

APRIL-JUNE 2013



EMS UNDER SIEGE 4 President Jerry Ewers, Fire Chief, BA, EMT-PS : IEMSA President

Sen. Danielson D - Black Hawk "RESPECT & 🏼 D MORE to support EMS Volunteers"—Senator Danielson D-Black Hawk

EMS ESSENTIAL SERVICE IEMSA responds to the April 7th Des Moines Register Article

EMS services must be seen as essential

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WE HONO JR OWN IEMSA Memorial Ceremony to be held May 18th



Three Important Pro-EMS Provisions





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EMS MUST BE AN ESSENTIAL SERVICE : the IEMSA response to the April 7th Des Δ Moines Register article is published in the Opinion section.



CALL TO ACTION : Three Important PRO-EMS provisions important to you. 7 Call your Senator.

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BOARD MEETINGS

- > June 20th. 2013 WDM EMS Station 19: 1:00-3:00 pm
- > August 15th, 2013 IEMSA Office: 1:00-3:00 pm
- > October 17, 2013 IEMSA Office: 1:00-3:00 pm
- > November 7th, 2013 Annual Meeting 6:30-7:30 pm Annual Conference, Event Center
- > December 19th, 2013 Teleconference 1:00-2:00 pm



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a note from our PRESIDENT

BY JERRY EWERS, FIRE CHIEF, BA, EMT-PS IEMSA PRESIDENT / BOARD OF DIRECTORS



EMS UNDER SIEGE

I was truly disheartened after reading Clark Kauffman's EMS article in the Des Moines Sunday Register on April 7, 2013.

I was actually interviewed about 8 months ago and then again on April 5th when Mr. Kauffman called me to let me know the story was going to run over the weekend. During both my interviews with Mr. Kauffman I personally focused on the issues of volunteerism, recruitment and retention, training funds, system standards, the cuts to the IDPH Bureau of EMS, and all of our legislative items that we've been supporting and pushing for in Iowa. Mr. Kauffman stated the "EMS in Iowa" piece would have more of a regulatory view to it - and boy was he right. Even though I was out of town when this story broke I fielded many calls and e-mails from providers and services across the state in regards to the article. Not all were pleasant to put it mildly, but that's the role I volunteered to accept as IEMSA President. After we pushed out a response letter via E-News, placed the letter on the IEMSA website, and the



Des Moines Register published our response letter in the Opinion Section, the feedback was fairly positive and supportive throughout the week. But, we can't stop here.

I personally don't want to focus my attention and energy on the less than 5% of the negative with discipline in regards to EMS providers, services, and training facilities. Instead, what I would like to do is focus our energy on the other 95% of the EMT's, services, and training facilities that are doing things right in Iowa. Any organization or profession should be open to critique, but I'm not appreciative of the way Mr. Kauffman used less than 5% of us to paint his picture of EMS in Iowa. The article really missed the boat on spotlighting ALL the good that goes on in EMS in Iowa. It missed all the success stories. It missed all the services that are doing a great job for their communities no matter if they are volunteering or being compensated. Also, even though the Bureau doesn't perform background checks on EMT's, it missed investigating and digging deeper to report that most training institutions perform background checks on students and many employers provide some form of background check when EMT's are hired. Shame on You Mr. Kauffman!

Where Clark Kauffman really failed in his investigative journalism now that he pointed out all of the negative in EMS (weaknesses) where is his conclusion? His story lacked suggestions. His story lacked opportunities. His story lacked recommendations and solutions to fix it. As a reporter, he should have done a SWOT analysis on the situation. For those of you that haven't heard the acronym lately it refers to strengths, weaknesses, opportunities, and threats. The story focused heavily on weaknesses and threats but didn't mention any strengths or opportunities. He should have addressed that the Legislature can help us address these concerns, such as supporting SF 346 that would have created a task force to review problems facing EMS and to propose solutions to the weaknesses and problems Mr. Kauffman focused his energy on in the article.



If you haven't had the chance to watch the YouTube video of Senator Danielson speaking to the Senate on April 8, 2013, the morning after the article came out I

would suggest you watch it. Go to www.iemsa.net--the link to this video is featured on the home page. He is personally thanking all the thousands of EMS providers in Iowa for what they do for their communities. If you have a second, please send Senator Danielson a thank you for standing up for EMS in Iowa.

It's each and every one of us that voted the politicians in and we need to let them know how we feel and what we want. It's the grass roots campaigning on issues that will help us move forward in Iowa. We host an annual EMS Day on the Hill every January to do just that, but sadly to say we have had poor attendance in the past. I would challenge all of you to contact your Representatives and Senators and I hope to see more of you in 2014 at the Capital. This is great way to show our numbers to legislators that EMS must, and should, be seen as an "essential service" in Iowa just like police and fire protection is, not to mention the funding that comes along with it. You can also visit our website to download or print off the legislative talking points. As for IEMSA, we are lobbying hard for changes in our great state. I would like to thank Mike Triplett, IEMSA's lobbyist, for all the persistent hard work he's done being our Voice at the Capital. IEMSA is now part of the Coverdell Stroke project serving on the Stroke Quality Improvement Monitoring Subcommittee, and we also represent YOU on many local, state, and national committees and boards with the sole purpose of making a difference in Iowa and making EMS stronger.

lowa has enjoyed a large history of a dedicated EMS volunteer workforce of men and women of all ages that give their time and resources, often times to significant personal sacrifice, to help their communities. I, along with the entire Board of Directors, would like to thank all of you for what you do. As for me, I've been involved in EMS since 1985 and I'm still proud to wear my uniform despite the negative article from Mr. Kauffman. As EMS Week approaches let's use this as an opportunity to show lowans all the great things we are doing in EMS and recognize and honor those that give so much back to their communities.

As stated in my first article as your new President, I personally welcome your input and guidance during my time as President. Please tell us what we are doing well and what we can improve upon. Again, this is YOUR organization.

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Please check out IEMSA's website for upcoming programs, conferences, and events for 2013. I hope to see all of you at the upcoming EMS Memorial in West Des Moines.

STAY SAFE AND GOD BLESS!



The legislature has passed the second funnel date and many things got lost in committee. There has been progress though. **BY THOMAS CRAIGHTON**

OUR VOICE ON THE HILL LEGISLATION



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The legislature has passed the second funnel date and many things got lost in committee. There has been progress though.

The following list from our lobbyist shows

where each piece of legislation is. Please

notice that EMS is covered under the

Governor's Health Plan. This is better than

them continuing the Iowa Cares Program.

It now is a debate between this new plan

or expand Medicaid.

- > HF 347/SF 346 (EMS Task Force) : These bills are dead for the session; however, there is discussion of attaching this language on to an appropriations bill to keep the concept alive.
- > SF 304 (Public Safety Training) : This bill passed out of the House Public Safety committee late last week and is alive for the session. The House took the funding stream out of the bill, but added EMS and three other groups to the Facility Task Force.
- > HSB 232 (Governor's Healthy Iowa Plan) : This bill was just introduced last week. It includes emergency medical transportation as a covered benefit. The Senate's alternative which expands Medicaid (SF 296) is in the House, awaiting debate.
- > SF 37 (Helmets on Children on Mopeds) : This bill died in the first funnel.
- > SF 381 (Window Fall Prevention) : This bill died after not making it out of the House Judiciary committee last week.
- > SF 421/HF 510 (E911 Surcharge Equalization) : These bills are alive for the remainder of the session.
- > HF 618 (Certificate of Merit in Medical Malpractice) : This bill is in the House, awaiting debate. Certified EMS personnel are not part of the list of covered groups under this bill, although we have asked to be included.

If you have questions or comments please feel free to contact Thomas Craighton by email, craightt@mercyhealth.com or cell phone 641-425-2460. You may also contact any other member of the board or Mike Triplett, *Lobbyist* by email, michael.triplett@mchsi.com, or by cell at 515-707-3464. terse can be a constructed of the constructed of th

THREE **PRO-EMS PROVISIONS**

BY THOMAS CRAIGHTON

The Senate last week passed SF 446, the Health and Human Services appropriations

bill. Included in this bill is a ten percent increase in Medicaid reimbursement for ambulance service. This is a crucial issue for local emergency medical services (EMS) programs. Iowa's Medicaid reimbursement rates for ambulance service are the LOWEST in the upper Midwest.

Funding our EMS programs should be a top priority for all legislators. This long-awaited and sensible increase, coupled with the sunset of the lowaCare program in December, will go a long way toward helping your local EMS providers.

- PLEASE CONTACT YOUR
 STATE REPRESENTATIVE
 TODAY AND URGE THEM TO
 SUPPORT THE THREE
 PRO-EMS PROVISIONS OF
 SF 446 AND SF 447. III
- Secondly, SF 446 also has language that creates an EMS Task Force to study and offer solutions on the challenges facing EMS in Iowa. This is a great first step and we need our state reps to support this language. The Iowa House of Representatives should support this Task Force.
- > SF 447 the Justice Systems appropriations bill has language in Amendment H-1329 to create the Public Safety Training Task Force for fire, law enforcement, EMS and others. This is also a priority issue for IEMSA, and we are grateful that the committee amendment contains this language.

The list of House members is found at https://www.legis. iowa.gov/Legislators/house.aspx. If you don't know who your state representative is, you can use the "Find Your Legislator" function at https://www.legis.iowa.gov/Legislators/find.aspx, and just enter your zip code or city. Once the results show up on your screen, look for "State Representatives" and click on their names for their email address.

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CONTACT YOUR STATE REP TODAY AND LET THEM KNOW THAT THESE THREE ISSUES ARE IMPORTANT FOR EMS PROVIDERS THROUGHOUT IOWA!



The ever-expanding role of Capnography

BY JAMES A. TEMPLE : BA, NREMT-P, CCP · EMS COORDINATOR, EASTERN IOWA COMMUNITY COLLEGE

"Man, I sure wish my assessment, field impression, and patient monitoring could be made infinitely more difficult" – said no EMS provider EVER!

Out of the desire, and at times, necessity to make the life of the EMS provider easier, technology has been developed to assist in point of care assessment and management. Make a quick list of the technology you are required to hump in on each and every EMS response. The weight adds up in a hurry, and medical research shows no signs of slowing down. Most of the ALS cardiac monitors in play today tip the scales at 20 pounds plus, once we stuff the pouches full of whatever we think will make our jobs easier. If you are already going to schlep that 20 pound machine into each and every house, business, apartment complex with the "Elevator out of Service" sign, and extended care facility where every patient is somehow in the last room on the left, why not take full advantage of the technology included? The answer seems simple enough; "You're right, why not?" I agree wholeheartedly with your answer. This article intends to give you the baseline information and help develop the interpretive ability to use capnography for more than ETT placement confirmation. Remember, this is about making your job easier.

Current Oxygen Monitoring

Before we proceed, let me start by emphasizing that I am a fan of Pulse Oximetry, and this article is in no way meant to disparage or diminish the regular use of standard pulse oximetry as a measurement tool. It has cemented a place in pre-hospital care as a required measurement for most if not all ALS patients. We even use it on BLS patients simply to trend and keep an eye on the heart rate. As with any tool in your toolbox, pulse oximetry has its limitations. What follows is a discussion of limitations every provider should understand when interpreting pulse oximetry data.

As with any tool, or device, in order to correctly interpret the feedback, you must first be familiar with how the tool does its business. Are there inherent limitations simply due to the way the device works? When examining pulse oximetry, there are such limitations. Interpreting and relying on these results without understanding the context surrounding them leaves you vulnerable to making patient care decisions not on what your assessment tells you, but what the pulse ox tells you.

Sensing Lead 11 Demand Pacing

Let's take a gander at the following EMS call:

Upon arrival at the home of a female patient who we were dispatched for "difficulty breathing", about 45 years combined experience spills into the living room . The "across the room" assessment reveals an elderly female patient with OBVIOUS respiratory distress, bordering on failure. There is no question what she needed from EMS. My partner, who was more than a 1-year medic, apparently didn't pick up on any of the painfully obvious visual and auditory cues that lead most of us to know she was in trouble way before we touched or talked to her. The light bulb went on for him only after he applied the pulse ox and was staring at a low 80's saturation. So, what does the 80% SpO² really tell him?

1 There are essentially 2 kinds of pulse oximeters. The more traditional EMS model uses Transmission Oximetry, in which the red and infrared signals and photo-probes are on opposite sides of the tissue bed. The signals pass through the tissue bed, while hemoglobin and deoxyhemoglobin absorb the light. The unit then measures the absorption of the two frequencies and performs a calculation, and boom...you have your SpO²%. Remember, the machine **calculates** the oxygenation, it does not measure it. The other

"

The Answer, My Friend, is Blowin' in the Wind. type of pulse oximeter is called a reflective oximeter. This type of sensor positions the light source and receptor side by side on a single surface, meaning it can be used on the forehead. As we will see shortly, proximal probe placement will deliver a more accurate oximetry reading, especially in the critically ill patient. By the way, the calculation algorithm is based on a healthy patient with no clinical variables. How many of our patients can say that?

2 How many EMS providers have dutifully placed the pulse ox probe on the finger and were unable to get

a reading? Raise your hand...it happens to everyone. What is the next predictive statement? "I told them these pulse ox probes / cables needed replacing" has been uttered by everyone! There it is...the number one reason for unreliable pulse ox readings; crappy equipment! It couldn't be that we failed to consider the context. Is the patient hypotensive or have the potential to become hypotensive? Would poor peripheral circulation lead to unreliable readings? Would the absence of peripheral pulses in a shunting situation lead to poor readings? Might the fact that we are outside in the middle of January have any bearing on the pulse ox reading? Might the nail polish your patient chose (especially blue, green, and black) be messing with your reading? The answer to all of the above questions is unequivocally "yes". (see figure 1)

Here is an oft overheard conversation among EMS crews:

> "What's the patient's heart rate and pulse ox?" The answer comes back in the time it took the provider to glance at the SPO² location on your monitor. You can guarantee that pulse was not palpated and counted correctly, which means the skin condition, temperature and moisture have not been assessed either. Should we use the pulse ox for a heart rate measurement? Would you use a standard socket on a metric bolt? Not if you want the job done quickly. Same with pulse ox and heart rate. You need to use the tool designed for the job. Consider the patient with new onset atrial fibrillation with RVR (Rapid Ventricular Response) with a heart rate on the pulse ox of 84-90 bpm, may actually have a much faster heart rate, say 220-250 bpm, but the hypoperfusion status caused by the tachycardia is not allowing the pulse oximeter to pick up each rapidly and irregularly conducted beat. Only in the cases where you confirm that the pulse ox reading and the actual physical pulse are synchronous should you use the pulse ox for cardiac trending.





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The ever-expanding role of Capnography

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4 Cygen saturation does not reveal accurate information about ventilatory status. Placing a patient on oxygen (increasing the FiO²) should raise, or at least, maintain the current oximetry levels. If we get the expected results, we often leave it at that, no other thinking required. What if the patient is experiencing a problem ventilating his lower airways? You have provided him with the oxygenrich environment from your non-rebreather mask, but are apparently leaving it up to him to transport the oxygen to the alveoli for exchange.

Think of this problem in another way:

You roll up to the local gas station to grab some fuel and a Dew. Your attention is directed toward the new bright red convertible with the "THNXDAD" vanity plates. You watch as an obviously new driver gets out and swipes daddy's credit card while talking on her phone. She has watched her parents get gas numerous times, but now she is on her own and the show begins. She pulls the "Premium" nozzle from the pump, spins the gas cap off, places the nozzle into the tank, and goes back to her phone conversation. You know there are some lessons that are learned better by experience than by someone correcting through every step. This is one of those experience situations. After a few minutes, she looks at the pump quizzically, paying special attention to the gallons window. It reads "zero", Zilch", Nada". She looks around at the other vehicles to see if she can figure out this no flow conundrum, but to no avail. You can't stand it any longer. You have to end the stalemate, and you walk over and slowly squeeze the handle on the nozzle. Booyah...fuel racing into the tank and dollars spinning on the pump! Did our new driver believe that the fuel would just flow from the underground storage tanks, where there is plenty of fuel, to the tank, where there are only fumes remaining? If so, maybe she shouldn't have a license. Are we relating this story to our ventilatorily challenged patient described above? "Here is some oxygen my friend. Good luck pulling it in and getting it where you need it". Oxygen saturation on this type of patient can remain in the "acceptable" range longer than it takes him to have a serious respiratory problem that requires much more paramedic

intervention. In both cases, daddy's little princess and the ventilatorily challenged male, the solution is the same: **SQUEEZE the HANDLE! It would deliver fuel to the gas tank, and deliver oxygen to the tissues that are screaming for help.** If your patient cannot deliver the oxygen he is breathing to the alveoli for exchange, he needs to be ventilated. Physical work is required to solve both problems.

Ok, so your pulse ox didn't help much with your impression and management decisions of the last dyspneic patient. It may not be reliable in the cold weather or with cold patients. Will it be reliable for the family pulled from a structure fire? It may not be reliable in situations of shock, hypoperfusion, and shunting. It may not be reliable on painted nails or acrylic nails. What about those ladies with press-ons and fakes? Are you going to ask that \$100,00.00 question? I didn't think so. Can the pulse ox measure perfusion? How about ventilation? Any chance it can measure diffusion? The answer to all of those questions is "No". So, obviously, there is one question you should ask:

Is There another Tool We Have That Can Measure Perfusion, Diffusion, and Ventilation?

There most certainly is – End-Tidal CO^2 (ETCO²). But, as with pulse oximetry, before we use ETCO² for monitoring, we need to understand what it is and how it works.

Carbon dioxide (CO²) is a usual and expected by product of metabolism. When your body is running correctly, using glucose for fuel, CO² is a predictable and measurable waste material, or exhaust. You can think of CO² as "the smoke of metabolism". Just as a skilled mechanic can diagnose your car by the exhaust, we too, are able to gather information about our patient's physiologic state by the exhaust (CO²). The beauty of ETCO² is that if you understand what factors contribute to its production and elimination, you can easily combine measured values, waveforms, and assessment findings into a clearer clinical picture. Might the ability to quickly and simply assess and monitor the critical EMS conditions in figure 1 make your job a little easier?

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IEMSA : THE VOICE FOR POSITIVE CHANGE ξ

Figure 1 – Critical EMS Conditions and ETCO2

Ventilation	Perfusion	Diffusion
Asthma	Shock	Pulmonary edema
COPD	Pulmonary embolus	Alveolar damage
Airway edema	Cardiac arrest	CO poisoning
CVA		Smoke inhalation
FBAO		

The eyes cannot see what the mind doesn't know

ETCO2 Physiology

The amount of expired CO2 is dependent on three physiologic factors:

1> Metabolic production

a. Think back to the last time you were driving your rig and were in a bit of a hurry. At a stoplight, you had to cross 2 lanes of traffic to make the L turn lane. You romp on the gas pedal and give it all she's got. The poor unsuspecting convertible next to you is now in a thick black diesel cloud. Capnography measures the cloud of funk. As your body works harder, either during compensation, fever, or running for your life, it cranks out more exhaust (CO²). The converse is also true. During period of low demand, such as a narcotics-fueled bender or hypothermia, less metabolic work means less exhaust is being produced.

2> Venous return (perfusion / pulmonary circulation)

a. In a condition of impaired circulation, such as hemorrhage of cardiogenic shock, blood flow may not be adequate to maintain the required delivery of CO² back to the lungs, leading to decreased gas exchange, and a lower ETCO² number and maybe more importantly, a diminished waveform. The decrease in ETCO² may exist regardless of any alteration in respiratory effort. Knowing that blood pressure, heart rate, vascular resistance, contractility, preload and afterload all work together to provide perfusion; how can we not use capnography to monitor our critically ill patients?

3> Alveolar ventilation

a. In our previous discussion regarding delivering fuel to where it is needed, we emphasized the importance of alveolar oxygen delivery and therefore, efficient diffusion of CO² for elimination. If your patient is not

efficiently ventilating his alveoli, how would you know? Oxygen saturation information will not help you here. The waveform may have a distinct appearance accompanied by an increased ETCO² value. Again, we are trying to make your job easier.

Carbon Dioxide measurement is done by using either mainstream or sidestream technology. As the exhaled air passes through the tubing, an infrared sensor measures the amount of light absorbed by the CO² in the exhaled gases. If all you got from ETCO² monitoring was a number, the partial pressure of CO² in the gas mixture, ETCO², it would be a valuable tool. However, when you add the waveform visual to the measurement, it becomes a paramedic's best friend. The salient point here is that this is a real-time, breath to breath account of physiological status.

Standard ETCO2 waveform

As you would expect, the ETCO² waveform has what we would consider common, expected appearances of rhythm, baseline, shape, and height. The normal range for ETCO² in the healthy patient is 35-45 mmHg. Any deviations from what is expected should alert the astute provider to a problem worth investigation.

Phase I – Beginning of exhalation

During the start of exhalation, there is almost no CO² in the mix due to the fact that a standard amount of inspired air never reaches the alveoli and never participates in gas exchange. This accounts for the "dead space" baseline visible in phase 1. The exhaust (CO²) is being exhaled from the deepest portions of the lung, the alveoli, and therefore has to travel a good anatomical distance before it can be measured. The baseline measures that CO² travel time.

Phase II – Ascending

As the alveolar exhaust now mixes with the dead-space air, there is a sharp, rapid rise in the amount of CO^2 that is measurable. How sharp and rapid the rise in ETCO² occurs is dependent on synchronous alveolar emptying. In other words, if all alveoli release their CO^2 at the same time, the rise is sharp and rapid. If there is a problem with alveolar emptying, such as bronchospasm or an obstructive disease, the rise of the CO^2 waveform in phase II may be slower. 11

The ever-expanding role of Capnography

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Phase III - Plateau

A slight positive slope to this phase represents alveolar emptying. It is at the end of this phase, just before the nearvertical downstroke representing the start of inhalation that the ETCO² is actually measured and quantified.

Phase IV - Descending

This near-vertical rapid descent represents the beginning of inspiration, and the end of any measurable CO².



Hyperventilation

Now that we have introduced the normal capnogram, it is time to put your critical thinking skills to task. Let's look at a common sign of respiratory distress – hyperventilation. Something triggered a large-scale emotional response resulting in rapid and deep breathing, and despite your best coaching effort, the patient begins to have carpal / pedal spasms and become more anxious. If this process is left unresolved, the brain will take matters into its own hands to level out the woefully low CO² levels. That's right, you are about to witness the human equivalent of "CTRL-ALT-Delete". Once the system is reset, things usually function as expected. Take a look at figure 3 for an example of hyperventilation as seen through the eyes of waveform capnography. Notice the increased rate, steadily decreasing ETCO² levels. Is this a problem of perfusion, ventilation, or diffusion? Traditional therapy is aimed at decreasing the respiratory rate and

conserve CO². What if we were to use the waveform and numerical value as a visual target? Ask the patient to work hard to increase the number into the 35-45 mmHg range. The instant feedback and patient involvement may just do the trick.



Normal Capnogram Regular rhythm Consistent height / shape

When the ETCO² waveform has a regular shape and the plateau is below the normal level (35-45 mmHg), somehow there is a CO² deficiency. The usual suspects responsible for CO² deficiency are hyperventilation, decreased pulmonary perfusion (pulmonary embolus), hypothermia, and decreased metabolism. Once you have an idea as to the underlying cause, management becomes so much easier. Maybe you need to slow your roll with the BVM or decrease the rate of your ventilator, or easier yet, keep your patient warm and relaxed. More critically, maybe your patient threw a massive pulmonary embolus, and is not perfusing his lungs as usual, meaning less diffusion. Now that you can spot and interpret hyperventilation via capnography, here is your first challenge. When may a patient exhibit the waveform pictured in figure 3, and NOT show a decline in ETCO²? Hint (CO² + H²O ← \rightarrow H²CO³ \leftarrow \rightarrow H+HCO³). Any physiologic state of increased metabolism that drives that equation to the left and produces excess CO², such as DKA or fever may exhibit increased respiratory rate with normal or increased ETCO².

Hypoventilation

Your crew has successfully knocked down a combative behavioral patient with some wonderful depressant drugs. Now that he is manageable, in EMS that means napping, you are responsible for monitoring his status. He is not intubated, so you decide that will use a cannula which gives oxygen and measures ETCO². A sleeping patient is a happy patient, some say. You are not convinced. You are having a hard time accurately counting his respirations. Studies actually show that health care providers in general, not just EMS providers, are not all that great at respiratory rate analysis.** Your capnography waveform looks like the one in figure 4. You can clearly see the regular shape, slower rate, and above normal plateau. What do you need to do? BVM use may be in your future. There may even be a need for some reversal drug agents.

Common causes of hypoventilation are depressant drugs, increased metabolism, and inattention to airway and breathing status. Can you think of a situation where hypoventilation might not result in the expected increase in ETCO²? Just like in the hyperventilation patient with the increased ETCO², this opposite or inverse situation would be hypothermia. You would have slowed respirations with not much metabolic exhaust due to energy conservation.



Now that we have covered the basics of "normal" capnography and the evidence confirming the presence of hypo or hyper ventilatory effort, let us summarize and put the information into a nice, usable format. We expect to see increased capnography values with decreased respirations, and decreased ETCO² values with hyperventilation. When those standards are not being met, we need that gut feeling that something is seriously wrong physiologically and requires further prehospital investigation and management. Common assessment findings with their associated causes are listed in figure 6.

Figure 6. Abnormal ETCO2 values

Abnormal ETCO2 Waveforms

ETCO2	Physiology	Clinical Condition
Increased	Decreased CO2 clearance Increased circulation Increased CO2 production	Classic hypoventilation ROSC in Cardiac Arrest Increased metabolic state (seizure / fever)
Decreased	Increased CO2 clearance Sample decreased circulation Decreased CO2 production	Hyperventilation Low cardiac output Pulmonary embolism / hypothermia
Zero	Noventilation	Esophageal intubation Accidental extubation Apnea
	No circulation	Cardiac Arrest

When exhaled alveolar air finally reaches the dead space, it quickly mixes and causes the rapid and steep upstroke of the phase II capnograph tracing. Look at it like this: If you were to graph your food intake at the local all-you-can-eat, strap on the feedbag "hog-a-teria", there would be two paths that line could take. The first would be steep and quickly rising, just like your glucose levels, as you move from station to station heaping your plate. This is just what happens with the normal ETCO² upstroke...quick and thorough mixing and a rapidly rising ETCO² waveform. The second, and much less likely and popular, is to slowly enjoy each and every station, taking smaller portions and gradually becoming uncomfortably full and strangely sleepy. When the alveoli are in bronchospasm and mucous-laden, the emptying of the CO² is unpredictable and asynchronous, causing a gradual mixing of the ETCO² and dead-space air. This is the (Cue the "Jaws" music), unmistakable "shark-fin" appearance of the capnogram. (figure 7)

Figure 7 – bronchospasm capnogram



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We understand that this "shark-fin" capnogram represents the asthmatic patient. We also know that all that wheezes is not asthma. Logically then, most obstructive physiology may exhibit the characteristics of the "shark-fin". Remembering that the eyes cannot see what the mind doesn't know, might capnography give you some much-needed inside information of the severity of the bronchospasm? The visual feedback of the waveform will also provide real-time insight as to the efficacy of your therapy. Is the slope of the upstroke beginning to become more upright? Is the shark-fin experiencing shrinkage? In conditions in which your patient may not be able to provide the answers to your questions due to a young age or even altered mental status, this information is what you need! I have never really understood the EMS provider's insistence on cross-examining the dyspneic patient who just wants to breathe. Use your closed-ended questions or" yes / no" head movements and let them know you understand their distress and you will not make it worse! Now is not the time for their medical life-story.

>>> CONTINUED ON PAGE 14

The ever-expanding role of Capnography

>>> CONTINUED FROM PAGE 13

COPD VS CHF

Any patient with serious difficulty breathing may be difficult to assess. As is often the case, EMS providers can have a difficult time differentiating COPD exacerbation from CHF. Our environment is so conducive to detailed lung sound assessment, not to mention the anxious patient, family, and EMS crew. You know you hear some type of adventitious lung sounds bilaterally, coupled with tachycardia and dyspnea, and maybe even hypertension. A common intervention for this patient is to administer a bronchodilator, such as albuterol or even Duoneb. What will be the result if the patient is actually in CHF as opposed to COPD after you administer the betaagonist? You guessed it: tachycardia. Not really what the CHF patient is looking for from experienced providers. "Man, I wish there was an easy way to help me decide which treatment path to take...CPAP or relief of bronchospasm". Don't worry so much; there is a tool that can help make this tough decision easier. If your capnography waveform appears "shark-fin" shaped, chances are COPD is the culprit and should be thwarted appropriately. If not, CHF therapy it is.

Traditional Use of Capnography

Airway Confirmation

If your EMS service is placing advanced airways, you need to use some sort of ETCO² detection. Of course ET tubes qualify, but so do KING LT and LMA's. ETCO² has become the standard of care when confirming the successful placement of advanced airways. **In a 2005 study, researchers found that the correct placement rate for ETT approached 100% when using continuous ETCO² monitoring. When ETCO² was not used, the incorrect placement (read - FAILURE) rate was a whopping 23%! ** Spin the data any way you want, but the bottom line is this: Our environment is noisy, poorly lit, chaotic, and full of egos and bravado. We know all of the "checklist" items for confirming proper airway placement, but seem to forget when under the gun. Should we not use a tool that is easy and accurate to confirm proper airway placement? Of course, I know how it works. You saw the tube pass through the cords, listened to lung sounds, and convinced yourself the tube was good. ETCO² is not a "one and done" process. It is a continuous measure, meant to alert the seasoned

provider to incorrect or even a change in placement of the ETT. 'The sin is not missing the ETT, the sin is not recognizing you missed it." Medical directors have taken notice and have imposed, sometimes extremely hard on the family budget (a spontaneous 30 day vacation) penalties, for not using capnography immediately after each ETT placement. No ETCO² waveform after a few breaths, means no correct tube placement. It is that easy. Isn't this article about making your job easier?

What if your EMS service doesn't have waveform capnography? Can you, should you, use the colorimetric ETCO² detectors? Current EMS wisdom confirms the affirmative response. These devices use ph sensitive paper to detect the presence of ETCO² in the exhaled air. Your color options are purple and yellow. The paper is purple when there is less than 4 mmHg, tan when between 4 and 15 mmHg, and yellow when above 20 mmHg. This device is placed between the BVM and ET tube and does do the job. However, it does have some limitations. In a cardiac arrest state, how much metabolism is actually taking place? Was there bystander CPR? If not, chances are your color will remain purple, or maybe rev up to the tan range, but no brighter. In about 25% of cardiac arrest cases, especially the longer downtime arrests, the colorimetric device will exhibit no color change, even in the face of correct ETT placement. If you have read the explanation regarding ETCO² physiology, this will not surprise you. How can I have adequate exhaust from a machine barely doing any metabolic work, barely perfusing, and minimally diffusing respiratory gasses? So what is the benefit of using capnography during the poor perfusion state of cardiac arrest. The answer follows in the next section.

Cardiac Arrest

We now fully understand that the number one factor affecting cardiac arrest survival is high quality chest compressions. We train to emphasize minimizing hands-off the chest times and maximize compression fractions (number of correct or effective compressions per 100) at a minimum of 80%. EMS providers may have the luxury of cardiac-monitor driven realtime audio feedback about rate and depth of compressions. This technology has made delivering good CPR a more reachable goal. As with any new, promising technology, it can be cost-prohibitive or simply not a prudent use of resources. If your monitor already has waveform capnography, you need not look any further for a tool to evaluate chest compressions and the overall efficacy of your cardiac arrest care. Let me explain.

We have established that the ETCO² depends on ventilation. perfusion, and diffusion. Under normal circumstances, ETCO² readings of 35-45 mmHg and a standard rectangular waveform make us happy. In order to maintain that happy steady state, perfusion must remain adequate. During cardiac arrest, perfusion is certainly not adequate. Chest compressions can provide at best, 30% of normal cardiac output. If the patient cannot deliver blood back to the lungs, diffusion is going to decrease as well. During arrest, ventilation stops, further dropping our ETCO². With the onset of chest compressions, ETCO² levels actually increase first few minutes after arrest compressions, due to the return of the stagnant, CO²-rich venous blood. Slap your ETCO² on that airway and get a feel for the effectiveness of your compressions by trending the rate of ETCO² decline. If the ETCO² declines quickly and sharply, you should reevaluate your current efforts. In other words, the slower the ETCO² decline, the better the resuscitation is progressing.

Termination Consideration

All this talk of cardiac arrest and ETCO² being the standard or care leads to the inevitable question - Can we use ETCO² as part of our termination of resuscitation process? Many EMS services have adopted some sort of ETCO² input into the termination decision tree. Studies have shown ETCO² of 10 mmHg for 20 minutes following ACLS interventions is not survivable^{**}. In 2008, another study of prehospital arrests, found that after 20 minutes of ACLS intervention, an ETCO² of 11mmHg in a shockable or 14mmHg in a non-shockable rhythm was a very reliable predictor of death.^{**}

ROSC Consideration

As depressing as the last paragraph may be, there is a predictive value of a positive nature with ETCO². During the course of resuscitation, you notice a sudden and attention-grabbing 10-15 mmHg increase in ETCO²! You have been providing high quality CPR as evidenced by the slowly declining ETCO2 prior to this moment. You may be witnessing the first signs of that ever-elusive ROSC! With increased cardiac output comes increased exhaust. This spike in ETCO² may occur 30-45 seconds prior to a palpable pulse. With

the AHA recommendations to minimize hands-off the chest time, the thinking provider can maximize chest compressions without having to stop and check pulses regularly, which is a hard habit to break.

Advanced Uses

I want to briefly cover a few advanced use of waveform ETCO². On a long distance transfer, your sedated burn patient begins to develop the ETCO² waveform seen in figure 8. In order to avoid disaster, your partner quickly calculates and administers another dose of the sedative-du jour. How did she know that was the right move? The characteristic notching on the wave is called a curare cleft. This is indicative of the patient beginning to have some spontaneous respiratory effort during the ventilator's exhalation cycle. Now that you know the waveform, you can clearly see the steep drop in ETCO² during the inspiration of air with little or no CO² content.

Figure 9 exhibits a cuff leak problem with your ETT. If air is allowed to escape around the tube, the ETCO² detector, mounted between the ETT and BVM, cannot measure it, and the available ETCO² in the tube drops gradually. Being an experienced, well-read medic, you decide to check the cuff inflation and find that it is, in fact leaking. Now what? How do you replace that ETT that you worked so hard to place and confirm? Welcome your new, or depending on your experience, old friend, the bougie. Using the tube exchanger makes life so much easier, but still requires secondary confirmation via ETCO².

Figure 8 - Curare Cleft



The ever-expanding role of Capnography

>>> CONTINUED FROM PAGE 15

The Future of ETCO2

As an educated and motivated EMS provider, regardless of certification level, I would bet you can see a world of additional uses for ETCO² in your practice. Any patient for which you are concerned or curious as to their physiological status is a candidate for ETCO² monitoring. You know your patients are in trouble when they have problems "Thinking, Breathing, and Pumping". Wouldn't it be nice to have a tool that could help you figure this out and monitor interventions? I totally agree. ETCO² is that tool that offers real-time feedback and breath to breath information about ventilation, perfusion, and diffusion. Make an effort to become familiar with capnography and introduce it into your practice on more than just the patients in whom you have placed an airway. Pick the low-hanging fruit made available with ETCO² monitoring.

Ron White said it best; "It's not that the wind is blowin', it's what the wind is blowin'". We need to take that to heart and get the most out of the information our patients have to offer. ETCO² is the tool we are looking for. Remember – "The eyes cannot see what the mind doesn't know". Now you know!

Selected Readings:

Silvestri S, et al. The effectiveness of out of hospital use of continuous end-tidal carbon dioxide monitoring on the rate of unrecognized misplaced intubation within a regional EMS system. Ann Emerg Med 497-03, May 2005

American Heart Association: Highlights of the 2010 AHA Guidelines for CPR and ECC

Kolar M, Krizmaric M, Klemen P, et al. Partial pressure of endtidal carbon dioxide successfully predicts cardiopulmonary resuscitation in the field: a prospective observsational study. Critical Care 2008: 12:R115 Warner KJ, Cuscheri J, Garland B, et al. The utility of early end-tidal capnography in monitoring ventilation status after severe injury Journal of Trauma. 2009:66(1); 26-31

Lawner B, Slovis C, Fowler R, Pepe P, Mattu, A. Avoiding Common Prehospital Errors. Philadelphia, PA: Lipincott, Williams, and Wilkins, 2013.

Walls RM, Murphy MF. Manual of Emergency Airway Management. Philadelphia PA: Lipincott Williams and Wilkins,2013



IOWA DONOR NETWORK proudly supports Iowa EMS Providers.

The ever-expanding role of Capnography Continuing Education Quiz

IEMSA members can earn 1 hour (1CEH) of optional continuing education credit by taking this informal continuing education quiz. You must answer questions 1 through 10, and achieve at least an 80% score.

Deadline: June 30, 2013

Complete this Quiz and:

- mail to 8515 Douglas Ave., Ste. 27B, Urbandale, IA 50322
- fax to 515-225-9080
- or email to administration@iemsa.net

1> Which of the following can be considered reliable clinical information gathered by pulse oximetry?

- O Perfusion
- O Pulse rate
- O Respiratory Rate
- O None of the above

2>Carbon Dioxide (CO2) is an expected byproduct of which type of metabolism?

- O Aerobic
- O Anaerobic
- O Pulmonary
- O Cerebral

3>The amount of expired CO2 is dependent on all of the following EXCEPT:

- O Perfusion
- O Ventilation
- O Filtration
- O Alveolar diffusion

4>The sharp and steep rise of the Phase II tracing of the normal capnogram is representative of which of the following processes?

- O Beginning of inhalation
- O Thorough mixing of ETCO2 and dead-space air
- O The end of exhalation
- O Gradual mixing of ETCO2 and dead-space air
- 5>Your patient is hyperventilating after being busted for helping himself to some store merchandise. Which of the following descriptions of ETCO2 and ventilator status is correct?
 - O Low ETCO2 with rapid RR
 - O High ETCO2 with rapid RR
 - O Low ETCO2 with normal RR
 - O High ETCO2 with normal RR

6>Your crew has intubated a cardiac arrest patient, and you notice the capnography waveform looking like a reverse "shark-fin", meaning there is a gradual downstroke in phase IV. What do you need to make sure gets done?

- O Drive Faster
- O Nothing...that is a normal finding
- O Insure your ETT cuff is properly inflated
- O Squeeze the BVM harder

7>The correct combination of acceptable compression fraction and cardiac output from chest compressions is:

- O 75% and 45%
- O $\,$ 30% and 85% $\,$
- O 95% and 50%
- O 80% and 30%

8>You are caring for a patient in significant respiratory distress. They are awake with a BP above 110mmHg. They also have noisy lung sounds, and you are having a tough time deciding if you hear wheezes or crackles. You also notice increased expiratory time and effort. Which of the following would confirm your impression of obstructive pathology:

- O Pulse oximetery reading of 88%
- O Inability to get a pulse oximetry reading
- O Sharp, steep rise of phase II period of capnogram
- $O\$ Slower, gradual rise of phase II period of capnogram

9>Which of the following would not cause a rise in ETCO2?

- O Pulmonary embolism
- O Fever
- O ROSC after cardiac arrest
- O Hypoventilation caused by a significant head injury

10>If high ETCO2 levels cause cerebral vasodilation, your most prudent care for a seriously head- injured motorcyclist would include:

- O Maintain ETCO2 of 50 mmHg
- O Maintain ETCO2 levels of 40 mmHg
- O Hyperventilation (RR above 30)
- O Hypoventialtion (RR 4-8 / min)

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MEDICAL DIRECTOR UPDATE

I wanted to start out by adding my "two cents" to the recent comments in the Des Moines Register concerning EMS in Iowa. While there are many EMS issues that need to be addressed, I wish there had been more balance in the reporting. I have a lot of respect for the volunteer and professional EMS providers that I work with. A lot of good is being done "out there" and that needs to be recognized. We should keep the good and make improvements where we can.

> One area where we can work to make effective improvements for our system is through the Quality Assurance, Standards, and Protocols Committee (QASP) a subcommittee of the Iowa EMS Advisory Council. Many volunteers spend a lot of time working on improving our Iowa EMS Protocols.

> Last week the protocol committee

met and we made changes to the pediatric seizure protocol and we are developing new shock protocols for release in January 2014. As much as possible we develop our protocols with evidence based medicine. Our protocols are written to be minimum standards that local medical directors can modify to meet their local situation and needs.

> There are three critical clinical situations that we are looking at to further improve in the prehospital care in the state of lowa: trauma, STEMI, and stroke. Trauma and STEMI treatment have had system development but not prehospital stroke care.

> A working group has been formed and is looking to develop system guidelines similar to STEMI and trauma for prehospital evaluation treatment and diversion to most appropriate facility. There will be more information in the near future on these recommendations.

> For all three of these another challenge is to assess how we are doing with the standards that have been developed. Through QASP and EMSAC we are exploring ways to obtain data, process it and then give meaningful feedback to the services in Iowa. These would be "benchmarks" for our system that could be used by services to evaluate their data/ outcomes. Hopefully, in the near future we have recommendations on how to improve the collection and evaluation of the data from Iowa.

I encourage you to be active in EMS through IEMSA, advocate for EMS locally, and talk with your legislators about issues that affect the delivery of EMS in Iowa. We can all work together to improve EMS delivery in Iowa.



Covenant Medical Center Emergency (Area Level III Trauma Care Facility and AirCare™)

Sartori Memorial Hospital Emergency (Community Level IV Trauma Designation)

Mercy Hospital Emergency (Community Level IV Trauma Designation)

Our ambulance departments provide 24-hour emergency paramedic response and treatment to people en route to area hospitals. Our emergency helicopter service is available to transport accident victims, medical personnel and equipment to and from accident scenes and hospitals.

Our commitment to exceptional health care continues as we construct a new emergency department at Covenant Medical Center. Completion is on track for Fall 2013





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EMS AFFLIATE SPOTLIGHT BY KIM LOPEZ : ER Nurse Manager, President of DAS, & PS

EARLY BEGINNINGS: Durant Volunteer Ambulance Service (DVAS) began on April 1,

1974. Prior to that date, if you needed an ambulance, Gill Funeral Home of Wilton transported to the hospital. Until one day, a local doctor, Dr. Wagner, waited for over 30 minutes for a funeral home vehicle to transport a patient she had saved by performing CPR in the patients back yard. Dr. Wagner and Dr. Williams saw a need, twelve community members volunteered, learned First Aid and that was the beginning of the Durant Volunteer Ambulance Service. The first ambulance was purchased from LeClaire for \$1, a Pontiac station wagon. They averaged 75 calls per year, operating from home volunteers would wait on-call in their home as the calls were dispatched through their home phone using an emergency phone



-Front Row: Todd Fusco, EMTB; Jeff Hogan, PS; Kim Lopez, PS; Lori Frisch, EMTP; Dick Bullard, EMTI; Mark Heuer, EMTB -Back Row: Scott Oetzel, Driver; Lynn Oetzel, EMTB, Bob Frey, Driver; Jim Lopez, Driver; Andy Gruman, EMTB; Dan Sterner, EMTP; Ed Beinke, Driver; Judy Frisch, EMTI; Dennis Frisch, PS; -Not pictured: Sue Henderson, EMTB; Scarlett Williams, EMTB; Emogene Sorgenfrey, EMTI; Ben Jepson, EMTB; Doug Cook, EMTI; Doug Reasner, Driver; Bob Mcclanahan, Driver

TODAY: We have 250 years of combined experience, with volunteers that have over 35 years of service to DAS. We've responded to 4,147 calls in the last 7 years (600 calls/yr. avg.)

>> CHANGES THROUGH THE YEARS: Through the years volunteers have changed, the ambulances look different, the education more in-depth, and technology improved. But, we always strive to provide the best possible care to those who make that 911 call. Our volunteers even take the time to educate our community, volunteering to teach CPR and first aid classes. We have two ambulances licensed as a Provisional-P service. We staff each rig with a driver and two EMS personnel. The majority of our calls have at least one paramedic on board. We respond to a approximate 10 mile radius of Durant-responding to Wilton, Walcott, Moscow, Sunbury.

>> OUR VOLUNTEERS COME FROM ALL

WALKS OF LIFE—stay-at-home moms, nurses, an EMT who works for MEDIC, a contractor, retired teacher, policeman, factory personnel, engineer, county employee, retired postal worker. We come from many different professions to help those in need of medical assistance.



>>> Our service and members have been awarded honors over the years for their exceptional service to the community:

- Iowa EMS Association: EMS Provider of the Year-Judy Frisch 1994, Dennis Frisch 1996, Emogene Sorgenfrey 1999, Dick Bullard 2004, and EMS Service of the Year 1992
- American Heart Association: Instructor of the Year 2006 -Dennis Frisch
- Jaycees : Durant Ambulance Service, Outstanding Public Service Award in 1977, 1985, and 2004.
- Scott County Board of Health: Excellence in Public Health Award 1995 - Dennis and Judy Frisch
- Cargill : Volunteer Award 1999-Judy Frisch
- University of Iowa Heart and Hands Award for Exceptional Volunteer Service to our Community 2006-Kim Lopez
- State of Iowa: 2005 Outstanding Commitment to Improving Health in your Community Award-Dennis and Judy Frisch.

>>> A FEW of Our MANY Programs:

- Provide bike helmets every year for new Kindergarten children to Durant schools as well as a reward program for those found to wear them. We each carry coupons for free ice cream cones and hand them out to children we see riding their bikes with helmets on.
- Multiple members of our service are CPR instructors, having taught CPR in the schools since 1976. We are regular instructors in Durant and Wilton schools for CPR to meet the Healthy Kids Act.
- A grant was written by our service to provide the schools with defibrillators.
- DAS participated in the EMT-D study from the University of Iowa in 1980. As part of that study we trained 10% of our population on how to perform CPR. This study put defibrillators in ambulances.
- Our volunteers provide EMS for all our home football games and for the Junior wrestling classic and many other community activities and events.



EMS BUREAU

BY ANITA J. BAILEY, PS: IDPH-EMS BUREAU

> 641- 140(147A): EMS SYSTEM DEVELOPMENT GRANTS

This chapter of administrative rules pertains to grant funds that may be expended at the county level for EMS training, training aids and infrastructure support including office equipment, supplies and personnel services for staffing to provide countywide CQI and medical direction based on the countywide EMS system strategic plan.

The anticipated changes to Chapter 140 remove the competitive selection process and also allow the department to contract with the county boards of supervisors or the local boards of health to reduce the administrative burden on the volunteer EMS associations. The changes to these rules are anticipated to become effective July 3, 2013.

The Iowa EMS Advisory Council (EMSAC) reviewed some possible funding allocation formulas for the FY'14 grant cycle. Over the years, funding formulas have been based on rural/ urban population and square miles. EMSAC discussed straight population-based formulas, priorities for volunteer services and regionalized training.

COVERDELL ACUTE STROKE GRANT MANAGER



Come Rebecca Swift, Paul Coverdell National Acute Stroke Grant Program Manager! She has been hired as a Community Health Consultant to manage the Paul Coverdell Acute Stroke Grant. Previously she was

the assistant Director of Prevention Programs and Special Projects for the Governor's Office of Drug Control Policy. Her expertise is in grant project management, partnership development and is a highly effective trainer and communicator.



The standard in emergency response



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Rebecca will focus improving treatment and triage for Iowa stroke patients by working with EMS and hospitals. The project includes working with the Iowa Healthcare Collaborative for the the development of Stroke Learning Communities for the public, EMS and hospitals and to coordinate data collection to monitor Quality Assurance activities for the transfer of care from EMS to hospitals and within the hospitals to ensure stroke patients with time critical events are moved through the system quickly and appropriately. Rebecca will work with the University of Iowa, College of Public Health for data analysis and reporting. Current projects are in Polk and Scott counties and have recently moved into some contiguous counties. Best practices learned through those activities will be used to grow the stoke system statewide. Rebecca is enthusiastic about Stroke Care and can be reached at Rebecca.swift@idph.iowa.gov

> PROTOCOL UPDATE

The 2013 Iowa Statewide Adult & Pediatric Patient Care Protocols and Revisions Page are posted at http://www. idph.state.ia.us/ems/protocols.asp Services should seek physician approval, maintain documentation of staff training and send copies of the physician authorization, drug list and revisions pages to your Regional EMS Coordinator. Electronic submission is preferred.

The Protocol Workgroup of the Quality Assurance, Standards and Protocol (QASP) subcommittee does not rest. They met April 9th to work on the 2014 revisions. They have updated the pediatric seizure protocol, developed an extensive shock protocol and discussed assessment based spinal immobilization for levels other than paramedic. QASP subcommittee Chair Dr. Forslund reported to the EMS Advisory Council (EMSAC) about the 2014 changes and proposed a timeline to ensure approval prior to the anticipated publication of new protocols in January 2014. Hats off to this hard-working group!

> SCOPE OF PRACTICE

The April 2012 Iowa Emergency Medical Care Provider Scope of Practice became effective January 16, 2013 and is posted at http://www.idph.state.ia.us/ems/scope_of_practice.asp This change allows the EMT and AEMT to provide Continuous Positive Airway Pressure (CPAP) with written physician medical director approval and documented staff training. All services are obligated to maintain documentation of staff As designated by code, the department is the lead agency responsible for the development, implementation, coordination and evaluation of Iowa's EMS system.

training for the scope of practice. This becomes exceptionally important during this time of transition when there can be multiple levels of providers working on a service.

> IOWA EMS SYSTEM STANDARDS

This subcommittee of EMSAC continues the quest to educate EMS providers, physicians, local government officials and citizens about the Iowa EMS System

Standards "What every lowan can expect from Emergency Medical Services". The members are developing an educational program tailored to a diverse audience and will tour the state presenting the program. Committee Chairperson Kerrie Hull stated that "Every county in Iowa could benefit from implementing all or any of the EMS System Standards. The objectives are intended to work within the unique structures that have developed over time in EMS. Particularly, central administration activities are intended to provide consistency, reduce costs and reduce the burden on volunteer EMS Directors. We look forward to visiting every region in the state this year."

> DAVID LUERS



We bid farewell to David Luers who has served as the Chair of the System Standards subcommittee of the Iowa EMS Advisory Council. David has long been a leader with the System Standards group and provided appreciated insight as the standards were developed. David, we wish

you well in all endeavors and will miss your keen intellect and clever wit. Good luck!



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NEW IEMSA OFFICE MANAGER



March 31, 2013, Lisa Cota Arndt re-joined the Iowa EMS Association as the Office Manager. Mrs. Arndt worked for IEMSA in this same capacity from July 2001–May 2002.

She has a sincere passion for EMS and brings years of experience working in the EMS Market, including 10 years working for James O. Page at JEMS Communications in California. In addition, she has worked with many prestigious organizations that produce significant and meaningful products and services like IEMSA (i.e. nationally renowned nonprofit organizations such as the Holocaust Museum, St. Jude Children's Research Foundation and Make-A-Wish Foundation).

We're excited to have her experience and passion for EMS translate to success for IEMSA as she works with us to make positive change in Iowa EMS and strengthen our voice in Iowa and across the nation.

Doug Wolfberg Visits Iowa Billing & Management Conference

Doug Wolfberg Visits Iowa for a successful Billing and Management Conference. Doug is pictured here, at the conference with some attending IEMSA Board Members on May 1, 2013.



SPOTLIGHT ON TRAINING

DES MOINES AREA

offers EMS programs at both the EMT-Basic and EMT-Paramedic levels. For over 30 years, DMACC has held EMT-Basic classes at the Ankeny campus and also throughout central lowa through outreach programs. In 2010, the EMT-Paramedic program was added as a full-time course.

> The EMT-Paramedic program consists of two different course options for the student - the certificate course or the AAS program.

The EMT-Paramedic certificate program is college level course work and is worth 46 credit hours. Once a student successfully completes the program they are eligible to sit for the National Registry exam. The class meets on the Ankeny campus and takes approximately one year to complete. The program is divided into three terms (fall, spring, and summer) and is held weekdays Monday through Friday beginning in late August. During the certificate course, students are required to complete 275 hours of clinical internship and 275 hours of field internship.

> The DMACC EMT-Paramedic program also offers students an opportunity to obtain their AAS in Emergency Services in one of three separate tracks – EMS Management, Clinical Studies, and Fire Science. In addition to the certificate program, the student is required to successfully complete an additional 22-26 credit hours in one of the three tracks of study. A potential student who has obtained their EMT-Paramedic certification through another educational institution is eligible to transfer those credits hours into the AAS program.

> During the EMT-Paramedic program, students have an opportunity to take classes in a new building while utilizing the latest equipment during skills labs. A new addition to the program this year included the purchase of a state-of-the-art simulation manikin, which enables students to practice real-life patient scenarios in a medical and a trauma setting. > Enrollment is currently underway for the next class beginning in August 2013. If you'd like more information about the program, please contact Eric Anderson at (515)965-7051 or at danderson@dmacc.edu.

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WWW.IEMSA.NET ISSUE 02 - SPRING 2013

2013 IEMSA AWARD

It's not too early to be thinking about nominations you may want to make for the Annual IEMSA Awards. The awards are announced at the annual conference.

EMS Providers give of themselves every day, with little or no recognition or show of appreciation. If you know someone who has given above and beyond, please nominate that person for this prestigious recognition. To nominate a person or service for one of these **aswards** you must **1**>complete this form **2**> include a letter of recognition/nomination 3>submit your nomination to the IEMSA office before September 17, 2013.

- Individual EMS Provider of the Year
 - O Volunteer O Career
- > EMS Service Provider of the Year
 - O Volunteer
- O Career > Instructor of the Year
 - O Full-Time
 - O Part-Time
- > Dispatcher of the Year
- > Friend of EMS
- > Hall of Fame

Company/Service

Address

E-Mail Address

EXPLAIN WHY THIS NOMINEE SHOULD RECEIVE THE AWARD (ATTACH A SEPARATE SHEET IF NEEDED):

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2013 **IEMSA MEMORIAL** CEREMONY MAY 18, 2013 • WEST DES MOINES STATION #19 • 8055 MILLS CIVIC PARKWAY • WEST DES MOINES

RUSSELL DUANE PIEHL

Russ Piehl, EMT-P, started his EMS career in 1982 with the Denver Iowa Ambulance Service. Russ very quickly knew that being in EMS wasn't just something he wanted to do, but something that would become a part of him throughout his entire life.



Over the course of the last 30 years Russ worked at various hospitals and ambulance services throughout the state as a paramedic including Waverly, Waterloo, Dubuque, Webster City, Ft. Dodge, Algona, and Forest City. Russ also was an IEMSA Board Member, an instructor for EMS and the EMS program department manager at NIACC teaching at numerous colleges, conferences, and seminars sharing his knowledge with the hope of inspiring others to have the true spirit of EMS. In 2007 Russ found his true passion, joining Mercy AirMed, Mason City as a Flight Paramedic, fulfilling a lifelong dream. His greatest gift was his ability to help others in times of need and crisis touching countless lives throughout his career.

Shelly Lair-Langenbau

Shelly "Shell" Lair-Langenbau, RN, was born March 12th, 1968 in Mason City. She attended North Iowa Area Community College for Practical Nursing. She then worked at Good Shepherd while working for her RN degree. Shell started at Mercy Hospital in Mason City in 1998, working in the Emergency Room and continued her education at the University of Iowa and received her BSN.



She later was hired as a Flight Nurse, her dream job. Shell married Jay Langenbau in 2005 and started her family with two step sons, Nicholas and Jacob. In 2007 Shell gave birth to her first child, Liberty, and in 2010 McKenna was born. Her children were her pride and joy. Shell was a giver. This is why she dedicated her life to helping people and working at the Mercy Hospital for 15 years. She was an "adrenaline junkie" because she loved working in the ER and on Mercy Air Med so that she can help the ones the needed the most help. Shell saved and helped save countless number of lives in her career. Shell loved her job and was dedicated in her work. Sadly, she died January 2nd doing what she loved to do. But who would want it any other way?

GENE LOUIS GRELL

ene Louis Grell was born on July 14. 1959 in San Antonio, Texas. Gene an experienced pilot with over 2700 helicopter flight hours. Gene earned a BA in computer science at UT Austin before heading to Silicon Valley in the early 80's. There Gene strategically joined several high-tech start-ups where he rose



as a customer support manager and director. Over the years he lived in the San Francisco Bay Area; Australia; Bend, Oregon and Seattle among other places.

Having done well in the computer world, he turned his love of SCUBA diving into going to oceanography school. Always the avid downhill skier, he trained and joined the ski patrol at Mt. Bachelor in Oregon.

Finally, he got his dream job as an air medical pilot. He was acutely aware of how important his job was and was intensely proud of what he did. It is grievously undeniable that his life ended too soon because Gene loved life and he lived it well.

AYS REMEMBERED • NEVER FORGOTT

ERIC TEUBEL

ric Teubel enjoyed being a teacher for the Bloomfield School District. Eric was an EMS professional that was dedicated to bettering himself to ensure he was able to help those in need. Eric was compassionate, professional, and a friend to those he served . Eric worked for Mercy Ambulance for 5 years & Davis County Ambulance service for 5 ½ years. Eric



Teubel will be greatly missed by the citizens he served, as well as family, friends, co-workers and the EMS family.

DR. TIMOTHY D. PETERSON

im spent his professional career working as an Emergency Medical Physician in a variety of settings around God's world. Tim served as Medical Director for regional ambulance services for the City of Windsor Heights IA Fire/ Rescue, City of Clive IA Fire/Rescue, Dallas County Fire/Rescue, and Polk County Paramedic Assist, in addition to EMS/ trauma consulting and volunteer work for many EMS committees and task forces. He was our State EMS Medical Director for the IDPH 1995-2003.

Tim received numerous research grants and awards related to trauma and injury control, with many of his study findings published in medical journals and scientific publications. Tim had a lifelong enthusiasm for missions and medical ministry. God's



healing touch through Dr. Tim's many medical efforts helped save and improve countless lives in lowa and around the world.

VICTOR KRIMMEL

ic passed away unexpectedly on October 8, 2012 at Mercy Medical Center in Sioux City. Vic was very active in the Akron community. He helped start the Akron Westfield Senior Citizen Assistance Program (AWSCAP). His profile was used for their logo. Vic also served with the Akron Ambulance Service as a driver for the 2 1/2 years prior to his death. The ambulance was one of his top priorities. He always took on extra shifts, covered shifts, and made sure



everything was ready for the next call.

DONALD E. BEKKER

on was born on July 6, 1943, in Muscatine. Don was a member of International Association of Firefighters, AFL/CIO Local No. L1672, the Iowa Emergency Medical Services Association (IEMSA) and was a retired member of the Iowa Reserve Law Officers Association. He worked as an Emergency Medical Technician (EMT-I) for Riley Ambulance and Muscatine Ambulance, and also worked for Muscatine City Fire Department. He also worked part-time as a dispatcher for Muscatine Sheriff's Department.



TOD PALMER

od Alan Palmer was born on August 11, 1964. In January of 2010 Tod Joined the Chickasaw County Rescue Squad. He became a first responder in May of 2010 and a certified EMT-B in March of 2011. He was the crew chief of the Fredericksburg First Responders and he served with the Chickasaw County Ambulance Service. During Tod's toughest times his instinct to help others always came first. Tod will always be remembered for his caring attributes and as a guy you could always call a friend.



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DIANNE R. BOWSER

ianne was passionate about caring for people which showed in her volunteerism as a founding member of the Westchester 1st Responders in 1990. Day or night she was on the call to do whatever she was able to do till the end. If there was a call, you knew Dianne would respond. She was active in the Washington County EMS Association and especially with the County Fair First Aid Booth which she religiously sat at the entire week of every



fair since before 2000 and prior to this when the Red Cross sponsored the booth.

WWW.IEMSA.NET ISSUE 02 - SPRING 2013

STARS OF LIFE THE TRIP OF A LIFETIME BY MAX REED, BELLEVUE EMS VOLUNTEER INDIVIDUAL OF THE YEAR

I want to thank you and IEMSA for the honor you presented me at the State EMS Conference last November in Des Moines. Being named the Volunteer Individual of the Year for Iowa was a real honor and humbling experience.

To be picked to attend the Stars of Life Event in Washington DC was more exciting! I appreciate this very much. The trip was a once in a lifetime event for me. It was something I will remember and cherish for the rest of my life. The American Ambulance Association sponsors this event.

The first day of the three-day event was basically getting acquainted and receiving instructions for our visits on the hill the next two days.

Tuesday and Wednesday we were able to visit voting sessions in the House and Senate Chambers. Yes, security was tight but we were glad to have the opportunity to see them operate. We had a personal escort who took us back and forth on the underground rail system, very impressive! My appointment with Representative Tom Latham was a real surprise. I received a document, which Mr. Latham presented to the House of Representatives that morning and is now in the Congressional Record, titled "Tribute to Max Reed".

Tuesday evening was the special awards banquet. Speakers referred to us as "heroes" and told us that of 257,000 EMS

personnel in the US, 80 of us were being recognized at the 2013 Stars of Life Event. Each of us walked across the stage, received a very nice plaque, and had our picture taken to the applause of a room full of comrades, family and friends. This was a night to remember!

Our last morning included a Constituent Breakfast with Senator Tom Harkin and a



meeting in Senator Charles Grassley's office. There we met with Rodney Whitlock as Senator Grassley was in session. At each of our meetings with congressmen we discussed concern over Medicare reimbursement not covering the cost of ambulance providing services.

Truly this was a wonderful experience and I want to thank IEMSA and the American Ambulance Association for this opportunity – and a very special thanks to Brandon Smith for making this trip possible.

HONORING OUR OWN



JOIN US Saturday, November 9th, 2013

AT THE 2013 IEMSA CONFERENCE,

for "Honoring Our Own", our beautiful tribute to our EMS Heroes who are no longer with us.

If you know of any EMS, Fire, Dispatch, EMS Instructor, or Friend of EMS (who made significant contributions to our EMS profession) that is no longer with us and should be honored in this ceremony, please contact Tom Summitt, Thomas Craighton, or Rod Robinson your IEMSA Board of Director members that can help you. Contact information at http://iemsa.net/contact_info.htm

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MARK YOUR CALENDAR!



JOIN US FOR SOME LAUGHS AND FUN WITH STEVE BERRY, NREMT-P a former related cartoon books since his escapades as a paramedic/EMS instructor began 28 years ago. Steve writes a monthly humor column for the Journal of Emergency Medicine, and illustrates cartoons for JEMS magazine! He is also the Public Image Officer for the National EMS Memorial Bike Ride. A full time paramedic for Southwest Teller County EMS in Colorado, Steve seeks world peace along with frequent flyer mileage! His photo may be acquired at any United States Postal Service Office near you!! You will enjoy Steve Berry!



ALSO STOPPING BY Paramedic and instructor with 20 years on the street and more than half that teaching EMS, fire, and emergency management topics. Chris is a frequent author in topics related to public safety issues and presents at conferences varying from local training seminars to international conference events. He is also spokesman for Never Forget Foundation - connecting public safety responders to school students in need of mentoring - and is involved with the Emergency Medical Services for Children National Resource Center Advisory Council. Chris brings some great topics to share with all EMS providers.

...AND MANY MORE GREAT SPEAKERS.

WATCH THE <u>IEMSA E-NE</u> WWW.IEMSA.NET