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Happy New Year, Back to Work

IN THIS ISSUE:

- Stop Insurance Company Mistreatment of Patients
- The Art of Osler
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From the President

Happy New Year, Back to Work

Matt Lyon, MD, FACEP

As we move into a new year, I'd like to highlight some of the GCEP events of 2015.

- Inaugural year for the Rural Emergency Conference – This conference targets physicians working in emergency departments in rural Georgia. We had over 70 participants this year and the conference will rotate locations between Athens (2016) and Valdosta (2017).
- We reached a milestone with the Medical Director and Leadership Forum, held at the Ritz Carlton Lodge at Lake Oconee in December. We had the largest attendance to date and will be moving to the main hotel next year. This conference continues to draw medical directors from around the state and this year we focused on issues that are important to all EM physicians around our state such as the psychiatric boarding problem.
- GCEP has successfully modified our legislative outreach to two legislative weeks were we have physician-representatives at the Georgia Capital for both Doctor of the Day as well as at a information booth. This transition has been very successful, allowing legislators to approach us for answers to legislative issues.
- The GCEP Journal, *the EPIC*, transitioned from a print publication to an electronic publication (the Spring issue will continue to be printed). This transition has allowed us to increase our circulation, add interactive features as well as save GCEP funds for other projects.
- The GCEP Board Manual was completed. This provides a "go-to" reference for all board functions and procedures. This was a large undertaking and will be a legacy for future Board Members and officers.
- The Board of Directors established a mentoring process. This process assigns board members with a mentor to aid them in both their personal leadership development as well as assuring the board member knows what their role is and how to be effective in their position.
- GCEP began an association with the American Association of Emergency Nurse Practitioners (AAENP). Representatives from the AAENP as well as the Society of Emergency Medicine Physician Assistants (SEMPA) are invited to the GCEP Board of Director Meetings.
- All of the Executive Members of the Board of Directors completed the second Strategic Retreat. At this meeting, we established the priorities of GCEP for 2015-17 term as well as identified threats and opportunities for our organization.
- Our Inaugural Leadership Fellowship Program graduated Mark Griffiths, MD, and Matt Astin, MD. The 2rd class fellows are Ben Lefkove, MD, and John Woods, MD. This yearlong training course focuses on leadership and development of leadership skills, preparing the GCEP leadership of future years. The Leadership Fellowship was developed and is guided by Dr. John Sy.
- John Rogers, MD, was elected Vice President of ACEP. This is a tremendous achievement for both Dr. Rogers as well as GCEP.
- John McManus, MD, was elected as Vice Speaker of the ACEP Council. This allows him to attend all ACEP Board of Director's meetings, giving Georgia 2 voices in the Board of Director meetings.

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Dr. Lyon is a Professor of Emergency Medicine at Georgia Regents University. He serves a Vice Chairman for Academic Programs, the Director of the Section of Emergency and Clinical Ultrasound and Director of the Emergency Ultrasound Fellowship. He is currently President-Elect for GCEP and Chairman of the Georgia Emergency Medicine Political Action Committee.

While I am proud of these accomplishments, we must look forward to the challenges that lie ahead of us.

It is easy as emergency physicians to work when we are at work and not think too much about the practice of emergency medicine when not at work. However, we are facing several large challenges to our practice. One issue, which we did not anticipate at our strategic retreat, was the proposition to ban balance billing. Really, this challenge is a result of insurance companies forming narrow physician networks, often leaving patients with emergency conditions to seek care at emergency departments that are out of network. This can leave the patient with a bill for care not covered by insurance. Unlike when the patients seeking non-emergency care and can explore if their physician is "in-network", patients with emergencies often do not have the time or the resources to assure they are using an "in-network" hospital. This is a complex issue. By having a strong physician-association in GCEP, we are able to have Emergency Physician experts work on solving this issue in a manner which is fair to the patient, emergency physician and the insurance company. This is just one of the many issues that GCEP is working on to improve the emergency care in Georgia. GCEP is your organization. Emergency Medicine is your profession. Get involved. Stay active. Thank you for your support.

Grady's New Emergency Department

Hany Atallah, MD, Medical Director, Grady Memorial Hospital

On Thursday, Dec 10th, Grady opened the first clinical phase of their $75 million ED remodel. Their new fast track area, waiting room, and ED entrance is now completed and operational. The project began in May 2015 and is scheduled to be completed in Jan 2017. Part of the new project includes a new external building of which the ground floor will expand the ED space. The upper floors of the building will include additional radiology space and office space.

The new space has been largely successful with a more comfortable waiting room and has improved the comfort of patients coming to the Grady ED. The next phase is scheduled to be completed and operational on February 1. The ground floor of the new building will house dedicated psychiatric treatment space and treatment space for prisoners. This will help improve the overall environment of care for the mental health population, prisoners, as well as the general public.

The combination of physical space improvements and operational improvements have allowed the Grady ED to decrease their door to provider time into the 45-60 minute range and has reduced the left without being seen while also improving the customer service scores in the ED. The additional space also includes dedicated xray space in the main ED as well as 2 new state-of-the-art CT scanners. Both a 128 slice and dual source 256 slice CT scanner are scheduled to be operational by February. This will be a welcome resource for the ED that also serves as the receiving area for many of the level 1 trauma center and comprehensive stroke center patients.

The current ED space was built in the 1990's and the volume at Grady has exceeded the capacity. The new ED will have 20 additional beds and will bring the room size up to current code. The emergency department construction is due to the generous gift from Bernie Marcus and the Marcus Foundation. If you have any further questions, please contact, Dr. Hany Atallah, Medical Director at hatalla@emory.edu

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From the Immediate Past President

Stop Insurance Company Mistreatment of Patients

An Open Letter to the Georgia Legislature

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On behalf of the 800 emergency physician members of GCEP and the 9 million patients that we treat annually in our emergency departments, I beseech you to help us stop the insurance industry's mistreatment of patients and their refusal to work with us to end the need for out of network balanced billing.

We share the concern over the out of pocket expenses that patients are required to pay for emergency care. These out of pocket expenses are the result of cost shifting mechanisms by the insurance industry. We look forward to an opportunity to work with you and with the insurance industry to develop a system and process that will ensure patients are receiving the full benefit from their premiums and physicians are being paid fairly for caring for them.

Emergency medicine is unique compared with other specialties. We see anyone, anytime, with any problem, without regard to their ability to pay or their insurance status. We do so 24 hours a day, 7 days a week, 365 days a year. We embrace this, our EMTALA mandate, as our professional, moral, and ethical obligation. In so doing, each of us provides more than $150K in uncompensated care per year, far more than those in any other specialty.

Let us not confuse facility charges with those of the emergency physician. Our charges have not unreasonably increased and have not been manipulated because of some recent license to balance bill. Physicians have always balanced billed. It is the amount, the percentage that insurers now require patients to pay out of pocket that has changed. This extra out of pocket expense now required by the insurers is the *surprise* that many patients face.

Since 1999 wages have increase by 47% but healthcare insurance premiums have increased by 172%, nearly 4 times as much. During the past few years, in an effort to hold down costs and premiums, insurers have shifted more of the cost of care to patients. They do so via high deductibles, co-pays, and co-insurance mechanisms that are complex if not incomprehensible. Patients do not understand their obligation to pay out of pocket. Nor should patients delay emergency care and put their lives in jeopardy out of concerns about these costs.

When patients come to the ED we are not thinking of their insurance status, whether they are in or out of network, or the amount of uncompensated care we may be providing, we are thinking only of caring for them during their immediate crisis. This is as it should be.

Only 4-7% of ED visits are out of network with less than $100 balance on average to be paid by the patient. However when extrapolated and multiplied for all patients, if emergency physicians were not allowed to balance bill, the amounts we would absorb in addition to the amounts we already provide in uncompensated care, is unreasonable and many practices would be unsustainable.

The safety net of emergency care is being shredded by loss of hospitals and emergency departments, particularly in rural areas, as we have seen here in Georgia. Patients and communities suffer when hospitals close. They suffer not only economically, but with their health, and with their lives. The citizens of Georgia deserve to have the emergency care safety net preserved and one part of that preservation is ensuring adequate payment to physicians for the services they provide.

Based on our research we found that over $575 million dollars was shifted from insurers to patients in 2013. This is the *surprise* many patients face and one their insurance carrier has inadequately explained to them.

The majority of insurers contract fairly, but some do not. Thus negotiations for fair payment must be done using clear, transparent data such as the FAIR Health database to avoid the kind of problems exposed during the Ingenix debacle in NY. Ingenix was an insurance industry database that was used to determine usual and customary rates (UCR) in New York. In 2009 then Attorney General Cuomo found that insurers used artificially low UCR to justify underpayments to physicians. Aetna was fined $120 million and United Healthcare $350 million, for these activities. Ingenix was dismantled and the FAIR Health Database was created.

We believe emergency medicine should be a necessary covered benefit with a small out of pocket expense for all plans whether the provider is in or out of network.

We believe insurers must do a better job of explaining and educating their clients on the out of pocket expenses they will incur.

We are willing to negotiate with insurers using valid, transparent data and are ready to work to resolve this growing crisis with you, and with the insurance industry, for the benefit of our members, the patients we serve, and the citizens of Georgia.

A Closer Look at the Airtraq for Pediatric Video Laryngoscopy

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Three video laryngoscopes are marketed for the entire spectrum of pediatric patients. The first two, the GlideScope® and the Storz C-MAC® are well known. The third, the Airtraq® (Prodol, Vizcaya, Spain), is the lesser known video laryngoscope. Recently, I had the opportunity to become more familiar with the Airtraq when one of my YouTube videos of an adult Airtraq intubation caught the eye of a salesman for Airtraq. The Airtraq salesman contacted me and subsequently sent for my review the entire size spectrum of the latest Airtraq equipment. Coincidentally, our pediatric emergency medicine section had a journal club that studied two pediatric video laryngoscopy (VL) articles.[1,2] The bottom line of those reviews was that there seems to be some issues with video laryngoscopy when it comes to pediatric patients. While all of the products give a much better view of the glottis, the time to intubation is often longer and there are increased failures compared to direct laryngoscopy (DL).[1] After my hands-on introduction to the Airtraq, I returned and paid specific attention to the Airtraq commentary in these two (a meta-analysis and a review) articles. What immediately caught my attention was that the Airtraq was consistently more favorably described in contrast to the other two video laryngoscopes. Out of curiosity I researched and reviewed all of the published English literature that discussed the Airtraq and pediatric patients. Additionally, I spent time in our simulation laboratory practicing with the various pieces of Airtraq equipment. So, here is what I learned.

Airtraq versus Conventional DL

The Airtraq, in general, appears to compete successfully in comparison to the Macintosh blade. A meta-analysis of 12 articles and 1061 patients by Lu et al. provided strong, consistent evidence that the Airtraq laryngoscope reduced esophageal intubations significantly as well as the time to intubation by both novices and experienced anesthetists.[3] The Airtraq increased the first attempt success rate only in novices. However, this meta-analysis did not specify pediatric patients. But, a small prospective pediatric study performed in the operating room setting also suggested that the Airtraq may have advantages in terms of shorter time to intubation, improved visualization, and reduced rates of esophageal intubation.[4] In another pediatric study Riad et al. reported that the Airtraq decreased intubation time, number of attempts, and optimization maneuvers and less heart rate changes during intubation compared with the Macintosh laryngoscope in a series of 50 children (2 to 10 years of age with a mean age of 6.1 years).[5] In another study comparing the Airtraq (AT) with the direct laryngoscope 49 children under five years of age were randomized to either AT or DL. Time to intubation was about 4.5 seconds slower for the Airtraq and the first attempt success rate was lower with the Airtraq (100% for DL versus 83% for Airtraq). However, the author pointed out that the participating anesthesiologists who were very experienced with DL had only limited manikin training and only five human exposures to the AT prior to the study. The authors concluded that that the AT optical laryngoscope can quickly and easily provide superb views of the pediatric larynx, but that the pediatric AT intubation was "not quite as easy as hoped." And, they pointed out that "learning the basic AT technique and the required pediatric modifications takes practice and experience."[6] In a study by White et al. patients in the Airtraq group had a statistically significantly longer intubation time than those in the conventional laryngoscopy group. However, the Airtraq resulted in a better POGO (percentage of glottis opening) score and visual analogue scores for field of view compared with conventional laryngoscopy in infants.[7] On average, the Airtraq took 20 seconds longer for intubation, but whether or not this was clinically significant was considered debatable as none

of the children experienced drops in saturation less than 90% or experienced any adverse events. Again, the issue of anesthesiologists highly experienced with DL but with only 10 intubations with the Airtraq prior to the study was discussed. Interestingly, subgroup analysis showed that the time to intubate in infants under six months was no different for the Airtraq from conventional DL.[7] On the other hand, in the meta-analysis and pediatric literature review by Sun et al. in regards to five different VLs compared to DLs in pediatric patients, only the Airtraq did not appear to increase time to intubation.[1] In another pediatric anesthesia article published in 2011 the new devices for indirect laryngoscopy of the difficult pediatric airway in children younger than two years of age were reviewed. The author pointed out his perspective of possible challenges with the Airtraq.[8]

"We have successfully used the Airtraq in infants after failed intubation by direct laryngoscopy. It is important to lubricate the endotracheal tube, but despite this it may be difficult to determine whether resistance against advancement of the endotracheal tube is caused by the guide channel, an incorrect angle of the endotracheal tube, or a too large tube diameter. The Airtraq may be useful in infants, presuming the space required in the mouth and larynx is available."

Airtraq versus Other Video Laryngoscopes

Additionally, there are studies comparing the Airtraq to the other video laryngoscope options. A small randomized pilot study published in 2012 compared the Airtraq (AT) versus the Storz video laryngoscope (SVL) in ten children under two years of age scheduled for elective cleft lip/palate surgery.[9] In this study the time to intubation was 29.0 sec for the SVL and 15.8 sec for the AT. And, in two of five patients randomized to the Storz video laryngoscope two intubation attempts were needed. Published research abstracts describe comparisons of the Airtraq and the Glidescope in two small patient series. Dobby et al. described retrospectively their experience with a series of difficult pediatric airways using the Airtraq or Glidescope.[10] In that research abstract it was stated that anesthetists using the Airtraq appeared to not only achieve intubation with a greater first and second time success rate, but also achieved this in patients with a more difficult airway. And, pediatric anesthetists successfully achieved intubations even when they had had less previous operating experience with using the Airtraq compared with the Glidescope. However, the overall failure rate of intubation in these patients with a documented Cormack and Lehane grade III or IV that led the led the anesthetist to use an alternative piece of airway was 15% in both the Airtraq and Glidescope groups. And, when failure occurred, the fiberoptic scope was the most commonly used alternative for obtaining the difficult airway. A second abstract by Iqbal et al. found that in novices (medical students) intubating a simulated difficult airway, the Airtraq was faster than the Robertshaw, had significantly improved grades of view, required less use of adjuncts, and was found more acceptable by the participants.[11]

Airtraq and Airway Rescue

Finally, there is clinical evidence that the pediatric Airtraq can be a useful adjunct for airway rescue in the management of complicated airways in a third world setting.[12] Seven chronically malnourished children scheduled for cleft palate or palatal surgery were intubated with the Airtraq. Two of the children were premature. In all cases the pediatric Airtraq provided a good view of the vocal chords and allowed a first attempt intubation within approximately 30 seconds.[12]

Discussion

Based on my review of the literature and hands-on experience in the simulation laboratory, it seems that the problems with the Airtraq have more to do with understanding the procedural differences of the equipment and gaining familiarity with this unique airway tool. In reality, the evidence would suggest that the Airtraq very quickly and easily gets superior views of the pediatric glottis. The challenges appear to come from functional differences with this airway tool. The Airtraq blade is shaped to ensure a direct view of the glottis. The scopes proximal viewfinder shows images captured at the distal tip of the oropharyngeal blade through a series of lenses, prisms, and mirrors. Its insertion is performed through the midline of the mouth following the curvature of the tongue. Care must be taken to not to push the tongue posteriorly and thereby worsen your view of the glottis. It is recommended that at the moment the Airtraq is inserted into the oral cavity that the operator begin viewing the eyepiece or screen to follow the airway anatomy sequentially to avoid image confusion. To view the vocal cords, the Airtraq blade can either be placed in the vallecula or be used to lift epiglottis. The laryngoscope has two parallel channels. There is the optical channel containing the prism components to allow indirect viewing and the guiding channel through which the endotracheal tube (ETT) is advanced. This endotracheal tube channel seems to be both the glory and bane of the Airtraq. In contrast to the C-MAC and Glidescope, this channel allows for an easier manipulation of the endotracheal tube within the small pediatric oral cavity. For the other VLs the challenge is the added size of the endotracheal tube within an oral cavity already partially filled with the laryngoscope. However, failure to lubricate the ET tube can make advancement resistance confusing as to the source. Additionally, blade and ET tube adjustments are sometimes necessary when the tube directs and passes

posteriorly. Initially, when a curved tracheal tube is advanced from the Airtraq, the tube passes below the tip of the device and then with further advancement upward movement towards the glottis occurs.[13] Failure to recognize this point causes failed intubations, but is also easily corrected by lifting the airtraq and maneuvering slightly away from the epiglottis.[13] In other words, if the endotracheal tube does not move in the desired direction, the Airtraq should be repositioned (most commonly by lifting and not rocking the device) or the ET tube can be maneuvered to the right or left within the channel. And, importantly, even though the stylet is not routinely used with the Airtraq, insertion of the stylet (with distal curvature) may stiffen a more malleable tube and allow for successful ET tube positioning.[14] In fact, this problem may be exacerbated when a thin flexible ETT is used in the infants. Consequently, the application of a stylet in the face of a failed neonatal intubation has been described as a highly successful adjustment maneuver.[15] The last steps of intubation include slowly advancing the ETT in the lateral channel until it is visualized passing through the vocal cords. After confirming depth of insertion, ETT cuff is inflated as usual. Finally, the ETT is separated from the Airtraq. This is done by holding the ETT in position and pulling the Airtraq laterally from the tube. The Airtraq has a heating system at the light source and the camera that prevents fogging. Consequently, the device must be turned on for at least 30 to 60 seconds for this feature to be fully effective. A blinking light becomes a solid light once the anti-fog system is fully activated. For the pediatric patient the Airtraq comes in two color coded sizes. These are the grey "Infant" (size 0) which accommodates tube sizes 2.5-3.5 and the purple "Pediatric" (size 1) that accommodates tube sizes 3.5-5.5. A mouth opening of 11-12 mm is needed for both laryngoscopes sizes, respectively. (Figure 1)

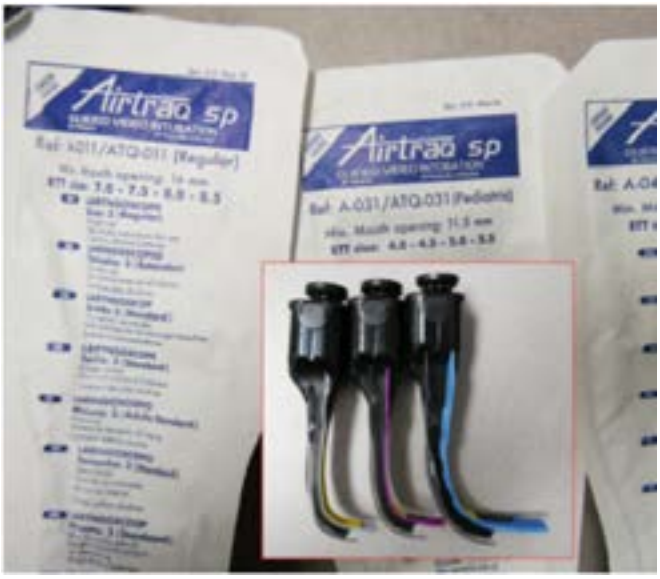

Figure 1: Pediatric sizes (grey infant and purple pediatric) and the regular size (blue) of the color coded Airtraq SP.

In reality, by definition this optical laryngoscope is not a true VL, but it can easily be connected to a 7 cm external video monitor or use the Wi-Fi capable 2.8 inch camera hood to project images to your smart phone or tablet. (Figure 2.)

And, importantly, the cost of the Airtraq is comparatively much less. There are primarily two Airtraq products, the Airtraq Avant and the Airtraq SP. The pediatric and infant sizes are only available in the SP model. The Airtraq Avant includes reusable optics and disposable blade combo. The SP model is entirely disposable. The prices for the SP model quoted to me are as follows: All sizes of SP (6 total sizes) are $79.00 each and come in cases of 6. A-360 Wi-Fi camera is around $800-900 USD and the A-307 smartphone adapter is approximately $40.00. Of course, if pediatric intubations were performed daily with the Airtraq, the costs could become comparable to the other video laryngoscopes. However, even the busiest pediatric emergency departments, pediatric intubations are not everyday occurrences. Consequently, even if the Airtraq was used for every intubation, it is highly unlikely that the cumulative costs would approach that of the other available products. And, if the Airtraq is used only for the difficult or failed intubations, the Airtraq is unquestionably the most cost-effective alternative of the three pediatric video laryngoscope options.

Finally, since pediatric intubations are relatively straightforward, it's entirely possible that some might even question the need for a pediatric video laryngoscope. Unfortunately, the evidence suggests that pediatric emergency department clinicians may over estimate their skills and exaggerate first pass success rates. An important article confirmed this fact using video documentation of intubations in a busy pediatric emergency department.[16] The authors found that first-attempt failure and adverse effects were much more common than previously reported for pediatric emergency patients, despite their being cared for in a high-volume, tertiary care pediatric emergency department.[16] Because pediatric intubations are relatively uncommon, it is quite possible that pediatric intubation skillsets cannot be adequately maintained.[17] Additionally, even pediatric anesthesiologists will acknowledge that there are some pediatric airways that cannot be intubated using direct laryngoscopy. Consequently, emergency medicine providers must have a plan for managing these inevitable pediatric airway disasters. And, that plan, if possible, should include a video laryngoscope option.

Figure 2: Various viewing options marketed for the Airtraq SP

https://www.youtube.com/watch?v=ZAgjnh59ibc

Summary

In summary, based on the literature it appears that the lesser known of the three video laryngoscopes marketed for pediatric patients, the Airtraq, is actually a very strong contender. In fact, I found no damming information and any problems with the Airtraq appear to involve either lack of experience or understanding of appropriate technique or there are relatively easy work arounds. My experience in the simulation laboratory seemed to confirm the potential issues involved and the ease of applying the recommended work arounds.

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Pediatric Pneumonia Guidelines: Inconsistencies Between Guidelines, Scientific Evidence and Clinical Practice

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In 2011 the Pediatric Infectious Diseases Society (PIDS) and the Infectious Diseases Society of America (IDSA) and the British Thoracic Society (BTS) created extensive guidelines with recommendations for the management of community acquired pneumonia in children.[1,2]

There are a number of recommendations in these guidelines that seem to conflict with the evidence presented in the guidelines and elsewhere as well as clinical experience. The perceived disagreement between guidelines and clinical practice may be ours alone, but here are our thoughts and observations.

In order to accomplish this discussion we have provided as succinctly as possible framed quotes from the guidelines that are well documented with references in the actual papers. Our response to and discussion of the conclusions made by the writers of the guidelines follow in subsequent paragraphs. Although extensive references were not required as we are making the point that the guideline's recommendations seem to be odds with their own references, we hope our discussion will encourage the reader to review the actual guidelines to confirm for themselves whether or not our criticisms are valid.

Are Children Under 2 Years of Age at Increased Risk or Not?

A theme that is found in both guidelines is that the vast majority of infections in preschool children and especially under two years of age are viral infections. Both guidelines make recommendations that minimize investigations and interventions when viral infections are the suspected etiology. For the sake of brevity we will need to summarize the Pediatric Infectious Diseases Society (PIDS) and the Infectious Diseases Society of America (IDSA) and the British Thoracic Society (BTS) statements.

PIDS/IDSA
41. Antimicrobial therapy is not routinely required for preschool-aged children with CAP because viral pathogens are responsible for the great majority of clinical disease. (strong recommendation; high-quality evidence)

BTS
< All children with a clear clinical diagnosis of pneumonia should receive antibiotics as bacterial and viral pneumonia cannot be reliably distinguished from each other. [C]

< Children aged <2 years presenting with mild symptoms of lower respiratory tract infection do not usually have pneumonia and need not be treated with antibiotics but should be reviewed if symptoms persist. A history of conjugate pneumococcal vaccination gives greater confidence to this decision [C]

However, the differentiation of viral versus bacterial pneumonia is often not easily accomplished. And, combined bacterial and viral pneumonias are actually quite common in these younger children.

PIDS/IDSA Guidelines

CAP in children in the United States, the focus of these guidelines, is defined simply as the presence of signs and symptoms of pneumonia in a previously healthy child caused by an infection that has been acquired outside of the hospital.

In many children with LRTI, diagnostic testing may identify 2 or 3 pathogens, including combinations of both viruses and bacteria, making it difficult to determine the significance of any single pathogen.

BTS

- *One-third of cases of CAP (8-40%) represent a mixed infection.*
- *Mycoplasma is not unusual in children aged 1-5 years.*

Additionally, the presented evidence would suggest that these younger CAP patients are actually at the highest risk for hospitalization and disease associated morbidity and mortality.

PIDS/IDSA

Pneumonia is the single greatest cause of death in children worldwide. Each year, >2 million children younger than 5 years die of pneumonia, representing ~20% of all deaths in children within this age group. Although difficult to quantify, it is believed that up to 155 million cases of pneumonia occur in children every year worldwide.

In the United States, outpatient visit rates for CAP between 1994–1995 and 2002–2003 were approximately 8% of US outpatient visits of 2 year olds were given the diagnosis of pneumonia while approximately 4% of US outpatient visits of 3-6 year olds were diagnosed with pneumonia.

The dramatic impact of pneumococcal vaccination on the incidence of community acquired pneumonia in children under two years of age is additional evidence that while viral infections are common, bacterial infections are also very common. The guidelines report that there has been a 20-30% decrease in the diagnosis of pneumonia in children in most areas. The guidelines also point out that a recent study of PCV11 showed a substantial reduction of 32% of pneumonias in those under one year but less than a 3% decrease in those that were 12-23 months old.[1] For children over the age of 2 they reported only a 9.1% reduction.[1] This evidence shows that the bulk of the benefit for the vaccine is to reduce pneumonia in those under 12 months.

The pneumococcal vaccine clearly does a great job in reducing the burden of illness in our most vulnerable patient population, young infants. However, there appears to be only a modest reduction in admissions for those over the age of 12 months. There is almost no change in the admission rate for those between 12 and 23 months.

Inconsistencies

Both the PIDS/IDSA and BTS guidelines seem to emphasize the role of viral infections in children under two years of age. The PIDS/IDSA guidelines even state that antimicrobial therapy is not routinely required for preschool-aged children with CAP, because viral pathogens are responsible for the great majority of clinical disease. However, the overwhelming evidence is that even though viral infections are common, bacterial infections are also common as are viral and bacterial co-infections. Additionally, atypical pneumonias are not rare and the population at most risk of morbidity and mortality from CAP are less than two years of age.

The existence of common bacterial co-infection with children with viral pneumonia complicates their treatment. In recent years there has been an increasing availability of rapid viral panels. Some of these panels focus only on a single virus such as influenza but many test for a wide variety of viral pathogens. The common

BTS

The incidence of all-cause and pneumococcal pneumonia in children aged <2 years and pneumococcal pneumonia in children aged 2-4 years decreased in the USA after pneumococcal vaccination (PCV) became universal. In the UK, admission rates for childhood pneumonia decreased by 19% between 2006 and 2008 to 10.79/10 000 following the introduction of conjugate pneumococcal vaccine (PCV7) to the national childhood immunisation programme.

The effect is most striking in the first year with a 32.2% reduction, and a 23.4% reduction in the first 2 years. A recent study of PCV11 found that, although 34% of radiologically-confirmed pneumonias were prevented in children under 1 year, there was only a 2.7% decrease in those aged 12-23 months. In children aged >2 years there was only a 9.1% reduction. A Cochrane systematic review found a pooled vaccine efficacy for PCV11 of 27% for reduction of radiographically-confirmed pneumonia in children <2 years and 6% for clinical pneumonia.

Evidence statements

- *S pneumoniae is the most common bacterial cause of pneumonia in childhood]*
- *S pneumoniae causes about one-third of radiologically confirmed pneumonia in children aged <2 years.*
- *The introduction of PCV7 has dramatically decreased IPD due to vaccine serotypes in the UK, but a steady increase in vaccine serotype replacement is evident in the UK.*

co-existence of bacterial co-infection should cause a provider to pause prior to withholding antibiotics in a child with a positive viral panel, especially if that child appears ill.

Downplaying Chest Radiographs in the Face of Evidence

Both guidelines recommend against obtaining chest radiographs for the confirmation of suspected CAP.

PIDS/IDSA

31. Routine chest radiographs are not necessary for the confirmation of suspected CAP in patients well enough to be treated in the outpatient setting (after evaluation in the office, clinic, or emergency department setting). (strong recommendation; high-quality evidence)

32. Chest radiographs, posteroanterior and lateral, should be obtained in patients with suspected or documented hypoxemia or significant respiratory distress (Table 3) and in those with failed initial antibiotic therapy to verify the presence or absence of complications of pneumonia, including parapneumonic effusions, necrotizing pneumonia, and pneumothorax. (strong recommendation; moderate-quality evidence)

BTS

- *Chest radiography should not be considered a routine investigation in children thought to have community acquired pneumonia (CAP). [A-]*

- *Children with signs and symptoms of pneumonia who are not admitted to hospital should not have a chest x-ray. [A-]*

However, both guidelines also clearly presented evidence that the clinical diagnosis of pneumonia without a radiograph is very difficult. While there are clinical clues suggestive of pneumonia such as increased respiratory rate and cough, these are very nonspecific and insensitive. The British Thoracic Society (BTS) guidelines reported that 82% of 1848 chest radiographs obtained in a Pakistani study that was based on the WHO criteria of tachypnea without 'danger symptoms' were classified as normal and commented that *"Other studies have drawn similar conclusions."*[2]

Inconsistencies

The diagnosis of pneumonia without a chest radiograph in children is a foreign concept to most clinicians. Experienced clinicians might willingly diagnose pneumonia without a radiograph in the presence of rales or crackles on auscultation. However, the diagnosis of pneumonia based on respiratory rate and cough as described in the guidelines is a clinical guess at best. It is very common for a child with a viral upper respiratory infection to have tachypnea recorded on triage vital signs, especially if the child is crying or febrile. Intuitively, it would appear that over diagnosis and over treatment of simple respiratory tract infections misdiagnosed as pneumonia would be the natural outcome of this approach.

It is also unclear if data and guidelines for resource poor countries should be applied in areas where radiographs are easily obtainable. The minimal radiation exposure of a chest radiograph should be considered but is unlikely to prevent a clinician from getting a radiograph. The need for good antibiotic stewardship and risks of overuse of antibiotics by clinicians rarely obtaining radiographs seems to be of much more concern.

Atypical Pneumonias and Preschool Children

Both PIDS/IDSA and BTS guidelines acknowledge that contrary to past teachings preschool children actually are infected relatively commonly with the pathogens responsible for atypical pneumonias. However, while the guidelines recognize these infections as being substantial, their recommendations do not seem to adequately address the management of these infections.

Inconsistencies

While both groups acknowledge that there is growing evidence that *M. pneumoniae* and *Chlamydial pneumoniae* infect a substantial number of preschool children, both guidelines had difficulty giving clear recommendations on how to address this very real possibility.

PIDS/IDSA

Tachypnea is a nonspecific clinical sign, but may represent a marker for respiratory distress and/or hypoxemia. "Rapid breathing as perceived by the mother" was statistically associated with hypoxemia in a study of children with pneumonia. An increase in the age-specific respiratory rate or tachypnea has been linked to treatment failure in children with severe pneumonia in the developing world. Although tachypnea in infants with pneumonia may correlate with presence of hypoxemia, tachypnea may also be caused by fever, dehydration, or a concurrent metabolic acidosis. In a study from a pediatric emergency department in Boston of children <5 years old undergoing chest radiography for possible pneumonia, the respiratory rates for those with documented pneumonia did not differ significantly from those for children without pneumonia. However, of children with WHO-defined tachypnea, 20% had confirmed pneumonia, compared with 12% without tachypnea.

For resource-poor regions of the world, the World Health Organization (WHO) defines pneumonia primarily as cough or difficult breathing and age-adjusted tachypnea: (age 2–11 months, >50/min; 1–5 years, >40/min; >5 years, >20 breaths/min). Furthermore, severe pneumonia is defined as "cough or difficulty breathing plus one of the following: lower chest indrawing, nasal flaring, or grunting." Very severe pneumonia is defined as "cough or difficulty breathing plus one of the following: cyanosis, severe respiratory distress, inability to drink or vomiting everything, or lethargy/unconsciousness/convulsions." Such definitions of various levels of severity and studies to validate interventions for each level of severity are not well characterized for children living in resource-rich areas of the world.

PIDS/IDSA

"The age at which one should begin to strongly consider M. pneumoniae as the cause of CAP is not well defined. M. pneumoniae is increasingly being diagnosed serologically as a cause of LRTI in young children.

BTS

"Mycoplasma is not unusual in children aged 1-5 years."

A study of 154 children by Michelow et al. found that, as has been proposed more recently, preschool children are just as likely as those of school age to have atypical pneumonia. There are likely to be geographical variations in these findings."

"Improved short- and long-term outcomes have been described in children with respiratory tract infections (a mixture of upper and lower by clinical diagnosis) treated with macrolides compared with those not treated. Of those children with lower respiratory tract infections due to M pneumoniae and/or C pneumoniae assessed as 'clinical failures', 83% had not been treated with macrolides.

"< Macrolide antibiotics may be added at any age if there is no response to first-line empirical therapy. [D]

< Macrolide antibiotics should be used if either mycoplasma or chlamydia pneumonia is suspected or in very severe disease.[D]"

For years the teaching has been that these infectious agents were rarely found in infants and young children. The recognition that *M. pneumoniae* and *Chlamydial pneumoniae* infections are relatively common infectious agents in preschool children and infants is relatively recent knowledge. Unfortunately, it seems that the greater abundance of evidence for these infections in older children and adolescence continues to dominate these guidelines. The lack of strong evidence for treatment effectiveness and diagnostic tools for differentiating the infection from other lower respiratory tract infections in younger children results in guidelines that do not seem to fully address or acknowledge these infectious organisms that may be responsible for nearly a quarter of the community acquired pneumonias.

Conclusion

- While the guidelines emphasize viral infections in the youngest patients and withholding antibiotics, the evidence shows that bacterial infections are also very common and that the morbidity and mortality of pneumonia are greatest for children under two years of age.
- Strong evidence exists that confirm combined bacterial and viral infections are common. And, the greatest benefit from the pneumococcal vaccine occurred with children under two years of age. These observations would strongly suggest that withholding antibiotics should only be performed when the clinician can be confident that the condition is most consistent with a solitary viral infection. Unfortunately, it is unclear at this time how to establish this diagnosis.
- Existence of a viral infection does not rule out co-existent bacterial infection. Cessation of antibiotics should not be based solely on a positive viral panel, especially if the child appears ill.
- It is very challenging to accurately make the diagnosis without a chest radiograph. While it may be very appropriate to not obtain a chest radiograph in resource poor settings, we fear that the diagnosis of pneumonia with only the presence of cough and tachypnea will lead to an increasing overuse of antibiotics. Due to chest radiographs not being perfectly sensitive for pneumonia, clinicians may still consider the diagnosis of pneumonia based on physical examination findings alone. This seems very reasonable in ill appearing children, but should be done rarely in well appearing children to avoid the overuse of antibiotics.
- The prevalence of atypical causes of pneumonia is higher than once thought in young children. A Cochrane review revealed uncertainty about whether antibiotics should be routinely used in children with mycoplasma pneumonia. It seems reasonable to consider the use of antibiotics in patients with suspected or confirmed *M. pneumoniae* or *C. pneumoniae* pneumonia but more evidence is definitely needed.

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The Not So Boring Weakness

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A 47-year-old male with a known history of myasthenia gravis (diagnosed in 1993 status post thymectomy) presents to the emergency department from jail for acute hypoxic respiratory failure. He was noticed to have labored breathing at jail for which the ambulance was immediately called. Upon EMS arrival he was clearly in respiratory distress with rapid shallow breathing. His pulse oximeter was reading 85% on room air. A non-rebreather was placed immediately and he was rushed to the ED where he was found to have bilateral ptosis, dysarthria and was unable to lift his head from the bed. He ran out of his Pyridostigmine (Mestinon) four days ago.

In the ED the patient was intubated emergently for hypoxic respiratory failure, received IVIG and was admitted to the neuroICU for five days when he was extubated and returned to baseline.

Myasthenic crisis can go unrecognized in the emergency department resulting in worse morbidity and mortality due to its relatively rare presentation. Myasthenic crisis occurs in about 20% of patients with generalized myasthenia gravis.[1] The estimated prevalence of myasthenia gravis is approximately 20 cases per 100,000 population.[2] Mortality in the last four decades has seen a dramatic decrease from 75% to 4.5%.[2]

Is my patient having a Myasthenic crisis?

Most patients who present to the ED have an established diagnosis of myasthenia gravis. Rarely, does a patient present with undiagnosed myasthenia gravis, however, recognizing this condition in the emergency department can reduce fatal complications. Typical complaints are of generalized weakness and reduced exercise tolerance that improves with rest.[3] Initially, 85% of patients have involvement of the eyelids and extraocular muscles, resulting in ptosis and/or diplopia.[4] The ability to clear bronchial secretions is of utmost concern with severe exacerbations of myasthenia gravis. Inability to cough leads to an accumulation of secretions; therefore, rales, rhonchi, and wheezes may be auscultated locally or diffusely. The patient may appear anxious, with rapid and shallow breathing. Paradoxical chest movements due to diaphragmatic weakness may be present.[5] There are several clinical tests that can be performed at the bedside to help in the evaluation for myasthenia gravis (Table 1 and Table 2)

Food stays in mouth after swallowing	+LR 13
Unintelligible speech after prolonged speaking	+LR 4.5
Sleep test	+LR 53
Ice test	+LR 24
Rest test	+LR 16
Anticholinesterase test	+LR 15
Quiver eye movements	+LR 4.1

Table 1

Food stays in mouth after swallowing	-LR 0.70
Unintelligible speech after prolonged speaking	-LR 0.61
Sleep test	-LR 0.01
Anticholinesterase test	-LR 0.11
Ice test	-LR 0.16
Rest test	-LR 0.52

Table 2

Lightly placing ice that is in a surgical glove or that is wrapped in a towel over the eyelid will it within two minutes, which leads to improvement of the ptosis.[2] This test has a pooled sensitivity and specificity of 82% and 96%, respectively.[10]

Inspiratory function is measured by both vital capacity (VC) and negative inspiratory force (NIF); expiratory function is measured by positive expiratory force (PEF).[13] A VC less than 1 L (or <20-25 mL/kg) or an NIF <20 cm H2O indicates significant respiratory weakness; both measurements are commonly used to define myasthenic crisis.[14,15]

Wait! What kind of crisis is my patient having?

An exacerbation of this disorder presents with either overtreatment (cholinergic crisis) or under treatment (myasthenic crisis). Edrophonium challenge test is useful in diagnosing myasthenia gravis and in distinguishing myasthenic crisis from cholinergic crisis.[7,8] Patients who respond generally show dramatic improvement in muscle strength, regaining facial expression, posture, and respiratory function within one minute. Some patients may respond noticeably to a small dose (1 mg). If no adverse reactions occurs following the initial test dose, another dose (3 mg) should produce noticeable improvement in muscle strength within one minute.[7] Because edrophonium can cause significant bradycardia, heart block, and asystole; reportedly 0.16% of the time, atropine should be available at the bedside.[7] Patients with a cholinergic crisis may respond to edrophonium challenge by increasing salivation and bronchopulmonary secretions, diaphoresis, and gastric motility (ie, SLUDGE syndrome).[8,9] These changes should be managed expectantly, as the half-life of edrophonium is short (ie, 10 min).

What triggered my patient's Myasthenic crisis?

The most common cause of myasthenic crisis often is infection.[3] One series documented infection in 38% of patients presenting with myasthenic crisis; most commonly, the infection was bacterial pneumonia followed by a bacterial or viral upper respiratory tract infection.[16] Numerous medications may exacerbate MG, including quinidines,[17] procainamide,[18] beta-blockers,[19] calcium channel blockers,[20] magnesium,[21] antibiotics (ampicillin, gentamicin, streptomycin, polymixin, ciprofloxacin, erythromycin),[22] phenytoin,[23] gabapentin,24 methimazole,[25] a-interferon,[26] and contrast media.[27] Any medication suspected of precipitating myasthenic crisis should be discontinued.

It's time to paralyze.

Neuromuscular blocking agents should be used with caution when intubating myscthenia gravis patients. Depolarizing agents are less potent in myasthenics because the relative lack of post-synaptic acetychloine (Ach) receptors.[11] A rapid-onset, nondepolarizing agent (ie, rocuronium, vecuronium) has increased potency, and reduced doses are required for paralysis.[12]

How do I treat my myasthenic patient?

Treatment options should be discussed with a neurologist in the emergency department. The two primary pharmacologic therapies for myasthenic crisis are intravenous immunoglobulin (IVIf) and plasma exchange (PE). A typical course of IVIg is 400 mg/kg daily for 5 days.[28] For plasma exchange, 5 exchanges (1 plasma volume or 3-4 L per exchange) are usually performed every other day over 10 days.[28] Abnormal laboratory values that could affect muscle strength should also be corrected. Potassium, magnesium, and phosphate depletion can all exacerbate myasthenic crisis and should be repleted. Hematocrit less than 30% might affect weakness by decreasing oxygen-carrying capacity.[28]

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The Art of Osler

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"And I said of medicine, that this is an art which considers the constitution of the patient, and has principles of action and reasons in each case." – Plato

As a preface to his foundational textbook, *The Practice and Principles of Medicine,* Dr. William Osler quoted Plato and Hippocrates as medical lodestars worthy of pursuing, as Sir Palomides did the Questing Beast; with great ambition but perhaps no real hope of attainment. After all, it is perhaps the simple pursuit of virtue that endows one with her blessings at the end of the day.

I thought of this as the bright and eager medical student standing dutifully in front of me droned on for seemingly the twentieth time that day about yet another patient.

"…and his abdominal pain is sharp and he rates it a 10 out of 10 with occasional radiation to the back…" the humming continued.

I stop him there.

"Tell me more about his pain." He looks at me quizzically as if I have asked him to engage in a dialectic on the meaning of justice.

"I'm sorry, sir…his pain…" a question disguised as a declaration. A good trick to buy time but I used to do that too. I'm on to him.

"Describe his pain for me," I reply simply. "What does it feel like?"

A pregnant pause. An academic crow's hop. A delay; so fatal in medical education. I refuse to explain further.

"I'm sorry," he repeats, "what do you…"

"How does he describe the pain for you?" I cut him off. We are busy and I want to make a simple point. There is another pause and a quick glance at a flimsy note in his hand.

"It's a sharp, hurting pain, sir. He didn't say much more than that."

It's my turn to pause. A lovely dance. Osler would have enjoyed it. "Fair enough," I reply. The young man in front of me completes his history of present illness with no further interruptions from the older one appraising his every turn of phrase. We go to see him together; to both learn and heal simultaneously.

He sits in the stretcher with a hand clasped to his epigastrium. Smells of old booze. Like sweet animal musk. Eyes glazed over and red, like the reflection of the sun on a blood moon. Swollen legs that yearn to run again. A sharp, hurting pain in the gut. I introduce myself and re-introduce my student and I ask him how his pain feels. He looks at me as if I am the tenth person to ask him this in the last hour. I am probably the fourth and I nod and wanly smile as if in understanding of the futility of his three previous attempts to describe his pain to strangers.

"Well, it's a hurtin' pain, right here man," he points to his epigastrium and winces as if to convince me of his own legitimacy.

"Yes," I reply, "but what does it *feel* like?" I ask. Different variation. Same tune.

He smiles for a moment, knowingly, as if he and I are in on a secret.

"It feels like something is rippin' out of me," he responds.

"Ripping?"

"Yeah," he pauses again, as if to check my credentials. "Have you seen that movie, doc, where the alien comes tearin' out of that guy's stomach?"

"*Alien*?" I ask "Yes, it's an old favorite."

"Yeah, man. You know what I mean then! That guy is jus' eatin' lunch on the ship and laughin' at something and he starts coughin' and Ripley asks him if he's ok. Folks look a little concerned and he clutches at his belly…"

"And then the big guy grabs him and he's grabbing at his belly…" I continue.

"Yeah man!" he replies enthusiastically releasing his own abdomen. "And then he starts shakin' like a lawnmower and clutchin' his belly and that bastard rips out of his abdomen…"

"…and tears across the kitchen knocking over intergalactic silverware!" I reply smiling now as we both reminisce about Ridley Scott's incredible movie *Alien*.

"Yeah! Yeah!" He almost gets out of bed on his swollen, tired legs, nearly yelling now. "Well THAT is what it feels like!" He clutches his abdomen again and his smile pulls rank on his grimace creating a pained expression of happy understanding.

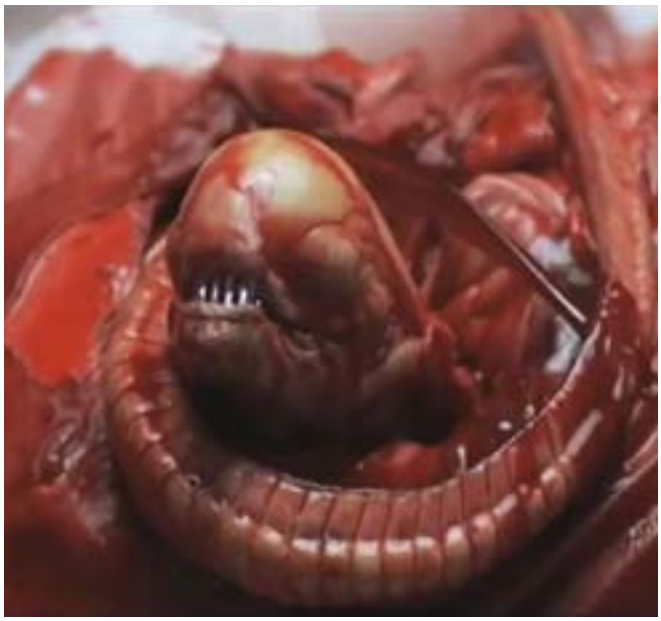
My student interrupts. A gust of wind in a hurricane. "So would you say on a scale of 10 out of 10 it's a 10?"

The patient's smile evaporates.

"Yeah man. It's a ten."

We walk out of the room and I again ask my student how the patient described his pain and I am looking forward to a pantomimed version of *Alien*. I have no such luck despite my student's best attempts at describing such a scene as we just witnessed. He has not seen the movie he informs me. Yet, he saw the patient who pretty much reenacted a few amazing moments from it and still it is a "hurting" pain.

It is not his fault. He was taught to report the hard science and he does it well. I do not ask my dishwasher to tell me how the dishes feel. But where are we without a little art? The author and physician Abraham Verghesi opines about how nobody has come up with any descriptive pathological names in a good, long while. Where are the new nutmeg livers, the caput medusae, the water hammer pulses, the spider angiomata, the strawberry tongues, the sandpaper rashes, the hot potato speech, the chandelier signs, the splinter hemorrhages, the slapped cheek rashes, the palpable olives, the black lungs, the bronze john's, the rusty sputum or the cotton wool spots? Have we lost our ability to describe what we see? Have



we thrown the baby out with the bathwater? Have we sacrificed our art on the altar of science?

What is important about the history of present illness? Well, in my humble opinion, it is a story of a man or a woman, as you and I are men and women, and it is the intricate stitching that is woven within the fabric of our profession. It is a connection between our patients and ourselves. It is what we have always done around campfires and bedsides since Ulysses sailed and Homer sang. It is the uniquely human interaction that is the essence of what we do because even if we cannot cure we can help; with pain, with loneliness, with fear. We can listen. A touch or a word of kindness in a moment of terrifying pain or sadness can be more salutary than any drug or therapy and we forget this to our own detriment. God help us if we fail to teach it to the next generation of physicians.

We are all made of the same clay and just listening to the patient can help us stay grounded to that fact. Knowing that our patient's pain was more than just "a hurting" pain and was rather like an alien exploding out of the peritoneal cavity didn't help us treat his chronic pancreatitis any better. His story did however help us understand him and remember him. It gave him, a chronic frequent flier with alcohol-induced pancreatitis, a degree of humanity he would not have otherwise had. His story gave him validation. It gave us an affirmation of our calling. Long live the history of present illness. Long live our stories. Without them, we are no better than the beasts in the fields and the birds in the air. We are recorders and not healers; computers and not physicians. Balloons without air and men without souls. Long live our stories.

ExDS: Emory Tox Case

Drs. Breanne Jacobs, Stephanie Hon, Ziad Kazzi and Brent Morgan

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Dr. Jacobs was born in Seattle, Washington but considers the Washington DC area home after working there for many years prior to attending medical school. She came to Emory after spending six years in Ireland, initally in Dublin for medical school at Trinity College and then in Kerry and Cork where she completed her internship with the Irish Health Service. Her interests in emergency medicine include Graduate Medical Education (GME), diversity and wellness, and health policy. She's currently working to support residents' and fellows' interests as a member of the GME Standing Committee in the American Medical Association.

The Case

A 42-year-old male with history of chronic methamphetamine use is found altered and wandering the streets. He becomes violent when police officers approach him and is tazered four times with minimal response. The patient requires multiple law enforcement officers to restrain him physically, despite the administration of multiple sedatives (Haloperidol 5mg IM and midazolam 1mg IM x2) by emergency medical services providers. En route to the hospital, the patient develops respiratory distress and requires endotracheal intubation.

In the emergency department (ED) the patient is tachycardic, hypotensive and febrile. The urine drug screen is positive for amphetamine and the serum acetaminophen, salicylate and alcohol are all undetectable. His initial electrocardiogram shows a normal sinus tachycardia 132 bpm with no signs of ischemia and QTc interval of 474 msec. The diagnostic evaluation in the ED shows an anion gap metabolic acidosis, acute kidney injury, leukocytosis, and lactic acidosis, as well as an elevated serum creatine phosphokinase (CPK).

The patient receives intravenous fluids, vasopressors, and is admitted to the medical intensive care unit (MICU). See Table 1.

In the MICU the patient is sedated on propofol and fentanyl and continued on aggressive intravenous fluid resuscitation. He is weaned off mechanical ventilation on hospital day two, remains hemodynamically stable, and is subsequently transferred to the medicine service. His lactic acid improves and his CPK starts down trending and he is discharged to a substance abuse program on hospital day four.

The most likely diagnosis is this case is excited delirium syndrome (ExDS) based upon history and presentation, including psychomotor agitation, tachycardia, and violent/ bizarre behavior. ExDS is a spectrum disorder that is diagnosed clinically. It includes recognizable stages early within the disorder. Patients present with fear, paranoia-driven acts of violence, fleeing from attempts of help or rescue and "superhuman" strength.

In ExDS there is a simultaneous catecholamine surge that precipitates the signs of tachycardia, hypertension and hyperthermia. Temperatures can reach greater than 40 C. Mean temperatures found in one study associated with fatalities were 40.7 C.[1] This rise in catecholamine will often lead to metabolic acidosis and cardiac arrest, which has been described in the later stages of ExDS.

The pathophysiology is likely multifactorial, due to drug overdose or adverse effect, withdrawal state, enzyme excess or deficiency, and genetics. In a white paper by the American College of Emergency Physicians on ExDS, risk factors include male gender, age in the 30s, sudden onset, stimulant drug use and history of mental illness. An observational study suggests a possible incidence of death among patients who manifest ExDS is <10%.[2,3] Features associated with death include sudden giving up/period of tranquility after arrest, cardiac rhythm brady-astoyle or PEA, and aggressive resuscitation unsuccessful.

	Na (mEq/L)	K+ (mEq/L)	HCO3 (mEq/L)	pH	Anion Gap	Creat (mg/dL)	CPK (U/L)	Lactic Acid (mmol/L)	WBC (K/mcL)
Initial	141	3.7	15	7.18	23	1.8	1692	>10	13
6 hours repeat after 4 L NS	139	4.7	22	7.24	6	1.5	1709	1.4	10.9

Table 1: Laboratory Studies

Drug Class	Mechanism	Pros	Cons
Benzodiazepines Midazolam 1 mg IM/IV	GABA-A Agonist	1st line agent Multiple routes of administration	Slow onset Unpredictable pharmacokinetics Resp/CV depression
Antipsychotic Agents Haloperidol 5mg IM or IV	Dopamine and 5-HT Antagonist	Familiarity Acute Psychosis indication Multiple routes of administration	Anticholinergic SE QT prolongation Thermoregulatory blunting
Dissociative Agents Ketamine 5mg/kg IM	Dissociative anesthetic NMDA receptor antagonists Analgesic properties	Multiple routes of administration Rapid onset Preserves airway	Worsen Tachycardia/ HTN Laryngospasm Emergent Phenomenon

Table 2: Pharmacological Options for Excited Delirium Syndrome (ExDS):

Hyperthermia	Rhabdomyolysis	Acidosis
⇨Ice packs	⇨Fluid Replacement	⇨Control agitation, decreases the acid production
⇨Evaporative cooling	-IVFs	⇨Sodium Bicarb if pH not responding to IVFs
⇨Cold NS infusions	-Urine alkalization with sodium bicarbonate	
⇨Cold water immersion		
⇨Pharmacotherapies: -Sedatives -Paralysis	⇨Hyperkalemia -Standard treatment	

Table 3: Complications of Excited Delirium Syndrome (ExDS)

Diagnostic Studies

EKG, Complete Blood Count, Complete Metabolic Panel, CPK, troponin, blood gas, lactate, thyroid studies, chest x-ray and head CT scan or MRI

Management

Monitor vital signs and airway including a rectal temperature.

Sedation with benzodiazepines because they decrease excess catecholamine mediated effects, including reducing heart rate, blood pressure and muscle activity. The use of the dissociative agent ketamine has been used effectively in the prehospital setting because of its faster onset of sedation compared with benzodiazepines.

Antipsychotics (haloperidol) should be avoided in undifferentiated cases of agitation. Haloperidol can increase QT interval prolongation and may precipitate Neuroleptic Malignant Syndrome. Caution should also be used in administrating fentanyl to these patients because it may also increase QT prolongation and precipitate Serotonin Syndrome.

Complications of ExDS, including hyperthermia, rhabdomyolysis, and acidosis (the latter two seen in the patient discussed in this case) should be monitored closely and treated accordingly.

Summary

ExDS is aggressive behavior associated with a recent use of an illicit drug in combination of "superhuman" strength, hyperthermia, or lack of willingness to yield to overwhelming force. Risk factors for sudden death include restraints, electrical control devices, obesity, stimulant drug use, chronic diseases, prolonged struggle with law enforcement, and "giving up" prior to arrest. Aggressive and prompt management of agitation, hyperthermia, and metabolic acidosis is needed to prevent cardiac arrest.

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Hypomagnesemia

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Dr. Ganju is a second-year emergency medicine resident at Emory University. He grew up in Boston, attending college at Harvard University and medical school at Washington University in Saint Louis. In his spare time he enjoys playing with his dog, watching sitcoms, and doodling EKGs on napkins.

A 62-year-old female with a history of diabetes, hypertension, and osteoarthritis presents with recurrent syncope over the past three weeks. She has had around six such episodes, where she begins to "feel dizzy, see stars, get numbness and tingling in my hands, and then everything goes black." This is her presenting EKG:

The patient was found to have a low initial magnesium of 1.4 mg/dL, with a normal potassium level of 3.9 meq/L and a normal calcium level of 9.3 mg/dL. EKG changes associated with hypomagnesemia include prolonged QT intervals, as seen here, likely due to magnesium's effects on phase 2 of the action potential. Magnesium also affects phase 4, the resting membrane potential, as it stimulates the sodium/potassium pump to keep the cell negative; hypomagnesemia thus predisposes to spontaneous arrythmias, with the most common being atrial fibrillation, multifocal atrial tachycardia, premature ventricular complexes, ventricular tachycardia, torsades de pointes, and ventricular fibrillation. Such arrythmias can present with cardiogenic syncope, as seen in this patient.

Importantly, hypomagnesemia is often concurrent with hypokalemia and/or hypocalcemia, and as such can also be associated with other EKG changes, such as prolonged PR intervals, widened QRS complexes, t-wave inversion, and ST depression.

The patient's magnesium was corrected to 2.1, with a resultant decrease in the QT interval as seen on the repeat EKG after her magnesium was replaced.

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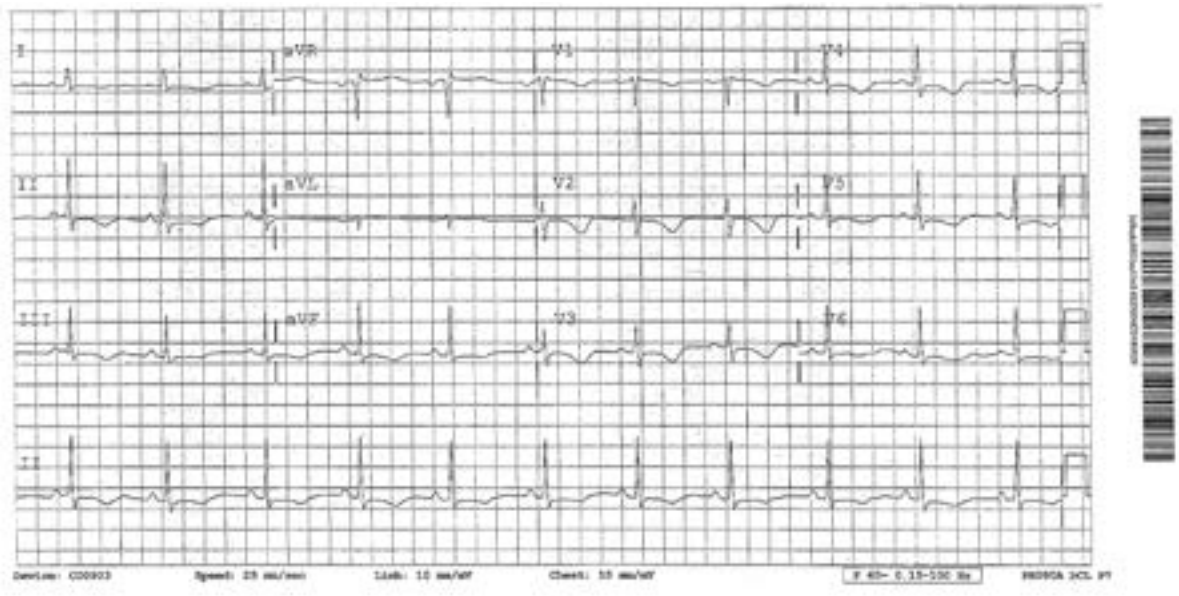
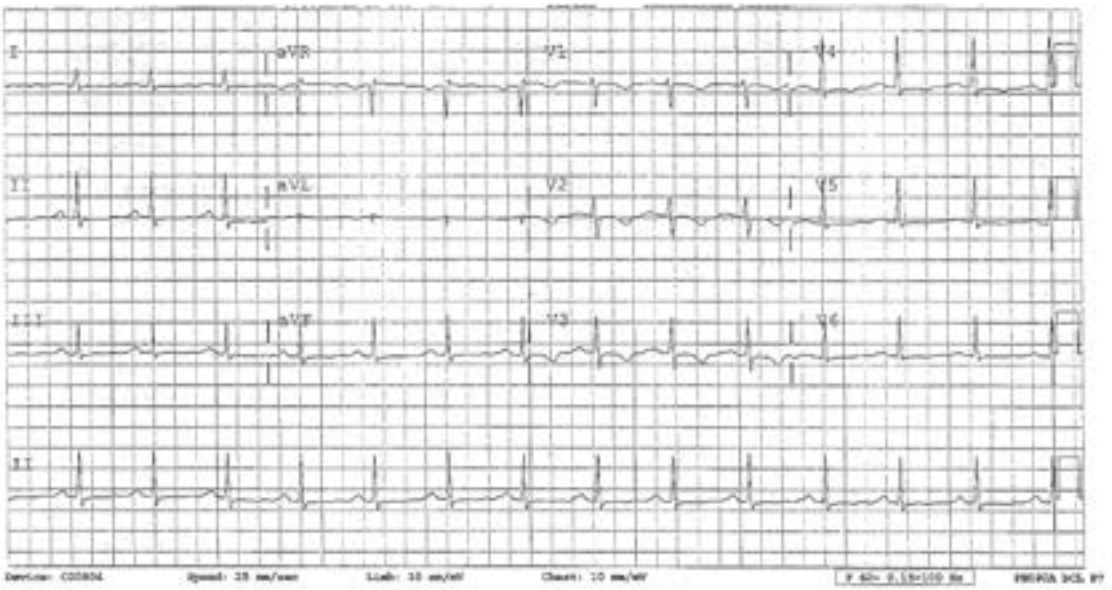
Pfenning CL and Slovis CM. Chapter 125: Electrolyte Disorders. Rosen's Emergency Medicine, 8th edition.

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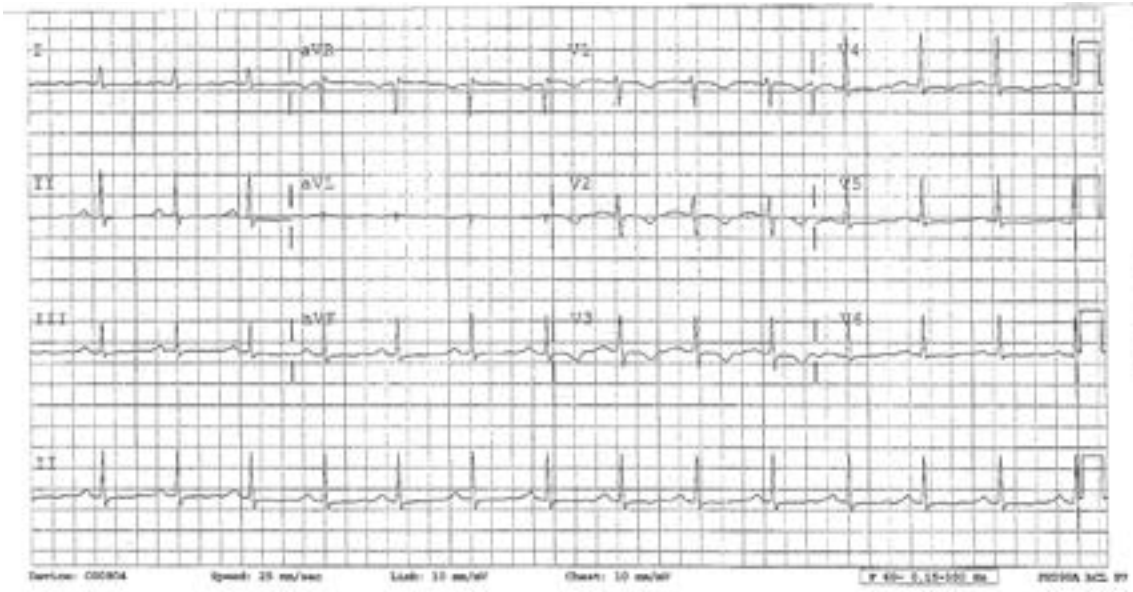
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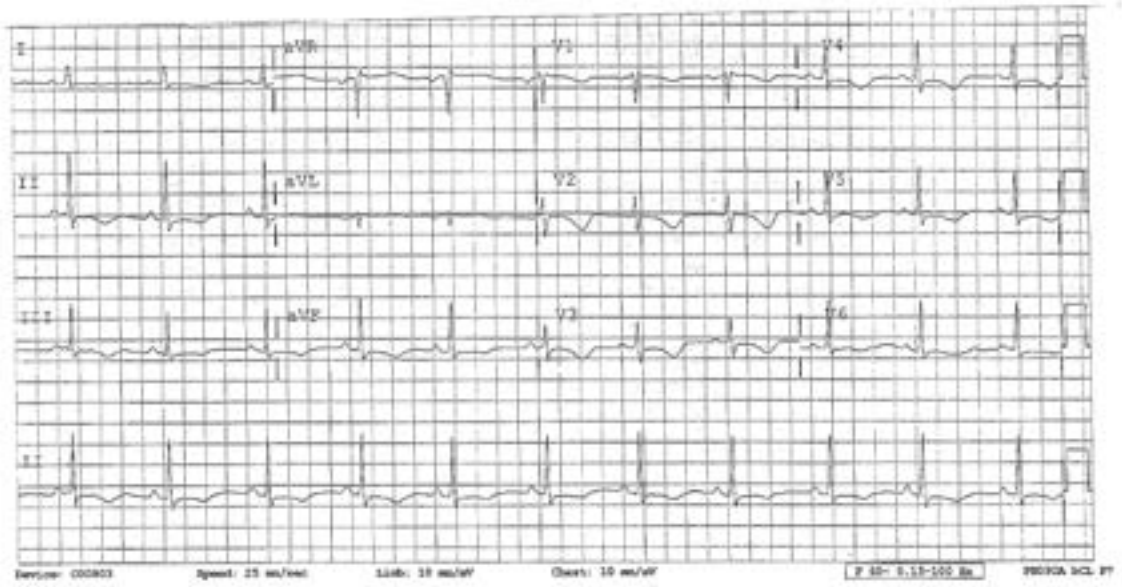
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Thoracic Ultrasound

Jedidiah Ballard, DO, Emergency Medicine Ultrasound Fellow, GRU/MCG

Jedidiah Ballard, DO

Jedidiah Ballard is from Montana and finished undergrad at the University of Northern Colorado and attended Des Moines University for medical school. He graduated Emergency Medicine Residency from MCG/GRU in 2013, left to serve as Battalion Surgeon for the 2nd Army Ranger BN, and recently returned to MCG/GRU as an EM Ultrasound fellow.

Thoracic Ultrasound (US) is the study of artifact. Bone and air are enemies' of image acquisition and as such the traditional thought is that US is not useful to evaluate this area of the body.

"The lung is a major hindrance for the use of ultrasound at the thoracic levels."
–TR Harrison, Principles of Internal Medicine, 1992, P.1043

"Ultrasound imaging is not useful for evaluation of the pulmonary parenchyma."
–TR Harrison, Principles of Internal Medicine, 2001, P.1454

With increased use, understanding and technology since the publication of these statements ultrasound has become very valuable in the rapid diagnosis and sometimes treatment of pulmonary pathology. The air within the thoracic cavity that was once thought to make ultrasound unusable is now known to create distinct artifacts, some of which suggest certain pathologic pulmonary processes.

The Linear, Curvilinear and Phased Array probe may be used for the thoracic exam, each having its own advantage based on the pathology being sought. The Linear probe allows higher resolution imaging and is generally best for pleural evaluation. It also does not distort the surface view if seeking to do a procedure. The Curvilinear probe does not fit the body contour well but can be useful if more depth is sought, as in the case of evaluating for interstitial edema or pneumonia. The Curvilinear probe will generally obtain images adequate enough to detect a pneumothorax, though with less resolution, so probes do not need to be changed when converting a FAST exam to the more complete E-FAST exam. The Phased Array probe gives imaging resolution between the Linear and Curvilinear probes and fits between ribs allowing for visualization in areas that would otherwise be difficult or impossible to visualize.

As with all exams, acquiring and evaluating the image in a systematic manner will ensure a more complete exam; though the patient's history and physical can be used to streamline the process. The general approach to thoracic ultrasound is as follows:

1) Place probe across the ribs

2) Identify the ribs

3) Identify the pleura

4) Look for movement in the pleura

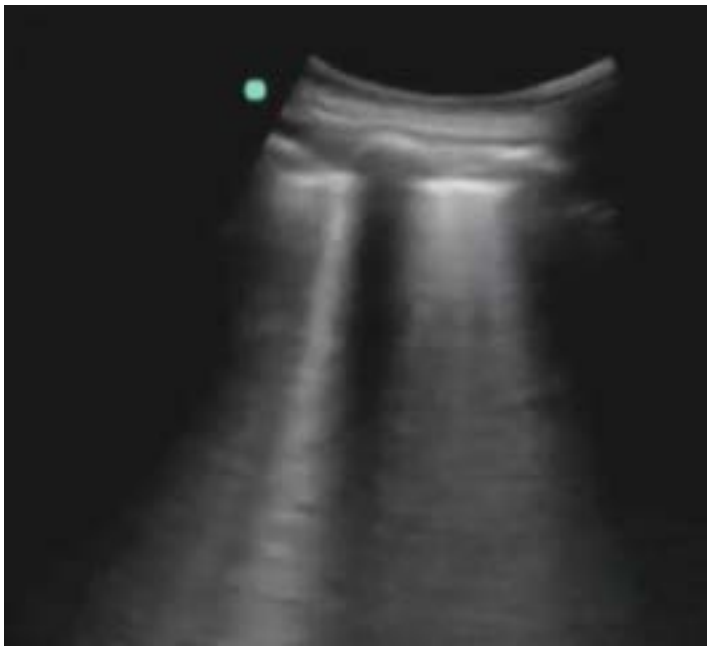
5) Look for artifacts from the pleura

6) Look deep to the pleura

Where to scan is based on the pathology you are looking for. When evaluating for a pneumothorax, you would scan the most anterior portion of the chest wall with the patient lying in a supine position. When looking for a pleural effusion, the patient is typically placed in a semierect position and you want to start scanning at the costophrenic angles as fluid sinks to the most dependent available space. Interstitial edema is best detected by scanning through all lung fields looking for evidence of lung rockets. In the evaluation of pneumonia scanning all lung fields will increase your yield, though if you do have auscultory findings on

physical exam you will want to pay particular attention to that area.

Reverberation artifacts are also referred to as lung rockets, commit tail artifacts and/or B-lines and are the ultrasound equivalent of Kerly's B lines on chest x-ray. These artifacts are seen as bright vertical streaks that must meet all following criteria: 1. Arise from the pleural line 2. Move in rhythm with the lung sliding, and 3. Extend all the way to the lower edge of the image screen with the screen is set to 15cm. This reverberation artifact is thought to be secondary to thickening of the alveoli septa due to an air-fluid interface; however, regardless of what causes the artifact we know their presence is indicative of fluid in the interlobular septa.



https://youtu.be/fNj32Wn2tyE

[Click Link for video of B-lines]

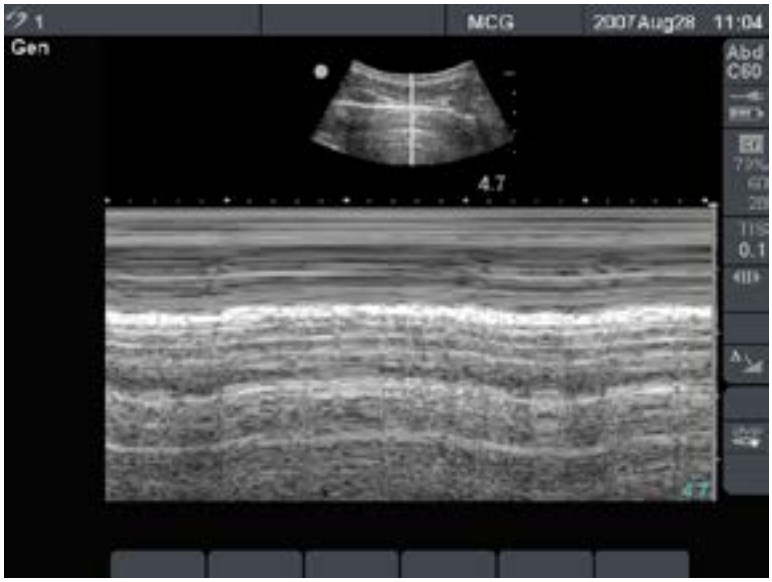
Much like seeing pulmonary edema on chest x-ray, the cause of this excess fluid may be due to a variety of processes including cardiogenic, ARDS, pneumonia, or pulmonary contusion to name a few. Ultimately this information provides a piece of the clinical puzzle rather than definitive diagnosis. This differential should be further narrowed by using additional information such as which portion of the lung fields has findings suggestive of edema, determining the predominate position of the patient and utilizing other ultrasound exams and findings. Is the edema dependent as in cardiogenic or localized and immobile as in a lobar pneumonia? Is the IVC dilated as in cases where the heart in unable to adequately pump the fluid load in the body, how does the general heart squeeze look? By integrating the pulmonary exam, the patient's history and findings from other bedside ultrasound exams a diagnosis can often be reached prior to obtaining labs or other imaging studies.

On ultrasound the visceral and parietal pleura will be seen as a single bright or hyperechoic line, sitting between two rib shadows, with movement along the line as the two pleura slide against each other. This movement is described as a sliding lung sign, or ants marching on a log. Air, which cannot be seen through sonographically, trapped between the two pleural layers will separate the two pleura and eliminate the expected sliding lung sign. This loss of sliding lung is both sensitive (95%) and specific (91%) for a pneumothorax.

Lichtenstein DA, Menu Y. A bedside ultrasound sign ruling out pneumothorax in the critically ill. Lung sliding. Chest. 1995 Nov;108(5):1345-8. PubMed PMID: 7587439

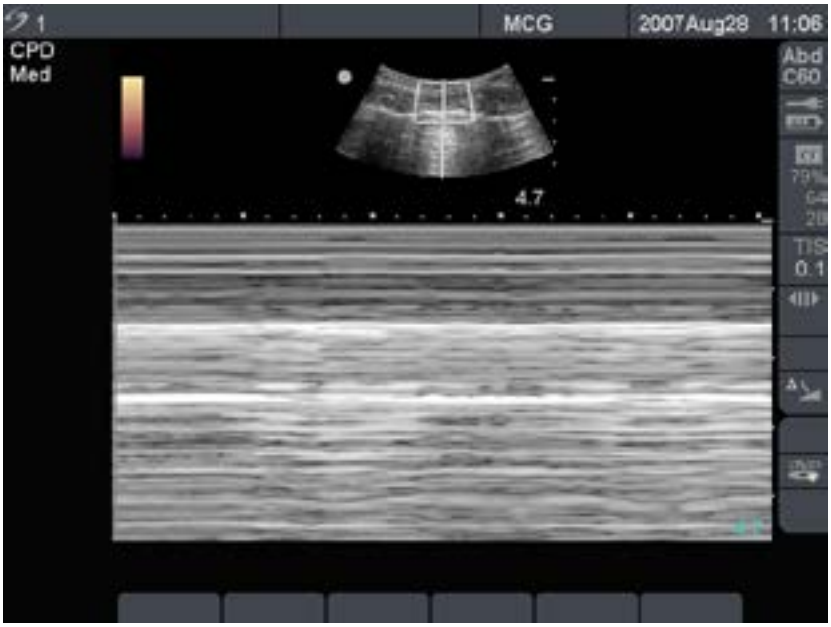
Lichtenstein DA. Lung ultrasound in the critically ill. Ann Intensive Care. 2014 Jan 9;4(1):1. doi: 10.1186/2110-5820-4-1. PubMed PMID: 24401163; PubMed Central PMCID: PMC3895677.

Air will rise as high as it can, when the patient is in the supine position this is the anterior portion of the chest wall. Placing the probe across two ribs parasternally and observing the pleura is the best starting point to detect a pneumothorax. If a pneumothorax is in question the use of M-mode can further increase confidence of the exam. A normal lung will have a distinct difference in appearance between the chest wall and the lung parenchyma separated by the bright pleural line known as the seashore sign as it has the appearance of water interfacing with the sand.



https://youtu.be/gojNKyfgj64

In a pneumothorax this distinction is blurred and is known as the barcode sign.



https://youtu.be/sfE5BU07Q1s

Once identified, the specificity of pneumothorax can be increased to 100% by the identification of the "lung point." The probe is slid superior or inferior from the most anterior portion of the chest wall spanning the intercostal spaces looking for the point in the pleura where sliding lung resumes. Detection of this "lung point" should give the sonographer complete confidence that they are evaluating a patient with a pneumothorax.

https://youtu.be/P2y9M7El7oY

In summary, the utility of thoracic ultrasound continues to grow rapidly in the evaluation of multiple pulmonary pathologies. It can significantly reduce the differential diagnosis and when coupled with the H&P and other bedside ultrasound exams, often allows a practitioner to reach the specific diagnosis prior to obtaining labs or other imaging results. As a topic overview we looked at the method and utility of ultrasound in interstitial edema and pneumothorax, as well as a general approach to thoracic ultrasound.

For more specific instruction of the topics covered please refer to these instructional Youtube videos by Matt Lyon, MD, director of the Emergency Medicine Ultrasound Fellowship at GRU/MCG in Augusta, GA.

Thoracic Ultrasound Part 1, 23:49 min.: http://youtu.be/u6yN-ZnQPjxI

Thoracic Ultrasound Part 2, 20:19 min.: http://youtu.be?_t8LFs7_SL8

Emergency Medicine Residency Update: Emory University School of Medicine

Carmen Sulton, MD, Pediatric Emergency Medicine Fellow, Emory University

The Emory PEM Fellowship program continues to excel in areas of clinical study, research and patient advocacy.

Our graduating Fellows this year will go on to serve the Pediatric community in a number of areas. Peter Gutierrez, MD will join the Emory PEM Division as the first Ultrasound Fellow. Sherita Holmes, MD will also remain in Atlanta with a particular focus on resident and fellow teaching as well as clinical duties at Children's Healthcare of Atlanta at Egleston. Carmen Sulton, MD will join Pediatric Emergency Medicine Associates as clinical staff at Children's Healthcare of Atlanta at Scottish Rite with non-clinical interest in pediatric procedural sedation, quality and safety.

In addition, our program recently completed fellowship recruitment for this academic year, matching three outstanding new fellows. Amy Cheng is an Emory native, finishing her residency here this year. Courtney Allen comes to us from Miami Children's in Florida and Brandi Barnes joins us from The Hospitals of Kings Daughters in Virginia.

Our Fellows also continue to excel in multiple areas of advocacy and research. Multiple fellows will be presenting their research at this year's Pediatric Academic Societies Meeting. Topics include Diabetes protocol improvement, HIV screening in high-risk youth and injury prevention. In addition, one of our 2nd year Fellows, Tal Berkowitz, MD will be taking a month long mission trip to Ethiopia with an Emory University funded, and Department of Pediatrics funded quality award. He will be following patients with fever and neutropenia in an emergency room in Addis.

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Carmen Sulton, MD is a 3rd year Pediatric Emergency Medicine Fellow at Emory University. She is from Atlanta, Georgia and went to medical school at Meharry Medical College in Nashville, Tennessee and completed her Pediatrics Residency at Emory University in Atlanta.

GRU Emergency Medicine Update

Daniel McCollum, MD, Assistant Residency Director, Georgia Regents University

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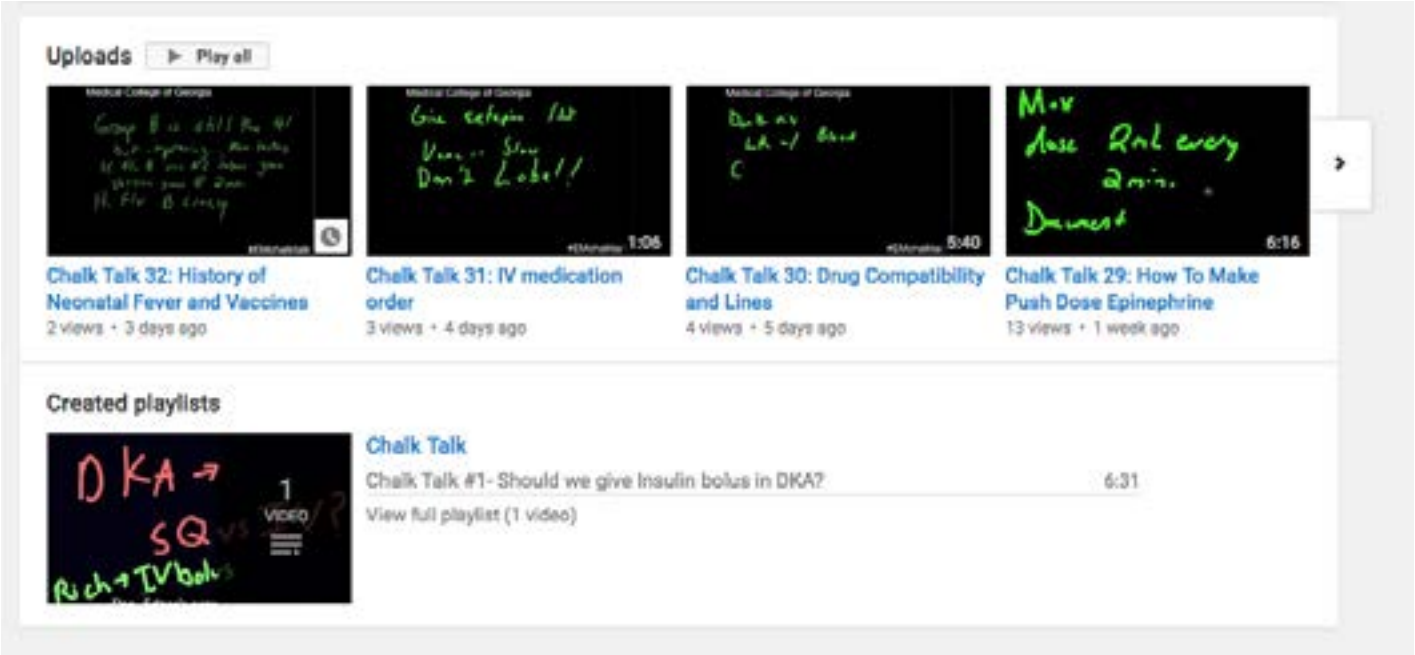
Dan graduated from the Georgia Regents University Emergency Medicine Residency Program in 2013. He is currently serving as an Assistant Residency Director at GRU. His interests include Free Open Access Medical Education (FOAMed) and teaching adult learners.

The Medical College of Georgia's Department of Emergency Medicine continues to grow and improve. We have just completed our military match, and we are thrilled with the excellent people that will be joining us in July. Evan Baines of the Uniformed Services University of the Health Sciences (USUHS), Rich Mcnutt of Harvard Medical School, Cody Hoover of Philadelphia College of Osteopathic Medicine (PCOM), Victoria Migdal of Vanderbilt University School of Medicine, Chuck Maxwell of Edward Via College of Osteopathic Medicine (VCOM), and Andrew Wilkins of the Arizona College of Osteopathic Medicine will be joining our residency family.

We continue to interview for seven civilian residency positions. This has been one of our most competitive years ever, and we are interviewing over a hundred qualified candidates. After countless cups of coffee, PowerPoint presentations, breakfast pastries, and department tours, we will be completing this long interview season this month. It is truly a shame that we cannot train them all, as we have met dozens of wonderful applicants this season.

We continue to innovate in how we train our residents. Matt Lyon, Rich Gordon, and other ultrasound faculty have become increasingly involved in training residents from other specialties at MCG and medical students in bedside ultrasound. Brad Reynolds and Eric Zevallos continue to improve medical student training both in Augusta as well as our clinical sites across the state. We also continue to expand our educational materials online, including YouTube videos of some of our weekly conference sessions that can be found at https://www.youtube.com/channel/UC9tvEz-is8FZ-oeBfF3lXPA.

At MCG, we continue to further our educational mission to create tomorrow's clinicians and support those currently practicing. 2016 promises to be yet another year of improvement and growth.



"You Are Not Covered"– Words You Never Want to Hear From Your Malpractice Insurer

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Dr. Pete Steckl is the Risk Management Director for Emerginet, LLC, Atlanta, GA and member of the MAG Mutual Claims Committee and a member of ACEP Medical Legal Committee.

I spend a good bit of time in my role as Risk Management Director for my group devising and communicating ways to diminish risk of potential litigation. As we all know, we work in a challenging work setting that, by its nature, possesses a great number of characteristics that make the ED especially high-risk. As worrisome as this sounds, we still have always had the comfort of knowing that the malpractice insurance policy is there to back us up in the event of an unanticipated lawsuit. Though the litigation process is typically quite harrowing, there is the consolation that we are essentially playing with the insurance company's money and, barring an excess verdict (where the amount of the verdict exceeds coverage), we don't typically have to worry that our own personal funds are at risk. Don't we?

Well…. most of the time. Today's topic deals with a subject that many practitioners may not be aware of – that of circumstances involving patient care where the insurance company can rightfully deny coverage. Some of these situations are obvious, such as not paying your malpractice premium or failing to purchase a tail on a claims-made policy as you leave a practice and transition to a new employer.

On the other hand, additional instances can be more subtle and insidious. These are cases where malpractice insurers typically feel justified in denying coverage and fall into two main categories. The first class includes the broad situation where a physician has engaged in some sort of criminal malfeasance or illegal behavior. The second set involves actions or inactions of the covered doctor that so incapacitates or cripples the defense of the case that the company has no other recourse but to outright pay the claim.

These exemptions from coverage are clearly spelled out in the contract. In regards to criminal misconduct, some understandable examples of exclusions include coverage of costs for defense against allegations of illicit prescription of controlled substances, sexual harassment charges or allegations of sexual abuse of patients. Damages that may occur as a result of such unlawful behavior would qualify as criminal negligence and would certainly not be covered. Another less obvious area where coverage would almost definitely be denied would be payment of fines, settlements or financial judgments resulting from an EMTALA violation. A bit sketchier is whether they would pay for defense of an alleged EMTALA violation. In some cases insurance will cover defense costs where the suspected EMTALA violation relates to an associated malpractice claim. However, should there be an ultimate fine levied by CMS, it would likely fall to the practitioner to pay.

The second category of defense crippling maneuvers is rather far-flung and can range from such simple omissions as failing to notify the malpractice insurer after having been served with lawsuit papers to such seemingly benign and benevolent deeds such as volunteering to provide medical care for a club or school sports team without previous clearance by the liability insurer. In regards to failure to notify, it must be understood that there are time limits to be complied with in submitting a response to the filing of a lawsuit. In Georgia one must respond to a lawsuit filing within 30 days. If one fails to meet these time limits, the suit is effectively lost. Under these circumstances the insurance company has not even been given the chance to mount a defense and they understandably will look to invoke the right to deny coverage. As regards the latter clearance for performing volunteer patient care, liability still exists in these selfless endeavors and, if not covered by another insurer, specific additional coverage must be preemptively requested and written into the existing contract. Lastly, the extremely common practice of writing prescriptions for friends, colleagues or coworkers can rarely turn into a legal debacle should this unofficial patient go on to experience an untoward outcome due to this medication. Should this person or, sometimes a family member (with whom you may not have a relationship) decide to sue, the insurance company will very likely deny coverage as once again their case is enfeebled by the absence of a documented written record of the encounter. The rule of "No chart, No coverage" definitely applies and should be respected. Though we all do this from time to time, we must understand that the mere writing of a prescription creates a doctor-patient relationship and all associated risks come along for the ride. The safest maneuver when asked to provide these curbside consults is to advise them to check in and have a chart produced so that an officially sanctioned complete and thorough exam can be performed.

How to Know You are Financially Independent

Setu Mazumdar, MD, CFP, President and Wealth Manager
Financial Planner For Doctors

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www.FinancialPlannerForDoctors.com

Remember those New Year's resolutions you made earlier in the year? If I were a betting man I'll wager you probably haven't followed through with many of them, especially the ones dealing with money. One reason may be that you just don't know where to begin. The first step I recommend is to create your personal balance sheet, which is an inventory of everything you own and everything you owe.

Let's see how this works:

Assets (Everything You Own)

I usually like to break this down into three categories:

Cash assets–this includes everything from checking accounts, savings accounts, money market accounts, emergency fund, and equivalents such as bank CDs for short term goals

Investment and retirement assets–includes all of your investment accounts for you and your spouse such as: 401k, profit sharing, 403b, 457, traditional IRAs, Roth IRAs, defined benefit plans, pension plans, taxable brokerage accounts, partnership interests, and illiquid investments

Business interests–includes ownership interests in medical practices and other ventures

Tangible assets–home (primary residence), cars, rental homes, land, and any other major assets

You'll have to list the market value of all of those assets and also notate other important items such as percent ownership and interest rates

Debt (Everything You Owe)

Separate this into two categories:

Short Term Debt–this includes credit card balances (though you can exclude this if you pay them off every month. If you don't, shame on you!) and any loans you will pay off within one year.

Long Term Debt–this includes student loans, mortgages, business loans, and any other debt you think you'll pay off more than one year from now

Just like the list of assets, document the balances and other important items such as interest rates, terms of the debt, original loan balances

Net Worth (Stock In Yourself)

Add up the value of all your assets and subtract the value of all of your debt and you've got the bottom line–equity in yourself or net worth. In my opinion this is a better measure of wealth than your investment portfolio. It can also be a big wake up call. While you might be "worthless" in the first few years after graduating from residency, my very nonscientific rule is that your net worth should be at least $1 million a decade after passing your board exam. If it's not, you've made some serious mistakes and need a kick in the pants to get you moving in the right direction.

Finally note that you need to update all of the above periodically, and if you've hired a financial advisor, he should be doing this for you rather than just looking at your investment portfolio. Here's a sample of what this looks like:

Your Personal Balance Sheet (Sample)		
Assets (Everything You Own)		
Cash Assets	Checking account	List interest rate
	Savings account	List interest rate
	Money market account	List interest rate
Investment Assets	SEP IRA	List custodian and ownership
	401k	List custodian and ownership
	Taxable account	List custodian and ownership
	Other investments	List custodian and ownership
Business Interests		List percent ownership
Tangible Assets	Home	
	Other Properties	
	Cars	
Debt (Everything You Owe)		
Short Term	Credit card #1	
	Credit card #2	
	Other short term debt	
Long Term	Mortgage	
	Student Loans	
	Other long term loans	
Net Worth (Measure of Your Wealth)		
Subtract all debt from all assets and list here		

That should be a great start to organizing your finances. One more piece of advice: don't do this exercise during a shift because a patient might think you're a "rich" doctor, though you can easily remedy that by only showing the Debt column.

Shining a Light on Pharmaceutical Payments to Physicians and Teaching Hospitals: The Physician Payments Sunshine Act

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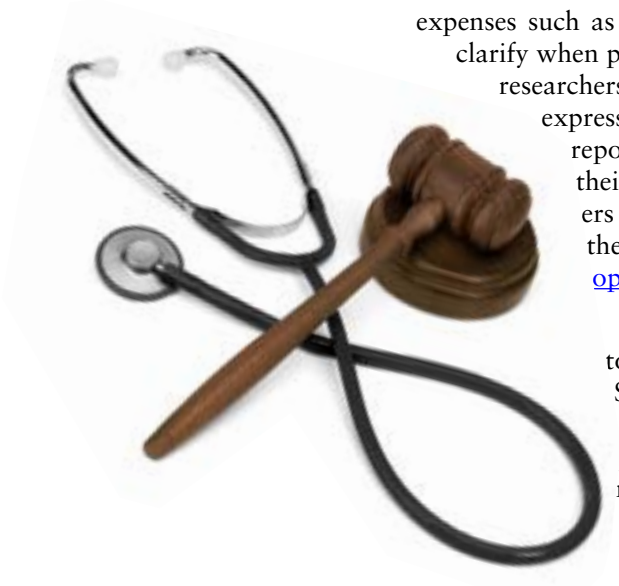
An ongoing reputational concern for physicians and teaching hospitals with financial ties to the pharmaceutical industry is the annual reporting of payments and other items of value provided to them, as required under the Physician Payments Sunshine Act ("Sunshine Act.") The federal law, passed by Congress in 2010 as part of the Affordable Care Act, was intended to enhance patient safety by promoting public awareness of potential conflicts of interest of physicians–including those providing clinical care as well as scientific research–and teaching hospitals compensated by the pharmaceutical industry. The Act requires pharmaceutical and medical device companies to submit annual reports to the federal government detailing their payments and other transfers to the covered recipients, so that those amounts can be shared with the public. Currently, the law applies only to payments and transfers of value to physicians and teaching hospitals, but Congress could expand the scope of reporting under the law to similar transactions with nurse practitioners and physician assistants: other healthcare providers who prescribe medicine. See http://www.policymed.com/2015/10/sen-grassley-introduces-bill-to-expand-open-payments-reporting-requirements-to-nurse-practitioners-a.html

The federal Centers for Medicare and Medicaid Services (CMS) is responsible for managing and reporting the information collected under the Sunshine Act. For this purpose, CMS has maintained the Open Payments website for collecting and reporting this data since 2014. See https://www.cms.gov/openpayments/

Reputational and Compliance Concerns

Some significant concerns for physicians and hospitals subject to reporting under the Sunshine Act are the accuracy of reports, and also the public perception of reported high dollar payments–especially possible false impressions where large payments are reported, without explanation or a breakdown of costs. False impressions could result, for example by the Act's required reporting of total dollar amounts paid to teaching hospitals for scientific research and drug development, without explanation and a breakdown of study expenses such as drug costs, to show how those payments are apportioned, and to clarify when payments are made to the university rather than directly to individual researchers. A 2014 article by the Wall Street Journal highlighted concerns expressed by researchers at Johns Hopkins University that Sunshine Act reporting of such industry payments to physician researchers through their universities could create false impressions that physician researchers receive more direct payments from the pharmaceutical industry than they really do. http://blogs.wsj.com/pharmalot/2014/09/30/does-the-open-payments-database-distort-doc-payments-for-research/



Companies violating the requirements of the Sunshine Act by failing to file timely, accurate or complete reports face penalties of $1,000 - $10,000 per payment or interest, with a maximum annual penalty of $150,000. "Knowing" failures in filing reports may bring enhanced penalties of $10,000 to $100,000 per payment or interest, with a maximum penalty of $1,000,000.

Practices to Promote Awareness and Accurate Reporting

Doctors and teaching hospitals subject to reporting under the Sunshine Act are well advised to access their own reports, to review the information at least annually, identify and challenge significant inaccuracies within the allowable 45-day deadline before publication. For more current information, physicians can download a free smartphone app that can be used to track their industry payments.

Numerous resources exist to explain the reporting obligations and processes of the Physician Payment Sunshine Act, including the CMS Open Payments Website: https://www.cms.gov/OpenPayments/index.html Additionally, the American Medical Association provides online information and training concerning the Act. http://www.ama-assn.org/ama/pub/advocacy/topics/sunshine-act-and-physician-financial-transparency-reports.page