

# The Fast Track

Summer 2016 Issue

An Emergency Medicine Publication

BACKPACKING TIPS:

## FIRST AID KITS

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WHY AREN'T  
YOU DOING

## OMT?

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NOT ALL  
HYPOTHERMIA  
REQUIRES  
WINTER  
WEATHER



# The Fast Track

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# Letter from the Editor

**Adaptability** - the ability for oneself to adjust readily to different conditions.

This concept is one of the guiding tenets to wilderness and limited-resource medicine. When facing medical emergencies outside the confines of a well-stocked and staffed hospital, the ability to be proactive, flexible, and quick-thinking can truly be life or death for patients. In these situations of limited resources, a physician is left only to their medical knowledge and general MacGyver-ish self to find and execute a reasonable plan for his/her patients. Splints made from whatever lies near the trail, litters made of climbing rope, makeshift shelters, and similarly savvy creations are the name of the game, and these are generally not the products of extensive literature-review studies, but more often an application of simple resourcefulness and action.

In many ways, it is not difficult to see how the same sort of thinking can be beneficial even in the hospital setting. The backdrop may not be nearly as breath-taking, but the critical decision-making and versatility required are no different. A hospital without open beds, a short-staffed ED, or even something as basic as a new EMR system will demand the exact same flexibility and adaptability from emergency medicine physicians.

Similarly, EM residents and the hopeful EM residents-to-be can surely benefit from the same resiliency. Surviving massive workloads, attempting to digest all of the greater medical fund of knowledge, and maintaining a happy and motivated self is the ultimate exercise in growth and adjustment. Amidst this relative chaos, those that are most flexible and able to adapt to these challenges are ultimately the most successful.

I bring up all these points because emergency medicine, particularly Osteopathic graduate medical education is going through monumental changes right now. What the future holds for myself and my other medical student colleagues remains to be told. The next few years of the ACGME merger may bring about some of the biggest changes in osteopathic medicine since its founding. But, like all things in medicine, I believe that by remaining flexible and open to change we will surely survive.

In my own opinion, one of the most alluring elements of wilderness medicine lies in navigating the unknown. The environment, the conditions, the resources, the patients, and the presentations all force us to think on our feet and dive headfirst into a myriad of challenges. For me, these challenges are exceptionally stimulating and exciting. In the same way, the great unknown of the current medical education landscape gives all of us a chance to step out of our comfort zones and test our mettle in navigating all the changes surely to come. Our adaptability could never be more important. In the words of the wiser Charles Darwin, "It's not the strongest or the most intelligent who will survive but those who can best manage change."

Jacob Current, OMS-IV

Ohio University Heritage College of Osteopathic Medicine

INTERESTED IN CONTRIBUTING?

Let us know: [FastTrack@ACOEP.org](mailto:FastTrack@ACOEP.org)

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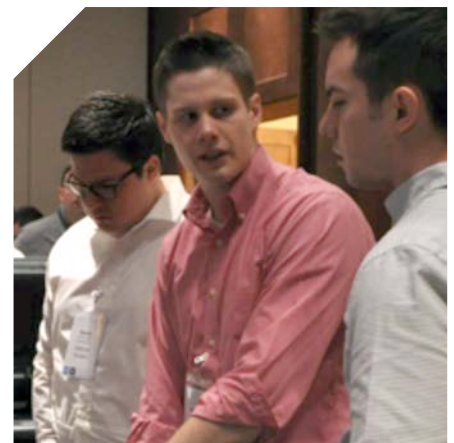
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# PRESIDENTIAL MESSAGE

## Resident Chapter

Summer is here! We have had a very busy spring here in the Resident Chapter with trips to Washington D.C. for DO DAY on the Hill and the Leadership and Advocacy Convention. Both meetings offered opportunities to bring EM topics to the front of the Congress and Senate's minds. Bills addressing the opiate crisis and EMS access to Schedule II medications are currently being discussed in the House and Senate. Check out [www.acoep.org/advocacy](http://www.acoep.org/advocacy) to learn more!

The ACOEP Resident and Student Chapters are actively working to improve our efficiency and cooperation. In addition to working more closely together, the Student and Resident Boards of ACOEP and EMRA are excited to bring even more offerings to the fall Scientific Conference in San Francisco. We hope to see all of you there!

Please join us on our social media pages to stay up to date! We are active on Facebook and Twitter, staying on top of the current literature and FOAMed activity. Follow us on Twitter @ACOEPRC .

John Downing, DO  
ACOEP National Resident Chapter President  
ACOEP Board of Directors  
Midwestern University  
Emergency Medicine  
@johntdowning

# PRESIDENTIAL MESSAGE

## Student Chapter

**A**nother academic year has come and gone, and I would like to personally congratulate everyone on your accomplishments over the past year!

I wanted to give everyone a quick update on what has been going on this past spring. In beautiful Scottsdale, AZ, we learned from some of the best and brightest in our field at our annual Spring Seminar. Then a few weeks later we unified our voice with the rest of our profession at DO DAY on Capitol Hill. And finally, nearly 100 of us joined together in Wyandotte, MI for another amazing Regional Symposium at Henry Ford Wyandotte's Emergency Medicine residency program.

The regional symposium at Henry Ford Wyandotte was the final student event of this academic year and we could not be more pleased with the quality of the event. The student chapter board would like to publicly thank the Program Director Dr. Spencer Solomon, Assistant Program Director Satheesh Gunaga, residents, faculty, and staff for making this such a great symposium. The event was incredibly well organized, the didactics were top notch, and the breakout labs were excellent.

I want to remind everyone of the ACOEP Scientific Assembly being held at the Union Square Hilton in San Francisco, CA, November 1, 2016 – November 5, 2016. Student events will be held Wednesday, November 2nd through Friday, November 4th. Here is a quick preview of what we have planned for the student events. Wednesday will be full of labs and lectures dedicated to helping you improve your clinical knowledge and skills to one day match into the residency of your choice. Thursday will begin with a residency expo in the morning followed by our national student board elections in the afternoon. And on Friday, we will host our annual leadership academy.

Good luck to everyone on their board exams, and if you are a first year... enjoy every minute of your summer!

"In the end, it's not the years in your life that count. It's the life in your years." –Abraham Lincoln

Sincerely,

Timothy Bikman, OMS-III

ACOEP – National Student Chapter President

WVSOM Lewisburg, WV

# Where Thoreau Meets Robbins

## You Will Find MedWar Tennessee 2015

Patrick Platzer, OMS-II

Lincoln Memorial University  
DeBusk College of Osteopathic  
Medicine (LMU-DCOM)

This summer I found myself sitting on a bench at Annapurna Base Camp in Nepal (elevation 13,550 feet) trying to remember the difference between high-altitude cerebral edema (HACE) and high-altitude pulmonary edema (HAPE). After spending several minutes trying to differentiate between the various Romberg's test findings, I decided to call it quits. Whatever confusion I was experiencing was due to the altitude, and I knew that I would have to descend soon. However, just as we decided to start the long trek home, the fog cleared up long enough to grant us a view of the giants around us. The sight of Machapuchare's jagged fishtail peaks and the sheer size of Annapurna were the inspiration for several of this year's MedWar scenarios. Luckily, my friends in the Wilderness Medicine Society had equally amazing experiences that they couldn't wait to transfer into scenarios for this year's event.

MedWars is an annual endurance race that tests the participants' physical abilities, as well as their capacity to quickly and effectively assess and treat medical scenarios in the backcountry. The athletes participate in teams of three, and this year's event saw teams from Louisiana, Kentucky, Illinois, Tennessee, and Georgia, heed the call of the wild. The race covered a tough 10-mile course that stretched over three states, starting and finishing at Lincoln Memorial University-DeBusk College of Osteopathic Medicine (LMU-DCOM) in

Harrogate, Tennessee. From there it took the participants to "the Pinnacle," a scenic overlook located in the Cumberland Gap National Park which encompasses parts of Virginia, Kentucky, and Tennessee.

The Wilderness Medical Society of LMU-DCOM planned both the course and scenarios. This year's scenarios featured modified situations of real events encountered by the authors. The first scenario was a multiple victim trauma accident due





to improper ATV usage. From there, the mountain bikers set out to conquer a monstrous climb, requiring them to gain several hundred feet on muddy terrain. Nestled in historic

Cumberland Gap, Tennessee were two further scenarios that featured tribal members hallucinating from accidental ingestion of poisonous mushrooms and "Hank" (a CPR manikin) drowning in chilling rapids. From there, the athletes climbed to the Pinnacle Overlook (elevation 2,440 feet) to revive a patient suffering from high-altitude cerebral edema. Many teams took a quick break to have their picture taken and survey the miles they had covered. From there, the race took them back to Tennessee via winding trails containing gunshot victims and Sasquatch attacks. To finish the course, the participants launched spears at deer (hay bales), hatchets at

rabid coyotes (tree stumps), and climbed to the top of a 35-foot rock wall to retrieve and administer an AED.

The race was won by "The Tumornators" of Lexington, Kentucky in an impressive time of one hour and 55 minutes. Final times are calculated by taking the overall time and deducting points earned at the scenarios.

The best part about MedWars Tennessee 2015 was the camaraderie shared by those who braved the elements, the climbs, and the hallucinating tribal members. Everyone stuck around to swap stories about their successes and defeats in this year's race. The event was made possible through the hard work of a dedicated group of students who saw potential in their abilities and wanted to utilize their slice of Appalachian beauty. The Wilderness Medical Society was aided by the tireless support of over 50 volunteers comprised of medical students and outdoor enthusiasts.

Whether our next patients are high up in the Himalayan Mountains or in our own community, we have to be innovative and persistent to make an impact on those around us. Seeing the hard work, dedication, and teamwork of the participants and volunteers alike renewed my drive to serve those who need it most.

# BACKPACKING TIPS: FIRST AID KITS

Kevin McLendon, OMS-III  
Lincoln Memorial University  
DeBusk College of Osteopathic Medicine

A break from school, you finally get to see the outside world again. What better way than to go for a hike, better yet a weekend backpacking trip. The average person doesn't have a pack sitting by the door ready to go, so what do you need? We work in medicine now and from the day we were accepted, people expect us to know how to fix any and everything. The regular stuff isn't an issue: water, food, clothes, shelter, etc. Then you think, "I need to be prepared. I might need this, and let's take this too." Next thing you know you have more than a couple pounds of medical supplies and think nothing of it.

You go on your much anticipated adventure and a few miles in start noticing how heavy your pack is. Maybe you are only going a few miles more, or maybe like me you start to wonder if you bit off more than you can chew... there were 96 miles between my goal and me (Hundred-Mile Wilderness on the Appalachian Trail in Maine). Each step you take when backpacking makes the weight of the load you carry more influential. One way that I cut the weight on my back in half was looking at that massive bag of medical supplies I thought that I needed.

We have very busy lives, when we have a chance to get away it often is not for very long, so it's key that we make the most of that time. For me this comes as learning how to cut pack weight without sacrificing safety. My kit in Maine weighed nearly two pounds, today it weighs four ounces.

While nothing can replace experience and wilderness medicine training, below are my recommendations for your standard kit and the reasons behind them. This list is to serve as a basis for your pack, although every environment presents different challenges and may require additional equipment or tools.

- **MOLESKIN** – Blisters are your worst enemy. These can also function as semi-waterproof bandages. Some people



choose duct tape that they already carry for multi-purpose application.

- **1/2 OUNCE OF ANTIBIOTIC OINTMENT** – Use on minor cuts, scrapes, and the inevitable blisters after they pop. Little packets are nice, just don't forget to restock.
- **ANTI-CHAFE (ZINC OXIDE/BODY GLIDE/ETC.)** – Everyone swears by their own go-to product, regardless of what you choose, you WILL need some. A mistake here is only made once.
- **BANDAGES** – Just pack a couple larger and couple standard size. The butterfly size is great for various applications and any larger cuts where you want to approximate the edges. Also, invest in the better fabric kind that can stay in place for more than one day, the cheap ones are gone as soon as you sweat. Also, two 4-inchX4-inch gauze pads are useful for anything larger or for bad blisters when you didn't listen to the second bullet point.
- **SECTION OF 1-INCH MEDICAL TAPE** – This can be used for blisters, small nicks, and allows you to save duct tape or bandages when you don't really need them.
- **SAFETY PINS (3)** – general use, most specifically for turning your clothing into a sling
- **MEDS** – The basic three: Ibuprofen or NSAID of your choosing, antidiarrheal, Benadryl. You will have aches and pains, so it's always good to have extra for any bad

injuries. While we learn that treating diarrhea with an antidiarrheal can worsen the infectious cause, it is a preferable alternative to dehydration on the trail. Benadryl for allergies or any of the other H1 blocker side effects. Use mini plastic medicine baggies (together these only cost a few grams), and make sure you have enough.

- **PERSONAL MEDS** (EpiPen, home meds, etc.)
- **TWEEZERS** - the Swiss Army tweezers are not sufficient for removing ticks. If you plan to be out in the wilderness for more than 24 hours look into buying a pair of plastic tick removers.

That is all I keep dedicated to my first aid kit. My last multi-day hike was 78 miles and all I used from the kit was ibuprofen and anti-chafe.

There are other things that you also want to keep in your pack, not necessarily in the first aid kit.

- **HAND SANITIZER** – Not just for hands but cleaning ugly wounds. The burn means it is working.
- **LIP BALM** – Not long into any hike and you'll be reaching for this.
- **SUNSCREEN** – Bring some year round, even when there is snow, without leaf cover you will get sunburned. Also make sure it hasn't expired – another mistake you only make once.
- **DUCT TAPE** – 12 feet wrapped around a hiking pole if you have one handy, otherwise wrap around a straw or something small and lightweight.
- Swiss Army classic knife – The small keychain one is a great lightweight option: knife, scissors, and tweezers.
- **ACCESSORY ROPE** – 12-25 feet of DynaGlide weighs nothing but can be used for bear bags, extra guy lines, clothing line, splint fixation, anything you need (Paracord is a cheaper but heavier option).
- **MINI LED KEY CHAIN LIGHT** – Back up if your main light dies, it will suffice for a night.

Most people's first thought is trauma, especially broken bones and hemorrhage but this is far less likely than the mundane simple and obnoxious stuff, like blisters. However, for broken bones, splints using hiking poles or longer sticks along with clothes, rope, or tape can affix them in place. For hemorrhage, apply direct pressure; if that fails make an improvised tourniquet, such as a Spanish windlass tourniquet with a stick and shirt/belt.

When you look to your pack most things should be able to serve multiple purposes, if they do not, likely they can be replaced with something that does. Getting to know your gear and becoming comfortable with less than you originally

thought was necessary takes time and experience. Now without the food and water in my pack I carry less than 10 pounds of gear for weather above 20°F.

The majority of wilderness medicine is prevention, and being prepared when there is a problem. Being prepared doesn't have to weigh you down. There are commercially available kits or you can easily put one together. Don't get caught into thinking that you have to bring the kitchen sink. After all, your goal is to enjoy yourself, not to see if you can walk with 35 pounds on your back.

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# Saturday Morning Dilemmas



## *What kind of ride?*

As a medical student, our Saturday morning dilemmas usually fall along the lines of: "How long can I sleep?" and "Pizza or cereal for breakfast?" But on one fall morning, 127 WVSOM students were faced with the dilemma of having to choose to fly on an Army MEDEVAC Blackhawk HH-60L, a HealthNet Airbus Helicopter EC-135, or an AirEvac Bell 206 L4 Long Ranger. Are there any bad options? I argue no.

WVSOM students acting as moulage victims with local hospital residents partnering with EMS and fire responders, smoke, flames, and a "crashed" airplane created the scene for a statewide mass casualty drill at the Raleigh County Airport near Beckley, WV.

More than 145 WVSOM faculty, staff, and students volunteered for the event, with more than 400 participants and 30 agencies from across West Virginia. This mock disaster was held as an unexpected drill for many local responders and provided training in incident command, fire suppression, triage, Chemical, Biological, Radiological, Nuclear, and high yield explosive (CBRNE) detection and decontamination, emergency medical care to the injured, landing zone setup and control, crime scene investigation, and mortuary support. The debriefings of the event have led to many improvements in future local and state responses.

"Preparation and collaboration can only be learned through conducting an exercise or responding to a real event," WVSOM Alumnus, West Virginia State Surgeon and West Virginia Air National Guard Col. Steve Eshenaur, DO said of the

importance of organizing a training of this magnitude. "Every responder walked away from this event having first-hand experience collaborating with other agencies and learning what preparation is required to conduct a better response in the future."

As an event planner and exercise controller, I was able to assist in developing the multi-faceted scenarios over seven months, creating objectives for responding agencies, and then on the day of the event, providing "injects" to the EMS/fire/communications command posts to shape the scenario. We executed the first hour of the exercise in real time then leaped forward in time to permit follow on assets to play. Examples were the National Guard CBRNE Enhanced Response Force Package (CERFP) and Civil Support Teams (CSTs) that provide a phased capability. The CSTs detect and identify CBRNE agents/substances, assess their effects, advise the local authorities on managing response to attacks, and assist with requests for other forces. These units provide key relationships and knowledge for local responders.

The mock airplane crash, which was one of the largest mass



James Mason, OMS-III  
West Virginia School of Osteopathic Medicine

casualty training events in West Virginia's history, brought realism and ranged from walking, wounded, confused, and expiring patients, patients in need of extrication from trees, multiple pediatric patients, and even included a pre-term labor scenario. All of this was with live fire and smoke generators complicating the scene. Victims were not only scattered across the airplane and runway, but also in nearby woods, including one in a tree.

Victims were flown via Blackhawk helicopters, Air Evac and HealthNet helicopters to Raleigh General Hospital and Beckley Regional Hospital. Debriefing with my classmates brought up comments like: "Would it really take this long to find us?" "Would this many people respond?" and "This was an event you had to experience to understand its complexity."

My takeaways for fellow students are: (1) Translate your

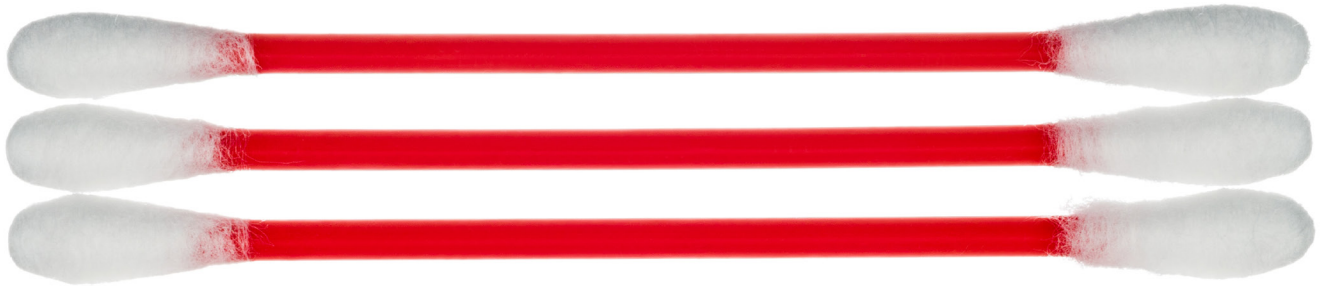
Mentor, Dr. Eshenaur, has shown me ways to operate effectively locally, federally, and globally while balancing work and family life. The exercise controller was called overseas just weeks before the event, and while I had planned the event extensively, I only hesitated briefly when given the task to feed the scenario injects to senior Fire and EMS chiefs. It expanded my envelope on what I could do while working with leaders with decades of experience. When we discussed how to find so many talented volunteers, we thought no one could act out medical conditions more realistically than Osteopathic Medical students. "The participating students from WVSOM provided a superb level of realism to the mass casualty exercise by simulating the moulage injuries as would be found in an aircraft accident", Dr. Eshenaur said.

The responding agencies conducted an after action review where representatives deemed the value of the exercise in

**"EVERY RESPONDER WALKED AWAY FROM THIS EVENT HAVING FIRST-HAND EXPERIENCE COLLABORATING WITH OTHER AGENCIES AND LEARNING WHAT PREPARATION IS REQUIRED TO CONDUCT A BETTER RESPONSE IN THE FUTURE."**

passions into your work and life will be more enjoyable; (2) Find mentors that you can see yourself becoming; (3) Never be afraid of expanding your comfort envelope; (4) Seek to surround yourself with talented people. Being a paramedic and Navy MH-60S pilot, I often seek opportunities to work with aviation EMS, which helps to motivate you through seven months of planning. My WVSOM Rural Health Initiative

removing assumptions, encouraging collaboration, identifying strengths and weaknesses, determining capabilities, and implementing plans that had been developed individually into a cohesive response. "Confidence in the ability of the participating agencies to respond to an incident was markedly improved by the exercise," Eshenaur stated.



# RAPID FLU TESTING IN THE ER TO SWAB OR NOT TO SWAB?



Shawn Sethi OMS-III, Nova Southeastern University

Recently a 37-year-old female with no significant past medical history presented to a local emergency department with abrupt onset throat pain and a subjective fever for two days. Her pain was non-radiating, characterized as an aching sensation, and rated at an 8/10. In addition to the pain, she admitted to associated shortness of breath, mild chest pain, nausea, vomiting, decreased appetite, cough, nasal congestion, and malaise. She was febrile at 102.2, tachycardic at 124 bpm and the physical exam was benign. Before the patient was assigned a bed in the ED she had been seen in the triage area of the waiting room. The triage physician had ordered a CBC, CMP, chest x-ray, CT of the neck to rule out a peritonsillar abscess, blood cultures, and a lactic acid level. After the attending physician and I saw the patient, a decision was made to cancel the CT scan, blood cultures and lactic acid orders and instead the patient received a rapid nasal swab for influenza test. It came back positive.

When should patients receive the nasal swab to test for influenza? According to the latest CDC guidelines management should be based on the prevalence of flu in your area and whether or not you are seeing a patient during peak flu season months (usually November through March). This patient had upper respiratory infection symptoms along with other concerning issues. In this case, the relatively inexpensive (less than \$50) and fast (most take less than 20 minutes) rapid flu swab saved the patient from much more expensive tests and imaging studies. Instances when the rapid flu swab may be indicated include for those patients who are hospitalized, immunocompromised, or about to undergo a battery of testing

(like a lumbar puncture or CT scans) for symptoms which may be explained instead by influenza. However, the rapid flu swab should be used sparingly when it comes to most patients in the ED. The sensitivity of the rapid flu test varies widely, from 50-70%, while the specificity is much higher at 90-95%.<sup>1</sup> With such a poor sensitivity, the rapid flu test will not pick up everyone with the virus and a negative result does not bring you closer to a diagnosis. On the other hand, due to the high specificity of the test, a positive result is promising for influenza. In this patient, the rapid flu swab (which can be done in the interim before other diagnostic scans) prevented a much more extensive (and expensive) workup which could

have led to unnecessary morbidity. Now, a patient with flu-like symptoms presenting during peak flu months would also not benefit from the rapid flu swab. A positive or negative result will not change your clinical decision making, so in these patients, high clinical suspicion of influenza is enough to diagnose and treat.

So, the rapid flu comes back positive, now what? The most commonly used antiviral is oseltamivir (Tamiflu®), a neuraminidase inhibitor. However, oseltamivir should be used judiciously in the ED. The drug is most beneficial when used within 24 to 30 hours and only reduces the duration (not the severity) of the disease course by approximately one day. Unfortunately, influenza peaks in severity on the second or third day and in a study by the Infectious Disease Society of America, only 30% of patients presented to their physician less than two days after symptoms began.<sup>2</sup> Oseltamivir may also

increase nausea and vomiting and does not appear to reduce the incidence of pneumonia. At an average cost of over \$100, this drug may not be worth the trade-off for a short reduction in disease course, especially in an otherwise healthy patient presenting to the ER. However, it should be considered in patients who are more likely to suffer from the effects of the flu, such as those over 65, in nursing homes or with chronic medical conditions.<sup>3</sup>

As with any medical test, care should be given for cost effectiveness and safe use. The rapid influenza test in the ED has the potential to save patients (and physicians) from a slew of unnecessary and expensive tests. However, of equal importance, we should be careful to not overuse this test on patients when it is unlikely to change the clinical decision-making or outcomes.

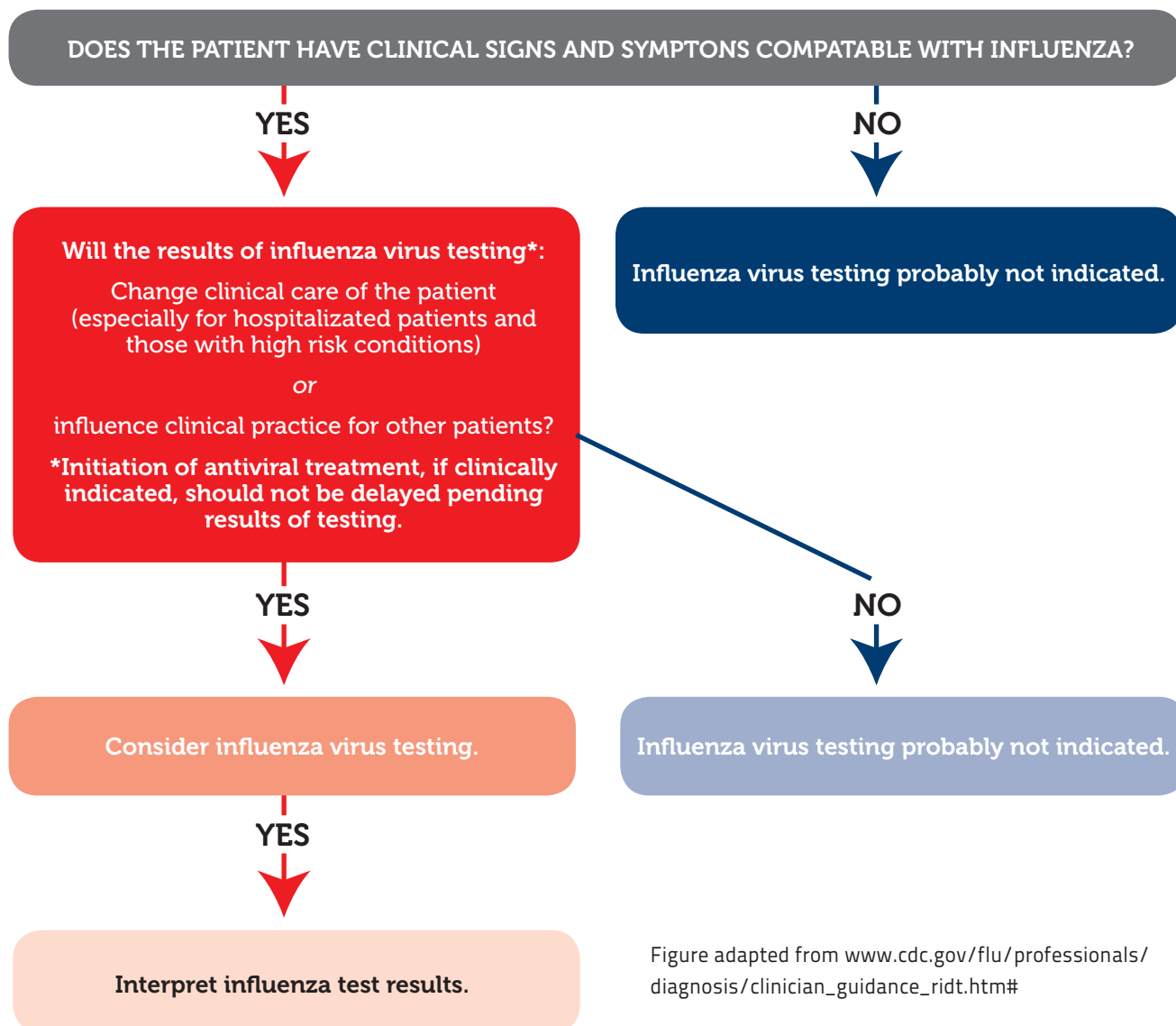


Figure adapted from [www.cdc.gov/flu/professionals/diagnosis/clinician\\_guidance\\_ridt.htm#](http://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm#)

# 2016 SPRING SEMINAR RECAP

**Who:** ACOEP Student Chapter  
**When:** Wednesday, March 30th, 2016  
**Where:** The Westin Kierland, Scottsdale, AZ



While the Spring Seminar stretched between March 28th to April 2nd, 2016 for our parent chapter, the ACOEP student chapter events took place in one fast-moving day midweek. We put our student members to the test with one day packed full with activities.

We kicked off our morning with an ultrasound lecture on FAST (focused assessment with sonography in trauma) followed by an ultrasound lab sponsored by EMP. Students had the ability to apply what they learned in lecture directly on some amazing student chapter & resident chapter board member volunteers. They were able to practice their ultrasound skills while performing some FAST and vascular exams. [In a quick VSAS search, there appears to be 25 separate emergency medicine ultrasound rotations available to osteopathic medical students for those interested in spending 2-4 weeks honing those skills. There are even more programs listed in a Google search.]

Next, we hosted an informal residency program panel that represented five very distinct programs. Thank you to Drew Kalnow of Doctor's Hospital, Jamie McKee of Kent County Memorial Hospital, Ben Boswell of Mount Sinai Medical Center, John Downing of Midwestern University, and Adam Sadowski of Ohio Valley Medical Center. As one of the ACOEP-Student Chapter Conference Co-Chairs, I moderated the event beginning with questions regarding the programs and what drew each of these residents to their respective programs. Then, the questions shifted to what each program looked for in an auditioning student, and finally we ended with student chapter member questions.

**"Be early, stay late, be willing to work"**  
—Dr. Ben Boswell

Following a pizza break, we dove into our student chapter keynote speakers. Dr. Becher, president of the AOA and emergency medicine physician, gave us updates on the osteopathic brand of emergency medicine. Then, Dr. Mitchell, immediate past-president of ACOEP, discussed what qualities make a great emergency medicine physician. To close our keynote address, Drs. Becher, Mitchell, and Prestosh fielded questions from the student chapter.

**"The practice of emergency medicine is a team practice, and you need to take advantage of all the skills available to you in your team. And above all, never tick off your nurses!"**  
— Dr. Mitchell

Dr. Prestosh, current ACOEP president provided opening remarks for the afternoon lectures. He proposed that if each student could talk to one new person every week about what it means to be a doctor of osteopathic medicine, we would be able to break down some of the barriers in no time at all.

**"Part of the process is being involved—don't just be there, tell them who you are, and why you are a DO."**  
— Dr. Prestosh

To complete an already busy day, we closed with six "rapid fire lectures" each lasting roughly 30 minutes in length. Kingman Regional Medical Center's Emergency Medicine Residency

60  
ATTENDEES18  
MEDICAL  
SCHOOLS  
REPRESENTED6  
RAPID  
FIRE  
LECTURES5  
RESIDENT PANEL  
PROGRAMS12  
RAFFLE  
WINNERS10  
PIZZAS  
CONSUMED

Program Director, Dr. Michael Sheehy, talked about "Advice for Residency Applications, Interviews, & Audition Rotations." Attending and Clerkship Coordinator of Norman Regional Health System, Dr. Shelly Zimmerman, taught "Obstetrics & Pediatric Trauma". Program Director of the Pediatrics/Emergency Medicine dual program at Arizona University, Dr. Dale Woolridge, spoke about "Peds-EM: Sub-Specialty and Dual Programs." Dr. Bograkos (with too many affiliations to list) discussed "Tactical Emergency Medicine," while also highlighting the need for more students to be involved in areas of wilderness, disaster, EMS, and addiction medicine sub-specialties. Mr. Jason DiLorenzo of Doctors Without Quarters, provided some of the latest updates on how to pay off student loans. Finally, we closed our "rapid fire lectures" with Program Director of the Emergency Medicine Residency at Desert Regional Medical Center, Dr. Joel Stillings, who spoke about "The Do's & Do Not's of LOR's (Letters of Recommendation)."

**"When you show up for an audition rotation, know how to do a history & physical, be able to list 10 things in your differential diagnosis, and have a treatment plan in mind when you present"**

– Dr. Michael Sheehy

**"The best advice I can give an applicant is to be the 2 a.m. person"**

–Dr. Joel Stillings

The endless networking opportunities set ACOEP apart from other professional organizations. Emergency Medicine Physicians (EMP) sponsored a fantastic networking event social at Bobby's restaurant that allowed for student chapter members to mingle with residents and attending physicians in a relaxed setting in our final event of that day.

On behalf of the student chapter board, we hope all who attended had fun, met a bunch of new people, found mentors, and learned something new! Thank you to our parent chapter, resident chapter, sponsors, speakers, and donors!

# Comparison of Different Electronic Medical Record Software and the Efficacy on Patient Care in the Emergency Department

Sophia Willer DO, Kathleen Starr DO, Aleksandr Pevtsov OMS-III, April Brill, DO  
Midwestern University: Chicago College of Osteopathic Medicine  
Emergency Medicine Residency Program, Chicago IL.

**Abstract:** As electronic medical records (EMR) are becoming more prevalent in the United States, it is important to distinguish which software is more efficacious in the emergency department. Attending and resident physicians who utilize Epic and Meditech softwares were evaluated and compared to an existing study which evaluated physicians using McKesson. A total of 30 physicians were observed for 60 hours (two hours per each physician). In this study, 15 physicians who used Epic and 15 who used Meditech were shadowed for two hours per physician. The amount of time spent on data entry, review of charts, patient contact, discussion with colleagues, and "other" was recorded. The proportion of time spent on each task during the two-hour period was calculated and compared between residents and attendings, as well as compared to different electronic medical records. Also, the number of clicks to accomplish common emergency department tasks was recorded and compared between Epic and Meditech. Physicians who used

PHYSICIAN TASK PROPORTIONS: MEDITCH EMR

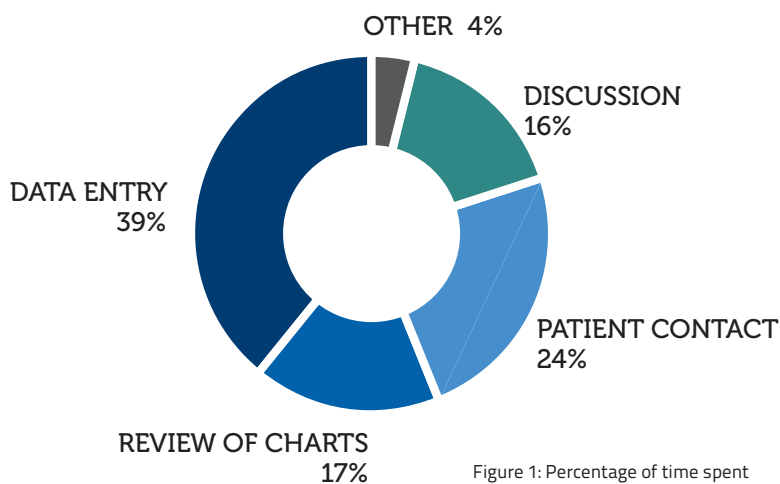


Figure 1: Percentage of time spent on specific task in a two-hour period while using Meditech EMR.

PHYSICIAN TASK PROPORTIONS: EPIC EMR

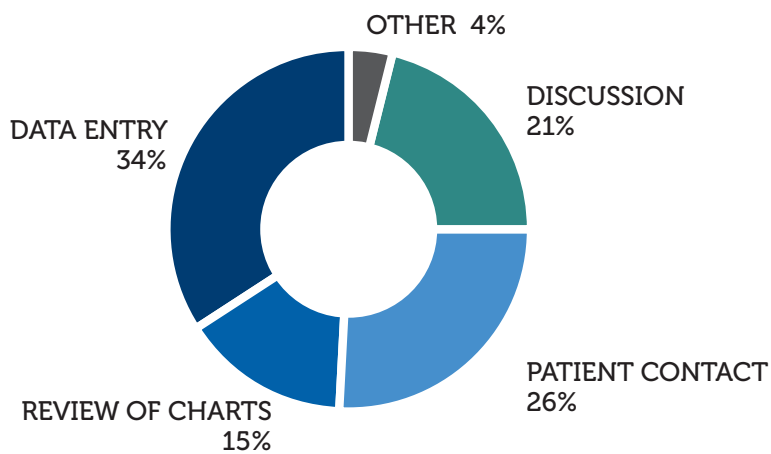


Figure 2: Percentage of time spent on specific task in a two-hour period while using Epic EMR.

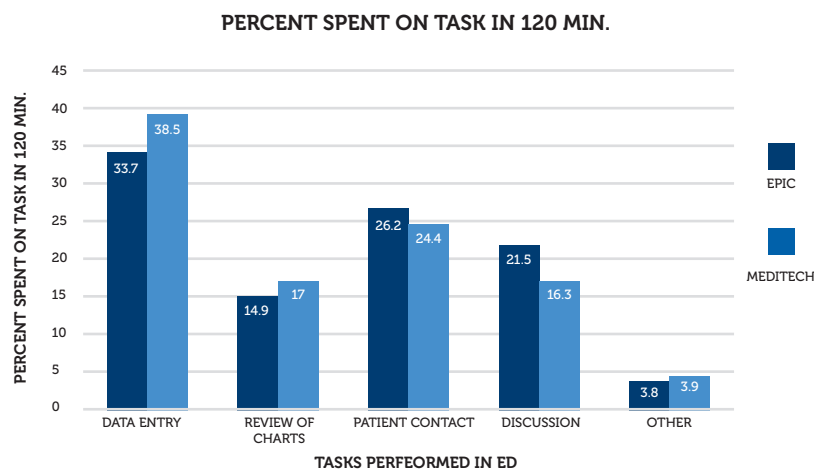


Figure 3: Percent of 120 minutes spent on specific tasks, comparing Meditech to Epic.

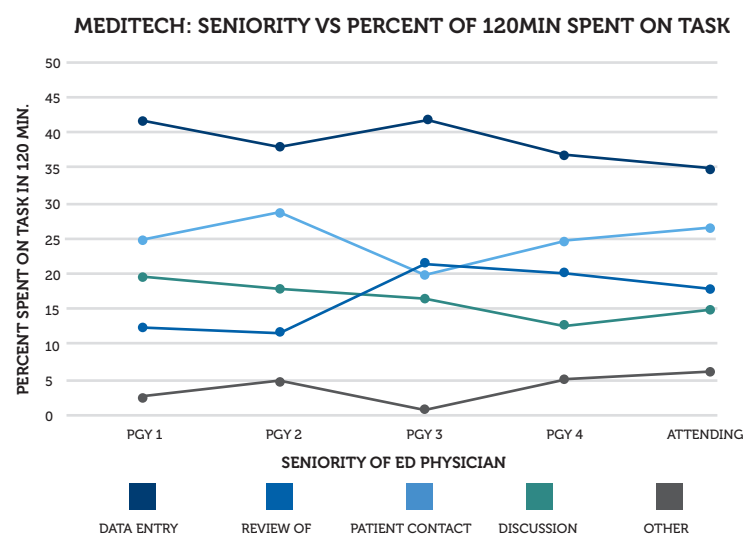


Figure 4: Proportion of time spent on specific task and seniority of ED Physicians using Meditech.

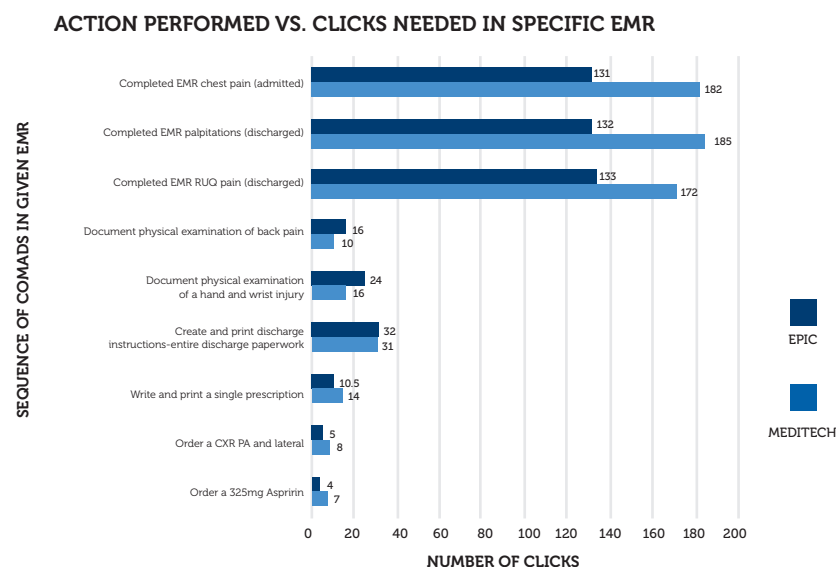


Figure 7: Comparing number of clicks needed to perform a specific task on Meditech and Epic.

Epic were likely to spend less time on data entry, reviewing charts, and more time on patient contact compared to Meditech and McKesson. Residents and attendings had different time spent on specific tasks, residents being more likely to spend more time on data entry. Epic EMR provided attendings with more time for discussion of patients' charts, thus a likely better option for an educational setting. Furthermore, when calculating the amount of clicks needed to accomplish routine ED tasks when comparing Epic and Meditech, we saw that Epic EMR required on average 51 clicks less in order to complete charts of life-threatening chief complaints. Regardless of the EMR software used, ED physicians spent more time on data entry than any other tasks, including patient care. Therefore, EMR systems should be focused to make data entry more efficient. However, Epic had less time spent on data entry, more time for discussion, and more time for patient contact in comparison to Meditech and McKesson.

# PEAK SEASON

## High Altitude Essentials

Erich Burton, OMS-II, W-EMT  
Virginia College of Osteopathic Medicine  
Blacksburg, VA

With summer fast approaching in conjunction with the National Park Service centennial, thousands of tourists will be migrating across the country with the intent of ascending the tallest peaks in the country. Whether you are a fitness guru from Boulder bagging your 10th ascent of Denali or a retiree from Fort Lauderdale looking to segway through the Rockies, understanding altitude-associated illnesses is essential.

### What are High Altitude Illnesses?

Acute mountain sickness (AMS), also known as altitude sickness, is a pathologic condition caused by the effects of high altitudes greater than 8,000 ft. (2,400 m.). AMS is mediated by a decrease in oxygen tension or partial pressure of oxygen in the blood rather than a decrease in the percent of oxygen of inspired air. Signs and symptoms of AMS occur six to ten hours after ascent and can include headache, nausea, vomiting, dizziness, fatigue, and insomnia. While symptoms commonly subside within 1-2 days, more serious sequelae can manifest in the form of high-altitude pulmonary edema (HAPE) and high-altitude cerebral edema (HACE).

Many of the manifestations of AMS and HACE are the result of hypoxia-induced cerebral vasodilation and leaky endothelial cells. The resulting increase in blood flow and edema puts a greater pressure on the brain parenchyma and accounts for the headache, dizziness, and insomnia common to AMS and early HACE. As HACE progresses, findings can include disorientation, altered mental status, lassitude, photophobia, tachycardia, loss of consciousness, retinal hemorrhage, and even death.

In contrast to HACE, HAPE is due to a paradoxical shunting of blood in the lungs. Unlike the hypoxia-induced vasodilation of the systemic circulation, pulmonary hypoxia induces vasoconstriction and diversion of deoxygenated blood to alveoli with higher oxygen content. The resulting increase in pulmonary vascular resistance

leads to pulmonary edema. Signs and symptoms of HAPE include dyspnea, tachypnea, tachycardia, fatigue, coughing, cyanosis, rales, wheezing, and heart failure. HAPE is a serious complication of AMS and has a 44% mortality rate in untreated cases.

### Who is most at risk?

While susceptibility to high altitude illness is difficult to predict and varies greatly, the following risk factors have been suggested:

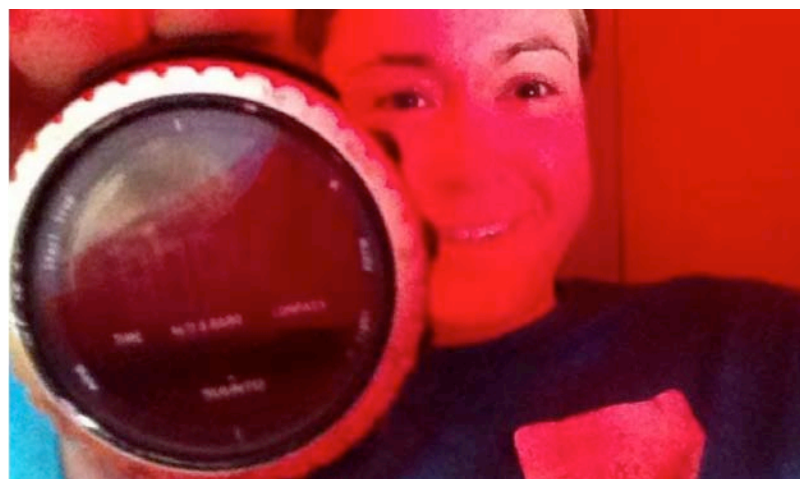
- History of AMS, HAPE, or HACE
- Severe anemia and sickle cell disease
- Low home elevation
- Rate of ascent
- Young children and young adults

### Prevention and Treatment Strategies

- Slow and gradual ascent allowing for acclimatization is the best prevention of AMS. Rates of ascent vary greatly between individuals and extra time should be allotted if signs and symptoms manifest.
- Rapid descent of at least 2,000 ft. (610 m.) with improvement is the definitive treatment for AMS and related illnesses.
- Acetazolamide (Diamox) or Dexamethasone (Decadron) can be used for both prevention and treatment of AMS.
- Ibuprofen and Ginkgo biloba have both been shown effective in the prevention of AMS.
- Tadalafil has been used to prevent AMS and HAPE in adults with a history of either illness.
- Gamow bags are used to treat AMS complicated by HAPE or HACE. These inflatable pressure bags are used to simulate descent and can decrease effective altitude by up to 9,500 feet. Ski patrol organizations, mountain rescue teams and mountaineers commonly employ Gamow bags.

### Conclusion

While AMS, HAPE, and HACE are serious illnesses, following the precautions aforementioned can mitigate the risks. Like many environmental illnesses, good decision-making is critical. Vigilance of one's health, knowing when to turn back, and having an appropriate action plan are important for ensuring a safe and enjoyable high-altitude experience.



# OUTSMARTING SMART PHONES

Ben Abo, DO, EMT-P

Mount Sinai Medical Center Miami Beach

It's summer, but it's always party season here in Miami. Another EMS "red bag" patient wheels by on the EMS stretcher. "Just another intox," someone mutters. Maybe it is, or maybe it isn't. You go to assess the patient, realizing she definitely does not look of age even to buy a lottery ticket. Of course, there is no legitimate identification on her and her friends are nowhere to be found. Assessing her, you quickly realize it is more than just an intox, and boy are you glad you don't pinhole your diagnosis early. So you treat what you need to treat, but how do you notify family or parents? How do you find out your SAMPLE?

Some may say, "Look in her phone for ICE." In a perfect world, that would be great, except her iPhone is locked. I propose to you two ways that you can do what I call, "Romancing Siri." First, try the patient's finger prints. I usually try the right pointer, then right thumb, then switch to the other hand if need be. Once the phone is unlocked, open contacts and that person's name and phone number should be at the very top. Otherwise, I search for mom, dad, and ICE contacts.

Some phones come with a medical ID application as well, which includes pertinent medical information about the phone's owner.

If your patient filled

it out, it can be very useful, including name, age, medical conditions, allergies, medications, organ donor status, blood type, and emergency contacts. This can be accessed from the emergency screen even if the phone is locked.



**SOME MAY SAY, "LOOK IN HER PHONE FOR ICE."  
IN A PERFECT WORLD, THAT WOULD BE GREAT,  
EXCEPT HER IPHONE IS LOCKED.**

Now, just a few days ago a middle-aged cardiac arrest came in. A young guy was found without any identification, was down 35 minutes with EMS and another 15 minutes in your department. I called the code, and reviewed things with my juniors, but still had no identification for the guy. We took his phone out of his pocket and were able to unlock it with his thumb, at least long enough to get his name. When walking across the ED, out of habit I accidentally locked the phone.

And this time, it wouldn't unlock again with his thumbprint. So what did I do? I held the home button down and simply said, "Call Dad." Not only did the phone number pop up for us to write down, but I was able to reach his father, have him come to the ED, and do the other part of my job.

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# Pursuit of Happyness

Myung Bae, OMS-III

Edward Via College of Osteopathic Medicine  
Carolinas Campus

**I recently watched a movie called *The Pursuit of Happyness*. It is based off of a true story about the life of a successful broker named Chris Gardner, played by Will Smith.**

The movie depicts his triumphant journey from poverty to becoming a successful broker, all the while being homeless and a single father to his 5-year-old son. This movie prompted me to reflect on how my goals have changed since the day that I chose to enter the field of medicine until now as a rising fourth-year medical student. Before medical school, I thought that success was measured by the initial "acceptance." It did not matter where and it did not matter what school. The only thing that measured one's success was simply getting accepted, or so I thought. After numerous hours sacrificed studying for the MCAT, participating in extracurricular activities, and successful completion of an undergraduate degree with optimal grades in the prerequisite courses, only then can one apply for the "acceptance." During this time, my only objective was becoming a medical student, and that was the only way I knew to measure success.

Similarly, during medical school, I thought surviving that anatomy practical and passing that pathology exam were the measures of success. After the first two years, scoring a decent score on Step 1 was what many thought to be the true

candidate" and to "stand out" in interviews. Though it would be an honor and tremendous achievement to be accepted into the Emergency Medicine residency of my choice, this is no longer my measure of success.

During the past year of my clinical clerkship, I had the opportunity to work alongside some of the brightest and most passionate physicians. Not only did they provide me with valuable clinical knowledge, but they allowed me to open my eyes and mind to envision what it really means to be successful. I realized that it is not about something that I achieve or become in the short term. I know that if I work hard, I will get to where I want and need to be, but that is not what being successful is about. I recognize that success is more about what I can do to help others succeed. Witnessing the comfort that physicians provide for their patients and the patients' families, their ability to relay messages that no one desires to hear in the most respectful and compassionate way, and ultimately their understanding of the struggles and importance of every aspect of an individual's life has changed my goals and altered my definition of success. The Hippocratic Oath states that, "There is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug." I spoke these words at my white coat ceremony, but it took me this long to

## THERE IS ART TO MEDICINE AS WELL AS SCIENCE, AND THAT WARMTH, SYMPATHY, AND UNDERSTANDING MAY OUTWEIGH THE SURGEON'S KNIFE OR THE CHEMIST'S DRUG.

value of success and if I did not get the score that I longed for, I would be a failure. But, I have come to realize that my definition of success has been changing so frequently due to my disregard for the entire process.

I am nearing the end of my third-year clerkship and about to enter what is known to be the most stressful time as a medical student: residency applications. Despite the amount of knowledge that we have obtained during the past three years of medical school, the uncertainty brought on by audition rotations, residency interviews, and Match is a persistent burden. This stress serves as a daily reminder to be a "good

recognize that it contained my path to success: the path to becoming a compassionate human being.

At the end of *The Pursuit of Happyness*, shortly after he is informed of his new position as a broker, the character played by Will Smith tells the audience that he then knew what it meant to be happy. I now know that to be successful is to pursue and embrace the happiness that undoubtedly lies in each step of the journey and to use that to spread passion to those in need, and in my case, for my future patients.

# “Why aren’t you doing OMT?”

## OMT IN THE ED THROUGH THE EYES OF A FRUSTRATED MEDICAL STUDENT

Zach Hampton, OMS-III  
Marian University COM

**“Remember, my job is to tell you nothing is emergently wrong. So if we don’t find the cause of your chest pain, that’s a good thing.” The patient nods with a smile on her face as we leave the room.**

The patient is a 60-year-old female, who has a history of hypertension and hyperlipidemia, but no prior cardiac events. Her pain is more lateral on the left side, but sharp in nature and non-radiating. It gets worse with movement of her left arm and is reproducible to palpation laterally around ribs four and five. She wouldn’t have come to the ED, but the pain woke her up this morning. While she can’t think of any specific trauma, she tells me she is the manager of a liquor store and had been moving some heavy boxes the day before. She smokes about a pack a day and has for 20+ years. She is having some shortness of breath, which she tells me is more related to the fact that it hurts for her to take a deep breath. She denies any diaphoresis, lightheadedness, or nausea.

She is relatively healthy. She only takes lisinopril and simvastatin, and the two surgeries she has had have both been orthopedic in nature. Her parents were both alive in their 80s, each having stents, but no acute myocardial infarction. She has two younger siblings, both of which are fairly healthy without any significant cardiac history.

Her blood pressure is 135/80 and pulse is 85 bpm. Her oxygen saturation is 98% on room air. As I auscultate for heart sounds, I hear a normal S1 and S2 without any murmurs. Radial and pedal pulses are 2+ bilaterally. She leans forward and I listen to her breath sounds. They are clear bilaterally, without any evidence of rales or rhonchi. I move to her abdomen, which has bowel sounds and is not tender to my palpation. I give her calves a good squeeze and she does not complain of any pain – negative Homan’s.

As I walk back to the physician’s station with the attending, we have the usual discussion. Acute MI? PE? Who knows? We will order some labs and get the workup cooking.

I finally sit to reflect back to what he had told the patient as we left. I find so much utility in such a simple statement. He turns to me, “Do you see what I did?” He goes on to explain how he uses

a similar line on every patient, mostly to prime them for lack of emergent findings he will report to them later. Having just been yelled at by a patient the week before for reporting the ‘horrible’ news of, “You are fine,” I found the line to be genius. I couldn’t wait to apply it to future patient encounters.

Armed with her ECG showing normal sinus rhythm, some of the results begin to roll in exactly as we had expected:

- CXR: no acute findings
- Trop: <0.03 ng/ml
- CBC, BMP and D dimer all within normal limits

We keep her for another four hours so she can get her last troponin. Spoiler: it was <0.03 ng/ml. He sends me to relay the news. I expect nothing but understanding and elation.

“Ma’am, I wanted to let you know all of your labs came back normal and your chest x-ray didn’t show any acute changes. We are getting your discharge papers together now,” I explain.

She stares at me blankly. “So you don’t know what’s causing my pain?”

I continue, not yet seeing where this is going. “Well ma’am, I would say that it is likely musculoskeletal in nature, potentially from lifting those boxes yesterday. You aren’t having a heart attack or a blood clot, which was our main concern. A few days of ice, ibuprofen, and rest should do the trick.”

“So, I just have to go home with this pain?”

You see where this is going. Even though the attending prepared her for this news, she still isn’t understanding. Once again, I am in the same situation.

I leave the room disgruntled by the whole ordeal. What am I supposed to do?

Looking back, I honestly can't believe I asked myself that question. I have spent many hours using my hands to heal people. Why didn't I use OMT?

My decision was multifactorial. To begin, my attending wasn't a DO. While this in and of itself isn't an absolute reason to dismiss OMT, it is always something I consider. Also, of the 30+ physicians that staffed this particular ED, only a couple were DOs, and I knew they did not use OMT from previous shifts I had worked with them. In my experience, a setting like this usually doesn't lend itself to being very open to the use of OMT. Lastly, and the reason that is often cited as the big reason OMT gets skipped in the ED, is time.<sup>1,2,3</sup> We are taught to be thorough with our structural exams and so forth, but it is difficult to incorporate such a thorough exam in the ED, while also taking time to perform the appropriate OMT techniques. However, OMT may be completed in a timely manner, depending on the skill level of the practitioner, for many specific conditions including low back pain, torticollis, chest pain, asthma, and sinusitis<sup>2</sup>.

Studies have shown OMT to be an effective treatment for certain maladies in the ED setting.<sup>4,5</sup> Furthermore, they are extremely safe when used on the appropriate population.<sup>6</sup> In spite of this positive literature of suggesting OMT as an important tool to be used in the ED, a recent study found that in the setting of a large, academic ED with an osteopathic emergency medicine residency, OMT was performed on less than one person per day (mean of 0.74 patients receiving OMT per day).<sup>7</sup> Given these findings, one could extrapolate that in the average, allopathic ED, OMT is being performed far less. In my opinion, these are concerning numbers due to the large number of patients that are not being offered the option and opportunity to benefit from having OMT in the ED. As the future of osteopathic emergency medicine, we must do all we can to ensure that OMT is offered and used on those who can benefit. Does that mean using OMT on every patient? Of course not. Not every patient will need OMT or even be a candidate for treatment; however, we are in the unique position as osteopathic students and physicians to use our clinical judgement and understanding of OMT to make these decisions.

Unfortunately, our country is currently plagued by a horrible

DIAGNOSIS/ SYMPTOM	POTENTIAL AREAS OF FOCUS	TREATMENT OPTION
<b>LOW BACK PAIN</b>	Lumbar spine Paraspinal musculature Sacrum Pelvis Thoracolumbar and lumbosacral junctions	1. Paraspinal soft tissue 2. MET to affected segment/unit 3. Myofascial release of lumbosacral junction
<b>TORTICOLLIS</b>	Scalenes and SCM Cervical spine Upper thoracic spine Ribs 1 and 2 Clavicle	1. MET to scalenes/SCM 2. Myofascial release to thoracic outlet 3. BLT to cervical and/or upper thoracic spine
<b>CHEST PAIN</b>	T1-5 OA/C2 Thoracic inlet and outlet Diaphragm	1. BLT to upper thoracic spine (T1-5) 2. MET to C2 3. Myofascial release to thoracic inlet and outlet
<b>ASTHMA</b>	T2-4 OA/C2 Ribs Thoracic inlet and outlet Diaphragm	1. MET to T2-4 +/- ribs 2-4 2. Myofascial release to thoracic outlet 3. Pulmonary pump technique
<b>SINUSITIS</b>	T1-2 and cervical chain ganglia OA/C2 and sphenopalatine ganglion Lymphatics Spleen	1. MET to T1-2 2. Facial effleurage 3. Splenic pump

Table 1: Conditions that respond to OMT as suggested by Paul & Buser, 1996. 'Potential areas of focus' serves as a quick reminder of the important treatment areas and the 'treatment option' section was designed to suggest one of many options for quickly treating a patient in the ED.

opioid epidemic. The CDC recently released new guidelines suggesting, amongst other things, that physicians decrease their use of opioid pain medication outside of active cancer, palliative measures, and end of life care<sup>8</sup>. As future and current emergency physicians, we certainly need to be cognizant of the opioids that we prescribe. With our osteopathic training, we have the ability to treat pain without pharmacological intervention. As these new guidelines are implemented, and fewer people expect opioid pain medication, patients will look for other means of relief. Through the use of OMT, and our global approach to the patient, we can help treat those in pain without having to use opioid medications and their associated risks.

So, I turn the question to you. Why aren't you doing OMT? Is it time? Skill level? Insecurity? Whatever the reason, I ask you to place it to the side and take the patient's best interests to heart. If you are unable to perform OMT, consider a consult or follow-up with an outpatient OMT clinic. Or better yet, improve your skills! You don't have to be the next A.T. Still to make a difference. We were all taught to use our hands to help heal people. Let's come together and ensure that OMT is being utilized in the ED to provide our patients with the best care possible.

# "PIMP-EM": *Pulmonary Embolism*

Theron Andrus OMS IV

Ohio University Heritage College of Osteopathic Medicine

## Q: What is Virchow's triad?

- Hypercoagulability (i.e. protein C and S deficiency, cancer)
- Stasis
- Vascular Injury

## Q: What are the major risk factors for Pulmonary Embolism (PE)?

- Recent Surgery ( $\leq 4$  weeks)
- Immobilization (equivalent to bed rest  $\geq 3$  days)
- Pregnancy (third > second > first)
- Postpartum (for up to 42 days)
- Malignancy (treatment active, within 6 months, or palliative)
- History of venous thrombotic event (VTE)

## Q: What are the "classic" signs and symptoms of PE?

- Chest pain (50-80%)
- Dyspnea at rest or with exertion (75%)
- Tachycardia (25-70%)
- Tachypnea (50-60%)
- Rales/crackles (50%)
- Cough (3-55%)
- Low-grade fever (7-50%)
- Diaphoresis (25-40%)
- Hemoptysis (3-40%)

## Q: What ECG findings may be present in pulmonary embolism?

- Sinus tachycardia (the most common ECG finding)
- Right atrial enlargement (P pulmonale) – tall P waves in the inferior leads
- Right axis deviation
- T-wave inversions in leads V1 – V2
- Incomplete right bundle branch block (RBBB)
- S1Q3T3 pattern – an S wave in lead I, a Q wave in lead III, and an inverted T wave in lead III.

## Q: What are the P.E.R.C. criteria?

- P.E.R.C. stands for Pulmonary Embolism Rule-Out Criteria; it is used to rule out PE if no criteria are present and if the pretest probability is  $<15\%$  (i.e. low pretest probability). If these

2 conditions are met then no further workup is needed, as the risk of PE is less than 2%.

## Q: What are the components of the PERC criteria?

- Blood in the sputum (hemoptysis)
- Room air O<sub>2</sub> saturation  $< 95\%$
- Estrogen use (Oral Contraceptive Pills (OCPs) or other exogenous estrogen)
- Age  $\geq 50$
- Thrombosis – current suspicion of DVT or history of PE/DVT
- Surgery or recent trauma (within 4 weeks)
- Interpretation: If no criteria are positive and clinician's pretest probability is  $<15\%$ , PERC Rule criteria are satisfied and PE is ruled out (indicating a  $<2\%$  probability of PE)

## Q: What are the Well's Criteria?

- Well's criteria is a screening tool that allows a clinician to risk stratify a patient at risk of PE based on 7 criteria. There is also a Well's Criteria to risk stratify for DVT.

## Q: What are the Components of Well's Criteria for PE?

- Signs or symptoms of deep vein thrombosis (DVT) (3)
- Alternate diagnosis less likely (3)
- Tachycardia (1.5)
- Immobilization ( $>3$  days) or surgery in the last 4 weeks (1.5)
- History of PE or DVT (1.5)
- Hemoptysis (1)
- Active cancer within last 6 months (1)
- Interpretation:  $<2$  = Low risk for PE (4% mean probability of PE)  
2-6 = Moderate risk for PE (21% mean probability of PE)  
 $> 6$  = High risk for PE (67% mean probability of PE)

## Q: What imaging studies can be used to evaluate DVT?

- Venous duplex ultrasonography (most common)
- Spiral CT venography
- MRI venography
- Radio-fibrinogen leg scanning
- Impedance plethysmography

**Q: What imaging studies can be used to evaluated PE?**

- Pulmonary angiography (gold standard)
- CT pulmonary angiogram
- Ventilation/perfusion (V/Q) scan
- Magnetic resonance angiogram

**Q: What are some clinical situations that might cause a false-positive D-dimer?**

- Sepsis
- Metastatic cancer
- Diffuse intravascular coagulation
- Recent MI or stroke (<10 days)
- Collagen vascular disease
- Aortic dissection
- Pregnancy
- Recent surgery
- Severe trauma
- Obesity
- Note: In pregnancy, the upper limits of normal are increased with each trimester, but a true normal D-dimer should never be greater than 1000 µg/L

**Q: What can cause a false-negative D-dimer?**

- Clot formation that is greater than 72 hours before the blood is assayed.

**Q: What would you expect to see on an ABG in a patient with PE?**

- Hypocapnia (low CO<sub>2</sub>), hypoxemia (low O<sub>2</sub>) respiratory alkalosis

**Q: What is a massive PE?**

- Anatomically defined as a occlusion of > 50% of pulmonary vasculature
- Physiologically defined as an embolus that causes cardiopulmonary distress

**Q: What is the initial treatment in the ED?**

- Heparin 5000 units (80 U/kg IV bolus) followed by 1000 units/hr (18 U/kg/hr IV infusion, PTT 50-90) followed by 3 months of Coumadin (5 mg po qd, target INR 2-3)
- Patients with calf DVTs should be treated with Coumadin for 6 weeks
- Patients with permanent risk factors (thrombophilic disorder) may need permanent treatment but should be treated for at least 6 months

**SAVE THE DATE: November 3<sup>rd</sup>, 2016**

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- 9:00 am Navigating Life After Residency (*Chris Colbert, DO*)  
 9:30 am High Risk Cases in Emergency Medicine (*Kevin Klauer, DO*)  
 10:30 am Finding Your Work/Life Balance (*Bill Fraser, DO*)  
 11:00 am Working with Residents: How to Succeed at Bedside Teaching (*Alan Janssen, DO*)  
 11:40 am Asset Protection (*Legally Mine*)



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- **INSIDERS TIPS TO BOARD RECERTIFICATION**

(Schedule and speakers subject to change)





## Assistant/Associate Residency Program Director

## Emergency Medicine Core Faculty

## Pediatric Emergency Medicine Faculty

For additional information, please contact:  
**Susan B. Promes, Professor and Chair,**  
 Department of Emergency Medicine, c/o  
 Heather Peffley, Physician Recruiter,  
 Penn State Hershey Medical Center, Mail  
 Code A590, P.O. Box 850, 90 Hope Drive,  
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# TipsForNewDocs

By Andy Little, DO

**With the graduation of the current senior emergency medicine (EM) residents, another year of medical education comes to an end. The reality of completion for some also comes with new beginnings for others. As recently graduated medical students, the incoming interns are brighter than any class in the history of EM. They have high board scores, crushed both their exams during the first two years of medical school, excelled on their rotations, and come with some of the best references ever compiled. These truths aside, they will ALL be equal starting July 1st, 2016. They will ALL be Interns.**

As many of us have been through this time, we all remember the literal “memory flush” that happens on June 30th. We all remember being asked if a patient could have Tylenol, Benadryl, or Motrin, looking over our shoulder to see if the nurse was asking someone else, as the dosage and route of administration was no longer on the tip of our tongue. ALL of the interns will get over this initial phase, everyone does.

But, there are things you won't be taught in EM Conference, and they will not be found in your readings from your textbooks. To aid you in your learning outside of the nuts and bolts of intern year, I elicited help from some of my dear friends, and compiled a list of #TipsForNewDocs below:

**Read about a patient every day** (Stephanie D'Agostino Rose, DO). Pick a patient a day and spend 20-30 minutes reading about the case. Whether you use UpToDate, a FOAMed search, EMedicine, or another resource, doing this will add to your knowledge of that case and over time most cases you'll encounter in the Emergency Department.

**Be good to your Nurses, ED Techs, Unit Secretaries, and other staff** (Cody Reynolds, DO). Being an intern is difficult and scary enough when you venture to do it by yourself. Adding to this difficulty is the idea that your ancillary staff does not like working with you. I cannot count how many times my ancillary staff has aided me and saved my backside as a resident, especially as an intern. So play nice. Learn about their kids, the names of their spouses, and their hobbies. Build a relationship of trust by building a friendship.

**Remember what may be exciting for you is usually scary for the patient** (Ben Abo, DO, EMT-P). This is something that you should be extremely aware of. We say things like: “You are having a heart attack,” “We found a mass,” or “I am not sure

what is wrong with you, but we will run some tests.” These phrases are ALL very anxiety provoking for patients, families and even for providers. So make sure you take time to sit down and answer questions, hold someone's hand, and let people share their concerns. This will not only help you become an awesome provider, but will also help you build rapport with staff, get you noticed by your superiors, and ultimately help you build a relationship with your patients.

**Setting family expectations early will be key** (Andy Little, DO). Although EM providers enjoy a healthy lifestyle, one truth remains: our EDs are always open. This means that as an intern, a resident, and as an attending, you will miss important things including birthdays, weddings, and anniversaries. Setting this expectation with family, significant others, and friends early in your training is very important to your well-being as a resident and as a future provider. With this, you will also have opportunities to build new traditions and build relationships by focusing on the quality of the time you spend together rather than where or how much time is spent together.

**Remember, you are an intern. You are not supposed to know everything yet** (Chase Ungs, DO). This is probably the biggest thing to remember. We expect you to ask questions, feel uncomfortable when taking care of sick patients, and to not know the dosages of medications. So knowing that, remember that you have senior residents and attending physicians who practice in your ED's for a reason, not only to see patients, but most importantly to be a resource for you.

To the incoming interns: the upcoming year is going to be awesome. Welcome to the family of emergency medicine, we are here to support you and help you grow into the great provider you were meant to be. Hopefully the few tips above will help you as you embark on your intern journey.

# Fall Research Competitions

## FOEM Research Study Poster Competition

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WEDNESDAY, NOVEMBER 2, 2016

7:30 am – 11:00 am

This annual competition takes place during the ACOEP Scientific Assembly and is open to residents and students that have completed a research project and would like to present it as a poster summarizing their findings.

---

## FOEM Clinical Pathological Case Competition (CPC)

WEDNESDAY, NOVEMBER 2, 2016

7:30 am – 3:30 pm

This exciting annual competition pits residents against faculty in diagnosing a difficult case. It takes place during the ACOEP Scientific Assembly. Residents submit the case without final diagnosis, and the faculty member is given one month to develop a diagnosis. Both residents and faculty submit PowerPoint presentations. Each program must have a resident and faculty member in order to participate.

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## FOEM Oral Abstract Competition

WEDNESDAY, NOVEMBER 2, 2016

12:00 pm – 2:00 pm

This annual competition takes place during the ACOEP Scientific Assembly and is open to residents and students that have completed a research project and would like to present it as a PowerPoint presentation (multiple slides, not poster) summarizing their findings.

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## FOEM Resident Research Paper Competition

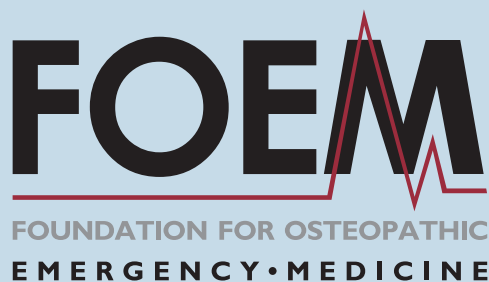
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WEDNESDAY, NOVEMBER 2, 2016

2:00 pm – 3:30 pm

This is FOEM's most prestigious event. Participants submit their full research papers for review by a panel of physician experts. The panel identifies the top 5 papers prior to conference, and the winning resident-authors face off to determine the top 3 winners.

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The deadline to apply to the Foundation's Fall Research Competitions is **July 31, 2016**. Apply now at **[www.foem.org](http://www.foem.org)**

# TRICKS OF THE TRADE

## Tricks to a Successful Intubation in Obese Patients

Veronica Coppersmith, DO FAWM  
St Luke's University Health Network  
Bethlehem PA

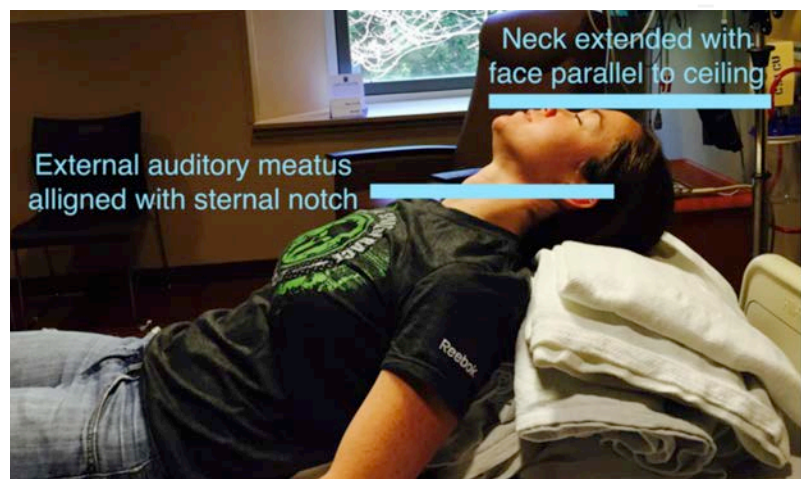
**The unfortunate trend towards increasing BMI in America is coupled with a multitude of health care problems, difficulty in medical management, and struggles with procedures. In the Emergency Department, obesity creates several obstacles in airway management that are detrimental to the patient and stress provoking for the provider. Let's discuss some tips and tricks to make intubation of obese patients safer and easier.**

### POSITION IS IMPORTANT!

The ideal body positioning for an obese patient is NOT flat, but rather with an elevated head (see example photo). This is to achieve the alignment of the external auditory meatus with the sternal notch (as is ideal in all intubations), as well as to displace some of the adipose tissue off of the neck and chest wall. It is also important to include extension of the head in your positioning. The appropriate position can be attained either by creating a ramp out of pillows and blankets to support the torso, by elevating the head of bed to the appropriate level, or with the reverse trendelenburg position (Collins et al.).

### ADEQUATE PRE-OXYGENATION

Intubation of obese patients is even more concerning because of the rapid desaturation that usually occurs while completing the procedure. Obese patients have higher oxygen demand because of their increased metabolic rate, decreased chest wall compliance secondary to the weight of adipose tissue on the chest, and decreased lung size because of pressure from the abdomen. These physiologic changes result in a baseline hypoxia in some obese patients and rapid desaturation after induction and paralysis (Ramachandran et al). It is vital to pre-oxygenate these patients prior to attempting intubation to prolong the safe apnea time before desaturation occurs. This includes applying a nasal cannula at 6L/min and/or a non-rebreather at 15L/min while you are setting up, bagging the patient after induction and paralysis with at least eight good breaths, and leaving the nasal cannula on while you intubate. Ventilating the patient is more difficult as well, considering the redundant tissue on the face, weight of the fatty tissue on the chest wall, and decreased



lung compliance. Use multiple providers to attain the best seal possible (1-2 people holding mask onto face while applying jaw lift, with another provider bagging, if necessary). Even when apneic, having a nasal cannula on at 6L/min while attempting to intubate increased the time to desaturation  $\text{SPO}_2 < 95\%$  from 3.5 min to 5.3 min in obese patients (Ramachandran et al).

### Hope for the Best, but Prepare for the Worst

This goes for every intubation, but especially when a difficult airway is expected; be prepared in case the intubation attempts are not going as planned. Direct laryngoscopy in obese patients is predicted to be difficult if the Mallampatti score is III or IV, or if the neck circumference is  $> 60\text{cm}$  (Brodsky et al). Have your backups in the room ready to go, and be well-versed in using them. With every intubation performed, I have the endotracheal tube I plan on using (generally an 8.0 so a bronchoscopy can be performed through it if need be), and a smaller tube in case the initial tube will not pass. I also have two methods of intubating ready, generally DL and a type of video laryngoscopy, a bougie, at least one suction unit ready, and if possible a backup provider ready to intubate if the first attempts fail. Never be too proud to ask for help, as intubation is a team sport. Walk through the process of a difficult intubation often, both in your head and with your team. Also, be prepared for the tubes that don't go as planned. This includes frequent practice (in my ED this means performing cricothyrotomies on pig tracheas) and being mentally and procedurally prepared with equipment available for the failed airway that ends in an emergent surgical airway.

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The ACOEP student board had the great pleasure of hosting a Regional Student Symposium with the Henry Ford-Wyandotte emergency medicine program this past April. Their residents and faculty gave so much heart and dedication to the event that we had to find out what makes this Michigan program tick!

### What is unique about your program?

As Emergency Medicine physicians, we will be expected to work in a variety of settings. To help prepare our residents, we rotate through several regional hospitals, including Henry Ford Hospital in downtown Detroit, Detroit Medical Center, and Shock Trauma in Baltimore. At our home base though, our greatest asset is our faculty. We have strong EM attendings with diverse training backgrounds from Level I trauma centers to rural community hospitals. We utilize a one-to-one attending to resident ratio during our ER shifts, allowing residents to experience different styles of Emergency Medicine, and receive personalized feedback after every shift. Most importantly, we have a very supportive ED team and staff who not only make resident training a priority, but are also there for you as friends and mentors outside of the ED.

### What do you do outside of the hospital?

Whether you have a long weekend or have the occasional day off, Detroit and the state of Michigan have a lot to offer. We have a wide variety of local restaurants from great BBQ to authentic

Mediterranean food. If you're a foodie, you will no doubt fall in love with the diverse and delicious cuisine in Detroit and the suburbs.

We are also a big sports town! The stadiums for the Red Wings, Lions, and Tigers are within a half-hour drive from Wyandotte. Our health system offers discounted tickets, which makes it easy to go as a group.

If you like to spend time outdoors, there are several nearby biking and running trails. We're located on the water, and there are always people fishing or kayaking. Northern Michigan is also quite beautiful, especially in the summer. We always tell out-of-state residents that they have to experience Traverse City and Mackinac Island before they graduate!

### What are three words that describe your residency?

In preparation for the 2016 Summer Olympics, we're going to choose the Olympic motto: "Citius, Altius, Fortius" (Faster, Higher, Stronger) because it describes our perpetual goal of performing to the best of our abilities. Go Team USA!



# Not All Hypothermia Requires Winter Weather

Kevin McLendon, OMS-III  
Lincoln Memorial University  
DeBusk College of Osteopathic Medicine

In the discussion of thermal-related emergencies most people picture getting stuck on a frigid mountain or lost in a desert, yet I would venture to say that the majority of patients you will encounter with low core temperatures are not because of being trapped on a mountain side - unless you happen to be a Sherpa. The Swiss have a staging system for hypothermia, Stage 1 – Stage 4.<sup>1</sup>

SWISS	BY DEGREE	SYMPTOMS	CORE TEMPERATURE
Stage 1	Mild	Awake, Shivering	32-35 C (90-95 F)
Stage 2	Moderate	Drowsy, No Shivering	8-32 C (82-90 F)
Stage 3	Severe	Unconscious, No Shivering	28-32 C (82-90 F)
Stage 4	Profound	No Vitals	<20 C (<68 F)

In the practice of therapeutic hypothermia or in severe cases of exposure, extra attention is paid to the patient's core temperature and the effectiveness of the cooling or warming therapies applied. However, there are often patients with chief complaints that distract our attention and resources allowing a vulnerable patient with mild or even moderate hypothermia to go unnoticed.

The bar-fight patient, the trauma-naked patient, the MVC victim with a prolonged extrication, the elderly lady who was found after a fall, these are all patients who easily could go undiagnosed while we tend to their other needs. These are the special populations at a greater risk for exposure-related complications than those encountered by the average outdoorsman. One of the most difficult things in emergency medicine is to keep your head on a swivel, to prevent the tunnel vision of a 'routine case,' and to not get caught up in the moment. When an elderly-fall

patient presents, it is easy to jump to imaging studies and an orthopaedic consult for a hip fracture. It is critical to recognize that the patient who fell hours ago was laying on a cold tile floor until help arrived.

## Special Populations<sup>2</sup>

**BABIES** Newborns have not yet developed the necessary adaptive mechanisms for thermoregulation; the younger the patient, the higher the risk. Only expose them when necessary, then swaddle or warm.

**ELDERLY** With age one's metabolism slows, patients are less active, and often comorbidities and polypharmacy can inhibit the body's ability to compensate and regulate temperature. This can create a situation where they may appear to be dressed appropriately, yet simple insults can lead to hypothermia.

**ALCOHOL, SEDATIVES AND OTHER DRUGS** Any CNS depressant can inhibit shivering, preventing compensatory measures. Vasodilators shift blood flow to the surface creating a false sense of warmth at the cost of core temperature. Alcohol functions as both and predisposes patients to loss of consciousness and exposure risks.

**ALTERED MENTAL STATUS (AMS)** Any patient with an altered sensorium, albeit from dementia, intoxication, or any other organic disease, is at risk from hypothermia secondary to poor decision making capacity. This includes inappropriate attire or the inability to recognize when they are cold and remedy the situation.

**NEUROPATHY AND CHRONIC DISEASE** Just as diabetics commonly do not know when their feet have been injured, a patient with peripheral neuropathy may not recognize cold extremities prior to organ/tissue damage.

**SEVERE INJURIES (ESPECIALLY HEAD INJURIES)**

After any insult to the brain, slight changes in core temperature can create secondary injury. Most often, hyperthermia is the concern; however, strict monitoring for normothermia can prevent further injury.

**BURN PATIENTS** One of the primary functions of the skin is thermal regulation. When the protective layer is disrupted, as it is in burn patients, the body rapidly loses heat adding to the complications of the injury. The larger the surface area involved, the higher the risk of hypothermia.

**LATROGENIC** Patients can present and not belong to any of the above categories, yet we introduce them into an at-risk population. Perioperative hypothermia is the most notable of these, and there are standards of care in place for that. Do not forget about the patients whom we have intubated and sedated and can no longer speak for themselves.

**HOMELESS** More than any other above special population, the exposure risk is of greatest concern with the homeless especially when there is wind and rain.

While the patient's chief complaint may often be of another origin, we cannot allow tunnel vision to cloud our care of the entire patient. A missed hypothermia in an otherwise easy case could lead to rhabdomyolysis and renal failure or arrhythmia and death. Just because the history does not include finding the patient outside in winter does not preclude hypothermia.<sup>3</sup> Taking the time to obtain an accurate temperature reading is always worth the few extra seconds over waving a quick probe and missing a key diagnosis.

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### Special Thanks to:

Dr. Thomas Wagner, DO  
Dr. Lamont Clay M.D., FAAEM  
Dr. Joseph Tagliaferro, DO  
Dr. Daniel Chang, DO

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