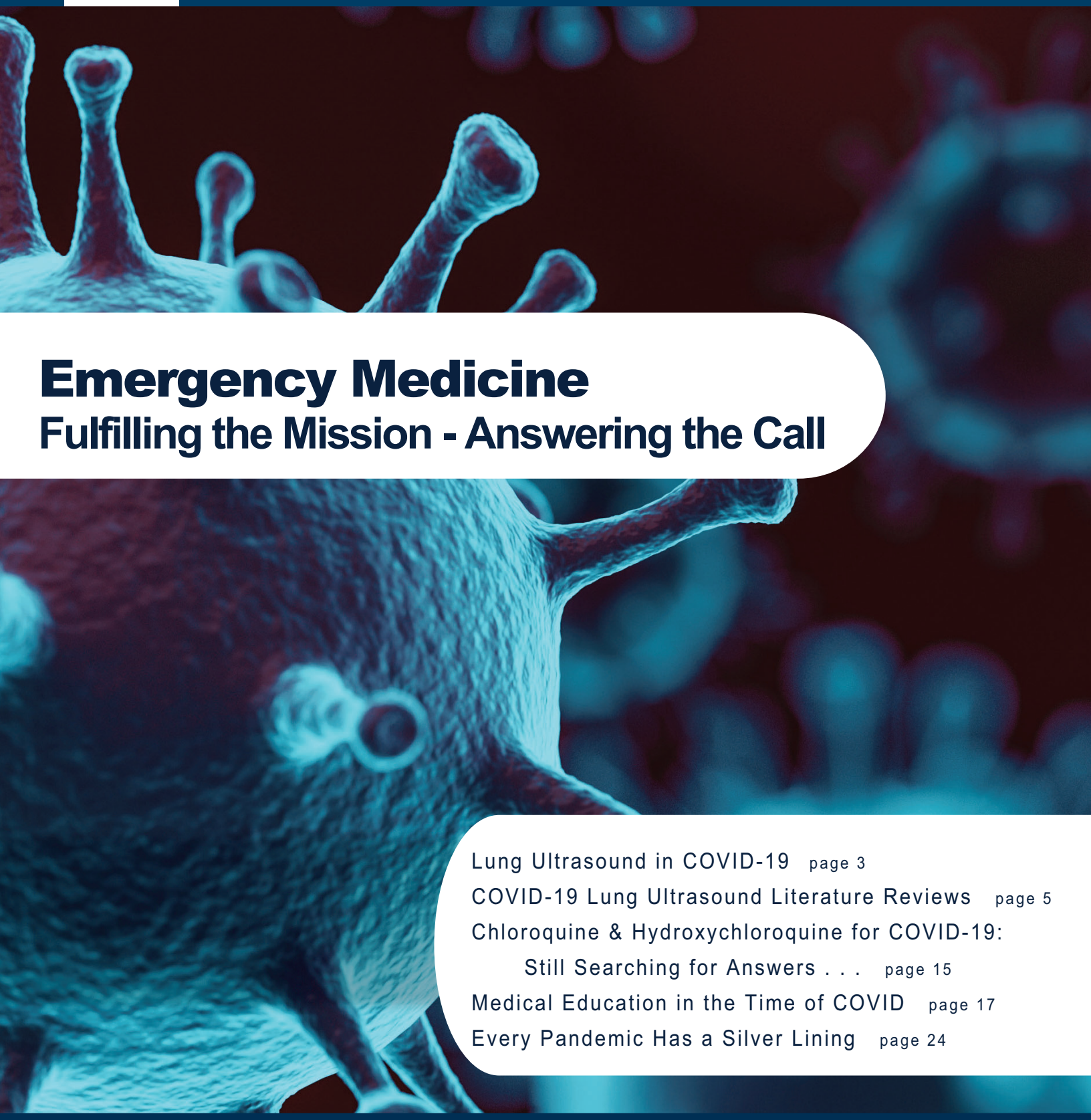
New York American College of Emergency Physicians

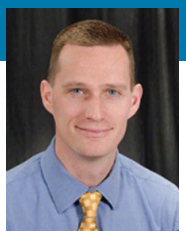


Emergency Medicine
Fulfilling the Mission - Answering the Call

Empire State EPIC

VOL 37-04:20 EMERGENCY PHYSICIANS' INTERIM COMMUNIQUE

PRESIDENT'S MESSAGE



Jeremy T. Cushman, MD MS FACEP
Associate Professor and Chief
Division of Prehospital Medicine
University of Rochester

Parting Thoughts

I didn't think this is how my term as your President would end.

However, I cannot express how humbled and thankful I am. Your response to COVID-19 has been extraordinary, but not surprising. It's what we have trained for. It's what we do. For so long the public had no idea of the risks we take, and the differences we make, every day we go to work. They do now.

You have had to make some extraordinarily difficult decisions in the last few months. Both clinically and personally. You have risked your own health and that of your family. You have gone to work and practiced medicine in some of the most austere environments we have ever faced.

Despite our priorities changing in the last few months, I want to assure you that New York ACEP has been here. Fighting for liability protections during this pandemic, reinforcing the need for personal protective equipment and continuing to advocate for you, and your practice.

In my first article as President, I referred to NYour ACEP. This remains so true today. Through all this, so many of you have balanced clinical shifts while still attending Board and Committee meetings (virtually of course) and have been actively participating in so many aspects of NYour ACEP. For the many volunteers who prepared events and our ED Director Forum and Scientific Assembly that we had to cancel, I thank you, and please know those efforts will be realized… just next year. Know your health and safety will always come first.

I have been so fortunate to have spent the last few years working with the Board of Directors and Committee Chairs from around the state who are deeply committed to our specialty. I am incredibly thankful for their service and their commitment to you: our members. I must also point out that although New York is the second largest Chapter in the country, the wizards behind the curtain that allow us to do so much are the unsung heroes: JoAnne Tarantelli our Executive Director, and Timothy Pistor our Program Coordinator. That's it. Just two amazing employees who work hard for you every day and have been working extra hard to extend our voice to Albany during this pandemic.

> "I have never been more proud to be an emergency physician and am humbled by each of you that has sacrificed so much for the calling that is Emergency Medicine

I write this in April and who knows where we will be on the curve when you read this. I have never been more proud to be an emergency physician and am humbled by each of you that has sacrificed so much for the calling that is Emergency Medicine. Thank you for the privilege of allowing me to serve.

WHAT'S INSIDE

2020 Emergency Medicine Resident Career Day
Wednesday October 14 **New York Academy of Medicine**

SOUND ROUNDS

Penelope C. Lema, MD RDMS FACEP
Vice Chair, Faculty Affairs
Director, Emergency Ultrasound
Associate Professor, Department of Emergency Medicine
Columbia University Vagelos College of Physicians & Surgeons

Guest Author
Nicholas C. Avitabile, DO
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Assistant Professor of Emergency Medicine, Department of Emergency Medicine,
Columbia University Vagelos College of Physicians and Surgeons

Lung Ultrasound in COVID-19

Case Presentation

A 76-year-old female with a past medical history of hypertension, hyperlipidemia and diabetes mellitus presented to the Emergency Department (ED) with respiratory distress. Her oxygen saturation (O2 sat) was 75% on a non-rebreather mask. The patient was unable to speak in full sentences and was not able to answer questions regarding her code status. Family had reported that the patient had been ill for the past 10 days. She had fevers, chills, body aches, cough and shortness of breath (SOB) for the past three days. Her SOB acutely worsened upon presentation to the ED.

The patient's initial vital signs were blood pressure 186/91 mmHg, heart rate 130 beats per minute, respiratory rate of 26, O2 sat 75% on NRB and an oral temperature of 99°F. Given her critical clinical status and inability to ambulate, the patient was unable to provide an ambulatory oxygen saturation. On physical examination, the patient appeared visibly tachypneic without retractions. She had diffuse, bilateral crackles on auscultation. She was tachycardic without a murmur, rub or gallop.

Lung point-of-care (POCUS) revealed thickened, irregular pleural lines, focal sonographic pattern of confluent B-lines and subpleural consolidations consistent with COVID-19+ lung ultrasound findings (Figures 1 - 5). There were many spared areas of lung with normal lung ultrasound findings. The portable chest x-ray (CXR) demonstrated diffuse, patchy, peripherally located airspace opacifications suggestive of multifocal pneumonia. The patient was intubated in the ED.

As of April 2020, more than 107,000 cases of COVID-19 have been identified in New York City with over 29,500 hospitalizations and over 10,000 deaths.[1] It has been reported that 78% of patient admissions to the adult hospital are COVID-19 related at our institution. Previous studies have demonstrated POCUS to be an accurate diagnostic modality to identify pneumonia compared to CXR.[2] Computed tomography (CT) exposes the patient to ionizing radiation, potentially contaminates the imaging suite, requires prolonged patient turnover times and thorough decontamination. POCUS is easily portable, lacks ionizing radiation and can easily be decontaminated between patients.

Technique

The authors prefer to use the phased-array and curvilinear ultrasound transducers in adult patients for lung POCUS. The linear transducer may allow better resolution of the pleural line but may not image deeper pulmonary pathology, if present. In contrast, the linear transducer is preferred in pediatric patients, if body habitus allows. The patient should be positioned in such a way that his or her chest and back are accessible. This may prove difficult, and another provider, also equipped with personal protective equipment (PPE) or parent be present to assist with patient positioning.

The authors recommend using a 12-point lung scan for adults. Each hemithorax is divided into superior and inferior, anterior, lateral and posterior regions (Figure 6a). These regions are demarcated vertically by the parasternal, anterior axillary, posterior axillary and paravertebral lines. Rather than recording 12 discrete video clips of each lung zone, the "lawnmower technique," is applied to lung scanning so that each vertical zone is combined with vertical sweeps (Figure 6b).

Lung Ultrasound Findings in COVID-19

Early investigations from China focused on 20 patients in which the authors compared CT and ultrasound findings of the lungs of patients diagnosed with COVID-19. The following were common findings in lung POCUS in COVID-19 patients.[2] It is important to note that normal lung may be seen, as well.[3]

Common COVID-19 Lung POCUS Findings

- Thickened, irregular pleural line (Figure 1)
- Discrete, minimal B-lines (Figure 2)
- Confluent B-lines (Figure 3)
- Subpleural consolidations (Figure 4)
- Pleural effusions are uncommon (Figure 5)

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1. COVID-19: Data. Accessed April 15, 2020 from https://www1.nyc.gov/site/doh/covid/covid-19-data.page.
2. Alzahrani SA, Al-Salamah MA, Al-Madani WH, Elbarbary MA. Systematic review and meta-analysis for the use of ultrasound versus radiology in diagnosing of pneumonia. Crit Ultrasound J. 2017 Dec;9(1):6.
3. Havelock T, Teso R, Laws D, et al. Pleural procedures and thoracic ultrasound: British Thoracic Society Pleural Disease Guideline 2010. Thorax. 2010 Aug;65 Suppl 2:ii61-76.
4. Peng QY, Wang XT, Zhang LN. Chinese Critical Care Ultrasound Study Group (CCUSG). Findings of lung ultrasonography of novel coronavirus pneumonia during the 2019-2020 epidemic. Intensive Care Medicine. 2020 Mar 12.
5. Dinh V. POCUS101: How to start performing lung ultrasound for COVID-19. Complete guide. April 1, 2020. Accessed April 10, 2020 from https://pocus101.com/complete-guide-to-lung-ultrasound-in-covid-19-coronavirus-patients/

SOUND ROUNDS

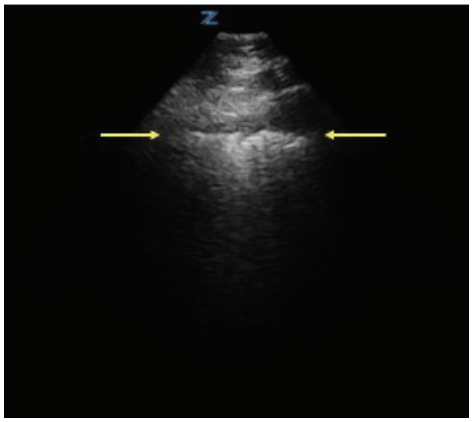


*Figure 1. Ultrasound image of the lung of a COVID-19+ patient demonstrating a **thickened, irregular pleural line** (between yellow arrows).*

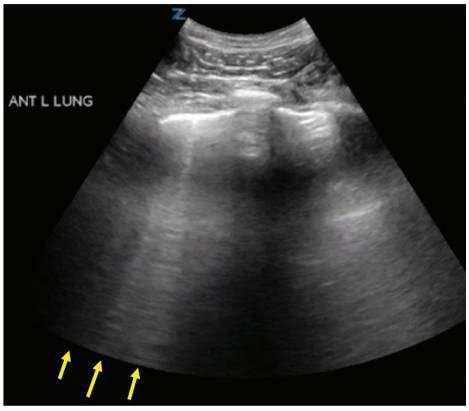


*Figure 2. Ultrasound image of COVID-19+ lung with **minimal B-lines** (yellow arrows) of the left lung anteriorly.*

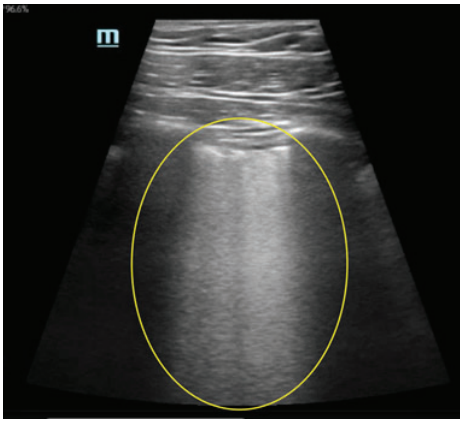


*Figure 3. Ultrasound image of COVID-19+ lung with **confluent B-lines** (circled in yellow)*

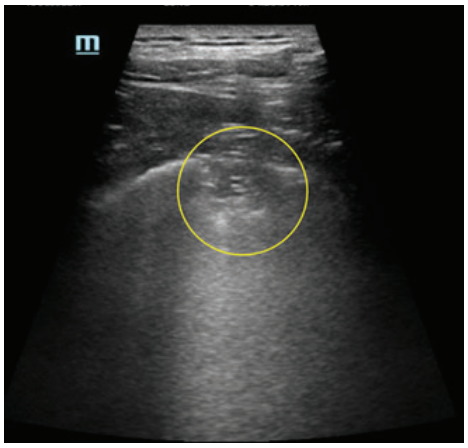
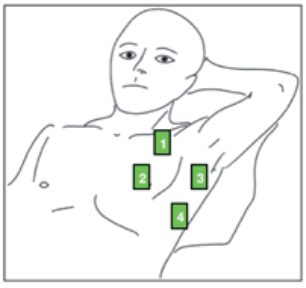


*Figure 4. Ultrasound image of COVID-19+ lung with **subpleural consolidation** (circled in yellow)*

12-Point Lung Ultrasound Exam
(*6 points on each side)



#	Lung Field
1	Anterior Superior
2	Anterior Inferior
3	Lateral Superior
4	Lateral Inferior
5	Posterior Superior
6	Posterior Inferior

Figure 6a. The 12-Point Lung Ultrasound Exam. Image the anterior (areas 1, 2), lateral (areas 3, 4) and posterior (areas 5, 6) regions of the thorax. Repeat imaging on the contralateral lung fields. Image adapted from Havelock, Tom et al.[3]

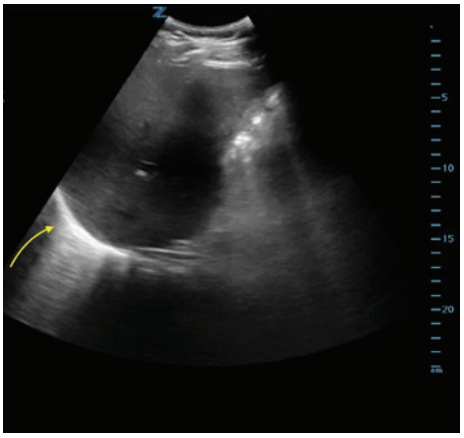
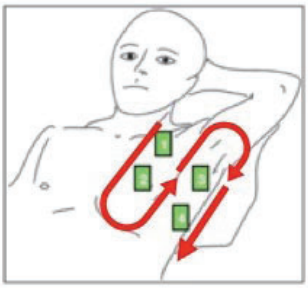


*Figure 5. Ultrasound image of COVID-19+ lung with **lack of pleural effusion** (yellow arrow).*

12-Point Lung Ultrasound Exam
(*6 points on each side)



#	Lung Field
1	Anterior Superior
2	Anterior Inferior
3	Lateral Superior
4	Lateral Inferior
5	Posterior Superior
6	Posterior Inferior

Figure 6b. The "lawnmower technique" to evaluate the 12-points of the lung. Slide the transducer up and down each portion of the lung (red arrows).

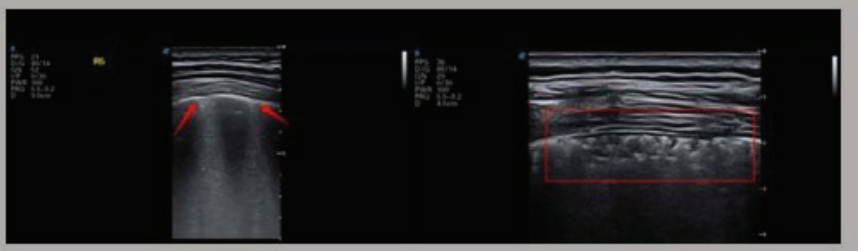
SOUND ROUNDS

Guest Author
Thomas M. Kennedy, MD
Pediatric Emergency Medicine, Emergency Ultrasound Fellow, Department of Emergency Medicine, NewYork-Presbyterian Morgan Stanley Children's Hospital; Columbia University Irving Medical Center

COVID-19 Lung Ultrasound Literature Reviews

Ultrasound COVID-19 Manifestation

Purpose
To explore the ultrasound manifestations of peripulmonary lesions of non-critical COVID-19, so to provide reference for clinical diagnosis and efficacy evaluation



Methods
The clinical and ultrasound data of 20 patients with clinically diagnosed non-critical COVID-19 treated in a Chinese hospital were retrospectively analyzed. Conventional 2-dimentional ultrasound and color Doppler ultrasound were used.

Key Results
1) COVID-19 foci are mainly observed in the posterior fields in both lungs, especially posterior lower fields.
2) Fused B lines and waterfall signs are visible under the pleura.
3) The pleural line is unsmooth, discontinuous, and interrupted.
4) Subpleural lesions show patchy, strip, and nodule consolidation.
5) Air bronchograms sign or air bronchiologram sign can be seen in the consolidation.
6) Color Doppler shows insufficient blood supply in the lesions.

Huang Y, Wang S, Liu Y, et al. A preliminary study on the ultrasonic manifestations of peripulmonary lesions of non-critical novel coronavirus pneumonia (COVID-19). Available at SSRN: https://ssrn.com/abstract=3544750

An Italian Experience

Context
Since the beginning of 2020, these authors have used lung US for identification of lung involvement with COVID-19 and to measure pulmonary severity in patients using a lung US score.

Lung US Score
A point scoring system is employed in which each lung zone is graded 0-3. The lung fields are divided into 12 segment. A score of 0 is normal and 36 is the worst.

Key Points
1) An experienced sonographer can complete the lung US examination within 5 minutes.
2) An ultrasound appearance that is pathognomonic of COVID-19 has not be identified.
3) Lung ultrasound has helped in clinical decision making and reduced the use of both chest X-rays and computed tomography scans, making management more efficient.
4) Use of a lung ultrasound score can be used to follow the clinical patient trajectory.

Vertrugno L, Bove T, Orso D, et al. Our Italian experience using lung ultrasound for identification, grading and serial follow-up of severity of lung involvement for management of patients with COVID-19. Echocardiography 2020 [Epub ahead of print].

SOUND ROUNDS

Proposal for International Lung US Standardization

Background

COVID-19 presents a global emergency that needs a global unified approach with researchers speaking the same language. The authors propose a standardization for international use of lung US in management of COVID-19.

Methods

Clinicians shared 30 cases of confirmed COVID-19 on a virtual database. Images were reviewed by all team members and listed in classes of severity. A biomedical engineer analyzed the data and suggested a scoring system.

Scoring System

- Score 0 = normal lung ultrasound appearance
- Score 1 = the pleura line is indented and B-lines are present
- Score 2 = the pleura line is broken below which small to large consolidated areas appear with associated areas of white below
- Score 3 = the scanned area shows dense and largely extended white lung with or without large consolidations

Soldati G, Smargiassi A, Inchingolo R, et al. Proposal for international standardization of the use of lung ultrasound for COVID-19 patients; a simple, quantitative, reproducible method. J Ultrasound Med 2020 [Epub

Calendar

June 2020

10 Education Committee Conference Call, 2:45 pm
10 Professional Development Conference Call, 3:30 pm
11 Practice Management Conference Call, 1:00 pm
17 Government Affairs Conference Call, 11:00 am
17 Emergency Medicine Resident Committee Conference Call, 2:00 pm
17 Research Committee Conference Call, 3:00 pm
18 EMS Committee Conference Call, 2:30 pm

July 2020

7 Zoom Board of Directors Meeting - 12:00 pm
7 Zoom Annual Meeting, 1:00 pm
7 Zoom Board of Directors Meeting, 2 pm
8 Zoom 2020 Research Forum, 2:00 pm

September 2020

9 Education Committee Conference Call, 2:45 pm
9 Professional Development Conference Call, 3:30 pm
10 Practice Management Conference Call, 1:00 pm
16 Government Affairs Conference Call, 11:00 am
16 Emergency Medicine Resident Committee Conference Call, 2:00 pm
16 Research Committee Conference Call, 3:00 pm
17 EMS Committee Conference Call, 2:30 pm

October 2020

14 Emergency Medicine Resident Career Day, 8:00 am - 1:00 pm
14 Education Committee Conference Call, 2:45 pm
14 Professional Development Conference Call, 3:30 pm
15 Practice Management Conference Call, 1:00 pm
21 Government Affairs Conference Call, 11:00 am
21 Emergency Medicine Resident Committee Conference Call, 2:00 pm
21 Research Committee Conference Call, 3:00 pm
22 EMS Committee Conference Call, 2:30 pm

November 2020

4 Resident Research Conference, 8:00 am - 12:00 pm, Lenox Hill Hospital
11 Education Committee Conference Call, 2:45 pm
11 Professional Development Conference Call, 3:30 pm
12 Practice Management Conference Call, 1:00 pm
18 Government Affairs Conference Call, 11:00 am
18 Emergency Medicine Resident Committee Conference Call, 2:00 pm
18 Research Committee Conference Call, 3:00 pm
19 EMS Committee Conference Call, 2:30 pm

PRACTICE MANAGEMENT

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Guest Author
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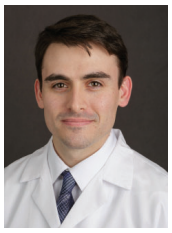

Guest Author
James F. Kenny, MD
Assistant Medical Director, Milstein Emergency Department; Department of Emergency Medicine, Columbia University; Member, New York ACEP Practice Management Committee

Lessons Learned From Launching a Geriatric ED

It's a busy Monday afternoon and as the emergency department (ED) swells to capacity, EMS arrives with an 83-year-old woman who suffered a mechanical fall while ambulating to the bathroom in her apartment. After a thorough physical exam, she is ordered for imaging and found to have a pubic ramus fracture, but no other injuries. Despite adequate pain medication, she is unable to walk and is unsafe to discharge home. As you prepare to admit this patient for subacute rehabilitation (SAR) placement, the geriatric nurse manager of your newly-launched Acute Care of Elders (ACE) team approaches you…

Why Start a Geriatric ED Program?

Adults over the age of 65 currently make up approximately 15% of the US population[1] and according to the US census, "will outnumber children for the first time in US history" by 2034.[2] The rapid growth of an aging population is particularly evident in EDs, where patients over age 65 account for almost one out of every five ED visits, 43% of all admissions and almost half of all patients admitted to an ICU.[3] Resource utilization within the ED is higher for these patients as well and includes longer length-of-stay and increased testing.[3] As a result, the ED is well-positioned to provide specialty care to this population, improving both outcomes and the value of care delivered.

For patients, the value of a geriatric ED (GED) comes from the interdisciplinary approach that focuses on care issues specific to this population. Guidelines and protocols aimed at improving outcomes include cognitive disorders screening, medication management, physical therapy evaluation and services such as care coordination and social work.[4] For EDs and hospitals, a GED can reduce unnecessary admissions and help address decreasing Medicare reimbursements, while improving patient experience and satisfaction.[3] The benefits of a GED can be immediate and dramatic; in our second month after launch, physical therapy was able to change the disposition from 'likely admission' to 'discharge' in 24% of patients they evaluated in the ED. That same month, over 40 admissions were safely spared through the efforts of our care managers and social workers.

Success stories such as these are pivotal in demonstrating the value of a GED program. Over the course of developing our GED, we studied other programs throughout the country and considered how certain models might translate at our institution. As a result of this process and our own launch, we learned several key lessons that we feel would be useful for any department thinking about developing a program of their own.

Lesson #1: Engage Leadership

The key to a successful GED program begins with leadership engagement. At our institution, we were fortunate enough to have both senior hospital leadership and chair level support. Advocates at these levels can help coordinate funding via philanthropy, allocate the resources necessary to create an interdisciplinary team and engage materials management and hospital operations in order to procure new equipment and implement structural changes. While this may seem intuitive, it is important to recognize that not all leaders see the value in starting (or even maintaining) a GED, so invested leaders prove critical in creating a sustainable program.

Lesson #2: Define Your Goals

As with any initiative, it is important to plan strategically. Since the American College of Emergency Physicians (ACEP) began accrediting GEDs, various models have been developed.[5] While each is dependent on local resources and has distinct advantages and disadvantages, aligning the program's goals with departmental and institutional objectives is essential. For example, at institutions with ED boarding problems, it is advantageous to decrease unnecessary admissions of older patients being admitted for "social reasons" so that hospital flow is maintained.

Patient safety and quality improvement goals should align with hospital-wide initiatives. These can include decreasing inpatient falls by screening for mobility issues and consulting physical therapy in the ED, managing polypharmacy by teaching staff about Beers Criteria,[3] and improving patient experience by creating an environment that both patients and families appreciate and trust. Developing these goals aligns with Lesson #1; leadership input will help guide your decisions. Transitioning into Lesson #3, your goals (and how you decide to operationalize achieving them), will ultimately influence how you design your team.

Lesson #3: Think Broadly When Creating Your Team

From a staffing perspective, the minimum requirement for accreditation through the ACEP GEDA (Geriatric ED Accreditation) program is one physician champion and one nursing champion.[4] As one might imagine, the bandwidth of just two people can become narrow if your goal is to create a high functioning program. Therefore, we found that incorporating care management, social work, physical therapy (PT), pharmacy, and a geriatric nurse manager into our team allowed us to provide more comprehensive care. We also involved our departmental patient referral service to help schedule follow up appointments for patients

PRACTICE MANAGEMENT

being discharged, as well as our ED equipment coordinator to ensure new equipment such as recliner chairs, overbed tables and patient lifts were efficiently procured.

All of these team members are embedded in the ED and they collectively make up our ACE team. The goal is to help offload many non-clinical tasks from our ED providers such as coordinating with rehab facilities, home health aide agencies and medical equipment vendors. This allows providers to remain focused on patient care, while also ensuring the patients' medico-psychosocial needs are met. Outside of the ED, we collaborated with the Geriatrics service to help educate our ACE team members and telemedicine to have pharmacy technicians perform medication reconciliation via telehealth tablets located in the ED.

Successful integration of these various services required coordination prior to launching our GED. Senior hospital leadership and chair level support helped us bring everyone together during this preparation phase, but post go-live, it was our experience that the team's collective successes laid the foundation for fluid communication between all parties and positive team dynamics.

Lesson #4: Get a Little Help From Your Friends

"The Beatles" taught us that you can get by with a little help from your friends and the lesson is completely applicable to geriatric emergency medicine (GEM). This is a relatively new field, but groups such as the ACEP Geriatric Emergency Medicine Section (GEMS) and the Society for Academic Emergency Medicine's Academy of Geriatric Emergency Medicine (SAEM AGEM) provide a community of geriatric emergency medicine specialists focused on collaboration and the advancement of geriatric emergency care. Throughout the development of our GED and over the course of the first nine months, we visited multiple other GEDs, consulted with GEM experts at other institutions and collaborated with them on academic projects. Other valuable resources include the Institute for Healthcare Improvement's (IHI) Age-Friendly Health Systems initiative and the Geriatric Emergency Department Collaborative (GEDC).[6,7]

Lesson #5: Create Buy In

The principles of creating buy-in for a GED are no different than for other forms of organizational change.[8] Begin by laying out a unified vision with strategic goals that are valuable and relevant to each group of stakeholders. The value of a GED to senior hospital leadership may be very different than the value to a clinical nurse in the ED. Give each group the opportunity to provide feedback and be heard; incorporate great ideas while validating and considering anxieties or concerns.

As with any new change, frequent and honest communication is essential. While emails are the most commonly (over) utilized medium, consider a variety of other formats to introduce the new geriatric ED and provide ongoing feedback. A brief presentation at faculty meeting, interdisciplinary ED rounds, informal discussions with colleagues and staff and even social media can help spread the word, create excitement and align the team. Share data, success stories and highlight the individual work of frontline staff; communicating frequently and through different channels will improve the chances of reaching as many people as possible in a memorable way.

Although this final concept was alluded to, it is worth explicitly stating: work 'bidirectionally' to create buy-in. While ED and hospital leadership may be fully committed to launching a GED, involving front-line staff in decision-making, implementation and ongoing changes is critical to maintaining buy-in and to the success of the project.

Lesson #6: Anticipate Certain Challenges

Many challenges will be institution specific, but certain hurdles we faced included data analysis and hours of operation. Data analysis in the form of operational and quality improvement dashboards is essential to developing an accurate assessment of your program. Without this information, it can be difficult to identify areas of need. In part, our challenge in this area was related to a simultaneous transition to a new electronic health record, but the experience underscores the need for data-driven decisions.

Many GEDs do not operate 24/7. Depending on the size and make up of your team, you may only be able to provide services for limited periods of time, such as a few days per week. While this should not discourage one from developing a program, recognize that it will impact the scale of change you can make. Data and success stories become key in advocating for more resources in the form of additional personnel and expanded hours.

Lesson #7: Keep Future Goals in Mind

GEDs not only have the potential to provide valuable care to patients, but they offer a variety of professional opportunities as well. Depending on the focus of the program, the emphasis can be on clinical operations, quality improvement and patient safety, research or education. Any program can also evolve and shift focus over time. We initially focused on tailoring our clinical operations to accommodate this new program and developing a foundation that would grant us Level 3 GEDA accreditation, all with a goal of decreasing avoidable admissions and improving patient care.

As we expand, we hope to broaden education to all staff and develop extensive operational dashboards that can be used throughout our hospital system. We would also like to expand our outpatient network in order to provide more resources to patients at home, as well as develop a reliable follow up process for patients discharged from the ED. Lastly, we continue to actively work on scholarly projects both locally and nationally.

...In Closing

Through the coordinated efforts of the ACE team in the GED, the patient in the opening story had a more preferable course trajectory. After a thorough review of her medications and a screening for cognitive impairment, the patient was evaluated by PT and determined to require inpatient rehabilitation. The social worker contacted the patient's family while the ACE team care coordinator was able to complete all necessary documentation for SAR admission. Instead of admission to the hospital for placement, the patient was transferred to a SAR near the patient and family's home, directly from the ED, with a plan for a fall-risk home assessment after her return.

references on page 18

ASK THE EXPERTS

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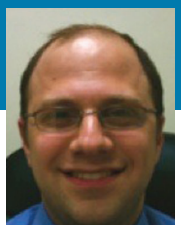
Chair, New York ACEP Professional Development Committee



Interview With
Kate Aberger, MD FACEP
Board Certified in Emergency Medicine and Palliative Medicine; Medical Director, Division of Palliative and Geriatric Medicine, St. Joseph's Health, Paterson, NJ

Interview By
Muhammad Waseem, MD MS FACEP
Associate Professor, Emergency Medicine in Clinical Pediatrics, Attending Physician and Research Director, Department of Emergency Medicine, Lincoln Medical Center

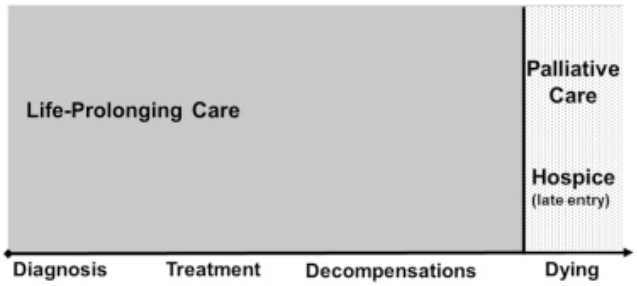
Palliative Emergency Medicine

Introduction

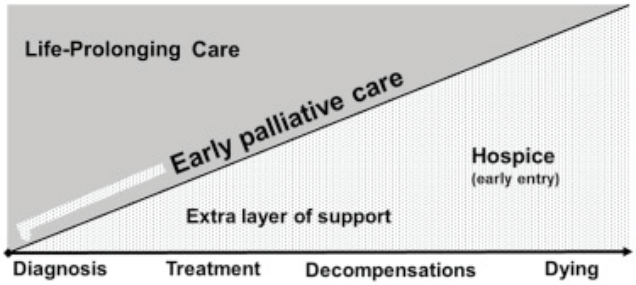
People are often confused when they hear that I am an emergency medicine physician who also practices palliative care. "Aren't they opposite specialties?" As a matter of fact, they are not. What I have learned on this journey is that most of my training and early years as an attending were focused on the technical aspects of medicine. We are then almost trapped by our own training, unable to deviate from the agendas and treatment courses we learn to manage quickly and effectively in the Emergency Department (ED). Questions like "why" and "should we" were left unanswered. What I hope you will see in this short interview is that there is so much more to being a physician than the technical part. The human part, the connection and communication piece was what was missing for me, and with palliative care principles I have been able to become more of what I imagined being a physician was like when I embarked on this journey of wanting to help people. Now, regardless of where I am practicing, whether it is in the ED or on the floors as a palliative care physician, I can address suffering in any form, as well as deliver exquisite technical care.

What is palliative medicine? Please describe the main conditions addressed by palliatives care.

Palliative medicine is specialized medical care for patients and families dealing with serious illness. It focuses on symptom management – physical, mental, psychological and spiritual suffering – of the patient and their families. It offers an extra layer of support for patients and families navigating serious illness. It is appropriate for any age and any stage of illness, from diagnosis until death or cure. Serious illness includes the following; cancer, dementia or other progressive neurological conditions, heart failure, COPD, liver failure, etc. It does not mean hospice or comfort care. It is an approach to patients and families no matter what line of treatment they are pursuing. Many of my "palliative patients" are undergoing full aggressive chemotherapy and are not DNR, but they are seen by me for pain/symptom management and support to best get through the treatment. Palliative is not a destination. Transitioning to comfort care or hospice care is the final phase of a palliative patient (or any patient really).



Current Paradigm: Disease Trajectory with **Late** Palliative Care Intervention



Ideal Paradigm: Disease Trajectory with **Early** Palliative Care Intervention

How is it relevant to emergency medicine? How does emergency medicine fit in with the specialty of palliative medicine?

In the ED we treat patients every day who are living with serious, chronic illnesses. Often, they are our frequent fliers – because their conditions are so complex and our healthcare system is so fragmented and broken, that they often have no recourse but to come back to the ED. They come back for many reasons: when their symptoms are too burdensome; when they cannot navigate the system; when they cannot get in to see specialists in a timely fashion; when the family is overwhelmed; when the pain is not under control; when they are frustrated and angry and "want everything done" – do any of these sound familiar?

Palliative communication skills should be taught in chapter 1 of Tintanelli– during the resuscitation chapter. When we are resuscitating someone, we need to be thinking of not only how to do it, but should we be doing it? If you have 10 minutes where you can tempo-

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rize someone who is obviously at the end of life with bilateral positive airway pressure or fluids, can we take that 10 minutes to find next of kin and have an abbreviated goals of care conversation with them about their dying loved one? Can we tell them they are dying without offering a choice about code status? Why do we burden families with that choice? We are the physicians; if we believe that resuscitation is burdensome or futile, we should not offer it. This is impossible with the language we have learned in residency. The false dichotomy of doing everything vs. doing nothing has trapped us.

Empathetic communication is a central tenant of palliative medicine, as is symptom management. With both of these skills, we are then able to competently lead our patients through their illness, and subsequently through their death. Learning to listen and communicate directly and compassionately are skills that we can take into any specialty. Many of us think we are good at this, as I did, but after I learned some palliative specific communication skills, I realized I had been using the wrong language the entire time. Instead of creating false dichotomies with impossible answers "do you want everything done", I learned to ask, "what do you understand about your illness?" And then "what is important to you as you get sicker?" And then to make recommendations based on what I know about the illness and about the interventions and what I have learned about the patient and family in front of me.

It would not be an overstatement to say that this form of communication and caring for patients has reconnected me with why I became a doctor, and has restored the patient doctor relationship for me. "You treat a disease: you win, you lose. You treat a person; I guarantee you win – no matter the outcome" Patch Adams – sums it up nicely for me. "But wait!" You say – "We have no time for that in the ED!" And yes, you are correct, often we do not. But just like any other specialty – we know a baseline amount of cardiology, infectious disease, pulmonology, etc. – same with palliative medicine. We can learn enough to be effective communicators and symptom managers in the moment, and to recognize the need for a consult as the needs of the patients and their families become more complex.

The most obvious example of palliative medicine in the ED is the actively dying patient, as I began to describe above. Or the patient who is in extremis who is obviously at the end stages of his disease. Do we resuscitate? The answer is no. At that point in a patient's life, resuscitation is not indicated. Just like any other intervention, antibiotics, surgery, etc., there are indications and contraindications to resuscitation – and just like the type of antibiotic or whether we perform surgery – it is not up to the family as to "what they want". Of course, they want their loved one to live. But the burdens and risks of resuscitation when the patient is at end stage of disease outweigh the benefits. We can and should not offer resuscitation as an option. I know this is a massive shift in how we are trained. It is all in how we communicate it. "I am sorry, your loved one is dying. We are going to do everything we can to make her as comfortable as possible." See what I did there?

How can simulation be used to teach palliative medicine?

There are two scenarios that should be simulated in order for Emergency Medicine (EM) physicians to practice communication skills in patients with serious illness. One is breaking bad news; in this scenario, the resident has just run a code which has failed and the patient has died. They then have to go to the family room to break bad news to the actor playing the worried family member. This is an essential skill in EM and can be used to break bad news about a sudden death, about a miscarriage, about a new cancer diagnosis or a worsening of an existing serous diagnosis. The spikes protocol is a great way to learn this important skill.

The second scenario can be practiced and thought of as a procedure. This is the abbreviated goals of care conversation. This conversation is used to guide patients or families through difficult decisions that need to be made in the ED, regarding interventions like code status or comfort care. As David Wang published in annals (https://www.annemergmed.com/article/s0196-0644(16)31333-6/fulltext), there is a template we can use to guide these conversations:

Approaching 5-minute ED goals-of-care conversations systematically as a procedure.

Phase	Action
Minutes 1–2	Elicit patient understanding of underlying illness and today's acute change If available, build on previous advance directives or documented conversations Acquire sense of patient's values and character (to help frame prognosis and priorities for intervention) Name and validate observed goals, hopes, fears, and expectations
Minutes 3–4	Discuss treatment options, using reflected language Continually re-center on patient's (not family's) wishes and values Recommend a course of action, avoiding impartiality when prognosis is dire
Minute 5	Summarize and discuss next steps Introduce ancillary ED resources (e.g., hospice/observation unit, social work, chaplain)

The scenario could be a known COPD patient on home oxygen who comes in with worsening shortness of breath. You have temporized his symptoms on bilateral positive airway pressure and he is somewhat improving although you are worried that he is high risk for intubation. You are admitting him, but want to take a few minutes to assess his goals of care. Have an actor play the role of patient, and practice having this conversation. You are trying to elicit code and intubation status, but not by asking it directly. Use the outline above to guide the 5-10-minute discussion. It takes longer to place a central line!

If one is more interested and willing to spend a weekend, one can become a "train the trainer" at a conference called EPEC ("education on palliative and end of life care") focused on palliative care in the ED. Topics covered include communication skills, symptom management and ethics relevant to palliative care. (https://www.bioethics.northwestern.edu/programs/epec/conferences/index.html)

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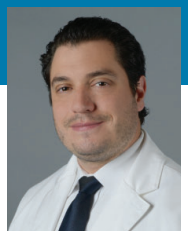

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Challenges in Interfacility Transportation of Mental Health Patients

Mental health patients in the Emergency Department (ED) present an incredible challenge. Whether they are being evaluated for suicidal ideation, acute psychosis or other exacerbated states, it is not difficult to conjure an image of your last encounter with such a patient. Specifically problemsome to our departments are the physically aggressive; whether attempting to launch off their stretcher and out the door or assaulting your support staff. Oftentimes you are forced to consider sedating the patient in order to complete your medical evaluation. After treating this patient, your next goal is dispositioning ASAP. Whether it is admitting locally or arranging for transportation to a psychiatric facility, we can all recall the time the transportation crew arrives and suddenly your previously sedated patient wakes up - now more agitated and combative than before. Now what?

While the number of mental health related emergency department visits increase annually, the number of available beds in hospitals are decreasing. Emergency providers are finding themselves responsible for more than just medical clearance and disposition. With the dwindling number of available inpatient beds, many patients require transportation to appropriate psychiatric facilities for further care. Although an appearingly simple exercise, the transportation of mental health patients between facilities exposes vulnerabilities that are potentially harmful to the patient and provider. This is captured by Drs. Moskovitz, Sapadin and Guttenberg in their 2020 JACEP article *Interfacility ambulance transport of mental health patients*.

As mentioned in the article, there is no formal database to report violence and trauma that occurs in transit to EMS or the patient. The media is littered with stories of mental health patients acting in an aggressive manner, putting others' lives and their own at risk. In fact, you may have witnessed your own coworker being assaulted by an agitated patient or been a victim yourself. In the course of medical evaluation of such patients, most hospital facilities exercise discretion in protocol for sedation, restraint and aggression assessment. In the ED, we are fortunate to have security available as back up and are equipped with resources such as medications and restraints. Imagine being an EMS worker traveling in the small enclosed space of the ambulance with such a patient. If we feel threatened in the ED, how should they feel in an ambulance? In a novel effort, this article identifies key items that should be considered by hospital systems to advance efforts of safety and care for both the patients and the providers. These include, but are not limited to, screening criteria for EMS to appropriately triage patients to psychiatric institutions, telepsychiatry services, safe restraint and sedation mechanisms as well as the legal quagmires that make navigating the health system challenging.

The medical-legal paradigm poses a few additional challenges in addressing this issue. One can imagine the decision to restrain and overpower an individual, stripping them of their free will, must be regulated. As per the New York State Department of Health (DOH) and Office of Mental Health, restraint may be "used when the patients' dangerousness is of such immediacy that less restrictive interventions cannot be safely employed." This can be applied by the physician or medical team prior to transfer as well as the EMS team during transfer. Interestingly, the jurisdiction ends at the doorstep of the receiving facility and the Justice Center takes over. Unfortunately, the DOH and Justice Center policies are not aligned in terms of management of the agitated patient due to their inherent differences. Given the shift in department oversight, a restrained patient is at risk of being transferred back to the ED if there is discrepancy. This gray area can lead to suboptimal patient care and increase the risk of an altercation in transit and poor patient outcomes.

As a community driven by statistics and controlled processes, health care workers are unable to fully grasp the dearth of knowledge in this key aspect of patient care due to the lack of reporting and transparency. Transporting mental health patients should not be a black box topic but instead, explored, analyzed and improved upon.

From the existing information it is clear that additional work must be done to standardize checklists and tools so that providers can protect themselves and care for their patients. There is little unified dialogue on such a universal issue and this article is a call to action to protect our patients and therefore ourselves. We need to bridge this gap in the care of our mental health patients particularly during the time of interfacility ambulance transport.

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Another great resource is VitalTalk. This is an app which has communication tips for every clinical scenario! (https://www.vitaltalk.org/)

How to develop a career palliative medicine: What are the options? How satisfying is the experience?

There is a huge need for fellowship trained palliative care physicians. After residency, palliative medicine is a one-year fellowship. This is open to EM trained doctors. I have known many EM physicians who go back to fellowship 5-10 years into their careers, as well as going straight through after residency. Either way, the experience deepens your relationship to medicine. The field is extremely rewarding. In order to do it well, one must be very attuned to one's emotional state. This too, is very different from how we are trained in all residencies; e.g. "do not feel, keep it all compartmentalized". Practicing any type of medicine, but especially high intensity and high emotion specialties like palliative and emergency medicine, require significant self-reflection, self-knowledge and self-regulation in order to not get burned out or suffer from PTSD.

Speaking from personal experience, shifting how I speak to and interact with patients and learning more tools to relieve suffering of my patients and their families has saved my career. After only five years out of residency, I was burned out, and actually suffering from low grade chronic PTSD. Developing a career and competency in palliative medicine, as well as a lot of therapy and help, has given new meaning to my work and helped me integrate all the pieces of myself that I had compartmentalized for so long.

What are barriers and challenges in integrating palliative medicine into the EM curriculum? What are the difficulties in providing palliative care in the ED? Do EM physicians have enough time for this type of care?

The main barrier is ourselves. Many of us, myself included, believe that we are already good communicators. This is an example of "you do not know what you do not know". I challenge you to spend time with your palliative colleagues or look into vital talk or any other resource and see how conversations and communication are being taught. In my case, I had to unlearn a lot of bad habits and then rebuild. Much of it goes against our training and seems like it takes much more time. Once it becomes second nature though, it actually saves time, testing and frustration.

Another barrier is the misconception that palliative care means comfort/hospice care. This is not the case. Patients getting aggressive treatment can get palliative care – good communication, good symptom management, good support. When one is resuscitating or treating someone who has a serious illness that is progressing and they are suffering in some way, one should automatically think of palliative care as a consult for that patient. Not to talk them out of aggressive treatment, but to support them as they go through the journey of their illness. Again, in the ED, we will have the most contact with palliative care with the actively dying patient. For these patients we can develop protocols, develop relationships with local hospices and allocate a quiet room and support for the families, to ensure good symptom management and avoid trauma for end of life patients and families in the ED.

I would be remiss if I didn't talk about time. Yes, this is generally a time-consuming field. More often than not, you will not have time or emotional reserve to do this in the ED, or the proper next of kin will not be available or the family will be in too much distress to have these full conversations. For the brief interventions described above, they are and should be considered procedures and practiced as such. If nothing else, prepare the family for the possibility of the consult if you have that resource available in your hospital. Call them for a consult and the inpatient palliative team can take over from where you left off with goals of care or support of the family or pain management.

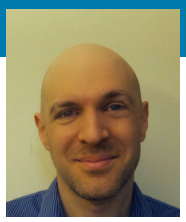
Any thoughts for EM residents who want to pursue a career in this field?

I would tell you that you will never regret it. Even if you do not end up practicing, it will inform everything that you do in your life – work related and not. It has made me a more mature physician, much more equipped to meet people compassionately wherever they are in their illness. It has also made me a better wife and mother and friend. I am stronger emotionally because of the focus on self-awareness and self-care. And I do not mean yoga. I am talking about freedom - from fear, ego and powerlessness. I am talking about becoming a true healer.

Conclusion

The ED has become a force to be reckoned with – the entire trajectory of a patient's care begins in the ED. We have enormous influence and power as to what happens to patients after they leave our care. We need to harness this power for the good of our patients, as well as our souls. A well-timed "what do you understand about your illness?" And a frank discussion of prognosis and subsequent goals can seriously impact the course of a patient's hospitalization and subsequent care, even if it does not change what you do in the ED.

EM was born out of necessity to deal with public health issues and patient populations that were underserved, ignored or passed off by other specialties – victims of violence or accidents, the uninsured, the inconvenience of off hours emergencies. Those victims have become the core of EM –the poor, the uninsured, the addicted, the mentally ill. Today I argue that people with serious illnesses are one of these populations that are chronically underserved, because of our broken system. Conversations about serious illness and death are some of these issues no one wants to deal with. Instead of asking "why us?" let us ask "if not us, then who?"



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What is a Hospital For?

The modern American hospital, as a concept, began with the conversion of almshouses into institutes of healing such as Bellevue Hospital in New York and Charity Hospital in New Orleans. Prior to this most cities had "pest houses" or isolation hospitals, outside of the city limits, which would serve to remove individuals with communicable diseases, disabling conditions and mental illnesses from the society in which they resided. The advent of the civil war and the formation of nursing as a profession in which sick and dying soldiers were cared for by specially trained women resulted in a new socially acceptable career. Advances in medical knowledge imported from Europe allowed for the mission to shift to the healing of patients from one of societal isolation. Physicians began to accept charitable donations in order to fund hospital systems for the purposes of training and in order to practice and refine surgical and obstetric techniques alongside the burgeoning nursing profession.

Though the movement to a more modern based hospital approach to patient care resulted in a direct benefit to the individuals it served, the motivations were not always altruistic. Hospitals allowed physicians to develop care techniques by utilizing vulnerable populations as subjects upon which to refine the practice of medicine and surgery. The same sick, indigent and psychiatrically disabled individuals that comprised the residents of almshouses now served as the subject of medical experimentation and training. This time period did however result in rapid discoveries including the control of pain and anesthesia, blood transfusions, x-ray technology, sterile technique and an apprehension of the germ theory of disease. For most of its early existence the modern American hospital grew in its ability to actually care for and heal sick individuals rather than provide them with an isolated place to die. Unfortunately, it did so upon the suffering of disenfranchised individuals and in numerous experiments most notoriously upon prisoners.

As the hospital became an American institution, widely accepted for the ability to mend, the financial landscape of American medicine was going through a dramatic shift. Concomitant with the growth in the hospital landscape was a simultaneous growth in the health-insurance industry leading to the majority of Americans having health insurance either through private or public insurers by the 1960s. Health care insurers, by distributing costs over vast swaths of the U.S. population, were able to ensure that the increased cost associated with hospital care was not met by a parallel increase in patient expenditures. Hospitals and the medical profession were free to continue to innovate new and subspecialized branches of care with assurances of funding through increased insurance reimbursement. The combination of these market forces set up the next few decades' worth of inflationary growth and spending within the health-care market.

U.S. hospitals saw a period of unprecedented expansion from the end of World War II until the 1980s when the rising costs of medical services led to the development of managed care models. The 1980s saw an era of decline replace growth as managed care organizations reduced hospital admissions by 40% undercutting the financial health of hospital corporations. Due to the resultant competitive pressure, hospital closures were accompanied by hospital mergers as market pressures favored larger corporate conglomerates. Hospital systems evolved into houses not just for the acutely ill but for those in need of quick or elective procedures with vast returns on investment. As the increasing bureaucratic demands of negotiating an ever increasing and complex health-care system grew, a new class of hospital administrators proliferated at a pace well above the creation of new physicians.

The forces that shaped the face of the modern American hospital helped establish its inability to meet the need of pandemic level care. The 2020 COVID-19 crisis laid bare the tragic underpinnings of a system built in response to contingent market forces rather than an understood social role of the hospital as an American institution of healing. When the hospital's implicit mission is to maximize revenue in a zero sum marketplace of patient goods and navigate these needs with increasingly complex levels of bureaucratic oversight, the result is a system uniquely unqualified to meet the needs of public health and the medical professionals it employs. An appropriately prepared social institution ensures that it is equipped to serve its explicit role as healer of the sick and protector of its workforce. A lack of preparation and abject failure to provide these basic functions reflects decades of varying redefinitions of the social role of the hospital in American society. Though events like COVID outbreaks are, fortunately, rare, the American Hospital's inability to perform safely under such conditions demonstrates its new social role. The hospital's mission reflects that of the society it serves and cannot solely be blamed for the state within which it currently resides as opposed to reflective of governmental and social priorities. However, the negligence on the part of government and society has merely served to reinforce the emerging role of the hospital as a corporate collective rather than the natural evolution of the former almshouses for the sick and dying.

The values of a society define the institutions it erects to serve as a vanguard for that which is most important to the collectives they serve. At its best the American hospital is a site of mercy, compassion, innovation and healing mirroring the hope we place in the scientists, physicians and nurses we charge with overseeing the health of our communities. However, we have allowed primarily economic forces to shape the mission of the American hospital as reflected by the growth of the administrative class and focus upon lucrative revenue streams to subsume the aims of healing. That the hospital is dependent upon finding new ways to maximize collections in order to remain open is partially responsible for this change in mission. A challenge to the system, such as we currently face in COVID-19, demonstrates the illogic of this model as patients struggle to find ventilators and providers turn to untested means of utilizing protective equipment. We, as a society, define what and whom a hospital is for and what we hope its aims are fit to achieve. Over the past 60 years we drastically redefined those goals to our current unsuccessful model whose flaws are evinced in every provider donning a garbage bag in the hopes it will protect them from an existential viral threat.

RESEARCH

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Concept of Research Scribes in Clinical Research in Emergency Medicine

Emergency medicine (EM) is a unique specialty given the spread of work hours, intensity of work during shifts and variations in scheduling weekly. Emergency physicians who work clinically find it frequently very challenging to be engaged in the research and scholarly activity process. This leads to a loss of some creative minds who could potentially contribute to the science of emergency medicine. Historically, it has been a challenge for departments to find research- focused faculty, and the core faculty also frequently struggle with meeting the RRC requirements for scholarly activity. Emergency medicine is a very innovative specialty and is focused on efficiency and high yield work.

However, research and scholarly activity is a slow and chronic process, which builds over time and needs continuity, dedicated focus and commitment of time. Also, the research writing skills that are used in research are often very different than the writing skills physicians are used to in their day-to-day lives. Often physicians have great ideas, but there are many barriers in penning them down in multiple stages.[2] For example, writing an IRB proposal would include background research and a literature review, and integrating ideas from different papers into a two to three page format. Once the study is approved, besides the research staff aiding in the analysis of the results, publication of the study also requires a lot of intense writing in terms of abstract writing and manuscript preparation, followed by manuscript revision.

Research also needs a lot of collaboration and often collaboration and collaborative correspondences are very detailed and time consuming. All these factors can potentially turn away a physician due to mental fatigue, computer fatigue and lack of leisure time. Physicians often feel in the beginning stages that they are not productive enough with these topics and are not efficient with their time. This leads to a lot of fallout amongst academicians and things get put on the back burner.

The concept of research scribes can potentially solve a lot of these issues. Emergency physicians are quite familiar with the concept of scribes during clinical shifts. Although there is variable response to the credibility, utility and medicolegal issues surrounding scribes, EM groups have often found that scribes do in fact increase the productivity of EM physicians.[1] Scribes also allow for the increase in face-to-face time with the patient and their families.

Along the same lines, I have utilized research scribes over the span of two years as a pilot program and have enrolled six research scribes to date. The research scribe could be a high school student, a pre-medical student in undergraduate school or a medical student and would need some kind of interest in pursuing medicine or a career in the medical field.

Who Can Be a Research Scribe?

The skills required for a research scribe include efficient typing and familiarity with programs such as Microsoft Word, PDFs and PowerPoint presentations. Research scribes usually work remotely over the phone at variable schedules predefined by the Principal Investigator (PI). These are seasonal jobs in the sense that when the scribe moves on to their next endeavor, hopefully they can refer other students who are in the same boat by word of mouth.

This gives flexibility to both the PI and research scribes themselves, who are usually in school, to work at different hours. The scribe calls, as I refer to them, are typically 45 minutes long and further extension of work that can be delegated to the scribe in terms of editing and formatting.

There have been multifold advantages to utilizing a research scribe[3]:

1. It saves time
2. It gives you a constant person to discuss your ideas with
3. Scribes can act as the second pair of eyes for your draft at all times and can be great editors

It is also very beneficial to the scribes in terms of understanding the reasoning and thought process of the investigator, while also learning how to write a manuscript, correspond with collaborators and write a proposal.

Key Issues

The key issues that arise include the following:

1. Protection of intellectual property
2. Trust and agreement to not forward or share information with anyone under any circumstances

These issues can easily be solved by having a legal document created by your lawyer, which is mutually agreeable and binds the

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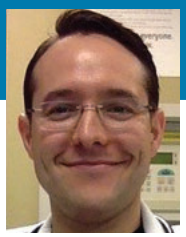

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Chloroquine & Hydroxychloroquine for COVID-19: Still Searching for Answers…

As the COVID-19 pandemic continues to stretch providers and resources to the breaking point, multiple off-label treatment modalities have been proposed for clinical use. The evidence for their utilization is typically lacking, protocols are institutionally variable and emergency providers are left without any clear weapons to curtail the acute effects of this pandemic disease. Of the pharmacopoeia currently being used to treat COVID-19-infected patients, here we focus on two of the oldest and most commonly prescribed medications, chloroquine (Cq) and its analogue hydroxychloroquine (Hq), including classic uses, proposed dosing regimens, side effects and toxicity in overdose (Table 1).

The overall clinical safety profile of hydroxychloroquine is better than that of chloroquine, particularly during long-term use, and allows for a higher daily dose with fewer concerns for drug-drug interactions. However, the overall therapeutic index for these medications is relatively narrow. In overdose, they are known to cause seizures, cardiovascular collapse and/or prolonged QTc-associated ventricular dysrhythmias — the latter having been clearly demonstrated in a well-publicized chloroquine-related fatality in Arizona.[1]

There is good biologic rationale for the utilization of anti-rheumatic drugs to treat COVID-19. Coronavirus-induced cytokine storm and those seen in inflammatory rheumatologic disorders such as SLE or RA are similar.[2] Hydroxychloroquine has been demonstrated to have an anti-SARS-Coronavirus activity in vitro via reduction in glycosylation of angiotensin converting enzyme-2 (ACE2). Other mechanistic theories suggest that these medications limit viral cellular ingress/egress by augmenting endosomal biochemistry. While early publications supporting the use of Cq/Hq to treat COVID-19 was indeed promising, these studies proved to be underpowered and non-randomized.[3] Yet despite a lack of evidence supporting their use, Cq and Hq have been incorporated into treatment algorithms and there even has been political impetus branding hydroxychloroquine as a panacea for the outpatient treatment of COVID-19.

To be clear, these medications show promise and warrant investigational attention, but the existing evidence supporting the outpatient use of these medications is lacking. In fact, a recent French study showed no evidence of strong antiviral activity or clinical benefit from the combination of Hq and azithromycin. In addition, a recent phase IIb Brazilian study investigating the utility of Cq was aborted due to concerns over cardiac toxicity.[4,5] It should be noted that patients in the latter study concomitantly received ceftriaxone and azithromycin; it is entirely possible that the combination of Cq/Hq + azithromycin should be completely abandoned due to synergistic QTc-prolonging effects. Lastly, there is increased risk of toxicity in patients with cardiac comorbidities and renal and hepatic insufficiency, as are frequently observed in COVID-19 patients (myocarditis and AKI).[6] There are even worries of potential shortages of Cq and Hq amongst patients with SLE.[7]

In summary, the evidence supporting the use of Hq and Cq for COVID-19 is equivocal. These drugs may well prove to be effective, but until the evidence is clear, providers should be well aware of the deleterious effects of Cq and Hq. With widespread use, we may be more likely to see toxicity from these medications, particularly in the context of underlying cardiac disease, suicidal gestures and accidental pediatric exposures, than any measurable benefit to individuals infected with COVID-19.[8,9] To date, social distancing remains the only proven strategy to curtail fatal outcomes from COVID-19.

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Table 1

Drug and Class	Classic Dose	Suggested COVID-19 Dose	Adverse Effects (Both)	Toxicity & Treatment (Both)
Chloroquine phosphate Antimalarial; mild immunosuppressant	**Malaria**: 1000mg PO → 500 mg after 6 hrs → 500 mg daily x 2 days (total dose 2500 mg over 3 days) Requires dose adjustment in renal impairment. Pregnancy Category C	500 mg BID for 10 days	**GI**: nausea, vomiting, diarrhea, abdominal pain, transaminitis. **Heme**: Hemolytic anemia in G6PD-deficient patients, agranulocytosis, thrombocytopenia. **Ear**: Tinnitus, sensorineural hearing loss. **Ophthalmic**: Retinopathy w/ chronic high-dose uses. **Hematologic:** aplastic anemia, agranulocytosis, leukopenia, and thrombocytopenia **MSK**: Myopathy (rare) **Endocrine/Metabolic**: Hypoglycemia **Immunologic**: Hypersensitivity reactions **CNS**: Increased risk of seizures.	**Toxicity** - Hypokalemia from K^+ shift from extracellular to intracellular compartments. - QT-interval prolongation with high-risk progression to torsades de pointes (TdP). - QRS-interval widening with high-risk progression to tachydysrhythmias (i.e. Ventricular tachycardia, Ventricular Fibrillation). - Negative inotropy causing myocardial depression, AV blocks, and/or ST- depressions. - Large overdoses (> 5 grams) can rapidly progress to apnea, CNS depression/coma, seizures, shock, and cardio-respiratory arrest. **Treatment of severe Cq or Hq Toxicity*** - **diazepam for seizures and sedation in large doses- 2mg/kg.** - **epinephrine as vasopressor of choice for BP support** - **early mechanical ventilation** - **consider GI decontamination for large overdoses** - **not amenable to hemodialysis** ***Reference: Riou et al. Treatment of severe chloroquine poisoning. NEJM. 1988; 319: 49-51. (*a retrospective case series. 51 patients; 11 with severe Cq poisoning*)**
Hydroxychloroquine sulfate Antimalarial; mild immunosuppressant	**Malaria**: 800 mg x 1 dose → 400 mg at 6, 24 & 48 hrs. **SLE and Rheumatoid Arthritis**: 200 to 400 mg daily Requires dose adjustment in hepatic impairment. Pregnancy Category D	400 mg BID x2 → 400 mg daily while hospitalized (up to 5 days).		

EDUCATION

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Medical Education in the Time of COVID

My resident and I scrolled through the CT images together. Bilateral groundglass opacities suggestive of COVID. We turned to look at our patient who stared back at us with a high flow nasal cannula in his nostrils and had been lying in the prone position for the past few hours. A good capnography waveform on his monitor indicated an accurate oxygen saturation in the 50th percentile range. The diagnosis was no surprise. The patient was getting tired and now opting for the breathing tube and ventilator that we discussed earlier with him. He called his family on his phone and informed them of his status. We then set up for yet another challenging COVID intubation. These have truly been unprecedented and strange times in medicine.

My resident and I had already discussed who would intubate at the beginning of the shift. We both knew that COVID intubations would be among the riskiest intubations of our careers to date. We took all available precautions to minimize our risk of exposure during these high-risk procedures, but we had already seen several colleagues fall ill and end up in the ICU. I make it clear to my residents that the choice to intubate or not is fully theirs. Being the more experienced operator and a generally low risk profile for COVID, I typically offer to be the designated intubator for the shift. Some of them would look at me as if I was the coach that was putting them on the bench for the big game. Some of them would reluctantly or gladly accept my offer for a wide variety of understandable reasons. As the attending, I do not have the luxury of choice in these dire situations, but I think it is reasonable to offer this decision as a choice to our residents. They will all know the full weight of responsibility someday, but it does not have to be under the uncertain and dangerous circumstances of a pandemic.

In the face of such daunting circumstances, our roles as medical educators have evolved. While COVID is our primary focus now, we still have important obligations to our learners. They play a crucial role in meeting the clinical challenges of COVID. Adapting our residency and clerkship didactics to virtual formats and online curriculums was only a first step. Learning how to both teach and protect them for months on the front lines of a dangerous pandemic was an entirely new challenge for an educator. We could offer them all the protection that we have, but we could never fully spare them the risks. I would never jeopardize the safety of my residents, but I also recognize that I am training them for a career in emergency medicine, which naturally involves risk at baseline even before COVID. These intubations represent a unique educational and formative experience for them as emergency physicians. The next few months will shape their careers just as much as it will shape mine.

We, as educators, do our best to provide them guidance, but the reality in a novel pandemic raging across the world is that we have learned of this disease the same day they did. I am learning the treatment therapies and observing the clinical course at the same time as them. I am also learning how to balance their education and their safety while we all work together desperately to try to save as many lives as we can during this pandemic.

As emergency physicians, we are trained to act in the face of great uncertainty. Most of us have never faced greater uncertainty than COVID. But I am proud to serve in this crisis alongside some of the most courageous and compassionate residents that I know. Below, I would like to share with you some of their own words.

"I feel lucky to be in training during the pandemic, and especially to be in Emergency Medicine. There are so many critically ill patients, and I am having to push myself past the boundaries of Emergency Medicine as a specialty every day. From volunteering to staff the ICUs, to reading up on pathophysiology, pulmonology and infectious disease to try to understand this infectious process, I am learning. It seems like a lot of my colleagues have a renewed passion for basic science, for reviewing and critiquing up to date primary literature. Most importantly, I am learning how to be human. How to connect with patients and patients' family members - even if just over the phone - learning to have the difficult conversations that will make me a better doctor. For that I am grateful."

Kestrel Reopelle, MD (PGY2)

"When it started, I was excited. I wanted to go to "the front line." The term seems strange now -- at first, it was infused with glory, courage, respect. I picked up extra shifts. I donned my masks like armor. I read every article available. I listened to pump-up music on the way in to work. I was going to save lives. I was going to be part of history.

But after a few days in the COVID-ICU, "the front line" was rapidly stripped of its heroism, its romance. Instead, I was afraid to go into work. I heard about the patients who were my age intubated in the ICU. The barrier I've worked to build was broken down and suddenly my body was just as vulnerable as my patients'. Still, I felt I had purpose: I was there to save lives. Until a few days after that. After a few overnights in the COVID-ICU, my purpose became moot. Despite hours of reading, debate, discussion and conferring with other doctors, patients just kept dying. The last strand of purpose I found was allowing families up to see their loved ones one last time before they died.

RESEARCH

The virus and everything around it feels like defeat. Tomorrow I'll go to work and try to do as much good as I can."

Duncan Grossman, DO (PGY2)

"I think the whole COVID-19 pandemic has made for a really fragmented experience for health care providers. Probably even more so for residents because we don't have years of experience to draw from or to compare this time to. What we do have are vivid and seemingly unforgettable moments happening daily. There's an inherent tragedy to this disease and its spread, but there's also tremendous opportunity. We may one day look back and think: training in the time of COVID prepared us better than anything else. We'll probably also say: there's nothing that would make the suffering and loss of life we witnessed worth it. The space in between this "opportunity" and this "tragedy" is stark and frankly surreal. I'm not really sure what to make of it. But I'm glad to be here and to be a part of it, whatever my role and impact might be."

John Stockton, MD MPH (PGY1)

Practice Management
Lessons Learned from Launching a Geriatric ED
continued from page 8

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scribe not to share the ideas discussed with anyone.

Compensation for Research Scribes

Scribes can be compensated in multiple forms.

1. Monetary compensation.

   When I piloted the program, the position was purely based on monetary compensation at the comparable minimum wage rate, as the scribe is not travelling, and it is also considered a very flexible approach. This can be self-compensated or compensated by the department, dependent on the model agreed to by the PI. If the research scribes are directly hired by the PI there is less complexity, but more complexity if hired by the institution in terms of hiring and documentation. Alternatively, the department can provide no-budget funds to compensate for such facilities in the long run.

2. Intellectual compensation.

   Holding the position as a research scribe can also be counted as research experience for their career, and the investigator can attest to that. If the scribe has enough contribution and editing, they can also be mentioned as a co-author and have intellectual compensation which will help them with career advancement.

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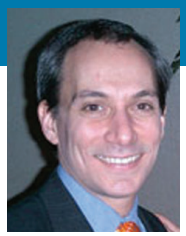
NEW YORK STATE OF MIND



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Concordance and Discordance in the Geographic Distribution of Childhood Obesity and Pediatric Type 2 Diabetes in New York City.

Osorio M, Koziatek CA, Gallagher MP, Recaii J, Weinstein M, Thorpe LE, Elbel B, Lee DC; Ronald O. Perelman Department of Emergency Medicine, New York University School of Medicine, New York; Acad Pediatr; 2020 Apr 7.

OBJECTIVE: s rates of childhood obesity and pediatric type 2 diabetes (T2D) increase, a better understanding is needed of how these two conditions relate, and which subgroups of children are more likely to develop diabetes with and without obesity.

METHODS: To compare hotspots of childhood obesity and pediatric T2D in New York City, we performed geospatial clustering analyses on obesity estimates obtained from surveys of school-aged children and diabetes estimates obtained from healthcare claims data, from 2009-2013. Analyses were performed at the Census tract level. We then used multivariable regression analysis to identify sociodemographic and environmental factors associated with these hotspots.

RESULTS: We identified obesity hotspots in Census tracts with a higher proportion of Black or Hispanic residents, with low median household income, or located in a food swamp. 51.1% of pediatric T2D hotspots overlapped with obesity hotspots. For pediatric T2D, hotspots were identified in Census tracts with a higher proportion of Black residents and a lower proportion of Hispanic residents.

CONCLUSIONS: Non-Hispanic Black neighborhoods had a higher probability of being hotspots of both childhood obesity and pediatric type 2 diabetes. However, we identified a discordance between hotspots of childhood obesity and pediatric diabetes in Hispanic neighborhoods, suggesting either under-detection or under-diagnosis of diabetes, or that obesity may influence diabetes risk differently in these two populations. These findings warrant further investigation of the relationship between childhood obesity and pediatric diabetes among different racial and ethnic groups, and may help guide pediatric public health interventions to specific neighborhoods.

Comparison Between Carbon Monoxide Poisoning From Hookah Smoking Versus Other Sources.

Nguyen V, Salama M, Fernandez D, Sperling JD, Regina A, Rivera R, Wang J, Friedman BW, Smith SW; Department of Emergency Medicine, Jacobi Medical Center, Albert Einstein College of Medicine, Bronx; Clin Toxicol (Phila); 2020 Apr 7:1-6.

INTRODUCTION: Carbon monoxide exposure is a relatively unknown risk of smoking hookah. Dozens of cases of hookah-associated carbon monoxide toxicity have been described over the past decades, but smoking hookah is generally perceived as safe. Only recently have larger series of hookah-associated carbon monoxide toxicity been published. This study evaluates the incidence of hookah-associated carbon monoxide toxicity over 4 years, and compares the exposures from hookah against other carbon monoxide sources.

METHODS: This is a retrospective cohort study of all patients with carbon monoxide toxicity referred for hyperbaric oxygen therapy at an urban hyperbaric oxygen referral center from January 2015 through December 2018. Cases of hookah-associated carbon monoxide toxicity were compared to patients exposed to other carbon monoxide sources, with an analysis of patient comorbidities, symptomatology, and laboratory evaluation.

RESULTS: Over a 48-month period, 376 patients underwent hyperbaric oxygen therapy for carbon monoxide exposure. After exclusions, 265 patients with carbon monoxide toxicity from various sources were analyzed. There were 58 patients with hookah-associated carbon monoxide toxicity (22%). The proportion of hookah-associated carbon monoxide cases increased markedly in the latter years: 2015: 9.5%, 2016: 8.6%, 2017: 24.1%, 2018 41.6%. In the final 2 years analyzed, hookah smoking was the most frequent source of carbon monoxide toxicity referred for therapy. Hookah-associated carbon monoxide patients were younger (28.1 vs. 45.0 years, mean difference 16.8 years, 95% confidence interval: 11.5, 22.1 years, $p<0.001$) and more likely to be female (60% vs. 46.6%, $p=0.06$) than patients exposed to other carbon monoxide sources. The mean difference in carboxyhemoglobin concentration between hookah associated and those exposed to other carbon monoxide sources was 4.6% (mean 20.1% vs. 24.6%, 95%CI: 1.7, 7.5, $p=0.002$).

CONCLUSION: A substantial portion of patients with severe carbon monoxide toxicity was exposed through smoking hookah. The incidence of hookah-related carbon monoxide toxicity appears to be increasing.

Comparison of Oral Ibuprofen and Acetaminophen With Either Analgesic Alone for Pediatric Emergency Department Patients With Acute Pain.

Motov S, Butt M, Masoudi A, Palacios W, Fassassi C, Drapkin J, Likourezos A, Hossain R, Brady J, Rothberger N, Flom P, Zerzan J, Marshall J; Department of Emergency Medicine, Maimonides Medical Center, Brooklyn; J Emerg Med; 2020 Apr 1.

BACKGROUND: Ibuprofen (Motrin; Johnson & Johnson) and acetaminophen (APAP, paracetamol) are the most commonly used analgesics in the pediatric emergency department (ED) for managing a variety of acute traumatic and nontraumatic painful conditions. The multimodal pain management of using a combination of ibuprofen plus acetaminophen has the potential to result in greater analgesia.

OBJECTIVE: We compared the analgesic efficacy of a combination of oral ibuprofen plus acetaminophen with either analgesic alone for pediatric ED patients with acute pain.

METHODS: We performed a randomized, double-blind superiority trial assessing and comparing the analgesic efficacy of a combination of oral ibuprofen (10 mg/kg dose) plus acetaminophen (15 mg/kg per dose) to either analgesic alone for the treatment of acute traumatic and nontraumatic pain in the pediatric ED. Primary outcomes included a difference in pain scores among the three groups at 60 min.

RESULTS: We enrolled 90 patients (30 per group). The difference in mean pain scores at 60 min between acetaminophen and combination groups was 0.30 (95% confidence interval [CI] -0.84 to 1.83); between ibuprofen and combination groups was -0.33 (95% CI -1.47 to 0.80); and between acetaminophen and ibuprofen groups was 0.63 (95% CI -0.54 to 1.81).

Reductions in pain scores from baseline to 60 min were similar for all patients in each of the three groups. No adverse events occurred in any group.

CONCLUSIONS: We found similar analgesic efficacy of oral ibuprofen and acetaminophen in comparison with each analgesic alone for short-term treatment of acute pain in the pediatric ED, but the trial was underpowered to demonstrate the analgesic superiority of the combination of oral ibuprofen plus acetaminophen in comparison with each analgesic alone.

Current Fatality Rate of Suspected Cyclopeptide Mushroom Poisoning in the United States.

De Olano J, Wang JJ, Villeneuve E, Gosselin S, Biary R, Su MK, Hoffman RS; Division of Medical Toxicology, Ronald O. Perelman Department of Emergency Medicine, NYU Grossman School of Medicine, New York; Clin Toxicol (Phila); 2020 Apr 2:1-4.

OBJECTIVE: This study was designed to determine the fatality rate of suspected cyclopeptide-containing mushroom ingestions reported to the National Poison Data System (NPDS).

BACKGROUND: Although silibinin reportedly improves survival in suspected cyclopeptide-containing mushroom ingestions, the greater than 20% untreated fatality rate that is often cited is based on decades-old data. An ongoing open-label silibinin trial will likely use historical cases as comparators. A recent single poison control center (PCC) study showed a fatality rate of 8.3%. This study was designed to validate those findings in the NPDS.

METHODS: This study was an 11-year (1/1/2008-12/31/2018) retrospective review of suspected cyclopeptide-containing mushroom ingestions reported to NPDS.

Inclusion and exclusion criteria were the same as the ongoing silibinin trial:

Age >2-years-old; history of eating foraged mushrooms; gastrointestinal symptoms within 48 h of mushroom ingestion; and aminotransferases above the upper limit of normal within 48 h after ingestion. Each original participating PCC confirmed eligibility, diagnosis, treatment, and outcome on included cases.

RESULTS: During the study period, 8,953 mushroom exposures were reported to NPDS, of which 296 met inclusion criteria. The PCC survey response rate was 60% (28/47 PCCs), and the individual case response rate was 59% (174/296). Twenty-six cases were subsequently excluded leaving 148 included cases. The overall mortality rate was 8.8% (13/148). Mortality in silibinin/silymarin-treated vs untreated cases was 9.5% (4/42), vs 8.5% (9/106), respectively. A mycologist identified mushrooms in 16.9% of cases (25/148), of which 80% (20/25) were cyclopeptide-containing. Among these confirmed cases, the mortality rate was 10% (1/10) in both silibinin/silymarin-treated and untreated cases.

CONCLUSIONS: The contemporary mortality rate of patients with presumed cyclopeptide-mushroom poisoning is only 8.8%. This likely represents improved supportive care for patients with acute liver injury and should be considered the current standard for historical controls in the United States.

Novel 2019 Coronavirus SARS-CoV-2 (COVID-19): An Updated Overview for Emergency Clinicians.

Giwa AL, Desai A, Duca A; Icahn School of Medicine at Mount Sinai, New York; Emerg Med Pract; 2020 May 1;22(5):1-28.

The novel coronavirus, COVID-19, has quickly become a worldwide threat to health, travel, and commerce. This overview analyzes the best information from the early research, including epidemiologic and demographic features from SARS-CoV-1 and MERS-CoV viruses; lessons learned from the experience of an emergency physician in Northern Italy, where the outbreak has devastated the healthcare system; evidence on transmission and prevention through safe use of PPE; evidence and advice on SARS-CoV-2 testing and co-infection; management options; airway management options; steps for rapid sequence intubation in the ED and managing disaster ventilation; and information on managing pediatric and pregnant patients.

Does Orally-Administered Radiocontrast Impair Ultrasound Image Quality in Pediatric Patients?

Patel A, Levine M, Dickman E, Haines L, Homel P, Likourezos A, Pushkar I, Drapkin J, Arroyo A; Maimonides Medical Center, Department of Emergency Medicine, Brooklyn; West J Emerg Med; 2020 Feb 21;21(2):359-364.

INTRODUCTION: It is commonly assumed that orally-administered radiocontrast material (ORC) preceding abdominal ultrasound (US) performance can obscure image quality and potentially impair diagnostic accuracy when assessing patients with abdominal pain. Due to this concern, ORC administration per protocol for computed tomography (CT) is often delayed until after US performance, potentially contributing to prolonged length of stay in the emergency department (ED) in patients with concern for abdominal pathology. The objective of this study was to evaluate whether early administration of ORC in children with abdominal pain receiving abdominal CT for possible appendicitis obscures subsequent abdominal US image quality.

METHODS: We designed a prospective observational study of children <18 years of age presenting to a pediatric ED with abdominal pain who were set to receive ORC prior to obtaining an abdominal CT. These patients received a point-of-care ultrasound (POCUS) of the abdomen to assess the abdominal aorta and right lower quadrant (RLQ) structures (psoas muscle and iliac vessels) pre- and post-ORC administration. Images were compared independently by two blinded emergency US-certified physician-assessors for quality, specifically to determine whether ORC obscured the anatomical structures in question.

RESULTS: A total of 17 subjects were enrolled, and each subject had two POCUS studies of the abdomen, one pre- and one post-ORC administration looking to visualize the anatomy of the RLQ and abdominal aorta in both studies. Statistical analysis showed no significant differences in mean values of POCUS image quality scoring by two blinded US-trained physician-assessors for either RLQ structures or abdominal aorta when performed pre- and post-administration of ORC.

CONCLUSION: Early ORC administration in children with abdominal pain does not adversely affect image quality of a subsequently performed abdominal US. Patients who may require abdominal CT to determine the etiology of abdominal pain can receive early administration of ORC prior to US performance to help minimize ED length of stay without impairing US diagnostic accuracy.

NEW YORK STATE OF MIND

Pharmacologic Cardioversion of Recent-Onset Atrial Fibrillation: A Systematic Review and Network Meta-Analysis.

deSouza IS, Tadrous M, Sexton T, Benabbas R, Carmelli G, Sinert R; Department of Emergency Medicine, SUNY Downstate Health Sciences University, Brooklyn; Europace; 2020 Mar 16.

AIMS: We sought to identify the most effective antidysrhythmic drug for pharmacologic cardioversion of recent-onset atrial fibrillation (AF).

METHODS AND RESULTS: We searched MEDLINE, Embase, and Web of Science from inception to March 2019, limited to human subjects and English language. We also searched for unpublished data. We limited studies to randomized controlled trials that enrolled adult patients with AF ≤ 48 h and compared antidysrhythmic agents, placebo, or control. We determined these outcomes prior to data extraction: (i) rate of conversion to sinus rhythm within 24 h, (ii) time to cardioversion to sinus rhythm, (iii) rate of significant adverse events, and (iv) rate of thromboembolism within 30 days. We extracted data according to PRISMA-NMA and appraised selected trials using the Cochrane review handbook. The systematic review initially identified 640 studies; 30 met inclusion criteria. Twenty-one trials that randomized 2785 patients provided efficacy data for the conversion rate outcome. Bayesian network meta-analysis using a random-effects model demonstrated that ranolazine + amiodarone intravenous (IV) [odds ratio (OR) 39.8, 95% credible interval (CrI) 8.3-203.1], vernakalant (OR 22.9, 95% CrI 3.7-146.3), flecainide (OR 16.9, 95% CrI 4.1-73.3), amiodarone oral (OR 10.2, 95% CrI 3.1-36.0), ibutilide (OR 7.9, 95% CrI 1.2-52.5), amiodarone IV (OR 5.4, 95% CrI 2.1-14.6), and propafenone (OR 4.1, 95% CrI 1.7-10.5) were associated with significantly increased likelihood of conversion within 24 h when compared to placebo/control. Overall quality was low, and the network exhibited inconsistency. Probabilistic analysis ranked vernakalant and flecainide high and propafenone and amiodarone IV low.

CONCLUSION: For pharmacologic cardioversion of recent-onset AF within 24 h, there is insufficient evidence to determine which treatment is superior. Vernakalant and flecainide may be relatively more efficacious agents. Propafenone and IV amiodarone may be relatively less efficacious. Further high-quality study is necessary.

Novel Use of a Gas Analyzer Can Reliably Predict the Arterial Oxygen Among Emergency Department Patients Undergoing Rapid Sequence Intubation.

Murphy S, Reilly J Jr, Caputo ND, West JR; Department of Emergency Medicine, New York Presbyterian-Columbia University, New York; J Emerg Med; 2020 Jan 22.

BACKGROUND: To our knowledge, no study has assessed the correlation of fraction of inspired oxygen (FiO2) and end-tidal oxygen (EtO2) values obtained from a gas analyzer during the preoxygenation period of rapid sequence intubation (RSI) to predict partial pressure of oxygen (PaO2) among patients requiring intubation in the emergency department (ED).

OBJECTIVE: The purpose of this study was to determine whether a simple equation using EtO2 and FiO2 at time of induction could reliably estimate minimal PaO2 in ED patients undergoing RSI.

METHODS: We conducted an observational pilot study performed in an adult ED utilizing a gas analyzer to obtain EtO2 and FiO2 values in ED patients undergoing RSI from data collectors blinded to our objective. The Pearson correlation coefficient was calculated between the equation's predicted PaO2 and the PaO2 drawn from an arterial blood gas shortly after intubation. A Bland-Altman plot analysis was performed to identify any additional bias.

RESULTS: Seventy-five patients were enrolled. The equation's mean predicted minimal PaO2 and mean PaO2 from an arterial blood gas within 3 min after intubation was 178 mm Hg (95% confidence interval [CI] 145-211 mm Hg) and 209 mm Hg (95% CI 170-258 mm Hg), respectively. The Pearson correlation coefficient between the predicted minimal PaO2 and post-intubation PaO2 demonstrated a strong correlation (r2 = 0.89). The Bland-Altman plot indicated no bias affecting the correlation between the predicted and actual PaO2.

CONCLUSIONS: Among ED patients undergoing RSI, the use of a gas analyzer to measure EtO2 and FiO2 can provide a reliable measure of the minimal PaO2 at the time of induction during the RSI phase of preoxygenation.

Prevalence of Intracranial Injury in Adult Patients With Blunt Head Trauma With and Without Anticoagulant or Antiplatelet Use.

Probst MA, Gupta M, Hendey GW, Rodriguez RM, Winkel G, Loo GT, Mower WR; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Ann Emerg Med; 2020 Mar;75(3):354-364.

STUDY OBJECTIVE: We determine the prevalence of significant intracranial injury among adults with blunt head trauma who are receiving preinjury anticoagulant or antiplatelet medications.

METHODS: This was a multicenter, prospective, observational study conducted from December 2007 to December 2015. Patients were enrolled in 3 emergency departments (EDs) in the United States. Adults with blunt head trauma who underwent neuroimaging in the ED were included. Use of preinjury aspirin, clopidogrel, and warfarin was recorded. Data on direct oral anticoagulants were not specifically recorded. The primary outcome was prevalence of significant intracranial injury on neuroimaging. The secondary outcome was receipt of neurosurgical intervention.

RESULTS: Among 9,070 patients enrolled in this study, the median age was 53.8 years (interquartile range 34.7 to 74.3 years) and 60.7% were men. A total of 1,323 patients (14.6%) were receiving antiplatelet medications or warfarin, including 635 receiving aspirin alone, 109 clopidogrel alone, and 406 warfarin alone. Compared with that of patients without any coagulopathy, the relative risk of significant intracranial injury was 1.29 (95% confidence interval [CI] 0.88 to 1.87) for patients receiving aspirin alone, 0.75 (95% CI 0.24 to 2.30) for those receiving clopidogrel alone, and 1.88 (95% CI 1.28 to 2.75) for those receiving warfarin alone. The relative risk of significant intracranial injury was 2.88 (95% CI 1.53 to 5.42) for patients receiving aspirin and clopidogrel in combination.

CONCLUSION: Patients receiving preinjury warfarin or a combination of aspirin and clopidogrel were at increased risk for significant intracranial injury, but not those receiving aspirin alone. Clinicians should have a low threshold for neuroimaging when evaluating patients receiving warfarin or a combination of aspirin and clopidogrel.

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As Spring Heats Up, Don't Forget About Carbon Monoxide

A young woman with a history of migraines and GERD presents to your Emergency Department (ED) complaining of headache and chest pain for two days. Her exam and vital signs are normal, she endorses mild lightheadedness and some nausea – which are not atypical for her migraines – but states she called 911 after she vomited and nearly passed out.

"Anything in particular that makes the headache worse?" you ask.

She replies, "Well, I've been trying to get a repairman out; my boiler is on the fritz and the noise is making me sick and dizzy!"

Classically described as an odorless, tasteless, colorless gas, ED presentations for reported carbon monoxide (CO) poisoning are up to 50,000 annually and account for over a thousand deaths per year, making it one of the leading causes of poisoning in the U.S.[1]

Chief complaints in CO toxicity are as varied as its potential sources, but commonly present as altered mental status, syncope, ataxia or an afebrile flu-like illness, with nausea, vomiting, headache, dizziness and/or chest pain.

Seasonal and regional patterns do exist for CO toxicity, with faulty wintertime heating systems and appliances in colder climates being the most common non-fire-related culprit for unintentional CO poisoning.[2]

Other potential sources for CO exposure outside of cold-weather months include: grills, lanterns, lawnmowers, camping stoves, power tools, spray paint, SCUBA compressors, ranges, burners, vents, chimneys, generators, forklifts, farming equipment and other machines, especially in poorly ventilated areas like ice rinks, indoor stadiums, warehouses, basements and garages.

Though catalytic converters have decreased the production of CO from automotive exhaust, this still should be considered in symptomatic patients with high-risk exposures.

Less common, but documented, causes of CO poisoning include motorboat exhaust, water pipe tobacco/hookah use and ingestion of methylene chloride, a solvent found in many paint remover solutions.

While patients may not report utilization of or exposure to the aforementioned, it is important to consider that CO can diffuse through drywall and other building materials.

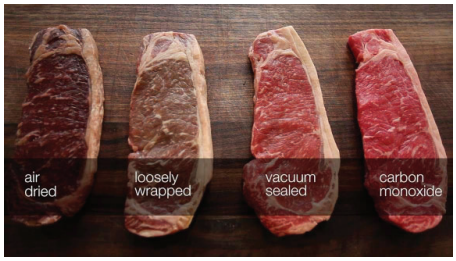
Exposure to environmental pollution alone can yield carboxyhemoglobin (CO-Hb) levels of >2.5% in healthy non-smokers.[3] In addition, primary or secondhand smoke exposure should be noted as many persons live with chronically elevated CO-Hb, with some carrying levels up to 15%, potentially complicating the diagnosis of poisoning in this patient population.

Areas affected by natural disasters can also see a spike in CO poisoning cases as a result of the use of portable heating, cooking and energy devices by displaced persons. EM physicians should have a high index of suspicion for this phenomenon especially when pairs or groups of patients present with symptoms consistent with CO poisoning.

Of note, strange behavior, syncope or vomiting by household pets or other enclosed animals may also be a clue to CO poisoning.

While not a cause of poisoning, an interesting source of CO in the community is packaged meat and fish, wherein food packers capitalize on CO's affinity for myoglobin, yielding a conformational change in the molecule (similar to that which happens to hemoglobin) and an attractive deep red color to our favorite meat products (like the textbook cherry-red skin discoloration sometimes seen in severe poisoning).

In the lungs, CO rapidly diffuses across the pulmonary capillary membrane into the bloodstream, binding to deoxygenated red cells with affinity >200x that of O_2, preventing oxygen binding. In addition to inhibiting oxygen carrying capacity when bound to hemoglobin, dissolved CO also causes direct cellular



toxicity by numerous mechanisms including oxidative phosphorylation inhibition, lipid peroxidation, intracellular protein binding and apoptosis induction.

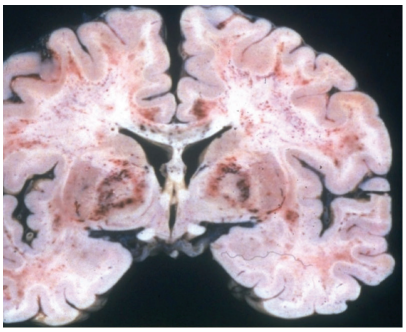
Due to similarities in wavelengths of light, the pulse oximetry will be falsely normal in patients with CO poisoning. While certain CO-specific pulse oximeters do exist, they are expensive and not recommended for routine use in the ED, especially in symptomatic patients.[4] Given this falsely normal pulse oximetry reading, obtaining a co-oximetry panel for CO-Hb is recommended to confirm clinically suspected CO poisoning.[5] Fortunately, an arterial sample is unnecessary for an accurate CO-Hb reading, as venous and arterial CO-Hb values will be within ~2% of each other.[6]

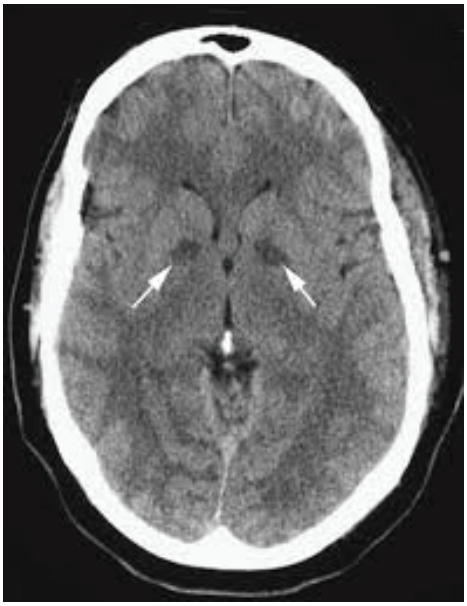
Inadequate oxygen delivery and mitochondrial toxicity – and therefore impaired oxygen utilization – will result in a lactic acidosis due to anaerobic metabolism on blood gas sampling. Notably, the PaO_2, measuring the amount of oxygen dissolved in blood unbound to

hemoglobin, will often be normal to elevated.

While there is no established relationship between carboxyhemoglobin levels and specific symptoms or symptom severity, levels >25% have been associated with toxicity.

Other laboratory data important in the workup of CO poisoning depending on the clinical context include VBG, CBC, CMP, CPK, HCG, influenza/viral testing, lactate, troponin and levels of other suspected co-ingestants.





A chest x-ray, electrocardiogram (for potential ischemic changes), and non-contrast CT head (for other causes of AMS) are also useful. Basal ganglia lesions, specifically in the globus pallidus, are classic but rare pathologic CT findings sometimes seen as a consequence of CO poisoning.

Keep in mind the half-life of CO-Hb in a patient breathing room air is ~4.5 hours (a not uncommon ED wait time) and is ~1.5 hours with high-flow oxygen by non-rebreather. Thus, in the acutely poisoned patient, oxygen therapy should be initiated immediately and securing an airway may be required.

Symptoms may be broadly categorized into mild, moderate and severe toxicity. Mild cases of CO toxicity typically cause dizziness, blurred vision, headache, nausea and vomiting. Moderate poisoning may lead to chest pain, confusion, dyspnea, rhabdomyolysis, syncope, tachycardia, tachypnea and weakness. Severe poisoning may be life-threatening and can cause cardiac arrhythmias, hypotension, myocardial ischemia, cardiorespiratory arrest, noncardiogenic pulmonary edema, seizures and coma.[7]

Many patients with mild to moderate toxicity experience complete symptomatic relief after a few hours of high-flow oxygen therapy, after which discharge can be considered.[1] In patients whose symptoms do not resolve, who have laboratory data or clinical features concerning for more severe toxicity or who have medical or social histories that would otherwise make discharge unsafe, hospitalization is indicated.

Early hyperbaric oxygen therapy, while controversial, should be considered in consultation with a toxicologist for patients with: CO-Hb >25% (>15-20% in pregnant patients, as fetal hemoglobin has a higher affinity for CO), loss of consciousness, severe acidosis (pH <7.1), ataxia or evidence of significant end-organ dysfunction.

In fire-related toxicity, typical smoke inhalation management principles should be followed if present, as should consideration of concomitant cyanide toxicity.

Additional treatment pillars for the CO-poisoned patient include deep sedation and anti-pyretics as needed to decrease oxygen utilization, transfusion/exchange transfusion to replenish non-CO-bound erythrocytes,[8] aggressive oxygenation to compete with CO, maintenance of cardiac output for sufficient perfusion and adequate ventilation to remove CO.

As coronavirus cases hopefully decline, be sure to keep on alert for a different "CO" this season and consider a helpful reminder for your patients to check their carbon monoxide alarms during their spring cleaning.

We would like to acknowledge Staten Island University Hospital toxicologist, Dr. Nima Majlesi, for his contribution to this article.

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2. https://reference.medscape.com/features/slideshow/acutepoisonings#page=3
3. https://www.emed.theclinics.com/article/S0733-8627(04)00065-3/pdf
4. http://www.pathologyoutlines.com/mysterycase.html?mobile=off

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Every Pandemic Has a Silver Lining

All around New York City, the months-long quarantine has reduced the once bustling streets and lively neighborhoods to an unfamiliar standstill. The COVID-19 outbreak has led to record-breaking unemployment and claimed over 23,000 lives just in New York State. It has become all too common to hear about terrifying statistics and devastating tragedies.

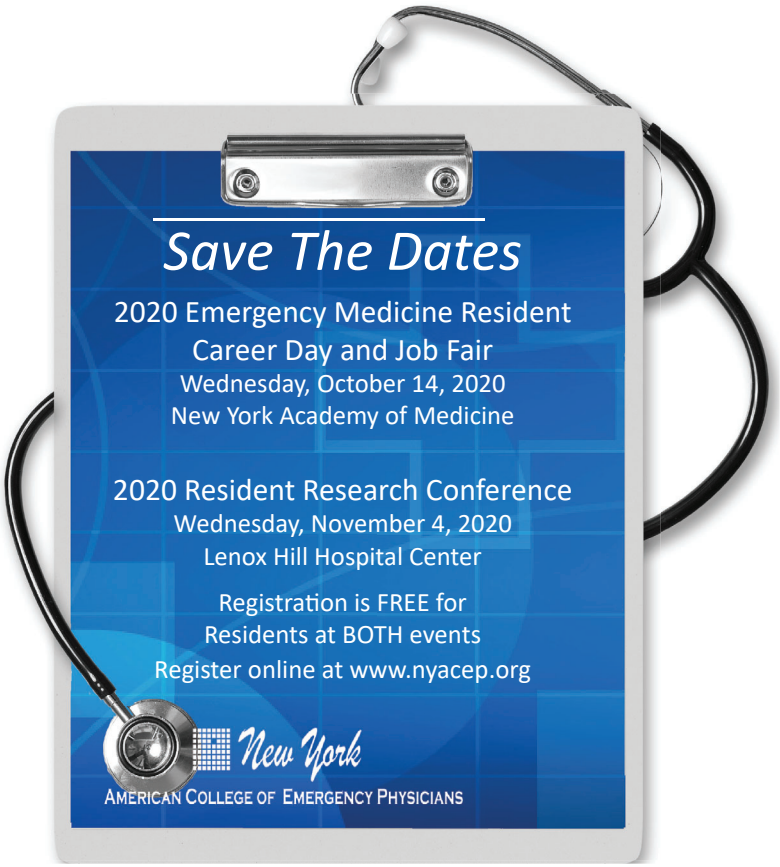
As an emergency medicine resident at the heart of the pandemic, I have witnessed the full spectrum of the disease—from those with a minor cough who are promptly discharged home, to those struggling to breath and intubated immediately upon arrival. Even worse, families have been restricted from seeing their loved ones and comforted by only a daily update over the phone from the medical team. Day after day, it was quite easy to get disheartened from admitting the same "acute hypoxic respiratory failure" to the ICU, or repeat the same "we'll try everything we can to help their breathing" line to family members. In reality, we realized that many of these patients would be facing a difficult road to recovery.

Amidst all the despair, I'll confess it was also quite easy to overlook the remarkable efforts and positivity of my healthcare colleagues and members of the community. I remember the day we received our first donation of pizza and sandwiches from a local Staten Island restaurant. The next day it was soup and wraps and then cookies and cakes. Soon, we had ice cream trucks and food trucks bringing their delicious cuisine to our hospital as a sign of appreciation, often funded by local residents to support local business and our staff. Suddenly, the dreaded thought of having to return to face the onslaught of ill patients vanished and I was reminded of how *proud* and *appreciated* I was to be at the frontlines of this crisis. The appreciation didn't end there. The following weeks, we even had our own "parade" from the fire department and Staten Island residents who showered us with their colorful posters and morale-boosting cheers.

The pandemic has also brought positive change and unity within our own facility. With ICU capacity at over 300%, emergency department admission rates more than doubled, strict isolation protocols and limited supplies of PPE, our healthcare system, now more than ever, has required us to work harder and collaboratively. This call for greater responsibility has been met graciously by the entire medical staff, including physicians, nurses, patient care assistants, radiology technicians, transporters and respiratory therapists, who have worked tirelessly to maximize patient outcomes and help others in need. Just last week, residents were fortunate to receive haircuts from two of our most talented in-house barbers/physicians (and not the other way around!). Our emergency department leadership has also embraced these new challenges by allocating resources during this dynamic crisis, including developing a temporary 262-bed hospital in just one week and continuing to provide transparent and regular communication to guide us through this crisis.

The effects of this catastrophe will be felt months and years from now. The loss and damage has been unimaginable, but I have faith that our community, our healthcare system and our people will come together and, through it all, discover the silver lining in this time of crisis.

"Alone we can do so little; together we can do so much." – Helen Keller



We Will Miss Being Together This Year at New York ACEP's Scientific Assembly and Hope to See You July 7-9, 2021 at the Sagmaore Resort in Bolton Landing

2020 Research Forum

Join us virtually, Wednesday, July 8 at 1 pm to experience presentations of the 2020 top oral research.

Register Here for Free

New York ACEP members are invited to attend the 2020 Annual Meeting virtually, Tuesday, July 7 at 1pm. Look for registration information by e-mail later this month.

ALBANY UPDATE

Reid, McNally & Savage

New York ACEP Legislative & Regulatory Representatives

Final 2020-2021 State Budget

On April 3, 2020, a final State Budget was passed in Albany. Due to the COVID-19 pandemic, the Director of the Division of the Budget (DOB) is granted significant authority to adjust or reduce funds as necessary to ensure a balanced budget during the course of the fiscal year. Adjustments are to be done uniformly, across the board, or by specific appropriations, as needed. DOB is required to notify the Legislature 10 days prior to any reduction or adjustment. The Legislature may, by concurrent resolution, reject the proposed action(s) and present an alternative plan, However, failure to present an alternative within 10 days will result in the implementation of DOB's plan.

Of significant interest to New York ACEP:

- The Excess Medical Liability program is extended for one year through June 30, 2021 at a funding level of $105 million. **The Legislature rejected the Governor's proposal to require physicians to share 50% of the cost of the program.**
- **The Legislature rejected the Governor's Office of Professional Medical Conduct (OPMC) proposal which would have severely diminished physician due process rights.**
- Patient Medical Debt legislation, which prohibited providers who contract with hospitals from directly billing patients, **did not make its way into the State Budget. One provision of the legislation was included** to require an action on a medical debt by a hospital licensed under Article 28 of the Public Health Law or a health care professional authorized under Title VII of the Education Law to be commenced **within three years of treatment, instead of six years.**

In addition, below is a list of State Budget proposals that were enacted into law which New York ACEP has been following closely. New York ACEP did significant advocacy work on these proposals over the past several months at the grassroots level and in Albany during the March 4 Advocacy Day.

Healthcare and Professional Liability for COVID-19

The final budget limits the liability for healthcare professionals, health care facilities, and organizations that provide treatment and services related to the COVID-19 state of emergency. This includes immunity from any liability, civil or criminal, for any harm or damages alleged to have been sustained as a result of an act or omission in the course of arranging for or providing health care service. Liability for harm caused by willful or intentional criminal misconduct, gross negligence, reckless misconduct, or intentional infliction of harm is excluded from immunity.

"Health Care Facility "means a hospital, nursing home or other facility licensed or authorized to provide health care services for any individual under article twenty-eight, article sixteen, or article thirty-one of the mental hygiene.

"Health care professional" means an individual whether an agent, volunteer, contractor, employee or otherwise who is a licensed or certified physician, physician assistant, specialist assistant, chiropractor, pharmacist, pharmacy technician, nurse, midwife, psychologist, social worker, mental health practitioner, respiratory therapist, clinical lab technician, nursing attendant, certified nurse aide, nursing student, EMT, home care worker, health care facility administrator, supervisor, executive, board member, trustee or other person responsible for directing or managing a facility, or anyone else providing health care within scope of authority permitted by a COVID-19 emergency rule.

This legislation codifies in law and expands on Executive Order 202.10 previously issued by Governor Andrew Cuomo.

Comprehensive Psychiatric Emergency Programs (CPEPs)

The bill amends provisions of the Mental Hygiene law with respect to CPEPs to extend the program for four years and to:

- require that triage and referral services be provided by a psychiatric nurse practitioner or physician as soon as a person is received into the comprehensive psychiatric emergency program.
- require that if a patient is not discharged within six hours, they must be examined by a physician.
- permit hospitals that operate CPEPs, upon approval of the Commissioner of OMH, to operate satellite facilities. A satellite facility is defined as a medical facility providing psychiatric emergency services that is managed and operated by a hospital who holds a valid operating certificate for a CPEP and is located away from the central campus of the general hospital.

The Legislature rejected the Governor's proposal to extend the time that an individual can be detained from 72 hours to 96 hours for observation and treatment when the person is determined to be a danger to themselves or others.

Sexual Assault Forensic Examiner Program (SAFE)

The Legislature **rejected** the Governor's proposal to require all hospitals with emergency departments to establish SAFE programs. However, hospitals without emergency departments will be required to transport victims of sexual assault to a hospital with a SAFE program.

ALBANY UPDATE

Antimicrobial Resistance Program

The Legislature **rejected** the Governor's proposal to establish a new requirement for all hospitals to establish an antimicrobial stewardship program.

Hospital Administrative Denials

Currently, the State Insurance law prohibits insurance company denials of medically necessary inpatient services following an emergency admission if a hospital failed to notify an insurance company of the services. **The Governor's final budget extends this prohibition to all types of administrative denials and to emergency services, observation stays, and all inpatient admissions with the following exceptions:**

- Based on a reasonable belief of fraud, intentional misconduct, or abusive billing;
- When required by a State or federal government program (e.g. Medicaid);
- For coverage that is provided by the State or municipality to its respective employees, retirees or members;
- A duplicate claim, or for non-covered benefits or a non-covered person;
- Untimely claim submissions;
- Out-of-Network providers;
- Services for which preauthorization was denied prior to the delivery of services.

New language was added to permit insurance companies to deny claims on the basis that a hospital failed to seek prior authorization if a hospital has "repeatedly and systemically" over the previous 12-month period failed to seek preauthorization for services for which preauthorization was required. In addition, language was added to change the maximum penalty for failing to comply with a plan's administrative requirements from the lesser of $2,000 or 12% to no more than 7.5%.

COVID-19 Claims for Inpatient Hospital and Emergency Services

The final State budget precludes insurance companies from retrospectively denying emergency department and inpatient hospital services claims for the treatment of COVID-19 during the declared State of Emergency.

Ground Emergency Medical Transportation Services

The final State budget authorizes the Department of Health to establish a program for federal financial participation in reimbursement for ground emergency medical transportation services provided to Medicaid patients and to establish a methodology for supplemental reimbursement.

Emergency Executive Orders: COVID-19

In early March, the New York State Legislature passed a law to grant Governor Andrew M. Cuomo very broad emergency powers during the COVID-19 crisis. Since then, the Governor has put forth numerous emergency Executive Orders. These Executive Orders will remain in effect until the Governor declares that the COVID-19 State of Emergency period has expired. Provided below in a list of the Executive Orders most pertinent to emergency medicine.

For a comprehensive, searchable compendium of all Executive Orders issued to date compiled by Reid, McNally & Savage, go to:

https://www.nyacep.org/8-general/542-executive-orders

202 Permits emergency medical personnel to provide community paramedicine, transportation to destinations other than hospitals or health care facilities, and utilize telemedicine to facilitate treatment of patients in place.

202 Permits the PHHPC and the State Emergency Medical Services Council to meet as necessary to respond to the COVID-19 outbreak, without meeting quorum requirements or permitting the public in-person access to meetings.

202.1 Allows for the rapid discharge, transfer, and receiving of patients at Article 28 facilities, provided facilities take all measures to protect the health of patients and residents and comply with EMTALA. Relaxes requirement for patient review instrument to be completed as soon as practicable.

202.5 Allows physicians licensed and in current good standing in other states to practice in New York State without civil or criminal penalty related to lack of license.

202.5 Allows physicians licensed and in current good standing in New York State but not registered in New York State to practice without civil or criminal penalty related to lack of registration.

202.5 Allows physician assistants (PAs) licensed and in current good standing in other states to practice in New York State without civil or criminal penalty related to lack of licensure.

202.10 Allows PAs licensed and in current good standing in New York State but not registered in New York State to practice in the State without civil or criminal penalty related to lack of registration.

202.5 Allows registered nurses, licensed practical nurses, and nurse practitioners licensed and in good standing in any state to practice in New York State without civil or criminal penalty related to lack of license.

202.10 Allows registered nurses, licensed practical nurses, and nurse practitioners licensed and in good standing in New York State but not registered in New York State to practice in the State without civil or criminal penalty related to lack of registration.

202.10 Eases restrictions on Emergency Medical Services. Modifies the definition of "emergency medical services" to include emergency, non-emergency and low acuity medical assistance, eliminates any restrictions on approved ambulance services or providers operating outside of the primary territory listed on the operating certificate, permits the Commissioner of Health to issue provisional emergency medical services provider certifications to qualified individuals with modified certification periods, and allows emergency medical services to transport patients to locations other than healthcare facilities with approval by the Department of Health.

202.10 Temporarily allows for Certified Registered Nurse Anesthe-

ALBANY UPDATE

tists (CRNAs) to administer anesthesia with physician supervision.

202.10 Temporarily allows PAs to provide medical services appropriate to their training without physician supervision.

202.10 Temporarily suspends Nurse Practitioner/Physician Collaborative Agreements.

202.10 Provides for EMS personnel to function under the advice and guidance of allied health professionals who are under the supervision of a physician.

202.10 Eliminates civil liability for death or injury in the course of treating COVID-19 patients for health care professionals.

202.10 Allows the Department of Health to designate a trauma center.

202.10 Allows the Department of Health to modify requirements for EMS training including recertification and authority for out of state providers to practice in New York State.

202.10 Removes limits on working hours for physicians and post-graduate trainees.

202.10 Allows graduates of foreign medical schools having at least one year of graduate medical education to provide patient care in hospitals.

202.15 Allows 2020 graduates from accredited medical programs located in New York State to practice medicine in New York State without the need to obtain a license and without civil or criminal penalty related to lack of licensure, provide that such graduates shall in all cases be supervised by a physician licensed and registered to practice in New York State.

202.18 Allows RNs, LPNs, NPs licensed and in current good standing in Canada, to practice in New York State without criminal or civil penalty related to lack of licensure.

202.18 Allows physicians licensed and in current good standing in Canada, to practice in New York State without criminal or civil penalty related to lack of licensure.

202.18 Allows physician assistants licensed and in current good standing in Canada, to practice in New York State without criminal or civil penalty related to lack of licensure.

Governing in a COVID-19 World

Prior to the COVID-19 pandemic, the State legislature was scheduled to adjourn the 2020 Legislative Session June 2. At this time, legislators are in their districts working remotely. Discussions are underway to determine whether the Senate and Assembly can find a way to pass legislation in a safe manner. The main sticking point is that the State Constitution appears to require legislators to vote on legislation in person. As noted earlier, any objections to State Budget adjustments imposed by the Division of the Budget will automatically take effect in 10 days unless the Legislature passes a concurrent resolution with a revised plan. Reid, McNally & Savage will continue to provide up to the minute information on new developments.

We are working closely with Executive Director JoAnne Tarantelli to achieve New York ACEP's government affairs goals to protect and promote quality health care services for patients in the State's hospital emergency departments. Thank you to all of the members who traveled to Albany to meet with legislators and staff and those who responded to Action Alerts to contact your State legislators on Budget issues. We greatly appreciate all of your advocacy efforts which are critical to New York ACEP's success. To all New York ACEP members and your families stay safe and well.

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