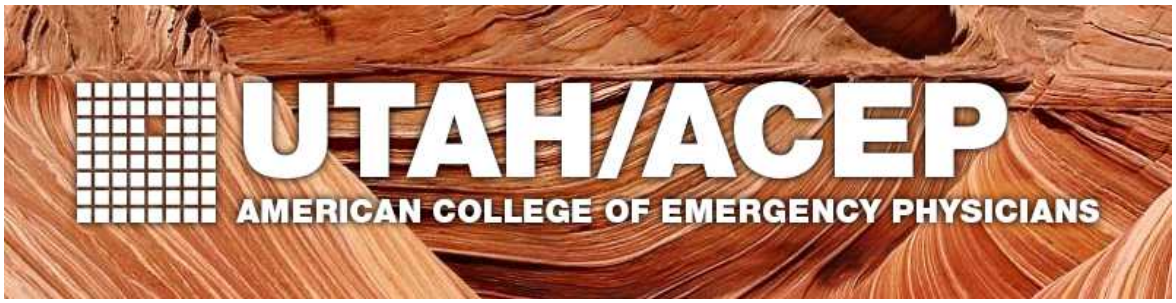
A Newsletter for the Members of the Utah Chapter

Spring 2018



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President's Message
David Mabey, MD

As spring is in the air, with flu season before us and with the summer trauma season ahead of us, it is a good opportunity to take a step back and reflect on our current position. Our 2017 UCEP Fall Summit was a great success. The latest Utah Legislative session is now over and we had several members working jointly with UMA to advance the interests of our patients, medical providers as a whole, and emergency physicians specifically. We can look forward to many things as well. Summer vacation brings many things with it, good and bad. From summer vacation, traveling, to the latest drunken mishap showing up on an EMS gurney, we can accept the less pleasant aspects knowing that many positive things come along together.

I hope we can all stay safe and be able to get at least a little rest and relaxation. Among all of this, we will continue to serve all of you to the best of our ability. I am honored and humbled by the opportunity to serve as the new UCEP president. With the change in leadership, many priorities will stay the same. UCEP will continue to work to support all emergency providers. Support on legislative matters are ongoing, even when the legislature is not in session. We plan to work closely with our colleagues in the UMA to make sure our patients get the best of care and that we will have the support to deliver that care. In addition, in order to represent all of Utah, we want to increase outreach to the rural areas. Many of our needs are the same, whether we work in downtown Salt Lake City, in Logan, or in Panguitch. However, we also want to be able to tailor our efforts to meet needs unique to providers in every area of Utah.

As we move forward, we would love to hear from you. What is working well for you where you work? What things could be improved? What sort of things would you like to see UCEP do to help you and your practice specifically? In addition, we would love to have you involved. Run for the UCEP board. Come join ACEP at the Leadership and Advocacy meeting in May. Even when the legislature is not in session, contact your local representatives and get to know them. Join us at ACEP and at our own UCEP Annual Summit this fall.

Be well and we hope to hear from you,
David Mabey, MD

Methemglobinemia: A Potentially Fatal, Treatable Cause of Cyanosis and Hypoxia

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Dyspnea is a common chief complaint encountered by the emergency physician, constituting 2.4% of ED visits annually. The differential diagnosis is broad and is often attributed to a cardiopulmonary process. However, when a truly cyanotic patient with low oxygen saturation presents to the emergency department, consideration must be given to methemoglobinemia, a rare diagnosis. Understanding this disease process and the

instruments used for monitoring patients can help the practitioner quickly identify suspected cases and promptly administer the antidote- methylene blue.

Methemoglobin (MetHb) is abnormal hemoglobin created by oxidative stress and cannot carry oxygen. In addition, the presence of MetHb makes the remaining hemoglobin bind oxygen more tightly, starving the tissues of precious O2. Low levels of MetHb are made in the body on a daily basis and are enzymatically reduced back to functioning hemoglobin. When this system is overwhelmed, by enzyme deficiency or exposure to certain medications or toxins, MetHb accumulates causing cyanosis. Patients with mild disease may be asymptomatic, whereas high levels >20% can lead to decreased level of consciousness and death.

Consider this diagnosis with all cyanotic patients even if the medication history does not support it or is not available. Common offending agents are oral benzocaine preparations, phenazopyridine, dapsone, nitrates and many others. Inducing agents are found in medications, recreational drugs, chemicals and contaminated soil, food or water. Consider this diagnosis despite not having a known exposure.

Your pulse oximeter is telling you lies. Clinically, a patient that is cyanotic from methemoglobinemia will have pulse ox readings that do not improve with 100% FiO2 and will plateau around 85%. The pulse oximeter measures the difference between infrared light and red light. The pigment of MetHb interferes with this, giving erroneous readings. There will be a > 5 % difference in SpO2 and SaO2 measured on ABG. If you trust your pulse ox, you will underestimate just how hypoxic your patient is and miss the diagnosis. A Methb at 40% will have SaO2 of around 55% with pulse ox reading around 85%.

Know your lab equipment. Most modern-day co-oximeters used for routine venous and arterial blood gases will report a MetHb level in percentage form. Some report in g/dL, which is more difficult to interpret. It’s important to understand the lab testing in your hospital.

There is a life-saving antidote- Methylene Blue (MB). Treat all symptomatic patients and most patients with > 20% MetHb. In patients with underlying anemia, heart and lung disease, consider treating at lower MetHb levels. There are only a few downsides to treating with Methylene blue. In a G6PD deficient patient, MB can precipitate worse oxidative stress and cause hemolysis and should be avoided. You could consider transfusion or exchange transfusion as well as vitamin C in these cases. MB also has some MAOI activity and can precipitate serotonin syndrome in patients on serotonergic drugs, usually at higher MetHb doses (5-7 mg/kg). The patient should recover quickly, but

expect a transient decrease in pulse oximetry due to the blue pigment of the drug.

In summary:

1. Consider the diagnosis of Methemoglobinemia
2. Administer 100% O2, NRB.
3. If no improvement in pulse oximetry , obtain ABG or VBG
4. O2 saturation gap > 5%, suggests hemoglobin dysfunction
5. Confirmatory test.
6. Treat Methylene Blue 1-2 mg/kg IVP over 5 mins if symptomatic
7. Obtain a toxicology consult if available or contact your Poison Control Center
8. Consider the half-life of the offending agent, if known. Repeat MetHb testing or MB administration may be necessary.

References

Barker, et al. Effects of methemoglobinemia on pulse oximetry and mixed venous oximetry. Anesthesiology 1989. Jan 7 (1)112-117.

Hoffman, R. et al. Goldfrank's Toxicologic Emergencies. Tenth edition. Methemoglobin Inducers.

National Hospital Ambulatory Medical Care Survey: 2014 Emergency Department Summary Tables. Centers for Disease Control. Accessed December 2017.

To See or Not to See?
The Radiopacity of Ingested Medications

Austin Badeau, MD. Emergency Medicine Resident PGY-1
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As an Emergency Medicine resident rotating on the toxicology service, I was asked to evaluate a young girl who was admitted for altered mental status. Prior to admission, she was found with an open bottle of ibuprofen and garcinia (a weight loss supplement) with several pills scattered on the carpet. The patient developed a profound metabolic acidosis, leukocytosis, and hyperglycemia. She was intubated and a post-intubation CXR

showed a heterogeneous pill bezoar in the left upper quadrant.

Does this presentation sound nearly pathognomonic for any particular ingestion? To me, radiopaque pills in the setting of metabolic acidosis, leukocytosis, and hyperglycemia read like a board exam question for iron toxicity, so we requested that an iron level be drawn and it came back…normal.

Surprised and a little skeptical, I began to question my anchoring bias on iron toxicity in this case; the presence of radiopaque pills was certainly the component of the presentation that had me and the rest of the team convinced of iron ingestion. I began to wonder, “What pills actually are radiopaque?” While studying for USMLE exams, we are taught that radiopaque medications can be remembered using the pneumonic: CHIPS

- **C**ocaine packed condoms/calcium carbonate
- **H**eavy metals
- **I**ron/iodides
- **P**sychotropics (TCA’s, Thorazine)
- **S**olvents (CCl4)

A quick literature review revealed that this question has been studied with varying results. A study published in 1987 in the Annals of Emergency Medicine examined 312 different medications. Each pill was X-rayed through 5cm, 15cm, and 25cm of water. 35 of the pills were radiopaque in >15cm of water. These 35 medications were then x-rayed in a human cadaver model. 23 out of the 35 medications were visible in the human cadaver x-ray model. In this study, iron was one of the 25 radiopaque medications; ibuprofen was not.

Another more recent study published in 1997 in the *Mayo Clinic Proceedings* examined 50 medications. Each medication was also x-rayed using standard exposure technique, distance, and “patient equivalent phantom” to simulate abdominal tissues. All 50 pills were visible on x-ray. Iron and ibuprofen were both included in this study.

It is difficult to definitively account for the different results of these two studies. Perhaps, chemically fixed cadaveric tissue is more dense that normal human tissue, thus not a good study model. Maybe the “patient equivalent phantom” was not dense enough. In our case presented above, it is possible that the cumulative density created by a pill bezoar was more radiopaque than a single pill. Additionally, digital imaging and “windowing” the x-ray allowed for significantly better visualization of the pill bezoar. The before mentioned 1987 study was done using plain film, thus no ability to adjust exposure, contrast, etc.

Despite their differences, both studies conclude that the CHIPS pneumonic represents an incomplete list of radiopaque medications. This conclusion is evident in the case of our young girl who we concluded did ingest ibuprofen and it was certainly radiopaque on x-ray. Therefore, the presence of radiopaque pills should not confine our differential diagnosis to the CHIPS pneumonic and is only one of many findings that help identify ingestions of an unknown substance.

References:

Florez MV, Evans JM, Daly TR. “The radiodensity of medications seen on x-ray films.” *Mayo Clinic Proceedings*. 1998. June 73(6); 516-519.

Olson KR. Olson K.R. Ed. Kent R. Olson, eds. *Poisoning & Drug Overdose, 6e* New York, NY: McGraw-Hill; 2012.

Savitt, DL. Hawkins, HH. Robert JR. “The radiopacity of ingested medications.” *Annals of Emergency Medicine*. 1987. March 16(3); 331-339.

Preparing to Give Testimony before State Legislators

Harry J. Monroe, Jr.
Director, Chapter and State Relations, ACEP

Over the years, I have worked with many lobbyists preparing for upcoming meetings. In some of those instances, the lobbyist would be gathering information to represent us himself in meetings of stakeholders or legislators or staff. In other instances, the legislator was preparing the client to give testimony at a legislative hearing.

In all of these circumstances, every good lobbyist I have worked with has required an answer to this question: what is the argument of the other side? What will our opponent say?

If you do not have a fair answer to that question, then you are not yet prepared to provide your testimony.

Because we tend to live in an environment in which we share our views with people who agree with them, too often we fail to think through the alternative point of view. Thus, insurers are against us, we often state, for example, because they are only in this for the money. They don’t care about their “customers,” our patients. The bottom line for their shareholders is their only concern.

My point is not that there is not a point to this. However, no insurer is going to arrive at a hearing to explain that, you know, we caught him. He doesn't care about anything but making a buck.

There are no Perry Mason endings at legislative hearings. Insurers don't confess.

The truth is that insurers, wrongly I think most of the time, have their own story, their own rationale, for their policy. We have to understand that story so that we are sure to be able to counter it – and to avoid walking into traps as we tell our own story.

None of this to say that we should have a need to fully explain or defend the insurer's point of view. Quite the contrary, a more typical approach, as appropriate, would be to briefly summarize the opposition's position before pivoting to an explanation as to why it is wrong and how we have a better solution to the problem that the policy maker wants to solve.

That sort of response is a way of showing ourselves to be fair minded and solutions oriented. It is a crucial part of effective state advocacy.

Articles of Interest in *Annals of Emergency Medicine*

Sam Shahid, MBBS, MPH
Practice Management Manager, ACEP

ACEP would like to provide you with very brief synopses of the latest articles in ***Annals of Emergency Medicine***. Some of these have not appeared in print. These synopses are not meant to be thorough analyses of the articles, simply brief introductions. Before incorporating into your practice, you should read the entire articles and interpret them for your specific patient population.

Kellogg K, Fairbanks RJ.
Approaching Fatigue and Error in Emergency Medicine: Narrowing the Gap Between Work as Imagined and Work as Really Done.
Annals of Emergency Medicine – April 2018 (**Epub ahead of print**)

This is an editorial commenting on an article by Nicolas Perisco and colleagues, “Influence of Shift Duration on Cognitive Performances of Emergency Physicians: A Prospective Cross-Sectional Study.” The article reports that there was significant cognitive decline after a 24 hour emergency shift, though not one after a 14 hour shift. The editorial goes on to describe some of the consequences of their finding, for example the fact that any cognitive decline likely also occurs in all emergency workers. They suggest we repeat the study using 8 and 12 hours shifts which are more common in the US.

Hall MK, Burns K, Carius M, Erickson M, Hall J, Venkatesh A.
State of the National Emergency Department Workforce: Who Provides Care Where?

This is a cross-sectional study that analyzed the Centers for Medicare and Medicaid Services’ (CMS) 2014 Provider Utilization and Payment Data Physician and Other Supplier Public Use Files and found that of 58,641 unique EM clinicians, 61.1% were classified as EM physicians, 14.3% as non-EM physicians, and 24.5% as advanced practice providers. Among non-EM physicians categorized as EM clinicians, Family Practice and Internal Medicine predominated. They also found that urban counties had a higher portion of EM physicians compared to rural counties.

Stiell IG, Clement C M, Lowe M, Sheehan C, Miller J, Armstrong S, Bailey B, Posselwhite K, Langlais J, Ruddy K, Thorne S, Armstrong A, Dain C, Perry JJ, Vaillancourt C.
Multicentre Program to Implement the Canadian C-Spine Rule by Emergency Department Triage Nurses.

This multicentre two-phase study demonstrated that with training and certification, ED triage nurses can successfully implement the Canadian C-Spine Rule, as reflected by more rapid management of patients, and no missed clinically important spinal injuries.

Lumba-Brown A, Wright DW, Sarmiento K, Houry D.
Emergency Department Implementation of the Centers for Disease Control and Prevention Pediatric Mild Traumatic Brain Injury Guideline Recommendations.

These are the Centers for Disease Control and Prevention’s (CDC) 2018 “Guideline on the Diagnosis and Management of Mild Traumatic Brain Injury Among Children,” published in JAMA Pediatrics. As the Emergency Department clinicians may be the first healthcare provider to evaluate an injured child they play an important role in the

recognition and management of mild traumatic brain injury. The key practice-changing takeaways in these new guidelines include: using validated and age-appropriate post-concussion symptom rating scales to aid in diagnosis and prognosis; and incorporating specific recommendations for counseling at the time of ED discharge.

New Resources from ACEP

The following **policy statements** were recently revised and approved by the ACEP Board of Directors:

- Alcohol Advertising
- Trauma Care Systems

Four information papers and one resource were recently created by several ACEP committees:

- Disparities in Emergency Care – Public Health and Injury Prevention Committee
- Empiric and Descriptive Analysis of ACEP Charges of Ethical Violations and Other Misconduct – Ethics Committee
- Fostering Diversity in Emergency Medicine through Mentorship, Sponsorship, and Coaching – Academic Affairs Committee
- The Single Accreditation System – Academic Affairs Committee
- Resources: Opioid Counseling in the Emergency Department – Emergency Medicine Practice Committee

These resources will be available on the new ACEP website when it launches later this month. In the meantime, for a copy of any of the above, please contact **Julie Wassom**, ACEP's Policy and Practice Coordinator.

Help Fight to Protect Our Patients Against Anthem's Unlawful Practices

ACEP continues to keep the pressure on Anthem Blue Cross Blue Shield for denying coverage to emergency patients in six states with a **new video campaign**. More will

follow if this effort isn't stopped. Anthem's policy violates the prudent layperson standard, as well as 47 state laws.**Spread the word!** #FairCoverage #StopAnthemBCBS

Graduating Residents: Renew your Membership Today!

Take advantage of huge discounts and freebies!

ACEP is offering $20 off national dues, PEER for $50 and a free 2018 Graduating Resident Education Collection of 25 courses specifically for emergency physicians in their first year out.**Click here** to take advantage. Those who renew also get a cool ER/DR T-Shirt and Critical Decisions in Emergency Medicine online free for one year. **Renew now** using Promo Code FOCUS2018. Check it off the list!

Don't Miss the Premiere Event for Emergency Medicine Advocates and Leaders!

Attendees at the annual **Leadership & Advocacy Conference** will advocate for improvements in the practice environment for our specialty and access for our patients. First-timers will receive special training on how to meet and educate your Members of Congress while seasoned participants will build upon valuable Congressional connections. A new "**Solutions Summit**" has been added on May 23 where attendees will discover innovative solutions on key topics such as opioids and end-of-life issues that demonstrate emergency medicine's value and leadership. CME credit will be given for the Summit.

Confirmed Speakers Include:

- U.S. Surgeon General Vice Admiral (VADM) Jerome M. Adams, M.D., M.P.H.
- HHS Assistant Secretary for Preparedness and Response Bill Kadlec, MD will be presenting during the Public Policy Town Hall on Emergency Preparedness.
- Amy Walter, National Editor for The Cook Political Report, will offer her predictions for the mid-term elections.
- Senator Bill Cassidy, MD (R-LA)
- Representative Kyrsten Sinema (D-AZ)

REGISTER TODAY!

Not able to attend the LAC18? Now is not the time to sit on the sidelines.

Join the **ACEP 911 Grassroots Legislative Network** today to help emergency medicine convey our principles and priorities to legislators in Washington DC and their home districts. With the mid-term elections coming up in November and party control of the House and Senate hanging in the balance, now is the perfect time to reach out on the local level to educate your legislators about the specialty and offer to serve as a local resource on issues relating to the delivery of health care.

Already a member of the Network? Take your advocacy to the next level. Host an emergency department visit for your legislator or invite them to meet with a group of local emergency physicians from your chapter. Visit the **ACEP Grassroots Advocacy Center** for detailed information on how to join the program and start engaging with legislators today!

Free Training on Medication-Assisted Treatment

Eight hours of training on medication-assisted treatment (MAT) is required to obtain a waiver from the Drug Enforcement Agency to prescribe buprenorphine, one of three medications approved by the FDA for the treatment of opioid use disorder. **Providers Clinical Support System (PCSS)offers free waiver training for physicians to**

prescribe medication for the treatment of opioid use disorder.

PCSS uses three formats in training on MAT:

- Live eight-hour training
- “Half and Half” format, which involves 3.75 hours of online training and 4.25 hours of face-to-face training.
- Live training (provided in a webinar format) and an online portion that must be completed after participating in the full live training webinar (Provided twice a month by PCSS partner organization American Osteopathic Academy of Addiction Medicine)

Trainings are open to all practicing physicians. Residents may take the course and apply for their waiver when they receive their DEA license. For upcoming trainings consult the **MAT Waiver Training Calendar**. For more More information on PCSS, **click here**.

Become an Accredited Geriatric Emergency Department Today

Recognizing that one size ED care does not fit all, **The Geriatric Emergency Department Accreditation Program** (GEDA), was developed by leaders in emergency medicine to ensure that our older patients receive well-coordinated, quality care at the appropriate level at every ED encounter. Become accredited and show the public that your institution is focused on the highest standards of care for your community’s older citizens.

Make Change Happen in ACEP

The Council meeting is YOUR opportunity to influence the ACEP agenda. If you have a hot topic that you believe ACEP should address, write that resolution! It only takes two members to submit a resolution. **Click here** to learn the ins-and-outs of Council Resolutions, and **click here** to see submission guidelines. **Deadline is July 1, 2018.** Be the change - submit your resolution today.

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