



Get to Know Your Board of Director

Jeffrey Linzer, Sr., MD,
FAAP, FACEP

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- Breaking the Iron Triangle of Healthcare
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- Should Family Members be Present During CPR?

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watson.md@gmail.com

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We welcome your comments or suggestions for future articles. Call or write at:

Georgia College of Emergency Physicians
6134 Poplar Bluff Circle, Suite 101
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From the President

20-Year Time Warp

I am writing my final episode in *the EPIC* “from the President” space... and am amazed at how quickly the time has passed. I know I am not telling anyone something novel here, but the farther along we get, the faster we seem to get there. I would like to thank everyone who made this journey easy, and “quick,” although that certainly is a perspective view.

I can tell you that when I looked forward at the decision to “get involved,” especially this last installment as a chapter officer, it was daunting. Similar to the other things that we choose to get involved with, the road ahead seems endless, but when the journey is complete, it seems to have been so short. I tell all of you this, as with most of my past articles here, with the hope that I can encourage at least one of you to take that daunting step, and get involved. Now more than ever, we need interested people to get involved, and continue the efforts that carry our specialty forward.

Perhaps by my recounting the path that got me here I may spark a fire in someone else. You can step into the machinery at any point in your career, but I slipped into it early.

I got exposed to “organized” medicine when I was a second-year medical student (1993), and was selected to represent our medical school as a student representative at the Armed Forces Institute of Pathology annual conference, where I saw the medical machinery of “convention” in action. This truly was a place where I realized that when things are “named by convention” it literally meant that it was named at a convention! I was impressed at the minds collected from around the globe that came together to debate the diseases that we diagnose and treat, and to discuss medicine at its core.

While the American College of Emergency Physicians (ACEP) does not necessarily redefine diseases at its meetings, there is still medical machinery at these conferences that keeps the specialty alive.

When I was a third-year student, I asked my internal medicine rotation coordinator permission to attend the ACEP Scientific Assembly in New Orleans. Surprisingly, they were gracious enough to allow it, and even considered it part of my rotation, not requiring me to “make up” or select a “vacation/elective” slot during that time. Boy, was I impressed! The magnitude of that meeting was only about half of today’s attendance, but still, the breadth of opportunities, and the collegiality that was there from across the country was awe inspiring.

I knew that EM was my calling when I entered medical school, but also knew it was a developing entity, even in 1994. Turmoil abounded with the closure of the “practice track,” and I knew that getting a job in the work force at that time would and should be achieved by attaining a residency position in EM. And I knew that was a small percentage of the medical student populous that would be able to get a spot, as there were less than a 1,000 slots at that time. Even though the estimates were that we were at least 50% understaffed nationally.

I became active in my school, becoming a proponent of the EM calling, and became “president” of the EM Medical Student Interest Group. I learned of EMRA, and attended their co-conferences at the ACEP and SAEM meetings, and the more I was exposed to, the more I was inspired. I had done a research project in medical school that was accepted to the SA Research Forum and the SAEM CPC. My residency allowed me time to go and present at the conferences, and while I was present at the SAEM conference in Boston, I had some free time so I attended the EMRA Council Meeting. They were having council officer elections, and there was already a slate of nominees in place, however the spot of council vice-speaker was unopposed, and I asked the person next to me to nominate me from the floor. I got up, made an impromptu speech/platform, and got elected...I was in deep now!



Matt Watson, MD, FACEP
watson.md@gmail.com

A partner in Northside Emergency Associates, Dr. Watson graduated from Jefferson Medical College, and completed his Emergency Medicine Residency at Geisinger Medical Center in Danville, PA.

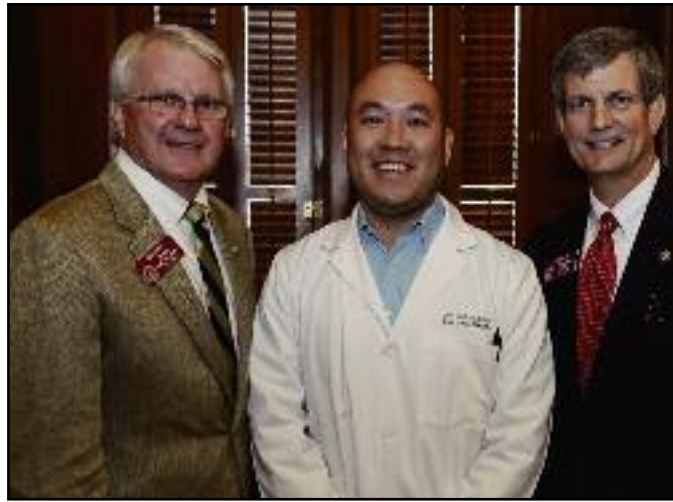
I served EMRA for a year, and then was asked to be the PA-ACEP resident representative to their Board of Directors for a year following that. I had a year of amazing travel, camaraderie, teamwork and leadership with EMRA, and an even more focused year of the same on the PA-ACEP BOD.

My natural career path led me out of residency, and into the workforce. My political hat was on the hook for two years, as my family and I settled in, established a home, and became involved in the community. But the fire still smoldered, and in 2003 I attended the GCEP annual meeting, and from there again wanted to “do more” and get involved to help where I could. I was elected to the BOD at the next meeting, and in 2008 was elected to the officer track. The last six years of helping to run *the EPIC*, assist with the finances, engage the chapter and the legislature as the legislative chair/president-elect, and finally to be the captain of the ship for the last two years have been amazing. The work is time intensive, and occasionally has some labor intensiveness as well. But the Chapter runs as a team. While there is leadership, the leaders could not do their jobs without the help of the BOD and the membership.

This has been an very rewarding 20 year investment of time, and I know that it taxes not only me, but it adds to the time burden I have as an EM physician, for a “job” that is not one that earns income...These “time taxes” have been subsidized by my wife and children, allowing me time to participate. My family has been very supportive, and has enjoyed the journey with me, attending and participating in the meeting in Hilton Head every year. My partners at Northside Emergency Associates have also been supportive, allowing schedule flexibility, as well as pitching into help on committees, and even running for the BOD themselves. And we continue to lead by example with the GEMPAC, by “giving-a-shift” per physician to the state EM PAC annually.

I look forward to whatever is “next,” as this chapter of the story concludes. I am already active on the ACEP Council Steering Committee, and will continue to help the Georgia Chapter as the immediate past-president. I am sure the next 20 years will fly by just as fast, once they have gone. But I welcome the adventure! Who will serve next? Calling Dr. Rogers, it is your turn to take your position on “Page 3.”

Doctor of the Day at the Georgia State Capitol: Matthew Watson, MD, FACEP and John Sy, DO, FACEP



From the President-Elect

John J. Rogers, MD, CPHQ, FACS, FACEP, President-Elect
Board of Trustees, Emergency Medicine Foundation

Sometimes someone is so eloquent and persuasive that one cannot improve upon what they have written. So it is with this editorial written by Jay Molnar from South Carolina and published in ACEP News in October of 2004. It is reprinted here with permission. It surpasses anything I could have written or said on the subject and I present it to you in lieu of my regular submission. I do anticipate attempts to challenge the current tort laws in Georgia during the next legislative session. Dr. Molnar's message and warning to us is thus timely and pertinent.

Why Physicians Are Getting Their Heads Handed to Them by the Trial Attorneys

Jay Molnar, MD, FACEP
ACEP News, October 2004

Given the choice, how do you think most physicians would reply if they would rather give away \$1 million or get involved in the political process? Based on our actions as a group, I must assume the overwhelming majority of us would rather just pay the million. In fact the reality for most of us who have been practicing emergency medicine since 1999 is that the lack of our political involvement will far eclipse the \$1 million mark – from the professional liability issue alone.

In South Carolina, the state where I practice, emergency physicians have seen their liability insurance premiums increase since 1999. If we were to invest that money instead of sending it to our insurance companies and that money was to average a yearly gain of 6.5%, we would all be more than \$1 million richer in 25 years. And that is assuming that our rates will stay frozen for the next quarter of a century. Add to that the cost of our political inaction in areas such as prompt payment, Medicare reform and Medicaid payments and the total cost in dollars and cents becomes truly staggering.

I believe that most of us became physicians not because we thought we would get rich, but because we wanted to help others and make a difference in the world. Emergency physicians care more about their patients than their patient's insurance or their own reimbursement. But now, the lack of liability reform is affecting our ability to care for our patients. It is creating access to care problems because physicians are no longer performing high risk procedures, it is also causing us to practice defensive medicine and that is increasing the overall cost of healthcare and health insurance.

In the past nine years, I have become very involved in politics. In many cases the candidate of choice for physicians could not be clearer. Yet when I hold a fundraiser it is still easier to get money from lawyers and businessmen than from doctors. And it is not because they make more money. Trying to get money from physicians for political campaign is like pulling teeth without anesthesia and that is exactly why we are getting our heads handed to us when it comes to tort reform and reimbursement.

When Jon Ozmint ran for South Carolina Attorney General in 2002, one of his primary



John J. Rogers, MD, FACEP
jrogers@acep.org

Dr. Rogers is president-elect of GCEP.



platform issues was tort reform. He sent a letter to every physician in the state. The response rate was less than two percent. He also spoke at my county medical society, but raised very little money. I saw him several weeks later and I will never forget our conversation.

He said, “You guys (physicians) don’t get it, do you?”
I replied, “No, but tell me why you think we don’t.”

He then told me a story about his young son, who had joined him at an earlier medical society meeting. His son had asked him the name of the place where he had met all those nice doctors. Jon asked him why he wanted to know and his son replied, “That was the nicest place we’ve ever been.”

The point was obvious. Physicians are quick to say they don’t have the money, but politicians can see:

- We have the money to spend on nice cars
- We have the money to spend on nice houses
- We have the money to spend on nice dinners
- We have the money to join nice clubs

The fact is that many of the same physicians that “couldn’t possibly afford to give \$100 to a political campaign, would spend that much on a dinner or a round of golf without blinking an eye. The message this sends to politicians is loud and clear. We don’t care.

I have probably heard every excuse that a physician can give for not getting involved. The two most popular are, “I don’t have the time,” and “I don’t have the money.” Neither is true if the importance of this effort is placed in its proper context. When virtually any other group fails to get a cost of living increase, their members immediately call their elected representatives. Physicians get an 8% cut reduced to a 4% cut and we high-five each other. WE are also the only group that consistently tries to make up the difference by working harder instead of improving the system.

A significant majority of the American public agrees with the concept of liability reform. It is not however a primary issue for them. With that said, since the majority of the public is in favor of the issue, most politicians could cast a vote for tort reform with little risk of problems from the majority of constituents.

Why don’t they? Would you be surprised to learn that it comes down to dollars and cents?

Just take a look at the 2002 South Carolina election cycle contributions:

- Lawyers: \$1,642,097
- Doctors: \$358,342

Now look at medial income levels for 2000:

- Lawyers: \$88,280
- Doctors: \$114,170 (family practice)

Keep in mind that South Carolina campaign laws limit contributions to \$1,000 per individual for State House and Senate races. The money did not come from a few wealthy lawyers. And there are not more lawyers (7,700) than physicians (8,400) in South Carolina.

The simple fact is that lawyers contribute more to candidates who support their causes. Doctors in South Carolina make about 30% more than lawyers, yet they out contribute us 4.5 to 1. Are we sad, or what? Why is it that physicians would rather pay \$5,000 more for liability insurance and watch their patients suffer the ill effects of our current tort system than write a check for \$500 to a political campaign? It makes absolutely no sense.

A common complaint among physicians is that, “We shouldn’t have to pay politicians to do the right thing.” I absolutely agree. However, we are not talking about bribery. Political donations are needed to:

- Allow a candidate that supports your message to get his or her message out.
- Educate the public about why a candidate that opposes your position is not in their best interest.
- Educate the public about why a candidate who supports your position is in their best interest.
- Educate politicians on the facts of your issues and obtain access to do so.

The bottom line: Political campaign contributions are best used to elect a friend and un-elect an enemy.

I realize that physicians are wired differently and many of us would rather donate our time working in a homeless shelter than work for a political campaign. It’s time to wake up and realize that while working in a shelter is noble and rewarding, the true impact is infinitesimally small when compared to obtaining state or federal funding for the same pursuits. Like it or not, you cannot give good care without adequate resources and you will not have adequate resources without political input.

We have two choices. We can do nothing and leave the decisions on our future and the future of our patients to those who know little about medicine and nothing about our specific issues. Or we can step up to the plate and fight. If you want to do more than complain or if you want to get more involved, contact ACEP’s Political Action Director, Jeannie Slade.

Many politicians are of the opinion that physicians just can’t be bothered. We have to show them that we can be bothered because until we do, we will make very little progress.

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Get to Know Your Board of Directors

Chrissie (Eckhardt) Gallentine, Public Relations Coordinator, Children's Healthcare of Atlanta

Come October 1, 2014 the Sky is Falling...



**Jeffrey Linzer, Sr., MD,
FAAP, FACEP**

...or at least that is how many EP's might be feeling with the coming of the United States version of 10th revision of the International Classification of Diseases (ICD-10-CM). ICD is the Health Insurance Portability and Accountability Act (HIPAA) transaction code set for the reporting of morbidity and mortality data.

There is one physician locally who's job it is to help EP's and other physicians prepare for the upcoming change over: Jeffrey Linzer Sr., MD, FAAP, FACEP.

Dr. Linzer is an associate professor of Pediatrics and Emergency Medicine at Emory University School of Medicine. He also serves as the associate medical director for Compliance and Business Affairs for the Division of Pediatric Emergency Medicine, a group of over 50 EP's, pediatricians and physician extenders who provide care for more than 100K pediatric ED patients at the Eggleston and Hughes Spalding campuses of Children's Health Care of Atlanta.

Jeff has been working on ICD issues for many years. His work ranges from being a member of the editorial advisory board for ICD-9/10-CM Coding Clinic, the oversight group for ICD issues, to leading the ICD-10-CM workgroup for ACEP's Committee on Nomenclature and Coding. He is a highly sought after speaker for his coding and documentation expertise. He has also developed a graduated program for resident documentation training.

It wasn't always about billing and coding for Dr. Linzer. He came to Atlanta in 1994 to work on emergency medical services issues for the Eggleston Hospital. Jeff had started his career in EMS while in college eventually working as a paramedic in California. After completing his medical education through the University of California at Irvine Fifth Pathway program, he completed a residency in pediatrics, also at UCI. He then went on to complete two fellowships, first in allergy-clinical immunology and then pediatric

emergency and transport medicine at Children's Hospital Los Angeles.

Jeff quickly became active in a number of areas in Georgia EMS. He twice served as chair of the Georgia EMS for Children committee and has been a long-standing member of both the Georgia EMS Advisory Council and the EMS Medical Director's Advisory Council. Dr. Linzer has also been involved in drafting the pediatric field guidelines for both the state and Fulton County. In 2012 He was awarded the Dr. Zeb L. Burrell, Jr. Distinguished Service Award for Emergency Medical Service, only the third physician to be so honored.

With all of this, Dr. Linzer still found time to work in other areas of patient care. Jeff was one of the first physicians starting Children's Sedation Service. (CSS) CSS is pediatric emergency and critical care physicians providing moderate and deep sedation for patients undergoing procedures outside the operating room. Now one of the busiest pediatric sedation services in the country, Jeff served as the EP Medical Director until recently.

Jeff's range of publications run the gamut from documentation and billing to ICD (of course) to EMTALA to allergy-immunology. Some of his most sought after work deals with pediatric asthma and anaphylaxis.

Even with his busy schedule Jeff makes time for family and community work. He has been an assistant scoutmaster and troop committee member for Decatur Scout Troop 175. His two sons are Eagles Scouts and his daughter a Girl Scout Gold Awardee. In 1997 he attended the National Boy Scout Jamboree as a Medical Officer and was the physician chosen to support the President's medical team during his visit at the assembly.

Recently, Dr. Linzer was appointed as the Lead Physician for the ICD-10-CM Transition Core Leadership Team for Children's Healthcare of Atlanta. His goal

will be to help bring the medical staff in compliance with documentation and ICD issues. Jeff notes that, “We have been using the current version of ICD [ICD9-CM] since 1979. A lot has changed in the ensuing 30+ years.” ICD-10 was released by the World Health Organization (who actually controls ICD) in 1994. In the US it has been used for morbidity diagnosis tracking since 1999.

As with ICD-9-CM, the National Center for Healthcare Statistics of the Centers for Disease Control and Prevention (who controls the diagnosis code selection) asked medical specialty societies for their input for the US version. As a result, ICD-10-CM will have nearly 65,000 unique codes. Part of this comes from the increased specificity and granularity in the code set, e.g. differentiating between left and right, and part from the medical specialties to be able to show complexity in management of a condition, e.g. malunion vs. non-union of a fracture.

Jeff is working with a dedicated team to help Children's Healthcare of Atlanta to take a broad approach to achieve institution readiness. In addition to developing a comprehensive training curriculum for coders and making the necessary investments in computer-assisted coding and upgrades to the electronic health record, he is helping to develop a program for both the hospital and community based physician.

Dr. Linzer says there are five things the EP should be doing in preparing for the October 1, 2014 transition to ICD-10-CM:

1. Assess your practice's current level of documentation compliance. Are they documenting conditions such as non-compliance with medical therapy or under-immunization status that could be contributing diagnoses to support the medical decision making and level of service?

2. Become familiar with the new documentation guidelines now and begin using them. Encourage the EPs and practitioners in your group to start using laterality (left, right) and greater specificity (“distal radius fracture” or “radius shaft fracture” instead of “radius fracture”) in their diagnoses. You can download a free copy of the latest version of ICD-10-CM at the NCHS ICD website (ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/ICD10CM/201).

3. Work with your billing service to identify the top 50 diagnoses used within your practice. Use this information to create a crosswalk tip sheet between ICD-9 and ICD-10.

The General Equivalency Mappings (GEMS) list is also available from the NCHS ICD website. Be aware that because of the changes in specificity, few codes

will have a 1:1 equivalencies but it will put you in the right direction to translate many of your commonly used codes.

4. Plan ahead for cash-flow disruption. The Health Information and Management Systems Society (HIMSS) advises that the accounts receivable turnaround time may extend 30-90 days. Plan for potential disruptions in claims processing or rejection of claims especially since many payors may delay or reject claims with certain unspecified or non-specific codes (see fracture example above).

5. Work with your practice manager and billing service to make sure they have initiated conversations with payors and vendors (like billing clearinghouses) to assess their level of readiness for the conversation.

Dr. Linzer has a passion for his patients and his work. And he is using some of that energy working with ACEP to help EPs become better prepared for the transition.

With a little bit of preplanning and preparation, come October 1, 2014, you might see some rain but the sky shouldn't fall in on you.



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Breaking the Iron Triangle of Healthcare

Andrew Fenton, MD, FACEP, President, California College of Emergency Medicine

Editor's Note: While the article refers, at times, to healthcare policies in California, a majority of the article applies to current national healthcare policies and practices. Published with permission from *Lifeline*, the publication of the California College of Emergency Medicine.

"Advising the Nation. Improving Health" —Institute of Medicine of the National Academies

"Here I come to save the day!" —Mighty Mouse

The Institute of Medicine (IOM) is deservedly our nation's most respected institution that "asks and answers the nation's most pressing questions about health and health care."¹ IOM's reports have the ability to shape future healthcare policy with their findings and forecasts. *The New York Times* describes the IOM as "the United States' most esteemed and authoritative adviser on issues of health and medicine; its reports can transform medical thinking around the world."

The IOM is an independent, nonprofit organization whose goal is to provide unbiased advice to policy makers, industry leaders, and the public. Many emergency physicians know the IOM from its 2006 report pertaining to emergency medicine, *The Future of Emergency Care in the United States Health System*, whose implications and recommendations have been widely discussed by decision makers and in the circles of ACEP leadership. Perhaps the most famous (or infamous) recent release from the IOM remains, *To Err Is Human: Building a Safer Health System*, which claimed 44,000-98,000 (often mistakenly reported as 100,000) deaths result from medical errors every year.

Last month the Institute of Medicine released a highly anticipated report, *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*.² The report predictably became a top story and grabbed headlines in newspapers with the claim that \$750 billion was wasted annually in the U.S. healthcare system. This number, (larger than the entire US defense budget) if shaved from current spending, would reduce healthcare costs by about 30% putting our spending in-line with other developed countries. With all in agreement that healthcare costs are unsustainable, the IOM report offered a glimmer of hope and was designed to serve as a guidepost for stakeholders and reformers.

The IOM carries the gravitas to refocus and reignite the discussion about sustainable savings within our bloated healthcare system. As a nonpartisan, unbiased, highly respected organization the IOM could use their bully pulpit as a voice for fundamental changes. But like a burning fire, elemental change is a sacrificial, difficult, and destructive process. Few organizations and individuals would stand the heat of such a frank exchange (so count the politicians out), but the IOM was one institution that could.

To save \$750 billion dollars the IOM would have to face



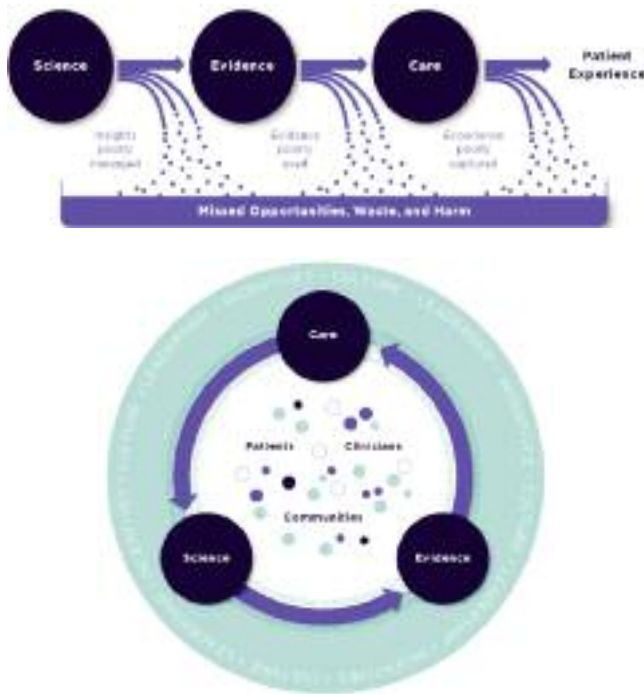
the reality of the "Iron Triangle of Healthcare."³ As I discussed in the August *Lifeline*,⁴ The Iron Triangle refers to three aspects of every healthcare system (the points on the triangle): quality, cost, and access that are tightly bound (iron). The theory holds that changing one aspect will affect the other two and in general a country's healthcare system can have two of the three characteristics, but not all three. A fully privatized system can provide high quality and a myriad of services at a reasonable total cost, but access will be restricted. Socialized medicine can provide access to all at a reasonable price, but you cannot deliver all desired services to everyone. If you want to give the best of everything to everybody you better have deep pockets because costs will be exorbitant. In the U.S. if you are able to access our expensive healthcare system then quality is high. This is why King Abdullah of Saudi Arabia recently chose to come here for treatment of an epidural hematoma. If the IOM recommends deep cuts to healthcare spending then the Iron Triangle would demand an effect on quality or access.

As I opened the report I prepared myself for some tough love. Similar to the uncomfortable realities within the Simpson-Bowles commission's findings that looked at the national debt, I knew this report would contain some harsh truths. With the Patient Protection and Affordable Care Act (PPACA) in law it was clear that access would be expanded. Proponents of the new law guaranteed quality would actually improve. But the Iron Triangle would not be so forgiving. If the nation was going to significantly lower costs someone would have to sacrifice: who would it be?

Would there be a call to reduce physician salaries? Will the IOM go after the parasitic health insurance industry or the publicly traded for-profit hospital chains? Will there be a realistic discussion about benefit design within our public healthcare programs? Will there be a consideration of end-of-life care and related expenses? And what about medical liability reform and the costs of defensive medicine? Surely any serious discussion about reducing healthcare costs would take this truth into account, right?

Silence

The Institute of Medicine's report, *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America* is a well-written report. It summarizes previously hashed-out thoughts and presents them in colorful charts and graphics. It flows well and contains organized, readable tables and lists. The grammar is impeccable. But anyone looking for a serious debate and final consensus about the best path to healthcare savings in this report will be disappointed.



The figures above and to the right summarize the changes recommended in the report. The first figure represents the current system, “Schematic of the health care system today,”¹ while the second figure represents the reformed system, “Schematic of a learning health system.”¹ The second figure is much nicer to look at with multiple colors and different sized circles.

The report contains a list of ten recommendations that the expert panel claimed would lead to the purported \$750 billion savings (see below). In summary, the group recommended incorporation of more technology in managing data (Rec. 1, 2, 3); more patient autonomy (Rec. 4);

Best Care at Lower Cost:

The Path to Continuously Learning Health Care in America²

Foundational Elements

Recommendation 1: The Digital Infrastructure.

Improve the capacity to capture clinical, care delivery process, and financial data for better care, system improvement, and the generation of new knowledge.

Recommendation 2: The Data Utility.

Streamline and revise research regulations to improve care, promote the capture of clinical data, and generate knowledge.

Care Improvement Targets

Recommendation 3: Clinical Decision Support.

Accelerate integration of the best clinical knowledge into care decisions.

Recommendation 4: Patient-Centered Care.

Involve patients and families in decisions regarding health and health care, tailored to fit their preferences.

Recommendation 5: Community Links.

Promote community-clinical partnerships and services aimed at managing and improving health at the community level.

Recommendation 6: Care Continuity.

Improve coordination and communication within and across organizations.

Recommendation 7: Optimized Operations.

Continuously improve health care operations to reduce waste, streamline care delivery, and focus on activities that improve patient health.

Supportive Policy Environment

Recommendation 8: Financial Incentives.

Structure payment to reward continuous learning and improvement in the provision of best care at lower cost.

Recommendation 9: Performance Transparency.

Increase transparency on health care system performance.

Recommendation 10: Broad Leadership.

Expand commitment to the goals of a continuously learning health care system.

more coordination of care (Rec. 5, 6); improved operations similar to “Lean” philosophy (Rec. 7, 10); payment reform to reward value (Rec. 8); and finally more transparency (Rec. 9). These are all good ideas and have been subjects in the discussion of reform for some time. The PPACA incorporated many of these ideas and stakeholders on their own are instituting others. But \$750 billion is a big number not clearly resulting from the incorporation of these improvements. Is the Devil in the details? From where did that number come?

“Show me the money!” – Cuba Gooding Jr. in Jerry Maguire

The \$750 billion figure in the IOM report is a gross estimate that came primarily from a separate IOM workshop summary, *The Healthcare Imperative: Lowering Costs and Improving Outcomes*.⁵ The IOM report mirrors the charts and figures from the workshop summary and similarly breaks down excess costs into six categories: unnecessary services, inefficiently delivered services, excess administrative costs, prices that are too high, missed prevention opportunities, and fraud (see chart right). In the workshop under each category a speaker would give a report or present a study based on assumptions from their limited observation and would then suggest a potential savings. Although these estimates had unknown overlap, eventually round numbers were derived for each category, and those numbers summed.

Because of the importance of these numbers, and the fact that they are the source of the headline-grabbing sum of \$750 billion it is worthwhile to look at each more closely. The first category, “Unnecessary Services” garnered the largest savings. In this portion of the workshop two speakers presented their separate research papers that showed that quality in hospitals and regions was not related to cost. They surmised that if all hospitals functioned with the lower costs then quality would not suffer leading to a savings of at least \$250 billion and maybe more. The final speaker discussed patient involvement in selecting their care and opined patients will choose less expensive treatments garnering another \$125 billion dollars in savings. The workshop director then gave a conservative total of savings from this category of \$210 billion. (Of note, the workshop also discussed the costs of defensive medicine in this section, but this was deleted from the IOM report).

In the second category, “Inefficiently Delivered Services” participants discussed their individual studies that suggested \$25 billion could be saved from eliminating adverse events, \$8-22 billion could be saved if we used more midlevels, and finally another \$6-26 billion

could come from more efficient office practices. Finally, one speaker suggested we could save \$240 billion with more care coordination. Again, the director gave a savings guess in this category of what he felt was a conservative number, \$130 billion.

Under “Excess Administrative Costs” one speaker identified \$183 billion in waste in billing and insurance-related costs (most related to trying to get paid). Another speaker found \$20-23 billion dollars of savings in insurance companies’ corporate overhead and administrative expenses. Finally, one researcher claimed \$88 billion was wasted in nurse documentation. Estimated conservative total savings in this category: \$190 billion.

The fourth category, “Prices That Are Too High” contained reports that suggested breaking up hospital monopolies would yield \$10-12 billion. Reducing physician salaries would save \$64 billion. Finally, prescription drug costs could be reduced by \$9 billion, durable medical equipment costs \$3 billion, and medical devices \$5 billion. The summary of the numbers in these talks led to an approximate savings of \$105 billion.

“Missed Prevention Opportunities” was thought to yield \$55 billion: \$7 billion from primary prevention and another \$45 billion from reducing readmissions. Finally “Fraud” was believed to contribute another \$75 billion, the source of this number based on an assumption by the FBI. By the end of the workshop, 20 researchers had presented their reports looking at the various possible sources of savings. The director of the group then took their numbers, shaved a little here, added a little there, and voilà: \$750 billion.

Credit needs to be given to these experts who delved into these subjects deeper. Many of these studies are well designed despite the obstacles associated with attempting to research such complex topics. Clearly, the final number is at best a very rough guess. Because each variable is fraught with uncertainty the statistical rule of “propagation of errors” tells us the final number has such a wide confidence interval to be almost impossible to put a digit on. In the workshop summary, even the director in charge of deriving the numbers “emphasized that such estimates are virtually all unvalidated extrapolations, based on assumptions from limited observations.”⁵

So why did the IOM report choose this number as the potential savings and tout it to the media so confidently? Similar to the way the California legislature puts together a budget, the IOM chose the number because it sounded good: \$1 trillion might not seem realistic, \$500 billion like not enough. \$750 billion is a good number, solid and well rounded, and at least with a whiff of truth.

The connection between the ten recommendations

Estimated Sources of Excess Costs in Health Care²⁵

UNNECESSARY SERVICES

Total excess = \$210 billion

- Overuse: services beyond evidence-established levels
- Discretionary use beyond benchmarks
- Unnecessary choice of higher cost services

INEFFICIENTLY DELIVERED SERVICES

Total excess = \$130 billion

- Mistakes—medical errors, preventable complications
- Care fragmentation
- Unnecessary use of higher cost providers
- Operational inefficiencies at care delivery sites

EXCESS ADMINISTRATIVE COSTS

Total excess = \$190 billion

- Insurance-related administrative costs beyond benchmarks
- Insurer administrative inefficiencies
- Care documentation requirement inefficiencies

PRICES THAT ARE TOO HIGH

Total excess = \$105 billion

- Service prices beyond competitive benchmarks
- Product prices beyond competitive benchmarks

MISSED PREVENTION OPPORTUNITIES

Total excess = \$55 billion

- Primary prevention
- Secondary prevention
- Tertiary prevention

FRAUD

Total excess = \$75 billion

- All sources—payer, clinician, patient

made by the IOM and the \$750 billion savings is dubious and no clear causal effect is spelled out in the recent report. In fact, discussion of many of the sources of savings included in the workshop summary was eliminated in the IOM report. Most of these were under the category that yielded the largest savings, “Unnecessary Services.” The workshop summary included the term “defensive medicine” 49 times; the recent IOM report, zero. The workshop summary included the term medical “liability” 95 times; the IOM report included it twice (and only related to savings from liability from medication errors). The workshop summary has the term “end-of-life” care 38 times; the recent IOM report, zero. The workshop summary contains “palliative” care 286 times; the IOM report, eight. What happened?

Sadly, fear of embroilment in a political debate caused

the IOM and the architects of the report to buckle. Even with a sterilized report, the group has been criticized because they included tables and graphs that mention “unnecessary services” from the workshop summary. “The problem is when you talk about getting rid of any type of health care, someone yells, ‘Rationing,’” said Dr. Rita Redberg, UCSF cardiologist on the 18-member panel that produced the report. “We have a lot of medical care that is not helpful to patients, and some of it is harmful. Rationing to me is when we are denying medical care that is helpful to patients, on the basis of costs.”⁶

The panel’s overriding concern about a backlash (that partially came anyways) led them to edit out any portion of the report that may be deemed unpalatable to the public or politicians. The remainder is a shell of a report, with glossy pictures, that proposes a big solution and then doesn’t have the guts to back up the numbers with some hard truths. The suggestion that if doctors just ran around with iPads, and we kept everyone on the same page, and patients decided their own treatments while doctors think like insurance underwriters, then everything would turn out just rosy is a fallacy.

“This is the true story...to find out what happens when people stop being polite and start getting real” – The Real World (MTV)

The most glaring omission in the report, other than ignoring malpractice reform, is that there is no serious conversation or recommendations regarding ethical decisions in benefit design for our publicly financed healthcare programs. Americans spent \$2.6 trillion on medical care in 2010, or about \$8,402 per person.⁷ Ten percent of Americans accounted for two-thirds of total costs.⁸ Publicly financed healthcare programs made up more than 40% of expenditures.⁹

Within Medicare, 25% of beneficiaries accounted for 85% of all spending.⁷ By law, Medicare cannot deny any treatment based upon price. It will pay \$55,000 for patients with advanced breast cancer to receive the drug Avastin even though it extends life only a month and a half.¹⁰ It will pay \$15,000 for patients with advanced pancreatic cancer to receive Tarceva though it extends life only 10 days.¹¹

Nearly all of the 25% of beneficiaries who account for 85% of Medicare spending carry one, and usually more, chronic comorbidities. Yet all are guaranteed if needed a pacemaker, a defibrillator, life-long dialysis, new knees, hips, and shoulders. Soon we will be able to equip each with their own LVAD (left ventricular assist device). And we promise these benefits for longer than we ever have. When Medicare was passed into law in 1964 the average life expectancy was 69 years. Today it is 78 years.¹²

Within Medicaid, 8% of beneficiaries account for two-thirds of Medicaid spending.¹³ In California in 2009, 7% of MediCal beneficiaries accounted for more than three-quarters of fee-for-service MediCal expenditures.¹⁴ People with disabilities accounted for nearly half of MediCal spending. High utilizers are young and old have a wide array of chronic physical and mental issues. Annual spending for the 1,000 most costly beneficiaries averaged \$502,465 per person. But don't expect to see limitations on any services for these folks. Bagged your kidneys or your transplant shooting meth? No problem, dialysis for life. Cannabinoid-induced cyclic vomiting syndrome? Here is your Dilaudid and Zofran. See you next week for the same. Destroyed your *fill in blank* (lungs, liver, brain, stomach, pancreas, knees, etc.) abusing *fill in blank* (tobacco, alcohol, drugs, fast food, etc.)? We got you covered; society will pay all the way. Should I even discuss chronic pain?

The fact is society and our country does not have unlimited resources. We have to make difficult choices. The governor of Oregon, Dr. John Kitzhaber (an emergency physician), has framed the question we face: "Resources are limited, priorities must be established, and the truth is we cannot afford to do everything that medical science has to offer for everyone who might benefit from it."¹⁵ Another smarter person than me, Dr. Jerome Hoffman, an emergency medicine professor at UCLA, poses this question, "Do we as individuals have the right to demand unlimited resources from our society?"¹⁶

Probably the most controversial and emotional issue related to this question involves spending at the end-of-life. About one-fourth of Medicare spending goes to pay for the care of people in their last year of life.¹⁷ Medicare costs for care in the last two months of patients' lives is \$50 billion, more than the budget of the Department of Homeland Security or the Department of Education.¹⁰ Unfortunately, the specter of "death panels" and the idea of "pulling the plug on grandma" has scared legislators and seemingly convinced the IOM from even discussing this topic in their report.

Even more saddening is the truth that the public wants and needs to have this discussion. Nearly 8 in 10

Californians said that if they were ill, they would want to speak with their doctor about end-of-life care, but fewer than 1 in 10 have had such a conversation including just 13% of those 65 or older.¹⁸ Regardless of political affiliation, more than 8 in 10 people think doctors should be reimbursed for time talking with patients about end-of-life options (this was removed from the PPACA after the fear of "death panels"). Because these talks don't occur, and though 70% of Californians say they would prefer to die a natural death at home, currently 42% die in a hospital (about 20% in the ICU), and 18% die in a nursing home. Less than a third of folks pass away in their homes.

This is a tragedy and a source of healthcare spending that is unneeded and unwanted. It is the reason our chapter sponsored the bill in 2008 that established in law Physician Orders for Life-Sustaining Treatment (POLST) which gives patients more choice and empowerment at the end-of-life. But it remains clear that our society must do better and our culture must evolve. "If we want to fix this," says Dr. Hoffman, "we have to get society thinking about this; we have to get society to decide that there's a better way. And when we do, the laws will follow."¹⁶

If we do nothing, and we dodge the issue like the politicians and the IOM did, our country is in serious trouble. The "Silver Tsunami" is set to hit shore. The number of residents in California over 85 has quadrupled over the past 40 years.¹⁹ It will quadruple again in the next 40 years and the already large number of people 65 and over receiving Medicare will double between 2010 and 2050.¹⁶ Each one of these beneficiaries will receive in financial benefit on average five times the dollar amount they paid into Medicare during their lifetime.²⁰

This debt will then be placed on the backs of a group, that *Newsweek* magazine recently labeled, the "Screwed Generation" = young people less than 35 years old.²¹ The rest of us have already saddled the younger generations with enough burden (financial collapse and subsequent jobless recovery, relentless mounting national and statewide deficit and debt, a ballooning pension debacle). Have we no shame? In the words of another ER doc who is really smarter than me, Dr. Greg Henry, "Spending other people's money is always easy, but spending the money that indentures the yet-unborn is cowardly and immoral, and that's exactly what we are doing."¹⁶

The Iron Triangle of Healthcare cannot be broken anymore than one can break the cosmic speed limit. But if one can stand the heat of the exchange, and if we can suffer the fire, then the Iron Triangle can be bent and molded. To lower the "cost" of the system society must accept an effect on "access" and/or "quality." What this means is that not everyone will have access to everything. Within our public healthcare programs, Medicare and

Medicaid, there must be rational benefit design that is sustainable and takes this truth into account.

The Chair of the panel that recently released the IOM report, Dr. Mark Smith said, “The good news is that the very common notion that quality will suffer if less money is spent is simply not true. That should reassure people that the conversation about controlling costs is not necessarily about reducing quality.”⁶ He is technically correct but he and his group avoid the fact that his goal is unrealistic unless we reduce access or redefine what “quality” means. If we accept that we cannot afford every expensive intervention for everyone, than cost/benefit analysis of medical interventions must be part of the equation or the system will collapse for everyone.

The PPACA and the IOM report both offer fool’s gold (an iron sulfide that melts at two-thirds the melting point of true iron). They guarantee lower “costs” and increased “quality” and “access.” Healthcare leaders need to be more forthcoming about how they define these terms and how they will meet their goals. Until we have an honest discussion about the true costs of care, and how we as a society define access and quality we will never make significant progress in our redesign of a sustainable health-care system in our country. Emergency physicians, as the most common first contact care providers in the U.S., will be hugely influential in the progression of this discussion and in reform implementation.

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Emergency Medicine Residency Update: Georgia Regents University

Stephen A. Shiver, MD, FACEP, Residency Program Director



Stephen Shiver, MD, FACEP
sshiver@gru.edu

Dr. Shiver is Associate Professor of Emergency Medicine and Residency Program Director at the Medical College of Georgia. Clinical and research interests include resident education, emergency ultrasound, airway, and trauma. In addition to his emergency medicine training, he completed a general surgery residency at Wake Forest University Baptist Medical Center and is board certified by the American Board of Surgery.



Welcome GRU EM Class of 2016!

- Deborah Holtzclaw, University of VA School of Medicine
- Benjamin Garrick, Medical University of SC
- Richard Poole, NOVA Southeastern
- Christopher Homan, Medical College of GA
- Clayton Carter, VCOM
- Thomas Freeman, Medical College of GA
- Jason Barter, East Tennessee State University School of Medicine
- Daniel Reed, Medical University of SC
- Jennifer Guyant, NOVA Southeastern
- Stephanie Couch, Vanderbilt University School of Medicine
- Michael Samuels, USUHS
- Michelle Bailey, USUHS

Another recruiting season is now in the rearview mirror and we can say with certainty that the state of emergency medicine remains quite strong across the country. Large numbers of outstanding medical students have made the decision to pursue our specialty as a career choice and we once again surpassed our record for total number of applicants (approximately 800). It is a great time to be involved in EM education!

We have permanent ACGME approval for 12 positions per residency class and this year we matched six civilians via the NRMP and six Army candidates via the separate military match process. Our Army affiliation began in 2008 with a single resident and has grown over time to be a significant part of our residency. There are only three other locations in the country that currently train active duty Army EM residents, two in Texas and one in Washington state, and our program has rapidly become a highly sought after training venue.

As our Army affiliation has grown, so too has our relationship with Dwight D. Eisenhower Army Medical Center (DDEAMC). At present, we have several rotation and elective experiences at DDEAMC including EM, combined medical/surgical ICU, and radiology. We plan on continuing to expand DDEAMC involvement with the goal of making it a major participating site. Discussions are ongoing concerning moving the cardiology rotation and further enhancing the elective offerings.

Additionally, we are exploring the possibility of moving our OB rotation to an off site Army base with a large volume of deliveries. There is no question that the Army affiliation has added outstanding residents to our program and opened up a myriad of opportunities for curriculum enhancement.

If you graduated from MCG in recent years, you would be very surprised regarding the amount of change that has occurred since your departure. ED volume has surged and we now have an annual census of approximately 90,000. “Slow” periods, even during the wee hours of the morning during a night shift, are a rarity. To accommodate the additional volume, we have added capacity (16 beds) through the construction of the D pod and the Behavioral Health Unit. Our large ED is now actually composed of multiple small ED’s: two adult pods (A and D) and one pediatric pod. Each pod has its own staff consisting of an attending physician, residents, and students. The paper chart is extinct, having been replaced by FirstNet. We will have 36 EM residents on campus next year, the most in our history. There are now 3 Chief Residents, not 2. Weekly conference is now 4 hours, not 5, since we have added an hour of asynchronous learning per week. Fellowship offerings have exploded and we now have fellows in emergency ultrasound, pediatric EM, wilderness medicine, and international medicine. In a few short months, we will welcome our first fellow in EMS. Even our name has changed twice!

It seems the only constant is that change is ever present and is occurring more rapidly. The future is bright, however, and we look with anticipation towards the changes that will unfold at GRU EM over the coming years. There is always an open invitation for alumni to come back and visit us sometime – you are always welcome! Should you have any questions or comments concerning our residency program, please contact our Program Coordinator, Janelle Davis, at (706) 721-2613.

Emory PEM Fellowship Update

Wendalyn Little, MD, MPH

Fellowship differs from residency in many ways. Fellows enter training programs possessing a great deal of clinical knowledge and experience obtained during years of residency training. Physicians may pursue pediatric emergency medicine fellowship after completing residency in either general pediatrics or emergency medicine. Fellowship is an opportunity not only to gain advanced clinical training, but also to gain experience in the scholarly and administrative aspects of a career in pediatric emergency medicine. Our PEM fellowship program at Emory University School of Medicine strives to train excellent clinicians who will go on to be leaders in the field of pediatric emergency medicine.

The majority of our fellows enter the program after completing a residency in general pediatrics. For these fellows, the American Board of Pediatrics (ABP) specifies a three-year training program with 12 months devoted to research or scholarly pursuits. Each fellow must complete a scholarly “work product” during fellowship before he or she is considered eligible for ABP certification in pediatric emergency medicine. To ensure that fellows are meeting the requirement for scholarly activity, fellowship programs must have in place a Scholastic Oversight Committee. This is a group of faculty tasked with reviewing each fellow’s scholarly activity on a regular basis and ultimately approving the final work product that each fellow must submit to the ABP.

Our PEM fellows have an excellent track record for completing and publishing

research projects reflecting a broad array of topics and interests. Recently published studies have focused on procedural sedation, management of soft tissue infections, over the counter cough and cold medication use in pediatric patients, and utilization of CT scanning in the pediatric emergency department.

In addition to research, all fellows participate in teaching and administrative activities. Our fellows conduct weekly teaching sessions with the residents and medical students rotating through the emergency department. These sessions are devoted to focused presentations on emergency medicine topics, mock codes and observed patient encounters. Fellows are also expected to join a hospital, departmental or institutional committee and participate in regular meetings to gain knowledge and experience in administrative matters. The Emory University Department of Pediatrics provides formal training in research methodology, bioethics, and development of teaching skills. Each fellow in the department participates in these courses during fellowship. Fellows also have the chance to participate in department-wide teaching and research competitions and our PEM fellows will be well represented this year in these events.

We invite you to learn more about our PEM fellowship activities by visiting our website at <http://www.pediatrics.emory.edu/divisions/em/index.cfm>.



Wendalyn Little, MD, MPH
wendy_little@oz.ped.emory.edu

Dr. Little is assistant professor of Pediatrics and Emergency Medicine and Fellowship Director, Pediatric Emergency Medicine in the Division of Pediatric Emergency Medicine, Department of Pediatrics at Emory University School of Medicine

Emory Emergency Medicine Operational Update



Phillip Shayne, MD, FACEP
pshayne@emory.edu

Dr. Phillip Shayne is Associate Professor, Residency Director and Vice Chair for Education at Emory University School of Medicine.



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Phillip Shayne, MD, FACEP

With the *EPIC* magazine coming out now four times per year, we are dedicating two columns annually to education, one to research, and one update on our clinical operations, of which this is the second. This update is provided by **Dr. Leon Haley**, Vice Chair who oversees our clinical operations at Grady and the Atlanta VA, and **Dr. Douglas Lowery-North**, Vice Chair for our Emory Healthcare operations.

The Department of Emergency Medicine at Emory University provides operational leadership at five metro-Atlanta emergency departments – all of which have undergone or about to undergo a series of major changes designed to improve the patient care experience at each site:

Emory University Hospital

Emory University Hospital, located on the campus of Emory University, has seen steady growth in both volume and acuity of patient visits over the last decade. The ED is currently configured with 21 acute care and eight observation beds to provide care for its annual census of just under 40,000 visits. Emory University Hospital has the highest case mix index of any hospital in the University Health System Consortium, contributing to a 35% admission rate. Last year, Emory University Hospital's quality was ranked second highest in the nation among members of the University Healthsystem Consortium.

As part of a major redesign of the care process, the ED Leadership team—under the direction **Dr. Matthew Keadey**, Medical Director and Chief of Service of the Emergency Department, **Dr. Andrew Pendley**, Administrative Fellow, and **Dr. Kiera Von Besser**, Director of Clinical Service Excellence—has initiated an innovative series of redesigns. As the cornerstone for this transformation, Emory University Hospital is building a new ED and care will begin transitioning to parts of the new facility as soon as May 1. By September 1, 2013, ED patients will occupy a state-of-the-art facility that includes an expanded ambu-

lance ramp, and a new ED radiology suite, including a new ED-based CT scanner and x-ray room. The facility plan, developed by architects from FreemanWhite, utilized computer modeling techniques to optimize the ED design and flow. The new department will consist of 29 private care spaces, a new rapid treatment area, and two resuscitation rooms. Other projects include implementation of a point of care testing platform and improved coordination of inpatient flow with the emergency department. The new ED promises to provide patients a much more pleasant and healing environment.

Emory University Midtown Hospital

Emory University Hospital—Midtown (formerly Emory Crawford Long Hospital), situated in the heart of Midtown, provides care to more than 60,000 patients annually, with 25% of those patients requiring further inpatient or observation care. This 25,000 square foot facility was built in 2003, and houses 29 acute care beds, four expedited treatment areas, and eight observation beds. **Dr. James (Pat) Capes**, Medical Director and Chief of Service of the Emergency Department, along with Associate Medical Director **Dr. Scott Sasser**, and CDU Director **Dr. Anwar Osborne**, collaborate with physicians from community practices in addition to physicians from The Emory Clinic, to offer compassionate and comprehensive care to their patients. **Dr's Karim Ali and Sophie Morgan** are leading the effort to transform the patient experience at EUHM, focusing on improving patient communication and satisfaction. Last year, Emory University Hospital's quality was ranked 6th highest in the nation among members of the University Healthsystem Consortium.

Emory Johns Creek Hospital

Emory Johns Creek Hospital provides care to nearly 25,000 patients each year in a therapeutic and friendly patient care environment. The 19 bed ED opened in 2007 and has been steadily increasing the yearly census. The staff works closely with the community physicians of Johns Creek and

surrounding areas to provide seamless transitions from the outpatient setting to hospital based care. The emergency physicians at Emory Johns Creek, under the supervision of **Dr. Brenda Friedman, Medical Director, and Dr. Damon Dell'aglio**, Assistant Medical Director, provide benchmark quality of care to their patients, as evidenced by their median length of stay of 2.5 hours. The average time for patients to see a provider at the Johns Creek ED is well under 30 minutes. Further, Press-Ganey patient satisfaction scores from the EJCH ED are the top in the country...a real testimony to the efforts, commitment, and compassion of the physicians in the group.

Grady Memorial Hospital

Progress continues in the Emergency Department at Grady Memorial Hospital. It has been about 18 months since the opening of the state of the art Marcus Trauma Center. Since then Grady has secured state verification as a level one trauma center and the trauma program has added several staff to further improve the program. In addition, there have been upgrades to the remainder of the treatment rooms in the ED. Televisions have been installed and renovations have been completed to all the treatment rooms. Furthermore, a new 20 bed observation unit is under construction and scheduled to be operational in mid-July. Protocols have already been expanded and the new unit will be staffed and managed by the Department of Emergency Medicine under the leadership of **Dr. Matt Wheatley and Dr. Michael Ross**. Finally, in early March the Grady Board of Directors approved additional funding for development of a new ED design. The new plan, developed by FreemanWhite Architectural Firm, will include several best practices for ED flow and design. It will expand the ED by about 15 beds and increase the capability of the ED to see approximately 135,000 patients per year. The new design also includes several features designed to help improve visibility, flow, and throughput through the department.

In the face of rising volume (finished 2012 at 120,000) and the optimization of an electronic health record under

the leadership of **Dr. Daniel Wu** – Associate Medical Director of the ED and Chief Medical Information Officer, the ED Leadership team led the staff through significant improvements in overall length of stay, door to physician time, achievement of quality metrics and patient satisfaction scores. Along with the opening of the new observation unit, the ED has added six new advance practice providers to their team. The ED was able to finish 2012 with a median length of stay of about seven hours. Grady has also entered into an agreement with the national customer service organization, The Studor Group. With a renewed focus on customer service and quality, the customer satisfaction scores have improved dramatically. **Dr. Christine Keyes**, has led this initiative at Grady for the Department of Emergency Medicine.

Atlanta VA Medical Center

The Atlanta VAMC Emergency Department continues to experience significant growth in volume. The current annual volume of approximately 42,000 visits is seen utilizing 15 beds in the main ED with additional four beds in a Fast Track area. Architectural design plans for a substantial ED and Fast Track expansion project have been completed. Construction start over the next year is hopeful. Process improvement and system redesign projects (incorporating Lean and Six Sigma principles) are ongoing in the areas of triage, door to doctor time and ancillary department (radiology/laboratory) turnaround times. The department remains focused on growing the educational curriculum, developing an EM fellowship position, and expanding research opportunities. Current grant projects at the Atlanta VA center on improving care for two important (and increasing) veteran populations - the elderly and female. One grant aims to improve provider prescribing patterns and reduce adverse medication reactions for the ER geriatric population by utilizing order sets in the electronic health record. Two additional grants concentrate on expediting, expanding and standardizing available services for our woman veterans.

Classical Congenital Adrenal Hyperplasia

Stephanie Fessler, MD, Third Year Fellow, Emory Healthcare

Since the days of medical school, physicians have studied flow charts of hormone synthesis, feedback loops, and sodium channels. It is intriguing to some, or to others, the part of board studying that makes one cringe. Painful as it may be, there is one pediatric illness that requires the emergency physician to review these text book diagrams – congenital adrenal hyperplasia.

Congenital adrenal hyperplasia (CAH) is a fairly rare pediatric illness, but in its most common classic form, early recognition and appropriate treatment is life saving. Over 90% of cases of CAH, or about 1 in 15,000 births, are the classic form of CAH. Seventy-five percent of all infants with classic CAH will have salt wasting. The Georgia newborn screening exam does screen for classic CAH. However, for those who received antenatal steroids, they can have a false negative result. In addition, any delay in results is crucial as most infants with salt wasting will present in adrenal crisis within the first one to four weeks of life.

For a very simplistic summary of those flow diagrams and loops – classic CAH is a deficiency in the enzyme 21-

hydroxylase, which ultimately converts cholesterol to aldosterone and cortisol. A deficiency of the enzyme leads to a deficiency of aldosterone, causing salt wasting and fluid loss; and deficiency of cortisol, an essential stress hormone. The excess of precursors then feed into the androgen pathway, leading to virilization. Girls with classic CAH are typically born with ambiguous genitalia. Boys may not have as obvious physical findings, but may have an enlarged phallus or hyperpigmented scrotum.

Recognition of an infant who presents with shock due to CAH and salt wasting is difficult, especially in boys. In addition to the management of the ABCs in shock, the infant will also likely present with hyponatremia and hyperkalemia due to aldosterone deficiency, and hypoglycemia and refractory hypotension due to cortisol deficiency. Treatment with intravenous hydrocortisone such as Solu-cortef is the preferred treatment.

So, while the flow charts and sodium/ potassium pumps may make us cringe, understanding the overall picture and the life threatening consequences of CAH can lead to another life saving opportunity in the ED.



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A White Object Protruding From the Tonsils

Larry B. Mellick, MD, MS, FAAP, FACEP and Lee LaRavia, DO



Case

Young female presented with intermittent throat pain and the pictured object protruding from the right tonsil.

Diagnosis

Tonsillolith

Discussion

Tonsillar concretions, also known as tonsilloliths arise from retained material and bacterial growth in the tonsillar or adenoid crypts and may exist in patients with or without a history of inflammatory disorders in either the tonsils or adenoids. Whitish, expressible, foul-tasting, and foul-smelling cheesy lumps in the tonsils associated with halitosis and a sore throat characterizes the tonsillar concretions in many patients. Local

management involves simple expression of the concretions by the patient, the use of pulsating jets of water to clean the pockets of debris mechanically, or possibly application of topical silver nitrate to the tonsillar crypts in order to chemically obliterate them. Persistent problems with pain, halitosis, foreign body sensation or otalgia may require more definitive therapy such as surgical removal of the tonsils. However, current research is suggesting that we take a closer look the bacterial makeup of these tonsillar concretions.^{1,2} Tonsilloliths may be more than just “stones.” Some studies appear to be classifying them as biofilms that exhibit structural and physiological activity similar to dental biofilms. This is thought to make them difficult to eradicate with antibiotics and act as a nidus for acute episodes of tonsillitis.²

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**Larry B. Mellick, MD, MS,
FAAP, FACEP**
lmellick@georgiahealth.edu

Dr. Larry B. Mellick is professor of Emergency Medicine and Pediatrics, Department of Emergency Medicine, Georgia Regents University, Augusta, GA.

Lee LaRavia, DO
@georgiahealth.edu

Lee is an emergency medicine resident, Department of Emergency Medicine, Georgia Regents University, Augusta, GA.

A Literature Review of Various Small Caliber Chest Drainage



**Larry B. Mellick, MD, MS,
FAAP, FACEP**
lmellick@georgiahealth.edu

Dr. Larry B. Mellick is professor of Emergency Medicine and Pediatrics, Department of Emergency Medicine, Georgia Regents University, Augusta, GA.

Adrian Amin, MD
@georgiahealth.edu

Adrian is an emergency medicine physician, Department of Emergency Medicine, Georgia Regents University, Augusta, GA.

Larry B. Mellick, MD, MS, FAAP, FACEP and Adrian Amin, MD

Abstract

There are several pleural conditions which may require chest drainage: traumatic pneumothorax or hemothorax, primary spontaneous pneumothorax (PSP) occurring in otherwise healthy patients, secondary spontaneous pneumothorax (SSP) to underlying lung disease, and iatrogenic pneumothorax.^{1,2} For such patients active treatment options include needle aspiration and tube thoracostomy with small- or large-caliber chest tubes.¹ This review will focus on the small-caliber treatment options and their appropriate use in the clinic.

Introduction

There are several treatment options for pneumothorax dependent on the degree of clinical compromise: discharge, observation, needle aspiration (14-16 G), and tube thoracostomy with a small-bore (7- to 14-French) catheter.¹ Of these options, this review will focus on needle aspiration and small-bore catheters.

According to the British Thoracic Society (BTS) Guidelines, needle aspiration is the procedure of first choice in most cases of spontaneous pneumothorax, however, choice of initial intervention should include degree of clinical compromise, patient choice, and operator experience. Typically, a 16 to 18 gauge needle is inserted into the second intercostal space in the midclavicular line, the fourth or fifth intercostal space in the midaxillary line, or posteriorly below the level of the scapula. Successful needle aspiration results in symptom resolution and size reduction.¹

Small-bore catheters/ small-caliber chest tubes are inserted over a guide wire into the pleural space using the Seldinger technique. The catheter can be connected to a one-way valve, such as the Heimlich valve. Advantages of small-bore catheter placement include ability to perform repeat aspiration and functional equivalency to a tradi-

tional chest tube. Additional reported advantages of small-bore catheters include easier ambulation and freedom of movement for the patient, whereas problems with catheter insertion include kinking, clogging, and malpositioning.³ Should a thoracostomy tube be surgically placed it is common for either a chest radiograph (CXR), computerized tomography (CT), or more recently bedside ultrasound be performed to confirm placement.⁴

Medical Management

For initial diagnosis, patients presenting with possible pneumothorax should be given standard erect chest x-rays (CXR) on inspiration. For uncertain or complicated cases, CT scanning is recommended. Initial patient evaluation should include observation for the presence of significant breathlessness. If present, supportive treatment such as oxygen and active intervention (needle aspiration or chest tube) should be provided, as appropriate. Signs of respiratory distress suggest the presence of tension pneumothorax. In such cases, chest drains and hospital admission are usually required.¹

For surgically treated patients, prophylactic antibiotics have been shown to reduce post-insertion pneumonia and empyema in trauma patients with chest tubes. However, there is no evidence to support this usage outside of the trauma setting. Other standard medical management of chest tubes includes monitoring for tube obstruction and air leaks. In addition, fibrinolytic therapy may be used to lyse loculated pleural fluid collections.⁵

Observation is indicated for those patients with small primary spontaneous pneumothorax in the absence of significant breathlessness and for select asymptomatic patients with large primary spontaneous pneumothorax.¹

Patients diagnosed with pneumothorax

who are discharged from the hospital should be advised to return if increasing breathlessness develops, to avoid air travel until fully recovered, and to avoid diving permanently. All patients should follow-up with a respiratory physician.¹

For patients who are unwilling or unable to undergo surgery, chemical pleurodesis by a respiratory specialist can be used to control difficult or recurrent pneumothoraces.¹

Surgical Management

Common surgical treatment options include simple needle aspiration, small-bore catheter/small-caliber chest tubes, and traditional chest tubes. Additionally, surgical chemical pleurodesis can be performed using 5 g sterile graded talc.¹

Needle aspiration has been shown to be as effective as large-bore (>20 French) chest drains and may be associated with reduced hospitalization and length of stay.⁶ In one comparative study between needle aspiration and small-bore catheters, patients with primary spontaneous pneumothorax were randomized to treatment with either needle aspiration or small-caliber chest tube with Heimlich valve. Researchers found that needle aspiration was equivalent to small-caliber chest tubes in failure rate, admission rate, pain score, satisfaction score, and complication rate.⁷

In the case of failed needle aspiration unassociated with technical difficulties, small-bore chest drain insertion is recommended.¹ In a retrospective study of patients with mild and moderate primary spontaneous pneumothorax treated with simple aspiration, the overall initial success rate was 72.5%, and success was found to be lower in patients with a larger vertical rim between the apex and top of the lung (8 cm), a higher collapsed area ratio (50%), and with aspiration volume >1,500 mL.⁸

The literature is abundant with numerous reports of successful drainage of the pleural fluids with small-bore catheters. In such cases it has been found that the procedure is faster than traditional chest tube placement, there is a lower cost associated, and there is convenience of bedside placement.^{9,10}

A prospective multi-center study of patients with pleural infection showed that usage of small-caliber chest tubes was associated with less pain than blunt-dissection-inserted larger tubes. And this was accomplished without impairment in the clinical outcome.¹¹ A retrospective study of patients treated with ultrasound-guided small-bore catheter placement found no evidence of catheter size (10F to 16F) impacting success rate in treatment of plural disease.¹²

It is important to note that according to the BTS Guideline, use of a large-bore chest tube is not indicated for the management of spontaneous pneumothorax.¹ However, a retrospective review of patients with a first

episode of secondary spontaneous pneumothorax found a higher failure rate in patients with infectious diseases than those with obstructive lung conditions and malignancy. Therefore, in cases of SSP with infectious disease, use of a traditional chest tube may be appropriate.¹³ Misplacement and organ injury are common disadvantages to traditional chest tube placement, and occur more frequently when using sharp (versus blunt) tips.¹⁴

Patients with a persistent air leak following chest tube insertion should receive thoracic surgical referral within the first 3-5 days.¹ Delayed referral results in an increased incidence of morbidity and financial burden for hospitals.¹⁵

Tension pneumothorax is a medical emergency. Treatment with oxygen and emergency needle decompression should be performed in the emergency department.¹ Unfortunately, some needle decompression procedures are unsuccessful because the catheter length is insufficient to fully penetrate the chest wall. A recent retrospective review suggests using a larger (4.5 cm) catheter is more effective at penetrating the pleural space in patients with tension pneumothorax than a smaller (3.2 cm) catheter (4% failure versus 65% failure, respectively).¹⁶

In cases of traumatic injury, patients may present to the emergency department with hemothorax and/or occult pneumothorax. Diagnostic imaging (ultrasound, CXR, CT) should be used to identify pneumothorax and pleural effusion. If opacity on chest x-ray persists following tube thoracostomy, CT of the chest is indicated to evaluate for undrained fluid. Drainage should be considered for all size hemothoraces. Initial drainage of the hemothorax should be with a chest tube, and if there is persistent retained hemothorax following tube placement, early video-assisted thorascopic surgery should be performed. Insertion of a second chest tube is not recommended. Patients with massive hemothorax (1500 mL/24 hours) should be considered for surgical exploration, although patient physiology should be the primary indication for surgical intervention.² A retrospective review of mechan-

Table 1. Potential Clinical Presentations and Interventions for Spontaneous Pneumothorax¹

	Needle aspiration (14-16 G)	Tube thoracostomy with a small-bore (7- to 14-French) catheter
Primary spontaneous pneumothorax	>2cm and/or breathless	Tension or bilateral pneumothorax
Secondary spontaneous pneumothorax	Size 1-2 cm	>2 cm or breathless; most patients with SSP will require a small-bore chest drain

Adapted from MacDuff 2010

cally ventilated patients who were treated with a small-caliber chest tube as initial therapy for pneumothorax showed that small-caliber chest tube drainage is more effective in treating iatrogenic than barotraumatic pneumothoraces.¹⁷ For patients with occult pneumothorax (those not seen on CXR), observation with or without ventilation is indicated.²

Conclusion

There are several treatment options available to patients with pleural conditions. The treatment decision is dependent on the degree of clinical compromise, patient preference, and operator experience. Although traditional large-caliber chest tubes are often effective therapy, there is increasing evidence that more conservative therapy is functionally equivalent. Treatments such as simple needle aspiration and small-caliber tube insertion may be more desirable to both patients and hospitals. Some of their advantages include reduced costs, less pain, and increased freedom of movement and ambulation.

Video

A YouTube video demonstrating the insertion of a small caliber catheter for a spontaneous pneumothorax by Dr. Adrian Amin can be viewed at the following link:

http://www.youtube.com/watch?v=7_X9PDctWh8



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Primary Care Treatment and Management of Pilonidal Cysts

Joshua Worley, APA-C, Aeromedical Physician Assistant, Fort Hood, Texas and Massimo Federico, MD, Brigade Surgeon, Fort Hood, Texas

Presentation

A 22-year-old male presented to a primary care clinic with four days of thin, yellow-clear fluid drainage from the midline superior gluteal cleft. He initially noticed the drainage on his clothing upon waking. The patient described a nodular-cystic area immediately left of midline at the superior gluteal cleft that had been present for more than two years. He denied previous occurrences of drainage, tenderness or pain in the area; however, he described “bumps” about the area. The patient denied trauma, blood in the stool or any constitutional symptoms. The patient had normal vital signs, was afebrile and in no acute distress. His skin was otherwise normal, and he demonstrated no lymphadenopathy.

Exam of the gluteal cleft revealed a 1 cm midline cyst with a central punctum, minimally draining thin yellow fluid. Minimal digital pressure expressed approximately 1 ml of light purulence from the cystic area. Careful palpation also revealed a prominent sinus tract from the draining cyst and the granulated area, as well as multiple smaller sinus tracts from the superior cysts approximately 3 cm inferiorly. Immediately left of midline at the superior gluteal cleft there was a firm 1 cm x 1.5 cm non-tender area of granulation with mild hyperpigmentation of the skin. No fluctuant areas, surrounding erythema, warmth or skin streaking was noted; however, there was some midline skin pitting.

The initial differential diagnosis list was limited to pilonidal cyst with sinus and tract involvement, skin abscess, sacrococcygeal teratoma and hidradenitis suppurativa.

It was determined that the patient

could be effectively treated and managed in a primary care setting with incision and drainage. The minor procedure area of the clinic was utilized, and the patient was positioned in prone jack knife and the gluteal cleft/sacral area prepared in a sterile fashion. A local field block using 1% lidocaine with epinephrine achieved effective anesthesia. A thin metal probe was inserted into the draining punctum and no resistance was encountered when progressed inferiorly through the sinus tract approximately 6 cm. Additional sinus tracts were probed laterally in the same manner, and no resistance was noted as well. One vertical incision was made from the superior cyst inferiorly over the metal probe using it to guide the incision and control the depth of incision in the tract approximately 6 cm in length with an average final depth of 2 cm (Figure 1). A limited (0.5 ml) amount of purulent fluid was drained. As the incision was completed, a 3 cm long, thick hair nidus was easily identified and removed. The exposed sinus epithelium and surrounding granulation tissue were also removed and debrided. During careful exploration, multiple hair follicles were removed throughout the cavity. A copious amount of normal saline was used to flush the wound. The cavity was packed with a ribbon of sodium carboxymethylcellulose (NaCMC) wound dressing containing 1.2% silver in an ionic form, also known as AQUACEL Ag Ribbon. A highly absorbent sacral cover dressing was applied in order to trap excess serous drainage, provide padding while the patient was sitting or prone, and prevent contamination. Silk and cloth tape was not used due to the anticipated length of required dressing and the possible skin

break down, and discomfort with their use. The patient was discharged to home with analgesia, limited sitting at work, limited physical activity, and follow up instructions. At the one week follow up visit, the wound was irrigated with copious amounts of normal saline and the serous saturated dressing was replaced. NaCMC dressing with silver; however, has been proven to maintain antimicrobial properties for up to 14 days.¹ The patient reported that his pain was effectively controlled at home with a short course of narcotics and did not require additional pain management at follow up.

Two weeks after the initial procedure, serous drainage from the wound had ceased and the wound edges showed continued granulation (Figure 2). He denied any associated pain in the area, purulent discharge or bleeding. The patient was allowed to return to some work duties at this time. At four weeks (Figure 3) follow up, the patient was cleared to participate in physical training as tolerated, although primary occupational duties were still limited due to exposure to excessive vibration and periods of prolonged sitting in rigid



Figure 1



Figure 2



Figure 3

seats with safety restraints. The wound bed had well established granulation and had continued wound edge approximation from the deeper aspects more than 1.5 cm from the base. Between the 2, 4, and 5 week appointments, the patient was seen for additional dressings and supplies. He did not require oral pain medication, local anesthesia or heavy irrigation at any time during dressing changes and evaluations. During the fifth week assessment, the ribbon dressing was discontinued as a packing and only an absorbent sacral cover dressing (AQUACEL Ag SURGICAL cover dressing) to protect the wound bed and edges from debris and contamination was used (Figure 4). This particular dressing is made of a thick, flat Hydrofiber sheet with a hydrocolloid adhesive layer and polyurethane film. At this time it was determined that the patient could return to full duty with the exception of performing sit ups or similar exercises, in order to prevent wound dehiscence. A general surgery consult was placed to evaluate for defin-

itive treatment and for possible permanent hair removal about the gluteal cleft. The patient was seen by general surgery and was determined that no further surgeries or procedures were required and subsequently returned to primary care. On the 54th day post-procedure, the patient was returned to full duty without restrictions (Figure 5).

Diagnosis

Pilonidal Cyst with Sinus

Discussion

Pilonidal cysts are complications of midline intergluteal cleft sinus formations in the skin overlying the sacrum and coccyx. The term “pilonidal” is derived from Latin describing “hair” and “nest.” R.M. Hodges first used “pilonidal cyst” to describe the disease in 1880.² The predominating theory regarding the development of sinus formation includes repeated soft tissue insult and subsequent chronic foreign body reaction above the sacrum. Embryogenic failure to close the midline gluteal fold has also been implicated.³ The sinus is lined with squamous epithelium and hair follicles which continue to produce keratinous material and persistent growth of mature hair. Chronic inflammation and episodes of infection lead to granulomatous tissue development via sinus blockage, foreign body reaction and skin flora proliferation.

These patients typically present in acute settings with cystic tenderness, swelling and drainage in the posterior midline sacral area. Careful patient history will often reveal that the patient has experienced previous events of mucopurulent drainage from the upper portion of the natal cleft with or without tenderness. These episodes are described as resolving by the patient manually expressing the material for several days. Occupational activities are commonly associated with pilonidal disease. Long distance vehicle drivers, air crew, and those tasks requiring frequent compression-friction in the lower back and sacrum. It has also been known as “Jeep Seat” historically. Frank bleeding is an uncommon complaint, as are constitutional symptoms or genitourinary



Figure 4

abnormalities. Pilonidal cysts and abscess most commonly affect males in the third decade of life.⁴

Patients generally appear well, often with nodular tenderness and drainage in the upper sacrum. The physical exam is notable only for cystic and granuloma formation in the gluteal cleft and midline skin pitting, with draining mucopurulent fluid and local congestion. Mild tenderness to palpation is not uncommon. In cases of an active pilonidal abscess, surrounding erythema and warmth may be noted. Vital signs are unlikely to be abnormal. The white blood cell count with differential can be expected to be normal or only mildly elevated. The most common pathogens from wound cultures of pilonidal cysts vary by source; however, cultures are not typically necessary.

Initial treatment includes incision and drainage of abscessed pilonidal cysts with cavity packing using iodoform gauze and routine follow up. Oral antibiotics are not usually required unless there is surrounding cellulitis. It should be expected for symptoms to recur without definitive treatment, i.e., removal of the hair nidus and surrounding granulation tissue, and hair follicles. Depilatory treatment with permanent laser hair removal has also been recommended to prevent sinus development.

Iodoform gauze was not used in this case due to several factors. Packing with iodoform requires frequent dressing changes, which is uncomfortable for the patient and often requires local anesthesia and additional oral pain medication.⁸ Secondly, the length and depth of the incision in this case would require

large amounts of iodoform gauze, which has little of the absorption capability needed in wounds that are expected to be moderate or heavily exudative. Lastly, Iodoform gauze, while bactericidal in nature, has properties that delay wound healing via lytic activity against collagen fibers.⁶

An alternate wound packing material was used in this case which addressed each of the constraints of using Iodoform gauze. The Hydrofiber packing utilized in this case was AQUACEL Ag, in a ribbon form and AQUACEL Ag SURGICAL sacral dressing. This material absorbs exudate and creates a gel which conforms to the cavity walls. Packing was easily removed due to the woven bonding used in production. This was removed on a weekly basis once the exudate decreased from the initial incision. The packing also provided broad spectrum coverage antimicrobial properties while maintaining the integrity of the newly forming epithelium and collagen fiber within the wound.⁷

The wound was not treated with topical antibiotics or other oil based products due to their inactivation of the silver material. The product is also

known as Hydrofiber, AQUACEL Ag, Versiva XC and is available in various sizes and lengths.

In situations where definitive care is not easily accessible and care may be limited, pilonidal disease may be effectively treated and managed until a higher level of care is feasible. A higher level of care may not be necessary at all. Applications for this method of primary care treatment and management may include military actions, providers in geographic isolation or humanitarian operations.

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Figure 5

Iodoform gauze removes necrotic tissue from pressure ulcer wounds by fibrinolytic activity. *Biol Pharm Bull*. 2012; 35(7):1048-53



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Using Adenosine in Diagnosis

Stephen A. Shiver, MD, FACEP



Stephen Shiver, MD, FACEP
sshiver@mail.mcgr.edu

Dr. Shiver is Associate Professor of Emergency Medicine and Residency Program Director at the Medical College of Georgia. Clinical and research interests include resident education, emergency ultrasound, airway, and trauma. In addition to his emergency medicine training, he completed a general surgery residency at Wake Forest University Baptist Medical Center and is board certified by the American Board of Surgery.

An elderly female was brought to the ED for evaluation of palpitations. On PE, she was noted to be quite tachycardic (150's-160's) but hemodynamically stable. A 12 lead EKG was promptly obtained and is pictured. The EKG shows a narrow complex tachycardia with a heart rate of 160/min and a machine read of supraventricular tachycardia (SVT). The ED physicians decided to pursue treatment with adenosine.

Discussion:

SVT is a very non-specific term, essentially including all rhythms that originate above the ventricles (all narrow complex tachycardias). Paroxysmal supraventricular tachycardia (PSVT) is another confusing, imprecise term. It is a bit more precise than SVT, however, in that it excludes atrial flutter, atrial fibrillation, and multifocal atrial tachycardia (MAT). Atrioventricular nodal re-entry tachycardia (AVnRT) makes up about 60% of PSVT.

But what about this EKG? Close scrutiny of the rhythm strip reveals a narrow complex tachycardia that is irregular. The main differential in such cases is atrial fibrillation (most common by far), MAT, and atrial flutter with variable conduction. Though somewhat difficult to see, there are discernible p waves with similar morphologies, which argues against both atrial fibrillation and MAT. The p waves seem to occur regularly with a rate of approximately 300/min, which is consistent with atrial flutter. Another clue to the presence of flutter is the heart rate. Anytime the heart rate is around 150/min, you must consider flutter as a diagnostic possibility. The rhythm is in fact atrial flutter with variable conduction. It is the variable conduction that is responsible for the irregularity.

Adenosine is a very potent AV nodal blocker with an extremely short half life (< 10 seconds). When given, it will transiently block AV nodal conduction thus dropping out ventricular activity and allowing atrial activity to be clearly seen. Adenosine is highly effective



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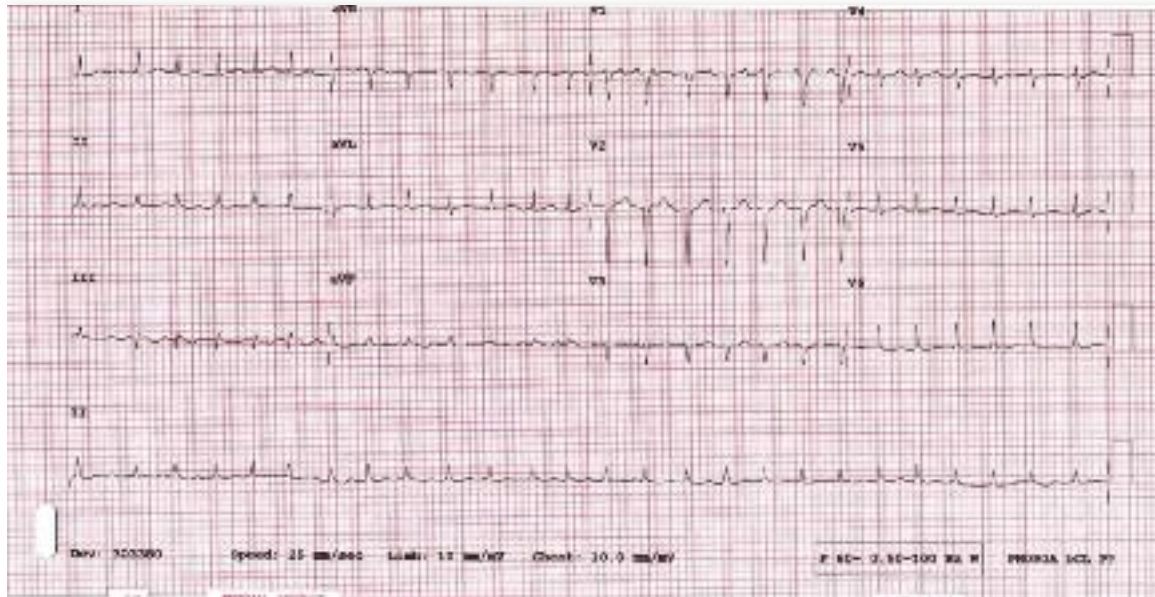
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in terminating re-entry rhythms that are dependent on the AV node. It will not terminate rhythms such as atrial fibrillation, atrial flutter, etc.

Take a look at the tracing obtained following the administration of 6 mg of adenosine IV. The p waves that could be easily missed on the original 12 lead EKG are now readily apparent, most prominently in V1. The p waves have a saw-tooth appearance and a rate of around 300, consistent with

atrial flutter. As would be expected, the patient did not convert to sinus rhythm with adenosine administration.

In retrospect, it is clear that the original EKG showed atrial flutter. In this case, the treating physicians were not certain of the diagnosis in real time and adenosine administration confirmed it. Adenosine is a powerful diagnostic and therapeutic tool in the setting of SVT.



Original 12 lead



Post Adenosine

Ultrasound Guided Regional Anesthesia: Part II

Richard Gordon, MD, FACEP and Daniel McCall, MD



Richard Gordon, MD, FACEP
rigordon@georgiahealth.edu

Dr. Gordon is an emergency medicine physician at Georgia Health Sciences University in Augusta, GA.



Daniel McCall, MD,
dmccall@georgiahealth.edu

Dr. McCall is an Emergency Medicine resident at Georgia Health Sciences University in Augusta, GA.

You are very busy in the emergency department have already seen three patients and you are thirty minutes into your shift when you get a call on the radio for a multiple vehicle accident with report of multiple musculoskeletal complaints ranging from lacerations, fractures, and dislocations. When the three patients arrive you find a complicated volar laceration over the 2nd and 3rd metacarpals extending proximal into the hand near the thumb on the first patient, obvious bony deformity of the proximal 5th metacarpal that will need to be reduced on second patient, as well as an open thumb fracture dislocation on the third patient. You are trying to decide the best way to provide anesthesia for your patients while managing the rest of the ED.

This issue of *Epic* is the second in a 2-part review of ultrasound guided regional anesthesia. The first part focused on the introduction and technique of ultrasound guided regional anesthesia. It also focused on lower extremity nerve blocks. This month's issue will focus on upper extremity nerve blocks. (Figure 1)

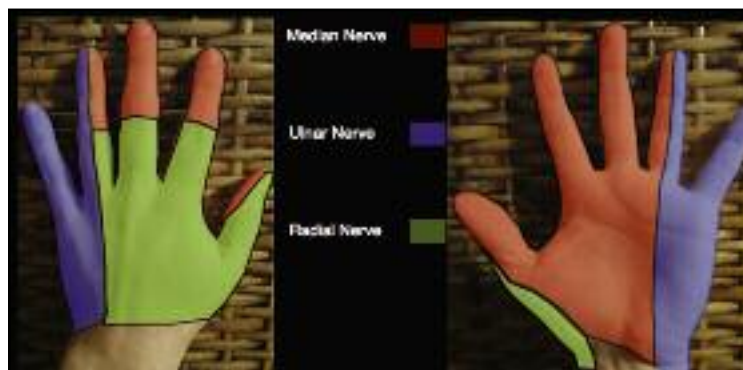


Figure 1

The indications for performing a nerve block include: acute pain management, and alternative to procedural sedation.

Contraindications to performing a nerve block include: allergy to local anesthetic agent, active infection at injection site,

injury at risk for compartment syndrome, uncooperative patient, pre-existent neurologic deficit, extreme obesity, anticoagulation (relative risk) and peripheral vascular disease.¹

Please review ultrasound guided regional anesthesia Part 1 for description of technique. The same fundamentals apply for the upper extremity.

Upper extremity nerve blocks have been used successfully in the ED. In a prospective study of a small and therefore limited convenience sample of 11 adult patients with hand pathology requiring laceration repair, foreign body removal, abscess incision and drainage, or fracture or dislocation reduction, emergency physicians who had undergone a 1-hour training session on forearm blocks performed a total of 22 blocks. All of the blocks were successful and rapid (median time to completion 9 minutes; interquartile range 6 minutes 30 seconds, 10 minutes 0 seconds; median 2 blocks per patient), none required rescue anesthesia or additional analgesia to complete the necessary procedure, median reduction in visual analog scale at 15 minutes was 5.0 (interquartile range 3.0, 8.0; $p=.003$) and none had complications.²

Ulnar Nerve Block- Forearm Approach

The ulnar nerve can easily be identified at the volar surface of the wrist. A high frequency linear probe with a very superficial depth setting is used to identify the ulnar artery.

The ulnar nerve will be a honeycomb structure typically just medial to the ulnar artery. Fanning the probe 10-20 degrees will aid with differentiating nerve tissue from flexor tendon (see *Ultrasound Guided Regional Anesthesia: Part 1*) Once the clinician has identified the ulnar nerve

and artery, he or she slides the probe proximal tracing the ulnar artery and nerve up the arm. Of note it may be necessary to increase the ultrasound machines depth setting to keep the nerve in the center of the screen. At approximately the middle 1/3 of the forearm the artery and nerve begin to separate. (Figure 2) Blocking the nerve at a site away from the artery decrease the chances of accidental arterial injury or intravascular injection. Furthermore, Blockade at this level increases chances of providing anesthesia of the dorsal and volar sensory branches of the ulnar nerve, this branch is about 5 cm proximal to wrist.³

A high frequency (10-18 MHz) linear array probe is used with appropriate depth adjustment. Needle is preferably inserted with an in-plane orientation, beneath the ulnar aspect of the transducer. This allows continuous visualization of the needle along its entire path. About 3-5 cc of local anesthetic is injected near the nerve with full anesthesia reached in 5-15 minutes. (Figure 2-3)



Figure 2



Figure 3

Median Nerve-forearm

The median nerve can be easily identified in the carpal tunnel. Scan with high-frequency (8-18 MHz) linear array probe using a superficial depth setting. Start scanning at volar wrist, at the level of the first carpal crease. Several fibrous structure are identified superficial to the carpal bones

including the flexor tendons and median nerve traveling through the carpal tunnel. Fanning the probe 10-20 degrees will aid with differentiating nerve tissue from flexor tendon (see ultrasound guided regional anesthesia part 1). Once the median nerve is identified at the level of the wrist it should be traced back to the mid forearm. (Figure 4) Blocking the



Image 4

median nerve at the level of the forearm ensures there is enough depth between the scan surface and nerve to clearly see the needle in long axis while guiding the needle to the nerve.

Needle is held in dominant hand, carefully insert into forearm. Identify needle tip. Advance slowly toward base of median nerve. Local anesthetic is injected to surround nerve. My need to readjust needle tip for adequate coverage. Typical block volume 5-7 ml.⁵⁻⁶ (Figure 4-5)



Image 5

Radial Nerve Block

The radial nerve can be most easily visualized using a high-frequency (8-18 MHz) linear probe at the level of the upper third of the humerus. Place the probe over the lateral head of the triceps muscle in transverse orientation and identify the hyperechoic edge of the humerus. After identifying the humerus slide the probe proximal or distal until the honey comb structure of the radial nerve is seen crossing immediately over the humerus. Upon identifying the radial nerve lying on the humeral shaft slide the probe an



Figure 6

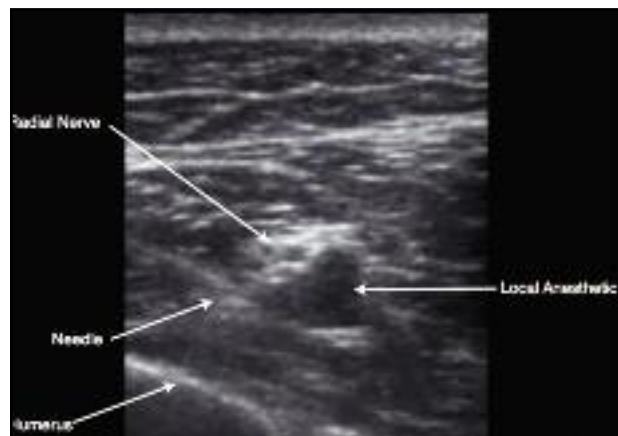


Image 7

additional 5cm distal until the radial nerve is no longer resting on the bony surface of the humerus. (Figure 6) Blocking the radial nerve at a location that the nerve is not immediately next to the bone will make the procedure less painful.

The needle is inserted through the skin from a lateral approach just under the probe surface. After identifying the needle tip, the needle is advanced slowly towards the base of the radial nerve. Inject local anesthetic to surround nerve. May need to re-adjust needle to superficial border to encompass nerve. Inject 3-5 ml and allow 15 min to achieve full anesthesia. (Figure 6-7)

Supraclavicular Nerve Block

Sensation between the wrist and shoulder is supplied by numerous small cutaneous branches that branch from the axillary, radial, ulnar, and median nerves as they travel through deep muscle compartments of the arm. Blocking specific cutaneous branches would be extremely tedious with a high failure rate given significant individual anatomic variance. With this in mind physicians elect to provide anesthesia between the shoulder and wrist using brachial plexus nerve blocks. It is also important to note that brachial plexus blocks will provide flaccid paralysis of the upper extremity for the duration of action of the selected anesthetic. This can be very helpful for relocation of fractures and dislocations of the upper extremity. Classically there are three brachial plexus

blocks including the interscalene block, supraclavicular block, and axillary block.

The axillary block provides poor anesthesia between the elbow and shoulder, it is performed in a highly vascular area, and finally it is performed at a brachial plexus branch point therefore, it is difficult to block all the nerves with a single needle stick. The supraclavicular and interscalene block on the other hand are both locations where the brachial plexus is tightly bundled together allowing for the physician to anesthetize almost the entire arm with a single needle stick. The interscalene block is most useful for dense anesthesia of the shoulder. On the other hand, the C8 T1 nerve roots are often missed leading to poor anesthesia of the medial forearm/hand.

It is the authors opinion that the supraclavicular block gives the provider the best chance to get good anesthesia/paralysis of nearly the entire upper extremity with a single needle stick. The trunks of C5-T1 are tightly bundled together as they traverse between the subclavian artery, clavicle, and 1st rib. This block is a great alternative to procedural sedation for carpal bone and elbow relocation, fractures that require relocation, complex lacerations, or large abscess of the upper extremity.

The supraclavicular block starts with proper positioning of the patient and preparation of the patient. The bed height, head elevation and machine should be positioned for good ergonomic technique. The patient should be prompted to look to the contralateral side of the block with the pillow positioned so that it does not interfere with the providers hand motions. After prepping the patient with antiseptic solution the provider places the ultrasound probe in the supraclavicular fossa with the medial portion of the scan surface just lateral to the clavicular head of the sternocleidomastoid muscle. The long axis of the probe will be between the coronal and sagittal plane of the body. The key landmark for orientation will be the subclavian artery. Immediately posterior

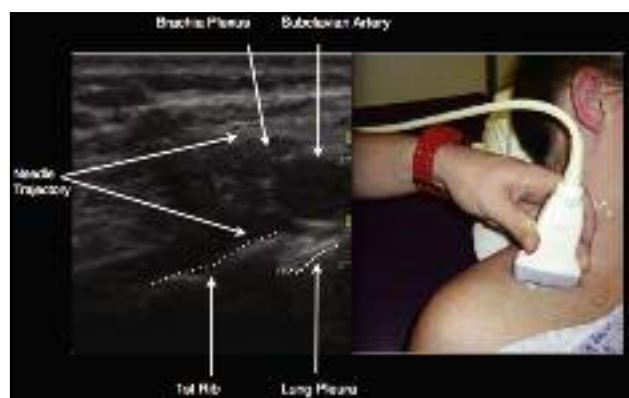


Figure 8

and lateral to the subclavian artery is the fascicles of the brachial plexus. (Figure 8) The fascicles of the brachial plexus are large resulting in a hypoechoic appearance compared to the smaller hyperechoic nerves traversing the muscle compartments of the upper and lower extremities. A 22 gauge spinal needle should be inserted with the long axis of the ultrasound probe about 1cm away from the scan surface. Local anesthetic should first be deposited between the brachial plexus and first rib/lung pleura. Placing anesthetic around the inferior border of the brachial plexus decreases chances of poor anesthesia to the C8/T1 distribution, which is the most commonly missed distribution with a supraclavicular block. The needle is then redirected superiorly for deposit of local anesthetic over the C5/C6 trunks. (Figure 9a-9b) A volume of 15-20ml of local anesthetic is adequate volume with time to maximal anesthesia is about 15 minutes. Duration of anesthesia is dependent of local anesthetic chosen by the clinician. As always the provider should be mindful of anesthetic concentration to avoid local anesthetic systemic toxicity.



Figure 9a

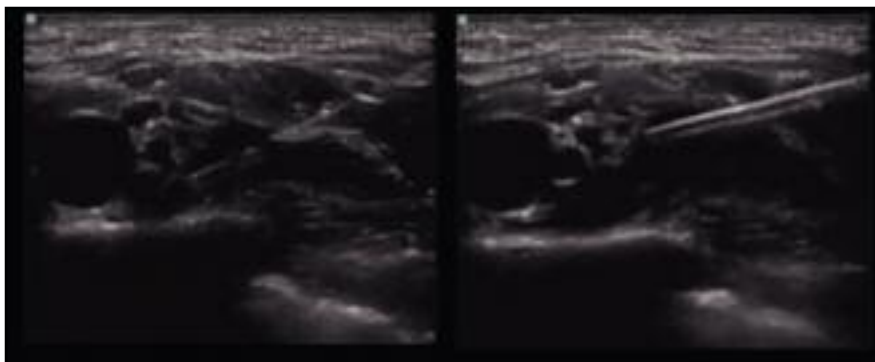


Figure 9b

Pearls and Pitfalls

- The supraclavicular block should be performed by clinicians who are experienced with performing ultrasound guided procedures. Advancing the needle tip without clear needle tip visualization can result in pneumothorax.
- Up to 50% of supraclavicular blocks result in simultaneous transient ipsilateral phrenic nerve palsy from anesthetic tracking back to the nerve roots. Very few patients are actually symptomatic. However, the patient with poor cardiopulmonary reserve may not be the best candidate for supraclavicular block.
- Discuss the case with consulting physician(s) before performing a nerve block on a patient who is high risk for compartment syndrome. Theoretically the anesthesia achieved could mask the development of compartment syndrome leading to delay in diagnosis.
- Before performing a nerve block be sure to perform and document a good sensory and motor exam.
- Be mindful of associated paralysis that comes with regional anesthesia. This is less important in patients who are non-weightbearing. However, in patients who may be discharged, the provider must consider that lower extremity blocks can significantly affect the ability to ambulate. Disposition should be a major factor in deciding between long acting and short acting anesthetic.
- The needle is most visible when parallel to the scan surface. Inserting the needle 1-2 inches away from the scan surface decreases the angle of approach to the target needle and enhances needle visualization.
- Not completely evacuating the needle and syringe of air could lead to local air injection. This greatly degrades visualization of the needle tip.

Conclusion

The emergency provider often utilizes local anesthesia and procedural sedation to facilitate the management of painful extremity pathology. However, regional anesthesia is another tool available that should not be overlooked. The ultrasound guided nerve block is a safe technique when done properly. Ultrasound guided regional anesthesia can also greatly improve emergency department throughput when substituted for procedural sedation.

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Should Family Members be Present During CPR?

Stephanie Lewis, MS-4, Mercer University School of Medicine and Richard L. Elliott, MD, PhD, Professor and Director of Medical Ethics and Professional, Mercer University School of Medicine

The following case was presented to our Medical Center of Central Georgia ED Ethics case conference December 2012 by Stephanie Lewis, MS-4, MUSM.

An 8-year-old girl with a history of an untreated third degree heart block came into our ED via EMS after she was found unresponsive at home by her father. On arrival of EMS, she had no pulse. They began Pediatric Advanced Life Support (PALS) and continued it en route to the ED. On arrival, she remained pulseless, and the code was called minutes later. During PALS in the ED, the ED attending was notified that the girl's father had arrived and would like an update. The attending had the girl's father brought to the room and started to tell him how grim the situation was. The father then went over and began to pat the girl and asked her to come back. He then left, understandably emotional.

Question

At what point is it acceptable for a patient's immediate family to be present during a code situation? Understandably, this father wanted information about his daughter, but would that have been more appropriate to give outside of the room? Having him present may have been a liability issue for the hospital as well—what if he had become angry or passed out? At the same time, this did give him the opportunity to say goodbye.

Is it harmful or helpful for the families of patients to be present during attempts to resuscitate a patient (FPDR)? Does the presence of families interfere with efforts to resuscitate, either directly if family members attempt to intervene, or indirectly by creating stress and anxiety in CPR team members? Do family members who are present during CPR benefit, or is there psychological harm from witnessing the sometimes bloody and even violent activities that occur during CPR?

Family presence during cardiopulmonary resuscitation was first proposed in 1987.¹ Yet, 26 years later, opinions are still divided on the answers to the questions posed above (though a majority of physicians seem to favor a policy that families should not be present during CPR.²) What are the ethical issues that attend this decision? What empirical evidence can we bring to bear on the decision to ask, or to allow, family presence during resuscitation?

Jabre et al recently published the results of a study examining the effects of allowing family members to be present during resuscitation in the ED.³ Contrary to the expectations of many physicians, family members who witnessed CPR had LOWER levels of post-traumatic stress disorder, depression, and anxiety 90 days after CPR. In addition, there was no effect of family presence during CPR on patient survival and emotional stress among medical team members, and there was no increase in medico-legal claims. While the results of the study may not generalize to other settings, there is at least some evidence that fears of emotional distress among family members who witness CPR may be exaggerated.

The ethical issues raised by family presence during resuscitation involve the principles of autonomy, non-maleficence, and beneficence. However, these principles must be modified when considering FPDR, as patients rarely express a preference for having family members present during resuscitation, and a primary consideration is potential effects of FPDR on family members themselves, with whom no formal doctor-patient relationship, and thus no duty of care, has been established.



Richard L. Elliott, MD, PhD
elliott_rl@mercer.edu

Dr. Elliott is professor and director of Medical Ethics at Mercer University School of Medicine in Macon, GA.

Stephanie Lewis

Stephanie Lewis is a fourth year medical student at Mercer University School of Medicine in Macon, GA.

The principle of autonomy refers to the right of patients to govern choices about health care. When a preference for or against FPDR has been expressed by a patient, it should be honored where practical. But preferences for or against having a family member to be present during resuscitation are rarely expressed explicitly, for example, as part of an advance directive. Thus the principle of autonomy is usually respected by relying on the wishes of a surrogate decisionmaker who attempts to act according to the wishes of the patient as surmised from other beliefs and wishes. At such times a specially designated team member can assist by asking family members about the patient, the patient's life, and expressed wishes regarding other aspects of health care. This information can be used to guide the family and team in making decisions about FPDR as well as other end-of-life decisions such as placement on a ventilator.

Although physicians do not strictly have an established doctor-patient relationship with family members, and thus no duty to care for them, compassion requires that the effects of CPR on these third parties be taken into consideration. It seems to be more common now, when family members ask to be present, to attempt to accommodate their wishes, especially when an existing hospital policy provides guidelines for having a hospital liaison present to provide explanation and support. In the case presented by our student, it was not the father who asked to be present, but the attending who asked for the father to be brought in. Care must be taken in such circumstances to avoid exposing family members to CPR if there is reluctance, as PTSD might be more likely when families believe participation is forced on them.

The principle of non-maleficence, not causing harm to a patient, applies to patients receiving CPR if family presence might adversely affect team performance and thus harm the patient. The Jabre et al study did not provide support for such adverse effects on patients, team members, or the outcome of CPR, but more studies will be needed to answer the question of effects of FPDR. But it is sometimes the case that family members present during CPR attempt to intervene, by speaking to staff or to the patient, or by touching the patient. Such interventions during complicated team efforts to perform CPR, insert lines, and administer medications can contribute to confusion and lead to worse outcomes and must be avoided at all costs. Thus an increasingly common recommendation is to have a hospital liaison team member accompany family members when they are present, to provide explanation and support, and to educate families about what they might witness and the need for restraint (see Porter et al for a discussion of this model⁴).

The principle of beneficence primarily refers to the need to provide help to a patient or to remove harm. If a patient is aware of the presence of family members and is comforted by their presence, FPDR should be encouraged, albeit with the presence of a trained hospital staff member. Further, the needs

of family members to be present during what might be the last moments of life for a loved one must certainly be considered if that is their wish.

What does the American College of Emergency Physicians (ACEP) have to say about FPDR? The Family Presence Fact Sheet states, among other things, that "[t]he option of family member presence should be encouraged for all aspects of emergency care."⁵ ACEP (along with the American Academy of Pediatrics and the American Heart Association) specifically endorses the option of FPDR for pediatric patients.⁶

In summary, ethical arguments favor creating policies and practices that enable family members to be present during resuscitation, especially for pediatric patients. Policies should provide precautions against families interfering with medical procedures, and should provide support for families who may be unprepared for witnessing events that occur during attempts at resuscitation. The availability of a specially designated team member to provide for education and support is encouraged, as is the education of team members who may be unaccustomed to the presence of family members during medical interventions.

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Time to Pay Your Fair Share

Setu Mazumdar, MD, CFP, President and Wealth Manager, Lotus Wealth Solutions

A few months back we went through our annual ritual of filing our income tax returns. This sounds a bit strange, but I wish I could file 2012's income tax return all over again this year, and next year, and the year after that—and you should too.

Why? Because last year's tax liability was significantly lower than what you'll be paying this year and from hereon forward.

For all of you who think the government has a revenue problem and don't mind paying more of your fair share, the time has come to put your money where your mouth is and cough it up. For the rest of you, bend over.

Let's take a look at the pain.

Income Tax Rates

The new tax law, insultingly called the American Taxpayer Relief Act of 2012 (I didn't do well on my verbal SAT but to me relief means less taxes not more, but what do I know!), now defines "rich" as making \$450,000 in taxable income or more. I know a number of EPs making more than that, so for those of you making \$250,000 or more please take off your "I'm rich" bumper stickers. You no longer meet the threshold.

Before this year there were six income tax brackets, but that's been expanded to seven, with the addition of a 39.6% bracket. Here's an estimate of how this breaks down for a married couple:

Taxable income	Tax bracket
Up to \$17,850	10%
Over \$17,850 but less than \$72,500	15%
Over \$72,500 but less than \$146,400	25%
Over \$146,400 but less than \$223,050	28%
Over \$223,050 but less than \$398,350	33%
Over \$398,350 but less than \$450,000	35%
More than \$450,000	39.6%

Let's think about what this means. I'd say most of you fall into the 33% bracket, but remember you've got to tag on your state income tax. If we assume you pay about 5% in state income tax, then you're paying about 38% in total income taxes on the amount of income that falls in the 33% bracket. For you evil rich EPs making more than \$450,000 you'll be at nearly 45%. Live in California or New Jersey? Try 50%.

How's picking up that extra night or weekend shift looking for you now? Not so appealing, huh?

Payroll Tax Triple Play

You're not even close to done. For the past two years if you were an employee, you got a temporary reduction in your payroll tax (Social Security tax) and paid 4.2%. That's now been upped back to 6.2%.

There's a cap on the amount of income that is subject to Social Security tax, but this year that amount has been increased from \$110,100 to \$113,700.

And to really nail it in, if you make more than \$250,000 (married) in wages, thanks to Obamacare you'll be subject to an additional 0.9% Medicare tax on top of the 1.45% you already pay as an employee. One more thing to remember is that unlike Social Security tax, there's no cap on Medicare taxes.



Setu Mazumdar, MD, CFP
setu@lotuswealthsolutions.com

Dr. Setu Mazumdar helps physicians like you make smart decisions about your money so you can take control of your financial life. He is President and Wealth Manager at Lotus Wealth Solutions, an independent fee-only wealth management firm in Atlanta, GA exclusively for physicians. Setu received his MD from Johns Hopkins School of Medicine and he is board certified in emergency medicine.

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Dividends and capital gains

If you own investments in taxable accounts, the rules for dividend and capital gains taxes have become more complex (imagine that: a tax law that makes your life more complicated. Who would've thought?)

There are now three dividend and capital gains tax rates:

0% if you fall in the 10% or 15% income tax brackets

15% if you fall in the 25% to 35% income tax brackets

20% if you fall in the dreaded 39.6% income tax bracket

On the surface it looks like only the last tax bracket gets hit with higher dividend and capital gains taxes since prior to this year everyone above the lowest two income tax brackets paid 15%.

This is where Obamacare strikes again. If you make over \$250,000 (married) then you've got to tag on another 3.8% Medicare investment tax on investment income, which includes capital gains and dividends. Your investments are now tied to healthcare policy.

Suppose you make \$350,000 (married) in income and generate \$20,000 in capital gains and dividends this year. Since you fall into the 33% tax bracket that \$20,000 is subject to the 15% tax, but you have to add another 3.8% Medicare investment tax. And don't forget state income tax (assume 5%). Your total capital gains/dividend tax bill: 23.8% or about \$4,800.

Other taxes

Politicians like to use phantom terminology like "expiration of tax cuts" instead of calling them what they are: tax increases. Two more examples of this apply to the new tax law:

1. There is now a phaseout of itemized deductions, which include deductions such as mortgage interest, charitable contributions, and others. It applies only to income taxpayers making more than \$300,000 (married). So the greater your income goes above that amount, the less deductions you can take. This phaseout indirectly pushes you into a higher income tax bracket.

2. The marriage penalty is back. Again, for higher income taxpayers you start falling into the higher income tax brackets sooner than you would if you remained two separate individuals. While I'm not suggesting you get divorced, it's another example of a stealth tax.

But beyond this remember that there is another hidden tax on all EPs: that's EMTALA and that's never going away. Effectively this means that when you include bad debt, EPs are actually paying over 50% of their income in taxes. For example suppose

you make \$300,000 and take on \$150,000 of bad debt (income you should have received but didn't get because of no pay patients). That means your income should be \$450,000. You paid a \$150,000 EMTALA "tax" and then on the remaining \$300,000 you paid another 30% (estimate), meaning that your total tax is about \$240,000. You've kissed half of your income goodbye!

What this means

The implications of the new tax law are clear: it's a more progressive tax system designed to punish higher income taxpayers. There are higher income tax rates, dividend tax rates, and capital gains tax rates on higher income individuals including EPs. There is also an interplay between new taxes (payroll taxes and Medicare investment tax) and income taxes, and hidden tactics that push your tax bracket even higher.

Practically speaking, unless your income has gone up significantly this year (doubtful), then you'll either have to save less and potentially retire later, work more now to make up for it, or cut your current lifestyle. None are very appealing options.

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