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## Moral distress in the COVID era

Focus on effort, not just outcomes

By Larry Beresford

**M**oral distress can result when health professionals like doctors and nurses feel prevented from doing what they know is right and ethically correct – reflecting the values of their profession and their own sense of professional integrity – because of unmanageable caseload demands, lack of resources, coverage limitations, or institutional policies.

Hospitalists are not exempt from moral distress, which is associated with soul-searching, burnout, and even PTSD. It is also associated with a higher likelihood for professionals to report an intention to leave their jobs. But the COVID-19 pandemic has superimposed a whole new layer of challenges, constraints, and frustrations, creating a potent mix of trauma and exhaustion, cumulative unease, depleted job satisfaction, and difficult ethical choices.

These challenges include seeing so many patients die and working with short supplies of personal protective equipment (PPE) – with resulting fears that they could catch the virus or pass it on to others, including loved ones. Also, not having enough ventilators or even beds for patients in hospitals hit hard by COVID surges raises fears that decisions for rationing medical care might become necessary.

In a commentary published in the Journal of General Internal Medicine in October 2019 – shortly before the COVID pandemic burst onto the scene – hospitalist and medical sociologist Elizabeth Dzung, MD, PhD, MPH, and hospital medicine pioneer Robert Wachter, MD, MHM, both from the University of California, San

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Dr. Clarissa Barnes, hospitalist and physician advisor at Avera Health in Sioux Falls, S.D.



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# Hospitalist movers and shakers

## By Matt Pesyna

**Rebecca Jaffe, MD**, has been elevated to the permanent role of director of the division of hospital medicine at Thomas Jefferson University Hospital in Philadelphia. Dr. Jaffe has been the interim director since July 2020.



Dr. Jaffe

In the position, Dr. Jaffe will be responsible for leading an academic hospital medicine division that includes 36 faculty and 10 advanced-practice providers. She said her focus will be on developing physicians, advanced providers, and the inpatient practice model used while “educating the next generation of creative and compassionate clinicians.”

Dr. Jaffe is associate professor of medicine at Jefferson's Sidney Kimmel Medical College and the hospital's director of clinical learning environment improvement.

**Christopher Freer, DO**, recently was named the new senior vice president for emergency hospital medicine for RWJBarnabas Health (West Orange, N.J.). In a concurrent move, **Maninder “Dolly” Abraham, MD**, was named RWJBH's chief of hospital medicine. The selections were made as RWJBH has become a direct employer for Envision Physician Services, a former hospital partner.

Dr. Freer has spent the past 5 years with RWJBH, where he has served as emergency services system director since 2015. He previously worked in leadership roles at Saint Barnabas Medical Center.

Dr. Abraham was previously medical director of Saint Barnabas' hospitalist program, as well as a regional medical director with Envision during her 17 years of experience.

**Sheetal Patel, MD**, has been named the new regional medical director for Eagle Telemedicine (Cincinnati), a physician-led company that provides telehospitalist services to hospitals around the country.

Dr. Patel will work closely with hospital administrators and medical directors to provide high-level telemedicine services, as well as devising processes and guidelines to guarantee streamlined care across Eagle's facilities.

Dr. Patel has spent 4 years as a telehospitalist for Eagle, where she has been in charge of guiding on-site and remote staff members and providing training to new telehospitalists.

**Timothy Crone, MD, MBA**, has been elevated to the role of president of Cleveland Clinic Mercy Hospital (Canton, Ohio). The move comes as Cleveland Clinic recently added Mercy Medical Center as a full member of its health system.



Dr. Crone

Dr. Crone has served as chief medical officer at Cleveland Clinic Hillcrest Hospital in Cleveland since 2019. Previously, he was a medical director in enterprise business intelligence and analytics in medical operations at Cleveland Clinic's main campus. He also was vice chairman of hospital medicine and has served as a staff hospitalist since 2010.

Just prior to the start of 2021, **Wake Forest Baptist Health (Winston-Salem, N.C.)** established a “Hospitalist at Home” program with the goal of reducing the length of time patients spend in the hospital.

Hospitalist at Home was created as the COVID-19 pandemic threatened hospital capacity. Wakehealth's innovative approach involves developing an at-home plan with each patient before they leave the facility. Patients include those with COVID-19 who are stable but require supplemental oxygen or have diseases that need intravenous medication administration.

At home, a Wakehealth paramedic visits the patient while a hospitalist communicates and reviews the patient's care plan via smartphone, tablet, or computer. The visits continue until the patient's hospital-related care is complete.

The **Multicare Health System (Tacoma, Wash.)** has bulked up its hospitalist program by partnering with nationwide, physician-led health care provider **Sound Physicians**.

The goal of the new program is to provide health care management at a regional level instead of individually per hospital.

## Interpreting Diagnostic Tests

# Procalcitonin-guided antibiotic stewardship for lower respiratory tract infection

Dynamics of the assay must be considered

By Gregory Seymann, MD, SFHM, and Pedro Ramos, MD

## Case

A 50-year-old female presents with 3 days of cough, subjective fevers, myalgias, and dyspnea. She feels she “may have caught something” while volunteering at a preschool. She has hypertension, congestive heart failure, and 20 pack-years of smoking. Chest x-ray shows bibasilar consolidation versus atelectasis. Vital signs are notable for an O<sub>2</sub> saturation of 93%. White blood cell count and differential are normal. Procalcitonin level is 0.4 mcg/L.



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## Overview of the issue

Lower respiratory tract infections (LRTI) are common in the practice of hospital medicine; however, the primary symptoms of cough and dyspnea can be caused by a myriad of noninfectious conditions. Even when infection is suggested by the clinical presentation, the distinction between bacterial and viral etiologies can be challenging, complicating decisions about antibiotic use. Attention to antibiotic stewardship is a growing concern in U.S. hospitals, where the Centers for Disease Control and Prevention estimates that as many as 50% of antibiotic orders are inappropriate or entirely

unnecessary.<sup>1</sup> Antibiotic overuse is a driver of multidrug-resistant organisms and increasing rates of *Clostridium difficile* infection. A diagnostic test to enhance physicians' ability to target patients who would benefit from antibiotics could be a useful tool to combat the complications of antibiotic overuse. (See Table 1.)

Procalcitonin is produced in the thyroidal C cells as a prohormone which is processed intracellularly and secreted as calcitonin in response to serum calcium levels. However, intact procalcitonin protein can be secreted from many other tissues in the presence of cytokines such as

interleukin 1–beta, tumor necrosis factor–alpha, and lipopolysaccharide, typically released in response to systemic bacterial infections. Conversely, cytokines present in acute viral illness (interferon-gamma) suppress procalcitonin release. This dichotomy presents an opportunity to use procalcitonin to differentiate bacterial from nonbacterial etiologies in various clinical scenarios including LRTI.

## Overview of the data

Multiple studies have demonstrated that procalcitonin can be safely used to guide antibiotic prescribing in patients with LRTI. The first large multicenter randomized controlled trial to address the topic was the Swiss PROHOSP study.<sup>2</sup> Investigators randomized 1,359 patients hospitalized with LRTI to procalcitonin (PCT)–guided therapy or guideline-based therapy. After an initial PCT level was measured, antibiotic prescribing in the PCT arm of the study was directed by a prespecified protocol; specifically, clinicians were discouraged from prescribing antibiotics in patients with PCT levels less than 0.25 mcg/L. (See Table 2.)

For patients who were particularly ill or unstable at admission, the protocol allowed for antibiotics despite a low PCT level, but repeat measurement within 24 hours and accompanying treatment recommendations were reinforced with the treatment team. Clinicians caring for patients in the control arm were presented with condition-specific clinical practice guidelines to reinforce antibiotic choices. In both arms, the final decision on antibiotic treatment remained with the physician.

Results from the PROHOSP study showed no difference in the combined outcome of death, intensive care unit admission, or complications in the ensuing 30 days, but

antibiotic use was significantly reduced. Mean antibiotic exposure dropped from 8.7 to 5.7 days, a reduction of 35%, with the largest decrease among patients with chronic obstructive pulmonary disease (COPD) and acute bronchitis. Antibiotic-related adverse effects fell by 8.2%. Strengths of the study included a very high rate of protocol compliance (90%) by the treating clinicians.

A systematic review of all available studies of procalcitonin-guided

Table 2. PCT algorithm PROHOSP

Procalcitonin level (ug/L)	Likelihood of bacterial infection	Antibiotic treatment
<0.1	Absent	Strongly discouraged
0.1-0.25	Unlikely	Discouraged
0.25-0.5	Possible	Encouraged
>0.5	Present	Strongly encouraged

Source: Dr. Seymann, Dr. Ramos

therapy for LRTI was published in 2018 and included 26 randomized controlled trials encompassing 6,708 patients in 12 countries. Findings confirmed an overall reduction of 2.4 days in antibiotic exposure, 6% reduction in antibiotic-related ad-

Table 1. Comparison of clinical biomarkers

Biomarker	Specific for infection	Sensitive to inflammation	Advantages	Disadvantages
Fever	+	++++	• Simple • Sensitive	Nonspecific
Leukocytes	+	+++	• Simple • Sensitive	Nonspecific
Cytokines	+	+++	• Sensitive • Rapid induction	• Highly variable • Short half-life (minutes) • Expensive
C-reactive protein	++	++	• Inexpensive • Moderately specific	• Moderately specific • Slow induction (peak >24 h) • No correlation with severity
Procalcitonin	++++	+	• Quite specific • Rapid induction (peak 6-12 h) • Correlates with severity of illness	• Expensive • Low sensitivity for localized infection

Source: Dr. Seymann, Dr. Ramos

## Key points

- Initial PCT level can help distinguish between viral and bacterial pneumonias.
- PCT levels rise in response to acute bacterial infections and are suppressed in viral infections.
- PCT levels below 0.25 mcg/L suggest that antibiotics can be safely withheld in otherwise stable patients.
- PCT levels correlate with severity of illness and prognosis.
- Rise of PCT is rapid (3-6 hours), and levels fall quickly with appropriate treatment (2-3 days).
- Serial PCT levels can be used to guide duration of antibiotic therapy.

Table 3. Conditions with support for short-course antibiotics

Disease	Short course studied (days)	Long course studied (days)	Result
Acute bacterial sinusitis	5	10	Equal
Acute exacerbation of chronic bronchitis and obstructive pulmonary disease	≤5	≥7	Equal
Intra-abdominal infection	4	10	Equal
Osteomyelitis	42	84	Equal
Pneumonia, community-acquired	3-5	7-10	Equal
Pneumonia, nosocomial (including ventilator-associated)	≤8	10-15	Equal
Pyelonephritis	5-7	10-14	Equal
Skin infections (cellulitis, major abscesses, wound infection)	5-6	10-14	Equal

Source: J Hosp Med. 2018 May 1;13(5):361-2

verse effects, and importantly a 17% relative risk reduction in mortality.<sup>3</sup>

Similar benefits of PCT-guided therapy have been demonstrated even among severely ill patients. A meta-analysis including 523 patients with bacteremia noted mean reduction in antibiotic exposure of 2.86 days, without excess mortality.<sup>4</sup> A second meta-analysis of 4,482 critically ill patients admitted to the ICU with sepsis demonstrated a reduction not only in antibiotic exposure, but in

mortality as well. Despite a relatively small decrease in antibiotic duration of 1.19 days, the investigators found an 11% reduction in mortality ( $P = .03$ ) in the PCT-guided group.<sup>5</sup>

One notable outlier among the many positive studies on PCT-guided antibiotic therapy is the 2018 PROACT study performed in U.S. hospitals over 4 years.<sup>6</sup> Its design was similar to the PROHOSP study; however, in contrast to the majority of other trials, the investigators

were unable to demonstrate a reduction in antibiotic exposure, leading them to conclude that PCT guidance may not be a useful tool for antibiotic stewardship.

Unfortunately, significant differences in the compliance with the study protocol (90% in PROHOSP vs. 63% in PROACT), and a much healthier patient population (91% of the patients had a PCT less than 0.25, and a majority of patients had asthma which is not normally treated with antibiotics) hamper the generalizability of the PROACT findings. Rather than indicating a failure of PCT, the findings of the study underscore the fact that the utility of any lab test is limited unless it is applied in an appropriate diagnostic setting.

For hospitalists, the most clinically useful role for PCT testing is to guide the duration of antibiotic therapy. Although the literature supports short-course antibiotic therapy in many common conditions seen by hospitalists (see Table 3), data suggest overprescribing remains prevalent. Several recent studies targeting LRTI underscore this point.

Despite guidelines advocating



Dr. Seymann

Dr. Ramos

Dr. Seymann and Dr. Ramos are clinical professors in the division of hospital medicine, department of medicine, at the University of California San Diego.

for treatment of uncomplicated community-acquired pneumonia (CAP) for no more than 5-7 days, two recent retrospective studies suggest most patients receive longer courses. A review of more than 150,000 patients across the United States with uncomplicated CAP documented a mean antibiotic duration of 9.5 days, with close to 70% of patients receiving more than 7 days of therapy.<sup>7</sup> A multicenter study of CAP patients hospitalized in Michigan noted similar findings, with a mean 2-day excess duration of therapy or 2,526 excess days of treatment per 1,000 discharges.<sup>8</sup> Though some who argue against procalcitonin's utility cite the fact that existing guidelines already support short-course therapy, obviating the need for biomarker guidance, clinicians have not yet universally adopted this practice. Using a PCT algorithm can decrease duration of therapy and thereby reduce unnecessary antibiotic use. PCT levels less than 0.25 mcg/L support withholding or discontinuing antibiotics, or consideration of an alternative diagnosis.

The dynamics of the PCT assay must be considered in order to use it appropriately. Levels of PCT rise within 3-6 hours of infection, so patients presenting extremely early in the disease course may have falsely low levels. PCT levels correlate with severity of illness and should fall within 2-3 days of initiation of appropriate therapy. A repeat PCT in 2-3 days can be used to help time antibiotic cessation. Studies support stopping antibiotics in stable patients once the PCT level falls below 0.25 mcg/L or drops by 80% in patients with severe elevations. Lack of improvement suggests inadequate antibiotic therapy and is predictive of excess mortality.

Most drivers of false-positive PCT

Continued on following page

## Quiz



1. A 57-year-old male is hospitalized for treatment of community-acquired pneumonia with IV azithromycin and ceftriaxone. PCT level on day 1 = 0.35 mcg/L. On day 4 of antibiotics the PCT level is 0.15 mcg/L. What should be done regarding the antibiotic course?

- Continue antibiotics for a total course of 5 days.
- Continue antibiotics for a total course of 7 days.
- Stop antibiotics.
- Continue antibiotics and repeat a PCT level the next day.

**Answer:** The best answer is c. Evidence suggests that 5 days of therapy is adequate treatment for uncomplicated community-acquired pneumonia. Procalcitonin-guided therapy allows for further tailoring of the regimen to the individual patient. Since this patient has clinically improved, and the PCT level is less than 0.25 mcg/L, it is reasonable to discontinue treatment and avoid unnecessary antibiotic days.

2. A 42-year-old female with known chronic kidney disease stage 4 is hospitalized with suspected CAP. Procalcitonin level is elevated at 0.6 mcg/L. How should the patient be treated?

- Ignore the PCT as levels are falsely elevated because of CKD.
- Treat with antibiotics for suspected community-acquired pneumonia.
- Repeat PCT level in the morning.
- Check a C-reactive protein level instead.

**Answer:** The best answer is b. Although decreased renal function can delay clearance of PCT, levels in CKD are typically about twice normal. In this case, when pneumonia is clinically suspected, the level of 0.6 mcg/L would correspond to a level of approximately 0.3 mcg/L and support a decision to treat with antibiotics.

3. A 36-year-old male develops sudden onset of dyspnea, cough, fever, and chills and proceeds rapidly to the emergency department. He is hypoxic, is febrile, and has a leukocytosis. The PCT level is checked and found to be 0.2 mcg/L. Chest imaging shows a right middle lobe consolidation. How should the patient be treated?

- Hold antibiotics.
- Start antibiotic therapy.
- Hold antibiotics and repeat PCT level in the morning.

**Answer:** The best answer is b. The clinical scenario suggests bacterial pneumonia. Given the sudden onset and early presentation to the ED, it is likely that the PCT level has not had time to peak. PCT levels typically begin to rise in 3-6 hours from the time of infection. Withholding antibiotics until the level exceeds 0.25 mcg/L would not be recommended when clinical judgment suggests otherwise.

4. Which of the following noninfectious scenarios does NOT cause an elevated PCT level?

- Bone marrow transplant patient with acute graft versus host disease of the skin.
- Patient presenting with paraneoplastic syndrome from small-cell lung cancer.
- Patient with cirrhosis presenting with hepatic encephalopathy.
- Patient presenting with severe trauma from a motor vehicle accident.

**Answer:** The answer is c. Cirrhosis and/or hepatic encephalopathy does not cause a falsely elevated PCT level. Acute graft versus host disease, paraneoplastic syndrome from small-cell lung cancer or medullary thyroid cancer, and massive stress such as severe trauma can cause elevations in PCT.

# Excess deaths jump 23% in U.S. in 2020, mostly because of COVID-19

By Damian McNamara

The United States saw nearly 23% more deaths than expected during the first 9 months of the pandemic, and almost three-quarters of those deaths involved COVID-19.

For comparison, the death rate increased by 2.5% or less annually in recent years.

At the same time, rates of deaths from heart disease, Alzheimer's disease or dementia, and diabetes also increased from March 1, 2020, to Jan. 2, 2021, especially during COVID-19 surges.

"Excess deaths surged in the east in April, followed by extended summer and early winter surges concentrated in Southern and Western states, respectively. Many of these states weakly embraced, or discouraged, pandemic control measures and lifted restrictions earlier than other states," lead author Steven H. Woolf, MD, MPH, from the Virginia Commonwealth University, Richmond, and colleagues wrote in a research letter published online April 2, 2021, in JAMA (doi: 10.1001/jama.2021.5199).

COVID-19 mortality included all deaths for which it was cited as an underlying or contributing cause in records from the District of Columbia and 49 states. North Carolina was excluded for insufficient data.

## More than half a million excess deaths

Between March 1, 2020, and Jan. 2, 2021, the United

States experienced 2,801,439 deaths, or 522,368 excess deaths. A total 72.4% of these events were attributed to COVID-19.

Not all racial and ethnic groups were equally represented. For example, the rate of excess deaths was higher among non-Hispanic Black populations, at 208.4 deaths per 100,000. Non-Hispanic White populations experienced 157 deaths per 100,000, and Hispanic populations experienced 139.8 deaths per 100,000.

Further, non-Hispanic Black individuals accounted for 16.9% of the excess deaths but only 12.5% of the U.S. population, which reflects "racial disparities in COVID-19 mortality," the authors noted.

Not adjusting for population aging is a potential limitation, as was reliance on provisional data and the likelihood that some death certificates were inaccurate.

In February, Anthony S. Fauci, MD, chief medical adviser to President Joe Biden, stated that political divisions likely played a role in the 500,000-plus COVID-19-related deaths in the United States.

Then a report came out on March 26 indicating that a different U.S. response to the pandemic could have avoided almost 400,000 COVID-19 deaths. In addition, an April 1 study in the CDC's Morbidity and Mortality Weekly Report revealed that COVID-19 is now the third leading cause of death in the United States, after heart disease and cancer (doi: 10.15585/mmwr.mm7014e1).

## 'Massive' excessive mortality

"There is no more visible or alarming manifestation of the toll of the COVID-19 pandemic than the deaths it has caused. In this issue of JAMA, Dr. Woolf and colleagues provide updated analyses that demonstrate that the excess mortality in the U.S. between March 1, 2020, and Jan. 2, 2021, has been massive," Alan Garber, MD, PhD, wrote in an accompanying editorial (JAMA. 2021 Apr 2. doi: 10.1001/jama.2021.5120).

"It seems likely that COVID-19 will have contributed to nearly as many deaths in the U.S. as the great influenza pandemic of 1918, and more than in any influenza outbreak in the U.S. since then," added Dr. Garber, provost of Harvard University in Cambridge, Mass.

This study of excess mortality illustrates what is at stake, he added. "Despite the scientific, medical and public health progress of recent decades, the loss of life attributable to the COVID-19 pandemic exceeds the mortality of major wars. No nation should squander this opportunity to do what it takes to prepare for the next one."

Dr. Woolf and Dr. Garber disclosed no relevant financial relationships. The National Institutes of Health supported the research through its National Center for Advancing Translational Sciences and the National Institute on Aging.

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Continued from previous page

levels are rare and easily identifiable. (See Table 4.) However, like troponin, patients with chronic kidney disease have delayed PCT clearance, so baseline levels may be about double the normal range. If a baseline is known, monitoring the rise and fall of PCT levels remains clinically useful in this population.

## Application of data to case

In review of the case, the differential includes a viral upper respiratory

infection, an acute exacerbation of COPD, decompensated heart failure, or bacterial pneumonia. The lab and imaging findings are nonspecific, but a PCT level less than 0.25 mcg/L raises concern for an acute bacterial pneumonia. Given that PCT levels rise in bacterial infection and are suppressed in viral infections, treating this patient with antibiotics seems prudent. In this case the relatively mild elevation suggests a less severe infection or a presentation early in the disease course. A repeat

PCT in 2-3 days will guide timing for antibiotic cessation.

## Bottom line

Thoughtful procalcitonin-guided antibiotic therapy for LRTI may further current antibiotic stewardship initiatives targeting reduction of inappropriate antimicrobial use, which may ultimately reduce rates of *Clos-*

*tridium difficile* infections and the emergence of multidrug-resistant organisms.

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Table 4. Procalcitonin false positives

<b>Physiologic stress</b>
<ul style="list-style-type: none"> <li>• Newborns (&lt;48-72 hours; after 72 hours interpret levels as usual)</li> <li>• Massive stress (severe trauma, surgery, cardiac shock, burns)</li> <li>• Prolonged, severe cardiogenic shock or organ perfusion abnormalities</li> </ul>
<b>Nonbacterial cytokine activation</b>
<ul style="list-style-type: none"> <li>• Some forms of vasculitis and acute graft vs. host disease</li> <li>• Malaria and some fungal infections</li> <li>• Chronic renal disease (approximate 2× increase in baseline levels)</li> </ul>
<b>Dysregulated PCT production</b>
<ul style="list-style-type: none"> <li>• Treatment with agents that stimulate cytokines (OKT3, antilymphocyte globulins, alemtuzumab, IL-2, granulocyte transfusion)</li> <li>• Paraneoplastic syndromes due to medullary thyroid and small-cell lung cancer</li> </ul>

Source: Dr. Seymann, Dr. Ramos



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# Clinician reviews of HM-centric research

By Neethu Abraham, MD; Jennifer Allen, MD; Nabil Alzaeim, MB/BCH; Samy Ataya, MD; Karen Catignani, MD, FHM; Sharon Santoso Clark, MD, FACP, FAAP; Vignesh Doraiswamy, MD; Brian Doyle, MD; Vijay Duggirala, MD, FHM, FACP; Poorvi Dalal, DO; Magdalena Danch, MD; Kashif Khan, MBBS; Phillip Hamilton, MD; Kristen Lewis, MD, FHM; Chirag A. Patel, MD, FHM; and Brian Petullo, MD

Division of Hospital Medicine, The Ohio State University Wexner Medical Center, Columbus

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8. Low prevalence of anaerobes in patients with aspiration pneumonia

By Neethu Abraham, MD, and Vijay Duggirala, MD, FHM, FACP

### 1 Revascularization vs. optimal medical therapy in moderate to severe ischemia

**CLINICAL QUESTION:** In patients with stable coronary disease and moderate to severe ischemia on stress testing, does adding cardiac catheterization and revascularization to optimal medical therapy reduce adverse cardiovascular events?



Dr. Abraham

Dr. Duggirala

**BACKGROUND:** In patients with stable coronary artery disease, the goals of treatment are to reduce the risk of death and ischemic events and improve quality of life. The COURAGE trial compared cardiovascular outcomes for patients with stable coronary artery disease and initial management with optimal medical therapy vs. optimal medical therapy in combination with revascularization. The study showed no difference between the two groups. Limitations to the COURAGE trial

included lack of widespread use of drug-eluting stents, insufficient participants, and randomization of patients only after coronary anatomy was known. The ISCHEMIA trial was designed to answer key questions and overcome limitations posed by the COURAGE trial.

**STUDY DESIGN:** Multicenter parallel randomized controlled trial.

**SETTING:** The International Study of Comparative Health Effectiveness with Medical and Invasive Approaches (ISCHEMIA), which included 320 sites in 37 countries.

**SYNOPSIS:** Patients with moderate to severe ischemia were randomized 1:1 to initial invasive therapy (n = 2,588) vs. optimal medical therapy (n = 2,591). Patients in the invasive group received optimal medical therapy and underwent coronary angiography and percutaneous coronary intervention or coronary artery bypass grafting as appropriate. Patients in the conservative arm received optimal medical therapy and underwent angiography if medical therapy failed. Primary outcomes were composite of death from cardiovascular events, myocardial infarction, or hospitalization for unstable angina, heart failure, or resuscitated cardiac arrest.

At 5 years, incidence of primary end points did not differ significantly between the invasive and conservative groups (16.4% vs. 18.2%). Incidence of death from cardio-

vascular causes or myocardial infarctions was also not significantly different (14.2% vs. 16.5%). Patients in the invasive therapy group had more procedural infarctions but fewer nonprocedural infarctions during follow-up. Limitations include exclusion of patients with current or recent acute coronary syndrome, left main stenosis, NYHA class III or IV heart failure, left ventricular ejection fraction less than 35%, or those who remain symptomatic despite optimal medical therapy.

**BOTTOM LINE:** In patients with moderate to severe ischemia on stress testing, an initial invasive approach with cardiac catheterization and revascularization showed no significant reduction in adverse cardiovascular events when compared with optimal medical therapy alone. **CITATION:** Maron DJ et al. Initial invasive or conservative strategy for stable coronary disease. *N Engl J Med.* 2020 Mar 30. doi: 10.1056/NEJ-Moa1915922.

*Dr. Abraham and Dr. Duggirala are clinical assistant professors in the division of hospital medicine at The Ohio State University Wexner Medical Center, Columbus.*

By Jennifer Allen, MD, and Chirag A. Patel, MD, FHM

### 2 Prevalence of PE in hospitalized patients with COPD exacerbation

**CLINICAL QUESTION:** How common is pulmonary embolism among patients with chronic obstructive pulmonary disease who are being admitted to the hospital with acutely worsening respiratory symptoms?

**BACKGROUND:** Chronic obstructive pulmonary disease (COPD) is a common disease with high morbidity and mortality worldwide. Studies have reported a high frequency of pulmonary embolism (PE) in patients with COPD. Current screening algorithms for PE may not be applicable in patients presenting with COPD exacerbation. As clinical

presentations are similar, adequate consideration for PE may be missed in these patients. Therefore, the actual prevalence of PE in patients hospitalized with COPD exacerbation remains uncertain.



Dr. Allen

Dr. Patel

**STUDY DESIGN:** Multicenter cross-sectional study with prospective follow-up.

**SETTING:** Seven French hospitals.

**SYNOPSIS:** Screening for PE within 48 hours of hospital admission was done in 740 patients admitted for COPD exacerbation. A pre-defined standardized algorithm based on clinical probability was utilized, including revised Geneva score, D-dimer levels, and spiral computed tomographic pulmonary angiography plus leg compression ultrasound. PE was detected in 5.9% (95% confidence interval, 4.5%-7.9%) of patients within 48 hours of admission. If providers suspected PE, further evaluation revealed venous thromboembolism in 11.7% (95% CI, 8.6%-15.9%) of those patients. However, if PE was not suspected by the clinician, venous thromboembolism was still found to be present in 4.3% of patients. The overall 3-month mortality rate was 6.8%, with five times higher mortality in patients who had venous thromboembolism at admission (*P* less than .001).

Consideration should be given as patients with both mild and severe respiratory symptoms were likely underrepresented in this study, and age-adjusted D-dimer was not applied. Further research should be pursued to determine if systematic screening for pulmonary embolism in this patient population is beneficial.

**BOTTOM LINE:** Provider suspicion of PE in patients admitted for COPD exacerbation may not be sufficient for diagnosis, and because of significant prevalence of PE in these patients and the resulting increased mortality, improvements in standardized screening algorithms are needed.

**CITATION:** Couturaud F et al. Prevalence of pulmonary embolism among patients with COPD hospitalized with acutely worsening respiratory symptoms. *JAMA*. 2021 Jan 5. doi: 10.1001/jama.2020.23567.

*Dr. Allen and Dr. Patel are clinical assistant professors in the division of hospital medicine at The Ohio State University Wexner Medical Center, Columbus.*

By Nabil Alzaeim, MB/BCH, and Vignesh Doraiswamy, MD

### 3 Acute management of asymptomatic inpatient hypertension linked with worsened outcomes

**CLINICAL QUESTION:** Does acute treatment of asymptomatic hypertension during either the admission or intensification of antihypertensive treatment at discharge improve outcomes for noncardiac admissions?



Dr. Alzaeim

Dr. Doraiswamy

**BACKGROUND:** Surveys show that physicians often treat asymptomatic hypertension in the inpatient setting. Treatment often involves IV medications that are associated with hypotension and longer hospital stays, and it is unknown whether this treatment has benefits. This study aimed to quantify prevalence of hypertension in hospitalized patients, characterize hospitalists' response, and compare both short- and long-term outcomes between patients who were and were not treated.

**STUDY DESIGN:** Retrospective cohort study.

**SETTING:** 10 hospitals within the Cleveland Clinic Hospitals system.

**SYNOPSIS:** This was a retrospective cohort study of 22,834 adult inpatients that included follow-up for 1 year after discharge. Though 78% of patients had at least one

elevated BP reading, only one-third were treated. Regardless of whether IV or oral medication was used, treatment was associated with higher rates of acute kidney injury (odds ratio, 1.36; 95% CI, 1.21-1.52) and myocardial infarction (OR, 2.23; 95% CI, 1.56-3.20). Lastly, patients discharged with intensification (defined as prescription of a new antihypertensive class that was not present preadmission at discharge) did not have better BP control in the following year.

A causal relationship cannot be established in this observational study. Though the authors' definition of treatment excluded dose intensification, such exclusion undercounted only patients who were treated. Therefore, harms associated with treatment may have been greater than observed. Finally, the results of this study, showing no additional benefits and rather associated harms, adds to the growing body of literature that hypertension among noncardiac inpatients should be managed conservatively and without antihypertensives.

**BOTTOM LINE:** Hypertension is common among noncardiac patients in the hospital, and intensification of therapy in the absence of end-organ damage was associated with worse outcomes.

**CITATION:** Rastogi R et al. Treatment and outcomes of inpatient hypertension among adults with noncardiac admissions. *JAMA Intern Med*. 2021 Mar 1. doi: 10.1001/jamainternmed.2020.7501.

*Dr. Alzaeim and Dr. Doraiswamy are clinical assistant professors in the division of hospital medicine at The Ohio State University Wexner Medical Center, Columbus.*

By Samy Ataya, MD, and Brian Doyle, MD

### 4 Utility of IV iron replacement in reducing heart failure readmissions

**CLINICAL QUESTION:** What is the effect of intravenous ferric carboxymaltose in stabilized patients after an episode of acute heart failure on the real-world heart failure–related outcomes heart failure–related admissions and cardiovascular mortality?

**BACKGROUND:** IV ferric carboxymaltose has been shown to improve symptoms, functional status, and quality of life in patients with chronic heart failure (HF) as recommended in current 2017 American Heart Association/American College of Cardiology guidelines. Meta-anal-

ysis of individual patient data from studies (including FAIR-HF and CONFIRM-HF) showed treatment with IV ferric carboxymaltose was associated with reduced HF readmissions and cardiovascular mortality; however, prospective studies identifying these associations have not been performed.



Dr. Ataya

Dr. Doyle

**STUDY DESIGN:** Double-blinded, randomized controlled trial, with intention-to-treat and sensitivity analyses.

**SETTING:** Multicenter trial spanning 121 sites in Europe, South America, and Singapore.

**SYNOPSIS:** Of hospitalized acute HF patients (ejection fraction less than 50%) with serum ferritin less than 100 or ferritin 100-299 and with transferrin saturation of 20%, 1,108 were randomized to placebo and iron replacement. Iron replacement was given once prior to discharge and at 6 weeks posthospitalization, with further repletion at 12 weeks and 24 weeks for persistent iron deficiency.

Primary endpoints included a composite of total HF hospitalizations and cardiovascular deaths measured after a 52-week period using an intention-to-treat analysis. The follow-up and management of patients were affected by COVID-19, and as a result, sensitivity analysis was conducted by censoring patients in each country at the date of the first reported case. The sensitivity analysis showed a statistically significant improvement in the composite outcome of HF hospitalizations or cardiovascular death vs. placebo (32% vs. 38%). There was no statistically significant difference in cardiovascular death alone, and analysis without accounting for COVID-19's effects on health care did not show a statistically significant result. Iron administration did increase hemoglobin in the treatment arm by 0.8 mg.

**BOTTOM LINE:** Iron replacement therapy in stabilized hospitalized HF patients with iron deficiency likely reduces future hospitalizations and cardiovascular events. Hospitalists and cardiologists should consider IV iron replacement therapy in HF pa-

tients before discharge and further replacement in follow-up.

**CITATION:** Ponikowski P et al. Ferric carboxymaltose for iron deficiency at discharge after acute heart failure: A multicentre, double-blind, randomised, controlled trial. *Lancet*. 2020 Nov 13. doi: 10.1016/S0140-6736(20)32339-4.

*Dr. Ataya and Dr. Doyle are clinical assistant professors in the division of hospital medicine at The Ohio State University Wexner Medical Center, Columbus.*

By Karen Catignani, MD, FHM, and Sharon Santos Clark, MD, FACP, FAAP

### 5 Automated predictive model identifying risk of in-hospital clinical deterioration associated with decreased mortality

**CLINICAL QUESTION:** Does automated identification of hospitalized patients at high risk for clinical deterioration reduce mortality for hospitalized adults in non-ICU settings?



Dr. Catignani

Dr. Clark

**BACKGROUND:** Hospitalized patients whose condition deteriorates outside of the ICU have considerable morbidity and mortality. Unlike manually calculated early-warning scoring systems, the Advance Alert Monitor (AAM) is a fully automated complex algorithm embedded in the EMR incorporating lab values, vital sign trends, neurologic status, and admission indicators with a time frame of up to 12 hours to allow implementation of corrective clinical interventions. It does not require any manual entry from clinicians. It was validated in a 2016 study showing good statistical performance with improvement in outcomes including inpatient and 30-day mortality, length of stay, and cost. Outcomes after an automated detection of impending clinical deterioration have not been widely reported.

**STUDY DESIGN:** Prospective cohort study, stepped-wedge design.

**SETTING:** 19 hospital locations under the Kaiser Permanente Northern California health system with a shared EMR.

*Continued on following page*

Continued from previous page

**SYNOPSIS:** Trained nurses remotely monitored AAM score threshold alerts and chart reviewed and contacted the unit rapid-response team. Patients in the intervention cohort (in hospitals using the system,  $n = 15,487$ ) with alerts during their hospitalization that led to a clinical response had a lower 30-day mortality following the event than the comparison cohort (for which the system was not yet in use,  $n = 28,462$ ), with adjusted rate ratio (0.84) and 95% CI statistically implying three avoided deaths per 1,000 eligible patients. The intervention group also had fewer ICU admissions and shorter length of stay. There were minimal differences in process measures, such as vital sign documentation, that would impact the observed mortality improvement. However, they were unable to subsequently track the myriad of clinician responses to the early alerts and the complexity of follow-up actions. There is also the possibility that improved outcomes are a result of broad institutional change, as opposed to the alert system itself. As their intervention was studied within a single hospital system in a nonrandomized design, the results may not be generalizable to less integrated hospital settings.

**BOTTOM LINE:** In this study, using an automated predictive model deriving physiologic data from the EMR to identify patients at high risk for clinical deterioration warranting

intervention from a rapid-response team was associated with decreased ICU admissions, shorter length of stay, and lower 30-day mortality.

**CITATION:** Escobar GJ et al. Automated identification of adults at risk for in-hospital clinical deterioration. *N Engl J Med.* 2020 Nov 12. doi: 10.1056/NEJMsa2001090.

*Dr. Catignani is a clinical associate professor and Dr. Clark is a clinical assistant professor in the division of hospital medicine at The Ohio State University Wexner Medical Center, Columbus.*

By Poorvi Dalal, DO, and Kashif Khan, MBBS

## 6 Low-dose rivaroxaban and aspirin for symptomatic lower extremity PAD proves beneficial

**CLINICAL QUESTION:** Do patients with symptomatic lower extremity peripheral artery disease derive a greater benefit from a combination therapy of rivaroxaban and aspirin vs. aspirin alone?

**BACKGROUND:** Patients with symptomatic lower extremity peripheral artery disease (LE-PAD) experience a higher risk of major adverse cardiac events (MACE) and major adverse limb events (MALE). Nonetheless, they are undertreated with medical therapies. Currently, there is limited guidance regarding antithrombotic therapies in these patients.

**STUDY DESIGN:** Subanalysis of a previously published prospective,

double-blinded, randomized controlled trial called 2017 Cardiovascular Outcomes for People Using Anticoagulation Strategies (COMPASS).



Dr. Dalal

Dr. Khan

**SETTING:** Multinational study in 602 centers across 33 countries.

**SYNOPSIS:** Of patients with symptomatic LE-PAD (defined as patients with aorto-femoral or limb bypass, percutaneous transluminal angioplasty of the iliac or infra-inguinal arteries, limb or foot amputation for arterial disease, intermittent claudication with an ankle brachial index less than 0.90 or peripheral artery stenosis 50% or less), 4,129 were enrolled. Rivaroxaban 2.5 mg twice daily and aspirin 100mg daily was compared with aspirin 100 mg daily alone. A 26% lower incident risk of MACE (hazard ratio, 0.74) and 45% lower incident risk of MALE (HR, 0.55) was noted with combination therapy. Major bleeding was increased in this group (HR, 1.56) but was not statistically significant. At 30 months, an absolute risk reduction of 2.7% and 2.1%, respectively, was noted for MACE and MALE in the combination group. There was a

net clinic benefit (MACE, MALE, and major amputation) in favor of combination therapy equivalent to 31 prevented events for 1,000 patients over 30 months. Net clinical benefit was similar in subpopulations with high-risk limb presentations or high-risk comorbidities with 42 prevented events over 30 months.

**BOTTOM LINE:** Combination low-dose rivaroxaban and aspirin resulted in a higher absolute vascular risk reduction of MACE, MALE, and major amputations without any significant increase in major bleeding and should be considered for patients with symptomatic LE-PAD.

**CITATION:** Kaplovitch E et al. Rivaroxaban and aspirin in patients with symptomatic lower extremity peripheral artery disease: A subanalysis of the COMPASS randomized clinical trial. *JAMA Cardiol.* 2021 Jan 1. doi: 10.1001/jamacardio.2020.4390.

*Dr. Dalal and Dr. Khan are clinical assistant professors in the division of hospital medicine at The Ohio State University Wexner Medical Center, Columbus.*

By Magdalena Danch, MD, and Brian Petullo, MD

## 7 Cryoablation as first-line treatment can lower rate of AF recurrence

**CLINICAL QUESTION:** Can catheter cryoballoon ablation as the initial strategy reduce recurrence of atrial tachyarrhythmias in patients with symptomatic, paroxysmal atrial fibrillation?

**BACKGROUND:** In patients with atrial fibrillation (AF), the initial strategy for maintenance of sinus rhythm is usually antiarrhythmic drug therapy. Once drugs have failed, catheter ablation is considered. Previous studies looking at catheter ablation as an initial strategy have been inconclusive or have had problems in methodology.



Dr. Danch

Dr. Petullo

**STUDY DESIGN:** Multicenter, open-label, randomized trial.

**SETTING:** 18 centers in Canada.

**SYNOPSIS:** Patients with symptomatic, paroxysmal AF were randomized to either antiarrhythmic therapy (149 patients) or cryoballoon

## Short Takes

### The gender gap in academic medicine still exists

A retrospective analysis of Association of American Medical Colleges faculty data for 1979-2018 showed that women physicians were less likely to be promoted to associate professor, full professor, and department chairs, compared with male colleagues (24%, 23%, and 54%, respectively). Race, ethnic group, year of graduation, and type of department did not eliminate this gender difference.

**CITATION:** Richter KP et al. Women physicians and promotion in academic medicine. *N Engl J Med.* 2020 Nov 26. doi: 10.1056/NEJMsa1916935.

### Lower oxygenation target in acute hypoxemic respiratory failure does not reduce mortality

This multicenter randomized trial looking at adult patients admitted to the ICU with acute hypoxemic respiratory failure found no significant difference in mortality or serious adverse events when targeting a lower-oxygenation target (PaO<sub>2</sub> 60 mm Hg), compared with a higher-oxygenation target (PaO<sub>2</sub> 90 mm Hg).

**CITATION:** Schjørring OL et al. Lower or higher oxygenation targets for acute hypoxemic respiratory failure. *N Engl J Med.* 2021 Jan 20. doi: 10.1056/NEJMoa2032510.

### Black patients are more likely to have occult hypoxemia

A retrospective study analyzing two cohorts of hospitalized adult patients receiving supplemental oxygen found that occult hypoxemia occurred nearly three times more often among Black patients than White patients. Occult hypoxemia was defined as an arterial oxygen saturation of 88%, despite a measured oxygen saturation of 92%-96% by pulse oximetry.

**CITATION:** Sjoding MW et al. Racial bias in pulse oximetry measurement. *N Engl J Med.* 2020 Dec 17. doi: 10.1056/NEJMsc2029240.

### Gender-based discrimination and sexual harassment among academic hospitalists

This survey completed by 336 academic internal medicine hospitalists from across 18 institutions demonstrated that gender-based discrimination and sexual harassment are commonly encountered by academic hospitalists, with a markedly higher proportion of women reporting such experiences.

**CITATION:** Bhandari S et al. Gender-based discrimination and sexual harassment among academic internal medicine hospitalists. *J Hosp Med.* 2021 Feb. doi: 10.12788/jhm.3533.

catheter ablation (154 patients) as the initial therapy. All study participants had a cardiac monitoring device implanted. During a 12-month follow-up period, recurrence of atrial tachyarrhythmias or initiation of antiarrhythmic drugs between 91 and 365 days (primary endpoint) and symptomatic arrhythmias, AF burden, and quality of life (secondary endpoints) were assessed. Recurrent atrial tachyarrhythmias occurred in 42.9% of patients in the ablation group, compared with 67.8% in the antiarrhythmic drug group (HR, 0.48; 95% CI, 0.35-0.66; *P* less than .001). In the ablation group, 11% experienced symptomatic atrial tachyarrhythmias, in contrast to 26.2% in the antiarrhythmic therapy group (HR, 0.39; 95% CI 0.22-0.68). Serious events were noted in 3.2% of patients in the ablation group and 4% of participants receiving antiarrhythmic drugs. The trial was not powered to compare cardiovascular outcomes between the strategies. Only one type of ablation modality was utilized, and the follow-up was limited to only 1 year. **BOTTOM LINE:** In this trial, catheter cryoballoon ablation as the initial therapy for symptomatic, paroxysmal AF resulted in a significantly lower recurrence of AF, compared

with antiarrhythmic drug therapy. **CITATION:** Andrade JG et al. Cryoablation or drug therapy for initial treatment of atrial fibrillation. *N Engl J Med.* 2020 Nov 16. doi: 10.1056/NEJMoa2029980.

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**By Phillip Hamilton, MD, and Kristen Lewis, MD, FHM**

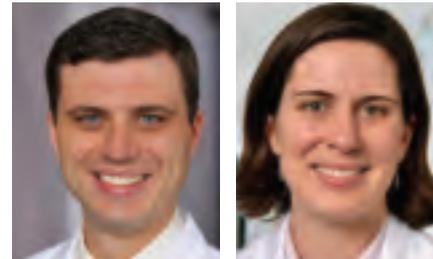
### 8 Low prevalence of anaerobes in patients with aspiration pneumonia

**CLINICAL QUESTION:** Should we empirically cover anaerobes in patients hospitalized with community acquired pneumonia and concern for aspiration?

**BACKGROUND:** The 2019 American Thoracic Society and Infectious Disease Society of America (ATS-IDSA) guidelines recommend against routinely adding anaerobic coverage for aspiration pneumonia unless the patient has a suspected empyema or lung abscess. However, this recommendation is based on evidence from small retrospective observational studies.

**STUDY DESIGN:** Observational point-prevalence study.

**SETTING:** Global Initiative for Methicillin-Resistant *Staphylococcus aureus* Pneumonia (GLIMP) study hospitals, which include 222 hospitals in 54 countries worldwide.



Dr. Hamilton

Dr. Lewis

**SYNOPSIS:** A total of 2,606 immunocompetent patients hospitalized with community-acquired pneumonia (CAP), and in whom bacterial testing was performed, were included. Patients were initially stratified into those with aspiration CAP (ACAP) and those with non-ACAP, with subsequent further stratification of non-ACAP patients into those with (CAP/AspRF+) and without (CAP/AspRF-) risk factors for aspiration. Among culture-positive patients, the prevalence of anaerobes was similar among the three groups (1.6% ACAP vs. 1.0% CAP/AspRF+ vs. 0.0%

CAP/AspRF-). Patients with severe ACAP had a higher prevalence of *Pseudomonas aeruginosa* and other gram-negative bacilli. Over half of the patients in the three groups received anti-anaerobic antibiotic coverage. This study supports recent ATS-IDSA guidelines recommending against routine anaerobic coverage for suspected aspiration pneumonia and highlights its overuse. Limitations of the study include challenges in isolating anaerobic organisms, resulting in the potential to underestimate their true prevalence. The study did not include an analysis of clinical outcomes.

**BOTTOM LINE:** The prevalence of anaerobic pathogens in patients hospitalized with pneumonia and aspiration or its risk factors does not support the routine empiric use of anti-anaerobic therapy.

**CITATION:** Marin-Corral J et al. Aspiration risk factors, microbiology, and empiric antibiotics for patients hospitalized with community-acquired pneumonia. *Chest.* 2020 Jul 17. doi: 10.1016/j.chest.2020.06.079.

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# PHM groups issue Choosing Wisely® recommendations

SHM members involved from the start

By Bobby Casey, MD

The Choosing Wisely® Pediatric Hospital Medicine (PHM) recommendations were published in January 2021. The initial Choosing Wisely® PHM recommendations were released in 2012 and the 2021 recommendations were the result of an extensive and years-long process. The Choosing Wisely® campaign, an initiative led by the American Board of Internal Medicine, was developed to enhance clinician-patient conversations, promoting care that is evidenced based, free from harm, and truly necessary.

The campaign has been embraced by the entire medical community, with more than 70 professional medical societies releasing recommendations. With its emphasis on high value care and eliminating medical waste, it is no surprise that the Choosing Wisely® campaign has found a home in a pediatric hospital

medicine community that prides itself on those very traits.

The Choosing Wisely® process started with the selection of a committee. This group comprised nine members, with equal representation from all three societies affiliated with PHM: the Society of Hospital Medicine (SHM), the American Academy of Pediatrics' Section on Hospital Medicine (AAP SOHM), and the Academic Pediatric Association (APA). Members of the committee intentionally represented a wide spectrum of practice variability, geography, and clinical experience.

The SHM members of the group were James O'Callaghan, MD, FAAP, SFHM, pediatric hospitalist at Seattle Children's Hospital and clinical



Dr. O'Callaghan

professor of pediatrics at the University of Washington School of Medicine; Vivian Lee, MD, clinical pediatric hospitalist at Children's Hospital of Los Angeles and associate professor of pediatrics at USC Keck School of Medicine; and Francisco Alvarez, MD, pediatric hospitalist at Lucile Packard Children's Hospital, Palo Alto, Calif., and clinical associate professor of pediatrics at Stanford (Calif.) University.

According to Dr. O'Callaghan, it was important that the Choosing Wisely® recommendations come from the broader PHM community, reflecting the community's priorities.

The committee started the process by asking the broader PHM community to submit ideas for consideration, via SHM's HMX and the AAP SOHM listserv. The community responded with over 400 submissions.

Dr. Alvarez said the committee organized and trimmed the initial submissions, removing redundancy, into approximately 200 distinct recommendations. After initial literature review, the committee focused on approximately 70 recommendations. At that point, each member undertook an extensive literature review of the topics.

Once every potential recommendation had received a thorough review, the committee underwent a modified Delphi process to evaluate the list. In this process, each member ranked the recommendations on validity – a measure of the quality of evidence supporting a topic – and feasibility – a measure of the PHM community's ability to influence compliance.

At the end of this objective process, the committee chose the five recommendations that received the highest total scores. While there were spirited discussions regarding the data available for each recommendation, all three SHM committee members agreed that the objective process played itself out.

Now that the Choosing Wisely® recommendations have been published, the PHM community is challenged to implement these



Dr. Casey is a pediatric hospitalist at Joe DiMaggio Children's Hospital in Hollywood, Fla., and a member of the Society of Hospital Medicine's Pediatric Special Interest Group's Executive Council.

recommendations to spur change for the care of hospitalized children throughout the country. Given the variety that exists in PHM, specifically in practice settings, it may be a daunting task. Dr. O'Callaghan said

differing opinions among physicians in a group may be a challenge to implementing change, but the recommendations allow for those conversations to take place. Dr. Lee

hopes the recommendations provide a national panel opinion of the evidence to help support hospitalists in management discussions with others in a hospital – such as subspecialists or ED physicians – to increase high value care.

Since the nature of hospital medicine is one of collaboration, these recommendations will allow pediatric hospitalists to lead change throughout their hospitals and health systems. However, it may not be a quick task. Dr. Alvarez estimates it may take 10-15 years until these recommendations are fully implemented throughout the country. However, there is reason to be optimistic, as the initial PHM Choosing Wisely® recommendations from 2012 have been broadly accepted and now represent national standards of care.



Dr. Alvarez



Dr. Lee

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# The COVID-19 pandemic and changes in pediatric respiratory and nonrespiratory illnesses

By James W. Antoon, MD, PhD

The COVID-19 pandemic upended the U.S. health care market and disrupted much of what was thought to be consistent and necessary hospital-based care for children. Early in the pandemic, clinics closed, elective surgeries were delayed, and well visits were postponed. Mitigation strategies were launched nationwide to limit the spread of SARS-CoV-2 including mask mandates, social distancing, shelter-in-place orders, and school closures. While these measures were enacted to target COVID-19, a potential off-target effect was reductions in transmission

of other respiratory illness, and potentially nonrespiratory infectious illnesses and conditions exacerbated by acute infections.<sup>1</sup> These measures have heavily impacted the pediatric population, wherein respiratory infections are common, and also because daycares and school can be hubs for disease transmission.<sup>2</sup>

To evaluate the effect of the COVID-19 pandemic on pediatric health care utilization, we performed a multicenter, cross-sectional study of 44 children's hospitals using the Pediatric Health Information System (PHIS) database.<sup>3</sup> Children aged 2 months to 18 years discharged from a PHIS hospital with nonsurgical diagnoses from Jan. 1 to Sept. 30 over a 4-year period (2017-2020) were included in the study. The primary exposure was the 2020 COVID-19 pandemic, which was divided into three study periods: pre-COVID-19 (January to February 2020), early COVID-19 (March-April 2020), and COVID-19 (May-September 2020). The primary outcomes were the observed-to-expected ratio of respiratory and nonrespiratory illness encounters of the study period, compared with the 3 years prior to the pandemic. For these calculations, the expected

encounters for each period was derived from the same calendar periods from prepandemic years (2017-2019). A total of 9,051,980 pediatric encounters were included in the analyses: 6,811,799 with nonrespiratory illnesses and 2,240,181 with respiratory illnesses. We found a 42% reduction in overall encounters during the COVID-19 period, compared with the 3 years prior to the pandemic, with a greater reduction in respiratory, compared with nonrespiratory illnesses, which decreased 62% and 38%, respectively. These reductions were consistent across geographic and encounter type (ED vs. hospitalization). The frequency

of hospital-based encounters for common pediatric respiratory illnesses was substantially reduced, with reductions in asthma exacerbations (down 76%), pneumonia (down 81%), croup (down 84%), influenza (down 87%) and bronchiolitis (down 91%). Differences in both respiratory and nonrespiratory illnesses varied by age, with larger reductions found in children aged less than 12 years. While adolescent (children aged over 12 years) encounters diminished during the early COVID period for both respiratory and nonrespiratory illnesses, their encounters returned to previous levels faster than those from younger children. For respiratory illnesses, hospital-based adolescents encounters had returned to prepandemic levels by the end of the study period (September 2020).

These findings warrant consideration as relaxation of SARS-CoV-2 mitigation are contemplated. Encounters for respiratory and nonrespiratory illnesses declined less and recovered faster in adolescents, compared with younger children. The underlying contributors to this trend are likely multifactorial. For example, respiratory illnesses such as croup and bronchiolitis are more common in younger children, and

adolescents may be more likely to transmit SARS-CoV-2, compared with younger age groups.<sup>4,5</sup> However, adolescents may have had less strict adherence to social distancing measures.<sup>6</sup> Future efforts to halt transmission of SARS-CoV-2, as well as other respiratory pathogens, should inform mitigation efforts in the adolescent population with considerations of the intensity of social mixing in different pediatric age groups.

While reductions in encounters caused by respiratory illnesses were substantial, more modest but similar age-based trends were seen in nonrespiratory illnesses. Yet, reduced transmission of infectious agents may not fully explain these findings. For example, it is possible that families sought care for mild to moderate nonrespiratory illness in clinics or via telehealth rather than the EDs.<sup>7</sup> Provided there were no unintended negative consequences, such transition of care to non-ED settings would suggest there was overutilization of hospital resources prior to the pandemic. Additional assessments would be helpful to examine this more closely and to clarify the long-term impact of those transitions.

It is also possible that the pandemic effects on financial, social, and family stress may have led to increases in some pediatric health care encounters, such as those for mental health conditions,<sup>8</sup> nonaccidental trauma, or inability to adhere to treatment because of lack of resources.<sup>9,10</sup> Additional study on the evolution and distribution of social and stress-related illnesses is critical to maintain and improve the health of children and adolescents.

The COVID-19 pandemic resulted in rapid and marked changes to both communicable and noncommunicable illnesses and care-seeking behaviors. Some of these findings are encouraging, such as large reductions in respiratory and nonrespiratory illnesses. However, other trends may be harbingers of negative health consequences of the pandemic, such as increases in health care utilization later in the pandemic. Further study of the evolving pandemic's effects on disease and health care utilization is needed to benefit our children now and during the next pandemic.



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*The pandemic effects on financial, social, and family stress may have led to increases in some pediatric health care encounters, such as those for mental health conditions, nonaccidental trauma, or inability to adhere to treatment because of lack of resources.*

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# Trends in hospital medicine program operations during COVID-19

Staffing was a challenge for most groups

By Bryan Huang, MD, FHM

What a year it has been in the world of hospital medicine with all the changes, challenges, and uncertainties surrounding the COVID-19 pandemic. Some hospitalist programs were hit hard early on with an early surge, when little was known about COVID-19, and other programs have had more time to plan and adapt to later surges.

As many readers of The Hospitalist know, the Society of Hospital Medicine publishes a biennial *State of Hospital Medicine (SoHM)* Report – last published in September 2020

using data from 2019. The *SoHM* Report contains a wealth of information that many groups find useful in evaluating their programs, with topics ranging from compensation



to staffing to scheduling. As some prior months' Survey Insights columns have alluded to, with the rapid pace of change in 2020 because of the COVID-19 pandemic, the Society of Hospital Medicine made the deci-

sion to publish an addendum highlighting the myriad of adjustments and adaptations that have occurred in such a short period of time.

The COVID-19 Addendum is available to all purchasers of the *SoHM* Report and contains data from survey responses submitted in September 2020.

Let's take a look at what transpired in 2020, starting with staffing – no doubt a challenge for many groups. During some periods of time, patient volumes may have fallen below historical averages with stay-at-home orders, canceled procedures, and a reluctance by patients to seek medical care. In contrast, for many groups, other parts of the year were all-hands-on-deck scenarios to care for extraordinary surges in patient volume. To compound this, many hospitalist groups had physicians and staff facing quarantine or isolation requirements because of exposures or contracting COVID-19, and locums positions may have been difficult to fill because of travel restrictions and extreme demand.

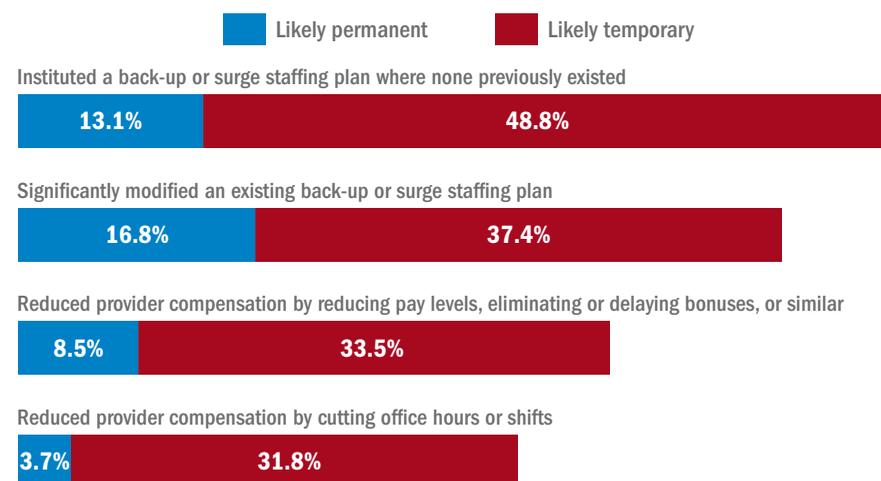
What operational changes were made in response to these staffing challenges? Perhaps one notable finding from the COVID-19 Addendum was the need for contingency planning and backup systems. From the 2020 *SoHM*, prior to the pandemic, 47.4% of adult hospital medicine groups had backup systems in place. In our recently published addendum, we found that 61.9% of groups instituted a backup system where none previously existed. In addition, 54.2% of groups modified their existing backup system. Some 39.6% of hospital medicine groups also utilized clinicians from other service lines to help cover service needs.

Aside from staffing, hospitals faced unprecedented financial challenges, and these effects rippled through to hospitalists. Our addendum found that 42.0% of hospitalist groups faced reductions in salary or bonuses, and 35.5% of hospital medicine groups reduced provider compensation by a reduction of work hours or shifts. I've personally been struck by these findings – that many hospitalists at the front lines of



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## Hospitalist staffing changes during the COVID-19 pandemic



Source: 2020 *State of Hospital Medicine (SoHM)* Report, COVID-19 Addendum



COVID-19 received salary reductions, albeit temporary for many groups, during one of the most challenging years of their professional careers. Our addendum, interestingly, also found that a smaller 10.7% of groups instituted hazard pay for clinicians caring for COVID-19 patients.

So, are the changes and challenges your group faced similar to what was experienced by other hospital medicine programs? These findings and many more interesting and useful pieces of data are available in the full COVID-19 Addendum (visit [hospitalmedicine.org/sohm](http://hospitalmedicine.org/sohm) for more information). Perhaps my biggest takeaway is that hospitalists have been perhaps the most uniquely positioned specialty to tackle the challenges of the pandemic. We have always been a dynamic field, ready to lead and tackle change – and while change may have happened more quickly and in ways that were unforeseen just a year ago, hospitalists have undoubtedly demonstrated their strengths as leaders ready to adapt and rise to the occasion.

I am optimistic that, as we move beyond the pandemic in the coming months and years, the value that hospitalists have proven yet again will yield long-term recognition and benefits to our programs and our specialty.

# About one in five clinicians considers quitting because of pandemic

By Damian McNamara

The COVID-19 pandemic continues to take its toll on the well-being and work satisfaction of health care providers, a new survey of more than 5,000 clinicians at an academic medical center illustrates.

About one in five people reported considering leaving the workforce because of the challenges of working during the COVID-19 pandemic. In addition, 30% reported they are considering cutting back work hours.

“There are a substantial number of employees and trainees who are experiencing major stress and work disruptions because of the pandemic,” lead author Rebecca K. Delaney, PhD, said in an interview. “It is particularly alarming that people who have spent 5 or more years in training for their specialty are struggling with their work, so much so that they have even considered leaving the workforce or reducing their hours.”



AP/DAVID J. PHILLIP/GETTY IMAGES

“Being a caregiver adds another layer of difficulty for faculty, staff, and trainees who are trying to manage work and child care,” added Dr. Delaney, a researcher in the department of population health sciences, University of Utah, Salt Lake City.

The study was published online April 2 in JAMA Network Open (doi: 10.1001/jamanetworkopen.2021.3997).

“This looks like an excellent survey,” Carol A Bernstein, MD, said in an interview when asked to com-

ment. “I do not think it provides particularly new information as these challenges in the workplace, especially for women during COVID, have been well documented in the media and the medical literature to date.”

“That said, to the extent that data helps drive solutions, I would hope that information such as this would be considered as strong further evidence that health care systems must pay close attention to the well-being of the workforce,” added Dr. Bernstein, professor and vice chair of faculty development and well-being, departments of psychiatry and behavioral sciences and obstetrics and gynecology and women’s health, Montefiore Medical Center/Albert Einstein College of Medicine, New York.

### When the pandemic hits home

A total of 42% of the American workforce rapidly transitioned to working from home at the onset of the COVID-19 pandemic. At the same time, many employees had to provide child care and assistance

with schoolwork. This placed a burden on many individuals at academic medical centers, and women in particular.

“Women comprise 74.9% of hospital employees, many of whom are essential clinical workers,” the researchers noted. “The extent of the needs and difficulties for these workers during the pandemic remain largely unknown.”

To learn more, Dr. Delaney, senior author Angie Fagerlin, PhD, and their colleagues emailed a Qualtrics survey to 27,700 faculty, staff, and trainees at University of Utah Health. The survey was conducted Aug. 5-20, 2020, as part of a quality improvement initiative. All responses were anonymous.

Survey questions included if, because of the pandemic, people had considered leaving the workforce, considered reducing their hours, or experienced reduced productivity. The researchers also asked about career impacts and potential solutions

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*I joined SHM back before it was SHM in 1999! I knew I had found my professional home. I remain involved with SHM because the organization has continued to represent, educate, and advocate for hospitalists.*

Pamela Pride, MD, FHM

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in terms of “work culture adaptations.”

Respondents with children aged under 18 years also were asked about child care options. Dr. Delaney and colleagues also inquired about race and ethnicity because they hypothesized that employees from underrepresented groups would likely experience the pandemic differently.

The mean age of the 5,951 (21%) faculty, staff, and trainees who completed the survey was 40 years. A majority of respondents were women, reflecting the higher proportion of women within the health system.

A majority (86%) identified as White or European American. About two-thirds of respondents (66%) were staff, 16% were faculty, and 13% were trainees.

#### COVID-19 career concerns

Overall, 1,061 respondents (21%) “moderately or very seriously” considered leaving the workforce and 1,505 (30%) considered reducing hours. Respondents who were younger, married, a member of an underrepresented racial/ethnic group, and worked in a clinical setting were more likely to consider leaving the workforce.

The survey showed 27% felt their productivity increased whereas 39% believed their productivity decreased.

Of the 2,412 survey participants with children aged 18 years or younger, 66% reported that they did not have child care fully available.

“Failure to address and provide for child care has long been one of the many significant deficits in U.S. health care systems,” said Dr. Bernstein, lead author of a March 2021 report evaluating staff emotional support at Montefiore Medical Center during the pandemic in *The Joint Commission Journal on Quality and Patient Safety*.

Furthermore, 47% were “moderately or very seriously worried” about COVID-19 impacting their career development. Women trainees were significantly more likely than male counterparts to consider leaving the workforce and reducing their work hours. Women in a faculty or trainee role were also more likely to worry about COVID-19’s impact on their career, compared with men, and compared with women in staff positions.

“It was disheartening to have our data support the gender and racial/ethnic disparity that has been highlighted in the media during the pandemic,” Dr. Delaney said. “Women and in some cases racial/ethnic

groups that are underrepresented in medicine were most likely to consider leaving the workforce, reducing hours, and were worried about their career development.”

Women also are disproportionately affected by burnout, particularly during the pandemic, according to

an analysis of Medscape’s Physician Burnout & Suicide Report.

Furthermore, the COVID-19 pandemic has shifted the medical specialties now considered highest risk for burnout: critical care physicians ranked first in the report, followed by rheumatologists and

infectious disease specialists.

#### Potential solutions

“Given the disproportionate impact COVID-19 has on employees of health systems, institutions must find ways to support their employees, both in terms of workplace

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# The Hospitalist

cultural adaptations and assistance with familial responsibilities,” the researchers noted.

Telecommuting policies, scheduling flexibility, and expanding employee support programs are potential solutions. Institutional policies also could address the ed-

ucational and direct care needs of employee children.

Limitations of the study include its generalizability beyond employees of University of Utah Health. Also, respondents included a lower proportion of racial and ethnic groups, compared with national

figures, “although this is mostly accounted for by the overall low population of such groups in the state of Utah,” the researchers added.

“Our results suggest that respondents were struggling during the COVID-19 pandemic,” the researchers noted. “As a result, even after invest-

ing substantial amounts of time in years of training, many were considering leaving the workforce because of stress and caregiving responsibilities related to the pandemic.”

*A version of this article first appeared on Medscape.com.*

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# The Hospitalist

# Black inpatients at risk of poor safety outcomes

By Marcia Frellick

**B**lack patients entering hospitals in the United States face significantly higher risk in

several measures of patient safety compared with their White counterparts, a new report finds.

The Urban Institute, which is funded in part by the Robert Wood

Johnson Foundation, looked at differences in Black and White patient safety measures among adults receiving inpatient care in 26 states.

Care quality was measured by the rate of preventable adverse hospital patient safety events per 1,000 at-risk discharges using data from the Agency for Healthcare Research and Quality (AHRQ).

Researchers compared experience by race on 11 patient safety indicators – four related to general patient safety, and seven linked to risk of adverse events with surgical procedures.

The gaps were widest surrounding surgical care. Black patients were 7.9 percentage points more likely to be in a hospital considered low quality across all surgical safety measures. They were 4.9 percentage points more likely to be admitted to a hospital considered low quality across all general safety indicators.

*“These findings only reaffirm what we already know – that Black patients receive worse and lower-quality care than White patients.”*

“If you’re a Black patient getting surgery – relative to a White patient – in my study, you were 25% less likely to be in a hospital that prevented hemorrhage during surgery; you were 26% less likely to be in a hospital that prevented postoperative respiratory failure; and you were more than 30% less likely to be in a hospital that is effective in preventing postoperative sepsis,” Anuj Gangopadhyaya, PhD, senior research associate at the Urban Institute, said in an interview.

According to the report, Black patients were also 31.9% less likely than were White patients to be admitted into hospitals considered high quality in preventing pressure ulcers and 22.8% less likely to be in a hospital good at preventing iatrogenic pneumothorax.

Dr. Gangopadhyaya said this may be the first study to compare the numbers after the inception of the Affordable Care Act. These data were collected in 2017, 3 years after the core elements of the ACA kicked in.

He said that, although the ACA has done much to narrow the racial gap in terms of insurance coverage, it has not been effective in reducing the heightened safety risk to Black patients in the hospital.

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# The Hospitalist

# A tumultuous and unforgettable year

SHM president bids farewell

By Danielle Scheurer, MD,  
MSCR, SFHM

As my SHM presidency wraps up, it is a good time to reflect on the past year in hospital medicine. Dominated by COVID-19 preparedness, mitigation, and (now) recovery efforts, the impacts of COVID-19 throughout the medical industry have been profound. For hospital medicine, although we have endured work and home stress unlike anything in recent memory, fortunately a few notably good changes have come about as a result of COVID-19.

Hospitalists have proven that we are extremely capable of adapting to rapidly changing evidence-based practice. The old adage of evidence taking 7 years to become mainstream clinical practice certainly has not been the paradigm during COVID-19. In many cases, clinical care pathways were changing by the week, or even by the day. Usage of SHM's website, HMX, and educational platforms rose exponentially to keep pace with the changing landscape. Information exchange between and among hospital medicine groups was efficient and effective. This is exactly how it should be, with SHM serving as the catalyst for such information exchange.

Hospitalists were able to shift to telehealth care as the need arose. The use of telehealth is now becoming a core competency for hospitalists around the country, and we are leading the way for other specialists in adoption. COVID-19 enabled not only rapid transformation, but also better payer coverage for the use of all types of telehealth services. SHM will remain a source of training and education in telehealth best practices going forward.

Related, hospitalists also found their programs were being asked

to become purveyors for remote monitoring and hospital-at-home programs. Because CMS has allowed some reimbursement for these programs, at least during the public health emergency, hospital medicine programs can more feasibly pursue building and sustaining such pro-

*“I have continuously been amazed and delighted with the resiliency and endurance of our hospitalists around the country.”*

grams, and SHM can serve as the hub for best practice exchanges in the field.

The pandemic also created a sizable shift in the mindset of the need and enthusiasm for mainstream maintenance of certification. Although there were already questions about the value of high-stakes

exams before the pandemic, both within and outside the medical industry, the pandemic created an immediate need to shift away from such exams. Now, the entire pipeline is questioning the value of these high-stakes exams, such as SATs and ACTs for college admissions, Step 1 exams for medical students, and certification exams for physicians. The pandemic has made us question these milestone exams with more scrutiny and has created a sense of urgency for a change to more adult learner-focused alternatives. SHM will continue to be at the center-piece of the discussion, as well as the leader in cultivating educational venues for continuous learning.

So where do we go from here?

I am confident that SHM will continue to pay deep attention to the activities that bring value to hospitalists and support changing practice patterns such as telehealth and hospital-at-home work. Not only will SHM serve as a center for best practices and a conduit for networking and information sharing at the



Dr. Scheurer is a hospitalist and chief quality officer, MUSC Health System, Medical University of South Carolina, Charleston. She is the outgoing president of SHM.



national level – there will be significantly more focus on the support and growth of local chapters. SHM realizes that local chapters are a vital source of networking, education, and pipeline development and will continue to increase the resources to make the chapter programs dynamic and inviting for everyone interested in hospital medicine.

While this presidency year was far different than expected, I have continuously been amazed and delighted with the resiliency and endurance of our hospitalists around the country. We stood out at the front lines of the pandemic, with a mission toward service and a relentless commitment to our patients. Although we still have a long way to go before the pandemic is behind us, I firmly believe we are emerging from the haze stronger and more agile than ever. Thank you for allowing me to serve this incredible organization during such a tumultuous and unforgettable year.

Yours in service.

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Uché Blackstock, MD, founder and CEO of Advancing Health Equity in New York City, called the findings “shocking, though not surprising.”

Though these data were collected before COVID-19, the pandemic has exposed profound racial inequities, she noted.

She cited the example of Susan Moore, MD, a Black physician in Carmel, Ind., who died from COVID-19 at age 52 in December 2020 after experiencing what she said was systemic racism in her care.

“Even having a formal education and being a physician is not protective for Black patients. These findings only reaffirm what we already know – that Black patients receive worse and lower-quality care than White patients,” Dr. Blackstock said.

Health care institutions must, she said, “look inward at the intentional and critical antiracism work that must be done on provider, organizational, and systems levels by allocating the necessary resources, continuing to track disaggregated health metrics, and committing to structural change.”

Dr. Gangopadhyaya said the second phase of the research will compare safety outcomes between Black and White patients in the same hospital. Those results will shed more light on what's driving the differences in risk on safety measures.

Currently, the ACA has penalties in place when hospitals score low for specific safety risks, he noted, saying that approach doesn't appear to be working.

A version of this article first appeared on Medscape.com.

# Moral distress

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Francisco, described “moral distress and professional ethical dissonance as root causes of burnout.”<sup>1</sup> They characterized moral distress by its emotional exhaustion, depersonalization, reduced sense of accomplishment, and moral apathy, and they called for renewed attention to social and ethical dimensions of practice and threats to physician professionalism.

Prevailing explanations for documented high rates of burnout in doctors have tended to focus on work hours and struggles with electronic medical records and the like, Dr. Dzung and Dr. Wachter wrote. “We see evidence of an insidious moral distress resulting from physicians’ inability to act in accord with their individual and professional ethical values due to institutional and social constraints.”

COVID has intensified these issues surrounding moral distress. “In a short period of time it created more situations that raise issues of moral distress than I have seen since the early days of HIV,” Dr. Wachter said. “Those of us who work in hospitals often find ourselves in complex circumstances with limited resources. What was so striking about COVID was finding ourselves caring for large volumes of patients who had a condition that was new to us.”

And the fact that constraints imposed by COVID, such as having to don unwieldy PPE and not allowing families to be present with hospitalized loved ones, are explainable and rational helps only a little with the clinician’s distress.

People talk about the need for doctors to be more resilient, Dr. Dzung added, but that’s too narrow of an approach to these very real challenges. There are huge issues of workforce retention and costs, major mental health issues, suicide – and implications for patient care, because burned-out doctors can be bad doctors.

## What is moral distress?

Moral distress is a term from the nursing ethics literature, attributed to philosopher Andrew Jameton in 1984.<sup>2</sup> Contributors to moral distress imposed by COVID include having to make difficult medical decisions under stressful circumstances – especially early on, when effective treatment options were few. Doctors felt the demands of the pandemic were putting care quality and patient safety at risk. Poor working conditions overall, being pushed to work beyond their normal physical limits for days at a time, and feelings of not being valued added to this stress. But some say the pandemic has only highlighted and amplified existing inequities and disparities in the health care system.

Experts say moral distress is about feeling powerless, especially in a system driven by market values, and feeling let down by a society that has put them in harm’s way. They work all day under physically and emotionally exhausting conditions and then go home to hear specious conspiracy

theories about the pandemic and see other people unwilling to wear masks.

Moral distress is complicated, said Lucia Wocial, PhD, RN, a nurse ethicist and cochair of the ethics consultation subcommittee at Indiana University Health in Indianapolis. “If you say you have moral distress, my first response is: Tell me more. It helps to peel back the layers of this complexity. Emotion is only part of moral distress. It’s about the professional’s sense of responsibility and obligation – and the inability to honor that.”

Dr. Wocial, whose research specialty is moral distress, is corresponding author of a study published in the *Journal of General Internal Medicine* in February 2020, which identified moral distress in 4 out of 10 surveyed physicians who cared for older hospitalized adults and found themselves needing to work with their surrogate decision-makers.<sup>3</sup> “We know physician moral distress is higher when people haven’t had the chance to hold conversations about their end-of-life care preferences,” she said, such as whether to continue life support.

“We have also learned that communication is key to diminishing physician moral distress. Our responsibility as clinicians is to guide patients and families through these decisions. If the family feels a high level of support from me, then my moral distress is lower,” she added. “If you think about how COVID has evolved, at first people were dying so quickly. Some patients were going to the ICU on ventilators without ever having a goals-of-care conversation.”

COVID has shifted the usual standard of care in U.S. hospitals in the face of patient surges. “How can you feel okay in accepting a level of care that in the prepandemic world would not have been acceptable?” Dr. Wocial posed. “What if you know the standard of care has shifted, of necessity, but you haven’t had time to prepare for it and nobody’s talking about what that means? Who is going to help you accept that good enough under these circumstances is enough – at least for today?”

## What to call it

Michael J. Asken, PhD, director of provider well-being at UPMC Pinnacle Harrisburg (Pa.), has questioned in print the use of the military and wartime term “moral injury” when applied to a variety of less serious physician stressors.<sup>4</sup> More recently, however, he observed, “The pandemic has muted or erased many of the distinctions between medical care and military conflict. ... The onslaught and volume of critical patients and resulting deaths is beyond what most providers have ever contemplated as part of care.”<sup>5</sup>

In a recent interview with *The Hospitalist*, he said: “While I initially resisted using the term moral injury, especially pre-COVID, because it was not equivalent to the moral injury created by war, I have relented a bit.” The volume of deaths

and the apparent dangers to providers themselves reflect some of the critical aspects of war, and repetitive, intense, and/or incessant ethical challenges may have longer-term negative psychological or emotional effects.

“Feeling emotional pain in situations of multiple deaths is to be expected and, perhaps, should even be welcomed as a sign of retained humanity and a buffer against burnout and cynicism in these times of unabating stress,” Dr. Asken said. “This is only true, however, if the emotional impact is tolerable and not experienced in repetitive extremes.”

“These things are real,” said Clarissa Barnes, MD, a physician advisor and hospitalist at Avera McKennan Hospital in Sioux Falls, S.D., and former medical director of Avera Health’s LIGHT Program, a wellness-oriented service for clinicians. Dr. Barnes herself caught the virus on the job but has since recovered.

“Physicians don’t see their work as an occupation. It’s their core identity: I am a doctor; I practice medicine. If things are being done in ways I don’t think are right, that’s fundamentally a breach,” she said. “As internists, we have an opportunity to forestall death whenever we can and, if not, promote a peaceful death. That’s what made me choose this specialty. I think there’s value in allowing a person to end well. But when that doesn’t happen because of social or administrative reasons, that’s hard.”

## Where is the leadership?

“A lot of moral injury comes down to the individual health system and its leaders. Some have done well; others you hear saying things that make you question whether these are the people you want leading the organization. Hospitalists need to have a clear value framework and an idea of how to negotiate things when decisions don’t match that framework,” Dr. Barnes said.

“Sometimes administrators have additional information that they’re not sharing,” she added. “They’re caught between a rock and a hard place regarding the decisions they have to make, but they need to be more transparent and not hold things so close to their vest while thinking they are helping clinicians [by doing so]. Physicians need to understand why they are being asked to do things counter to what they believe is appropriate.”

David Oliver, MD, a geriatrics and internal medicine consultant at Royal Berkshire Hospital in Reading, England, also practices as a hospital physician, a role similar to the hospitalist in the United States. “In any system, in any environment, the job of being a doctor, nurse, or other health professional carries a lot of responsibility. That is a timeless, inherent stress of medical practice. With COVID, we’ve seen a lot of emotional burdens – a whole separate set of problems outside of your control, where you are responsible for care but don’t have accountability,” he said.

“People like me, hospital doctors, are used to chronic workforce issues in the National Health Service. But we didn’t sign up to come and get COVID and be hospitalized ourselves.” More than 850 frontline health care providers in the United Kingdom have so far died from the virus, Dr. Oliver said. “I saw five patients die in 90 minutes one day in April. That’s above and beyond normal human capacity.”



Dr. Dzung



Dr. Wocial

In England specifically, he said, it has exposed underlying structural issues and serious workforce gaps, unfilled vacancies, and a much lower number of ICU beds per 100,000 population than the United States or Europe. And there is consistent pressure to send patients home in order to empty beds for new patients.

But a range of supportive services is offered in U.K. hospitals, such as making senior clinicians available to speak to frontline clinicians, providing mentorship and a sounding board. The Point of Care Foundation has helped to disseminate the practice of Schwartz Rounds, a group reflective practice forum for health care teams developed by the Schwartz Center for Compassionate Healthcare in Boston.

“We don’t need this clap-for-the-NHS heroes stuff,” Dr. Oliver said. “We need an adequate workforce and [better] working conditions. What happened on the front lines of the pandemic was heroic – all done by local clinical teams. But where was the government – the centralized NHS? A lot of frontline clinicians aren’t feeling valued, supported, or listened to.”

### What can be done?

What are some things that hospitalists can do, individually and collectively, to try to prevent moral distress from turning into full-scale burn-out? Dr. Wocial emphasized the importance of unit-based ethics conversations. “At IU Health we have someone who is available to sit down with frontline clinicians and help unpack what they are experiencing,” she said. Clinicians need to be

able to process this terrible experience in order to sort out the feelings of sadness from questions of whether they are doing something wrong.

Hospital chaplains are exquisitely skilled at supporting people and debriefing hospital teams, Dr. Wocial added. Palliative care professionals can facilitate goals of care conversations with patients and families and can support hospitalists through coaching and joint family meetings.

“It’s about raising your sense of agency in your job – what in your practice you can control. People need to be able to talk frankly about it. Some managers say to clinicians: ‘Just buck up,’ while others are doing a fabulous job of offering support to their staff,” Dr. Wocial said. Hospitalists have to be willing to say when they’ve had too much. “You may not get help when you first ask for it. Be persistent. Asking for help doesn’t make you weak.”

SHM’s Wellbeing Taskforce has created a “Hospital Medicine COVID Check-In Guide for Self & Peers” to promote both sharing and support for one another. It can be found at SHM’s Wellbeing webpage [[www.hospitalmedicine.org/practice-management/wellbeing/](http://www.hospitalmedicine.org/practice-management/wellbeing/)]. The Taskforce believes that sharing common stressors as hospitalists can be healing, said its chair, Sarah Richards, MD, assistant professor of medicine at the University of Nebraska, Omaha. “This is especially true in situations where we feel we can’t provide the type of care we know our patients deserve.”

### Respect, advocacy, self-care

Dr. Asken encouraged clinicians to focus on the efforts they are making on the job, not just the

outcomes. “If someone has done their absolute best in a given circumstance, satisfaction and solace needs to be taken from that,” he said.

“Ongoing support group meetings, which we have called frontline support groups, should occur on a regular basis. Designated for physicians on the medical floors and in critical care units who are directly involved with COVID patients, these provide a brief respite but also engagement, sharing, and strengthening of mutual support.”

A lot of these issues have a fundamental thread, which comes down to respect, Dr. Barnes said. “Hospitalists need to hear their hospital administrators say: ‘I hear what you’re saying [about a problem]. Let’s think together about how to solve it.’ We need to work on being clear, and we need to speak up for what’s right. If you aren’t comfortable doing things you are being asked to do in the hospital, maybe you’re not working in the right place.”

Some efforts in the area of wellness and self-care really are helpful, Dr. Barnes said. “But you can’t exercise your way through a health system that doesn’t respect you. You need to get out of the mindset that you have no ability to make things different. We are not powerless as doctors. We can do a lot, actually. Physicians need to take ownership. If you are a hospitalist and you’re not part of any local or state or national organization that advocates for physicians, you should be.”

For a full list of references, see the online version of this article at [www.the-hospitalist.org](http://www.the-hospitalist.org).



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# Navigating challenges in COVID-19 care

Early strategies for adapting to a moving target

By Saurin Gandhi, DO;  
Kristin Mondy, MD;  
Johanna Busch, MD; and  
W. Michael Brode, MD

During the early months of the COVID-19 pandemic, hospital groups and systems scrambled to create protocols and models to respond to the novel coronavirus. In the pre-pandemic world, hospital groups have traditionally focused on standardizing clinical protocols and care models that rely on evidence-based medical practices or extended experience.

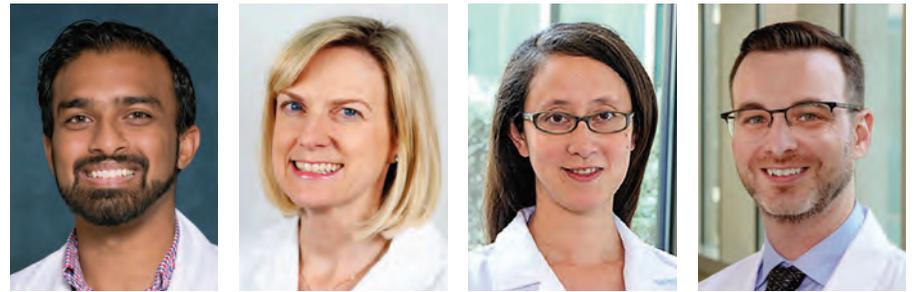
During COVID-19, however, our team at Dell Medical School needed to rapidly and iteratively standardize care based on evolving science, effectively communicate that approach across rotating hospital medicine physicians and residents, and update care models, workflows, and technology every few days.

Our initial inpatient strategies focused on containment, infection prevention, and bracing ourselves

rather than creating a COVID Center of Excellence. In fact, our hospital network's initial strategy was to have COVID-19 patients transferred to a different hospital within our network. However, as March progressed, we became the designated COVID-19 hospital in our area's network because of the increasing volume of patients we saw.

Patients from the surrounding regional hospitals were transferring their COVID-19 patients to us and we quickly saw the wide spectrum of illness, ranging from mild pneumonia to severe disease requiring mechanical ventilation upon admission. All frontline providers felt the stress of needing to find treatment options quickly for our sickest patients. We realized that, to provide safe, effective, and high-quality care to COVID-19 patients, we needed to create a sustainable and standardized interdisciplinary approach.

COVID-19 testing was a major challenge when the pandemic hit as testing kits and personal protective equipment were in limited supply.



Dr. Gandhi

Dr. Mondy

Dr. Busch

Dr. Brode

*Dr. Gandhi is an assistant professor in the department of internal medicine at Dell Medical School, University of Texas, Austin. Dr. Mondy is chief of the division of infectious disease and associate professor in the department of internal medicine at Dell Medical School. Dr. Busch and Dr. Brode are assistant professors in the department of internal medicine at Dell Medical School. This article is part of a series originally published in The Hospital Leader, the official blog of SHM.*

How would we choose who to test or empirically place in COVID-19 isolation? In addition, we faced questions surrounding safe discharge practices, especially for patients who could not self-isolate.

In March, emergency use authorization for hydroxychloroquine was granted by the U.S. Food and Drug Administration despite limited data. This resulted in pressure from the public to use this drug in our patients. At the same time, we saw that some patients quickly got better on their own with supportive care. As clinicians striving to practice evidence-based medicine, we certainly did not want to give patients an unproven therapy that could do more harm than good. We also felt the need to respond with statements about what we could do that worked – rather than negotiate about withholding certain treatments featured in the news. Clearly, a “one-size-fits-all” approach to therapeutics was not going to work.

It became apparent that we needed to create structures to rapidly adjudicate and integrate emerging science into standardized clinical care delivery.

In response to these challenges, we created early-morning meetings or “huddles” among COVID-19 care teams and hospital administration. A designated “COVID ID” physician from Infectious Diseases would meet with hospitalist and critical care teams each morning in our daily huddles to review all newly admitted patients, current hospitalized patients, and patients with pending COVID-19 tests or suspected initial false-negative tests.

Together, and via the newly developed Therapeutics and Informatics Committee, we created early treatment recommendations based upon available evidence, treatment availability, and the patient's severity of illness. Within the first 10 days of admitting our first patient, it had become standard practice to review eligible patients soon after admission for therapies such as convalescent plasma, and, later, remdesivir and steroids.

We codified these consensus recommendations and processes in our Dell Med COVID Manual, a living document that was frequently updated and disseminated to our group. It created a single “true north” of standardized workflows for triage, diagnosis, management, discharge coordination, and end-of-life care. The document allowed for continuous and asynchronous multiperson collaboration and extremely rapid cycles of improvement.

This approach – communicating frequently, adapting on a daily to weekly basis, and continuously scanning the science for opportunities to improve our care delivery – created a culture of engagement, collaboration, and shared problem-solving that helped us stay organized, keep up to date with the latest science, and innovate rather than panic when faced with ongoing unpredictability and chaos in the early days of the pandemic. The infrastructure and systems of communication that we have set in place will allow us to be nimble in our response as COVID-19 numbers surge in our region.

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## Diversity, Equity, and Inclusion

## Disparities and racism in health care

From Anarcha Westcott to George Floyd to the Atlanta massacre

By Raghava Nagaraj, MBBS, MPH, SFHM; Brianna C. Haller, PA-C, MMS; and Chi-Cheng Huang, MD, FACP, SFHM

The Atlanta spa massacre, the commencement of the George Floyd trial, and COVID-19 highlight societal inequalities and health disparities among minority groups. We can only hope that we have arrived at the tipping point to address historical institutional racism and structural violence in this country.

Admittedly, we, as health care professionals, have been at best apathetic and at worst complicit with this tragedy. Dr. James Sims, the father of gynecology, perfected his surgical techniques of vaginal fistula on enslaved women. Starting in 1845, he performed over thirty surgeries without anesthesia on Anarcha Westcott. Moreover, the past century was dotted with similar transgressions such as the Tuskegee Untreated Syphilis Experiment from 1932 to 1972, the use of the cells of Henrietta Lack in 1951, and the disproportionate lack of funding of sickle cell research. We must move from complicit/apathetic to being part of the discourse and solution.

The juxtaposition of George Floyd's cry of "I can't breathe" and the disproportionate way in which COVID-19 has affected Black communities and people of color highlights how deeply entrenched the problem of systemic racism is in the United States. The innumerable reported hate crimes against Asian Americans stemming from xenophobia linked to the COVID-19 pandemic and the stereotyping of Hispanic Americans as criminals during the last U.S. administration demonstrate that all minority racial/ethnic groups are affected. As clinicians who care for the health of our communities and strive to reduce suffering, we have a responsibility to identify discrimination that exists in the health care system – ranging from subtle implicit bias to overt discrimination.

Unconscious bias and its effect on diversity and inclusion has only recently been recognized and addressed in the realm of health care as applied to clinicians. This is key to structural racism as providers inadvertently use unconscious bias every day to make their medical decisions quick and efficient. As Dayna Bowen Matthews points out in her book, "Just Medicine" (New York: New York University Press, 2015), "where health and health care are concerned, even when implicit biases are based on seemingly benign distinctions, or supported by apparently rational or widely held observations, these biases can cause grave individual, group, and societal harm that is commensurate to and even exceeds the harm caused by outright racism."

In order to tackle structural racism in health care, organizations must take a multifaceted approach. Evidence-based strategies include creation of an inclusive workforce, diversification of the workforce to better represent patient popula-

tions, and education/training on the effect of implicit bias on equitable health care. These aspirations can provide a framework for interventions at all levels of health care organizations.

The JEDI (justice, equity, diversity, and inclusion) committee of the section of hospital medicine at Wake Forest Baptist Health System came into existence in November 2019. The objective was to use evidence-based methods to help create an environment that would lead to the creation of a diverse and inclusive hospital medicine group. Prior to establishing our committee, we interviewed providers from traditional minority groups who were part of our practice to bring clarity to the discrimination faced by our providers from colleagues, staff, and patients. The discrimination varied from microaggressions caused by implicit biases to macroaggression from overt discrimination. We initiated our work on this platform by following evidence-based methods.

**Creation of an inclusive workforce.** Our working committee included members of varied backgrounds and experiences who were passionate about enhancing equity while focusing on inclusion and wellness. The committee brainstormed ideas for interventions that could make a positive impact for our teammates.

Individual providers voted to choose the interventions that would positively impact their inclusion and health. Using a validated survey, we were able to measure the degree of inclusion of our work group based on multiple demographics including age, gender, race/ethnicity, training, etc. Our intention is to complete the proposed interventions before remeasuring inclusion to understand the effect of our work.

**Diversifying the workforce.** Although our section of hospital medicine at Wake Forest Baptist Health System includes providers self-identifying as people of color, we do not adequately mirror the racial composition of the population we serve. To achieve the desired result, we have made changes to our recruiting program. The section of hospital medicine visibly demonstrates our commitment to diversity and displays our values on our website.

**Education and training on impact of implicit bias on equitable health care.** Implicit bias training will have to consist of actions that would help our clinicians recognize their own prejudices and find means to mitigate them. We have committed to bystander education that would give practice and words to our providers to speak up in situations where they see discrimination in the workplace that is directed against patients, staff, and colleagues. Continued attention to opportunities to further awareness on this subject is vital.

On Jan. 6, 2021, we saw another stark reminder



Dr. Nagaraj



Ms. Haller



Dr. Huang

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of where we came from and just how far we have to go. White supremacists incited by their perceived threat to a legacy of centuries of suppression transformed into a mob of insurrectionists, blatantly bearing Confederate and Nazi flags, and seemingly easily invaded and desecrated the U.S. Capitol. On March 16, 2021, a White male who was "having a bad day" ended the lives of eight individuals, including six Asian Americans.

These instances have brought forth the reality that many of our interventions have been directed toward subtle prejudices and microaggressions alone. We have skirted around calling out overt discrimination of minority groups and failed to openly acknowledge our own contribution to the problem.

This newly found awareness has created an opportunity for more impactful work. The equitable delivery of health care is dependent on creating a patient-provider relationship based on trust; addressing overt discrimination respectfully; and overcoming unconscious bias.

While we have made the commitment to confront structural racism in our workplace and taken important steps to work toward this goal with the initiatives set forth by our JEDI committee, we have a long way to go. George Floyd spent the last 8 minutes and 46 seconds of his life struggling to breathe and asking for his mother. Let's not waste another second and instead be the change that we seek in health care.

*For a complete list of references, see the online version of this article at [www.the-hospitalist.org](http://www.the-hospitalist.org).*

## Hospitalist Insight

## Cultivating emotional awareness

A path to resilience and joy in the hospital

By Leif Hass, MD

Approaching the nursing unit, I heard the anxiety in my masked colleagues' voices. I was starting another rotation on our COVID unit; this week I was trying to develop my emotional awareness in an effort to help with the stress of the job and, just as importantly, take in the moments of positive emotions when they arose. I was making a conscious effort to take in all I saw and felt in the same way I approached my patient examinations: my mind quiet, receptive, and curious.

Seeing my nursing teammates covered with personal protective equipment, I felt a little reverence at the purpose they bring to work. Thinking of our patients, isolated and scared in noisy, ventilated rooms, I felt compassion welling up in my chest. Thinking about my role on the team, I felt humbled by the challenges of treating this new disease and meeting the needs of staff and patient.

A few years ago, a period of frustration and disaffectedness had led me to apply my diagnostic eye to myself: I was burning out. Developing a mindfulness practice has transformed my experience at work. Now, the pandemic pushed me to go beyond a few minutes of quieting the mind before work. I was developing my emotional awareness. A growing body of research suggests that emotional awareness helps temper the negative experiences and savor the good. This week on the COVID unit was an opportunity to put this idea to the test.

Across the hall from the desk was Ms. A, 85-year-old woman who always clutched her rosary. She had tested positive for COVID about 7 days before – so had all the people in her multigenerational home. Over the din of the negative-pressure machine, with damp eyes she kept saying she wanted to go home. I felt my body soften, and in my chest, it felt as if my heart moved toward her which is the manifestation of compassion. “I will do my best to get you there soon,” I said.

We often resist strong emotions, especially at work, because they can increase stress in situations where we need to be in control. In

high-emotion situations, our brain's warning centers alert both body and brain. This has helped our ancestors over the millennia, but in the hospital, these responses hurt more than help. Our bodies amplifying the emotion, our mind races for solutions and we can feel overwhelmed.

Simply recognizing the emotion and naming it puts the brakes on this process. fMRI data demonstrate that naming the emotions moves the brain activity away from the emotion centers to the appraisal centers in the frontal lobe. Just the perspective to see the emotional process calms it down.

Name it to tame it – this is what those in the field call this act.

Down the hall was Mr. D, an 81-year-old former Vietnamese refugee. He had come in 3 days prior to my coming on service. While he didn't talk, even with an interpreter, he ate well and had looked comfortable for days on 50% O<sub>2</sub>.

Ms. A's O<sub>2</sub> needs crept up each day as did her anxiety, the plaintive tenor of her prayers and inquiries about going home. I got a priest to visit, not for last rites but just for some support. Over the phone, I updated the family on the prognosis.

A couple of days later, she needed 95% O<sub>2</sub> and with PO<sub>2</sub> was only 70. I told her family it seemed she was losing her battle with the virus. I said we could see how she did on 60% – that's the max she could get at home with hospice. I called them after 2 hours on 60% to tell them she was up eating and despite slight increased resp rate, she looked okay. “Can you guarantee that she would not make it if she stayed in the hospital?”

My body vibrating with uncertainty, I said, “I am sorry, but this is such a new disease, I can't say that for certain.” On the call, family members voiced different opinions, but they were unable to give up hope, so we agreed to keep her in hospital.

Down the hall, Mr. D had stopped eating and his sats dropped as did his blood pressure. A nurse exited his room; I could read her body language. “That poor man is dying,” she said. I told her I agreed and called the family to offer them a chance to visit and talk about home hospice.

“He has not seen any of us in 10 months,” said his daughter, “We would love to visit and talk about

bringing him home on hospice.” The next morning four of his nine kids showed up with a quart of jook, an Asian rice porridge, for him and pastries for the staff.

They left the room smiling an hour later. “He ate all the jook and he smiled! Yes, let's work on home with hospice.” That night his blood pressure was better, and we were able to move him to 8 liters oxymizer; the staff was excited by his improvement, too.

The next day Ms. A was less responsive with sats in the 80's on 100% FiO<sub>2</sub>, but she still had this great sense of warmth and dignity about her. When I entered the room, Spanish Catholic hymns were playing, two of her kids stood leaning over the bed and on an iPod, there was a chorus of tears. Twenty family members were all crying on a Zoom call. Together this made the most beautiful soundtrack to an end of life I have ever heard. I tried hard not to join the chorus as we talked about turning off the oxygen to help limit her suffering.

We added a bolus of morphine to her drip and removed the oxygen. She closed her eyes then opened them, her breathing calmer. With the hymns and the chorus of family crying she lived another 20 minutes in the loving presence of her big family.

Leaving the room, I was flooded with “woulda, coulda, shouldas” that accompany work with so much uncertainty and high stakes. My mind went on looking for solutions when there were none. My chest ached, and I whispered to myself: “This is how sadness feels.”

By thinking about how the emotion feels in the body, we move the mind away from problem solving that can end up leading to unhealthy ruminations. Such thoughts in times of high emotions lead to that pressurized, tightness feeling we get when overwhelmed. Taking in the universal sensations of the emotions is calming and connects us with these deep human experiences in healthy ways. At the same time, the racing and ruminations stop.

Meanwhile, down the hall, Mr. D's family arrived in great spirits. He was to go home later that day with hospice. When they saw him up in the chair without the oxygen, they said: “It is a miracle! He is going



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home on hospice but having beat COVID! We can't thank you enough!”

“Don't thank me! He was cured by love and jook! What a lesson for us. Sometimes there is no better medicine than food from home and love!”

Back at the nurse's station, there were tears. Sometimes life is so full of emotion that it is hard to give it a name. Our bodies almost pulsing, our minds searching for words, it is as if an ancient process is marking a time and place in our souls.

This is awesome work. In fact, awe was what we were feeling – that sense of wonder we have in the presence of something beautiful or vast that we cannot easily comprehend. Taking in moments of awe at the power and depth of human experience is critical to keep us humble, engaged, and emotionally involved.

Cultivating emotional awareness is a simple technique to maintain equanimity as we do the emotionally turbulent work of caring for vulnerable and seriously ill members of our community. It uses the same techniques of attention and diagnosis we use on those we care for. It is a practice that can be seamlessly incorporated into our workday with no time added. Recognizing it, naming it, and feeling it will give us the resilience to handle the challenges this amazing work inevitably brings.

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