New York American College of Emergency Physicians



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EMERGENCY PHYSICIANS' INTERIM COMMUNIQUE

# PRESIDENT'S MESSAGE

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## Take a Moment

One of the best things in emergency medicine is the unpredictability. I would wager that is why most of us entered this field. We love the challenge of the next problematic patient, the next disastrous airway, the next diagnostic conundrum, the next "surprise". This is what we live for – dealing with that unknown is lying just ahead.

Well… this year has been full of unknowns. Unknowns that came flying and hit us squarely in the face. Unknowns that have been quite varied throughout the state. Some faced the initial shockwave of patient volume and acuity overload – forcing experiences never dreamed about (and frankly unimaginable). Others spent time planning for the waves of patients that never came. The most likely scenario is you were dealt elements from each extreme.

Although we may not have wanted this responsibility, Emergency Medicine (EM) was on the COVID front line. For some, a literal battle on all fronts. I would suggest these times can reinvigorate the pride we have in our specialty and help to spotlight what you do on a daily basis. I was also proud to see some amazing action throughout the house of medicine, as our non-EM colleagues joined the fray. We saw providers reach far out of their comfort zone and join us in the new "treatment areas". Some even delved back into direct patient care – which they had not done in years, even dating back to medical school. Pretty certain we used every square inch of space available to see patients – hallways, tents, trailers, parking lots, outhouses, henhouses,…

I would suggest these times can reinvigorate the pride we have in our specility and help to spotlight what you do on a daily basis.

Now we face a new wave – lagging volumes causing stress on departmental finances. The finances we use to support our team and to care for our patients. However, this new wave does provide a benefit. It gives us a moment to stop, breath and take measure.

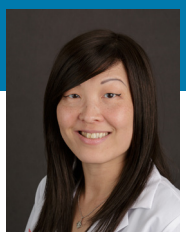
I would ask that you take a pause. Take the time to review your own stressors, both internal and external. We all react differently. That is okay, and part of being human – and it is fine to admit to being human. If those internal stressors are a bit much, stop and reach out. Sometimes a friend or family member will do. Perhaps a colleague you trust. Perhaps someone more professional. We all have options if you need something more. We even have access to directed confidential counselling or wellness coaching though ACEP (just check the website, which would direct you to call 800-873-7138 to register).

Please take a moment to review the comments by Drs. Lakoff and Das in support of National Physician Suicide Awareness Day. https://www.nyacep.org/practice-resources-2/resources/wellness/457-national-physician-suicide-awareness-day-september-17-2019

It is not fair that we lost one of own – "One of Us". Though it provides a pungent reminder that life is short. Slow down a little. Take a moment. Take care of yourself. Take care of your family and friends. Take care of your team. I am certain 2020 will hold a few more surprises, but think that we would not have it any other way.

## WHAT'S INSIDE

# SOUND ROUNDS



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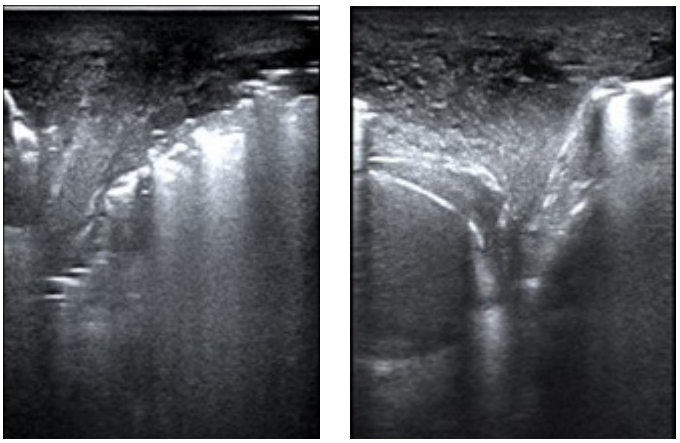
# Point of Care Ultrasound Evaluation of Scrotal Swelling

## Case Presentation

A 77 year-old non-verbal male presented to the Emergency Department from a Nursing Home with a past medical history of type 2 diabetes mellitus, dementia, benign prostatic hyperplasia, hypertension and hyperlipidemia with one day of scrotal swelling. The scrotal swelling was associated with erythema and patches of black skin. Further history was unattainable due to the patient's mental status. Vital signs on presentation in the Emergency Department were significant for blood pressure 159/78 mmHg, HR 130, RR 22, oxygen saturation of 95% on a non-rebreather $O_2$ mask and temperature of 38.9 C. Physical exam revealed a bedbound, nonverbal Asian male with significant scrotal edema and erythema. Several patches of black necrotic skin were notable at the ventral aspect of testes, extending to the perineum. Extensive crepitus in the inferioposterior aspect of the scrotum was noted with palpation (Figures 1A and 1B).

*Figures 1A & 1B. Scrotal edema with erythema and areas of necrotic skin.*

The differential diagnosis included cellulitis, abscess, mass, orchitis, testicular torsion, epididymitis, inguinal hernia, however at this time, Fournier's gangrene was strongly suspected. The patient was started on IV fluids and broad-spectrum antibiotics including Clindamycin for exotoxin coverage in conjunction with our sepsis protocol. Surgery was consulted emergently and a CT was ordered, as per their request, to determine the extent of perineal and abdominopelvic involvement. The emergency ultrasound (US) team performed a bedside scrotal ultrasound with a linear ultrasound transducer. On point of care ultrasound, cobblestoning was noted superficially, along with hypodensities that were suggestive of subcutaneous fluid and consistent with edema. Additionally, subcutaneous reverberation artifact was appreciated as a result of an air tissue interface consistent with a necrotizing process (Figures 2A and 2B).



*Figures 2A & 2B. Bedside ultrasonography demonstrating cobblestoning in the superficial skin, hypodensities, as well as obscuring hyperechoic linear reverberation artifacts indicating a tissue-air interface.*

Labs were significant for WBC 12.8, 22% bands, Cr 2.07, lactate 4. The CT abdomen pelvis showed significant emphysema in the scrotum, left inguinal canal, anterior abdominal wall, penis, and bilateral ischiorectal fossa confirming a diagnosis of Fournier's gangrene (Figure 3).

The patient was transported directly to the Operating Room (OR) for extensive debridement and washout. He returned to the OR on

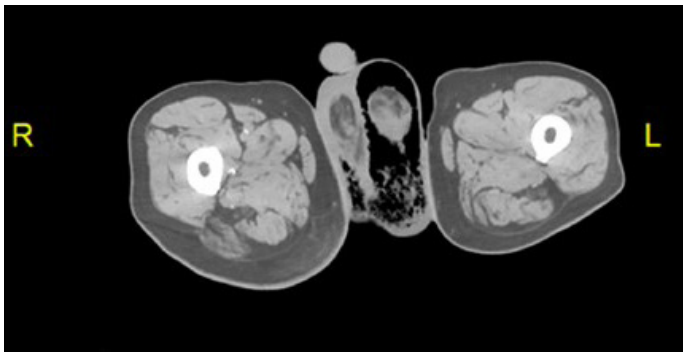



*Figure 3. CT abdomen pelvis demonstrating Fournier's Gangrene with extensive air within the scrotal tissue.*

POD 1, 3, 7 and 10 as he required multiple debridements. Initial wound cultures were positive for *Proteus mirabilis*, *Enterococcus faecalis*, *Prevotella bivia*, and *Bacteroides*. In the Surgical Intensive Care Unit (SICU), the patient continued to receive broad spectrum antibiotic coverage. His course was complicated by the need for a colostomy in addition to wound vac and final closure. The patient survived and was subsequently discharged on day 14 with regular wound care and continued antibiotic therapy.

## Discussion

Fournier's gangrene is a form of rapidly spreading necrotizing soft tissue infection localized to the perineal and genital areas that can affect both sexes, and represents a urologic emergency due to its high mortality rate.[1] While it can affect otherwise healthy individuals, certain high-risk factors include, diabetes mellitus, male sex, age >50, and history of alcohol abuse.[2] Prompt clinical diagnosis is paramount in order to quickly initiate proper broad-spectrum antibiotic therapy, and to obtain early definitive surgical debridement.

CT is the diagnostic imaging modality of choice for Fournier's Gangrene due to its high sensitivity and specificity as well as its ability to characterize the anatomic extent of infection which can be useful in surgical planning.[4] However, point of care ultrasonography can also be utilized in the Emergency Department as an initial imaging modality, especially in cases of diagnostic uncertainty. This is specifically useful in penile and scrotal pain.

Findings of Fournier's gangrene on US may include hypoechoic cobblestoning of the scrotal and perineal soft tissues, which is indicative of edema, as well as hyperechoic, hyperreflective foci, which are sonographic indications of gas within the soft tissue.[4] These foci of gas demonstrate a ring-down artifact and "dirty" acoustic shadowing (Figures 2A and 2B). There may also be hyperemia of the scrotal tissue on Doppler ultrasound.[4] A retrospective study found that in patients suspected of having necrotizing fasciitis, fluid accumulation within the deep fascia layer was more likely to present on point of care ultrasound.[6]

Using these findings, ultrasound has a sensitivity of 88.2% and a specificity of 93.3% for diagnosing clinically suspected necrotizing fasciitis.[3] Limitations include a relatively small field-of-view, operator dependence, and patient intolerance secondary to exam related pain.[4] Despite this, bedside ultrasonography is a useful tool to expeditiously support the clinical diagnosis of Fournier's gangrene.

## Conclusion

In conclusion, Fournier's gangrene is a rapidly progressing necrotizing soft tissue infection of the perineum and genitals and is a urological emergency requiring prompt diagnosis and treatment. While CT imaging is the diagnostic modality of choice, bedside ultrasound is a viable tool to rapidly support a diagnosis of Fournier's Gangrene until further imaging and management can be obtained.

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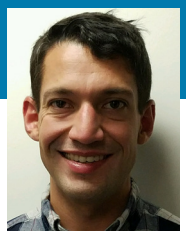

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# Multisystem Inflammatory Syndrome in Children (MIS-C)

In December 2019, a cluster of patients with multi-focal pneumonia in Wuhan, China was reported. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was identified as the responsible pathogen and the disease caused by SARS-CoV-2 was named coronavirus disease 2019 (COVID-19). In March 2020, the World Health Organization declared the COVID-19 outbreak a global pandemic. The first COVID-19 case in New York was confirmed March 1, 2020 and New York City soon became the world's epicenter with its peak in COVID-19 cases occurring in April 2020. Early studies of COVID-19 in the pediatric population were reassuring and showed that children were either mildly affected or asymptomatic when infected with SARS-CoV-2.[1,2] However, in April 2020, eight cases of multiorgan inflammatory shock in children with clinical features overlapping with Kawasaki disease (KD) and toxic shock syndrome (TSS) were reported in the United Kingdom.[3] Another study reported 10 similar cases in Italy from the Bergamo region, Italy's epicenter of SARS-CoV-2 infections.[4] In early May 2020, the New York State Department of Health reported 15 cases similar to the cases of pediatric hyperinflammatory shock seen in the United Kingdom and Italy.[5] This syndrome of multisystem inflammation in children temporally related to SARS-CoV-2 infection has been named multisystem inflammatory syndrome in children (MIS-C). As of September 17, 2020, there have been 935 confirmed cases of MIS-C in the United States with 19 deaths.[6]

Given continuing community transmission of SARS-CoV-2 in New York as well as the potential for a second surge of cases, understanding the presentation, evaluation and management of patients with MIS-C is important. Following are two cases that highlight clinical features of MIS-C and current standards in treatment.

## Case 1

A seven year-old previously healthy girl presents to the emergency department (ED) with fever, rash, nausea, vomiting, headache, neck pain and fatigue for three days. The patient had been previously well except for upper respiratory infection symptoms three weeks earlier. She had no fever with these symptoms and her symptoms resolved within four days. The patient localizes her neck pain to the left clavicular region. She has had one-two episodes of vomiting daily, but has been drinking fluids. The patient saw her pediatrician three days before the ED visit. There, testing for COVID-19, streptococcal pharyngitis and a urinary tract infection were performed and all were negative. The patient also endorses lower abdominal discomfort for the past four days. She has had no cough, chest pain or difficulty breathing.

On exam, the patient is alert but tired-appearing. Her vital signs are notable for a temperature of 38.8°C, heart rate 124 bpm, blood pressure 97/62 mm Hg, respiratory rate 20 bpm, and oxygen saturation 100%. Her physical exam is notable for dry, cracked lips with dry mucous membranes; shotty cervical lymphadenopathy with a 1.5 cm node in the lower left anterior cervical chain; a supple neck; clear lungs; a benign abdomen; a diffuse blanching erythematous maculopapular rash; and a non-focal neurological exam.

Labs, an ECG, a chest x-ray, acetaminophen and a 20 mL/Kg intravenous fluid bolus are ordered. On laboratory analysis, the patient has a WBC count of 5.9 X $10^9$/L with 88% neutrophils and 7% lymphocytes, lactate of 2.3 mmol/L [0.5-2.20 mmol/L], CRP of 30 mg/dl [<= 0.9 mg/dl], ESR of 44 mm/hr [0-30 mm/hr], procalcitonin of 2.11 ng/ml [<= 0.08 ng/ml], fibrinogen of 485 mg/dl [180-400 mg/dl], D-dimer of 2183 ng/ml [0-229 ng/ml], ferritin of 1828 ng/ml [10-291 ng/ml], and BNP of 1920 pg/ml [10-242 pg/ml]. The ECG shows sinus tachycardia but is otherwise normal. Troponin, electrolytes, liver function tests, urinalysis and the chest x-ray are also unremarkable. The SARS-CoV-2 PCR and the COVID-19 antibody test are both positive.

After intravenous fluids and acetaminophen, the patient defervesces, but her blood pressure drops to 81/45 mm Hg. Another 20 ml/kg intravenous fluid bolus is given with no improvement in the blood pressure. Dopamine is started and the patient is transferred to the Pediatric Intensive Care Unit at the regional children's hospital. There, she is treated with IVIG, corticosteroids, enoxaparin and aspirin. Her echocardiogram demonstrates normal biventricular function and normal coronary arteries. The patient is discharged to home after a five-day hospitalization on aspirin and a corticosteroid taper. Her inflammatory markers remain markedly elevated at the time of discharge but are downtrending. At the patient's follow-up visit with cardiology two weeks after discharge, inflammatory markers are normal. Follow-up echocardiograms performed two weeks and six weeks after hospital discharge show normal function and normal coronary arteries.

## Case 2

A 16 year-old boy with a history of autism presents with fever and eye redness for eight days. He had been to an urgent care clinic at the beginning of his illness and was diagnosed with viral conjunctivitis. As his symptoms

have persisted and he seems more fatigued, his mother seeks an evaluation for him in the ED. The patient's pediatrician obtained a chest x-ray and diagnosed him with pneumonia three weeks earlier after he presented with a persistent cough. The cough improved after a course of antibiotics was initiated. The patient is minimally verbal at baseline. He has had no vomiting or diarrhea and his mother does not believe he has had abdominal pain, chest pain, difficulty breathing, nasal congestion, sore throat or ear pain. He has had increased tearing from both eyes, but no purulent discharge. His visual acuity seems normal.

On exam, the patient is awake and non-toxic appearing. Though nonverbal, he can follow simple commands. His vital signs in the ED are temperature 38.1°C, heart rate 102 bpm, blood pressure 115/71 mm Hg, respiratory rate 18 bpm, O2 saturation 98%. The patient's physical exam is notable for bilateral injected conjunctivae without purulent discharge. He has dry mucous membranes, a supple neck, clear lungs, a normal cardiac exam, no rash, a benign abdomen and a non-focal neurological exam.

Labs, a chest x-ray and a two-liter intravenous fluid bolus are ordered. The patient's lab work is notable for a WBC count of 10.8 X $10^9$/L with 69% neutrophils and 12% lymphocytes, CRP of 22 mg/dl [<= 0.9 mg/dl], ESR of 123 mm/hr [0-30 mm/hr], fibrinogen 722 of mg/dl [180-400 mg/dl], D-dimer of 292 ng/ml [0-229 ng/ml], and albumin of 2.2 g/dl [3.2-4.8 g/dl]. The chest x-ray demonstrates a retrocardiac opacity with trace bilateral pleural effusions. Troponin, BNP, electrolytes, liver function tests, procalcitonin, fibrinogen are unremarkable. The SARS-CoV-2 PCR is negative, but the COVID-19 antibody test is positive.

The patient is started on intravenous antibiotics in the ED and admitted to the general pediatrics service. Upon admission IVIG, enoxaparin, corticosteroids and aspirin are initiated. An echocardiogram on hospital day one shows normal biventricular function and mild proximal LMCA ectasia without an aneurysm. A repeat echocardiogram on hospital day five demonstrates improvement of the LMCA ectasia. The patient's inflammatory markers improve during hospitalization and he is discharged after six days on aspirin and a corticosteroid taper. An echocardiogram performed two weeks after discharge shows a reduction in the proximal LMCA diameter and on repeat echocardiogram four weeks after discharge, LMCA diameter is normal.

## Discussion

In May 2020, the CDC published a case definition of MIS-C. (Table 1)

When MIS-C was initially observed, overlap between this syndrome, KD and TSS was noted. All three conditions result from an immune-mediated inflammatory response to an infectious agent. As with adults with COVID-19, there is considerable variability in severity of illness. Less severely affected patients may have fever and systemic inflammation without needing intensive care. More severely affected patients may present in shock with ventricular dysfunction.[8] Several systematic reviews of MIS-C case reports and a survey of members of an international consortium of clinicians who care for patients with suspected and confirmed KD have been published.[8-10] This literature comprises the foundation of our current understanding of MIS-C.

Compared to KD, which primarily affects younger children and infants, MIS-C affects older children with a median age of 8-12 years old in most studies and a reported age range of three months-20 years old.[5,9,10] Although 23% of patients reported had an underlying comorbidity including obesity and asthma, most were previously healthy.[9] As with COVID-19 in adults, children who develop MIS-C become most ill after an acute infection as viral load is decreasing and inflammation is increasing. Unlike adults, though, who become more severely affected during their second week of illness,[11] pediatric patients become ill with MIS-C further out from an acute COVID-19 infection. One study found a median of 25 days between COVID-19 symptoms and hospitalization for MIS-C[12] while another study found that patients with MIS-C presented two-six weeks after the peak in COVID-19 infections in their local geographic region.[8] There is male predominance in patients with MIS-C.[8,9] Unlike KD, which occurs most often in children of Asian descent, MIS-C has disproportionately affected Latino, African American and Afro-Caribbean children.[5,8,9,12] It is unclear if this is due to host factors, socio-economic factors or other reasons that are not currently well understood.

Aside from fever MIS-C may present with a variety of symptoms (Table 2). After fever, the most common presenting symptoms reported were gastrointestinal symptoms, which can easily be mistaken for viral gastroenteritis. In one systematic review, 88% of patients had vomit-

**Table 1 - MIS-C Diagnostic Criteria[7]**

| | |
|---|---|
| Patient < 21 years of age | |
| Fever | 38°C for = 24 hours or subjective fever for = 24 hours |
| Clinically severe illness requiring hospitalization | |
| Laboratory Evidence of inflammation | Including, but not limited to, one or more of the following: an elevated C-reactive protein (**CRP**), erythrocyte sedimentation rate (**ESR**), **fibrinogen**, **procalcitonin**, **d-dimer**, **ferritin**, lactic acid dehydrogenase (**LDH**), or interleukin 6 (**IL-6**), elevated **neutrophils**, reduced **lymphocytes** and low **albumin** |
| Multisystem involvement | = 2 of cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological |
| **AND** | |
| No Alternative Plausible Diagnosis | |
| **AND** | |
| Evidence of COVID-19 | Positive SARS-CoV-2 RT-PCR, serology, or antigen test; or exposure to a suspected or confirmed COVID-19 case within the 4 weeks prior to the onset of symptoms. |

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ing, diarrhea, or abdominal pain.[10] After fever and gastrointestinal symptoms, the next most common clinical features found in patients with MIS-C are signs seen in patients with KD.[5,8-10] These signs – non-purulent conjunctivitis, oral mucosa changes, extremity changes and cervical lymphadenopathy – comprise the diagnostic criteria for KD and are due to mucocutaneous inflammation. In a multi-center study, 40% of children met diagnostic criteria for KD.[12] KD clinical features were observed to occur more frequently in younger patients with MIS-C.[8,12] Myocarditis was seen most frequently in adolescents.[13] Neurological symptoms – headache and altered mental status – have also been reported.[9]

Cardiac involvement and shock are themost concerning manifestations of MIS-C. In a systematic review, 73% of patients had an echocardiogram performed during hospitalization, 43% of whom had reduced left ventricular function. Myocarditis was found in 23% of patients. In patients with KD-like features, 23% were found to have coronary artery abnormalities.[9] Most patients required critical care. In one systematic review, 68% of MIS-C patients were admitted to an intensive care unit, 40% of patients required inotropic support, and 2.7% of patients required ECMO.[9]

Lymphonpenia was commonly found in patients with MIS-C.[9,10] Neutrophilia, anemia and thrombocytopenia were also seen.[10] Elevations in CRP, ESR, procalcitonin, ferritin, fibrinogen and D-dimer were observed frequently and reflect the hyperinflammatory nature of MIS-C.[10] Compared to KD, inflammatory markers were more significantly elevated in MIS-C. Increased fibrinogen and D-dimer levels may indicate patients are hypercoagulable and at increased risk for thrombosis, though only 3.5 % of patients with MIS-C were diagnosed with a DVT or PE.[10]

In a case series describing the first 15 cases of MIS-C seen in New York City, SARS-CoV-2 PCR testing was positive in 47% of patients, but antibodies were detected in all patients.[5] Although the results of systematic reviews did not show a 100% rate of positive serology testing in other MIS-C patients, they also showed more patients had antibodies to SARS-CoV-2 than active viral infection.[9,10] This data further supports that MIS-C is due to a post-infectious inflammatory response.

**Reported Frequency of Signs and Symptoms of MIS-C[10]**

| Sign or Symptoms | Percent Positive |
|---|---|
| Fever* | 100 |
| Tachycardia | 100 |
| Gastrointestinal Symptoms | 79.1 |
| Hypotension | 72.7 |
| Rash* | 60.2 |
| Conjunctivitis* | 52.2 |
| Oral Findings* | 43.5 |
| Respiratory Symptoms (tachypnea, retractions, increased work of breathing) | 42.9 |
| Cough | 41.7 |
| Cervical Adenopathy* | 30.3 |
| Extremity Changes (edema, palmar / solar erythema)* | 29.6 |
| Sore Throat | 14.3 |
| Chest Pain | 13.6 |
| Anosmia | 4.8 |

* Signs / symptoms overlap with Kawasaki Disease

As MIS-C is a new clinical syndrome with 935 confirmed cases in the United States, treatment has thus far been based on expert opinion.[10] Managing patients with MIS-C involves treating shock, treating inflammation and thromboprophylaxis. In a survey of physicians who treated MIS-C patients requiring inotropic support, they reported using epinephrine, norepinephrine, dopamine, dobutamine and milrinone.[8] IVIG, the mainstay of treatment for KD, was used most often in treating the inflammation of MIS-C.[5,8-10] Corticosteroids and aspirin with both anti-inflammatory and anti-platelet dosing were also given.[8] As many of the pathological features of MIS-C are thought to be due to the cytokine storm triggered by SARS-CoV-2 infection, immunomodulators were utilized,[8,10] especially in patients with hemodynamic instability.[5] Patients with MIS-C demonstrated elevated D-dimer and fibrinogen levels which may reflect hyperinflammation, hypercoagulability or both.[10] Because of a potentially increased thrombotic risk, clinicians treated MIS-C patients with prophylactic anticoagulation. Additionally, patients with giant coronary artery aneurysms with thrombosis received therapeutic anticoagulation.[8]

Although patients with MIS-C can become critically ill, 1.4-1.7% of reported MIS-C cases resulted in death.[9,10] One systematic review reported the median number of hospitalization days for most studies included in the review was seven days.[9] Eighty-seven percent of patients were discharged from the hospital.[9] The percentage of patients discharged is likely higher as some patients remained hospitalized at the time of data collection.

As MIS-C shares many features with KD and there is no long-term data available on MIS-C patients, close cardiology follow-up with repeat echocardiography one-two weeks and four-six weeks after treatment has been recommended. Patients with larger coronary artery dilatation need more frequent follow-up. As some patients with cardiovascular effects from MIS-C did not have any KD-like exam findings, it may be appropriate for all patients with MIS-C to be followed with echocardiograms.[12]

## Clinical Pearls

- MIS-C should be considered in any patient younger than 21 years old presenting with fever for four or more days without a source. It should also be considered in children with fever for at least one day and certain clinical features. These features include shock/hypotension, lymphadenopathy, rash, non-purulent conjunctivitis, lymphadenopathy, rash, oral mucosa changes, extremity changes, abdominal pain, vomiting, diarrhea, headache, lethargy, altered mental status and dizziness.[12]
- Index of suspicion for MIS-C should be higher two-six weeks after surges in COVID-19 infection in a particular geographic region.
- Labs including a CBC, inflammatory markers, troponin, BNP, SARS-CoV-2 PCR and antibody testing may aid in diagnosing MIS-C. They may also be useful to inpatient physicians in making management decisions.
- Disposition - if a patient is well-appearing and lab results are not consistent with MIS-C, admission is likely not required. Children who are not well-appearing and who have lab results consistent with MIS-C should be admitted and seen by cardiology. In patients whose lab results are consistent with MIS-C but who are well-appearing and do not otherwise require admission, it may be reasonable to discharge them. However, given the lack of long-term outcome data on patients with MIS-C and the overlap between MIS-C and KD, close primary care follow-up should be ensured and close cardiology follow-up should be considered for these patients.

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# PRACTICE MANAGEMENT

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# Understanding Leadership in Diversity, Equity and Inclusion

## Introduction

Commitment to excellence within emergency medicine's (EM) dynamic social model of care requires a commitment toward diversity, equity and inclusion (DEI). EM physicians are perhaps the last generalists, serving the entire demographic spectrum. This diverse population has startlingly unequal healthcare outcomes, no more evident than in the United States Black community, with higher rates of infant mortality, HIV, numerous cancers, hypertension, diabetes, stroke and obesity. This could be framed as only a population health problem, but there is a growing body of evidence that care is better from providers who reflect the community they serve. Research shows Black patients have higher satisfaction and improved outcomes when their providers are of the same race. Unfortunately, Black communities are also four times as likely to have a shortage of physicians (regardless of community income), and less than 5% of physicians are Black, despite accounting for 13% of the US population.

Many of US healthcare's greatest limitations converge on EM, including underinsurance, shortages of primary care providers and the downstream challenges of chronic episodic care. EM is uniquely positioned to lead articulations of, and solutions for, these critical issues. Achieving such a disruption is an ambitious goal; business experts are increasingly identifying thought diversity as a key component to high achievement in problem solving. Thoughts, perspectives and biases are largely derived from experiences that, for better or worse, are influenced by our race, culture, community, gender, gender expression, sexual orientation and socioeconomic status. Given this, an EM leadership that mirrors societies' diversity will be better positioned to successfully address its complex maladies.

In short, a commitment to diversity in physicians and physician leadership is a commitment to our future excellence as a specialty. And while many EM leaders are not from historically underrepresented groups (URGs), it is critical all of us cultivate a lasting commitment to this mission. Clinicians from URGs may be advantaged to intuit the path to broader representation, in part due to lived experience of existing barriers. However, it should not be the responsibility of those groups most affected by disparities to address a lack of diversity, especially when these same groups are underrepresented in leadership positions.

Extraordinary contributions to diversity in EM already exist, disproportionately from leaders of URGs, including women, Black men and members of the LGBTQ community. This authorship (both male, one White and one South Asian) wishes to deepen our understanding of successful leadership in the DEI mission, thus improving our ability to authentically contribute. Recognizing the limitations of our own experiences and perspectives, we conducted interviews with four national EM thought leaders in DEI. We did not seek easy or definitive answers, rather an education, recognizing that "flying the flag" of diversity is only as effective as the knowledge and perspectives it is planted in. Four consistent themes of leadership strategy emerged from these interviews, subsequently represented below in concept form. This somewhat reductive representation of decades of wisdom is intended to encourage readers toward clear, actionable steps. In the words of the late justice Ruth Bader Ginsburg: "Real change, enduring change, happens one step at a time."

## Leadership & Intentionality

Leaders must initiate open, honest and deliberate conversations on DEI. This can begin with an explicit commitment to growth in this domain, with a clear envisioned future state. Racial disparities in Covid-19 outcomes and George Floyd's murder offer tragically contemporary examples of health and social inequities in the US. These events can be contextualized with further examination of health disparities research, as well as AAMC data on URGs in medicine, including academic ranking.

Internal data can help staff recognize that continued progress in DEI cannot be assumed by arriving at a consensus of non-prejudice. A common misconception is that an absence of conscious prejudice predicts a lack of biases that may impact decision making. Both the Diversity and Engagement Survey and the Implicit Association Test (IAT) are opportunities for deeper self-reflection and may identify patterns within the team. Thoughtful strategies on disclosing IAT results may galvanize the team, as staff of all demographic backgrounds confront their prejudices and begin discussions on how to best compensate.

Further conversation in focus groups will provide a safe space for staff to speak their truth in more detail. Individuals from URGs should be empowered to articulate their unique experiences and perspectives. Leaders from historically privileged groups are likely underqualified to guide these discussions; in such cases, knowledgeable moderators experienced

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in this space are highly recommended. Themes that emerge from these focus groups will offer opportunities to engage stakeholders and develop actionable items. Even small incremental changes can establish trust and build momentum. Irrespective of where a department is on the spectrum of DEI, leadership should focus on intentionality, with deliberateness and persistence toward dynamic overall change, as well as transparency regarding continued areas for growth.

## Defining the Environment

Capitalizing on the momentum of early DEI conversations, it is critical for leadership to facilitate a projection of DEI values into all aspects of the professional environment. Many institutions have developed entities such as DEI committees and women's faculty counsels to ensure incremental progress. Input from frontline staff is essential, with the goal of diversity of thought. These should represent perspectives that have been historically muted and generate solutions that may not be intuitive to more privileged groups. Ancillary clinical and administrative staff must always be included as equitable team members. Academic institutions should support and promote health and racial disparities research and consider actively recruiting physicians engaged in this domain. A commitment to educate residents on social disparities has been a historical strength in EM, facilitating trainees' understanding of vulnerable patient population struggles. Examples of successfully embedding this into the culture of a residency program include rotations in homeless shelters and jails.

Defining the environment also requires addressing racial battle fatigue and protecting the team from abuse from patients, including microaggressions. Partnerships within the organization will allow leaders to operationalize respectful, corrective actions toward unacceptable patient behaviors. These processes should prioritize the dignity of the healthcare professional as much as the delivery of high-quality care. Staff from URGs should also be protected from being overburdened in DEI roles that may not be rewarded by the organization or translate to promotion. At best, this "Minority tax" risks underperformance of overworked talent; at worst, it can translate to toxic tokenism and compromise staff retention.

## Networks & Recruitment

Physician leaders frequently rely on informal professional networks for recruitment. Answering the seemingly benign "Who do we know who is good?" relies almost exclusively on preexisting networks, which may unintentionally translate into a biased selection process for recruitment at all levels. Many informal networks may reflect either unconscious biases or simply be from a pool lacking diversity. To serve the DEI mission, recruitment must begin with the intention to broaden networks or to create new ones. EM leadership should cultivate long-term relationships with organizations such as FemInEM, National Medical Association, National Hispanic Medical Association and a multitude of other physician organizations for URGs, many of whom have EM sections. The benefits of these relationships are numerous: to acknowledge and understand these organizations' histories, missions and the impacts they can make; to have a voice in them and to amplify the voices from them; and to recruit talent. Advertising in these organizations' publications can help cultivate trust, reassuring candidates their applications will be well received.

Many candidates from URGs are evaluating potential employers, at least in part, based on their approach to DEI. Institutions must respond with diverse representation on interview panels. If a department cannot offer this, leaders should invite colleagues from other departments to sit on the panel, helping to facilitate questions candidates may have around professional and social climate. If a department is not currently diverse, it is important that leadership takes a color-brave approach with candidates, openly acknowledging this deficit and sharing a vision as to how change will be achieved, including what role that candidate could have.

Community outreach can be used to engage and cultivate more diverse representation in EM. This is equal in importance to facilitating the success of current physicians from URGs. Increasing the supply of URGs in healthcare is a challenge to scale for impact; it requires significant resources and measurable benefit is not immediate. Shining examples include the Robert Wood Johnson Foundation Health & Society Scholars program and the $100 million Michael Bloomberg pledged to four historically Black US medical schools. Community outreach on more modest scales should prioritize lasting, committed partnerships through either academic or educational initiatives and avoid transient relationships akin to tourism.

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This year, more than ever, we want to acknowledge the enormous efforts of emergency medicine's unsung heroes who go above and beyond for their colleagues, patients and community.

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# PRACTICE MANAGEMENT

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## Mentorship

Mentoring requires a deep-seated investment; understanding what drives the individual, including what their goals are; and facilitating manifold career and personal success. Within the constructs of DEI the traditional mechanics of mentorship excellence apply. Optimal advocacy requires understanding the nuances to the professional experiences of the mentee, especially of URGs. Mentorship may help faculty from URGs increase their sense of belonging to the institution as well as career satisfaction, and help them to navigate the complex process of academic promotion. Inequity of access can be a common hurdle for URGs, translating to inequities of both experience and subsequent opportunity. Recognition of previously lost opportunity can inform a strategy to optimize future exposure and downstream opportunities.

Leadership evolution includes exploring the limitations of unidimensional mentorship. Physicians, at some point(s) in their professional journey, will likely require mentorship from person(s) of similar race, culture, gender or sexual orientation. Not to discourage mentoring across demographic phenotypes—our interviewees all attested to career-defining mentorship across gender and racial lines, but all equally reinforced the critical concept of "a board of mentors" or "mosaic mentorship." In this model, leaders should assist mentees to find as many mentoring experiences as is required to match the complexity of their careers and lives. Supporting mentoring programs for URGs at the institutional or departmental level can help advance this agenda.

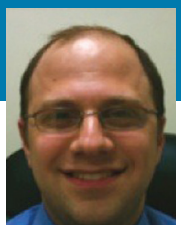
## Conclusions

The egalitarian values that drew many of us to EM should equally inspire us to embrace changes within our specialty. The journey to greater DEI will likely define EM's future excellence in a healthcare landscape that mirrors the inequities and challenges of our society at large. Leaders, particularly from historically privileged groups, must establish an intentionality far beyond non-prejudice. All aspects of the work environment can embody DEI values and URGs should be empowered as leaders to shape this growth. Professional networks should be reconfigured to serve inclusive recruitment, with a goal of establishing long-term investments in underrepresented communities. Finally, mentorship should be designed to reflect these values, facilitating self-actualization and inspiring future leadership.

### Index of Important DEI Links

1. https://www.aamc.org/what-we-do/mission-areas/diversity-inclusion/engagement-survey
2. https://implicit.harvard.edu/implicit/takeatest.html
3. https://www.nmanet.org
4. https://www.nhmamd.org
5. https://feminem.org
6. https://www.ecfmg.org/echo/links-ethnic-physician.html
7. https://www.aamc.org/what-we-do/mission-areas/diversity-inclusion
8. https://www.saem.org/adiem
9. https://www.acep.org/how-we-serve/sections/DIHE/

# ASK THE EXPERTS



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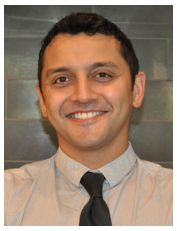

**Interview With**
**Abhinav Nafday, MD**
Attending Physician
Providence St. Vincent's Hospital

**Interview By**
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Chairman, Emergency Medicine, Mercy Medical Center
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Changing career sites or paths for advancement, location or personal reasons can be challenging under normal circumstances. The COVID-19 pandemic changed the landscape of emergency medicine and the physician job market. In this "Ask the Expert", I had the pleasure of interviewing a colleague who completed a cross country (New York to Oregon) transition for personal reasons while navigating this new COVID-19 employment landscape. Dr. Abhinav Nafday trained in New York at Albert Einstein College of Medicine and completed his residency at the University of Michigan Emergency Medicine Program. He subsequently worked clinically and academically between Mercy Medical Center in Rockville Centre and Good Samaritan Medical Center in West Islip.

## What was the most challenging obstacle in changing practices in the COVID era?

As you are intimately aware, we went through a harrowing period in New York during the peak of the COVID crisis. It was around that time that my family circumstances changed and I began the search to change practice location across the country. Aside from the obvious geographic challenges, the distance made it difficult to get an understanding of the groups and hospitals that were interested in hiring emergency physicians. With regard to COVID, some of the biggest issues were hiring freezes and just overall limited job availability. In emergency medicine we have generally enjoyed plentiful jobs and opportunities but the COVID era seems to have thrown a wrench into that, which is something many of us have never experienced in the emergency medicine job market. All the directors of emergency departments I spoke with were responsive and open about the challenges of hiring during the COVID era. Once I had made some contacts, persistence was key.

## What aspects should one consider when planning a move/career change that you did not initially consider or recognize?

Aside from the obvious challenges of finding a job and a place to live, there are quite a few logistical issues that come up in a big career and geographic move. In looking for a new career, I was initially at a loss about exploring a completely different job market. There really is not a manual for this. I started with the usual resources: internet job posts, ACEP's listing of groups, unfortunately in the immediate COVID era neither were really fruitful. Then, as with many facets of life, the human touch was very helpful. I leaned on residency colleagues, prior program leadership and started asking around about the area. Even just having a conversation with someone who is knowledgeable about the emergency medicine landscape in a new area can be tremendously helpful.

## If you could change something you did in the process to make it easier, what and how would you change it?

The easy answer here is to go back in time and hope that the coronavirus did not absolutely shake up emergency medicine the way it did. But of course, along with all the challenges it presented, COVID made it most difficult to travel and see departments and meet people in person. Every big life move comes with ups and downs and unexpected difficulties. I do not think a lot could have been done about the surrounding circumstances and so like with our chaotic emergency medicine jobs, equanimity is important.

## What advice do you have for someone first coming out looking for a career?

My advice would be twofold. One, making contacts through your residency program leadership is a great way to start. Invariably, program directors and administrators have records of where their alumni have ended up. If you are lucky, there will be someone they can put you in touch with to learn the lay of the land in a new city or market you might not know a lot about. From a distance, this is incredibly difficult to figure out but with an ally in the process, you can get a much richer understanding of the job market that a website or recruiter would have a hard time replicating. Second, at least in my case when I had just finished training, it was hard to decide what niche in emergency medicine I wanted to focus on. I wanted a mix of teaching and clinical practice and I was able to find that in my first attending role in New York. My advice in this regard would be to have an open mind and feel out each job opportunity for what it might offer to expand your skillset. I would imagine it is rare to find a job right away that meets all of your requirements. Some of these likes/dislikes will evolve the more you work and find your place in emergency medicine.

RESEARCH

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# Research Involving Children: Ethical Considerations

## Introduction

Children depend on adults for both their clinical care and research participation. Therefore, they are vulnerable, particularly in the context of medical research. Research is essential for the advancement of knowledge regarding the diagnosis, treatment and prevention of diseases. Since children are a vulnerable population, there are restrictions on the research risks to which a child may be exposed. This is in stark contrast to the risk levels considered acceptable for research involving consenting adults. Excluding children from participation in research may slow or even halt progress of scientific knowledge that can potentially help them. It may result in a paucity of data for certain conditions that are age-appropriate for either safety or efficacy of treatment. In recent years, there has been a shift from exclusion to inclusion of children in research. However, one should balance protection of children from research risk against the ethical imperative of conducting studies to improve the lives of children. Researchers should recognize the need to balance the inherent vulnerability of children with the necessity to include them in research studies. Table 1 provides basic principles of research. In this report, we present ethical challenges to satisfying the regulatory requirements that emergency research involving children demands. We highlight certain concepts that should be considered when medical research involves children (Table 2).

## Scientific Necessity

The clinical need for research should be well established and supported by evidence-based evaluation of current clinical practices. In general, children should be included in research only when their involvement is essential from a scientific perspective, and only when the findings of the study may have direct implications in their care.[1] In addition, children should only be included in research after safety and efficacy have previously been established for adults.

## Equipoise

Equipoise is a genuine uncertainty for which interventions have been determined to be clinically superior. This must be conducted in pursuit of findings that are of scientific merit. The principle of equipoise is anchored in justice and fairness. It ensures subjects are not unfairly

**Table 1: Basic Principles of Research**

- **Respect for Person and Autonomy**
  - Individuals should be treated as autonomous
  - Additional protection and safeguards for persons with diminished autonomy
  - Informed consent requirement
    - Participation is voluntary; with adequate information and with full understanding
    - A complete, valid, and meaningful informed consent is required
- **Beneficence**
  - Do no harm
  - Maximizing benefits and minimizing possible harm
- **Justice**
  - Fairness in distribution of research benefits and risks
  - Equitable distribution of burden through ethical subject selection

**Table 2: Important Considerations for Research Involving Children**

| Research Requirement | Important Considerations |
|---|---|
| Clinical Necessity | Research intervention must be relevant and required |
| Favorable Risk Benefit Analysis | Minimize risks while maximizing benefits |
| No Undue Influence or Coercion | Remuneration for Research Participation is not excessive |
| Minimal Risk | No greater than minimal risk \| Adequate provisions should be made for soliciting assent of children and permission of parent |

Adapted from Largent EA, Wendler D, Emanuel E, Miller FG. Is emergency research without initial consent justified? the consent substitute model. Arch Intern Med. 2010 Apr 26;170(8):668-74.

exposed to an inferior medical treatment. It is essential that children not be exposed to an inferior treatment, when a better option is available. As a rule, effective treatments should not be withheld from any research subject.

## Justice: Risk-Benefit Estimation

Children should not be burdened or excluded from participation in research. This issue of justice becomes relevant when children are excluded from the research. It is important that children should also receive the benefits of research and not be excluded.[2] However, exposing children to risk is perhaps a most difficult challenge. Investigators and the institutional review committee should define both the magnitude of potential risks and the likelihood of harm, and how these risks can be minimized. It is important that children not be unfairly excluded from the benefits of research. They should be protected from possible risks of medical research to the best extent.

## Ability to Provide Consent

Informed consent is ethically and legally required before any research interventions are administered. Children lack the capacity to offer consent and are therefore vulnerable to the priorities and decision-making whims of caregivers for their participation in research. In addition, they are incapable of considering the risks and benefits of participating in research for themselves. Therefore, it falls to the researchers to carefully evaluate whether the risk to benefit ratio is acceptable in order to permit the conduct of research. Investigators must ensure studies have undergone vigorous ethical research review. In emergency medical research, it is important to review how the enrollment process and the consent requirements are both satisfied. Simply obtaining a consent document is not sufficient to assure a research study is ethical and to remove vulnerability.[3]

A number of issues may influence the informed consent process even in light of the best of intentions. This is particularly important in the Emergency Department (ED), where time is limited. In the ED, subjects may be in a life-threatening situation. Under such conditions, obtaining an informed consent can be quite challenging. Research under emergency conditions can be conducted only if informed consent is waived, or can at least be deferred.[4] The waiver of consent requires a balanced relationship and full confidence between health care providers and society (patients, families and citizens). One way to provide confidence is by assuring public disclosure and community consultation prior to study initiation, as is required by US regulations. A waiver of informed consent for emergency research is applicable only when there is specific evidence about possible benefits; an informed consent cannot be readily obtained; and when there are additional protections provided for subjects whose parents cannot be located within a reasonable period of time. Since the current ethical review process is heterogeneous, and varies among regions, this may threaten emergency research without an initial consent.[5] In certain studies, a full consent can be deferred until the parents are able to provide consent. Disclosure of additional information about participation in clinical research such as the purpose of the study and its design are both required.

In the emergency department, consent may be provided with limited information, due to the urgency of the situation. A participant may subsequently consider withdrawing when provided more detailed information and adequate time becomes available.

## Privacy and Confidentiality

Respect for privacy and confidentiality are professional responsibilities of the researchers. In the emergency department, privacy and confidentiality are often challenged by the environment, urgency, crowding, visitors and many other factors. Often in the ED, patients are in an overcrowded, undersized space in close proximity to another patient. Maintaining privacy in the ED may be difficult.[6] Nevertheless, regardless of the environment, it is always the responsibility of the researcher to protect the participants' privacy and confidentiality.

## Research Oversight

Research involving all human subjects requires review by an IRB. The purpose of the IRB review is to ensure each of the following:

1) Risks related to research procedures are minimized
2) Benefit-to-risk ratio is optimized
3) Informed consent is obtained when applicable.
4) Requirements of the federal regulations governing human subjects research (45 CFR 46) are met.

Appropriate application of basic principles results in more restrictive research oversight in children.

## Therapeutic Misconception

Boundaries between research and clinical care may be less clear and may result in "therapeutic misconceptions". These comprise forms of vulnerability might be less obvious and therefore may often be overlooked. It is important to emphasize the distinction between conducting research and clinical intervention. Failure to understand this distinction may result in unrealistic expectations.[7] Therapeutic misconception occurs when parents mistakenly attribute therapeutic intent to conduct research versus intervention and involving treatment such the choice of a specific drug or procedure.[8] They may confuse clinical care with the conduct of research. This is particularly relevant in the ED, where researchers have a limited amount of time to explain either study design or procedures involved. Therapeutic misconception also occurs when the investigator is also the patient's physician. Parents might confuse the roles of doctor and researcher.

## Remuneration for Research Participation

Any financial incentive can distort the decision-making process. This can induce parents to consider issues other than the welfare of their children when deciding whether to participate in a research project.[9] Therefore, careful effort should be made, when payments or incentives are offered to parents for research participation. A reasonable compensation for time and inconvenience may be appropriate. However, it should be reviewed by the IRB, to ensure that the amount is not excessive and should not be misconstrued as coercion or undue influence. This issue becomes more difficult when the research project involves a low socioeconomic status community population for whom even a small remuneration may be significant.

## Conclusions

The primary ethical goals in emergency medical research involving children is to protect them from exploitation and harm. The conditions of understanding and voluntariness are central to requirements that investigators provide relevant information to prospective research participants, evaluate their understanding of this information and assess situations for possible coercion or undue influence on the decision to participate in research. We believe

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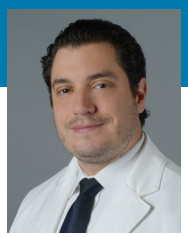
# EMS



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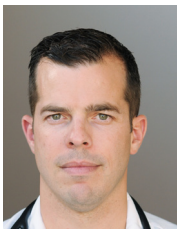

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## A Brief History of a Pandemic, Part I

"*Masks. I need N95 masks for the staff. How many do we have?*" The answer I received from my department leader was reassuring, there was in fact a stockpile of N95 masks for our Emergency Department (ED) as we expected a flood of patients with viral symptoms to soon descend upon our facility. At the time, the word "coronavirus" had no meaning beyond a basic science question for a second year medical student. I was, in fact, a 32-year-old ED attending working in one of the busiest facilities in New York City.

I remember this conversation like it was yesterday … although it took place in April 2009. I was a recently-minted attending physician working at Long Island Jewish Medical Center while completing my fellowship in Emergency Medical Services through the Fire Department, City of New York's (FDNY) Bureau of EMS. I was familiar with municipal emergencies and the according response matrix but this would be my first foray into hospital-level public health emergency management. I was speaking directly to my chair at the time, and his words were both confident and reassuring to me as the front-line PGY5 expecting to handle their first major mass patient presentation event. Thankfully, the barrage of patients we expected from the now famous internationally traveled private school contagion never arrived. Those who sought care did so in an orderly fashion and were treated accordingly with staff safety standards upheld. I thought I was going to have to 'make my stand' that afternoon, but it just never happened. A casual observer could have mistaken the hospital's preparation as being for naught, but the subsequent autumn of 2009 would tell a different story for many.

The pandemic "Swine Flu" of 2009 was the first national biomedical emergency of my emergency medicine career. The readers who remember it may recollect the salient differences from our viral preparedness today: sparse community vaccination programs, limited transmission-reducing policies, medical decision making at times flying in the face of the viral illness *(I still cringe at the concept of "cough + fever = bronchodilators" therapy or intubating a patient with respiratory failure without wearing a N95 mask*). Our leaders learned from this major event and over the years changes were made to the healthcare system to reduce the impact of subsequent severe influenza cycle. Unfortunately, none of this preparation seems to have made a noticeable impact to reduce the disruption of the novel coronavirus of 2019. It is safe to say coronavirus' impact has been of seismic proportions and pervasive on almost every aspect of our daily lives. A comparison of pandemic influenza 2009 vs. novel coronavirus 2019-20 would be tantamount to the folly of sports talk show hosts discussing the relative superiority of particular players spanning different generations.

That fall I would contract the swine flu, obviously from an unknown location, but likely due to my overt occupational risk. The impact this disease had on our young family was unimaginable as my wife was pregnant and we had a toddler at the time. The constellation of multilobar pneumonia, cold agglutinins, profound hypoxemia and high fever, intermixed with limited testing nor reliable antiviral medications put many like me in crisis mode. As one of the fortunate people to recuperate from a potentially lethal illness, it should be noted that many "young and healthy" people did not. The 2009 pandemic influenza was a rampant, indiscriminate invisible killer of all ages and disease burdens.

A decade later, a new leader and a new phone call. "This one is gonna be big", he tells me. He relates the vernacular is still in flux, SARS-coV, nCoV, Coronavirus … until everyone settled on "COVID-19" for the 2020 calendar year.

Like many of us who experienced both events, I would face this second viral pandemic in a different fashion than my first. Whereas I was the one asking for help, ever-cautious of the potential that day in April, in 2020 I had roles with both clinical and administrative impact. I firsthand witnessed the collective work of our interconnected public health system just as well as the patients entering the ED. In addition to being an academic ED physician, my role as an EMS Medical Director and member of the New York City Regional EMS Medical Advisory Council (NYC REMAC), put my spring 2020 brain (and mouth) to work on modifying the system to optimize patient care and provider safety as we prepared for the eventual onslaught. My intimate experience with Swine Flu 10 years prior led me to support others in our attempt to keep patients and providers safe during care activities.

Writing this article in October 2020, the parallels from seasonal impact of 2009 to this year are omnipresent. As COVID-19 has proven itself to require public and professional investment in an otherwise never before seen manner, it is imperative to reflect on some medical decision-making changes from months ago as we enter the oncoming season. Much of our work is likely to be blurred in other life changes as we were forced to be reactive to the most present obstacles. Although compromises and pivots were innumerable, the most relevant changes made to our EMS system are briefly discussed below. It is expected several of these are going to be revisited or have been permanently incorporated into our current workflow in the coming season of "Coro-

fluenza" or whatever portmanteau becomes standard. The EMS system is often a microcosm of ED management, so many of the topics listed are relevant to more than those providing out-of-hospital care decisions for patients and providers. I am confident these changes had impacts on the lives of the patients and providers during the first COVID-19 season and know firsthand the importance of identifying best practices for care during a contagious viral pandemic.

## Staffing Standards

New York State recognizes several levels of prehospital provider credentialing. Within New York City, only three levels of provider exist: the Certified First Responder (CFR), the basic Emergency Medical Technician (EMT-B), and the Paramedic (EMT-P). Whereas Paramedics have extensive training, capabilities and the expectation of advanced medical decision making, they are the least numerous of the workforce. Balancing these paramedics throughout the geographic area was paramount to care for the additional workload of patients expected. The staffing standards in New York City prior to COVID-19 included having identical provider levels ride together on a two-person ambulance; i.e. two EMT-Bs in a BLS ambulance and two Paramedics in an ALS ambulance with CFRs emanating from FDNY Engine Company response.

On April 2, 2020, the New York City Regional Emergency Medical Services Council (NYC REMSCO) relaxed the expected staffing standards to allow 911 ALS units to operate with one Paramedic / one EMT-B and BLS units to operate with one EMT-B / one CFR. This standard, albeit seen as a change, was already being used in non-911 New York City ambulances as well as throughout the rest of New York State without complication. The relaxation of staffing standards enhanced the deployment of the most knowledgeable member of the workforce to care for more patients than would be expected without the change. Anecdotally, modifications to some inter-facility unit staffing models were changed to allow for the clearly increased volume in patient transfers.

## Crisis Standards of Care

The increase in cardiac arrests seen during the COVID-19 pandemic has been well documented. Managing this burden of severe disease could have been viewed as an insurmountable task if the eventual impact was prospectively demonstrated. The simple truth is: no one saw something this bad coming. The way COVID-19 impacted people in New York City was dissimilar to reports coming out of other nations, most notably the burden of thromboembolic disease on its victims. The New York City EMS 911 system broached 7,000 calls per day, the highest volume on record. Calls from the field began to overwhelm hospitals and regular pre-arrival notifications for cardiac arrest were suspended March 19, 2020 by FDNY. On March 31, 2020 the New York City REMSCO provided changes on cardiac arrest management, specifying that patients in cardiac arrest without field return of spontaneous circulation (ROSC) should not be transported to hospitals unless there is a danger to EMS providers on scene. In subsequent days, clarification language was subsequently released to standardize the working time period of 20 minutes.

Termination of Resuscitation (TOR) criteria have been published, validated and objectively used by EMS systems for decades. However, since this policy was a discrepant change from the common practice of moving unsalvageable cardiac arrest victims to hospitals, the EMS oversight decision to terminate resuscitative efforts in patients with futility was met with cynicism and scorn by the news media and public officials claiming a lack of preparation or knowledge was the cause of this change. The very members at greatest risk of contracting COVID-19 were the centerpiece of an unfortunate ethical argument. The impact of this public consternation is immeasurable but likely added to the emotional stressors suffered by our EMS providers. This policy was unfavorable to some, but clearly meant as a safety measure for the providers who worked on countless patients only to have their rescue efforts promptly terminated by a physician upon hospital arrival.

The American Heart Association modified their cardiac arrest algorithms several weeks later, on April 17, 2020, with additional concepts of personal protective equipment and airway prioritization.

New York State released a similarly modified cardiac arrest standard of care April 21, 2020. This protocol was similar but more extensive than the one being deployed in New York City leading to additional confusion and unfortunate outcry. This is likely due to variation in resources across the various geographic areas of our State, with the same goal of enhancing provider safety during a public health disaster. Similar language modifications followed to rescind the original direction, clarifying and standardizing the expectations of EMS providers throughout the State.

The deployment of TOR criteria was an important measure to enhance the efficiency of the 911 system but was met with public scrutiny because of its proximity to the pandemic. TOR criteria have been used in other regions during regular operations for many years successfully and should be continued regardless of a coexisting pandemic. Manual CPR in a moving ambulance is of poor quality and heightened risk to community and provider with very limited benefit.

## Aerosolizing Procedures

Care delivered in an ambulance compartment is clearly high-risk given the space limitations and turnover of patients during a shift without dedicated cleaning staff. The volume of an average ambulance is ~500 square feet. Given that space, of all the topics relating to COVID-19, aerosolizing procedures is perhaps the most dangerous. Optimizing rescuer safety during care provision is of the utmost importance. Fear and uncertainty, propagated by our current enhanced communication methods like social media, led to leaders requiring clarification on whether specific treatments (i.e. a non-rebreather mask) produce aerosols.

On March 19, 2020 the New York State Bureau of EMS suggested using alternatives to endotracheal tubes with use of personal protective equipment for specified aerosolizing procedures (intubation, continuous positive airway pressure, nebulizer use). Breath-Actuated Nebulizers and Metered Dose Inhalers were also recommended, if available. Almost simultaneously, the NYC REMSCO approved supraglottic airway use for non-cardiac arrest respiratory failure. Previous to this change, endotracheal intubation was required in this patient subset. This allowed the providers to reduce laryngoscopy exposure time, a distinct risk given the procedure being a sedation-only / direct visualization method.

The AHA likewise provided updated airway management and aerosolization risks April 17, 2020 with recommendations on non-invasive positive pressure ventilation, high flow nasal cannula use and general ventilation management during COVID-19 exposures.

## Personal Protective Equipment (PPE)

# EMS

NYC REMSCO made recommendations about distancing for patient contact March 17, 2020. PPE suggestions were also provided including eye protection, gloves and protective masks. Our own EMS agency went forward with additional PPE including head covers and shoe covers, also novel methods of laundry service for the crew members. Availability was always a concern as supply chains were impacted by the pandemic.

The most relevant point on PPE was the continued updating of recommendations as they varied as the science began to emerge. Also, novice PPE users or semi-clinical staff were potential contamination risk points.

## Proning

Placing patients in a prone position was an anecdotally successful method of reducing need for ventilatory support (and also could reduce the amount of aerosolizing procedure exposures). Transporting proned patients by EMS was beforehand uncommon or even unheard of, but the potential this cost-free treatment plan had was clear from the impact it had on the patients we were seeing in the EDs. On April 9, 2020 we released a novel internal plan to allow awake patients to self-prone for comfort during transport. We targeted the patient population with inclusion and exclusion criteria as well as procedural specifics such as pre- and post-event monitoring to maintain a high degree of patient and provider safety. The process was well received by our staff and no concerns or decompensations were raised. Anecdotally, this empowered the patient and provider to remain comfortable during a potentially dangerous encounter and limited the number of prehospital airway maneuvers required for ill patients.

By May 2020, ongoing surveillance allowed for many of the crisis-level changes and guidelines to be rescinded by various oversight agencies. The case presentation rate dropped and we were given respite in the form of a summer modified by new guidelines and compromises. Unfortunately, the predictions are currently demonstrating slow but steady increases in COVID-19 case rates throughout the nation as well as our State. The truth is, it is back. Our brief summer hiatus has given us time to identify specific medications, community practices, potential vaccination programs and disease surveillance not seen during Swine Flu. The future, although obstacles certainly exist, is brighter because of our persistent intent to improve the lives of our community regardless of our viral opponent. My expectation is that our planning, surveillance and decision making will be bolstered by the lessons learned earlier this year allowing us additional tools in our collective armamentarium in this seemingly perpetual battle. I feel safer for the lessons learned on the first assault and plan to continue learning during the subsequent waves. Good luck and be safe out there everyone.

## Calendar

### December 2020

**1** Online Professional Development Lecture: Being a Physician Leader in 2020 and Beyond 3:30 pm
**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
**18** Board of Directors Meeting, 12 Noon - 1:30 pm
**24-1** Office Closed - December 24-January 1

### January 2021

**13** Education Committee Conference Call, 2:45 pm
**13** Professional Development Conference Call, 3:30 pm
**14** Practice Management Conference Call, 1:00 pm
**20** Government Affairs Conference Call, 11:00 am
**20** Emergency Medicine Resident Committee Conference Call, 2:00 pm
**20** Research Committee Conference Call, 3:00 pm
**21** EMS Committee Conference Call, 2:30 pm

### February 2021

**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
**26** Board of Directors Meeting, 12 Noon - 1:30 pm

### March 2021

**8** Online Professional Development Series. 3:30 pm
**9** New York ACEP Virtual Advocacy Day 10:30 am - 4:00 pm
**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

*continued from page 16*

ing of this information and assess situations for possible coercion or undue influence on the decision to participate in research. We believe critically ill or injured children should only be included in clinical research when it is ethically justifiable and in the best interest of the children. It is therefore important to constantly evaluate the ethical and regulatory processes pertaining to medical research involving children. One should balance the inherent vulnerability of children with the necessity to research conditions and potential treatments unique to this particular population.

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## Congratulations to New Fellows of the American College of Emergency Physicians

Jennifer Beck-Esmay, MD FACEP
Adam Berman, MD FACEP
Kirby Black, MD FACEP
Betty Chang, MD FACEP
Matthew Colantoni, DO FACEP
John G. DeAngelis, MD FACEP
Maia Dorsett, MD PhD FAEMS FACEP
Risa L. Farber, DO FACEP
Dinali Fernando, MD FACEP
Kevin J. Hewitt, MD FACEP
Adam D. Hill, MD FACEP
Angela Hua, MD FACEP
Dylan Sean Kellogg, MD FACEP
Frederic Laporte, MD PhD FACEP
Johnathon LeBaron, DO FACEP
Horton James Lee, MD FACEP
Lisa Lincoln, MD FACEP
Mark Jason Richman, MD FACEP
Jeremy Rose, MD FACEP
Jennifer E. Sanders, MD FACEP
Paul Richard Sasso, MD FACEP
Kaori P. Tanaka, DO FACEP
Godfrey Jay Tutay, MD FACEP
Anna F. Van Tuyl, MD FACEP

**Arlene S. Chung, MD MACM FACEP**
Residency Director
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# Professional Identity Formation and the Pandemic

*"To be a physician requires a transformation of the individual—one does not simply learn to be a physician, one becomes a physician."*

*–Abraham Fuks and colleagues, "The Foundation of Physicianship"*[1]

It was April 2020. I remember sitting in front of my computer and reading about the early medical school graduates who were being deployed to drowning hospitals in order to help fight the COVID-19 pandemic ravaging the northeast. These articles celebrated the bravery and heroism of these students and the generosity of their schools.

I remember thinking to myself the physician workforce would never be the same again.

I have no doubt the COVID-19 global pandemic of 2020 will profoundly shape the professional identities of all physicians in training today, whether they are pre-medical students, medical students, residents or fellows. It will affect all specialties, although I suspect some will be affected more than others. Emergency Medicine will be among those specialties that will train and graduate a generation of physicians who may be thrust into a world they never in a million years envisioned they would be forced to encounter and a career for which they never signed up.

Professional identity formation is the complex and iterative transformation of an individual from "acting" like a physician to "becoming" a physician. As individuals progress through life, they continuously organize their experiences into a meaningful and increasingly complex whole that incorporates their personal, private, public and professional selves.[2,3,4] The first day of medical school marks the beginning of the long process of socialization through which students transform from members of the lay public to skilled physicians.[2] Professional identity formation occurs as a consequence of medical training, both intentionally and unintentionally and regardless of whether or not an explicit curriculum exists.[5] This implies there is a distinction between what students and residents are taught and what they actually learn.

The COVID-19 pandemic has forced many of us who have been out in practice to uncomfortably confront the thin line that exists between us and our patients and realize that in fact the line does not exist at all. We have learned physicians are not infallible and that we succumb to the same illnesses as our patients. This is in direct opposition to the implicit lessons taught to many of us in medical school and residency. But for this new generation of learners, this may be the first and only lesson they learn throughout their training.

Residency represents the first professional work experience for many physicians and during this time residents must often reconcile the dissonance between the stated values of their profession and the realities of medicine as practiced in the real world.[6] In order to modify their existing identity from prior to medical school, students must learn to deconstruct certain aspects of their identity and fill new roles for which their previous life experiences may not have prepared them.

In challenging situations, medical students and trainees will respond according to their professional identities, which may be quite different compared to their pre-existing personal identities.[5] However, the idiosyncrasies of medical education that make students and residents vulnerable to stress and burnout can also operate in the other direction to increase their resilience in the face of unique and powerful challenges inherent in the field of medicine.[7] Some stress is necessary to produce resilience. A moderate amount of stress may actually enhance learning.[8] Furthermore, some stresses are integral to the practice of medicine, such as caring for chronically ill or dying patients. Carefully controlled and progressive stressors within a safe learning environment during medical training may actually promote the positive development of professional identity formation in students and residents.

The COVID-19 pandemic will undoubtedly affect our current generation of emergency physicians and physicians in training. The process of confronting our own mortality and essential humanness in the clinical space can have lasting effects on our practices for years to come and profoundly influence our professional identities. I believe this time also represents a unique opportunity to redefine what it means to be resilient in the face of unprecedented challenges, to provide care in ways never before conceived, and to be a health care provider during a time when the world needs us most.

*Adapted from Chung AS. Professional Identity Formation and Resilience in Medical Education. In: Shahabang M, Hunsinger M, Lang B, Eds. Promoting Resiliency and Wellness Among Physician Residents, 1st Ed. San Diego, CA: Cognella Press; 2021:61-72.*

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# Management of Traumatic Pneumothorax in 2020

There is new research and new guidelines. Are you up-to-date? Are you placing a needle in the second intercostal space in the midclavicular line for suspected tension pneumothorax? Wrong. Are you placing a large bore chest tube in all of your large traumatic pneumothoraces? Wrong. Pan scan reveals a small pneumothorax; are you placing a chest tube? Wrong. Do you know how to determine the size of a pneumothorax? It's easy. Keep reading.

## Identify the PTX

Pneumothorax should always be suspected in patients suffering from chest injury, penetrating and non-penetrating (blunt); up to 40-50% of these patients are likely to have one.[2] Conventional practice utilizes plain film radiography (CXR) as the first line diagnostic imaging modality and considers computed tomography (CT) as the gold standard. However, studies have shown ultrasound sonography (US) to be more sensitive (89%) than CXR (52%), with similar specificity (99% vs 100%).[4] Ease of bedside access makes ultrasonography an appealing and efficient tool, though its accuracy and efficacy is dependent on the operator so keep practicing and get good at identifying comet tails.

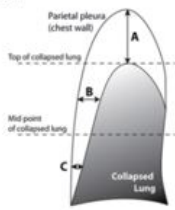
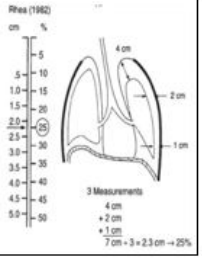
If you suspect a tension PTX based on the clinical picture, needle decompression is warranted. The anterior chest approach has been demonstrated to be ineffective in a significant number of the population because the standard needles are just not long enough to reach the pleura when inserted perpendicular to the chest in the second intercostal space in the midclavicular line (standard teaching) in most adults. Based on cadaver evidence, ATLS 10th edition now recommends inserting the needle in the fourth or fifth intercostal space in the mid-axillary line for successful needle decompression.

## Size the PTX

How do you decide if the PTX warrants a chest tube (or pigtail catheter) insertion or could be managed with observation? Most clinicians agree that very small pneumothoraces (particularly occult pneumothoraces defined as those not apparent on CXR but visible on CT) do not require management with thoracostomy. The success rate in one study of 277 small traumatic pneumothoraces treated conservatively was 90%, with only 10% requiring chest tube placement (Walker 2018). The failure rate of occult pneumothoraces is even lower at approximately 6% (Li 2014).

How do we define "small" in the context of a PTX on a CXR? Numerous methods for quantifying size exist, but often the qualitative description of a pneumothorax as "small" or "large" on the radiologist report is what guides decisions to intervene. Most radiologists have been trained to calculate the size but from our inquiries, most use gestalt when reading the plain films. This behooves the emergency physician to be familiar with common sizing methods. Commonly referenced approaches include guidelines from the American Thoracic Society and British Thoracic Society. More mathematical approaches include the Collins method, the Rhea method and the Light index. The binary guidelines are much simpler to use at the bedside, however, they may not be as accurate. Regardless, there is not high agreement between the various methods depending on the location and size of pneumothorax.

Table 1. Radiologic quantification of pneumothorax[4,7,8]

| | Measurement | Cutoff (Small vs Large) |
|---|---|---|
| American Thoracic Society (ACCP 2001) | Interpleural distance: Apex to pneumothorax | 2cm  |
| British Thoracic Society | Interpleural distance: Chest wall to pneumothorax at the level of the hilum | 3cm  |
| Collins | % = 4.2 + 4.7(A+B+C) | 25%  |
| Light Index | % = 100 x (1- lung diameter$^2$/hemithorax diameter$^2$) | 25%  |
| Rhea | % approx. = average interpleural distance (AID)<br>AID = (A + B + C)/3<br>10% pneumothorax for every centimeter increase |  |

A = interpleural distance at apex (cm)
B = interpleural distance at midpoint of upper hemithorax (cm)
C = interpleural distance at midpoint of lower hemithorax (cm)

## Computed Tomography

While CT requires more radiation, time and effort, it remains the gold standard for pneumothorax diagnosis. With the rise in whole body CT scans ("pan scan"), occult pneumothoraces are being identified more often. They can occur in up to 51% of chest trauma patients. While this speaks to the detection power of CT, it also raises the possibility of over treatment. In 2019, a study published in the *Journal of Trauma and Acute Care Surgery* defined "the 35mm rule," demonstrating that observation is as safe as tube thoracostomy in management of pneumothoraces <35mm measured radially from chest wall to the collapsed lung on CT; given that occult pneumothoraces are often missed on CXR due to their minimal size, opting to treat based on CT findings may ultimately subject patients to unnecessarily invasive procedures, risking complication and extended hospital stay.[1]

## Management

Traumatic pneumothoraces have historically been managed with chest tubes and large chest tubes have been preferred in order to drain potential hemorrhage, but is it always necessary? The American College of Chest Physicians recommends observation or small bore chest tubes for small pneumothoraces, but still recommends large chest tubes for large or symptomatic pneumothoraces. While effective, chest tubes are invasive procedures associated with increased morbidity, extended hospital stays and complications ranging from malpositioning and infection to re-expansion pulmonary edema. Conservative management with observation for traumatic pneumothoraces is typical for occult pneumothoraces and should also be considered for small and asymptomatic pneumothoraces. The 2019 study introducing the "35mm rule" is intriguing as it has demonstrated the success of observation in both occult and small pneumothoraces with 91% success. A 9% failure rate of observation translates to potentially avoiding chest tube placement in 9 out of 10 non-occult, traumatic pneumothoraces.

Remember that sizing continues to be just one factor in the decision making tree. Stability of the patient, likelihood of needing positive pressure ventilation and symptom severity may warrant chest tube placement in patients with otherwise "small" pneumothoraces. The decision to observe or proceed with chest tube thoracostomy is not always clear cut.

## Chest Tube Size

Chest tubes are flexible, PVC or silicone tubes used for drainage of air or fluid and sometimes for delivery of pleurodesis agents and empyema treatment. They are available in a range of French (Fr) sizes from pigtail (<14Fr) to the largest bore catheters (40Fr); 1 Fr = ⅓ millimeters, chest tubes are sized by their diameter. Traditionally, large bore chest tubes have been preferred for traumatic pneumothorax management without clear evidence of advantage over smaller catheters. Yet as emergency care continues to emphasize patient-centered practices, new studies show that smaller chest tubes are non-inferior, less painful, and warrant shorter hospital stays than larger ones. This was first demonstrated in a 2013 prospective, randomized trial comparing 14Fr pigtails against large bore chest tubes in uncomplicated, traumatic pneumothoraces; a 2020 retrospective observational study supported the use of smaller chest tubes for initial treatment, finding no difference in complication rates or outcomes in traumatic pneumothorax patients given <28 Fr vs 28 Fr catheters.[6,9]

## In Conclusion

The most recent literature on traumatic pneumothorax (and ATLS) supports the use of small chest tubes (28-32F) or even simple observation, as safe practice in managing stable patients; with shorter hospital stays, comparable outcomes, less pain and fewer complications, minimal intervention is becoming a mainstay in today's patient-centered management of traumatic pneumothoraces.

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# ALBANY UPDATE

**Reid, McNally & Savage**

**New York ACEP Legislative & Regulatory Representatives**

## $14.5 Billion State Budget Deficit Looms

The State Legislature last convened a hybrid remote/in-person Session in July to address local bills, confirmation of appointees to State bodies and a number of policy issues. This marks only the third time the Legislature has convened since the shut down in late March. The State Capitol remains closed to the public. A limited number of legislators and staff are permitted in the Senate and Assembly chambers when votes are taken during special sessions. Many members vote virtually from their homes or district offices.

The State faces a $14.5 billion budget hole this year assuming no funds arrive from Washington. An unprecedented $16 billion deficit is predicted for next year. So far, Governor Cuomo has taken the approach of waiting for Congress and the President to act before proposing State Budget actions. The State's Budget Director, Robert Mujica, recently said publicly that "we are not prepared to acknowledge there will be zero federal aid."

The Governor has significant authority granted to him by the Legislature at the start of the pandemic to adjust or reduce funds as necessary to balance the State Budget. Once the Governor acts, the Legislature has 10 days to come up with its own plan and could insist on borrowing money or raising taxes on the wealthy-solutions the Governor has not endorsed. There is a possibility the Legislature will return to Albany to act on State Budget and other issues.

## New York ACEP 2021 Virtual Lobby Day, Tuesday, March 9

New York ACEP will hold a virtual Lobby Day Tuesday, March 9, 2021. New York ACEP Board members and residents will meet virtually with legislators and staff as well as representatives of Governor Cuomo's office. The agenda will focus on State Budget and legislative proposals impacting the practice of emergency medicine and patients.

## Governor Cuomo Signs Office of Professional Misconduct Signage Bill (S6678-A Salazar/ A7991-A Simotas)

Governor Cuomo signed legislation into law to require all physicians to post information in their practices on how a patient can report a complaint about a physician to the Office of Professional Misconduct (OPMC). The law also requires the OPMC to post information on its website on how patients can file a complaint against a particular physician, including information on reporting instances of misconduct involving sexual harassment and assault.

New York ACEP strongly opposed this legislation as unnecessary and potentially counterproductive to patient care because it could undermine the trust essential to the patient-physician treatment relationship.

The Medical Society of the State of New York (MSSNY) reported officials from the Governor's Office and the New York State Department of Health (NYS DOH) told them failure to place this sign in a physician practice will not subject physicians to financial penalties that are applicable to other violations of the Public Health Law due to the section of law that was amended. However, failure to post the sign could subject a physician to discipline by OPMC if it is shown to be "willful or grossly negligent."

## New Legislation: Nurse Practitioner (NP): Independent Practice Legislation (S8936 Rivera/ A10990 Gottfried)

Legislation was introduced in both houses of the Legislature in late August/early September to authorize independent practice of nurse practitioners. New York ACEP is strongly opposed to this legislation.

The legislation eliminates requirements in the current State Education law for NPs who have practiced more than 3,600 hours to have a collaborative relationship with a physician in the same or similar specialty and permits NPs with less than 3,600 hours of practice to train under an NP instead of a physician.

The bill also eliminates existing patient protection laws that require NPs to complete and maintain a form created by the State Education Department (SED) and attested to by the NP that: 1) describes the collaborative relationship with the physician(s); and 2) acknowledges that if there is a dispute between an NP and the collaborating physician about a patient's care with no successful resolution that the recommendation of the physician shall prevail. Provisions subjecting NPs to professional misconduct for failure to comply with these requirements are also repealed.

The bill makes permanent current provisions of the State Education Law governing the scope of practice for nurse practitioners due to expire June 30, 2021.

## "Good Samaritan" Naloxone Administration (S8259 Harckham/A7812-A Rosenthal)

New legislation was passed during the July Session to allow "Good Samaritans" to administer overdose reversal drugs such as naloxone in stores, restaurants and other public places without being subject to civil, criminal or administrative liability solely by reason of such action.

This bill was signed into law by the Governor Cuomo, Chapter 148 of the Laws of 2020.

# EDUCATION

**Devjani Das, MD FACEP**
Director, Undergraduate Point-of-Care Ultrasound Medical Education;
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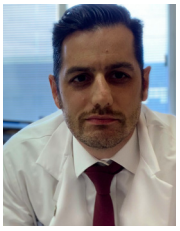
Vagelos College of Physicians and Surgeons



**Guest Author**
**Daniel Lakoff, MD MBA MS FACEP**
Assistant Professor of Clinical Emergency Medicine, Healthcare Leadership & Management Fellow, NewYork Presbyterian | Weill Cornell Medicine

**Guest Author**
**Robert Tanouye, MD MBA**
Assistant Professor of Clinical Emergency Medicine, New York Presbyterian | Weill Cornell Medicine; Associate Director, NewYork Presbyterian | Lower Manhattan Hospital Emergency Department; Associate Fellowship Director, Healthcare Leadership & Management Fellowship, Department of Emergency Medicine at Weill Cornell

## Business Degrees in Healthcare

In the US healthcare system, medicine and business are inextricably linked. With widening gaps of knowledge and skill between the two, physicians interested in hospital or industry leadership roles must acquire the necessary skill sets to have a seat at the leadership table. While still possible for physicians to rise through the ranks with experiential training and certification programs, the formal education provided through advanced degrees, such as MBAs, are becoming more attractive. Enrollment of physicians into fellowships or certification programs has also become more prevalent for traditional departmental roles in Operations or Quality to learn the nuances of these complex roles. The trends support this: Physicians pursuing MBAs are rising[1] and enrollment in MD/MBA programs are also rising.[2]

While advanced degrees are not new for c-suite positions, they are becoming more prevalent in clinical departments where more structured approaches for operational initiatives and project management are being applied. That is not to say that there is a strict focus on a financial bottom line as might be traditionally assumed, but rather, the need to integrate best practices from the business world to implement and sustain change, to innovate and to communicate effectively. Practically, this has become more relevant during our turbulent times, with the pivot towards value-based care and hospital system consolidations stimulating regional competition further narrowing financial margins.

The combination of a medical and business degree is incredibly powerful as it can inform decisions at boardroom tables of hospitals or companies with bedside experience, easily adding color to the process and practical assessments of proposals. The benefits of physician leaders at a hospital level were also recently highlighted in a New York Times article which highlighted overall hospital quality scores were approximately 25 percent better when physicians were leading.[3] Surprisingly, it showed fewer than five percent of America's hospitals are run by chief executives with medical backgrounds. Health industry companies and startups also benefit from having physicians on staff to inform decisions that impact patients or customers. The addition of the education provided by the MBA degree undoubtedly further qualifies candidates for internal roles or as a consultant.

The combination of a medical and business degree is incredibly powerful as it can inform decisions at boardroom tables of hospitals or companies with bedside experience, easily adding color to the process and practical assessments of proposals.

As the inaugural graduate of the Healthcare Leadership & Management fellowship at Weill Cornell Department of Emergency Medicine, I completed the Healthcare-focused executive MBA/MS program (https://www.johnson.cornell.edu/programs/emba/healthcare-leadership/) through the Cornell | SC Johnson College of Business & Weill Cornell Graduate School of Medicine. I also was a member of the departmental leadership team. Among the many lessons learned from the experience, below are three key lessons I would like to share.

### Understanding Leadership

Most physicians are not given any formal longitudinal leadership training during medical school or residency. Though some physicians may have institutional programs, or choose to attend certification programs, the majority learn on the job. Though these have been entirely sufficient, the MBA program provided a dedicated leadership curriculum to equip me with the skills and space needed to transform myself in a low-stakes environment surrounded by a high performance team.

While innate leadership skills exist, it also can be learned and honed with focus, effort and mentorship. The fellowship provided ample and diverse opportunities for mentorship starting with the Fellowship Directors who included our departmental Chairman, and Associate Director of New York Presbyterian Lower Manhattan Emergency Department. Introductions and access to other hospital and system leaders were also readily available to match my interests and career path. The MBA/MS program also provided access to various professors with whom relationships could be established and their networks. Fundamental to leadership is a thorough understanding of one's own weaknesses and strengths, then dedicated attention to shoring up the weak points.

# EDUCATION

Similarly, it requires the same attention to detail to improve interaction with teammates, direct reports and managers to ensure they can perform at their best. Modern leadership education heavily touts the "soft-skills" of personnel management as an equally important counterbalance to those that traditionally define a leader. In proper measure, they allow the leader to navigate the dichotomous needs of leadership without appearing overbearing or callous.[4]

Physicians are also commonly siloed by their specialties, which foments institutional tribalism and a lack of cooperation. This is engrained early in medical school, as many students take on the archetypal personas of their desired specialties and become further entrenched upon entering residency. Modern business school education heavily employs team-based learning approaches that mimic how consultant groups function. By thoughtfully composing teams with well-balanced behavioral profiles, intra-departmental and intra-disciplinary projects can achieve improved success that can likely be recreated.

## Understanding the Business of Healthcare

Due to the paucity of b*usiness of healthcare* teaching during the undergraduate medical education curriculum, physicians matriculate with a naive vision of how medicine (hospital or office-based) works in practice. Whether the physician goes on to practice in a hospital setting or goes on to opening their own offices, physicians are ill-equipped to understand and shape their practice environment. By dedicating time and attention to learning the business of medicine and healthcare policy, physicians can adjust their expectations and also their strategies to circumvent the obstacles.

Physicians would also benefit by having a deeper understanding of the complex tasks of ensuring hospitals remain operational, competitive and solvent. With the vast majority of hospitals led by non-clinicians, physicians must gain a greater appreciation of their challenges and contributions. Understanding *org charts,* hospital priorities and some understanding of finance can help physicians come up with creative solutions to problems, ensuring all parties are satisfied.

## Gaining Insights on the Future of Healthcare

Healthcare in America has been in a state of change for years, with policy flipping every four to eight years, technological advancements accelerating and now as we look past the global pandemic, there are only indications that the pace of change will increase. My business school experience provided a broader view of the healthcare industry and where medicine fits in. Physicians often perceive that healthcare is confined to the hospital or office visit, due to the larger silo of medicine in which many of us fit, however, the health tech industry is playing a larger and more central role in maintaining an individual's health. By integrating behavioral economics principles, wearables and remote monitoring into patients' lives, the health tech industry is providing 24-7 virtual support to patients. Physicians must learn about these innovations and how to advise and incorporate them to patients' care plans.

Business school also provides an in-depth understanding of how industries are disrupted and transformed. Healthcare delivery and hospitals are primed for disruptions by both traditional competitors and non-traditional competitors. Physician leaders must look to actively disrupt their own departments, practices or hospitals to ensure they are not disrupted by competitors. While there may be costs incurred, practice changes and lackluster intermediate-term gains, the long-term benefits far outweigh the risks of not innovating.

Pursuing this fellowship and obtaining both clinical leadership experience as well the MBA/MS degrees has been an incredible experience. Just as I can define my life pre and post-MD, this experience has undoubtedly defined my life once again. Through a dedicated focus on education and superb mentorship, I have gained a broader understanding of leadership, business and the health industry. I have also met an incredible number of individuals who are equally impassioned to change our healthcare system. I look forward to continuing my growth in this direction and recommend similar opportunities to other physicians who are considering career transitions to either hospital leadership or to industry.

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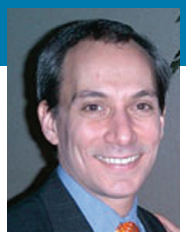
# NEW YORK STATE OF MIND



**Theodore J. Gaeta, DO MPH FACEP**
Residency Program Director
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## Discharge in Pandemic: Suspected COVID-19 Patients Returning to the Emergency Department Within 72 Hours for Admission.

*Margus C, Sondheim SE, Peck NM, Storch B, Ngai KM, Ho HE(3), She T; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Am J Emerg Med; 2020 Aug 18:S0735-6757.*

**INTRODUCTION**: Coronavirus disease 2019 (Covid-19) has led to unprecedented healthcare demand. This study seeks to characterize Emergency Department (ED) discharges suspected of Covid-19 that are admitted within 72 h.

**METHODS**: We abstracted all adult discharges with suspected Covid-19 from five New York City EDs between March 2nd and April 15th. Those admitted within 72 h were then compared against those who were not using descriptive and regression analysis of background and clinical characteristics.

**RESULTS**: Discharged ED patients returning within 72 h were more often admitted if suspected of Covid-19 (32.9% vs 12.1%, $p < .0001$). Of 7,433 suspected Covid-19 discharges, the 139 (1.9%) admitted within 72 h were older (55.4 vs. 45.6 years, OR 1.03) and more often male (1.32) or with a history of obstructive lung disease (2.77) or diabetes (1.58) than those who were not admitted ($p < .05$). Additional associations included non-English preference, cancer, heart failure, hypertension, renal disease, ambulance arrival, higher triage acuity, longer ED stay or time from symptom onset, fever, tachycardia, dyspnea, gastrointestinal symptoms, x-ray abnormalities, and decreased platelets and lymphocytes ($p < .05$ for all). On 72-h return, 91 (65.5%) subjects required oxygen, and 7 (5.0%) required mechanical ventilation in the ED. Twenty-two (15.8%) of the study group have since died.

**CONCLUSION**: Several factors emerge as associated with 72-h ED return admission in subjects suspected of Covid-19. These should be considered when assessing discharge risk in clinical practice.

## A Pilot Study Examining the Use of Ultrasound to Measure Sarcopenia, Frailty and Fall in Older Patients.

*Benton E, Liteplo AS, Shokoohi H, Loesche MA, Yacoub S, Thatphet P, Wongtangman T, Liu SW; NewYork-Presbyterian Hospital, Department of Emergency Medicine, New York; Am J Emerg Med; 2020 Aug 7:S0735-6757.*

**INTRODUCTION**: The importance of this study is to devise an efficient tool for assessing frailty in the ED. The goals of this study are 1) to correlate ultrasonographic (US) measurements of muscle thickness in older ED patients with frailty and 2) to correlate US-measured sarcopenia with falls, subsequent hospitalizations and ED revisits.

**METHODS**: Participants were conveniently sampled from a single ED in this prospective cohort pilot study of patients aged 65 or older. Participants completed a Fatigue, Resistance, Ambulation, Illness and Loss of Weight (FRAIL) scale assessment and US measurements of their upper arm muscles, quadricep muscles, and abdominal wall muscles thickness. We conducted one-month follow-up phone calls to assess for falls, ED revisits, and subsequent hospital visits.

**RESULTS**: We enrolled 43 patients (mean age of 78.5). Ultrasound measurements of the three muscle groups were not significantly different between frail and non-frail groups. Frail participants had greater bicep asymmetry (a difference of 0.47 cm vs 0.24 cm, $p < .01$). A predictive logistic regression model using average quadriceps thickness and biceps asymmetry was found to identify frail patients (AUC of 0.816). Participants with subsequent falls had smaller quadriceps (1.18 cm smaller, $p < .01$). Subsequently hospitalized patients were found to have smaller quadriceps muscles (0.54 cm smaller, $p = .03$) and abdominal wall muscles (0.25 cm smaller, $p = .01$).

**CONCLUSION**: US measurements of sarcopenia in older patients had mild to moderate associations with frailty, falls and subsequent hospitalizations. Further investigation is needed to confirm these findings.

## Ambulatory Follow-Up and Outcomes Among Medicare Beneficiaries After Emergency Department Discharge.

*Lin MP, Burke RC, Orav EJ, Friend TH, Burke LG; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; JAMA Netw Open; 2020 Oct 1;3(10):e2019878.*

**IMPORTANCE**: Ambulatory follow-up care is frequently recommended after an emergency department (ED) visit. However, the frequency with which follow-up actually occurs and the degree to which follow-up is associated with postdischarge outcomes is unknown.

**OBJECTIVES**: To examine the frequency and variation in ambulatory follow-up among Medicare beneficiaries discharged from US EDs and the association between ambulatory follow-up and postdischarge outcomes.

**DESIGN, SETTING, AND PARTICIPANTS**: This cohort study of 9,470,626 ED visits to 4,728 US EDs among Medicare beneficiaries aged 65 and older from 2011 to 2016 who survived the ED visit and were discharged to home used Kaplan-Meier curves and proportional hazards regression. Data analysis was conducted from December 2019 to July 2020.

**EXPOSURES**: Ambulatory follow-up after discharge from the ED.

**MAIN OUTCOMES AND MEASURES**: Postdischarge mortality, subsequent ED visit, or inpatient hospitalization within 30 days of an index ED visit.

**RESULTS**: The study sample consisted of 9,470,626 index outpatient ED visits to 4,684 EDs; most visits (5,776,501 [61.0%]) were among women, and the mean (SD) age of patients was 77.3 (8.4) years. In this sample, the cumulative incidence of ambulatory follow-up was 40.5% (3,822,133 patients) at 7 days and 70.8% (6,662,525 patients) at 30 days, after accounting for censoring and for mortality as a competing risk. Characteristics associated with lower rates of ambulatory follow-up included beneficiary Medicaid eligibility (hazard ratio [HR], 0.77; 95% CI, 0.77-0.78; P<.001), Black race (HR, 0.82; 95% CI, 0.81-0.83; P<.001), and treatment at a rural ED (HR, 0.75; 95% CI, 0.73-0.77; P<.001) in the multivariable regression model. Ambulatory follow-up was

associated with lower risk of postdischarge mortality (HR, 0.49; 95% CI, 0.49-0.50; P<.001) but higher risk of subsequent inpatient hospitalization (HR, 1.22; 95% CI, 1.21-1.23; P<.001) and ED visits (HR, 1.01; 95% CI, 1.00-1.01; P<.001), adjusting for visit diagnosis, patient demographic characteristics, and chronic conditions.

**CONCLUSIONS AND RELEVANCE**: In this cohort study of Medicare beneficiaries discharged from the ED, nearly 30% lacked ambulatory follow-up at 30 days, with variation in follow-up rates by patient and hospital characteristics. Having an ambulatory follow-up visit was associated with higher risk of subsequent hospitalization but lower risk of mortality. Ambulatory care access may be an important driver of clinical outcomes after an ED visit.

### A Randomized, Double-Dummy, Emergency Department-Based Study of Greater Occipital Nerve Block With Bupivacaine vs Intravenous Metoclopramide for Treatment of Migraine.

*Friedman BW, Irizarry E, Williams A, Solorzano C, Zias E, Robbins MS, Harrilal MA, Del Valle M, Bijur PE, Gallagher EJ; Department of Emergency Medicine, Albert Einstein College of Medicine, Montefiore, Bronx; Headache; 2020 Sep 27.*

**BACKGROUND**: Greater occipital nerve blocks (GONB) are used increasingly to treat acute migraine.

**OBJECTIVE**: We conducted a randomized controlled trial to determine whether GONB was as effective as intravenous metoclopramide for migraine.

**METHODS**: This was a double-dummy, double-blind, parallel-arm, non-inferiority study conducted in two emergency departments (EDs). Patients with migraine of moderate or severe intensity were randomized to receive bilateral GONB with each side administered 3 mL of bupivacaine 0.5% or metoclopramide 10 mg IV, the putative standard of care. The primary outcome was improvement in pain on a 0-10 scale between time 0 and 1 hour later. To reject the null hypothesis that metoclopramide would be more efficacious in relieving pain, we required that the lower limit of the 95% CI for the difference in pain improvement between those randomized to GONB vs those randomized to metoclopramide be >-1.3, a validated minimum clinically important difference. Secondary outcomes included sustained headache relief, defined as achieving and maintaining for 48 hours a headache level of mild or none without the use of additional analgesic medication, and the use of rescue medication in the ED.

**RESULTS**: Over a 2.5-year study period, 1,358 patients were screened for participation and 99 were randomized, 51 to GONB and 48 to metoclopramide. All of these patients were included in the primary analysis. Patients who received the GONB reported mean improvement of 5.0 (95% CI: 4.1, 5.8) while those who received metoclopramide reported a larger mean improvement of 6.1 (95% CI: 5.2, 6.9). The 95% CI for the between group difference of -1.1 was -2.3, 0.1. Sustained headache relief was reported by 11/51 (22%) GONB and 18/47 (38%) metoclopramide patients (95% CI for rounded difference of 17%: -1, 35%). Of the 51 GONB patients, 17 (33%) required rescue medication in the ED vs 8/48 (17%) metoclopramide patients (95% CI for rounded difference of 17%: 0, 33%). An adverse event was reported by 16/51 (31%) GONB patients and 18/48 (38%) metoclopramide patients (95% CI for (rounded) difference of 6%: -13, 25%).

**CONCLUSION**: GONB with bupivacaine was not as efficacious as IV metoclopramide for the first-line treatment of migraine in the ED.

### Prehospital Naloxone and Emergency Department Adverse Events: A Dose-Dependent Relationship.

*Maloney LM, Alptunaer T, Coleman G, Ismael S, McKenna PJ, Marshall RT, Hernandez C, Williams DW; Department of Emergency Medicine, Stony Brook University Hospital, Stony Brook, New York; J Emerg Med; 2020 Sep 21:S0736-4679(20)30690-9.*

**BACKGROUND**: The purpose of this study was to evaluate prehospital and emergency department (ED) interventions and outcomes of patients who received prehospital naloxone for a suspected opioid overdose.

**OBJECTIVES**: The primary objective was to evaluate if the individual dose, individual route, total dose, number of prehospital naloxone administrations, or occurrence of a prehospital adverse event (AE) were associated with the occurrence of AEs in the ED. Secondary objectives included a subset analysis of patients who received additional naloxone while in the ED, or were admitted to an intensive care or step-down unit (ICU).

**METHODS**: This was a retrospective, observational chart review of adult patients who received prehospital naloxone and were transported by ambulance to a suburban academic tertiary care center between 2014 and 2017. Descriptive, univariate, and multivariate statistics were used, with $p < 0.05$ indicating significance.

**RESULTS:** There were 513 patients included in the analysis, with a median age of 29 years, and median total prehospital naloxone dose of 2 mg. An increasing number of prehospital naloxone doses, an occurrence of a prehospital AE, and a route of administration other than intranasally for the first dose of prehospital naloxone were significantly associated with an increased likelihood of an ED AE. Patients who received < 2 mg of prehospital naloxone had the least likelihood of being admitted to an ICU, whereas patients who received at least 6 mg had a dramatically increased likelihood of ICU admission.

**CONCLUSIONS**: Our results suggest that an increasing number of prehospital naloxone doses was significantly associated with an increased likelihood of an ED adverse event.

### Post-Traumatic Stress Disorder in Family-Witnessed Resuscitation of Emergency Department Patients.

*Erogul M, Likourezos A, Meddy J, Terentiev V, Davydkina D, Monfort R, Pushkar I, Vu T, Achalla M, Fromm C, Marshall J; Maimonides Medical Center, Department of Emergency Medicine, Brooklyn; West J Emerg Med; 2020 Aug 24;21(5):1182-1187.*

**INTRODUCTION**: Family presence during emergency resuscitations is increasingly common, but the question remains whether the practice results in psychological harm to the witness. We examine whether family members who witness resuscitations have increased post-traumatic stress disorder (PTSD) symptoms at one month following the event.

**METHODS**: We identified family members of critically ill patients via our emergency department (ED) electronic health record. Patients were selected based on their geographic triage to an ED critical care room. Family members were called a median of one month post-event and administered the Impact

of Event Scale-Revised (IES-R), a 22-item validated scale that measures post-traumatic distress symptoms and correlates closely with Diagnostic and Statistical Manual of Mental Disorders-IV criteria for post-traumatic stress disorder (PTSD). Family members were placed into two groups based on whether they stated they had witnessed the resuscitation (FWR group) or not witnessed the resuscitation (FNWR group). Data analyses included chi-square test, independent sample t-test, and linear regression controlling for gender and age.

**RESULTS**: A convenience sample of 423 family members responded to the phone interview: 250 FWR and 173 FNWR. The FWR group had significantly higher mean total IES-R scores: 30.4 vs 25.6 (95% confidence interval [CI], -8.73 to -0.75; P<.05). Additionally, the FWR group had significantly higher mean score for the subscales of avoidance (10.6 vs 8.1; 95% CI, -4.25 to -0.94; P<.005) and a trend toward higher score for the subscale of intrusion (13.0 vs 11.4; 95% CI, -3.38 to .028; P = .054). No statistical significant difference was noted between the groups in the subscale of hyperarousal (6.95 vs 6.02; 95% CI, -2.08 to 0.22; P=.121). All findings were consistent after controlling for age, gender, and immediate family member (spouse, parent, children, and grandchildren).

**CONCLUSION**: Our results suggest family members who witness ED resuscitations may be at increased risk of PTSD symptoms at one month. This is the first study that examines the effects of family visitation for an unsorted population of very sick patients who would typically be seen in the critical care section of a busy ED.

### Novel Use of Telepalliative Care in a New York City Emergency Department During the COVID-19 Pandemic.

*Flores S, Abrukin L, Jiang L, Titone L, Firew T, Lee J, Gavin N, Romney ML, Nakagawa S, Chang BP; Department of Emergency Medicine, Columbia University Irving Medical Center, New York; J Emerg Med; 2020 Aug 4:S0736-4679.*

**BACKGROUND**: Coronavirus-2 (COVID-19) is a global pandemic. As of August 21, mortality from COVID-19 has reached almost 200,000 people, with the United States leading the globe in levels of morbidity and mortality. Large volumes of high-acuity patients, particularly those of advanced age and with chronic comorbidities, have significantly increased the need for palliative care resources beyond usual capacity. More specifically, COVID-19 has changed the way we approach patient and family member interactions.

**DISCUSSION**: Concern for nosocomial spread of this infection has resulted in strict visitation restrictions that have left many patients to face this illness, make difficult decisions, and even die, alone in the hospital. To meet the needs of COVID patients, services such as Emergency Medicine and Palliative Care have responded rapidly by adopting novel ways of practicing medicine. We describe the use of telepalliative medicine (TM) implemented in an emergency department (ED) setting to allow family members the ability to interact with their loved ones during critical illness, and even during the end of life. Use of this technology has helped facilitate goals of care discussions, in addition to providing contact and closure for both patients and their loved ones.

**CONCLUSION**: We describe our rapid and ongoing implementation of TM consultation for our ED patients and discuss lessons learned and recommendations for others considering similar care models.

### A User-Informed, Theory-Based Pregnancy Prevention Intervention for Adolescents in the Emergency Department: A Prospective Cohort Study.

*Chernick LS, Stockwell MS, Gonzalez A, Mitchell J, Ehrhardt A, Bakken S, Westhoff CL, Santelli J, Dayan PS; Division of Pediatric Emergency Medicine, Department of Emergency Medicine, Columbia University Medical Center, New York; Adolesc Health; 2020 Sep 15:S1054-139X(20)30418-3.*

**PURPOSE**: Female adolescents seeking emergency department (ED) care are at high risk of unintended pregnancy, primarily because of contraceptive nonuse; yet, few ED patients follow up for reproductive care when referred. The objective of this cohort study was to determine the feasibility, acceptability, adoption, fidelity, and potential efficacy of a personalized and interactive ED-based pregnancy prevention mobile health intervention (Emergency Room Interventions to improve the Care of Adolescents [Dr. Erica]).

**METHODS**: We conducted a prospective cohort study with sexually active female ED patients aged 14-19 years who were not using highly effective contraceptives. Dr. Erica consists of a 10-week, automated, two-way texting intervention based on an evidence-based sexual health curriculum, the Social Cognitive Theory, and motivational interviewing techniques. At 12 weeks, we conducted follow-up via online survey and phone call to measure feasibility, acceptability, adoption, fidelity, and preliminary efficacy data (contraception initiation).

**RESULTS**: We screened 209 female ED patients to enroll 42. The average age was 17.5 years (standard deviation ± 1.4); the majority were Hispanic (n = 37, 88%) and had a primary provider (n = 40, 95%). One participant opted out (1/42, 2%), and a total of 35 participants (83%) completed follow-up. Although interactivity diminished with time, 83% of participants (35/42) replied to one or more text. Ninety-four percent of participants (29/31) liked the messages, and 83% (25/30) would recommend the program. Hormonal contraceptives were initiated by 46% of participants (16/35).

**CONCLUSIONS**: Dr. Erica was feasible and acceptable among female adolescent ED patients and demonstrated high fidelity and adoption. The intervention also showed potential to increase highly effective contraceptive use among high-risk females. use among high-risk females.

### Patient Outcomes With Febrile Neutropenia Based on Time to Antibiotics in the Emergency Department.

*Dessie AS, Lanning M, Nichols T, Delgado EM, Hart LS, Agrawal AK; Division of Pediatric Emergency Medicine, Department of Emergency Medicine, Columbia University Vagelos College of Physicians & Surgeons; Pediatr Emerg Care; 2020 Sep 15.*

**OBJECTIVE**: Although bacteremia in pediatric oncology patients with febrile neutropenia (FN) is not uncommon, sepsis and mortality are rare. Because of the lack of clinically meaningful decision tools to identify high-risk patients with bacteremia, time to antibiotic administration (TTA) is increasingly considered an important quality and safety measure in the emergency department. Because little evidence exists suggesting that this benchmark is beneficial, we sought to determine whether TTA of 60 minutes or less is associated with improved outcomes.

**METHODS**: We retrospectively reviewed patients presenting to a pediatric emergency department with FN from November 2013 to

June 2016. Clinical outcomes including mortality, pediatric intensive care unit admission, imaging, fluid resuscitation of 40 mL/kg or greater in the first 24 hours, and length of stay were compared between TTA of 60 minutes or less and more than 60 minutes.

**RESULTS**: One hundred seventy-nine episodes of FN were analyzed. The median TTA was 76 minutes (interquartile range, 58-105). The incidence of bacteremia was higher in patients with TTA of more than 60 minutes (12% vs 2%, P = 0.04), but without impact on mortality, pediatric intensive care unit admission, fluid resuscitation, or median length of stay. The median TTA was not different for those who were and were not bacteremic (91 vs 73 minutes, P = 0.11).

**CONCLUSIONS**: Time to antibiotic administration of more than 60 minutes did not increase mortality in pediatric oncology patients with FN. Our study adds to the existing literature that TTA of 60 minutes or less does not seem to improve outcomes in pediatric FN. Further larger studies are required to confirm these findings and determine which features predispose pediatric FN patients to morbidity and mortality.

### Sickle Cell Disease Implementation Consortium. A Survey-Based Needs Assessment of Barriers to Optimal Sickle Cell Disease Care in the Emergency Department.

*Linton EA, Goodin DA, Hankins JS, Kanter J, Preiss L, Simon J, Souffront K, Tanabe P, Gibson R, Hsu LL, King A, Richardson LD, Glassberg JA; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Ann Emerg Med; 2020 Sep;76(3S):S64-S72.*

**STUDY OBJECTIVE**: Guided by an implementation science framework, this needs assessment identifies institutional-, provider- and patient-level barriers to care of sickle cell disease (SCD) in the emergency department (ED) to inform future interventions conducted by the multicenter Sickle Cell Disease Implementation Consortium.

**METHODS**: The consortium developed and implemented a validated needs assessment survey administered to a cross-sectional convenience sample of patients with SCD and ED providers caring for them. In total, 516 adolescents and adults with SCD and 243 ED providers from seven and five regions of the United States, respectively, responded to the ED care delivery for SCD survey.

**RESULTS**: Survey results demonstrated that 84.5% of respondents with SCD have an outpatient provider who treats many patients with SCD. In the ED, 54.3% reported not receiving care fast enough and 46.0% believed physicians did not care about them and believed similarly of nurses (34.9%). Consequently, 48.6% of respondents were "never" or "sometimes" satisfied with their ED care. Of surveyed ED providers, 75.1% were unaware of the National Heart, Lung, and Blood Institute recommendations for vaso-occlusive crises, yet 98.1% were confident in their knowledge about caring for patients with SCD. ED providers identified the following factors as barriers to care administration: opioid epidemic (62.1%), patient behavior (60.9%), crowding (58.0%), concern about addiction (47.3%), and implicit bias (37.0%).

**CONCLUSION**: The results underscore that many patients with SCD are dissatisfied with their ED care and highlight challenges to optimal care on the practice, provider, and patient levels. Exploring these differences may facilitate improvements in ED care.

### Predicting the Transition to Chronic Pain Six Months After an Emergency Department Visit for Acute Pain: A Prospective Cohort Study.

*Friedman BW, Abril L, Naeem F, Irizarry E, Chertoff A, McGregor M, Bijur PE, Gallagher EJ; Department of Emergency Medicine, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx; J Emerg Med; 2020 Sep 9:S0736-4679.*

**BACKGROUND**: Acute pain can transition to chronic pain, a potentially debilitating illness.

**OBJECTIVE**: We determined how often acute pain transitions to chronic pain among patients in the emergency department (ED) and whether persistent pain one week after the ED visit was associated with chronic pain.

**METHODS**: An observational cohort study conducted in two EDs. We included adults with acute pain (≤10 days) if an oral opioid was prescribed. Exclusion criteria were recent opioid use and use of any analgesics regularly prior to onset of the pain. Research associates interviewed patients during the ED visit and one week and six months later. The primary outcome, chronic pain, was defined as pain on > 50% of days since ED discharge. We constructed logistic regression models to evaluate the association between persistent pain one week after an ED visit and chronic pain, while adjusting for demographic and treatment variables.

**RESULTS**: During a nine-month period, we approached 733 patients for participation and enrolled 484; 450 of 484 (93%) provided one-week outcomes data and 410 of 484 (85%) provided six-month outcomes data. One week after the ED visit, 348 of 453 (77%; 95% confidence interval [CI] 73-80%) patients reported pain in the affected area. New-onset chronic pain at six months was reported by 110 of 408 (27%; 95% CI 23-31%) patients. Presence of pain one week after ED visit was associated with chronic pain (odds ratio 3.6; 95% CI 1.6-8.5).

**CONCLUSIONS**: About one-quarter of ED patients with acute pain transition to chronic pain within six months. Persistence of pain one week after the ED visit can identify patients at risk of transition.

### Comparison of Hands-On Versus Online Learning in Teaching Ultrasound Skills for Achilles Tendon Rupture: A Pilot Study.

*Das D, Kapoor M, Brown C, Husain A, Rubin M, Chacko J, Rudnin S, Hahn B, Greenstein J; Emergency Medicine, New York Columbia Presbyterian Hospital, New York; Cureus; 2020 Jul 6;12(7):e9021.*

**INTRODUCTION**: In the emergency department, the diagnosis of an Achilles tendon rupture (ATR) is reportedly missed in greater than 20% of cases. A limited number of studies evaluate the use of cadaver models as a potential ultrasound teaching and training modality. We hypothesize that emergency medicine residents can effectively utilize point-of-care ultrasound (POCUS) on cadaver models and a focused teaching intervention to assess their ability to detect ATRs.

**METHODS**: A prospective study of 23 EM residents was performed. All participants in the study were divided into two learner groups: (a) independent and (b) hands-on. The independent learner group received a 30-minute online didactic lecture demonstrating how to diagnose ATRs. The hands-on learner group received direct instruction on cadaver lower leg models with a ruptured and normal Achilles tendon (AT). Both groups then participated in identifying either normal or ruptured ATs on six cadaver lower leg models.

**RESULTS**: The sensitivity and specificity were 89% and 82% in the independent learner group 96% and 100% in the hands-on learner

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group, respectively. The overall sensitivity and specificity were 91% and 88%, respectively. There was a trend toward successful identification with increased years of residency training. **CONCLUSIONS**: In this study, lower leg and ankle cadaver models were found to be as effective as an independent learner model for potential POCUS teaching and training modality in both novice and more advanced trainees.

### Conscious Proning: An Introduction of a Proning Protocol for Nonintubated, Awake, Hypoxic Emergency Department COVID-19 Patients.

*Jiang LG, LeBaron J, Bodnar D, Caputo ND, Chang BP, Chiricolo G, Flores S, Kenny J, Melville L, Sayan OR, Sharma M, Shemesh A, Suh E, Farmer B; Department of Emergency Medicine, NYP Weill Cornell Medical Center, New York; Acad Emerg Med; 2020 Jul;27(7):566-569.*

The novel coronavirus, or COVID-19, has rapidly become a global pandemic. A major cause of morbidity and mortality due to COVID-19 has been the worsening hypoxia that, if untreated, can progress to acute respiratory distress syndrome (ARDS) and respiratory failure. Past work has found that intubated patients with ARDS experience physiological benefits to the prone position, because it promotes better matching of pulmonary perfusion to ventilation, improved secretion clearance and recruitment of dependent areas of the lungs. We created a systemwide multi-institutional (New York-Presbyterian Hospital enterprise) protocol for placing awake, nonintubated, emergency department patients with suspected or confirmed COVID-19 in the prone position. In this piece, we describe the background literature and the approach we have taken at our institution as we care for a high burden of COVID-19 cases with respiratory symptoms.

### Urban Emergency Department Response to Measles Outbreak.

*Rizkalla C, Arroyo A, Zerzan J, O'Keefe M, Okereke M, Dickman E, Drapkin J, Marshall J; Division of Pediatric Emergency Medicine, Maimonides Medical Center, Brooklyn; Ann Emerg Med; 2020 Jul;76:78-84.*

In the last year, New York City has had more than 600 confirmed measles cases. For each patient with measles, numerous neonates, unimmunized children, and susceptible adults can be exposed to the highly contagious virus. Working in an emergency department amid such an outbreak presents several challenges because of the crowded nature of the environment, the imperative for rapid identification and isolation of infected patients and identification of vulnerable individuals who have been in the vicinity when a patient with measles presents. In this report, we discuss our process in navigating these challenges, collaboration with the city's health department, postexposure prophylaxis for individuals exposed in the hospital and the community and prevention initiatives.

### Primary Palliative Care for Emergency Medicine (PRIM-ER): Protocol for a Pragmatic, Cluster-Randomised, Stepped Wedge Design to Test the Effectiveness of Primary Palliative Care Education, Training and Technical Support for Emergency Medicine.

*Grudzen CR, Brody AA, Chung FR, Cuthel AM, Mann D, McQuilkin JA, Rubin AL, Swartz J, Tan A, Goldfeld KS; PRIM-ER Investigators; Ronald O. Perelman Department of Emergency Medicine, New York University School of Medicine, New York City; BMJ Open; 2019 Jul 27;9(7):e030099.*

**INTRODUCTION**: Emergency departments (ED) care for society's most vulnerable older adults who present with exacerbations of chronic disease at the end of life, yet the clinical paradigm focuses on treatment of acute pathologies. Palliative care interventions in the ED capture high-risk patients at a time of crisis and can dramatically improve patient-centered outcomes. This study aims to implement and evaluate Primary Palliative Care for Emergency Medicine (PRIM-ER) on ED disposition, healthcare utilization and survival in older adults with serious illness. **METHODS AND ANALYSIS**: This is the protocol for a pragmatic, cluster-randomized stepped wedge trial to test the effectiveness of PRIM-ER in 35 EDs across the USA. The intervention includes four core components: (1) evidence-based, multidisciplinary primary palliative care education; (2) simulation-based workshops; (3) clinical decision support; and (4) audit and feedback. The study is divided into two phases: a pilot phase, to ensure feasibility in two sites, and an implementation and evaluation phase, where we implement the intervention and test the effectiveness in 33 EDs over two years. Using Centers for Medicare and Medicaid Services (CMS) data, we will assess the primary outcomes in approximately 300,000 patients: ED disposition to an acute care setting, healthcare utilization in the six months following the ED visit and survival following the index ED visit. Analysis will also determine the site, provider and patient-level characteristics that are associated with variation in impact of PRIM-ER.

**Interviewed By**
**Angelo Mascia, DO (PGY-4)**
Chief Resident, St. Barnabas Hospital
Chair, New York ACEP Emergency Medicine Resident Committee

**Interview With**
**Tatiana Carrillo, DO MS, (PGY-3)**
Chair-Elect, EMRA Diversity and Inclusion Committee
St. Barnabas Hospital

# Diversity In Medicine: Challenges, Obstacles and Solutions

### What's your background?

I was born and raised in the Hunts Point section of the South Bronx, one of the poorest areas of New York City. I come from a very tight knit family, we never miss Family Saturday Bingo at my grandmothers! Growing up in Hunts Point was rough, we were surrounded by crime and poverty, but despite all those things my mother worked tirelessly to ensure my sister and I received a good education. I completed medical school at Touro College of Osteopathic Medicine and I am currently a PGY-3 at St. Barnabas Hospital in the Bronx serving as the Chair-Elect for EMRA's Diversity and Inclusion Committee. One of my passions is advocating for the underserved and underrepresented in the medical realm and actively work to eliminate that disparity.

### Why is diversity important to consider in medicine?

African American and Hispanic physicians comprise <6% of active physicians in the United States in 2020. As many studies have shown, when patients are treated by a physician that shares the same race or ethnicity there is an increase in medication compliance, improved shared- decision making and improvement of a patient's perception of treatment decisions. Additionally, there is decreased implicit bias from the physician. Working to close this disparity will help our entire patient population and improve their ability to access and understand the healthcare system. Having more choice for patients to choose their physician who understands their ethnicity, cultural ideals, customs and traditions will be a major advantage in helping that patient throughout their time within the healthcare system at any point whether it be in the emergency department or the clinic.

### What role does mentorship play in diversity?

Mentorship is a cornerstone throughout the process of improving diversity in medicine, as it shows potential future physicians their options. Some of the biggest opportunities we can offer is access to after-school programs, standardized test prep courses, summer internships, research opportunities; and mentorship provides students with these resources. Unfortunately, the populations that need these programs the most have a hard time accessing them. It is difficult to overcome daily socioeconomic hurdles when you do not have a role model guiding you, sometimes all you need is someone to tell you " Yes you can go to (insert dream school), yes you can become a doctor, lawyer, teacher, etc. and I'll show you how." That motivation and encouragement is sometimes all that is needed to jumpstart and spark a great mind. That is where we can serve a critical role in these young peoples' futures.

### What can we do to help improve diversity in medicine?

There are various efforts we can implement in order to continue to increase diversity in the medical community. We must continue to establish mentorship programs geared towards high school students, by doing so, we create longevity and are able to instill study techniques students can apply as they reach higher levels of education. Advocacy for partnerships with historically black colleges and universities will also help in the identification and recruitment of future medical professionals. Another critical area for improvement is education of college students on the existence of medical school linkage programs and focus less on one single test score defining the capabilities of students. If we continue to take proactive and calculated steps to address the lack of diversity in medicine, we can overcome the problem and improve our entire healthcare system for our patients and ourselves alike.

**Heidi Suffoletto, MD FACEP**
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State University of New York at Buffalo

# Primary Care Sports Medicine – A Growing Subspecialty Within the Field of Emergency Medicine

The clinical practice of Emergency Medicine (EM) has much in common with sideline medical care of athletes within the subspecialty of Primary Care Sports Medicine. Both arenas involve caring for patients with potentially high acuity problems in real time, often requiring the knowledge and disposition to make immediate decisions in a highly visible environment. Both require the treating physician to possess a diverse skillset in the diagnosis and bedside procedural management of medical illness and injury along with an intuitive understanding of the interplay of sports and public health. Properly treating both emergency department patients and athletes of all skill levels can have short and long-term impacts on the individual seeking care and on the community as a whole. Perhaps, most reflective of the two different practice settings is that a successful physician in either environment embraces being part of a team and part of a larger community. During the past decade, emergency physicians are being recognized for their value as part of a robust sports medicine team. Both the National Football League and National Hockey League collective bargaining agreements have stipulations that require EM board certified physicians to be part of the game day medical team. Roles are diverse and EM physicians provide expertise in developing emergency action plans, managing airway and cardiovascular catastrophes, evaluating closed head injuries and facilitating communications with local emergency departments (EDs) if athlete transport is warranted. All trained EM physicians should be qualified to manage any of these issues, but many seek additional training for practice opportunities both in and out of the ED.

Primary Care Sports Medicine as a recognized ACGME subspecialty is not a separate board, but rather a subspecialty requiring primary board certification in Emergency Medicine, Family Medicine, Internal Medicine, Pediatrics or Physical Medicine and Rehabilitation. The programs are one year in length and focus on additional training in non-operative orthopaedics, concussion management, musculoskeletal ultrasound, joint injection and aspiration and coverage of sporting events and events of mass participation. Once an EM physician has completed training, they are recognized as qualified experts in practice. Most graduates choose to practice both disciplines, which can include staffing hospital or office-based clinics and also teaching future fellows, residents and students of many disciplines within the field of sports medicine. This enhanced expertise can benefit both of the physician's practice sites and also decrease the likelihood of burnout, which is a known risk among EM physicians. ABEM has been publishing statistics on subspecialty certificates of added qualifications (CAQ) since 1993. As of 2018, there are a total of 234 EM-boarded physicians who have been issued a CAQ in Sports Medicine[1], This represents the fifth largest subspecialty within the field, and the number of individuals continues to grow each year. Currently, most Primary Care Sports Medicine fellowships are housed in departments outside of EM, but EM residents are eligible to apply to 129 programs, with the majority located in the Southeast, Midwest and Northeast United States.[2]

Enhanced training in sports medicine is beneficial to all EM physicians, regardless of a desire to pursue fellowship. It is recognized that EM residencies vary significantly in terms of musculoskeletal training. Musculoskeletal complaints represent between 12-17% of all ED visits annually[3] and visits for minor traumatic brain injury represent an additional 17%.[4] As such, all EM residents can benefit from enhanced training in the areas of primary focus within primary care sports medicine.

As part of the EM Residency at Jacobs School of Medicine and Biomedical Sciences (SUNY at Buffalo), all residents choose a longitudinal scholarly track in which they pursue advanced education within a niche area of EM. Scholarly tracks have been part of our residents' education since 2005 and are thought to increase resident satisfaction, enhance their applications for post-residency fellowships or jobs and increase scholarly productivity. Sports medicine is the newest of the scholarly tracks in Buffalo. Now in its third year, the formal curriculum of the sports medicine track is divided into a three year didactic program, which is on a continuous cycle and can be entered at any point by an incoming resident. The first year involves the medical aspects of sports medicine. These include more high-profile conditions such as sudden cardiac death in athletes and sport-related concussion. Other topics covered include pre-participation physical examinations/medical clearance for sport, respiratory, gastrointestinal and skin conditions commonly seen in athletes and environmental illness and injury. The second year focuses on principles of musculoskeletal sports medicine including physical examination, appropriate ordering and interpretation of musculoskeletal imaging, increasing practice of musculoskeletal ultrasound and joint injection/aspiration. The third year encompasses more complex topics in sports medicine, including development of emergency action plans, special athlete populations (such as master athletes, female athletes and para-athletes), eating disorders, burnout in youth sports and public advocacy. Residents have enjoyed the opportunity to meet with outside specialists in the field of

sports medicine as well as athletic trainers, orthotists and psychologists who are able to share their perspectives from diverse roles within the sports medicine team.

Residents who are part of the scholarly track have had the opportunity to participate in research specific to sports medicine. Several have enjoyed success with published works, poster and podium presentations at national conferences, presentations at EM grand rounds and teaching medical students and students in the allied heath professions. This has not only helped their personal and academic growth but has also served to foster interdepartmental collaboration within the university. As the relationship grows, so will the benefit to both departments and to the patients and athletes they treat.

One unexpected treasure of the pandemic we are working through is the growth in tele-conferencing and tele-learning, such that the members of the small, tight-knit community of physicians who are dual-trained in Emergency Medicine and Sports Medicine have been able to connect on a more frequent and meaningful level. In Buffalo, we have enjoyed the opportunities for collaboration and look forward to sharing this growth with the EM community as a whole through bedside teaching, mentorship, fellowship preparation, research and ultimately the enhanced care of athletes in and out of the ED. Moreover, we are excited to celebrate the growth of this subspecialty within EM and as a result become even more engaged with the communities we serve through tertiary prevention, community advocacy and a shared goal of keeping our athletes healthy, happy and playing.

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## *Recognizing Emergency Departments and Residency Programs For Exemplary Commitment to Physician Well-Being*

Being an emergency physician is hard and the COVID-19 global pandemic has heightened the need to address wellness in emergency medicine. An organization's need to focus on factors that lead to physician burnout are imperative because a health care system that eases stressors leads to healthier physicians. Focusing on physician well-being improves the quality of care delivered to patients, increases patent satisfaction and decreases medical errors.

To recognize the need and highlight exemplary efforts, New York ACEP is pleased to announce the inaugural recipients of a new award highlighting exemplary commitments to emergency physician well-being.

Join New York ACEP in celebrating the accomplishments of two New York State Emergency Departments and two Residency Programs that are going beyond the basics and aim to ensure there is a cohesive strategy integrating best practices in operations, environment, mental health, diversity, equity, community and education.

It is our hope the accomplishments of these institutions will inspire others to commit to supporting emergency physician wellness. This award will be presented biennially.

## *Departmental Award Recipients*

COLUMBIA | COLUMBIA UNIVERSITY DEPARTMENT OF EMERGENCY MEDICINE

- Cultivates a unified department that values wellness, collaboration and diversity
- First department within the Columbia School of Medicine to designate a Wellness Director and form an EDWell committee
- Participated in the National Physician Suicide Awareness Day through an expanded 2-day virtual session including insights from Dr. Lorna Breen's family for residents of all specialties and faculty from the entire hospital system.
- Provides private lactation areas for providers who are nursing
- Created a system of overlapping clinical shifts to allow attendings to finish their work and charting without having to extend their shifts beyond their allotted time
- Offers workshops and sponsored programs for women faculty on work-life support, conflict management, negotiations, peer support and mentorship
- Administrative leadership participation in a "DISC" assessment retreat to foster awareness of Emotional Intelligence and preferred modes of communication and leadership

Weill Cornell Medicine Emergency Medicine

- Streamlined access to confidential care and support and frequent group discussion to normalize discussion of mental health
- Peer support group program "Doc Box", which aims to change culture and normalize vulnerability among physicians (with psychiatrist moderator during the peak of COVID-19 in NYC)
- 24 hour-7 days a week on-call Wellness Committee faculty for crisis situations
- Regular discussion on burnout, Medical Malpractice Stress Syndrome, physician suicide, and physician job satisfaction in faculty meetings
- Renovation of multiple faculty offices, complete with massage chair, espresso machine, and comfortable and professional working spaces to facilitate collaboration and build relationships with colleagues
- Quarterly community building social events include a wide variety of activities
- Close collaboration with departmental leadership to provide faculty feedback and implement changes to improve the work environment

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## *Residency Program Award Recipients*

Maimonides Medical Center

- Institution Wide and Departmental Wellness Committees focus on nutritious food, healthy activities, emotional support and resilience with on-site Yoga and Zumba classes as well as Weight Watchers.
- Provide each resident with a "support person"
- Computer based scheduling system allows residents to make both specific requests and prioritize how clinical duties are assigned
- Developing Diversity and New Parent policies
- Provide access to EM resident only lounge
- Storytelling and wellness programming during Wednesday conferences
- VITALS project mandatory session for incoming interns

Southside Hospital Northwell Health

- Wellness team meetings
- Resources including: Employee Wellness Website; "MYjoyable" app; Employee Health Services; Health Physician Partners; Employee Assistance Program; Physician Resource Network; Project Outreach Recovering Medical Professionals Program; Committee for Physician Health; Health Chaplaincy Services; Talk About it Tuesday; Residency Behavioral Health Support Specialist; monthly newsletter
- Schedules strictly adhering to the duty hour mandate
- Dedicated resident office space; doctor area parking, meal allowance, mileage reimbursement for times residents rotate to other facilities
- Dedicated mentors throughout residency
- Established a Diversity and Inclusion Committee
- Policies prohibiting any form of discrimination, harassment or mistreatment based on religious, sexual, gender or race difference

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