

Almost every section of the protocol within the “trauma” section, when addressing IV therapy, it states, “IV/IO LR 20 ml/kg bolus”, and since the protocol says that Saline locks may only be substitutes where it says “IV KVO” you could make the argument that the majority of trauma patients should not have a saline lock. Some feel that it is not a big deal because a saline lock can be quickly converted to an IV of LR by simply hanging a bag with the appropriate drip set and attaching it to the lock. Yes, doing this will work; fluid will indeed flow from the bag to the patient. But is this really an efficient way of administering fluid in a bolus situation?

Not being one to blindly follow protocols simply because it says to do something, I feel better knowing exactly what and why it is I am actually doing it. The definition of giving a Bolus or performing a fluid challenge is to give a large quantity of a substance all at one time. Now granted, if we have an 80kg patient - we do not have a 1600 ml syringe that can administer the bolus all at one time, but it should be our goal to give it all in as timely of a manner as possible. So the question is; can you give a bolus through the extension sets we use for our saline locks in a timely manner?

After putting on my “Mr. Wizard” hat, I went out in search of the various fluid administration devices we have in stock. Below is a picture of two of the most common locks or extension sets we use:

The larger lock on the left has tubing that is similar in size to the drip sets that we carry, and the tubing of the lock on the right has a much smaller diameter.

The common drip sets we carry that should be used for trauma patients are the 10 drop set and the 15 drop set. The question is how fast can you flow fluids into a patient through these possible combinations of sets if a fluid challenge was needed?

Having an entire box of expired LR and some drip sets, and a little time on my hands, I decided to find out if trying to flow fluid through the saline lock would increase the time it took to perform a fluid challenge? I hooked up various combinations that we have the possibility of assembling in the field and measured the time it took to gravity flow a bag of LR through the set. The following table shows the results:
As you can see, adding the extension set indeed adds time to the administration of the fluid, and in the case of the smaller extension set, it added a significant amount of time.

In turn, MSP uses a Blood Set delivery system to administer fluids to the trauma patient; pictured below:

As you can see it has large tubing, no in-line filters, no valves, and is approximately 3 feet shorter then the normal 10 or 15 drop sets. Length is significant as the longer a tube is, the more friction or resistance to flow there is. The time to gravity empty a bag of LR through this device is 2 minutes 53 seconds, much faster then anything we carry. So you can see why they would not want to hook this up to a saline lock.

You may now be asking why does it matter what the size of the administration set is when we are ultimately running it through an IV catheter that is much smaller. With this question in mind, I performed another experiment. I set up a race between two scenarios; our 15 drop set flowing through the small extension set, and the MSP blood set only. I ran each set-up through an 18g, 16g, and 14g IV catheter consecutively. The results are in the following table listed in Min/Sec.:

<table>
<thead>
<tr>
<th>Admin set combination</th>
<th>Time to empty in Min/Sec</th>
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<tbody>
<tr>
<td>10 drop set</td>
<td>6:47</td>
</tr>
<tr>
<td>15 drop set</td>
<td>7:38</td>
</tr>
<tr>
<td>10 drop set w/ Lg ext. set</td>
<td>8:52</td>
</tr>
<tr>
<td>10 drop set w/ Sm ext. set</td>
<td>15:22</td>
</tr>
</tbody>
</table>

As you can see, adding the extension set indeed adds time to the administration of the fluid, and in the case of the smaller extension set, it added a significant amount of time.

In conclusion, if you have a trauma patient no matter what category you are flying them for, scientific based medicine suggests that they need to be in a trauma center. This is because studies have shown they either have an existing injury, or have a strong possibility of having an injury that may at some time cause a patient to decompensate; often requiring a fluid challenge. Given the above information, what setup would you want to give a fluid challenge through if

<table>
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<tr>
<th>Catheter Size</th>
<th>Admin Set</th>
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<td></td>
<td>15 drop set w/ Sm Ext.</td>
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<tr>
<td>18g</td>
<td>21:45</td>
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<tr>
<td>16g</td>
<td>18:27</td>
</tr>
<tr>
<td>14g</td>
<td>17:58</td>
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</tbody>
</table>

As you look at the results it is obvious that the blood set alone is much faster and the catheter size does not nullify its effect. You should also notice that there is a significant time difference between an 18g and the 16g, which should tell you that an 18g or smaller may not be the best choice for a trauma patient. What else is interesting is that in the case of the 15 drop / small extension set, there wasn’t a significant improvement between the 16g and 14g catheter which may indicate that the administration set is now the limiting factor, and a further indication that an extension set for the trauma patient is not a good choice.

In conclusion, if you have a trauma patient no matter what category you are flying them for, scientific based medicine suggests that they need to be in a trauma center. This is because studies have shown they either have an existing injury, or have a strong possibility of having an injury that may at some time cause a patient to decompensate; often requiring a fluid challenge. Given the above information, what setup would you want to give a fluid challenge through if

See New Dog, continued on page 5
Jordyn Abigail
Welcome Jordyn, born to Lt. Shymansky and her husband John
11-26-07 @ 0900 hrs
6lbs, 6oz

Dillon James!
Welcome Dillon, born to EMT Erin Bowie and Mike Gordon
12-09-07 @ 2030 hrs
7 lbs, 11 oz

Minahil Minhas!
Welcome Mimi, born to EMT Mark Fields and his wife
10-31-07
7lbs, 9oz, 22 inches long

New Dog, continued from page 4
you had to?

In the event that you end up with I.V. access with an extension set, and you find yourself needing to administer a bolus of fluid, the fix is not difficult to achieve. Your bioclusive should not be covering the extension set. The bioclusive should only be covering the site and up to the distal end of the catheter. Therefore, you can apply pressure, disconnect the extension set, and connect the administration set directly to the catheter. If the flow is not sufficient, re-check patency of the line and try attaching a B/P cuff around the bag of LR and pump it up to 300mmHg. Just remember, as the amount of fluid in the bag decreases so does the pressure. Therefore, you will need to monitor the mmHg of the cuff and increase it accordingly.

Till next time, be safe.

Pete Wild, NREMT-P, AAS-EMS
Having just come through the Thanksgiving Holiday and now headed into the Christmas Holiday period I wanted to take time to again thank each of you for your dedicated service to the citizens of Charles County through your work every day for the Charles County Government.

A few Holiday notes:

This year each Department will hold its own Christmas/Holiday Party and the county will again permit funds collected from the soda/snack machines to be used to help underwrite the cost of these parties.

In addition, earlier in the year the County Commissioners voted to give you an extra holiday (paid day off) this year. Monday, December 24 has been added as an extra Holiday in addition to the traditional day off of December 25. The Commissioners add, “Please enjoy this time with your family and friends during the Holiday season.”

Finally, this year the County Commissioners will be hosting a Holiday Open House in the Main Lobby of the Charles County Government Building on Tuesday, December 11, 2007 from 4:00 – 6:00 PM. We thought this would be a grand opportunity for you and the public to come by after work, enjoy some hot cider/hot chocolate and light refreshments and chat with the Commissioners or some of your fellow co-workers.

Enjoy the Holidays!
Paul W. Comfort, Esq.
Charles County Administrator
A Hostile Workplace is one where people can not do their best work or be their most productive due to conditions in their workplace. That is, the workplace is hostile to their natural humanity. Notice also the results of a hostile workplace are hostility toward the company's productivity, which directly impact profits in a negative way. People who are unhappy, unhealthy or angry do not work hard.

Hostile workplace is the result of suppression of people's natural ability to express themselves. It is the opposite of a workplace that promotes creativity and vitality. Hostile workplaces are deadly to productivity. They are unhealthy - and potentially deadly - to the people who work in them.

Hostility consists of:

- verbal abuse against any person, for whatever reason
- angry interchanges between people over political or territorial boundaries
- one-up-manship and excessive competition
- power plays and challenges issued over imagined threats to a person's authority
- attempts to squash a person's ability to be creative and do their work in a way that is most productive for the individual
- enforcement of ineffective or unreasonable rules for the sole purpose of exerting power over others or to impede progress.

According to Dr. Suzette Elgin, hostility can make you sick or kill you!

A couple of notes:

- multi-dose vials ARE NOT multi patient! Once the cap is off and a needle has broken the rubber stopper, the integrity of the drug cannot be guaranteed. ONE PATIENT ONLY please.

BABIES!

- in light of all of the new babies arriving to our department members, our Chiefs have purchased blankets, bibs and hats in pink or blue. They are available in the Chief’s office. Merry Christmas and congratulations to all of our new parents and parents-to-be! Below are photos of all 3 items, modeled by Isabella Giampetroni, born 4-23-07 and Jordyn Shymanski, born 11-26-07.
VAGAL MANEUVERS (down and dirty)

I. BACKGROUND:

Vagal maneuvers are non-pharmacologic interventions used to terminate and diagnose tachy-dysrhythmias. Vagal maneuvers increase parasympathetic tone and slow conduction through the AV node. The most common method for stimulating the vagus nerve in the Pre-Hospital Emergency Medical setting is the Valsalva’s maneuver. Facial immersion in ice water is also an acceptable alternative for pediatric patients.

II. INDICATIONS:

- Treatment of symptomatic supraventricular tachycardia (decreased level of consciousness, angina, hypotension, congestive heart failure).
- Treatment of tachycardia of unknown etiology (supraventricular vs. ventricular) with hypoperfusion.
- To differentiate supraventricular tachycardia from ventricular tachycardia in the symptomatic/decompensated patient. (Use of vagal maneuvers in this setting shall not delay synchronized cardioversion).

III. COMPLICATIONS & SPECIAL NOTES:

- Dysrhythmias are common after conversion by vagal maneuvers. Treatment is indicated only if persistent (greater than 3-5 minutes). Other potential complications include: Asystole; Stroke from dislodged carotid artery thrombus in persons with atherosclerotic disease; Brain ischemia from occlusion of carotid artery or compromise of marginally perfused areas of the brain. (These make for a very bad day!) It is difficult to differentiate congestive heart failure caused by tachycardia from a tachycardia caused by CHF. The symptoms of a patient with a pulse under 160 are usually not the result of a rate related problem.
- Pediatric patients may respond better to facial immersion in ice water. The diving reflex causes peripheral vasoconstriction and a vagally induced decrease in heart rate.

IV. Now...how do I do that again?

- You don’t...the patient does! Phew!
- Document the dysrhythmia before treating
- Explain the procedure to the patient
  - Instruct the patient to inhale and hold their breath and....
    a. Bear down as if to have a bowel movement, and to hold this position for 20-30 seconds (this is a long time for the patient)
    b. OR...blow forcefully through a straw (or IV catheter/similar device) for as long as possible (at least 20 seconds). YES...this is the patient blowing....not you! You should be breathing regularly!

QUIZ OF THE MONTH:

How long does a CCEMS unit have to “mark up” after dispatch? 

SOG OPS-15
a. Monitor the rhythm continuously

Stop the maneuver if:
a. Patient becomes confused
b. HR drops below 100 BPM
c. Asystole occurs (obviously!)

V.

Now, what should I look for?

<table>
<thead>
<tr>
<th>Tachycardia</th>
<th>Expected Response to Valsalva Maneuver</th>
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<tbody>
<tr>
<td>Sinus Tachycardia</td>
<td>No response or gradual slowing</td>
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<tr>
<td>Paroxysmal Atrial Tachycardia</td>
<td>No response or conversion to sinus rhythm</td>
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<tr>
<td>Atrial Flutter increasing block</td>
<td>Ventricular slowing revealing flutter waves</td>
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<tr>
<td>Atrial Fibrillation</td>
<td>Variable slowing</td>
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<tr>
<td>Ventricular Tachycardia</td>
<td>No response</td>
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</tbody>
</table>

Soooo... what is the purpose of this article?
As you read, Valsalva Maneuvers can have critical side-effects for our patients. Although patients with a history of SVT are often taught to perform this maneuver at home without the presence of medical assistance, EMS providers should take complete precautions before recommending the maneuver for a patient.

Keep it Simple Sam!  Protect yourself and your patient!
Initiate I.V. access and continuous EKG monitoring prior to having a patient perform a Valsalva Maneuver. The continuous EKG will capture the changes in cardiac rhythm and hopefully the beneficial outcome, and the initiation of I.V. access will allow you to intervene in the event the patient experiences a negative outcome. I.V. access after will undoubtedly be more difficult because of the hypotension and hypoperfusion, and precious time will be wasted looking for an I.V. site.
THE PULSE

GALLERY

Photo courtesy Lt. Summers

Photo courtesy Chief Filer

Photo courtesy Lt. Summers

Photo courtesy Lt. Summers

Photo Courtesy Jason Hardesty

Photo Courtesy Lt. Summers

Photo courtesy TFC Long, MSP
MARYLAND EMS STATISTICS
FISCAL YEAR 2007

Maryland-Certified Prehospital EMS Providers
• First Responders 9,306
• Emergency Medical Technicians-Basic 15,993
• Cardiac Rescue Technicians 234
• Cardiac Rescue Technicians-Intermediate 619
• Emergency Medical Technicians-Paramedic 2,364
• Emergency Medical Dispatchers 832
TOTAL 29,348

Emergency Care Hospitals
• 48 Emergency Departments
• 9 Trauma Centers
• 10 Specialty Referral Centers
  (adult & pediatric burns, eye, hand, hyperbaric medicine, neurotrauma, pediatric)
• 25 Primary Stroke Centers
• 15 Perinatal Centers

Maryland Poison Center Calls (Calendar Year 2006)
• 63,662 total calls
• 28,980 requests for information (no exposure to poison)
• 33,006 calls regarding human exposure to poison
• 1,676 calls regarding animal exposure

EMRC/SYSCOM Calls
Emergency Medical Resource Center
• Telephone calls 170,133
• Radio calls 148,924
TOTAL 319,057
System Communications Center
• Telephone calls 49,330
• Radio calls 4,492
TOTAL 53,822

Maryland State Police
Med-Evac Helicopter Program
• 12 helicopters
• 8 bases
• 4,634 transports (98%) from scene of injury
• 96 interhospital transports (2%)
• More than 1500 search & rescue/law enforcement missions

Extracted from MIEMSS.org
IV techs:
Please remember to make a report every month to Lou Ramer.

SCHEDULING NOTES

1. I now have a county issued Nextel phone back in service and that the number is still 301-399-0827.
2. A big Thank you to everyone for their support and cooperation regarding the schedule. Also, Thank you to all those who stepped up and helped fill some of the recent last minute holes. Their time is greatly appreciated!

DES Holiday Party
Thursday, December 20, 2007
7:00 pm – 11:00 pm

Middleton Hall
Waldorf, Maryland

Food, DJ
Door Prizes, Raffle Tickets,
Cash Bar

AND ALL IN ALL –
GOOD TIME
CAUGHT IN THE ACT!

….of doing the right thing

Can you see it? Her narcs are in her hand….  

KUDOS to Pat Moore and to Rob Steinen for their “out of the box thinking” on this difficult angulated tib/fib fracture on a 15 year old. The circulation was intact with the leg as it was, and any movement threatened the fracture becoming open. Lt. Shadle was also on the call and reports that the leg was splinted in this position with SAM splints and a short backboard which was sandwiched between that patient and a long board. Lt. Shadle states “it sounds crazy but it proved to be very effective”. The patient was transported by ground to PG hospital.
I SPY

Continued from page 13

KUDOS Tom Raley and Petey Hicks

Photo courtesy Lt. Shadle
### December 2007

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### January 2008

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Mission Statement

The mission of Charles County Government is to provide our citizens the highest quality service possible in a timely, efficient, and courteous manner. To achieve this goal, our government must be operated in an open and accessible atmosphere, be based on comprehensive long- and short-term planning, and have an appropriate managerial organization tempered by fiscal responsibility.

Vision Statement

Charles County is a place where all people thrive and businesses grow and prosper; where the preservation of our heritage and environment is paramount; where government services to its citizens are provided at the highest level of excellence; and where the quality of life is the best in the nation.

Commissioners of Charles County:

Wayne Cooper, President
Edith J. Cooper, Vice President
Samuel N. Graves Jr.
Reuben B. Collins II
Gary V. Hodge

Mission Statement CCEMS

It is the mission of the Charles County Department of Emergency Services, EMS Division to provide superior quality emergency medical support to the citizens of Charles County, Maryland and requesting jurisdictions.

Vision Statement CCEMS

With well-trained, capable and professional personnel; The Charles County Department of Emergency Services, EMS Division will provide the best premium quality of preventative and emergency care in the fastest, most efficient and cost effective manor possible to the citizens of Charles County, Maryland and requesting jurisdictions. It is the goal of the Charles County Emergency Services, EMS Division to be at the vanguard of pre-hospital emergency care.

ANSWER TO QUIZ:

CCEMS units must respond within 90 seconds of being dispatched. A “challenge” is considered Failure to Respond.