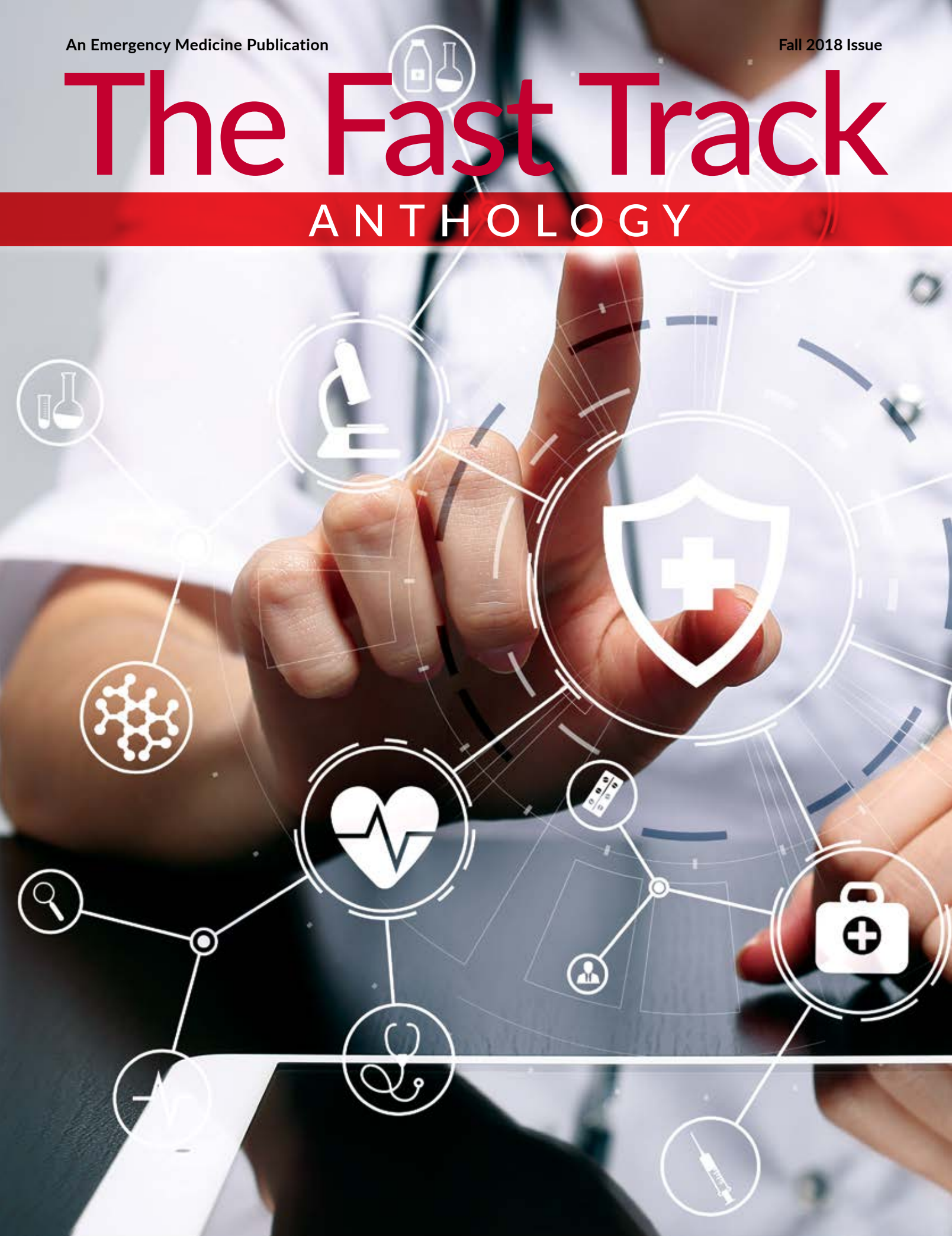


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The Fast Track

ANTHOLOGY



The Fast Track

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an'THäləjē/

noun

a published collection of poems
or other pieces of writing

The Fast Track has evolved over the years, from its humble beginnings as a paper newsletter to its current interactive online platform. *The Fast Track* is a medium for all emergency medicine residents and students to share insights into the field, including recent case reports, up-to-date journal article reviews, and thoughtful opinion pieces. As *The Fast Track* transitioned to an online format, we wanted to maintain a piece of the printed history with an annual anthology, a collection of the most poignant and most viewed articles published throughout the year. In this way, the authors are commended on their dedication to the specialty, and our readership has another avenue with which to be informed of relevant topics in the field.

For those interested in joining the edification of the specialty, *The Fast Track* accepts submissions on a quarterly basis. The residents and students on the editorial committee are available to aid the writing process from brainstorming to editing. Get published in our next edition!

We present to you the inaugural edition of *The Fast Track Anthology*, a compilation of the 2017-2018 "best of" submissions. Enjoy!

INTERESTED IN CONTRIBUTING?

Let us know: FastTrack@ACOEP.org

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THE POWER OF EMPATHY

Aishwarya Sharma
OUHCOM



The room is bright white, clear and aseptic. White walls, white bed, white curtains. And in the middle of it all is a sobbing woman. I watch her tear-streaked face as she assesses her surroundings, fear in her eyes. I am supposed to be getting the history and physical, but I seem to be frozen in place, lost in a broken memory of my past.

My mother is in her position. Small, broken, crying at the horror she had to face, the horror she tried her hardest to prevent. My sister is next to her on the hospital bed, cradling her broken arm. Although covered in bruises of her own, my mother cannot look away from her. I am sitting on her lap, 3 or 4 years old at the time. My father had become angry after my sister would not listen to him. He pulled her down from the stairs and she fell on her arm with a sickening crunch against the cold, marble floor. My mother stepped in between them to stop him, but in the process, she faced the brunt of his aggression.

"What did you do to make him angry?" The female physician asks my mother. Her voice is drowned out as I hear the blood rushing in my ears, anger lacing through my tiny body. Even

I LISTEN TO HER SORROW-FILLED TALE AND I KNOW HOW SHE FEELS BECAUSE I HAVE BEEN THERE.

at such a young age, even living in India, I can't fathom how society could treat women this way. How although my mother is sitting in the emergency room with injuries given to her at the hands of a man that couldn't control his anger, she is being faulted.

I hear the sobbing and am pulled back into the here and now. I grab a tissue and crouch down beside the woman.

"Thank you." She hiccups out between her tears.

I sit with her for what seems like an eternity. Sometimes silence soothes the other person. I let her fall into me and cry against my white coat, being careful to gently stroke her back as she recounts the details of her night. How her husband got angry again. How she wants to leave, but she doesn't know where she can go. How she regrets the father she gave her children. My mother has been there. And, we escaped due to my mother's courage.

As physicians, with a patient's life bare in front of us, we are in a position of responsibility that few have the honor of upholding. In this moment, I know where my duty lies. It lies in reminding this woman that her life is not over. That this is not the end, it is the beginning. I look her in the eyes and I recall some of the worst moments of my life. The abuse my sister, mother, and I faced at my father's hands. I tell her of

my mother's strength, who took her two little girls and fled the only country she had ever called home. I tell her of how my mother began her life in the United States with nothing more than two suitcases, one hundred dollars in her pocket, and two young daughters. I remind her that this moment shall pass like all the others and although right now life seems bleak, she will survive this and thrive. As we talk, I can see her transition from being the broken, shattered woman who walked into the emergency department to a strong, hopeful one who is determined to leave her present situation. By the time she is ready for discharge, I make sure she has all the information she needs to be able to get out of her current situation. She makes the difficult decision of filing a police report, and I sit with her as she recounts what happened to the officer.

After she is gone, I know I may never see her again. Her life is her own and that is one of the biggest burdens to bear in medicine. The empathy I feel for her is palpable, this living, breathing entity that makes itself known within me. I want to save her. I want to rescue

every woman like her and take away their pain. But that is idealistic, and the reality is that many more cases like hers occur every single day.

However, we, as physicians, can make a difference. We can be the first line of defense against domestic abuse. We can counsel, we can listen, and we can help to the best of our abilities, not just as physicians, but as fellow human beings who want to ease others' anguish. That day in the ED reminded me of the honor and privilege I have in my role as a medical student. It reminded me of my responsibility to not only do no harm but help improve others' lives.

I escaped a situation few ever do because of the resilience my mother showed. She was the beacon of hope I clutched onto during difficult times and the reason I am alive today. Like her, I want to be a beacon of hope to others. I want to use this profound gift to the best of my abilities and make a difference in the lives of those who really need it. Empathy is one of our strongest assets and I intend to fully utilize this skill. The days where I am battered down by the trauma I see around me and burned out by the inescapable drawbacks of our profession, I will remember that woman's smile as she hugged me goodbye, ready to start the next chapter of her life with the same hope that is reflected in the rising sun breaking through heavy clouds, signaling the beginning of a beautiful, new day.

STREET MEDICINE:

How It Can Have a Positive Impact and Curtail the Misuse of the Emergency Department

Jillian Blalock
WVSOM

When I made the decision to return to my hometown of Wheeling, West Virginia to complete my clinical requirements for medical school, I did so because I already knew the area. I would not have the “transition period” or feel the need to “get settled” like many of my classmates, and after seven years away from home, and two new cities, that was very comforting. What I failed to realize, however, was that a lot had changed during those seven years that I was away—both for the city of Wheeling, and for myself.

For those unfamiliar with the geographic location of Wheeling, it is in the northern panhandle of the state, with the city center located less than five miles from the Ohio state border and approximately 15 miles from the Pennsylvania state border. In 2016, the state of West Virginia led the entire nation in rate of deaths due to drug-related overdoses at 52 per 100,000. Two other states listed in the top five include Ohio (39.1 per 100,000) and Pennsylvania (37.9 per 100,000⁽¹⁾). Although the opioid epidemic began prior to my seven-year hiatus from the Friendly City, its ravenous effects were undeniable upon my return. On top of the drug crisis, the population, which has been on a steady decline for more than ten years, now stands at only





STREET MEDICINE IS THE DELIVERY OF MEDICAL CARE TO THOSE LIVING AND SLEEPING IN THE STREET.

Everyone who lives in Wheeling knows there is one stoplight in particular that is more frustrating than the rest: "The Perkins Red Light." It is especially annoying on the after-work commute. What most do not realize while sitting at that light, is that several men live right beneath where their cars sit stagnant, sheltered only by the bridge above their heads. All those times I have sat at that red light, upset that it might take me a few extra minutes to get home after work, and yet there were people literally right beneath me who had no home to which they could return to at the end of the day.

Although it is true that these people are seemingly invisible to most others in town, there is one small group of community members who are going above and beyond the call of duty in order to make a difference in the lives of those less fortunate. It is thanks to them that my eyes have been opened to the reality of our community and its very serious needs.

27,375 people, 17.8% of which fall under the federal poverty line, currently defined as \$24,600/year for a family of four⁽²⁾.

Not surprisingly, among the most common characteristics leading to homelessness are inadequate income and substance use disorder. In the US, an astounding up to 3.5 million people are living without permanent shelter on any given night. Although the rate of homelessness is declining

DR. JIM WITHERS, OF PITTSBURGH, PA, BEGAN FREQUENTING THE CITY STREETS AFTER HOURS, PROVIDING A TYPE OF NEW-AGED "HOUSE CALL" TO HOMELESS MEN AND WOMEN WHO REQUIRED BASIC MEDICAL CARE, BUT WERE UNABLE TO OBTAIN IT OTHERWISE

in the US, statistics in West Virginia show a very different story. From 2005 to 2007, there was a 36% increase in the number of individuals who are chronically homeless⁽³⁾. What saddens me most about this statistic is the vast majority of non-homeless Wheeling residents that I have spoken with are largely unaware of how pervasive the problem is here, or that the problem exists at all. I know I did not.

Project HOPE (Homeless Outreach Partnership Effort) is a local street medicine program, staffed by a diversified team of volunteer healthcare providers, including: physicians, nurses, medical students, and pre-medicine undergraduates. Street medicine is the delivery of medical care to those living and sleeping in the street⁽⁴⁾. If you are unfamiliar with street medicine, it is a concept that began in the 1990s, when Dr. Jim Withers, of Pittsburgh, PA, began frequenting the city streets after hours, providing a type of new-aged



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WHEN COMPARED WITH THE GENERAL POPULATION, HOMELESS INDIVIDUALS ARE THREE TIMES AS LIKELY TO VISIT THE ED AT LEAST ONCE IN A GIVEN YEAR AND ARE MORE LIKELY TO HAVE REPEATED ED VISITS.

"house call" to homeless men and women who required basic medical care, but were unable to obtain it otherwise⁽⁵⁾. This medical movement has grown tremendously over the years, with programs now spanning the country from San Francisco to Boston, including Detroit and even little old Wheeling, West Virginia.

Although each street medicine program is set up uniquely based on the specific needs of their community, here in Wheeling, Project HOPE takes to the streets one, even two nights a week in times of higher need (i.e. winter), to provide social and medical support to the Valley's impoverished population. Project HOPE not only provides both acute and preventative care with close follow up on a weekly basis, they also provide patients with long-term follow up options through Wheeling Health Right, the Ohio County Health Department, or various local primary care physicians depending on the patient's health insurance designation.

It is no secret that overcrowding has become a paramount problem in emergency departments (EDs) across the country⁽⁵⁾. When compared with the general population, homeless individuals are three times as likely to visit the ED at least once in a given year and are more likely to have repeated ED visits⁽⁷⁻⁹⁾. There are numerous factors that leave the homeless more susceptible to ED misuse, including a lack of health insurance, poor access to primary care, and chronic, medical problems that make them difficult patients to manage. Therefore, for our homeless patients, the ED is often the only option⁽⁷⁾.

Ultimately, what Project HOPE and other programs like it aim to do is bridge the gap between the homeless and healthcare system to provide more accessible primary care options for those who need it. In turn, this should both lessen the burden on taxpayers who are funding these repeated ED visits for those patrons unable to pay, as well as ease the strain felt by the healthcare providers themselves who are forced to try and manage an unrealistic number of patients in the department every day. Studies have shown that implementation of these types of community access programs, which assist in providing housing options and medical/social case management to those in need, have been very successful in helping to

minimize unnecessary ED usage^(8,10).

By working with Project HOPE, I have experienced the very real impact that street medicine programs can have on a community. As a prospective future emergency medicine physician, I support street medicine, because I believe that collaborations between street medicine programs and local EDs results in better care for these historically unreachable patients and improves the overall health of the community. That is the type of legacy that I am very proud to be a part of.

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Happiness in Residency and Beyond

James Chapman, DO
Kent Hospital, Warwick, RI

Residency is full of tasks that make life busy. Working shifts, studying at home, preparing for weekly lectures, and attending journal club are all part of residency life. On top of this, you are encouraged to do research, travel and present at conferences, educate students, attend interview dinners, and many other responsibilities. With all of this going on, how do we find time for activities outside of work that we enjoy in order to lead a balanced life? I went into emergency medicine, because I enjoy the work environment and what I do. How are we supposed to be happy during residency and beyond?

Being happy in residency starts before you even match into a program. Getting into a residency where you will be happy should be one of your goals during medical school. Be sure to do well enough in school to be competitive so that a variety of programs take interest in you. When rotating through potential residency programs and throughout the interview process, take note of whether the residents are happy. I remember going to resident dinners the night before my interview and realizing that I would not be as happy at one program versus another. I was not the right personality fit for that program. Attending the interview dinners was a vital part of my interview process.

During interviews, ask how many shifts a month each program has as well as the length of the shifts. Working a twelve-hour shift is much different than working an eight or nine-hour shift. When I get home from a nine-hour shift, I still have energy to accomplish other tasks or do something I enjoy. This can make a big difference in your quality of life during residency.

Another consideration is the length of a program. Many three-year programs require longer shifts and also require

a greater number of shifts in the emergency department per month of residency. It makes financial sense to go the three-year route, but for me it is more important to be happy during my residency years than finish earlier. Getting out of residency earlier will not necessarily make one happier. Making more money for one year is not that big of a difference in the long run in our field of work.

Another tip is to apply to locations where you can be happy. Some people will not be content living in a small town, while others do not want the hassle of a large city.

Emergency medicine is competitive, and sometimes you have to make a sacrifice to get into a residency. Finding out what is most valuable to you is a key part of applying to residency programs in emergency medicine.

Once you become a resident, it is easy to get caught up in the work and responsibilities of residency. It is key to remember what made you happy prior to starting residency. Make happiness a priority! Don't be a new person just because you are doing something new! It is imperative to take time each day for yourself.

Further, maintain relationships that you already have. If you are married or in a relationship, continue to spend time together. I try to set a time each week to go on a date with my wife. Sometimes with my schedule, this will be a morning date before a shift, but time together has made my relationship stronger and better. Your significant other is

Making healthy choices contributes to a balanced life. In our field of work, many people are putting themselves second to patients. If you aren't taking care of yourself, how are you supposed to advise patients to make good decisions? Many times, I am so busy at work that I only have a few minutes to eat a snack, which tends to be unhealthy. We need to

FINDING OUT WHAT IS MOST VALUABLE TO YOU IS A KEY PART OF APPLYING TO RESIDENCY PROGRAMS IN EMERGENCY MEDICINE.

spending a large amount of time without you due to work commitments, and they deserve to have some time with you to improve the relationship. This applies to your children as well. Children need to have you in their lives. This is a period of time where you will miss some milestones, so it is vital to be there as often as possible with them.

We also need to take time out for our emotional well-being. Emergency departments are fast-paced and wear us down. Sometimes we need to step back and let our minds have a break. It is emotionally draining to see children die, families torn apart, or lives altered through injuries and addictions. This takes a toll on all of us, whether you realize it or not. Taking a break from the day-to-day tasks of residency to focus on your own well-being is important. Some people need time to meditate. Some enjoy spending time outdoors. Others exercise or do yoga. Whatever it is that is valuable to you, plan time to do it.

consciously think about what we are putting into our bodies. Shift work is difficult, so our bodies need rest. It is vital to your health to get plenty of sleep. Sometimes people turn to alcohol to help them through hard times. Drinking alcohol excessively or turning to other addictive substances will make lives harder in the long run. Most residency programs have resources to go to if you find that you have developed an addiction.

Several points discussed here can make one think that residency is no fun at all. I can tell you that I am happier now in residency than I ever was in medical school. Why? It is because of the decisions I have made over the last five years or so. The interview process is central to finding a residency that fits your personality. It is my priority to keep a healthy work-life balance. It is critical for me to be part of a program where the residents are happy with their jobs. Going to a program where I have the time to do other activities is a sacrifice I am willing to make.

SOME PEOPLE NEED TIME TO MEDITATE. SOME ENJOY SPENDING TIME OUTDOORS. OTHERS EXERCISE OR DO YOGA. WHATEVER IT IS THAT IS VALUABLE TO YOU, PLAN TIME TO DO IT.

Some people also find peace with religion. An attending physician I know was experiencing what we call "burnout" in medicine. He found ways to change his outlook on life. He found a church that helped him, and also started attending martial arts classes with his daughter. These two choices helped calm him and ease his mind. He is still in the same job at the same facility, but he is much happier due to finding joy and balance outside of work.

We are so lucky to be working in this field and to be where we are today! Make sure that you recognize this fact every day and do something that brings you happiness. Physician wellness is key. Make it a focus of your life each and every day!

GO TO A CONFERENCE

Richard Newman
WVSOM

How are you sure Emergency Medicine (EM) is the field for you? This was a daunting question for me as a first-year medical student with little exposure to any specialty other than family medicine. How do you go from what you think you enjoy to finding your calling?

EM has become a very competitive specialty in recent years, and this competition has raised the bar for future applicants. This competitiveness itself has caused many of my peers who had some interest in the field to pursue less competitive specialties to avoid the additional hurdles EM requires including a standard letter of evaluation (SLOE), a video interview, and the United States Medical Licensing Examination (USMLE) depending on where you apply. In the face of these new challenges, it can be daunting for students to look beyond books and boards and say they want to commit to going above and beyond. What follows is some advice I have received and tested for myself over the last

three years that has helped me to know I wanted to be a part of the EM family.

Go to a conference. This small piece of advice seems so simple, but many of us as students don't take full advantage of the conferences and symposiums offered by most medical colleges and organizations, such as the American College of Osteopathic Emergency Physicians (ACOEP). At first, I didn't understand what the conferences offered me as a medical student. Finances were an issue as well; I just had a hard time justifying spending time and money I didn't have. As a first year, I had the opportunity to go to a small symposium for medical students in Paterson, NJ. A friend invited a group of us interested in EM, and we decided to carpool the 10 hours up and see what this thing was all about. That weekend was the first exposure I had to the ACOEP. Since then, I have been to seven conferences and symposia across the country. From that first event, I was impressed by the dedication the college showed to medical students. Every lab and lecture focused on helping us become better applicants and future members of the college. I met students from other schools and created friendships that have carried on well past the few hours or days we spent together. I met residents who know just how we feel as medical students and have been so helpful with their advice on earning a residency spot.

I honestly can say I would never have been so sure of my specialty choice if I had not attended conferences. It is often amazing just how refreshed and excited I am each time I return home from one of these events. During school I often find myself stuck in the constant rut of just focusing on the





next test or assignment, and these events gave me chance to recharge and spend some time with people who are as excited about EM as I am. I learned and honed skills that I had barely even practiced at school and learned about topics that have helped me immensely in clinic.

Conferences help you grow both professionally and personally. I am an introvert by nature and I avoid social events like the

plague. And to be honest, while at my first conference I hid in the back of the room and did my best to just smile and nod as people around me talked. But after a while, I found myself talking with the President of ACOEP as well as several program directors. They all seemed really interested in getting to know me and sharing their love for the field. As I continued to attend events, I began to loosen up and make friends who I continue to see and hang out with at each event. Throughout these events, I also picked up a new goal from the podcast "EM Over Easy" to introduce myself to three new people at each activity. I have tried very hard to do this, and after some practice, I can say it has been the basis for many new friendships and awesome conversations about EM.

In closing, I want to impress on you just how amazing an opportunity we have as medical students to attend conferences and meet members of this profession. Through my experiences I have found that there is no better place to answer the question "is this the specialty for me?" than at a conference.



IS THERE A DOCTOR ON BOARD?

Jordan Johnson
LECOM-Bradenton



The familiar feeling of descent woke me as I emerged from a much-needed nap on my flight from Miami to Denver for ACOEP's 2017 Scientific Assembly. I had fallen asleep to the soothing sound of Pathoma, a common occurrence for medical students. However, not even the sultry voice of Dr. Sattar could deafen the orchestra of mumbles and scattered voices that pervaded the cabin. The passenger next to me looked upon my dazed face and informed me that we were going to land in Memphis, TN due to one of the passengers having a medical emergency. Suddenly, I was overcome with uncertainty about how to handle this situation. Although there is only an estimated 0.0017% chance that a medical emergency will happen on your next flight, it is a scenario that all physicians should be prepared for.

Although physicians are not required by law to assist in airborne medical emergencies, the Hippocratic Oath confers an ethical responsibility to do so. Nevertheless, if a physician chooses to aid in the care of a passenger, assistance is available. All airlines are required to provide first aid training to the cabin crew, enabling them to respond to various situations with resuscitation techniques, oxygen support, and defibrillation. This training and that of medical control on the ground should be acknowledged by the physician and utilized as needed. Cabin crews are typically required to recertify their on-board medical training every two years.

Airlines are required to carry a surprisingly comprehensive stock of medical equipment. The Federal Aviation Administration requires most commercial passenger jets to carry an Automated External Defibrillator, a basic first-aid kit, a sphygmomanometer, stethoscope, three sizes of

oropharyngeal airways, a self-inflating manual resuscitation device with three mask sizes, cardiopulmonary resuscitation masks, intravenous access equipment, alcohol sponges, adhesive tape and scissors, a tourniquet, saline solution, gloves, syringes and needles of varying size, analgesics, antihistamine tablets and injectables, atropine, aspirin, a bronchodilator, injectable dextrose, epinephrine and lidocaine, nitroglycerin tablets, and basic instructions. It is worth mentioning that international airlines are required to have a

**ALTHOUGH INFREQUENT,
A GREAT VARIETY OF
EMERGENCIES CAN OCCUR
AT 40,000 FEET.**

medical kit available on the flight, but the contents of these kits vary.

Although many physicians may be concerned about legal ramifications after caring for a patient in the air, this fear is largely unfounded. According to a 2016 report by the Aerospace Medical Association, there are no known cases brought against physicians who volunteered in an inflight medical emergency. In the case of US Airlines, the Aviation

ultimately up to the pilot of the aircraft. The pilot makes their decision based on the recommendations of a ground control team, the cabin crew, a medical professional involved in the airborne management of the patient if one is available, and a consulting aviation physician if one was contacted. Regardless of the decision, the patient's health is paramount.

Hopefully this information will inspire confidence in physicians that may be called to act and provide them with

PERHAPS THE MOST PRACTICAL ROLE A PHYSICIAN CAN PLAY IS RECOMMENDING TO THE PILOT WHETHER THE PLANE SHOULD LAND IMMEDIATELY TO PROVIDE EMERGENT CARE FOR THE PATIENT THAT RESOURCES ON-BOARD CANNOT OR TO CONTINUE TO THE DESTINATION FOR FURTHER MANAGEMENT.

Medical Assistance Act of 1998 also provides legal protection for medically qualified professionals who volunteer unless they are "guilty of gross negligence or willful misconduct."

Although infrequent, a great variety of emergencies can occur at 40,000 feet. In a study conducted by the University of Pittsburgh Medical Center in 2010 on inflight medical emergencies, 37.4% were related to syncope, 12.1% to respiratory distress, 9.5% to nausea or vomiting, 7.7% to cardiac symptoms, 5.8% to seizures, and 4.1% to abdominal pain. Of the 12,000 inflight medical emergencies that were analyzed, only 7.3% resulted in the airline being diverted away from the destination airport. Many may be tempted to request the plane land immediately regardless of the severity of the patient's condition, because it is the "safest" course of action. But, this may not always be the best option.

Several factors influence the decision to divert. The patient probably has friends or family at the destination who can provide crucial information about the patient's history, medications, and even advanced directives. Also, consideration must be given to the idea that diverting a flight from its original destination implies the patient may end up in an unfamiliar region without their usual support system. Finally, if the airport to which the flight is diverted is not near an acute care facility or simply unequipped to accommodate a medical emergency, the patient might have to wait even longer to receive the appropriate care than if the plane had just continued directly to the destination. Perhaps the most practical role a physician can play is recommending to the pilot whether the plane should land immediately to provide emergent care for the patient that resources on-board cannot or to continue to the destination for further management. The necessity of diversion is

a greater understanding of airborne medical emergencies. Don't be afraid to spread the wings on that caduceus and fly.



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HOW TO SURVIVE THE FIRST TWO YEARS OF MEDICAL SCHOOL

Christopher Borowy
Jonathan Kelley
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Countless tests, endless hours of studying, and bottomless pots of coffee—the first two years of medical school are unlike anything most people will ever experience. As the pressure mounts, so does your stress level. We have compiled 10 tips to not only help you survive the grueling didactic portion of medical school, but to ensure you thrive as you embark on your career in emergency medicine.

— 1 —

Accept that you are smart enough to be in medical school.

There will be moments during the first two years when you will doubt your ability to become a physician. This is normal. Do not let a bad test grade or rough week allow you to begin questioning your capabilities. Remember, you are in medical school. You deserve to be here. Embrace your intelligence and own it. What do you call the person who graduated at the bottom of their class in medical school? A doctor. Repeat this mantra every day.

— 2 —

Create a schedule and stick to it.

Medical school is a marathon, not a sprint, and training for a marathon is not accomplished overnight. Learning takes time, dedication and commitment. Throughout the first two years, you will be amazed by how much you can learn in a short period of time. However, it is important to be patient with yourself and create a schedule that allows you to soak in the information whether that includes nightly study sessions at Starbucks or morning runs on the treadmill. Developing a schedule creates consistency and eliminates unnecessary mental clutter. Be the tortoise. Don't be the hare.

— 3 —

Schedule one night per week off.

As part of your schedule, take one night per week off. This is an absolute necessity. Time off will become more valuable as you progress through medical school and continue long into your career. Get into the habit of forcing yourself to step away from school and to clear your mind now. Use this time to reconnect with the outside world, decompress with non-medical school friends and bond with family. You will arrive back in class refreshed and centered.

— 4 —

Remind yourself why you are in medical school.

The human element of medicine is easily forgotten when you have your head buried in textbooks and case studies for two years. Why in the world do you need to know about Sphingomyelinase deficiency in Niemann-Pick disease? Because someone's child has this, and they have turned to you as the medical expert to guide them through treatment. The trust patients have in you during their most vulnerable times is the ultimate privilege. When school gets rough, stop to remind yourself why you have chosen medicine as your profession.

— 5 —

Build a diverse and supportive network of friends.

There are different types of people in medical school. Go figure, right? Some people are hypercompetitive, ace the boards, and are destined to become neurosurgeons. Others already have a residency lined up through family connections and complete the bare minimum to pass. Cultivate a strong network of support by surrounding yourself with both types of people. We as individuals have strengths and weaknesses that contribute to our learning and shape our world view. As we are learning together, we need people to vent to, share frustrations with, and to celebrate successes. Having a diverse group of peers allows you to push your own limits and unlock your true potential. Not to mention, having supportive friends who can empathize with your walking zombie routine after an all-night cram session is crucial to surviving medical school.

— 6 —

Stay active and try to eat healthy.

Unless you are fortunate enough to have won the lottery or have a sugar-spouse, chances are you are poor. We all are. As a student, money is sparse, and any food is good food. However, try to gravitate towards the healthy option. Produce is just as cheap as McDonald's, so choose the carrots over the French fries. And it is just as important to get active. Take a break from studying each day to work up a sweat and clear your head. Even dedicating 15 minutes every day to exercise will have an enormous impact on your mental health. It will help with endurance, attentiveness, and information retention. We promise the 15 minutes you devoted to your health over studying didn't result in a lower test score. It is important to remember that the habits you form in medical school will carry over into your career in medicine.

— 7 —

Begin giving back.

Getting away from the books to give back to the community is a perfect way to maintain a positive attitude during your first two years. There will be a variety of opportunities to volunteer. Take advantage of them. Whether it is volunteering at an underserved medical clinic, being involved in club outreach programs or advising undergraduate pre-med students, stop studying once in a while and give back! Trust us, you will never regret time away from studying to volunteer. In fact, it may even rejuvenate and recharge your batteries.

— 8 —

Embrace failure and learn to fix your mistakes.

We all fail at some point. You will fail a test. You will miss a diagnosis. Unfortunately, mistakes are inevitable. There is a learning opportunity in each failure whether specular or miniscule. Mistakes provide an opportunity to reflect on what went wrong and what could be done differently in the future in a way our successes don't. Learn from each of them and adjust accordingly. If you fail a test, remind yourself that it was better to happen in a testing center than in the hospital. The entire point of these first two years is to learn, so take advantage of your mistakes by viewing them as another learning opportunity.

— 9 —

Force yourself to be optimistic.

There is no question there will be tough times during the first two years. Force yourself to be optimistic. Be flexible, yet resilient. We often see classmates absolutely losing their cool over changes in their schedule, hard exams or poorly written test questions. Do these relatively minor inconveniences matter in the grand scheme of life? Probably not. It is important to maintain perspective and understand you choose your reaction—so choose optimism. You must learn to deal with adversity now, so you are ready to deal with it in practice. There will be plenty of times during rotations, residency, and practice when things will be beyond your control in which you can choose to freak out or accept the situation as it presents itself and move forward.

— 10 —

Have fun!

The single most important tip we can pass along is to make sure you have a good time during the first two years of medical school. There is no point in doing anything in life if you are not having fun doing it. Tests will come and go, but your mental health is what will carry over into the clinic, wards, operating room and emergency department. Take care of yourself, enjoy your friends and family, and make sure you avoid studying periodically.

AN ODE TO OSLER:

A Physician Profile

Dominic Williams, DO
University of Maryland, Baltimore, MD

"MEDICINE IS A SCIENCE OF UNCERTAINTY AND AN ART OF PROBABILITY."

Have you ever wondered why, as a third-year medical student, you're cast out into the hospital to fend for yourself among patients? Have you ever stopped to think about which creative genius came up with the idea of years of torture post medical school? Ever wondered about the man behind the painful nodes of endocarditis? Well, wonder no more. In this brief article, we will take a whirlwind tour through the life of one of the physicians credited with birthing modern medicine from the classroom to the clinic—Sir William Osler.

William Osler, fondly referred to as "Willie," was born on the 12th of July 1849, about 40 miles north of Toronto, in a frontier village called Bond Head. As one of nine children born to a reverend and his wife, his childhood was split between traveling with his father and tending the small farm attached to the parsonage. As Reverend Osler's career progressed, the family moved to a larger parish in Dundas when William Osler was a mere eight years old.

Allegedly, as quite a mischievous young man, Osler decided to enter the theological field after taking his antics too far and deciding he must atone for his wrongdoing. Thankfully for the field of modern medicine, at Trinity College School in 1866, Reverend William Arthur Johnson set young Osler's life on a trajectory quite different from the one he'd planned. Through Reverend Johnson's introduction to the field of science, Osler awoke to the joy of understanding how things worked and was no longer stuck in the monotony of translating classic texts from their original Greek and Latin. This newfound interest drove him to make the transition from "the study of nature to the



Source: Courtesy of Wikimedia Commons

**"Listen to your
patient, he is telling
you the diagnosis."**

**"Observe, record,
tabulate, communicate.
Use your five senses.
Learn to see, learn
to hear, learn to feel,
learn to smell, and
know that by practice
alone you can
become expert."**

The above quotes are a few favorites among clinical faculty everywhere. Osler believed that the vast majority of diagnoses could come from a thorough history and physical. Although I stand by his statement, I feel that in this era of medicine even Osler would recognize that the armory of tests we have available far exceeds his arsenal at that time. This quote should still be an encouragement to us all to actively listen to the nuances of a patient's history. Our testing should be to confirm and support, not simply because we "don't know."

study of man” and ended up working with a new mentor Dr. James Bovell, a faculty member at the Toronto School of Medicine. Osler transferred schools to complete his medical training at McGill University Faculty of Medicine in Montreal where he graduated as both an MD and CM—a medical doctor and a Master of Surgery. At this point, Osler sought clinical experience at that time not available in North America. So off he went to England and Germany where he worked with names such as John Burdon Sanderson, and perhaps the more well-known, Rudolf Virchow (of triad fame). Returning to Montreal in 1874, Osler swiftly took on the title of professor and became an active member in the scientific community. At this time, Osler became interested in the reformation of medical education. And after being inspired by his time in Europe and his visits to the United States, Osler introduced new classes at the medical school, altered the format of exams, and campaigned to promote greater clinical experience for students.

Osler’s full-time American adventure began in Pennsylvania, enticed by the clinical opportunities he could provide to his students there. He was famed for his fascinating autopsies and sharing the joy of learning with his students. He also became a regular public speaker in the medical profession and questioned the current medical school curriculum and the discrimination of women in medicine. Perhaps Osler’s more famous appointment came in 1889 when he became Physician in Chief of a medical school that even the average layperson recognizes—Johns Hopkins Hospital in Baltimore. In this position, he was given the freedom to structure his own course curriculum which he based on his time in Europe. Third-year students began in outpatient clinics and fourth-years were sent into the hospital under the supervision of the residents. Osler would also round on patients and gained a reputation for both his intricate exploration of each presentation and his superb rapport with patients and students.

During this time Osler married Grace Revere Gross, the widow of a famous surgeon, and published his seminal work *The Principles and Practice of Medicine*, a conglomerate of his clinical experience and the most up-to-date information he could gather in the newer fields of medicine such as microbiology. A huge success, the book was a popular work for many years after printing.

In his mid-50s Osler’s commitments were beginning to overwhelm him and he accepted a job at Oxford University as the Regius Professor of Medicine. His family made the move to the United Kingdom and he swiftly settled into life there. Despite working clinically and academically, Osler also found time to build his literary collection and further explore medical history. In 1911, thanks to King George V, and due to his outstanding contributions to medicine, Dr. William Osler became Sir William Osler. As with many other retirees, the First World War brought many physicians out of retirement and into the forefront of their field again. As a Canadian by birth he helped organize many of the foreign military hospitals in the Oxford region and opened his home to the vast number of displaced individuals that suffered as a result of the war. The war brought great tragedy to Sir William and his wife, Lady Grace. Their only son to survive into adulthood (one was torn from them soon after birth) was killed in the fighting in Ypres, Belgium, the summer of 1917.

Osler battled respiratory issues, quite possibly undiagnosed bronchiectasis, much of his adult life. A short time after turning 70, Sir William Osler suffered from pneumonia, likely a complication of the Spanish influenza. He died in late December of 1919. Osler himself referred to pneumonia as “the old man’s friend,” in his writings and was controversially known to have joked about the swift downhill slide of the aging man. In death, as in life it seems, Osler embraced the science that he had founded his career upon.

Osler embraced humor in all aspects of his work; he used the pseudonym Egerton Yorrick Davis to help publish his musings. Once he tricked the Philadelphia Medical News into publishing a report on penis captivus (one I’ll leave you to Google on your own time). He took on this alter-ego and used it to sign into conferences and hotels.

Osler’s literary works caught the eye of the Rockefeller family and resulted in their founding of the Rockefeller Institute of Medical Research.

Osler’s home in Oxford was known as the “Open Arms” due to all the visitors he and his wife would receive. This is a delightful play on words as many public houses in the UK are the _____ Arms, and his home was a constant hive of activity and hospitality.

Dr. Harvey Cushing, yes, that Cushing, wrote Osler’s biography “The Life of Sir William Osler” and published it in 1925.

“While medicine is to be your vocation, or calling, see to it that you have also an avocation—some intellectual pastime which may serve to keep you in touch with the world of art, of science, or of letters.”

It is impressive to me that nearly a century before all our wellness seminars and life/work balance advice that Dr. Osler recognized the importance of preventing losing touch with the rest of life for the sake of medicine.

“The good physician treats the disease; the great physician treats the patient who has the disease.”

Here, Osler shows his genial personality in his approach to treating patients. This theory seems positively Osteopathic in its foundation and I can't think of a better physician to share a philosophy with.

“There is no disease more conducive to clinical humility than aneurysm of the aorta.”

This quote resonates with us all I'm sure. Despite the advances of modern medicine, some conditions remain heart-wrenchingly lethal.

“Too many men slip early out of the habit of studious reading, and yet that is essential.”

“By far the most dangerous foe we have to fight is apathy—indifference from whatever cause, not from a lack of knowledge, but from carelessness, from absorption in other pursuits, from a contempt bred of self-satisfaction.”

“No human being is constituted to know the truth, the whole truth and nothing but the truth; and even the best of men must be content with fragments, with partial glimpses, never the full fruition.”

Osler's attitude to education and lifelong learning is one that I trust inspires us all. In our field, burgeoning with new and exciting information in more creative formats than ever before, we can continue to peak our own curiosity and better our patient care.

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How Can You Prepare For A Successful EM Match?

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I recently interviewed National Student Past-President, Tim Bikman. Emergency medicine has become a highly competitive specialty, but there are things you can do each year to set yourself up for success on Match Day. Tim's answers to the following questions provide great insight and will benefit anyone interested in emergency medicine.

What are some basics things that anyone interested in EM should do?

Get involved with your local EM club and try to find ways to get experiences in and around emergency medicine. Things like shadowing an emergency physician or attending a lecture by an emergency physician or resident can be extremely valuable. Become a member of the national organization, which for us as osteopathic students, would be the American College of Osteopathic Emergency Physicians (ACOEP), and also register as an EMRA member. Both organizations provide unique, basic things that are helpful for students interested in emergency medicine.

For those who may not be familiar with it, can you explain what EMRA is?

EMRA is the Emergency Medicine Residents' Association and it's basically the MD's version of our Resident Student Organization. It's something for residents and students alike.

FIRST YEAR

What made you want to go into EM?

As a first-year student I had an upper classman who encouraged me to look into EM. At that point, I really felt like I wanted to do pediatrics. Finally, he

convinced me to attend an ACOEP student event. At that event I just found myself surrounded by people whom I really meshed well with, and it was the type of culture that I wanted to be involved in. I realized these were the kind of people I want to be like later on in life. I was really inspired by that experience, going to a conference and being around those types of people.

As a first-year medical student, how do we know whether or not EM will be a good fit?

The only way you can know is to start having experiences. Attend your local EM club events, especially if they have a doctor coming to talk, and just ask yourself, "Is that the type of environment that I want to work in?" "Are those the types of experiences that I want to have?" "Do I feel like I would excel in that type of environment?" Look around the room and ask, "Do I see myself fitting in with these types of people?" I would also highly encourage students to attend an ACOEP or EMRA-sponsored "Regional Symposium." These are one-day events on a Saturday, so you don't have to miss class, where they have lecturers, labs, and some sort of residency-networking

experience. Going to one of these as a first-year student would be valuable in helping you understand, "Is this really a specialty that I should pursue?"

Did you attend any other conferences outside of emergency medicine?

I did, actually. For two years, I went to OMED, which is basically the osteopathic world's major conference that brings together a number of different specialties, where I presented research. Also, as a first-year student, I attended the American College of Osteopathic Pediatrics spring conference. These conferences were fine but lacked student-focused lectures and events. At that point, I assumed that's just how it goes as a student. Then I attended an ACOEP conference as a second-year student and found myself engaged in lectures, labs, and social events specifically for students like myself. I felt like, "This is a college that cares about me as a student and where I'm going," and that was one of the things that really inspired me to do emergency medicine.

How important are clubs?

I think being involved in a club shows dedication to a specialty and it's a valuable opportunity to help you find out if you are really interested in that specialty. Emergency medicine has become very competitive, so the earlier on you know it's the specialty you want to go into, the better prepared you can be for matching into a good residency.

What if you don't have any ED shadowing experience? What are the first steps that you would recommend to get ideas about whether this is the path that I should go down?

I think this question really goes along with some of the other things that we've talked about, such as getting involved in your local club, attending their events, trying to find out if there are any regional symposiums or conferences that you can attend and just getting experiences within that environment and among those people that practice in that environment. I think that's the best thing that you can do. If you have the opportunity to spend some time in the emergency department, that's great, but I know that's not a possibility for all students and I don't think it's completely necessary. I think there are other ways that you can get those experiences and rub shoulders with people who are in those environments and will help you better know if emergency medicine is right for you. So just being involved in your local club and trying to find an emergency conference to go to would be very beneficial. If you don't make it to an ACOEP conference, SMACC puts on a conference, SAEM puts on a conference, and EMRA has their conferences with ACEP. There are lots of conferences out there. Find one that's doable for you and attend it.

SECOND YEAR

How important is club leadership during our first two years?

I think having leadership experience is very valuable. There is so much personal growth in taking on the challenge of a leadership position. Those types of positions also, inevitably, lead to networking and other opportunities that you wouldn't have been exposed to otherwise. Also, as a second-year student, it's not wrong to look at national leadership opportunities as well. The ACOEP students have elections every fall for their national leadership and we always

encourage second-year students to run for positions.

What advice do you have about taking USMLE along with your COMLEX, and what kind of implications does it have in emergency medicine specifically?

This is a question I've thought a lot about. Within the next 2-3 years, I imagine the single accreditation will create an environment where there is virtually one match and all students, DO or MD, are competing directly for all positions. I know a lot of students have concerns like, "What if I don't do well on the USMLE?" I get that. It's scary. It's another exam you've got to prepare for, but you really prepare for it the same way. Let's say you don't do well—I don't think that closes any more doors than would already be closed if you don't take the exam. Just taking the USMLE will give all programs the opportunity to consider you as an applicant, regardless of your score. Also, it's been my experience that students who plan to take both exams are more diligent, disciplined and serious about the exams.

When is a good time to do an ED rotation as a third-year student?

At most schools, you have limited control of how your schedule's set up as a third-year student, and I get that, but there's no better way to find out if emergency medicine is right for you than to do a rotation as a medical student. Whether it's a required rotation or an elective, I would try my best to get into the emergency department early in your third year, especially before January when you really have to hit the ground running while preparing for fourth year.

What are important dates to keep in mind as a third-year student, as you're preparing for fourth year?

Third year, academically, is much easier than your first and second year, so you're not spending so much time

worrying about the next exam. Third year is really a time to prepare for fourth year. July through December is a great time to do a lot of general investigation of many different programs. Try to find out what you want from your future training. Are you looking for a community-based training, a large academic center, a major trauma center, or is geographic location important? By December you need to have a small list of your top 5-8 programs. These will be the programs where you would like to do a visiting/audition rotation. In January and February, find out exactly how to go about applying for an audition rotation at these programs. You'll need to find out if they have their own application or if they go through VSAS (Visiting Student Application Service). Every program has different deadlines and requirements. You want to be on the ball because even audition rotations are competitive, and you need to have all of your paperwork ready and submitted the day their application opens up. Then, as third year is wrapping up, you've got to be serious about being ready to fill out your ERAS (Electronic Residency Application Service). That means you have an up-to-date CV put together, you're working on your personal statement and you're thinking about your letters of recommendation. Most medical schools allow you to start filling out your ERAS in March. You can also go to ERAS, at any time, and download a PDF template to know what information you will need to input into ERAS. Lastly, you will want to sign up early for board exams. Take your exams early, like in July, so that programs have your scores back when they are considering whom to invite for interviews.

How important is Step II?

Step II, in general, is not as important as Step I when programs are considering which applicants to interview. I think programs make a lot of their decisions and set their minimum board scores for accepting interviewees and auditioning students based on Step

I; however, I feel like Step II is definitely an important opportunity. It's your chance to show the program a consistent pattern of success, or if you didn't do so well on Step I, it's an opportunity to show improvement.

FOURTH YEAR

What months are best for audition rotations?

I think the prime months to do audition rotations are August, September and October. In July, programs are trying to get their new residents oriented. Interview season is primarily the end of October through early January. It's best to avoid being on auditions in the middle of interview season.

What are SLOEs and why do I need one?

SLOE is a Standard Letter of Evaluation. It's a letter of recommendation that standardizes you, as a rotating student in emergency medicine, compared to other students each specific program has seen. It's extremely valuable. This is arguably the most powerful tool a program director has that shows how you function in an emergency room, through the eyes of the faculty members that work in residency programs.

If you'd like to learn more about SLOEs, you can find more information at this website: <http://www.cordem.org/i4a/pages/index.cfm?pageID=3743>

You can also see an example of the SLOE template at this website: <https://www.cordem.org/files/DOCUMENTLIBRARY/SLOR/SLOE%20Standard%20Letter%20of%20Evaluation%202015.pdf>

How and when do I get them?

When you're doing an audition at an emergency medicine program make sure to let them know at the very beginning of your rotation that you would like to receive a SLOE at the end of the rotation. This is also a great time to ask them about their process in writing SLOEs and about their criteria to achieve "honors" vs. "high pass" vs. "pass," etc.

Who gives them?

It depends on the program. Each program has their own process. Some programs have a committee that gets together to develop their SLOEs and others might have the program

director or a specific faculty member assigned to create their SLOEs.

Do you see your SLOEs?

This is like any other letter of recommendation and so you probably won't see what it says. It is also important to know that the process of uploading a SLOE is the same process used to upload any letter of recommendation. In addition, remember that you can only submit four letters of recommendation to any residency program. I would recommend that two of those four letters of recommendation submitted to each of your programs be SLOEs.

Do you have any advice for preparing and submitting your ERAS application?

There are two big things I would like to mention. First, be early on everything when it comes to residency, especially your ERAS application. Find out when you can start filling out your ERAS and then find out what dates DO and MD programs accept applications (these are all different dates that change each year). Be ready to submit your application the first day that ERAS allows. Secondly, you don't have to have a complete application to submit it to programs. For example, most of you won't have your board scores back and your SLOEs will not have been uploaded by the time you can submit your application. For example, if you don't get your COMLEX PE set up early enough and you don't have that score back yet, you should still submit your application. This shows them that you are organized and serious about their program.

How do you maintain balance and wellness through this crazy process?

If we don't have health, in all of its aspects, we have very little. Be conscious of what you eat/drink, and exercise regularly. Finally, for most of us the clinical years of medical education is the first time we have been exposed to real tragedy on a regular basis. You will see and be part of some patients' most devastating moments. These moments take their toll. Find ways to maintain balance in your life. These will be different for everyone. Family, socializing, religion or exercise are just a few of the things that can contribute to a long and healthy career.

SOME PROGRAM DIRECTORS:

1. Personal Statement: Make it believable. Tell what motivates you, drives you, and makes you want to excel in EM. Let them know about you and what they would be getting out of you as a resident, for example, leadership qualities, experiences, research, personality, etc. Tell what you are looking for in a program. Tell what you need from a program to help you be successful.
2. Doing an audition at an institution that is not familiar with or doesn't complete SLOEs is not as advantageous as those that do.
3. Taking both USMLE and COMLEX should be viewed as mandatory.
4. Most students do 3-5 auditions which takes a significant amount of early planning and a lot of time.
5. As a fourth-year student it is important to follow up with programs you liked in order to express your interest in that program before rank lists are submitted.



Creating A Winning Poster

Olivia Reed, DO
Norman Regional – Oklahoma

Are you thinking about submitting your work for your first FOEM competition? Not sure how to take that first step? I understand. I remember scrolling through the FOEM website feeling a little intimidated by the idea of entering a national competition. However, don't let those first-time jitters stop you! In 2016, I walked away with a first-place win as a first-time competitor, and I've written this "how to" guide to help you as you enter your first FOEM Case Study Poster Competition.

#1: READ THE COMPETITION GUIDELINES & ENTER

FOEM has created an exceedingly user-friendly website. Visit the new FOEM Research Network at <http://frn.foem.org>. Take advantage of this resource. It includes deadlines, and most importantly, examples. As part of your entry you will need to write an abstract about your case study in less than 500 words.

#2: WRITE AN ABSTRACT

- Never written an abstract? Me either. I started by reading the abstracts of the previous FOEM winners, and it was the most helpful resource I found.
- After reading previous abstracts you will be able to create an outline of your own. For example:
 - Title
 - Introduction (short summary of your case)
 - Case details
 - Discussion and Conclusion
- This abstract will serve as your road map to creating your poster. Spend your time developing a solid abstract, and it will serve you well.

#3: CREATE YOUR POSTER

- Congratulations, your abstract was accepted! Now what? Go back to the FOEM website and study the previous winner's posters. Pick out what you like from each poster.
- Readability is the most important part of creating a poster. We all like to be flashy, but don't let it come at the expense of your case.
 - Make sure that from every angle, and in every light, your poster is readable and not too crowded.
 - Use fonts that are easily followed. While "Brush Script MT" is fun, it doesn't make for a quick read.
- Graphics are a great addition to your poster, but they need to be high quality. Pay close attention to the detail. Are your graphics blurry and distorted? Difficult to read graphics will distract from the content of your poster.

#4: PRESENTING YOUR MASTERPIECE

- Practice, Practice, Practice! If someone will listen to you talk about your case study, let them. Rehearsing your study and allowing others to ask you questions will help you refine your presentation and anticipate questions the judges may have.
- If you are selected to present, make sure you arrive on time, dress professionally, and have fun presenting your hard work

A FOEM competition offers the opportunity to compete on a national platform and the chance to be published. By entering a FOEM competition you will build your resume and gain invaluable experience. I hope you take advantage of this opportunity, as we miss all the chances we don't take. Please feel free to reach out to me personally if I can provide you with any individual guidance.

USMLE: YES OR NO?

Dominic Williams, DO
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In my term as the ACOEP-RSO Student President, I had the privilege of meeting many osteopathic students from across the country: students with a passion for emergency medicine, students taking the initiative to attend events relevant to their future, students wanting to do everything they could to be a part of the future of the profession, and students who often felt like they were not receiving the advice and recommendations they needed from their respective institutions. The role of ACOEP has always been to help nurture future generations of physicians, and with the unification of residencies under the ACGME, the RSO is continuing to help students be as successful as possible in a competitive environment.

My personal experience on the interview trail has been particularly interesting. I'm sure many of my fourth-year compatriots have similar tales of interview rejections and acceptances, with no discernible pattern to either. I made it my business to attend the residency expositions at both ACEP and ACOEP to search for more information. I'd like to take this opportunity to share my findings with you. These are my personal anecdotes, so take from them what you will.

Many of the traditional ACGME programs will not even look at your application without a complete set of USMLE scores. This cannot be stated firmly enough. Based on my informal survey at ACEP, many programs use these numbers as an initial screening tool. If you are a first or second year reading this article, take this point to heart. With more and more candidates applying to programs, the screening process will continue to get more stringent, and ranking students by numbers is a convenient way to screen applications. Below are my recommendations for helping students make this decision.

1. CONSIDER YOUR BUDGET.

Spending an extra \$1,500 on exams that aren't required for your diploma is certainly irritating. But, is it less frustrating than being limited in your residency opportunities.

2. DO YOUR RESEARCH.

Find out which programs use the USMLE as a screening tool. Some of these programs have this information readily available on their websites, while others require you to email the program for specific information. If you plan to rank any of these programs, then the utility of the USMLE exams becomes even greater.

3. ROTATE AT THE PROGRAMS YOU ARE INTERESTED IN.

VSAS is opening soon for current 3rd years. Students that rotate at programs will often be given a more thorough examination of their application and will commonly (but not always) be invited to interview.

4. DO NOT LOSE HOPE.

Reach out to the programs that you feel may have overlooked you. If you are a student that neglected to take the USMLE Step 1, address that in an email to the program and see if they are willing to consider your application despite its absence. Regardless of having completed Step 1, taking the USMLE Step 2 will also help to show you are competitive in direct comparison to your allopathic counterparts.

With that being said, there are many programs that still recognize the value of osteopathic students and will welcome you based on the merits of your application, COMLEX scores, academic prowess, and community involvement in medical school. I cannot say how long this will last. Of interest, I was surprised to learn of traditionally AOA programs that will be expecting all applicants to have USMLE scores moving forward. As an exam available to all applicants, it is seen by these programs as the best way to compare candidates from different programs.

I am proud to be an osteopathic medical student. I firmly believe that we have a lot to offer the emergency medicine community. I would hate to think that something as simple as proving ourselves on one more examination would be the difference between a student successfully gaining an interview spot or not, but this currently seems to be the situation. Emergency medicine is evolving, becoming increasingly popular. For a seat at the table, we must rise to the occasion. I would urge the students reading this to strongly consider taking the USMLE. I wish you all the best in your endeavors. If you feel there is any way the RSO can help you further, please do not hesitate to reach out to us!



ACOEP'S RSO PRESENTS

Trauma in the ED Student Symposium

ACOEP's Resident Student Organization cordially invites you to the Winter Student Symposium at Doctors Hospital in Columbus, OH on Saturday, December 1, 2018.

Symposium highlights:

- Rapid fire lectures on must-know trauma topics
- Tips on how to get your dream residency spot
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- Hands-on skills labs: traumatic airways, FAST exams and much more!

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Saturday
December 1, 2018
8:00 am - 5:30 pm

WHERE:

Doctors Hospital
5100 W. Broad St.
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COST:

\$30.00

For more information and to register, visit:

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REGISTRATION DEADLINE IS NOVEMBER 1, 2018.





BE AFRAID. BE VERY AFRAID.

Alexander Torres, DO
Comanche County Memorial Hospital, Lawton, OK

Transitional career phases are, without a doubt, an emotional rollercoaster filled with anxiety, nervousness, and fear, to name just a few. As an emergency medicine physician, you will be continuously challenged throughout your career, no matter how seasoned you become. There is no doubt that you possess the intelligence and strength to succeed in emergency medicine, but whether you are a medical student, resident, or even an attending physician, you should be afraid. Why?

The rapid shift from medical school to internship is terrifying. No matter how many pages you read or how well you try to prepare, no intern truly feels ready to start their first day of post-graduate training. The thought that “things have to get easier,” helps you to persevere throughout the year, yet every minute of every shift has the potential to produce a nerve-racking experience. So, things must get easier, right?

Fast forward to assuming the responsibilities of an upper-level resident. The time flew by, and although there were days you thought would never end, internship is successfully completed. Now you are known by the nurses, attendings, and hospital staff and it seems everything should be easier, but it's not. The accountability and duties intensify, such as documentation, managing an increased number of patients, working on research projects, and supervising interns and medical students. Again, every minute of every shift has the potential to produce a nerve-racking experience. You have your senior residents and attendings to back you up, so it can't be too scary, can it?

Now you are the senior, maybe even the chief resident. You have surmounted the early years; graduation and “attending” status is in sight. By the time you realize that you have been given additional responsibility, there is nothing easy about it. You are required to teach the junior residents, interns, and medical students. You are expected to begin functioning near junior-attending level, as well as make schedules, prepare for your national board exam, interview for jobs or fellowship, and prepare for possible permanent relocation. Once the year-long, daily “circus show” is over and you have successfully completed all these seemingly impossible tasks, it is graduation day. You've made it! You are going to be an attending physician. So, things must get easier, right?

But wait, now you have essentially reverted to intern-status. As a new attending, you are the expert in charge, but you are terrified. There are no senior residents to supervise you. You are residency trained and have been well prepared, so why should you be terrified? Because every minute of every shift has the potential to produce a nerve-racking experience.

As an emergency medicine physician, you frequently hear the familiar phrase, “just when you think you have seen it all...” In this specialty, there is no way to truly prepare for everything that you will encounter. You must believe in yourself, your training, and trust your skills needed to save lives. You will encounter a “zebra” diagnosis or an “ED thoracotomy,” and be terrified time and again. As physicians, especially in emergency medicine, you are privileged to great opportunities and possess unparalleled skills to perform a job that very few are able to accomplish. Be grateful. If you have successfully completed medical school and residency, and your residency program director felt you were competent enough to practice independently, that is a great achievement.

GETTING FLASH!

The Blind “Fem” Line

INTRODUCTION

With the widespread availability of intraosseous (IO) needles and ultrasound, emergent central lines placed with landmark-guidance (LG) are becoming a thing of the past. While IO access is faster, and ultrasound guided central lines have higher success rates with fewer complications than LG central lines, IO devices or ultrasounds are not always immediately available^[1-5].

In these scenarios, LG central lines are often our only option in the critically-ill patient who requires emergent and reliable vascular access. While every patient is different, and the best location of the central line is patient specific, the LG femoral central line is likely the most versatile as it is a compressible site and does not require Trendelenburg positioning of the patient. As this vital skill seems to be performed less and

less frequently, here are some tips to help with the hardest part of the procedure: getting flash!

POSITIONING

Like any procedure, positioning is critical! Placing the patient in reverse Trendelenburg can increase the cross-sectional area and exposed width of the femoral vein, and it may help mitigate any respiratory distress your patient may be in^[6-12]. If a large pannus is obstructing the insertion site, be sure to have someone manually retract it or use tape to anchor it to the bed rail. Lastly, flexion and external rotation of the ipsilateral hip or the “frog-leg position” is critical (Figure 1).

As seen in Figure 2, the femoral vein runs medial to the femoral artery. However, the vein is usually deep to the artery and often can sit directly underneath the artery. Flexion and

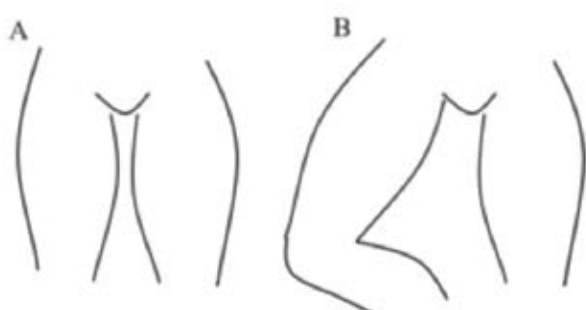


Figure 1 displays a patient with neutral hips (A) and a patient with the right hip flexed with external rotation, the “frog-leg position” (B).

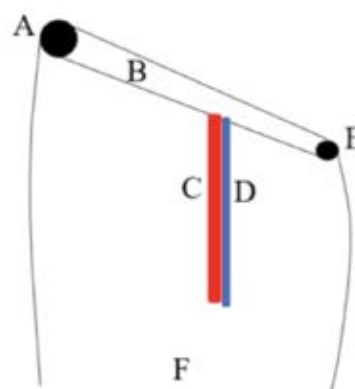


Figure 2 displays the pertinent landmarks needed to place a landmark-guided femoral central line including the anterior superior iliac spine (A), inguinal ligament (B), femoral artery (C), femoral vein (D), pubic tubercle (E), and the right distal thigh for orientation (F).

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external rotation of the ipsilateral hip can help expose the vein giving the physician a larger target (Figure 3).

INSERTION SITE AND ANGLE

The insertion site is classically taught as 1 cm medial to the site of maximal pulsations and about 1-2 cm distal to the inguinal ligament (Figure 4A)^[13,14]. The finder needle is inserted through the skin and subcutaneous tissues with slight aspiration of the attached syringe until an observed flash or aspiration of dark venous blood is obtained. A trajectory more medial than expected should be taken first followed by withdrawing the needle until the tip is just below the skin and re-inserting it with a more lateral approach in the direction of the femoral artery (Figure 4B). The angle of insertion with respect to the skin surface is about 45 degrees^[14].

Often this technique is not enough to get a flash. Some other maneuvers that may help include aspirating as the finder needle is withdrawn and intermittently aspirating the syringe as opposed to continuously aspirating. Frequently, the vein collapses as the finder needle is inserted; therefore, the finder needle can be inserted through the anterior and posterior walls of the vein without obtaining a flash. As the finder needle is withdrawn, the vein re-expands and as the tip of the needle is withdrawn through the lumen of the vein, a flash can then be obtained. Similarly, intermittently aspirating as opposed to continuously aspirating may prove more successful as you may avoid aspirating the wall of the vein into your bevel further preventing a flash. These are especially useful in the hypotensive patient where the vein is significantly more collapsible.

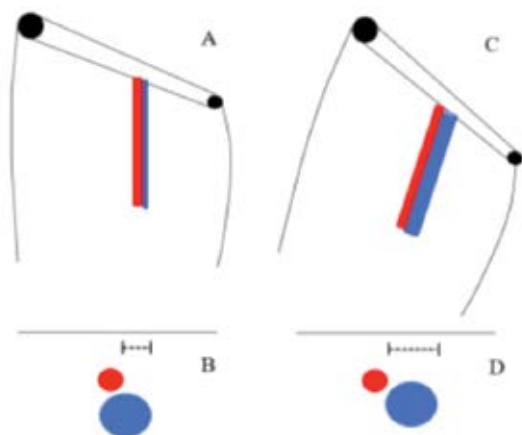


Figure 3 displays the orientation of the femoral artery and vein with neutral hip positioning in the coronal plane (A) and axial plane (B) as well as their orientation with hip flexion and external rotation in the coronal plane (C) and axial plane (D). Note the lengths of the dotted lines in images B and D revealing the increased exposure of the femoral vein with hip flexion and external rotation.

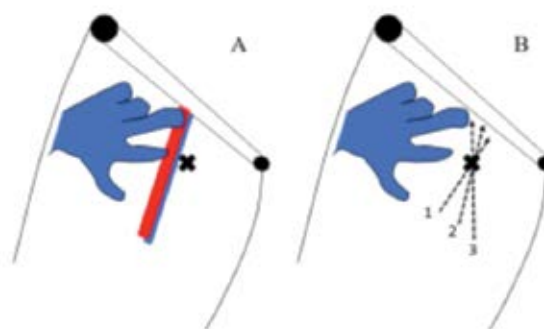


Figure 4 displays the finder needle insertion site with respect to the landmarks and palpable pulsations of the femoral artery (A) as well as the trajectory of finder needle with each attempt 1-3 (B).

Lastly, sometimes none of these techniques work because the femoral vein is simply underneath the femoral artery. If this is suspected, try inserting the finder needle slightly more medial, about 2 cm medial to pulsations and advancing the finder needle below the artery (Figure 5). A more medial insertion site with a more lateral trajectory can often improve the chances of accessing the femoral vein, especially if the vein sits below the artery.

CONCLUSION

While this is not a comprehensive review of the LG femoral central line, these tips should help you get a flash during your next emergent blind “fem” line!

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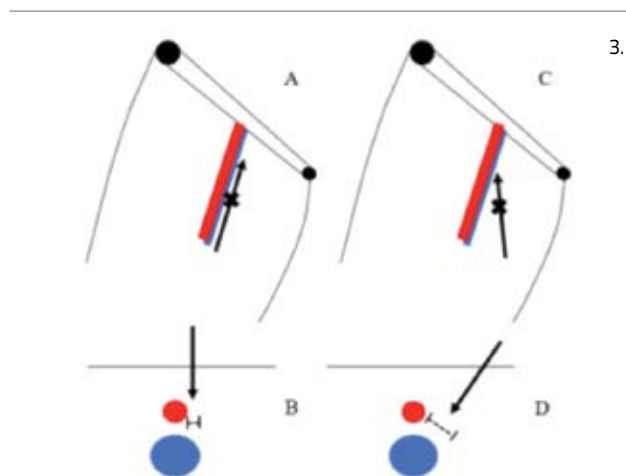


Figure 5 displays difference in exposed femoral vein (dotted lines) between an insertion site closer to the artery with a more medial trajectory in the coronal plane (A) and axial plane (B) compared a more medial insertion site with a more lateral trajectory in the coronal plane (C) and axial plane (D). Note the lengths of the dotted lines in images B and D revealing the increased exposure of the femoral vein with the more medial insertion site.



ISOLATED BANDEMIA: *What Should We Do with It?*

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Almost immediately, emergency physicians know what to do with most abnormal lab results. If a patient's hemoglobin is 4.5 g/dL, they need a transfusion. If their troponin is 12.3 ng/ml, they are having cardiac infarction. If their lactic acid is 7.5 mmol/L, something terrible is going on. What if the only abnormality they have on their blood work is bandemia? Does it matter if their bands are 6%, 15%, or 32%? Or, are they all treated equally?

We recently had a case that challenged us. The patient was a 48-year-old male discharged from a nearby hospital two days prior for pancreatitis. After experiencing continuous pain, the patient decided to come to the emergency department (ED) for evaluation. The patient's physical exam was not very impressive with only mild epigastric abdominal tenderness. He was afebrile, normotensive, and not tachycardic. His blood work revealed only elevated bands of 24% with a normal WBC at 9.8K/mm³, normal complete metabolic profile, and a steadily decreasing lipase now at 102 U/L. After receiving intravenous fluids and Toradol for pain, the patient was feeling well and eager to be discharged. At this juncture, we were presented with the question: do we admit the patient or discharge him with close outpatient follow-up? We decided to discharge the patient.

In the past, there was a notion that band counts were not very useful in identifying infections.¹ Bands are not the most specific indicator for infection because they can be elevated for many different reasons: seizures, toxic ingestions, metabolic abnormalities, inflammatory processes, and tissue damage.² Drees et al. sought to determine the utility of bandemia in patients with normal white blood cell counts in a retrospective cohort study in 2012. They separated their sample of patients who were admitted with normal white blood cell counts (3,800-10,800 per mm³) into either normal ($\leq 10\%$), moderate (11%-19%) or high ($\geq 20\%$) bands.² After adjusting for age and vital signs, they found a significant association of increased bands with the rate of positive blood

cultures and in-hospital death when compared to patients with normal band counts, (Table 1).

Identifying and treating sepsis early in its course is essential for decreasing its morbidity and mortality.³ There is a desire to determine an early marker that we could use to identify septic patients as early as possible, hopefully even in the ED setting. Could this marker be bandemia? In a post hoc analysis of previously collected data on 289 patients that presented to the ED that had positive blood cultures, 80% of the patients had bandemia with a normal temperature and 79% had bandemia with a normal WBC.⁴ They suggest that bandemia ($>5\%$) may be an early indicator of patients with an occult infection.⁴

While identifying patients that may end up having positive blood cultures is important, arguably more important are the patient related outcomes associated with bandemia. In 2015, Shi et al looked at patients who were discharged from the ED that had bandemia ($>10\%$).⁵ They evaluated whether the patients that were discharged from the ED had any negative clinical outcomes, defined as a return to the ED within seven days or death within 30 days. For patients that had band counts $>30\%$ there was a five-fold increase in the rate of death at 30 days but no significant change in revisits to the ED within seven days when compared to patients that had band counts $\leq 30\%$.⁵

Continued on page 37

	ADJUSTED OR (95% CONFIDENCE INTERVAL)
Positive blood culture	
Moderate bands (11-19%)	3.8 (2.0-7.2)
High bands ($\geq 20\%$)	6.2 (3.2-11.8)
In-hospital death	
Moderate bands (11-19%)	3.2 (1.7-6.1)
High bands ($\geq 20\%$)	4.7 (2.4-9.0)

Table 1. Adjusted odds ratio (OR) for bandemia and positive blood cultures and in-hospital death²

Improving the Quality of Pediatric CPR

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INTRODUCTION

Pediatric cardiopulmonary arrest (PCA) is a rare event; it occurs out-of-hospital in about 8.04 per 100,000 person-years compared to 126.52 per 100,000 person-years in adults^[1]. As expected, the mortality is high; one study found one-month survival of pediatric out-of-hospital cardiac arrest (OHCA) to be 10.5%, while another study found survival to discharge of pediatric in-hospital cardiac arrest (IHCA) to be 31.3%^[2,3]. Achieving higher rates of survival is dependent on many factors in the chain of survival, but the performance of good quality cardiopulmonary resuscitation (CPR) has been shown to be directly associated with survival. In this article, we will define quality CPR in the pediatric patient, review some studies linking certain aspects of CPR with survival in PCA, and review some adjuncts to improve CPR performance.

QUALITY

When a PCA occurs, we often dedicate a tremendous amount of time and resources to give that child the best chance at survival. Despite this, the quality of CPR delivered in PCA is frequently poor even at a major pediatric hospital^[4,5]. As seen in Tables 1 and 2, "Excellent CPR" for the pediatric patient is defined as CPR that meets the recommended targets for all the following variables: compression rate, depth, fraction, and residual leaning force^[5]. Despite professional training and the addition of real-time audiovisual feedback, "excellent CPR" occurs as little as 8% of the time^[5]. Recent changes in the American Heart Association (AHA) guidelines for pediatric CPR reflects the recent literature on these CPR performance variables and will hopefully translate into improved PCA outcomes.

COMPRESSION RATE AND DEPTH

The AHA has recently placed an upper limit on their recommended chest compression rate for pediatric CPR; the new recommendation is a rate of 100-120/min^[6]. Like many

therapies in pediatric medicine, this recommendation was extrapolated from the adult literature. Idris, et al. found in their prospective, observational trial of 6,399 adults in OHCA that a compression rate of 100-120/min was associated with the highest survival to discharge. Surprisingly, higher rates were associated with worse survival to discharge, and about 25% of arrests had average compression rates ≥ 120 /min. A possible explanation for this was that excessive compression rates were associated with reduced compression depths. In the compression rate category of 120-139/min, half of patients had depths < 38 mm^[7].

Table 1 Definitions of Pediatric CPR Performance Variables⁵

PERFORMANCE VARIABLE	DEFINITION
Compression Rate	Number of compressions per minute
Compression Depth	Depth of each compression
Compression Fraction	Percent of time during the resuscitation that compressions are taking place without interruption
Residual Leaning Force	Percent of compressions with more than 2.5kg of residual weight from leaning on the chest between compressions

Table 2 Definition of "Excellent CPR" for the Pediatric Patient⁵

PERFORMANCE VARIABLE	TARGET
Compression Rate	100-120/min
Compression Depth	≥ 50 mm
Compression Fraction	$> 80\%$
Residual Leaning Force	$< 20\%$



Although the Idris, et al. study did not include children, a recent observational trial of 89 PCAs by Sutton, et al. found that average chest compression depths of ≥ 51 mm were associated with improved 24-hour survival compared to depths < 51 mm^[9]. Since compression rates in simulated pediatric CPR can be too high up to 39% of the time, it is reasonable to place an upper limit on compression rates to preserve adequate compression depths since depth is associated with survival in PCA^[9]. However, compression depths that are too deep can also be harmful.

Hellevuo, et al. found in 170 adult patients who experienced IHCA that compression depths > 6 cm were associated with increased frequency of iatrogenic injuries. Injuries found included rib fractures, sternal fractures, hematoma or rupture of the myocardium, splenic injury, stomach injury, mediastinal bleeding, and pneumothorax^[10]. Although this study was conducted in adults, it is reasonable to assume that children would be at the same or greater risk of iatrogenic injury with these excessive depths. Therefore, the AHA placed an upper limit on their recommended chest compression depth for pediatric CPR. The new recommendations are depths of 4 cm in infants, 5 cm in children, and at least 5 cm in adolescents but no greater than 6 cm^[6].

COMPRESSION-ONLY VS CONVENTIONAL

Although compression-only CPR has been recommended for lay rescuers resuscitating adults, the AHA continues to recommend conventional CPR with compressions and ventilations for PCA^[6,11]. Goto, et al. found in their observational study of 5009 pediatric OHCA a significantly greater one-month survival in pediatric patients who received conventional CPR compared to compression-only^[12]. Although the literature on this topic is limited to observational trials with many limitations and confounding variables, the findings are largely consistent across studies^[2,12]. In addition, the majority of PCAs have a non-cardiac, likely pulmonary, etiology, compared to adults making conventional CPR with ventilations theoretically superior^[2,6,12].

METRONOME AND FEEDBACK DEVICES

While metronomes deliver signals to guide chest compressions and ventilations, feedback devices measure variables such as compression rate and depth, and simultaneously provide real-time feedback to the providers. Data on the use of metronomes and CPR feedback devices in PCA is limited. Adult studies have found improved quality of chest compressions, but no association with patient outcomes^[13,14]. Zimmerman, et al., in their simulated pediatric CPR manikin study, found a significant improvement in the

percentage of compressions with an adequate rate without a change in depth. This was primarily due to a reduction in the percentage of compressions that were too fast: 39% without the metronome to 21% with the metronome^[9]. Similarly, Sutton, et al. found a significant improvement in the percent of chest compressions at the target rate and the percent of time “excellent CPR” was delivered when a feedback device was used during eight pediatric IHCA^[5].

Although these devices improved pediatric CPR performance variables, the quality of CPR is often still imperfect. It is unclear why, but several factors may impede metronome and feedback device efficacy including provider fatigue, distractions, and lack of training or familiarity with the devices^[9,15]. Despite these limitations the AHA does recommend use of feedback devices in pediatric CPR when available^[6].

THE QUALITY OF CPR DELIVERED IN PCA IS FREQUENTLY POOR EVEN AT A MAJOR PEDIATRIC HOSPITAL.

CONCLUSION

Good quality CPR is essential to improve survival in PCA; however, the delivery of pediatric CPR is often poor quality. Recent literature associating new compression rate and depth targets with survival has prompted new AHA recommendations. Although studies are limited in PCA, metronomes and feedback devices are reasonable adjuncts to improve pediatric CPR quality, but their efficacy has limitations as well.

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OWNING THAT AWAY ROTATION IN RESIDENCY

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While many of us spent more time on away rotations than home rotations during medical school, doing an away rotation as a resident may be like learning to ride a bike again. As residents, we work hard every day to not only learn medicine but to learn to see patients as independently possible. We know that someday soon we are going to be the attending responsible for patients and there may not be a colleague at our side to ask for help. While climbing the ladder to autonomy is expected of us at our home program, it can often lead us astray during away or off-service rotations. As EM residents, most of us do a few away rotations, whether it may be Pediatric EM, Toxicology, or Trauma. But, no matter the rotation, here are some tips to get the most out of your away rotation.

BE HUMBLE. As we develop more and more skill and autonomy through residency, we naturally become more confident in our abilities. At our home programs, our attendings know us and our capabilities, and they are likely comfortable giving us autonomy. But, at an away rotation, the attendings don't know us. While we may see patients almost independently at our home program, attendings at an away rotation may not even be comfortable letting us put in orders without discussing the case with them. It is important to learn what is expected of you and perform that job well. If you are unsure what is expected of you, just ask!

BE A STUDENT AGAIN. We all want to be that senior resident running the department, but on an away rotation our job is first and foremost to learn. Dedicate time before or during the rotation to reading pertinent literature even if it is simply

reading (or re-reading) the relevant chapters in Tintinalli's or Rosen's. Likewise, pay attention to how your new attendings approach different clinical situations and how it may be different from how you were trained. You may have seen a hundred children with abdominal pain at your home institution, but a fellowship trained Pediatric EM physician will likely approach that scenario differently than you were trained. Sometimes, the best way to appreciate this is to take the passenger seat!

Away rotations, whether mandatory or elective, are an awesome opportunity to gain exposure to things you may have very little experience with at your home institution. Do everything you can to learn from those opportunities while doing everything that is expected of you without overstepping your bounds.

How to Be That Person Without Being *That Person*...

TIPS AND TRICKS FOR A SUCCESSFUL EMERGENCY MEDICINE ROTATION

Emily Howell, DO
UPMC Hamot, Erie, PA



DO'S:

1. DO be excited and ready.

This is it! This is what you've been waiting for throughout medical school. The emergency department is an exciting place. The best way to show your enthusiasm is to show up prepared and ready to work. I recommend finding a great pocket manual and keeping it either in your bag or white coat. You may not always have a computer to look information up and staying on your phone all shift can send the wrong message, even if you are really reading.

2. DO be aware of your surroundings.

As a member of the team, you should keep your eyes and ears open! Opportunities come to those who actively seek them out. Things happen quickly in the department and you do not want to be left behind. If you have a chance, keep an eye on the waiting room or even the ambulance bay.

By paying attention, you might have the opportunity to see an interesting patient or even get to assist with a procedure!



3. DO keep your exams and presentations concise.

That running joke of emergency physicians having short attention spans exists for a reason. Patient presentations should be concise, yet meaningful. Aim to cover pertinent elements of the HPI and physical examination in under three minutes. Most residents and attendings won't sit there with a timer, but anything longer than three minutes is likely to either be interrupted or ignored. For more information on how to give a great presentation, check out "The 3-Minute Emergency Medicine Medical Student Presentation: A Variation on a Theme" by Davenport, Honigman, and Druck (Acad Emerg Med, 2008).

4. DO follow up.

Look for opportunities to round on your patients and keep track of their progress. The goal is to get them stabilized and dispositioned. Their care does not stop after the history and physical examination, and neither should you. Find a system to keep track of your patients and their progress. I recommend a good old-fashioned piece of paper. Start a blank piece of paper at the beginning of the shift and keep a running list of patients. On this list, write pertinent history findings as well as their plan and disposition. This way, you can keep track of exactly what the team might be waiting on and you can help them get the job done.



As emergency medicine becomes more competitive, audition rotations have become increasingly important. These rotations offer the opportunity for programs to assess a candidate's potential for residency while allowing the candidate to experience potential training environments. With audition rotations ranging between two to four weeks, how can a student make the most of their time while also leaving a favorable impression on each program? Based on conversations with attendings, residents, and personal experience, here is a list of do's and don'ts to keep in mind moving forward into your own auditions!



DONT'S:

1. DON'T check out.

Each patient offers the opportunity to learn and every patient has something to say. Even if you have seen ten patients with chest pain on this particular shift, remember to stay open and willing. You never know what a patient might reveal.

2. DON'T underestimate your role.

You might feel like the lowest member of the team, but you are in a unique position. You have the opportunity to learn the details about patients that might otherwise be lost. Take the opportunity to check in on your patients often.



3. DON'T be afraid to help out the team.

This can range from offering to do CPR during codes to grabbing a blanket for your patient. Emergency medicine is truly a team effort. By showing interest in helping the team, the team will more than likely help you in ways you never expected!



While this list isn't exhaustive, and each shift will come with its own challenges, it is a great starting point. By staying organized and enthusiastic to learn, any emergency department will have so much to offer you.

Continued from "Isolated Bandemia" on pg 29

In retrospect, our disposition of the patient should have been admission. The patient returned to the ED less than 12 hours later with hemorrhagic pancreatitis and was intubated during his inpatient stay. Fortunately, the patient had a good prognosis. This is an example of only one case, but it highlights the importance of bandemia, whether it is the only abnormality or not. Having bands $>10\%$ should make all emergency physicians hesitant to discharge these patients, despite their clinical appearance, and lean towards an inpatient admission with early initiation of empiric antibiotics.

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LEAD FROM THE FRONT



Christina Powell
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In the past, a sentiment existed among some emergency physicians that arriving on time and covering the shift with 100% effort was sufficient for success. However, in the face of increasing competition in the field, changing insurance models, and expanding expectations, physicians are being called to a higher level of leadership, with a unique set of both clinical skill and professional management. Many emerging leaders start their careers in healthcare or transition to a new role in the department without the leadership skills to succeed. Developing and cultivating interpersonal skills needed to listen to and lead multiple strong personalities is no simple task. These skills are acquired over time by trial and error, or through personal mistakes that cost the department down the line. It is the aim of this article to focus on the leadership responsibilities involved with preserving psychological health in our emergency departments, leading to positive outcomes and an overall improved work environment. An engaged, proactive, solid physician leader creates a more resilient team focused on improving patient care.

In general, being a good leader boils down to trust and respect. To maintain trust with your staff, hospital administrators, and the IT guy down the hall, one must a) care, b) be optimistic, and c) continuously and actively develop the art of leadership. Below are some leadership behaviors that build trust.

CARE

Behavior #1: Know Your Staff

When you first meet a new staff member, what do you talk about? Expectations for your department? Do's and Don'ts of the specific ED they are entering? Despite the

time constraints you may face at that instance, resist the temptation to go directly to practical questions. Instead, let them tell you a little bit about themselves. Listen to their story. What brought them here? What goals do they hope to achieve? Where do they see themselves in ten years? Details aren't as important as themes. Some personal life details you may want to avoid completely; however, the main point is to demonstrate that the new member of your team is respected and valued as a person. Once these questions are asked, the key is to actually listen to the response. Write down significant facts if needed, to remind yourself of what that new relationship uncovered. Know your staff and the administrators. Build the relationship.

Behavior #2: Be Visible

When you are not concealed behind a computer screen completing charts, or interviewing a patient, it is important to spend quality time in the nurse station. If you are taking a coffee break, or the patient volume is slow, arise from the blue light of the workstation and be visible to the staff. Devoting time is the ultimate expression of respect. Ask your staff how you can assist them—how can you inspire them, challenge them to grow, and mentor them as a health care provider? You may not be afforded the time to do this often, but this is a great way to find out what is really going on. A quick visit down the hall holds more value and gains more insight than hours of emails. Another benefit of maintaining visibility and transparency with your staff is decreasing intimidation in the workplace. If your staff is intimidated by you, they won't be honest with you. There is an increased risk of mishaps and cover-ups when staff members are intimidated by those they report to. It is important for your staff to trust you both during times of excellence and times of challenge.

Behavior #3: Show Dignity and Respect

A Harvard Business Review article in 2015 polled over 20,000 employees asking which leadership behavior was the most important for garnering commitment and engagement in the workplace. The #1 leadership behavior was to be treated with respect. "Being treated with respect was more important to employees than recognition and appreciation, communicating an inspiring vision, providing useful feedback—or even opportunities for learning, growth, and development."¹ How often do we focus on maintaining respect in the department?

decreasing trust and increasing intimidation. Give each staff member respect despite the circumstances. When bad news is brought to your attention, show neither shock nor anger—or the bad news will stop coming, and you'll find out the hard way. The culture you create is dictated by your behavior as a leader. Build dignity and respect into your department.

Behavior #4: Don't Ignore Good or Poor Performance

Always set expectations. Expectations for medical students. Expectations for residents. Expectations for nursing staff. Expectations for the attendings. Defining "what is excellence" is key to helping your team achieve it. If they meet the standard for excellence, tell them! Especially praise their performance in front of others. This will not only reinforce their admirable performance, but also encourage others to seek a higher level of achievement. Set a department culture of improvement and affirmation. Taking time to say "thank you," both verbally and in notes or by sharing positive patient reviews are excellent ways to show appreciation. If there is poor performance, do not ignore it! Seek first to understand. "Can you help me understand why you are making these mistakes?" Where do you think the problem lies? Is it a lack of training? A lack of sleep? Maybe a simple solution exists. Carefully assess and take action. The goal, as always, is to maintain respect in the workplace.

OPTIMISM

Colin Powell described the importance of enthusiasm and optimism, and how this can be an emotional contagion with his phrase: "perpetual optimism is a force multiplier." Powell

BEING TREATED WITH RESPECT WAS MORE IMPORTANT TO EMPLOYEES THAN RECOGNITION AND APPRECIATION, COMMUNICATING AN INSPIRING VISION, PROVIDING USEFUL FEEDBACK—OR EVEN OPPORTUNITIES FOR LEARNING, GROWTH, AND DEVELOPMENT.

Ask yourself this question: how do I react to bad news? We dedicated countless hours training medical students and residents how to give bad news tactfully, but not as much training on how to respond to bad news within our emergency department. Do you react with anger? Judgement? Condescension? Emotional lability? Fear? The first goal, when bad news arises, is to resist the urge to shoot the messenger, as tempting as it may be to use anger as your primary leadership tool. Responding inappropriately devalues the relationship you've been building with your staff by

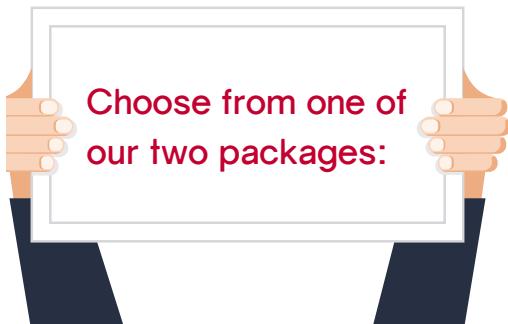
circulated lessons on how to demonstrate leadership, and how optimism will drive your followers (or in our case, staff and peers) to share the positive attitude. Optimism is not a prediction of success or some view of an unknown reality to attain—rather it is how you forge forward in the face of difficulty, maintaining the belief in your purpose and goal. Alternatively, a pessimistic leader can cause as much harm as an absent leader. If we mope around the ED, complaining about the slow triage tracker, or how no one informed the doc that there was a hard stick in bed 5 and it has been 30 minutes since the blood cultures were ordered, the tone



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OPTIMISM IS NOT A PREDICTION OF SUCCESS OR SOME VIEW OF AN UNKNOWN REALITY TO ATTAIN—RATHER IT IS HOW YOU FORGE FORWARD IN THE FACE OF DIFFICULTY, MAINTAINING THE BELIEF IN YOUR PURPOSE AND GOAL.

of the department declines overall. Fear is also the ugly sister to pessimism. Fear can easily paralyze us as students, residents, and physicians. Fear can prevent clear and rational analysis of the conundrum in front of us. If we do not learn to control and prevent fear, we cannot effectively lead others to do the same.

Maintaining an optimistic attitude can become difficult depending on the situation at hand, but the downstream effects of one attitude adjustment can exponentially change the emotional effect of those surrounding the situation. Optimism and pessimism can easily produce the same outcome. As Yvon Chouinard stated: "There's no difference between a pessimist who says, 'Oh, it's hopeless, so don't bother doing anything,' and an optimist who says, 'Don't bother doing anything, it's going to turn out fine anyway.' Either way, nothing happens." If you have read the book *Good to Great* by Jim Collins, you may have come across the idea called the Stockdale Paradox. The Stockdale Paradox is named after Admiral Jim Stockdale, who was held as a prisoner of war in Vietnam for eight years. He interestingly commented on how it was the most optimistic of captives that failed to make it out of the situation alive- they held such blind optimism that when their timetable for freedom came and left, they died of "a broken heart." The Stockdale paradox demonstrates a specific type of optimism, one that can easily be applied to the emergency department, where the outcomes are not always as desired, and self-delusion is fatal. Optimism in this sense is 1) maintaining strength that you will prevail in the end, regardless of the difficulties, while also 2) confronting the nature of your current reality with brutal honesty. The first half of the Paradox is easy; it is the second half that we must apply in our practice of medicine: combining optimism with admitting the truth

of the current situation and a willingness to act. Admiral Stockdale knew his situation was grave, but instead of succumbing to defeat, he stepped up and did all that he could to improve the morale and prolong the lives of his fellow comrades.

CONTINUED LEARNING

In medicine, we are lifelong learners. While we spend hours on pre-clinical or clinical medical education and CME credits, we do not dedicate as much time to process of professional development and the art of leadership. I would challenge each of you to add a book or podcast to your yearly list to cultivate personal and professional development as a leader.

The leadership behaviors presented here can be applied to any area of life. The principles may seem simple, but they are easily forgotten during times of severe stress and limited resources. Do not ignore their value and I implore you to remind yourself of them daily. Your emergency department will benefit from continuously cultivating the art of leadership. Regardless of which stage of the journey you reside in, as a medical student, a resident, or an established physician, professional and personal development should never cease. As health care providers, we must always rise to new challenges, not only as they relate to clinical knowledge or expertise, but as they relate to individuals working together towards a common goal. Be reminded to always lead from the front. Be the first person to make a change in the culture of the department and see the productivity and overall outlook transform.

Portions of this article were inspired by Ret. USN CAPT Mark Brouker of Brouker Leadership Solutions and Assistant Professor of Leadership Studies at Chapman University. Visit CAPT Brouker's website at www.Brokerleadershipsolutions.com.

SUGGESTED BOOKS

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THE BUSINESS OF HEALTHCARE:

How Patient Satisfaction Plays A Role

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Patient satisfaction and its impact on healthcare and health outcomes dates back to the 1950s, where relationships between patients and healthcare providers were examined.¹ These relationships have become extremely complex as the healthcare industry has grown, and there is now legislation in the form of the Affordable Care Act (ACA) requiring that these relationships impact the business of healthcare in the form of reimbursement and consumerism. Operating as a service industry, healthcare has similarities to other firms whose goal is perfecting customer satisfaction and providing superior services or products. Fenton and associates² describe how high patient satisfaction is associated with high mortality, the opposite goal of the principles of healthcare. The purpose of this paper is to discuss how there has been a shift from the primary goal of medically treating patients to now treating them as consumers, and how patient satisfaction is changing the structure of healthcare.

Historical Background

In the early stages of examining patient satisfaction, the relationships between providers and patients were the main focus. It was found that patients experienced a lack of empathy, low levels of friendliness, and dissatisfaction from health services¹. Since the initial investigations, there have been numerous studies looking to determine what affects patient satisfaction, eventually leading to the current mentality that patients are "consumers of healthcare," and therefore the healthcare industry should shift towards a model of consumerism. Since the 1950s, several socioeconomic factors have become a reality and have changed patient-centered care. Factors such as rising patient expectations, demand for greater transparency, and demand for immediate access to imaging and pharmacotherapy have impacted the direction of healthcare as an industry.³ SeniĆ and Marinković¹ found that the last service encounter experienced by a patient is usually the encounter on which they will rate their overall experience.

In 2002, the Baldrige National Quality Program began awarding businesses in healthcare. The Baldrige National Quality Program works to "identify and recognize role-model businesses, establish criteria for evaluating improvement efforts, and disseminate and share best practices."⁴ These awards signify that a healthcare organization serves as a role model in its field based upon overall success. The award measures the success of patient care outcomes and processes, patient satisfaction, workforce satisfaction, and financial market performance, all of which lead to a successful organization.⁴

While patient satisfaction and patient-centered care have always been important, the passage of the Affordable Care Act by the federal government in 2010 set the stage for value-based purchasing; a system in which payments to healthcare organizations will be impacted by patient satisfaction scores.⁵ Patient satisfaction is measured in many ways, but the Hospital Consumer Assessment of



Healthcare Providers and Systems (HCAHPS) scores are the most influential, as they make up 30% of the overall performance score for value-based purchasing. The paradigm suggests that improving patient-centered care and improved patient satisfaction will lead to better health outcomes.⁶ This has had significant impact on the structure of healthcare and has led to changes in priorities, goals, and objectives of many healthcare organizations.

Impact of Patient Satisfaction on Healthcare Structure

The implementation of the Affordable Care Act imposed major changes on the healthcare industry. As medical coverage is extended to patients under the ACA, the number of patients entering the healthcare system is expected to reach 32 million, leading to difficulties for the current system to accommodate these new healthcare consumers.⁷ As patients make their way through the complex medical system, they will have a multitude of opportunities to complete surveys that will impact various organizations' HCAHPS scores. They will rate categories including nurse communication, physician communication, responsiveness, pain management, medication communication, cleanliness, discharge information, overall rating, and likelihood to recommend. These scores based on patient experience will ultimately be tied to the reimbursement of physicians and healthcare organizations under a pay-for-performance model.⁸

With value-based purchasing becoming so important, multiple studies have examined the effects that it would have on healthcare organizations in regard to financial impact and business models. Cliff⁵ found that by improving the patient experience, institutions can experience positive financial results. It was found that hospitals that rank amongst the best inpatient satisfaction are also some of the most profitable and financially sound institutions. As with most businesses, anything that positively influences finances and payments is a strong motivator for success. With patient satisfaction being so closely tied to reimbursement and financial rewards, healthcare organizations have been motivated to improve the patient experience.

Using HCAHPS categories as a basis for areas in which to improve, the healthcare industry has seen a shift in priorities, goals, and objectives. With managers being educated in business, healthcare has seen a trend towards providing tangible services and goods aimed at improving the patient experience while, at times, losing sight of a primary objective of medicine which is to positively impact a patient's health and well-being. This can lead to increased healthcare costs that do not directly impact a patient's health outcome.

Fenton et al.² describe the negative effects of achieving high patient satisfaction scores. The implications of linking physician reimbursement to patient satisfaction have led to a change in the practice of medicine. In attempts to satisfy patients, physicians have begun to order unnecessary

testing (laboratory and imaging studies) simply to avoid negative impacts on reimbursement. This type of practice can quickly lead to an increase in overall healthcare costs, which is a major factor in the healthcare crisis currently being experienced in the United States. Greater patient satisfaction has been associated with increased utilization of healthcare resources and ultimately an increase in healthcare spending.⁵ Healthcare executives, in conjunction with physicians, must be wise to effectively and efficiently use resources to positively impact the patient experience while also containing costs.⁹ Physicians undergo extensive schooling and post-graduate training so that they will know what to investigate, how to investigate it, and when it should be investigated. By succumbing to patient requests for unnecessary testing, the physicians are compromising their ideals solely for the concern of decreased reimbursement as a result of dissatisfied patients.

Healthcare as a Service Industry

Service industries serve in the economy to provide services rather than tangible goods. These industries have become extremely focused on customer satisfaction to strengthen their places in competitive markets. Good customer service is extremely subjective, as each individual has their own idea of what is acceptable customer service. Service industries aim to provide individualized services, yet healthcare seems to be lagging by using generalizations from patient satisfaction surveys to provide for its customers.¹⁰ Healthcare is included in the service industry. Therefore, it is being treated as any other organization and is not seen as unique.

As the United States is seeing a shift in healthcare from treating patients to treating consumers, we are seeing an excessive amount of resources being used for advertising and marketing.¹¹ The market for healthcare providers is vast, therefore competition is increasing. When deciding on where to receive elective healthcare, patients tend to forget a hospital's clinical outcomes and seem to focus on the "window dressings" of free parking, food quality, guest internet access, and other amenities. These amenities aim to earn repeat business and recommendations from current patients.

It is unfair to compare healthcare services, such as life-saving emergency care, surgery, chemotherapy, etc., to other services such as haircuts, online video streaming, and package delivery. Consumers of healthcare typically do

not seek services because they are having a good day. Very few, if any, patients begin their day of receiving healthcare services in a good mood. They are preparing themselves for long waits, potential for receiving bad news, receiving medications that may make them sick, having to endure a needle-stick to have laboratory work performed, and other unpleasant situations. There are few services where consumers do not expect positive outcomes. Experiences like these make healthcare unique when it comes to its inclusion in the service industry of economics.

As consumerism is empowered in healthcare, the system is being placed under increasing pressure to conform to customer satisfaction practices, leading to shifts in the goals of providing patient care.¹² Healthcare providers are under significant stress with increasing demands from customers, payors, and government regulations; therefore, they are feeling that customer service is just one more thing added to their job requirements.¹³ Needham¹⁴ describes how patients, now considered consumers of healthcare, will begin to expect from healthcare what they expect from other service industries, such as value, convenience, and respect. Listening to customers for continuous feedback on their experiences is important for improving service quality, in both healthcare and traditional service industries.¹⁵ Healthcare leaders and management must have a strong foundation on which to improve patient satisfaction. This foundation should consist of empowering positive values and supporting change initiatives aimed at providing high-quality service.¹⁶

Patient Perceptions and Attitudes

Messina and associates¹⁷ describe how patients present to hospitals and clinics with their own agendas and expectations of what to expect with regarding service and care. This is true of consumers in many industries, and in some ways, healthcare is no different. Meeting service expectations and setting standards of behavior play a role in healthcare, but must be modified in certain situations.¹⁸



Many patients bring their own expectations to provider encounters. This includes demanding certain unnecessary testing, prescriptions, or other services. Patients tend to be more satisfied when physicians fulfill their expectations, regardless of whether the services are necessary.² This form of practice has led to inappropriate medication usage, increasing risk for adverse reactions to unnecessary interventions, and increasing healthcare expenditures all under the fear of decreased reimbursement. However, providing patient-centered visits where the provider has the time to discuss the patient's concerns could both improve patient satisfaction while being judicious in the use of resources. This requires longer patient-physician encounters, which is proving more difficult to find in today's healthcare system as the nation is currently experiencing a physician

debt, and require more resources all leading to a higher possibility of dissatisfaction with their experiences as well as the healthcare industry as a whole.

Satisfaction of Healthcare Employees

The healthcare industry would not be able to operate without cooperation between healthcare executives/administration, physicians, nurses, ancillary staff, and ultimately patients. The attitude of members of the healthcare team impacts sixty percent of patient experiences as well as patient perception of quality care and service.¹² Ensuring employee satisfaction will likely indirectly increase patient satisfaction.

Physicians play a significant role in the healthcare system, especially in the care of patients with poor overall health.

AS CONSUMERISM IS EMPOWERED IN HEALTHCARE, THE SYSTEM IS BEING PLACED UNDER INCREASING PRESSURE TO CONFORM TO CUSTOMER SATISFACTION PRACTICES, LEADING TO SHIFTS IN THE GOALS OF PROVIDING PATIENT CARE.

shortage. Satisfied patients are more likely to be compliant with their medical care plan, ultimately leading to improved outcomes and more efficient utilization of healthcare resources.¹⁹

With regards to the noncompliant patient, one can see the issues regarding reimbursement being tied with patient satisfaction. Fontenot⁶ describes how a physician trying to improve a patient's health by empowering them to take a personal responsibility in their own care when that is not what they want to hear, will ultimately lead to a dissatisfied patient. These noncompliant patients' attitudes toward their healthcare is poor, and yet it is the healthcare provider that is financially penalized.

Patients seeking healthcare services have varying backgrounds ranging from excellent overall health to extremely poor health with multiple chronic illnesses that require significant resources. The severity of patient illness impacts their perceptions of healthcare and the importance of various aspects. Otani et al²⁰ describe how patients with serious illnesses see patient-physician interactions and physician care as most important. As one might expect, patients that require frequent visits, procedures, and encounters with the healthcare system will have more opportunities to complete patient satisfaction surveys. As these patients are not regarded as being in good health, they are more likely to receive bad news, incur more healthcare

With an aging population seen in the "Baby Boomer" generation, chronically ill patients are becoming the norm. It should come as no surprise that empowering physicians and focusing on their satisfaction should be a top priority for healthcare management. From the beginning of their studies, and often before, physicians aim to provide a satisfying experience for their patients. This sentiment is often missed when discussing patient satisfaction. Handel²¹ detailed how influencing physicians by honing in on their pride, professionalism, and natural problem-solving abilities can provide a positive impact on patient satisfaction.

Medical education has become increasingly focused on patient communication due to the impact it has on the patient experience, and ultimately, patient satisfaction. Ossoff and Thomason¹¹ found that physicians' bedside manner, and the way in which they interact with patients, continues to be one of the most important factors in achieving high patient satisfaction scores. Improving bedside manner involves improving how physicians listen to a patient, deliver information or bad news, allow patients and families to participate in medical decision making, and the respect they show towards patients. These traits can be applied to nursing and ancillary staff as well. By influencing all members of the healthcare team to positively impact the patient experience, patient satisfaction is likely to improve.

Shannon²¹ describes the impact of physician well-being on

the patient experience. More satisfied physicians tend to have higher patient satisfaction scores; however, physician dissatisfaction and “burnout” are on the rise nationwide. A recent survey of currently practicing physicians demonstrated that nearly half of those surveyed would not choose medicine again as a career. Another worrisome statistic is that nearly 30 percent of practicing physicians are considering leaving the profession within the next two years due to “burnout.” The factors leading to physician dissatisfaction are complex, but some of the most common issues faced by practicing physicians are issues with healthcare reform, some of which have been exacerbated by the passage of the Affordable

satisfaction scores experience higher mortality.

Limitations of the Research

The research included in this paper is not without limitations. Patient satisfaction is highly subjective and is easily influenced. There are many confounding variables when discussing patient satisfaction, therefore increasing the complexity of research studies. A majority of the research involves patient surveys and questionnaires, which reflects the patient’s personal views which are then applied to a generalized population. Human nature allows for patients to have a natural tendency to begin an experience with a

MORE SATISFIED PHYSICIANS TEND TO HAVE HIGHER PATIENT SATISFACTION SCORES; HOWEVER, PHYSICIAN DISSATISFACTION AND “BURNOUT” ARE ON THE RISE NATIONWIDE.

Care Act. Physicians are concerned that they will face with reduced compensation and autonomy, along with worsening time constraints and increased pressures to complete administrative tasks all due to greater access to healthcare among patients that were previously not in the market for healthcare services.²¹ As value-based purchasing is becoming more prominent in the healthcare industry, it is imperative to focus on satisfied, engaged employees.

Discussion

As the information in this paper demonstrates, patient satisfaction is complex. There is no clear definition of patient satisfaction and the idea is highly subjective. Implementing a standardized approach is not likely to be effective as patients are looking for individualized care. Patient satisfaction is not simply focused on the patient experience, but it has now become closely linked to reimbursement for physicians and healthcare organizations. At present, much of healthcare organizations are managed by business-minded individuals, as opposed to medically-trained personnel, leading to healthcare being run as a traditional service industry. The ability to realize that the healthcare industry is unique in its role to provide services is of utmost importance. Tailoring to the unique aspects of healthcare will allow for overall satisfaction, from patients to employees.

The healthcare system must not lose sight of its primary objective, providing world-class patient care to improve patient health and well-being in a safe manner. Tailoring patient care and amenities to provide positive patient experiences should also be considered important, but should not overshadow the importance of improving health outcomes. Unfortunately, patients who provide high patient

predetermined expectation of how satisfying their encounter will be. Also, patient satisfaction surveys are conducted after each patient encounter, with a majority of visits being those patients with chronic medical conditions that are in poor health and often do not have good outcomes. The majority of the research studies referenced in this paper pertain to healthcare in the United States of America. It would be inappropriate to generalize these findings to healthcare around the world, as healthcare systems vary from country to country. Healthcare is changing on a daily basis; therefore, some data can quickly become outdated, increasing the importance of the need for ongoing research in patient satisfaction.

Future Research

Future research should be aimed at the comparison between healthcare systems and traditional service organizations. Also, as healthcare reform continues to be a major political and economic topic, the current healthcare system will likely change. As value-based purchasing is a relatively new concept, extensive research will be needed on what the true impact on patient satisfaction and overall health outcomes is going to be. With a person’s health being the true determinant of satisfaction with life, anything that can potentially have a positive impact on a person’s health should be investigated thoroughly.

Summary

In summary, patient satisfaction has overtaken the structure of the healthcare system. There has been a shift in the paradigm in healthcare from providing excellent medical care to now providing services and/or goods focused on



improving the patient satisfaction. This model of healthcare has the potential to have a negative impact on the healthcare system as evidenced by decreased physician satisfaction and increased burnout. The nation is already facing a physician shortage, and the concern for the future is that taking the focus away from providing medical care in order to focus on making customers happy will lead to more physicians, nurses, and ancillary staff leaving the healthcare industry.

The role of patient satisfaction in the healthcare system is not straightforward. It is quite complex. With the implementation of the Affordable Care Act and value-based purchasing, the structure of healthcare is in for a change. We are seeing the financial impact of patient satisfaction on healthcare organizations, which is driving the business of medicine to change as financial stability is a strong motivator of business. With patients being considered as consumers, healthcare is seeing a trend towards increased competition, and therefore we are seeing increased expenses for marketing and advertising while healthcare organizations are seeking a competitive advantage. Healthcare reform is a quite popular and complicated topic that is under the control of governmental agencies, nearly all of which are headed by non-medical personnel. This is likely contributing to a shift in medicine towards a business model focused on improving patient satisfaction. As healthcare reform evolves, there are likely to be significant changes to the healthcare experience.

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Wellens Syndrome:

THE FORGOTTEN DIAGNOSIS

Frank Wheeler
LECOM-Bradenton

Introduction

A middle-aged male complaining of resolved chest pain presents to the emergency department (ED). His physical examination is normal. His electrocardiogram (EKG) is seen in Figure 1 and cardiac enzymes were normal as well. The patient is determined to be low-risk for an adverse cardiac event and discharged home that night; however, two days later he returns to the ED. This time he arrives in cardiac arrest from a massive myocardial infarction. Reexamination of the EKG from two days prior reveals biphasic T waves in the precordial leads.

Background

This patient had Wellens syndrome. A syndrome that was incidentally found in 1982 by a group of cardiologists, (including Dr. Wellens), who were studying the management of patients with unstable angina. Among 145 patients, 26 had similar T wave changes within the precordial leads, negative cardiac enzymes, and poor outcomes with conservative management. Eight of the first nine patients went on to develop anterior myocardial infarctions and three died. Ninety percent who underwent cardiac catheterization and coronary angiography were found to have greater than 90% stenosis in

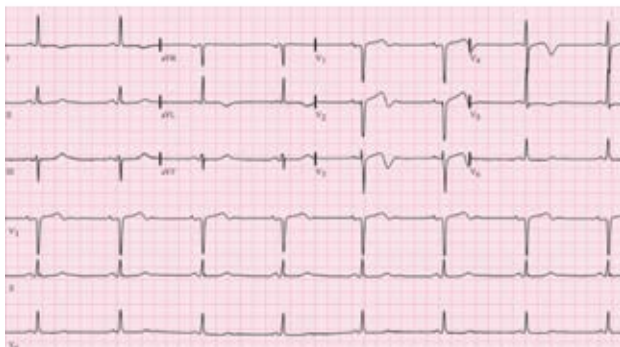


Figure 1 displays an electrocardiogram similar to this patient's ^[1].

the proximal Left Anterior Descending Coronary Artery (LAD). It was found that untreated Wellens syndrome has a high risk of myocardial infarction and death. The average time for infarction following EKG changes was days 1 to 23; with an average of 8.5 days^[2].

In a second larger study, 180 out of 1260 unstable angina patients were found to have this syndrome. All were found to have at least 50% LAD blockage and 33 had complete occlusion. A number of these patients went on to develop anterior wall infarctions^[3]. Wellens syndrome is therefore a pre-occlusion stage whereby acute myocardial infarction is imminent.

Characterization

Wellens syndrome can be identified most easily by its abnormal T wave findings in the precordial leads. These T wave abnormalities include either biphasic or inverted T waves. If one of these abnormalities are found, the patient must also have a history of anginal chest pain, but be pain free at the time of the EKG findings with normal or slightly elevated serum cardiac enzymes. Other EKG criteria for this syndrome also include a normal R progression without Q waves and ST elevation present^[4].

Differential

Although T wave abnormalities are characteristic of Wellens syndrome, biphasic and inverted T waves can also be indicative of alternative diagnosis such as intracerebral hemorrhage, right bundle branch block, pulmonary embolism, hypokalemia, persistent juvenile T-wave inversion, or may be just a normal variant. Therefore, a finding of inverted or biphasic T waves can indicate a number of possible diagnosis and further history and clinical investigation is warranted to determine the cause.

Pathophysiology

Interestingly, the T wave abnormalities seen in Wellens

syndrome are also seen in those who recently underwent reperfusion therapy following acute myocardial infarction^[5]. It is therefore hypothesized that Wellens is an incidental reperfusion following occlusion of the LAD. The reperfusion may be unstable and this vessel may re-occlude, causing further angina and ischemia. This cycle of occlusion and reperfusion will continue until the coronary blood supply can no longer be reestablished and an acute myocardial infarction occurs.

Type of Wellens Syndrome

Currently two types of electrocardiographic findings for Wellens exist. Type A involves biphasic T waves in the precordial leads that begin positive then become negative, as demonstrated in Figure 2. This type is found less frequently than type 2 in around 25% of cases. Type B, which occurs in around 75% of cases, demonstrates inverted T waves (Figure 3)^[6]. Throughout the cycle of occlusion and reperfusion that occurs over time, electrocardiographic findings will usually fluctuate through the different types of Wellens waves. However, if coronary supply is prone to worsen, EKG findings may show hyperacute T waves, indicating an anterior myocardial infarction. It is also important to note that Wellens syndrome does not always have to occur in the anterior leads but can also occur in other areas of the myocardium as well^[7].

Management and Treatment

Patients with Wellens syndrome are to be treated as unstable angina. This includes aspirin, nitroglycerin, and pain control, if needed. Patients should be admitted to the hospital where serial cardiac markers and electrocardiograms should be followed. Interventional cardiology should also be consulted as early cardiac catheterization and intervention is imperative in Wellens syndrome^[3,8]. With early recognition and proper intervention, usually PCI, the prognosis for Wellens syndrome is good. It is also important to note that stress testing is contraindicated in Wellens syndrome as the increase in myocardial demand can exacerbate the limited blood supply to the myocardium and precipitate a myocardial infarction^[9].

Conclusion

Wellens syndrome is an important diagnosis to consider in a patient with T wave inversions or biphasic T waves and negative cardiac markers. Although these patients may be stable and pain free throughout their stay within the emergency room, a large number of patients will go on to experience anterior myocardial infarctions. With early recognition and intervention, significant morbidity and mortality can be avoided.

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Figure 2 displays a Type A Wellens waves.

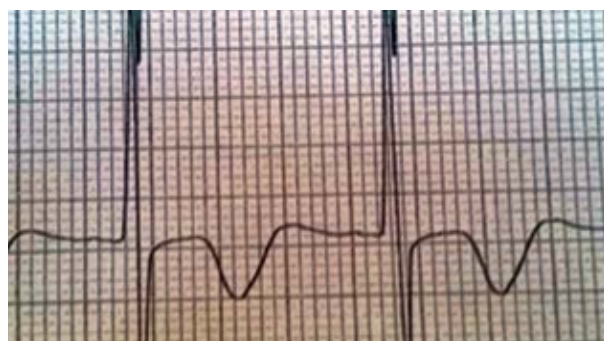


Figure 3 displays a Type B Wellens waves.

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A STICKY CASE OF "Splenomegaly"

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Case Report

A 6-year-old female presented with a two-day history of abdominal pain after being referred by her pediatrician for evaluation of "splenomegaly." The patient had been complaining of constipation for the past six days along with a few episodes of nausea and vomiting. On physical examination, a firm, non-tender mass was palpated extending at least 10 cm below the left costal margin.

The patient's labs revealed a significant iron deficiency anemia with a hemoglobin of 6.3g/dL and hematocrit of 23%. The ultrasound of the spleen revealed a normal spleen without any evidence of splenomegaly or renal masses. Abdominal x-rays showed a large density that was possibly a distended stomach (Image 1). To further evaluate the mass, a CT of the abdomen and pelvis (Images 2 & 3) was obtained which revealed a mass-like entity that completely filled the stomach, consistent with a large gastric bezoar.

On subsequent questioning, the patient's mother mentioned that she has noticed her daughter peeling and eating pieces of Velcro from her book bag and lunch box; similar to her sister who developed trichotillomania around the same age.

Pediatric gastroenterology evaluated the patient and considered her for endoscopic removal but determined that due to the size of the bezoar, the procedure would likely be unsuccessful. Therefore, Pediatric surgery was consulted, and the patient underwent an exploratory laparotomy for removal of the large gastric bezoar. The pathology report revealed a 20.5 x 7 x 7cm mass composed of mostly hair and some other additional material.

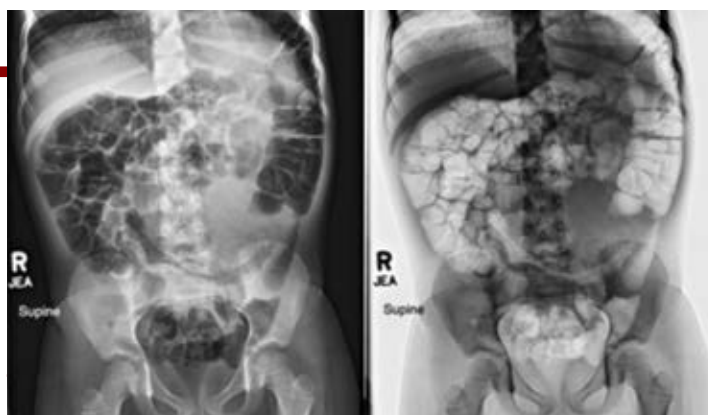
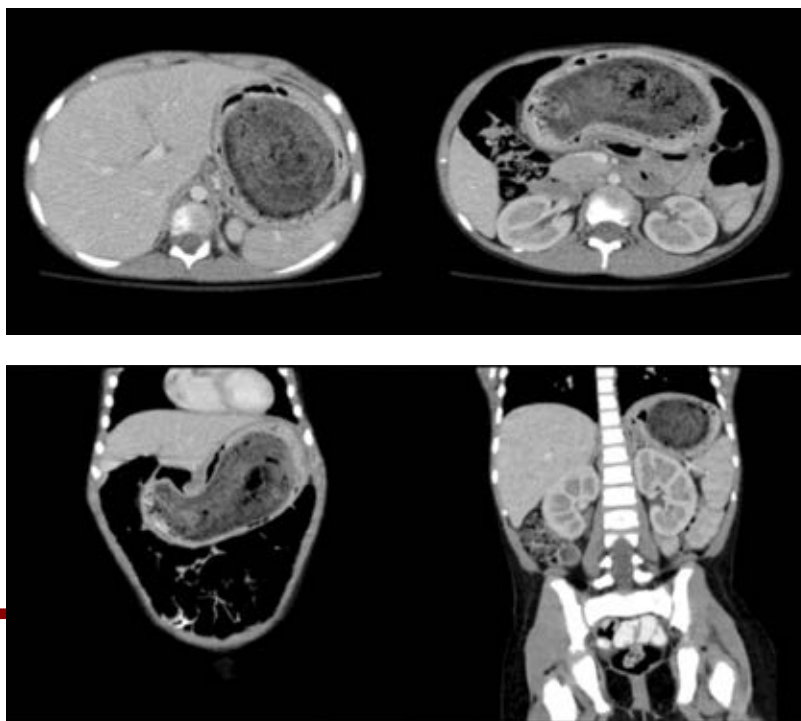


Image 1 is an Abdominal/KUB AP X-ray revealing a large soft tissue density with numerous tiny lucencies is seen within the left abdomen.

A gastric bezoar is an accumulation of indigestible material commonly found as a hard mass in the stomach. Bezoars can be subcategorized into four distinct types based on the primary material composing the mass. The four subcategories are phytobezoars (plant material), trichobezoars (hair), pharmacobezoars (medications), or other⁽¹⁾.

The epidemiology of bezoars depends on a number of factors including age, sex, and comorbid conditions. In adults, phytobezoars are most commonly found in middle-aged men (40-50 years old). However, women in their 20's more commonly have trichobezoars and have associated psychiatric disorders. These masses can commonly reoccur if the underlying cause is not properly addressed. Other risk factors include problems that affect gastric motility (medications, surgeries, and medical diseases), gastric emptying abnormalities, dehydration, and anatomic anomalies⁽¹⁾.



Images 2 & 3 are from the patient's CT Abdomen and Pelvis with oral and IV contrast revealing ingested material filling almost the entirety of the stomach most consistent with a large bezoar.

Once a patient is found to have a bezoar, appropriate management is dependent on the underlying cause and other contributing factors. There are three primary techniques for removing a bezoar. For small uncomplicated bezoars, prokinetic agents like metoclopramide, and chemical dissolution agents can be used. The second, the most commonly used technique is endoscopic removal. Lastly, when the mass is too large and/or the clinical situation is more complicated, abdominal laparotomy is used to surgically remove the mass^(1,2).

Removal of the bezoar is only one step in what is often a multifactorial program that requires an equally dynamic approach to management. This was the case for our patient. Our patient was young, had a very large mass, was experiencing severe anemia, and had some underlying psychiatric issues leading to trichotillomania/pica. To properly address this complicated situation a multi-specialty team was organized. This team was composed of general pediatrics, pediatric gastroenterology, pediatric surgery, and pediatric psychiatry. Together they effectively and appropriately managed this pediatric patient's anemia, bezoar removal, general medical health, and underlying psychological conditions to properly care for her acutely and prevent future occurrences.

In emergency medicine, we are constantly presented with patients who present with what seems to be a very simple diagnosis and associated work-up, but on further investigation there is the possibility of a much more

ominous pathological process present. We as emergency medicine professionals cannot afford to oversimplify any case. Our differentials must be broad, especially in regard to atypical presentations and potentially dangerous pathologic processes⁽³⁾. In the case of gastric bezoars, a missed diagnosis can lead to many serious complications such as bleeding, perforation, and small bowel obstruction. These complications can be found in the young and old alike. Gastric Bezoars should be considered when patients of any age, present to the emergency department complaining of abdominal pain, weight loss, anemia, and/or unexplained abdominal mass⁽²⁾. A thorough ingestion history is warranted and will aide in making a diagnosis and appropriate management plan. Imaging may include plain films, ultrasound, or CT scans. A multi-specialty approach is often necessary to properly manage acute cases and prevent future recurrences.

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