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Dr. Reginaldo Filho (left) leads the hospitalist team at Hospital São Vicente in Curitiba, Brazil.

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## Hospital medicine growing around the globe

Similar needs, local adaptations

By Larry Beresford

**H**ospital medicine has evolved rapidly and spread widely across the United States in the past 25 years in response to the health care system's needs for patient safety, quality, efficiency, and effective coordination of care in the ever-more complex environment of the acute care hospital.

But hospital care can be just as complex in other countries, so it's not surprising that there's a lot of interest

around the world in the U.S. model of hospital medicine. But adaptations of that model vary across – and within – countries, reflecting local culture, health care systems, payment models, and approaches to medical education.

Other countries have looked to U.S. experts for consultations, to U.S.-trained doctors who might be willing to relocate, and to the Society of Hospital Medicine as an internationally focused source of networking and other resources. Some U.S.-based institutions, led by the Cleveland

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# Heart failure redefined with new classifications, staging

By Debra L. Beck

The terminology and classification scheme for heart failure (HF) is changing in ways that experts hope will directly impact patient outcomes.

In a new consensus statement, a multisociety group of experts proposed a new universal definition of heart failure and made substantial revisions to the way in which the disease is staged and classified.

The authors of the statement, led by writing committee chair and immediate past president of the Heart Failure Society of America Biykem Bozkurt, MD, PhD, hope their efforts will go far to improve standardization of terminology, but more importantly will facilitate better management of the disease in ways that keep pace with current knowledge and advances in the field.

“There is a great need for reframing and standardizing the terminology across societies and different stakeholders, and importantly for patients because a lot of the terminology we were using was understood by academicians, but were not being translated in important ways to ensure patients are being appropriately treated,” said Dr. Bozkurt, of Baylor College of Medicine, Houston.

The consensus statement was a group effort led by the HFSA, the Heart Failure Association of the European Society of Cardiology, and the Japanese Heart Failure Society, with endorsements from the Canadian Heart Failure Society, the Heart Failure Association of India, the Cardiac Society of Australia and New Zealand, and the Chinese Heart Failure Association.

The article was published in the *Journal of Cardiac Failure* (doi: 10.1016/j.cardfail.2021.01.022), authored by a committee of 38 individuals with domain expertise in HF, cardiomyopathy, and cardiovascular disease.

“[HF] is a clinical syndrome with symptoms and or signs caused by a structural and/or functional cardiac abnormality and corroborated by elevated natriuretic peptide levels and/or objective evidence of pulmonary or systemic congestion.”

This proposed definition, said the authors, is designed to be contemporary and simple “but conceptually

comprehensive, with near universal applicability, prognostic and therapeutic viability, and acceptable sensitivity and specificity.”

Both left and right HF qualifies under this definition, but conditions that result in marked volume overload, such as chronic kidney disease, which may present with signs and symptoms of HF, do not.

“Although some of these patients may have concomitant HF, these patients have a primary abnormality that may require a specific treatment beyond that for HF,” said the consensus statement authors.

Overall, minimal changes have been made to the HF stages, with tweaks intended to enhance understanding and address the evolving role of biomarkers.

The authors proposed an approach to staging of HF:

- At-risk for HF (stage A), for patients at risk for HF but without current or prior symptoms or signs of HF and without structural or biomarkers evidence of heart disease.
- Pre-HF (stage B), for patients without current or prior symptoms or signs of HF, but evidence of structural heart disease or abnormal cardiac function, or elevated natriuretic peptide levels.
- HF (stage C), for patients with current or prior symptoms, signs of HF caused by a structural and/or functional cardiac abnormality.
- Advanced HF (stage D), for patients with severe symptoms and/or signs of HF at rest, recurrent hospitalizations despite guideline-directed management and therapy (GDMT), refractory or intolerant to GDMT, requiring advanced therapies such as consideration for transplant, mechanical circulatory support, or palliative care.

For his part, Douglas L. Mann, MD, of Washington University, St. Louis, is happy to see what he considers a more accurate and practical definition for heart failure.

“We’ve had some wacky definitions in heart failure that haven’t made sense for 30 years,” said Dr. Mann, who was not involved with the writing of the consensus statement.

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

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**Letters to the Editor:** rpizzi@mdedge.com

The Society of Hospital Medicine's headquarters is located at 1500 Spring Garden, Suite 501, Philadelphia, PA 19130.

**Editorial Offices:** 2275 Research Blvd, Suite 400, Rockville, MD 20850, 240-221-2400, fax 240-221-2548

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**The  
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# Making a difference

Hospitalists engaging in advocacy efforts

By Sarah Ludwig Rausch

**H**ospitalists around the country are devoting large portions of their spare time to a wide range of advocacy efforts. From health policy to care for the unhoused population to diversity and equity to advocacy for fellow hospitalists, these physicians are passionate about their causes and determined to make a difference.

## Championing the unhoused

Sarah Stella, MD, FHM, a hospitalist at Denver Health, was initially drawn there because of the population the hospital serves, which includes a high concentration of people experiencing homelessness. As she cared for her patients, Dr. Stella, who is also associate professor of hospital medicine at the University of Colorado, increasingly felt the desire to help prevent the negative downstream outcomes the hospital sees.

To understand the experiences of the unhoused outside the hospital, Dr. Stella started talking to her patients and people in community-based organizations that serve this population. “I learned a ton,” she said. “Homelessness feels like such an intractable, hopeless thing, but the more I talked to people, the more opportunities I saw to work toward something better.”

This led to a pilot grant to work with the Colorado Coalition for the Homeless to set up a community advisory panel. “My goal was to better understand their experiences and to develop a shared vision for how we collectively can do better,” said Dr. Stella. Eventually, she also received a grant from the University of Colorado, and multiple opportunities have sprung up ever since.

For the past several years, Dr. Stella has worked with Denver Health leadership to improve care for the homeless. “Right now, I’m working with a community team on developing an idea to provide peer support from people with a shared lived experience for people who are experiencing homelessness when they’re hospitalized. That’s really where my passion has been in working on the partnership,” she said.

Her advocacy role has been beneficial in her work as a hospitalist, particularly when COVID began. Dr. Stella again partnered with the

Colorado Coalition for the Homeless to start a joint task force. “Everyone on our task force is motivated by this powerful desire to improve the health and lives of this community and that’s one of the silver linings in this pandemic for me,” she said.

Advocacy work has also increased Dr. Stella’s knowledge of what community support options are available for the unhoused. This allows



Dr. Stella

*“I absolutely could not be a hospitalist without being an advocate. For me, it has been a protective strategy in terms of burnout because I have to feel like I’m working to advocate for better policies and more appropriate resources ...”*

her to educate patients about their options and how to access them.

While she has colleagues who are able to compartmentalize their work, “I absolutely could not be a hospitalist without being an advocate,” Dr. Stella said. “For me, it has been a protective strategy in terms of burnout because I have to feel

*“Advocacy means that I acknowledge that intent does not equal impact and that I must accept that what I do and what I say may have unintended consequences. ... I must resist becoming defensive and instead be willing to listen and learn.”*

like I’m working to advocate for better policies and more appropriate resources to address the gaps that I’m seeing.”

Dr. Stella believes that physicians have a special credibility to advocate, tell stories, and use data to back their stories up. “We have to realize that we have this power, and we have it so we can empower others,” she said. “The people I’ve seen in my community who are working so hard to help people who are experiencing homelessness are the heroes. Understanding that and giving power to those people through our voice and our well-respected place in society drives me.”

## Strengthening diversity, equity, and inclusion

In September 2020, Michael Bryant, MD, became the inaugural vice chair

of Diversity, Equity, and Inclusion for the department of pediatrics at Children’s Hospital Los Angeles, where he is also the division head of pediatric hospital medicine. “I was motivated to apply for this position because I wanted to be an agent for change to eliminate the institutional racism, social injustice, and marginalization that continues to threaten the lives and well-beings of so many

Americans,” Dr. Bryant said.

Between the pandemic, the economic decline it has created, and the divisive political landscape, people of color have been especially affected. “These are poignant examples of the ever-widening divide and disenfranchisement many Americans feel,” said Dr. Bryant.



Dr. Bryant

“Gandhi said, ‘Be the change that you want to see,’ and that is what I want to model.”

At work, advocacy for diversity, equality, and inclusion is an innate part of everything he does. From the new physicians he recruits to the candidates he considers for leadership positions, Dr. Bryant strives “to have a workforce that mirrors the diversity of the patients we humbly care for and serve.”

Advocacy is intrinsic to Dr. Bryant’s worldview, in his quest to understand and accept each individual’s uniqueness, his desire “to embrace cultural humility,” his recognition that “our differences enhance us instead of diminishing us,” and his willingness to engage in difficult conversations.

“Advocacy means that I acknowledge that intent does not equal

impact and that I must accept that what I do and what I say may have unintended consequences,” he said. “When that happens, I must resist becoming defensive and instead be willing to listen and learn.”

Dr. Bryant is proud of his accomplishments and enjoys his advocacy work. In his workplace, there are few African Americans in leadership roles. This means that he is in high demand when it comes to making sure there’s representation during various processes such as hiring and vetting, a disparity known as the “minority tax.”

“I am thankful for the opportunities, but it does take a toll at times,” Dr. Bryant said, which is yet another reason why he is a proponent of increasing diversity and inclusion. “This allows us to build the resource pool as these needs arise and minimizes the toll of the ‘minority tax’ on any single person or small group of individuals.”

This summer, physicians from Dr. Bryant’s hospital participated in the national “White Coats for Black Lives” effort. He found it to be “an incredibly moving event” that hundreds of his colleagues participated in.

Dr. Bryant’s advice for hospitalists who want to get involved in advocacy efforts is to check out the movie “John Lewis: Good Trouble.” “He was a champion of human rights and fought for these rights until his death,” Dr. Bryant said. “He is a true American hero and a wonderful example.”

## Bolstering health care change

Since his residency, Joshua Lenchus, DO, FACP, SFHM, has developed an ever-increasing interest in legislative advocacy, particularly health policy. Getting involved in this arena requires an understanding of civics and government that goes beyond just the basics.

“My desire to effect change in my own profession really served as the catalyst to get involved,” said Dr. Lenchus, the regional chief medical officer at Broward Health Medical Center in Fort Lauderdale, Fla. “What better way to do that than by combining what we do on a daily basis in the practice of medicine with this new understanding of how laws are passed and promulgated?”

Dr. Lenchus has been involved with both state and national medical organizations and has served on

public policy committees as a member and as a chair. “The charge of these committees is to monitor and navigate position statements and policies that will drive the entire organization,” he said. This means becoming knowledgeable enough about a topic to be able to talk about it eloquently and adding supporting personal or professional illustrations that reinforce the position to lawmakers.

He finds his advocacy efforts “incredibly rewarding” because they contribute to his endeavors “to help my colleagues practice medicine in a safe, efficient, and productive manner.” For instance, some of the organizations Dr. Lenchus was involved with helped make changes to the Affordable Care Act that ended up in its final version, as well as changes after it passed. “There are tangible things that advocacy enables us to do in our daily practice,” he said.

When something his organizations have advocated for does not pass, they know they need to try a different outlet. “You can’t win every fight,” he said. “Every time you go and comment on an issue, you have to understand that you’re there to do your best, and to the extent that the people you’re talking to are willing to listen to what you have to say, that’s where I think you can make the most impact.” When changes he has helped fight for do pass, “it really is amazing that you can tell your colleagues about your role in achieving meaningful change in the profession.”

Dr. Lenchus acknowledges that advocacy “can be all-consuming at times. We have to understand our limits.” That said, he thinks not engaging in advocacy could increase stress and potential burnout. “I think being involved in advocacy efforts really helps people conduct meaningful work and educates them about what it means not just to them, but to the rest of the medical profession and the patients that we serve,” he said.

For hospitalists who are interested in health policy advocacy, there are many ways to get involved, Dr. Lenchus said. You could join an organization (many organized medical societies have public policy committees), participate in advocacy activities, work on a political campaign, or even run for office yourself. “Ultimately, education and some level of involvement really will make the difference in who navigates our future as hospitalists,” he said.

*“We need to come together as a specialty and make a decision, which is going to be hard because there are competing financial interests and various practice models.”*

### Questioning co-management practices

Though he says he’s in the minority, Hardik Vora, MD, SFHM, medical director for hospital medicine at Riverside Regional Medical Center in Newport News, Va., believes that co-management is going to “make or break hospital medicine. It’s going to have a huge impact on our specialty.”

In the roughly 25-year history of hospital medicine, it has evolved from admitting and caring for patients of primary care physicians to patients of specialists and, more recently, sur-



Dr. Lenchus

*“I think being involved in advocacy efforts really helps people conduct meaningful work and educates them about what it means not just to them, but to the rest of the medical profession and the patients that we serve.”*

gical patients. “Now there are (hospital medicine) programs across the country that are pretty much admitting everything,” said Dr. Vora.

As a recruiter for the Riverside Health System for the past eight years, “I have not met a single resident who is trained to do what we’re doing in hospital medicine, because you’re admitting surgical patients all the time and you have primary attending responsibility,” Dr. Vora said. “I see that as a cause of a significant amount of stress because now you’re responsible for something that you don’t have adequate training for.”

In the co-management discussion, Dr. Vora notes that people often bring up the research that shows that the practice has improved surgeon satisfaction. “What bothers me is that ... you need to add one more question – how does it affect your hospitalists? And I bet the answer to that question is ‘it has a terrible effect.’”

The expectations surrounding hospitalists these days is a big concern in terms of burnout, Dr. Vora said. “We talk a lot about the drivers of burnout, whether it’s schedule or COVID,” he said. The biggest issue when it comes to burnout, as he sees it, is not COVID; it’s when hospital-



Dr. Vora

ists are performing tasks that make them feel they aren’t adding value. “I think that’s a huge topic in hospital medicine right now.”

Dr. Vora believes there should be more discussion and awareness of the potential pitfalls. “Hospitalists should get involved in co-management where they are adding value and certainly not take up the attending responsibility where they’re not adding value and it’s out of the scope of their training and expertise,” he said. “Preventing scope creep and burnout from co-manage-

ment are some of the key issues I’m really passionate about.”

Dr. Vora said it is important to set realistic goals and remember that it takes time to make change when it comes to advocacy. “You still have to operate within whatever environment is given to you and then you can make change from within,” he said.

His enthusiasm for co-management awareness has led to creating a co-management forum through SHM in his local Hampton Roads chapter. He was also a panelist for an SHM webinar last February in which the panelists debated co-management.

“I think we really need to look at this as a specialty. Are we going in the right direction?” Dr. Vora asked. “We need to come together as a specialty and make a decision, which is going to be hard because there are competing financial interests and various practice models.”

### Improving patient care

Working as a hospitalist at University Medical Center, a safety-net hospital in New Orleans, Celeste Newby, MD, PhD, sees plenty of patients who are underinsured or not insured at all. “A lot of my interest in health policy stems from that,” she said.

During her residency, which she

finished in 2015, Louisiana became a Medicaid expansion state. This impressed upon Dr. Newby how much Medicaid improved the lives of patients who had previously been uninsured. “We saw procedures getting done that had been put on hold because of financial concerns or medicines that were now affordable that weren’t before,” she said. “It really did make a difference.”

When repeated attempts to repeal the Affordable Care Act began, “it was a call to do health policy work for me personally that just hadn’t come up in the past,” said Dr. Newby, who is also assistant professor of medicine at Tulane University in New Orleans. “I personally found that the best way to do (advocacy work) was to go through medical societies because there is a much stronger voice when you have more people saying the same thing,” she said.

Dr. Newby sits on the Council of Legislation for the Louisiana State Medical Society and participates in the Leadership and Health Policy (LEAHP) Program through the Society of General Internal Medicine.

The LEAHP Program has been instrumental in expanding Dr. Newby’s knowledge of how health policy is made and the mechanisms behind it. It has also taught her “how we can either advise, guide, leverage, or advocate for things that we think would be important for change and moving the country in the right direction in terms of health care.”

Another reason involvement in medical societies is helpful is because, as a busy clinician, it is impossible to keep up with everything. “Working with medical societies, you have people who are more directly involved in the legislature and can give you quicker notice about things that are coming up that are going to be important to you or your co-workers or your patients,” Dr. Newby said.

Dr. Newby feels her advocacy work is an outlet for stress and “a way to work at more of a macro level on problems that I see with my individual patients. It’s a nice complement.” At the hospital, she can help only one person at a time, but with her advocacy efforts, there’s potential to make changes for many.

“Advocacy now is such a large umbrella that encompasses so many different projects at all kinds of levels,” Dr. Newby said. She suggests looking around your community to see where the needs lie. If you’re passionate about a certain topic or population, see what you can do to help advocate for change there.

# The skill set of the ‘pluripotent’ hospitalist

Wellness has become a critical issue during the pandemic

By Jeff Craven

A hospitalist isn't just a physician who happens to work in a hospital. They are medical professionals with a robust skill set that they use both inside and outside the hospital setting. But what skill sets do hospitalists need to become successful in their careers? And what skill sets does a “pluripotent” hospitalist need in their armamentarium?

These were the issues discussed by participants of a virtual roundtable discussion on National Hospitalist Day – March 4, 2021 – as part of a joint effort of the Society of Hospital Medicine and the Explore the Space podcast.

Maylyn S. Martinez, MD, clinician-researcher and clinical associate at the University of Chicago, sees her hospitalist and research skill sets as two “buckets” of skills she can sort through, with diagnostic,

knowledge-based care coordination, and interpersonal skills as lanes where she can focus and improve. “I’m always trying to work in, and sharpen, and find ways to get better at something in each of those every day,” she said.

For Anika Kumar, MD, FHM, FAAP, pediatric editor of the Hospitalist and clinical assistant professor of pediatrics at the Cleveland Clinic Lerner College of Medicine, much of her work is focused on problem solving. “I approach that as: ‘How do I come up with my differential diagnosis, and how do I diagnose the patient?’ I think that the lanes are a little bit different, but there is some overlap.”

Adaptability is another important part of the skill set for the hospitalist, Ndidi Unaka, MD, MEd, associate professor in the division of hospital medicine at Cincinnati Children’s Hospital Medical Center, said during the discussion. “I think we all really value teamwork, and we take on the role of being the coordinator and making sure things are getting done in a seamless and thoughtful manner. Communicating with families, communicating with our research team, communicating with primary care physicians. I think that is something we’re very used to doing, and I think we do it well. I think we don’t shy away from difficult conversations with consultants. And I think that’s what makes being a hospitalist so amazing.”

## State of wellness for a hospitalist

Another topic discussed during the roundtable was “comprehensive care



Dr. Dhaliwal

*“If we connect to our purpose – ‘what are we doing here and how do we connect?’ – it’s either learning about patients and their stories, being with a team of people that you work with, that really builds that purpose.”*

*“I love my clinical time. It’s one of my favorite things that I do. I feel like I am not only giving back to my patients and my team, but I’m also giving back to myself and reminding myself why it is I do what I do every day.”*



Dr. Kumar



Dr. Martinez

*“I think we always have a hard time leaving work at work and getting a good night’s sleep. I just could not let go of worrying about these patients and having terrible insomnia, trying to leave work at work and I couldn’t.”*

for the hospitalist” and how they can achieve a sense of wellness for themselves. Gurpreet Dhaliwal, MD, clinician-educator and professor of medicine at the University of California, San Francisco, said long-term satisfaction in one’s career is less about compensation and more about autonomy, mastery, and purpose.

“Autonomy is shrinking a little bit in health care. But if we connect to our purpose – ‘what are we doing here and how do we connect?’ – it’s either learning about patients and their stories, being with a team of people that you work with, that really builds that purpose,” he said.

Regarding mastery, there’s “tremendous joy if you’re in an environment where people value your mastery, whether it is working in a team or communicating or diagnosing or doing a procedure. If you think of setting up the work environment and those things are in place, I think a lot of wellness can actually happen at work, even though another component, of course, is balancing your life outside of work,” Dr. Dhaliwal said.

This may seem out of reach during COVID-19, but wellness is still achievable during the pandemic,

Dr. Martinez said. Her time is spent 75% as a researcher and 25% as a clinician, which is her ideal balance. “I enjoy doing my research, doing my own statistics and writing grants and just learning about this problem that I’ve developed an interest in,” she said. “I just think that’s an important piece for people to focus on as far as health care for the hospitalist, is that there’s no one-size-fits-all, that’s for sure.”

Dr. Kumar noted that her clinical time gives her energy for nonclinical work. “I love my clinical time. It’s one of my favorite things that I do,” she said. Although she is tired at the end of the week, “I feel like I am not only giving back to my patients and my team, but I’m also giving back to myself and reminding myself why it is I do what I do every day,” she said.

Wellness for Dr. Unaka meant remembering what drew her to medicine. “It was definitely the opportunity to build strong relationships with patients and families,” she said. While these encounters can sometimes be heavy and stay with a hospitalist, “the fact that we’re in it with them is something that gives a lot of us purpose. I think that when I reflect on all of those things, I’m so happy that I’m in the role that I am.”

## Editor’s note

*National Hospitalist Day occurs the first Thursday in March annually, and serves to celebrate the fastest growing specialty in modern medicine and hospitalists’ enduring contributions to the evolving health care landscape. On National Hospitalist Day in 2021, SHM convened a virtual roundtable with a diverse group of hospitalists to discuss skill set, wellness, and other key issues. On the following pages, we also highlight the work of two hospitalist clinician-educators.*



D.JELIC/S/GETTY IMAGES



Dr. Shapiro

*“It is important to acknowledge that, as hospitalists who have been out on the bleeding edge for a year, mental health is critically important, and we know that we face shortages in that space for the public at large and also for our profession.”*

#### Unique skills during COVID-19

Mark Shapiro, MD, hospitalist and host of the roundtable and the Explore the Space podcast, also asked the panelists what skills they unexpectedly leveraged during the pandemic. Communication – with colleagues and with the community they serve – was a universal answer among the panelists.

“I learned – really from seeing some of our senior leaders here do it so well – the importance of being visible, particularly at a time when people were not together and more isolated,” Dr. Unaka said. “I think being able to be visible when you can, in order to deliver really complicated or tough news or communicate about uncertainty, for instance. Being here for our residents – many of our interns moved here sight unseen. I think they needed to feel like they had some sense of normalcy

and a sense of community. I really learned how important it was to be visible, and available, and how important the little things mattered.”

Dr. Martinez said that worrying about her patients with COVID-19 in the hospital and the uncertainty around the disease kept her up at night. “I think we always have a hard time leaving work at work and getting a good night’s sleep. I just could not let go of worrying about these patients and having terrible insomnia, trying to leave work at work and I couldn’t – even after they were discharged.”

Dr. Shapiro said the skill he most needed to work on during the pandemic was his courage. “I remember the first time I took care of COVID patients. I was scared. I have no problems saying that out loud. That was a scary experience.”

The demeanor of the nurses on his

*“I learned – really from seeing some of our senior leaders here do it so well – the importance of being visible, particularly at a time when people were not together and more isolated.”*



Dr. Unaka

unit, who had already seen patients with COVID-19, helped ground him during those moments and gave him the courage to move forward. “They’d already been doing it and they were the same. Same affect, same jokes, same everything,” he said. “That actually really helped, and I’ve leaned on that every time I’ve been back on our COVID service.”

#### Importance of mental health

The COVID-19 pandemic has also shined a light on the importance of mental health. “I think it is important to acknowledge that, as hospitalists who have been out on the bleeding edge for a year, mental health is critically important, and we know that we face shortages in that space for the public at large and also for our profession,” Dr. Shapiro said.

When asked about what mental health and self-care look like

for her, Dr. Kumar referenced the need for exercise, meditation, and yoga. “My mental health was better knowing that the people closest to me – whether they be colleagues or friends or family – their mental health was also in a good place and they were also in a good place. And that helped to build me up,” she said.

Dr. Unaka called attention to the stigma around mental health, particularly among physicians, and the lack of resources to address the issue. “It’s a real problem,” she said. “I think it’s at a point where we as a profession need to advocate on behalf of each other and on behalf of our trainees. And honestly, I think we need to view mental health as just ‘health’ and stop separating it out in order for us to move to a place where people feel like they can access what they need without feeling shame about it.”



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# A 'Hospitalist Plus': Grace C. Huang, MD

**G**race C. Huang, MD, is a hospitalist at Beth Israel Deaconess Medical Center and associate professor at Harvard Medical School, both in Boston.

Dr. Huang currently serves as vice chair for career development and mentoring in the department of medicine at Beth Israel Deaconess, as well as director of the Office of Academic Careers and Faculty Development, and codirector of the Beth Israel Deaconess Academy of Medical Educators. She is also director of the Rabkin Fellowship in Medical Education, a program for Harvard Medical School faculty designed to help develop the skills needed to launch or advance academic careers in medical education or academic leadership.

Additionally, Dr. Huang is the editor in chief of MedEdPORTAL, an open-access journal of the Association of American Medical Colleges.

## At what point in your training did you decide to practice hospital medicine?

I trained at a point in time where it was rare for people to aspire to go into hospital medicine. It just wasn't that common, and there were so few examples of what a career trajectory in hospital medicine would look like. So I don't know that I actively chose to go into hospital medicine; I chose it because it was what I knew how to do, based on my residency experience.

But it is really easy and authentic for me now to share about what makes hospital medicine such a vibrant career choice. I'm doing a lot of things in my job other than hospital medicine, but when I am on service, it reminds me acutely what it means to stay connected to why I became a doctor. The practice of hospital medicine means to be there at the most intense time of many people's lives, to shoulder the responsibility of knowing that what I say to my patients will be remembered forever, and to be challenged by some of medicine's hardest problems.

Hospital medicine has a way of putting you at the nexus of individual, family, society, government, and planet. But it also means that, even while I am witness to disease, suffering, broken relationships, social injustice, and environmental issues, I get a privileged look at what it means to comfort, to identify what really matters to people, to understand what gives us dignity as human beings. Lastly, I always come back to the fact that working as a team has made my clinical job so much more enriching; it's not trench warfare, but you do create bonds quickly with learners, colleagues, and other health professionals in such an intense, fast-paced environment.

## What is your current role at Beth Israel Deaconess Medical Center?

At Beth Israel Deaconess, I'm holding four different jobs. It's sometimes hard for me to keep track of them, but they all center on career and faculty development. I'm a vice chair for career development within the department of medicine, and I also have an institutional role for faculty development for clinicians, educators, and researchers. I provide academic promotion support for the faculty, provide ad hoc mentorship, and run professional development



Dr. Grace C. Huang

programming. I also direct a year-long medical education fellowship. On the side, I am the editor in chief for a medical education journal.

## What are your favorite areas of clinical practice and research?

Being a generalist means I love a lot of areas of clinical practice. I'm not sure there's a particular area that I enjoy more than others. I love teaching specific topics – antibiotics, pharmacology, direct oral anticoagulants, the microbiology of common infections. I love thinking about how the heart and kidney battle for dominance each day and being the mediator. I have a particular interest in high-value care and lab ordering (or the fact that we should do much less of it). I love complex diagnostic problems and mapping them out on paper for my team.

The research that I've been doing over the past 20 years has focused on how we train internists and internists-to-be to do bedside procedures. It stemmed from my own ineptitude in doing procedures, and it caused me to question the age-old approach we took in sticking needles into patients without standardized training, supervision, or safety measures.

I've been proud of the small role I've been able to play in influencing how residents are taught to do procedures, and now I'm working with others to focus on how we should teach procedures to hospitalists, who don't do procedures on a regular basis, and aren't under the same expectations for ongoing skill development.

## What are the most challenging aspects of practicing hospital medicine, and what are the most rewarding?

The intensity is probably what's hardest for me about hospital medicine. At this point in my career, if I'm on service for a week, it takes me just as long to recover. It's the cognitive load of needing to keep track of details that can make a big difference, the rapidity at which patients can de-

teriorate, the need to change course in an instant because of new information, and wanting to be mentally present and available for my patients and my learners.

It's also hard to see suffering up close and personal and to leave feeling helpless to change the course of severe illness or to optimize care within the constraints of the health care system. This is why I do – and have to – extract satisfaction from the smallest of wins and brief moments of connection. Like seeing a patient turn the corner after being on the brink. Or gaining trust from an initially upset family member. Getting a copy of the eulogy from the daughter of my patient. A phone call from a patient I cared for 18 months ago, thanking me for my care. Visiting patients in the hospital socially that I had gotten to know over the years.

## How has COVID-19 most impacted hospitalist practice?

What you read in the lay press has put a spotlight on hospital-based work. What has been shared resonates with my own experience – the loss of connection from visitor restrictions, the isolation patients experience when everyone is wearing personal protective equipment, the worsening of everything that was already hard to begin with, like health care disparities, mental health, access to community supports, financial challenges, the disproportionate burden on unpaid caregivers, etc.

After the pandemic is "over," I hope that we will retain a sense of intentionality how we address limited resources, the importance of social connection, the structural racism that has disadvantaged patients and physicians of color.

## Are there any particular mentors who have been influential in your journey?

Because I'm one of the older hospitalists in my group, there were fewer mentors, other than my boss, Joe Li, MD, SFHM [section chief in hospital medicine at Beth Israel Deaconess], who has been an amazing role model. I think also of my colleagues as peer mentors, who continue to push me to be a better doctor. Whether it means remaining curious during the physical exam, or inspiring me with excitement about clinical cases.

## Do you have any advice for students and residents interested in hospital medicine?

When I talk to trainees about career development, I encourage them to think about what will make them a "Hospitalist Plus." Whether that Plus is teaching, research, or leadership, being a hospitalist gives you an opportunity to extend your impact as a physician into related realms.

I look around at our hospital medicine group, and every person has their Plus. We have educators, quality improvement leaders, a health services researcher, a health policy expert, a textbook editor – everyone brings special expertise to the group. My Plus now is much bigger than my footprint as a hospitalist, but I would never have gotten here had I not chosen a career path that would allow me to explore the farthest reaches of my potential as a physician.

# Owning all aspects of patient care: Bridget McGrath, PA-C, FHM

**B**ridget McGrath, PA-C, FHM, is a physician assistant and director of the nurse practitioner/physician's assistant service line for the section of hospital medicine at the University of Chicago. She is a cochair of SHM's NP/PA Special Interest Group.

## Where did you receive your PA education and training?

I graduated from the PA program at Butler University, Indianapolis, in 2014. In college, whenever I shadowed a PA, I was always impressed that each one loved their job and said they would never change it. That universal passion for the PA profession really made an impression on me.

## At what point in your training did you decide to practice hospital medicine?

That occurred during my clinical rotation year at Butler. I had always thought I wanted to practice neonatology, but during my clinical rotation I really fell in love with adult medicine. I recall that, during my clinical rotation, the preceptor said to me that the goal was not to have me understand every aspect of medicine, but to learn how to exist in a hospital setting. I was exposed to the breadth of hospital medicine practice and I fell in love with the complexity, the variety, and the environment itself.

I initially accepted a job as a med-peds hospitalist PA – which brought both of my passions together at that time – at Schneck Medical Center in Seymour, Ind. During that time, Schneck was a 100-bed rural community hospital which had recently been the recipient of the Malcolm Baldrige National Quality Award. It was there that I was able to practice with a phenomenal group of physicians, nurses, and social workers who really took me under their wing and taught me how to be a hospitalist PA. I practiced at Schneck for 3 years, and then moved to the University of Chicago in 2017.

I am now the director of NP/PA services for the section of hospital medicine, overseeing a group of seven on our NP/PA team, within a larger group of about 60 physicians.

## What are your favorite areas of clinical practice?

Like many hospitalists, I enjoy the

variety of medicine that hospitalists practice. One area that I find especially rewarding is my time in our transplant comanagement services. To be able to walk with patients on their transplant journey is very rewarding, and I am very appreciative of the mentoring I have received from colleagues with a deeper understanding of transplant medicine.

In my administrative role, I have the privilege of helping to expand the professional education and training of my colleagues. I have a passion for medical education, and we have been working to develop interprofessional educational opportunities within our section. I have had time to think about the imprint of NPs and PAs in academic medicine, and how we can continue to meet the professional educational needs of our section while improving the care of our patients.

## What are the most challenging aspects of hospital medicine?

The volume of diagnoses that we are expected to manage on a daily basis can be challenging. This challenges you to continue learning. The complexity of discharge planning, particularly for patients in underserved communities, can also be challenging. You have to make sure your patients are ready mentally, physically, and emotionally for discharge. As a hospitalist, you are continuously thinking about how to optimize patients to leave your care. For example, patients have different insurance situations, different access to care at home – you are always managing the medical needs of your patient in the context of these other issues.

## How does a hospitalist PA work differently from a PA in other care settings?

We are meant to be generalists. We serve as the main provider in owning our patients' care. A hospitalist PA serves as a cog in the wheel, with connections to specialists, consultants, nurses, social workers, pharmacists, etc., and we are tasked with synthesizing all aspects of patient care to ensure the best outcome.

## How can NPs and PAs best fit into hospital medicine groups?

Each hospital medicine group will know how to best integrate



Bridget McGrath

their NPs and PAs based on the skillsets of their NPs and PAs, and the needs of the section and the hospital. I personally feel that the best way to utilize NPs and PAs is to allow them to own all aspects of patient care and work at the highest scope of practice. By doing this you empower the NP or PA to continue to develop their skill set and set a precedent of collaboration and respect for interprofessional care models within your section's culture.

Scope of practice for an NP or PA is going to be based on a conglomeration of roles and bylaws. We are certified nationally, and our scope of practice is determined at the state level and the hospital by level. For the individual NP and PA, it really depends on the hospital medicine group, and how well a practice incorporates a sense of collegiality.

## What resources do hospitalist PAs need to succeed?

There are a few key things that need to happen in order for hospital medicine groups to set up their NPs and PAs for success. The first is for PAs to have exposure to inpatient rotations during clinical rotations. A hospital medicine group also should have a very intentional onboarding process for NPs and PAs. They should also establish a culture of acceptance. To do this, they should

utilize resources like SHM's NP/PA Hospital Medicine Onboarding Toolkit and the SHM/American Academy of Physician Assistants Hospitalist Bootcamp On Demand.

Mentoring is remarkably important. I have been incredibly blessed to have mentors that helped make me into the PA that I am. I could not have done what I did in the field without people taking a chance on me, and it is important to pass that on to the next generation of PAs.

## How has COVID-19 changed the practice of hospital medicine, specifically for NPs and PAs?

The pandemic has demonstrated opportunities for teamwork and utilization of NPs and PAs. COVID forced everyone to reflect on why they originally got into medicine – to help patients. I think there will be many doors opening for NPs and PAs and pathways for leadership.

The hospitalist leadership at the University of Chicago truly identified that we needed to make wellness a main priority during the beginning of the pandemic. We developed a wellness work group that I have been coleading.

## What's on the horizon for NPs and PAs in hospital medicine?

We are seeing significant increases in hospitalist program utilization, so this is a time where NPs and PAs can be advocates for our profession and articulate how we can use our backgrounds and training to build better care models in order to meet the needs of our patients.

I hope we will see more NPs and PAs assuming leadership roles to ensure that our voices are heard. We should also be advocating for more collaboration and teamwork with our MD and DO colleagues.

## Do you have any advice for PA students interested in HM?

I always tell my students that they should be sponges – you are not expected to know everything as a hospitalist PA, but you are expected to continue learning in order to develop into the best PA you can be. Always be open to where your career path can take you. Hospital medicine is a relatively young field within medicine, and the diversity of our field is very exciting.

# The interplay between staffing and scheduling

Top five findings from the 2020 SoHM

By Amanda Trask, MBA, MHA, FACHE, SFHM, FACMPE

The biennial *State of Hospital Medicine (SoHM)* Report was released in fall 2020, reflecting surveys collected just as the pandemic was ramping up. Thus, a COVID Addendum of results was collected and published a few months later. What did these



reports tell us about existing and developing trends in staffing and scheduling?

Here is a top five list of findings for hospital medicine programs (HMGs) serving adults only. These are just highlights; for further detail, visit the SHM website to learn more and purchase your copy ([www.hospitalmedicine.org/practice-management/shms-state-of-hospital-medicine/](http://www.hospitalmedicine.org/practice-management/shms-state-of-hospital-medicine/)). The information in the *SoHM* is extraordinarily helpful

in planning for your group's future staffing and scheduling needs.

## 5. Average group size has increased

Andrew White, MD, SFHM, associate professor of medicine at the University of Washington, Seattle, provided a deep-dive discussion on the increase of group sizes in the March 2021 issue of *The Hospitalist*. Group size has impacted the way a hospitalist group schedules, when reviewing correlating scheduling survey responses.

Group size can have a direct correlation to scheduling methodology. The number of employed/contracted physician hospitalists in individual groups is up about 25%. Alongside the increase in physician hospitalists is an increase in both nurse practitioners (NPs) and physician assistants (PAs) in adult hospitalist groups, with the largest growth in PAs. In fact, in 2020, the average number of NPs and PAs per hospitalist group is approaching similar numbers.

In 2020, more than half of all

programs reported not having a backup call system. One could speculate that the larger group size has allowed adult hospitalist groups better ability to staff upper fluctuations in daily volume. This could have resulted in day-to-day scheduling ease and flexibility.

## 4. Shift-type is shifting

In scheduling adult hospitalist groups, fewer groups reported dedicated nocturnists and more groups reported dedicated day admitters.

Just above a third of all adult hospitalist programs report having dedicated day admitter shifts, and the presence of nocturnists is at a 6-year low. One speculation that could be made is that hospitalists are making more of an effort to ensure that more admissions are done during the day and not held over for nighttime. This would be consistent with the strong pressure for hospitals to decrease door-to-floor admission times.

However, the presence of nocturnists increases steadily with group size. Ninety-four percent of HMGs with 30-49 physician full time equivalents and 98% of groups with 50 or more physician FTEs reported using dedicated nocturnists.

## 3. COVID-19 impacts hospitalist workflows

It's not hard to imagine that COVID-19 has affected all hospitalist groups: adult, pediatric, and adult/pediatric groups. COVID-19 has affected all lives – at home and at work – across the world.

More than 80% of all adult hospitalist groups report having implemented changes (beyond dedicated COVID-19 teams) in workflows and/or how work is allocated among its providers. And nearly 20% report that this is likely a permanent change.

## 2. Schedules have been disrupted by COVID-19

More than half of adult hospitalist groups report having their schedules disrupted by COVID-19. The top two disruptors are loss of staff time due to exposure quarantine, and lost provider time due to COVID-19 illness. All the while, adult hospitalist groups have been taking care of more and more hospitalized patients.

While some groups have not made any changes in scheduling because of COVID-19, many have. Nearly 60% of all groups have increased scheduling



Ms. Trask is senior vice president, clinical institutes & service lines, at CommonSpirit Health in Englewood, Colo.

flexibility or changed their scheduling model. For about 11% of all groups, this change is likely to be permanent.

## 1. COVID-19 has changed scheduling methodologies – perhaps for the long-term

Three out of four adult hospitalist groups have created new COVID-19–dedicated teams each day. This has likely had one of the most impacts.

Unit-based assignment reported in the 2020 SoHM was already up from the 2018 SoHM Report (42.7% vs 36%). Now, in addition to nocturnists, day admitter, rounder roles, and unit-based assignments, hospital medicine groups must also incorporate COVID-19 teams into daily scheduling considerations. One in five groups report this change may likely be a permanent addition to the hospitalist schedule. Wow.

As we think forward to the 2022 SoHM, staffing and scheduling of adult hospital medicine group will be a key topic of the survey. How does COVID-19 change hospital medicine groups in the medium and long term? One thing is for sure – hospital medicine groups are resilient and have proven to be creative in ensuring our hospitalized patients are well cared for.

Post your thoughts and questions for your peer network on the SHM Online Community: HMX. Let's keep the conversation going on how we can help each other create sustainable staffing and scheduling models that are continuously adapting to our peripandemic environment.

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# What are we missing in our search for MIS-C?

By Diana Swift

The emergence of multiple inflammatory syndrome in children (MIS-C) in association with COVID-19 may be complicating the investigation and diagnosis of more common viral and bacterial infections, potentially delaying treatment and prolonging hospital stays.

Two recent articles published online in *Hospital Pediatrics* provide evidence of this phenomenon. The articles outlined case studies of children who underwent extensive investigation for MIS-C when in fact they had less severe and more common infections. MIS-C is a severe but rare syndrome that involves systemic hyperinflammation with fever and multisystem organ dysfunction similar to that of Kawasaki disease (KD).

In one of the articles (*Hosp Pediatr*. 2021 Jan 11. hpeds.2020-005579), Matthew Molloy, MD, MPH, of the division of pediatric hospital medicine at Cincinnati Children's Hospital Medical Center, and colleagues asked: "What are we missing in our search for MIS-C?"

## **E. coli, not SARS-CoV-2**

That question arose from a case involving a 3-year-old boy who had a 6-day history of fever and fatigue. Three days earlier, he had tested negative for strep antigen and COVID-19. He had a persistent, high fever, reduced appetite, and reduced urine output and was taken to the ED. On physical examination, there was no rash, skin peeling, redness of the eye or oral mucosa, congestion, rhinorrhea, cough, shortness of breath, chest pain, abdominal pain, nausea, vomiting, or diarrhea.

Urinalysis results and exam findings were suspicious for pyelonephritis. Other findings from an extensive laboratory workup raised the alarm that the boy was suffering from MIS-C as opposed to incomplete KD. After admission to hospital medicine, the cardiology, rheumatology, and infectious disease teams were called in to consult.

Repeat labs were planned for the following day before initiating therapy. On day 2, the child's urine culture was positive for gram-negative rods, later identified as *Escherichia coli*. The boy was started on ceftriaxone. Left renal scarring was apparent on ultrasound. The patient's condition resolved after 36 hours,

and he was discharged home with antibiotics.

Calling this a case of "diagnosis derailed," the authors noted that in the pre-COVID era this child's symptoms would likely have triggered a more targeted and less costly evaluation for more common infectious and noninfectious causes, including pyelonephritis, absent any physical exam findings consistent with KD.

"However, the patient presented in the midst of the COVID-19 pandemic with growing awareness of a new clinical entity," they wrote. "Anchored to the patient's persistent fever, the medical team initiated an extensive, costly, and ultimately unnecessary workup to avoid missing the diagnosis of MIS-C; a not yet well described diagnosis with potentially severe morbidity."

Confirmation bias and diagnostic momentum likely contributed to the early focus on MIS-C rather than more common alternatives, the authors acknowledged. The addition of mildly abnormal laboratory data not typically obtained in the evaluation of fever led the team astray. "The diagnosis and definitive treatment may have been made earlier had the focus on concern for MIS-C not been present," Dr. Molloy said.

## **Keeping value in care**

The authors recognized that their initial approach to evaluating for MIS-C provided low-value care. "In our desire to not 'miss' MIS-C, we were performing costly evaluations that at times produced mildly abnormal, nonspecific results," they wrote. That triggered a cascade of specialty consultations, follow-up testing, and an unwarranted diagnostic preoccupation with MIS-C.

Determining the extra price tag for the child's workup would be complex and difficult because there is a difference in the cost to the hospital and the cost to the family, Dr. Molloy said. "However, there are potential cost savings that would be related to making a correct diagnosis in a timely manner in terms of preventing downstream effects from delayed diagnoses."

Even as clinicians struggle with the challenging SARS-CoV-2 learning curve, Dr. Molloy and associates urged them to continue to strive for high-value care, with an unwavering focus on using only necessary resources, a stewardship the pandemic has shown to be critical.

"The COVID-19 pandemic has been

an incredibly stressful time for physicians and for families," Dr. Molloy said. "COVID-19 and related conditions like MIS-C are new, and we are learning more and more about them every week. These diagnoses are understandably on the minds of physicians and families when children present with fever." Notwithstanding, the boy's case underscores the need for clinicians to consider alternative diagnoses and the value of the care provided.

## **Impact of bias**

Dr. Molloy's group brings home the cognitive biases practitioners often suffer from, including anchoring and confirmation bias and diagnostic momentum, according to J. Howard Smart, MD, chief of pediatrics at Sharp Mary Birch Hospital for Women and Newborns, San Diego, and an assistant clinical professor of pediatrics at University of California, San Diego.

According to Dr. Smart, who was not involved in Dr. Molloy's study, the team's premature diagnostic focus on MIS-C was almost the inverse of what typically happens with KD. "It is usually the case that Kawasaki disease does not enter the differential diagnosis until late in the course of the fever, typically on day 5 or later, when it may have been better to think of it earlier," he said.

In the second article (*Hosp Pediatr*. 2021 Jan 11. hpeds.2020-005652), Andrea Dean, MD, of the department of pediatrics at Baylor College of Medicine and Texas Children's Hospital, both in Houston, and colleagues outlined the cases of five patients aged 8-17 years who were hospitalized in May 2020 for suspected MIS-C. They exhibited inflammatory and other concerning indicators but were eventually discharged with a diagnosis of murine typhus.

This flea-borne infection, most commonly reported in the United States in the southeastern Gulf Coast region, Hawaii, and California, is often associated with a triad of fever, rash, and headache.

Cases have been rising in southern Texas, and Dr. Dean and colleagues postulated that school closures and social distancing may have increased exposure as a result of children spending more time outdoors or with pets: "Alternatively, parental concern for SARS-CoV-2 infection could mean children with symptoms are presenting to care and being referred or admitted to

the hospital more frequently due to provider concern for MIS-C."

## **Cardiac involvement**

The most concerning of the five cases in terms of possible MIS-C, Dr. Dean said in an interview, was that of a 12-year-old boy who had fever for 6 days in association with headache, eczematous rash, dry lips, and conjunctivitis. Laboratory tests showed a mildly elevated C-reactive protein level, hyponatremia, and thrombocytopenia, as well as sterile pyuria and mildly elevated prothrombin time. He was treated empirically with doxycycline, and his fever resolved over the next 24 hours.

An echocardiogram at initial evaluation, however, revealed mild dilation of the left anterior descending and right coronary arteries, which led to the administration of intravenous immunoglobulin and aspirin for atypical KD, in contrast to MIS-C. The authors postulated that mild cardiac involvement in disorders other than MIS-C and KD may be underrecognized.

The lesson from these cases is that hospitalists must maintain a wide differential diagnosis when assessing a child with prolonged fever and evidence of systemic inflammation. The Centers for Disease Control and Prevention stipulates that a diagnosis of MIS-C requires the absence of a plausible alternative diagnosis.

In addition to common viral, bacterial, and noninfectious disorders, a range of regional endemic and parasitic infections must be considered as alternative diagnoses. "Many of these diseases cannot be reliably differentiated from MIS-C on presentation, and as community exposure to SARS-CoV-2 grows, hospitalists should be prepared to admit febrile children with evidence of systemic inflammation for brief observation periods to evaluate for MIS-C," Dr. Dean's group wrote. In this context, empiric treatment for common or even uncommon infectious diseases may avoid overdiagnosis and overtreatment of MIS-C as well as improve patient outcomes.

"We do have specific MIS-C guidelines at our institution," Dr. Dean said, "but like all institutions, we are dealing with the broad definition of MIS-C according to the World Health Organization and the CDC, which is the takeaway from this paper."

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

# Roots of physician burnout: It's the workload

Health care organizations must 'get serious' about clinician well-being

By Caleb Rans, PharmD

MDedge News

**W**orkload, not personal vulnerability, may be at the root of the current physician burnout crisis, a recent study has concluded.

The cutting-edge research utilized cognitive theory and workload analysis to get at the source of burnout among practitioners. The findings indicate that, although some institutions continue to emphasize personal responsibility of physicians to address the issue, it may be the amount and structure of the work itself that triggers burnout in doctors.

"We evaluated the cognitive load of a clinical workday in a national sample of U.S. physicians and its

relationship with burnout and professional satisfaction," wrote Elizabeth Harry, MD, SFHM, a hospitalist at the University of Colorado at Denver, Aurora, and coauthors. The results were reported in the *Joint Commission Journal on Quality and Patient Safety* (2021 Feb. doi: 10.1016/j.jcjq.2020.09.011).

The researchers investigated whether task load correlated with burnout scores in a large national study of U.S. physicians from October 2017 to March 2018.

As the delivery of health care becomes more complex, physicians are charged with ever-increasing amount of administrative and cognitive tasks. Recent evidence indicates that this growing complexity of work is tied to a greater risk of burnout in physicians, com-

pared with workers in other fields. Cognitive-load theory, pioneered by psychologist Jonathan Sweller, identified limitations in working memory that humans depend on to carry out cognitive tasks.



Dr. Harry

*"Quality improvement literature has demonstrated that improvements in inefficiencies that lead to increased demand in the workplace often has the benefit of reduced cost."*

Cognitive load refers to the amount of working memory used, which can be reduced in the presence of external emotional or physiological stressors. While a potential link between cognitive load and burnout may seem self-evident, the correlation between the cognitive load of physicians and burnout has not been evaluated in a large-scale study until recently.

Physician task load (PTL) was measured using the National Aeronautics and Space Administration Task Load Index (NASA-TLX), a validated questionnaire frequently used to evaluate the cognitive load of work environments, including health care

Among 30,456 physicians who received the survey, 5,197 (17.1%) responded. In total, 5,276 physicians were included in the analysis.

The median age of respondents was 53 years, and 61.8% self-identi-

fied as male. Twenty-four specialties were identified: 23.8% were from a primary care discipline, and internal medicine represented the largest respondent group (12.1%).

Almost half of respondents (49.7%) worked in private practice, and 44.8% had been in practice for 21 years or longer.

Overall, 44.0% had at least one symptom of burnout, 38.8% of participants scored in the high range for emotional exhaustion, and 27.4% scored in the high range for depersonalization. The mean score in task-load dimension varied by specialty.

The mean physician task load

*"Much like our efforts to improve quality, advancing clinician well-being requires organizations to make it a priority and establish the structure, process, and leadership to promote the desired outcomes."*



Dr. Shanafelt

environments. Four domains (perception of effort and mental, physical, and temporal demands) were used to calculate the total PTL score.

Burnout was evaluated using the Emotional Exhaustion and Depersonalization scales of the Maslach Burnout Inventory, a validated tool considered the gold standard for measurement.

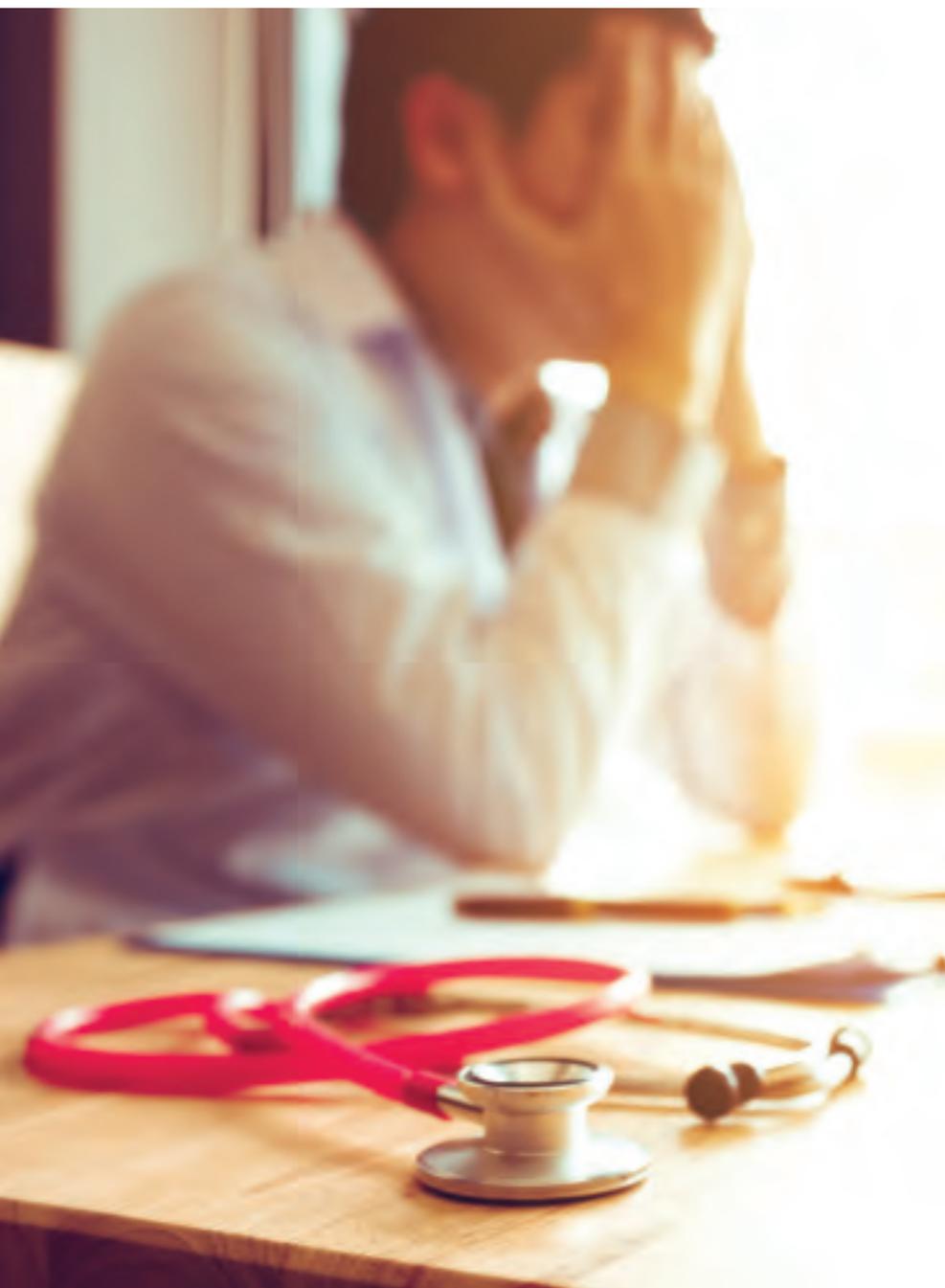
The survey sample consisted of physicians of all specialties and was assembled using the American Medical Association Physician Masterfile, a record of nearly all U.S. physicians independent of AMA membership. All responses were anonymous and participation was voluntary.

## Assessing the results

score was 260.9 (standard deviation, 71.4). The specialties with the highest PTL score were emergency medicine (369.8), urology (353.7), general surgery subspecialties (343.9), internal medicine subspecialties (342.2), and radiology (341.6).

Aside from specialty, PTL scores also varied by practice setting, gender, age, number of hours worked per week, number of nights on call per week, and years in practice.

The researchers observed a dose-response relationship between PTL and risk of burnout. For every 40-point (10%) reduction in PTL, there was 33% lower odds of experiencing burnout (odds ratio, 0.67; 95% confidence interval, 0.65-0.70; P



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< .0001). Multivariable analyses also indicated that PTL was a significant predictor of burnout, independent of practice setting, specialty, age, gender, and hours worked.



Dr. West

### Using organizational strategies to reduce physician burnout

Coauthors of the study, Tait D. Shanafelt, MD, professor of medicine at Stanford (Calif.) University and Colin P. West, MD, PhD, of the Mayo Clinic in Rochester, Minn., are both experts on physician well-being and are passionate about finding new ways to reduce physician distress and improving health care delivery.

“Authentic efforts to address this problem must move beyond personal resilience,” Dr. Shanafelt said in an interview. “Organizations that fail to get serious about this issue are going to be left behind and struggle in the war for talent.”

“Much like our efforts to improve quality, advancing clinician well-being requires organizations to make it a priority and establish the structure, process, and leadership to promote the desired outcomes,” said Dr. Shanafelt.

One potential strategy for improvement is appointing a chief wellness officer, a dedicated individual within the health care system that leads the organizational effort, explained Dr. Shanafelt. “Over 30 vanguard institutions across the United States have already taken this step.”

Dr. West explained that conducting an analy-

*“Helping physicians work more optimally and with less chronic strain from excessive task load would save far more than these costs overall.”*

sis of PTL is fairly straightforward for hospitals and individual institutions. “The NASA-TLX tool is widely available, free to use, and not overly complex, and it could be used to provide insight into physician effort and mental, physical, and temporal demand levels,” he said in an interview.

“Deeper evaluations could follow to identify specific potential solutions, particularly system-level approaches to alleviate PTL,” Dr. West explained. “In the short term, such analyses and solutions would have costs, but helping physicians work more optimally and with less chronic strain from excessive task load would save far more than these costs overall.”

Dr. West also noted that physician burnout is very expensive to a health care system, and strategies to promote physician well-being would be a prudent financial decision long term for health care organizations.

Dr. Harry, lead author of the study, agreed with Dr. West, noting that “quality improvement literature has demonstrated that improvements in inefficiencies that lead to increased demand in the

workplace often has the benefit of reduced cost.

“Many studies have demonstrated the risk of turnover due to burnout and the significant cost of physician turn over,” she said in an interview. “This cost avoidance is well worth the investment in improved operations to minimize unnecessary task load.”

Dr. Harry also recommended the NASA-TLX tool as a free resource for health systems and organizations. She noted that future studies will further validate the reliability of the tool.

“At the core, we need to focus on system redesign at both the micro and the macro level,” Dr. Harry said. “Each health system will need to assess inefficiencies in their workflow, while regulatory bodies need to consider the downstream task load of mandates and reporting requirements, all of which contribute to more cognitive load.”

The study was supported by funding from the Stanford Medicine WellMD Center, the American Medical Association, and the Mayo Clinic department of medicine program on physician well-being.

Coauthors Lotte N. Dyrbye, MD, and Dr. Shanafelt are coinventors of the Physician Well-Being Index, Medical Student Well-Being Index, Nurse Well-Being, and Well-Being Index. Mayo Clinic holds the copyright to these instruments and has licensed them for external use.

Dr. Dyrbye and Dr. Shanafelt receive a portion of any royalties paid to Mayo Clinic. All other authors reported no conflicts of interest.

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## Key Clinical Question

# How often should we check EKGs in patients starting antipsychotic medications?

Determining relative risk with available data

By Samantha Platt; Brian Rice; Omar Mirza, DO; Kevin Dunsky, MD; David Portnoy, MD

## Case

An 88-year-old woman with history of osteoporosis, hyperlipidemia, and a remote myocardial infarction presents to the ED with altered mental status and agitation. The patient is admitted to the medicine service for further management. Her current medications include a thiazide and a statin. Psychiatry is consulted and recommends administering intravenous haloperidol. A baseline EKG shows a corrected QT interval (QTc) of 486 milliseconds (ms). How often should subsequent EKGs be ordered?

## Overview of issue

A prolonged QT interval can predispose a patient to dangerous arrhythmias such as torsades de pointes (TdP), which results in sudden cardiac death in about 10% of cases.<sup>1,2</sup> A prolonged QTc interval can be caused by cardiac, renal, or hepatic dysfunction; congenital long QT syndrome (LQTS)<sup>2</sup> or electrolyte abnormalities; or as a result of many drugs, including most antipsychotic medications such as quetiapine, olanzapine, risperidone, and haloperidol.

To diminish risk of TdP while taking these medications, it is necessary to monitor the QTc interval. Before commencing a QT-prolonging

medication, it is recommended to get a baseline EKG, then perform EKG monitoring after administering the medication.

According to American Heart Association guidelines, a prolonged QT interval is considered more than 460 ms in women or above 450 ms in men.<sup>3</sup> If an abnormal rhythm and/or prolonged QTc is detected via EKG monitoring, then the drug dosage can be changed or an alternative therapy selected.<sup>4</sup> However, there are no current guidelines recommending how often EKG monitoring should be performed after a QT-prolonging antipsychotic medication is administered on an inpatient medicine unit. Without guidelines, there is potential for health care providers to under- or over-order EKG monitoring, possibly putting patients at risk of TdP or wasting hospital resources, respectively.

## Overview of the data

There are currently no universally accepted guidelines regarding inpatient EKG monitoring for patients started on QTc-prolonging antipsychotic medications. A 2018 review of the literature surrounding assessment and management of patients on QTc-prolonging medications was performed to analyze the available data and make recommendations; notably the evidence was limited as none of the studies were randomized controlled trials.

The authors recommend assessing the drug for QTc-prolonging poten-

tial, and if possible, choosing alternative treatment in patients with baseline prolonged QTc. If the QT-prolonging medication is the best or only option, then the next step is assessing the patient's risk for QTc prolongation based on that person's current condition and medical history.<sup>5</sup> They recommend using the QTc-prolonging risk point system developed by Tisdale and colleagues, which identified patient risk factors for elevated QTc intervals based on EKG findings in cardiac care units at a large tertiary hospital center.<sup>6</sup>

Based on the patient's demographics, current condition, and medication list, the score can be used to stratify patients into low-, medium-, and high-risk categories (see Table 1). Risk factors include age 68 years and over, female sex, prior MI, concurrent use of other QTc-prolonging medications, and sepsis, all of which have differing ability to cause QTc prolongation and thus are weighted differentially. This scoring system is helpful in identifying high-risk patients; however, the review does not include recommendations for management of these patients beyond removing the offending drug or monitoring EKGs more aggressively in higher-risk patients once identified.<sup>6</sup>

Low-risk patients can be managed expectantly. If the baseline QTc is <500 ms, then the provider may administer the medication, but should obtain follow-up EKG monitoring to ensure the QTc does not rise above 500 ms; if it does, a management change is necessitated. For moderate- to high-risk patients

## Key points

- An increased QTc interval can lead to TdP, ventricular fibrillation, and cardiac death.
- The relative risk of each antipsychotic medication should be determined based on available data and the Tisdale scoring system can provide a system to assess a patient's risk of QTc prolongation.
- Low-risk patients with a baseline QTc <500 ms should receive a baseline EKG and inpatient EKG monitoring weekly while moderate- to high-risk patients should receive EKG monitoring every 3 days.
- A QTc >500 ms suggests the need for a management change (drug discontinuation, dose reduction, or a switch to another agent). If the antipsychotic is absolutely necessary, perform daily EKG monitoring until there are three unchanged EKGs, and then consider deescalating monitoring to every 3 days.

with a baseline QTc >500 ms, they recommend not administering the medication and consulting a cardiologist. The review does not provide a recommendation on how often EKG monitoring should be performed after prescribing an antipsychotic medication in an inpatient setting.<sup>5</sup>

A 2018 review article explored patient risk factors for a prolonged QTc in the setting of prescribing

**Table 1. Scoring scheme for QTc-prolongation risk factors**

Risk factor	Point value
Age ≥ 68 years	1
Female sex	1
Loop diuretic	1
Serum K <sup>+</sup> ≤ 3.5 mEq/L	2
Admission QTc ≥ 450 ms	2
Acute MI	2
≥ 2 QTc-prolonging drugs	3
Sepsis	3
Heart failure	3
One QTc-prolonging drug	3
Low risk	≤6
Moderate risk	7-10
High risk	≥11

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Source: Circ Cardiovasc Qual Outcomes. 2013;6(4):479-87

**Table 2. Risk of QTc prolongation with common antipsychotics**

Medication	Mean increase in QTc (ms)	Subjects with >60 ms increase
Thioridazine	35.6	30.0%
Ziprasidone	20.3	22.6%
Quetiapine	14.5	11.1%
Risperidone	11.6	4.0%
Olanzapine	6.8	4.0%
Haloperidol	4.7	3.7%

Source: Ms. Platt, Mr. Rice, Dr. Mirza, Dr. Dunsky, Dr. Portnoy

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potentially QTc-prolonging antipsychotics.<sup>7</sup> The authors reiterate that QTc-prolonging risk factors are important considerations when prescribing antipsychotics that can lead to adverse events, though they note that much of the literature associating antipsychotics with negative outcomes consists of case reports in which patients had independent risk factors for development of TdP, such as preexisting ventricular arrhythmias.

In addition, the data regarding the risk of each individual antipsychotic agent are not comprehensive. Some medications that have been deemed “QTc prolonging” were identified as such in only a handful of cases where patients had confounding comorbid risk factors. This raises concern that some medications are being unduly stigmatized in situations where there is little chance of TdP. If there is no equivalent or alternative treatment available, this may lead to an antipsychotic medication being held unnecessarily, which may exacerbate the psychiatric illness.

The authors note that the trend toward ordering baseline EKGs in the inpatient setting following administration of a new antipsychotic may be partly attributed to the ready availability of EKG testing in hospitals. They recommend a baseline EKG to assess the patient’s risk. For most agents, they recommend no further EKG monitoring unless there is a change in patient risk factors. Follow-up EKGs should be done in patients with multiple or significant risk factors to assess their QTc stability. In patients with a QTc >500 ms on a follow-up EKG, daily monitoring is encouraged alongside reassessment of the current treatment regimen.<sup>7</sup>

Overall, the current literature sug-

gests that providers should know which antipsychotics carry a risk for QTc prolongation and what other treatment options are available. The risk of QTc prolongation for common antipsychotic agents is provided in Table 2. Providers should assess their patients’ risk factors for QTc prolongation and order a baseline EKG to help quantify the cardiac risk associated with prescribing the drug.

In patients with many risk factors or complicated medication regimens, a follow-up EKG should be performed to assess the new QTc baseline. If the subsequent QTc is >500 ms, then an alternative medication should be strongly considered. The majority of patients, however, will not have a clinically significant increase in their QTc, in which case there is no need for a change in medication and monitoring frequency can be deescalated.

### Application of data to the case

Our 88-year-old patient has multiple risk factors for a prolonged QTc, and according to the Tisdale scoring system is at moderate risk (7-10 points). Her risk of developing TdP increases with the addition of IV haloperidol to her regimen.

Because of her increased risk, it is reasonable to consider alternative management. If she can cooperate with PO medications, then olanzapine could be given, which has a lesser effect on the QTc interval.

If unable to take oral medications, she could be given haloperidol intramuscularly, which causes less QTc prolongation than the IV formulation. If an antipsychotic is administered, she should receive EKG monitoring.

Given the lack of evidence on the optimal monitoring strategy, a pro-



Ms. Platt



Mr. Rice



Dr. Mirza



Dr. Dunsky

Ms. Platt is a medical student at the Icahn School of Medicine at Mount Sinai in New York. Mr. Rice is a medical student at the Icahn School of Medicine. Dr. Mirza is assistant clinical professor of psychiatry at the Icahn School of Medicine. Dr. Dunsky is a cardiologist and assistant professor at the Icahn School of Medicine. Dr. Portnoy is a hospitalist and assistant professor at the Icahn School of Medicine.



Dr. Portnoy

### Quiz



A 70-year-old male inpatient on furosemide with last known potassium level of 3.3 is going to be started on olanzapine. His baseline EKG has a QTc of 470 ms.

How often should he receive EKG monitoring?

- A. Daily
- B. Every 3 days
- C. Weekly
- D. Monthly

Answer (C): He is a low-risk patient (6 points: over 70 yrs, loop diuretic, K+ < 3.5, QTc > 450 ms), so he should receive weekly EKG monitoring.

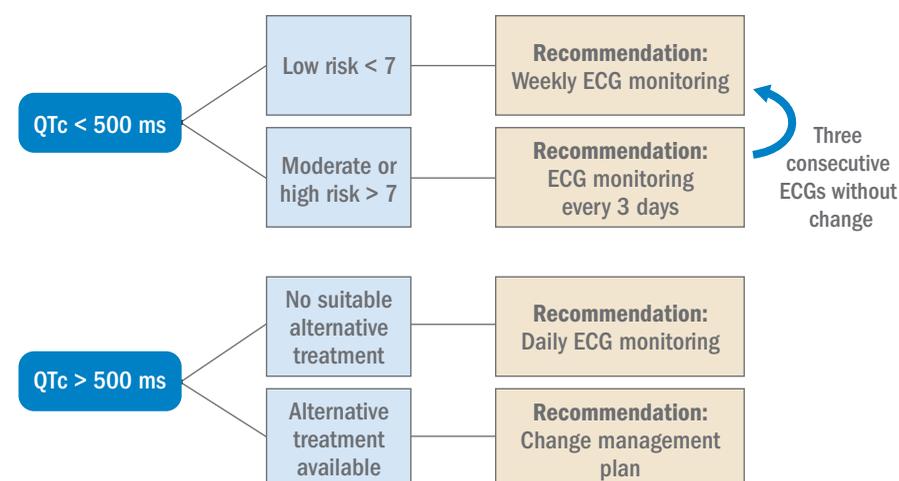
risk of QTc prolongation. If the patient is at increased risk, avoid prescribing QTc-prolonging medications where alternatives exist.

If a QTc-prolonging medication is used in a patient with a moderate-to-high-risk score, check an EKG every 3 days or daily if the QTc increases to >500 ms.

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Table 3. Decision-making process to prescribe QTc-prolonging drug



Source: Ms. Platt, Mr. Rice, Dr. Mirza, Dr. Dunsky, Dr. Portnoy

col should be utilized that balances the ability to capture a clinically meaningful increase in the QTc with appropriate stewardship of resources (Table 3). Our practice is to initially monitor the EKG every 3 days in moderate- to high-risk patients with baseline QTc <500 ms. If the QTc remains below 500 ms over three EKGs, then treatment may continue with EKG monitoring weekly while the patient is hospitalized. If the QTc rises above 500 ms, then a management change would be indicated (either dose reduction or a change of agents). If antipsychotic medications are continued, we check the EKG daily while the QTc is >500 ms until there are three unchanged EKGs, and then consider deescalating monitoring to every 3 days.

### Bottom line

Prior to prescribing, perform a baseline EKG and assess the patient’s

# Inpatient sodium imbalances linked to adverse COVID-19 outcomes

Are serum sodium values predictive of risk?

By Miriam E. Tucker

**B**oth high and low serum sodium levels are associated with adverse outcomes for hospitalized patients with COVID-19, new research suggests.

In the retrospective study of 488 patients hospitalized with COVID-19 at one of two London hospitals between February and May 2020, hypernatremia (defined as serum sodium level >145 mmol/L) at any time point during hospital stay was associated with a threefold increase in inpatient mortality.

Hyponatremia (serum sodium level <135 mmol/L) was associated with twice the likelihood of requiring advanced ventilatory support. In-hospital mortality was also increased among patients with hypovolemic hyponatremia.

“Serum sodium values could be used in clinical practice to identify patients with COVID-19 at high risk

of poor outcomes who would benefit from more intensive monitoring and judicious rehydration,” Ploutarchos Tzoulis, MD, PhD, and colleagues wrote in their article, which was published in the *Journal of Clinical Endocrinology and Metabolism* (doi: 10.1210/clinem/dgab107).

## Sodium considered for addition to COVID-19 risk calculator

Dr. Tzoulis, professor of endocrinology at the University College London Medical School, said in an interview that “sodium could be incorporated in risk calculators across other routine biomarkers, such as white cell count, lymphocytes, and CRP [C-reactive protein], in order to provide a tool for dynamic risk stratification throughout the clinical course of COVID-19 and assist clinical decision-making.”

Moreover, he said, “we should follow less conservative strategies in the rate and amount of fluid



Dr. Simpson

*“It is common practice in critical care medicine to adjust water and salt intake to maintain serum sodium within the normal range, so the paper really doesn’t change any behavior.”*

resuscitation in order to prevent hypernatremia, which is induced by negative fluid balance and can often be iatrogenic.”

Asked to comment, Steven Q. Simpson, MD, professor of medicine in the division of pulmonary, critical care, and sleep medicine at the University of Kansas, Kansas City, said that the article is missing key results that would assist in interpreting of the findings.

“Data regarding diuretic use and sparing of fluid administration are not in the paper. ... It is simply not possible to tell whether serum sodium is a ‘predictor’ ... or if it is a side effect of other issues or actions taken by physicians in patients who are progressing poorly.

“To say that sodium needs to be included in a risk calculator is to subtly suggest that there is some causal association with mortality, and that has quite clearly not been established,” stressed Dr. Simpson, who is president of the American College of Chest Physicians but was not speaking for the organization.

He added: “It is common practice in critical care medicine to adjust water and salt intake to maintain serum sodium within the normal range, so the paper really doesn’t change any behavior.”

Dr. Tzoulis said that, despite not having electronic medical record data on diuretic use or fluid input and output, “our acute physicians and intensivists at both study sites have been adamant that they’ve not routinely used diuretics in COVID-19 patients. Diuretics have been sparingly used in our cohort, and also the frequency of pulmonary edema was reported as below 5%.”

Regarding volume of fluid intake, Dr. Tzoulis noted, “At our hospital sites, the strategy has been that of cautious fluid resuscitation. In fact, the amount of fluid given has been reported by our physicians and in-

tensivists as ‘on purpose much more conservative than the usual one adopted in patients with community-acquired pneumonia at risk of respiratory failure.’”

## Hyper- and hyponatremia linked to adverse COVID-19 outcomes

In the study, 5.3% of the 488 patients had hypernatremia at hospital presentation, and 24.6% had hyponatremia. Of note, only 19% of those with hyponatremia underwent laboratory workup to determine the etiology. Of those, three-quarters had hypovolemic hyponatremia, determined on the basis of a urinary sodium cutoff of 30 mmol/L.

The total in-hospital mortality rate was 31.1%. There was a strong, although nonsignificant, trend toward higher mortality in association with sodium status at admission. Death rates were 28.4%, 30.8%, and 46.1% for those who were normonatremic, hyponatremic, and hypernatremic, respectively ( $P = .07$ ). Baseline serum sodium levels didn’t differ between survivors (137 mmol/L) and nonsurvivors (138 mmol/L).

In multivariable analysis, the occurrence of hypernatremia at any point during the first 5 days in the hospital was among three independent risk factors for higher in-hospital mortality (adjusted hazard ratio, 2.74;  $P = .02$ ). The other risk factors were older age and higher CRP level. Overall, hyponatremia was not associated with death ( $P = .41$ ).

“The key novel finding of our study was that hospital-acquired hypernatremia, rather than hypernatremia at admission, was a predictor for in-hospital mortality, with the worst prognosis being reported in patients with the largest increase in serum sodium in the first 5 days of hospitalization,” noted Dr. Tzoulis.

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



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# First pill for COVID-19 could be ready by year's end

By Marcia Frellick

New pills to treat patients with COVID-19 are currently in midstage clinical trials and, if successful, could be ready by the end of the year.

Only one treatment – remdesivir (Veklury) – has been fully approved by the U.S. Food and Drug Administration for hospitalized patients, and it must be administered intravenously.

Hopes for a day when patients with COVID-19 can take a pill to rid their bodies of the virus got a boost when early trial results were presented at the Conference on Retroviruses and Opportunistic Infections 2021 Annual Meeting.

These were interim phase 2 results for the oral experimental COVID-19 drug molnupiravir, designed to do for patients with COVID-19 what oseltamivir (Tamiflu) can do for patients with the flu.

*“We’re hoping we can come up with something that is a little bit easier to administer, and without as many concerns for toxic side effects.”*

In the small study, the pill significantly reduced infectious virus in patients who were symptomatic and had tested positive for COVID-19 during the previous 4 days but were not hospitalized.

After 5 days of treatment, no participants who received molnupiravir had detectable virus, whereas 24% who received placebo did.

Two other oral agents are being developed by RedHill Biopharma: one for severe COVID-19 infection for hospitalized patients and one for patients at home with mild infection.

The first, opaganib (Yeliva), proceeded to a phase 2/3 global trial for hospitalized patients after the company announced top-line safety and efficacy data in December 2020. In phase 2, the drug was shown to be safe in patients requiring oxygen and effectively reduced the need for oxygen by the end of the treatment period.

A key feature is that it is both an antiviral and an anti-inflammatory,

Gilead Raday, RedHill’s chief operating officer, said in an interview. Data are expected midyear on its performance in 464 patients. The drug is being tested on top of remdesivir or in addition to dexamethasone.

The second, upamostat (RHB-107), is currently undergoing a phase 2/3 trial in the United States and is being investigated for use in nonhospitalized COVID-19 patients.

“I would expect data to be available in the second half of this year,” Mr. Raday said.

Upamostat is a novel serine protease inhibitor expected to be effective against emerging variants because it targets human cell factors involved in viral entry, according to the company.

Other drugs are being investigated in trials that are in earlier stages.

## Urgent need for oral agents

Infectious disease specialists are watching the move toward a COVID-19 pill enthusiastically.

“We badly need an oral treatment option for COVID,” said Sarah Doernberg, MD, an infectious disease specialist from the University of California, San Francisco.

Although some studies have shown the benefit of monoclonal antibodies for prevention and early treatment, there are major logistical issues because all the current options require IV administration.

“If we had a pill to treat early COVID, especially in high-risk patients, it would fill a gap,” she said, noting that a pill could help people get better faster and prevent hospital stays.

Studies of molnupiravir suggest that it decreases viral shedding in the first few days after COVID infection, Dr. Doernberg reported.

There is excitement around the drug, but it will be important to see whether the results translate into fewer people requiring hospital admission and whether people feel better faster.

“I want to see the clinical data,” Dr. Doernberg said.

She will also be watching for the upamostat and opaganib results in the coming weeks.

“If these drugs are successful, I think it’s possible we could use them – maybe under an emergency use authorization – this year,” she said.

Once antiviral pills are a viable

option for COVID-19 treatment, questions will arise about their use, she said.

One question is whether patients who are getting remdesivir in the hospital and are ready to leave after 5 days should continue treatment with antiviral pills at home.

Another is whether the pills – if they are shown to be effective – will be helpful for COVID post exposure. That use would be important for people who do not have COVID-19 but who are in close contact with someone who does, such as a member of their household.

“We have that model,” Dr. Doernberg said. “We know that oseltamivir can be used for postexposure prophylaxis and can help to prevent development of clinical disease.”

But she cautioned that a challenge with COVID is that people are contagious very early. A pill would need to come with the ability to test for COVID-19 early and get patients linked to care immediately.

Treatments are part of the

“belt-and-suspenders” approach, along with vaccines to combat COVID-19, Dr. Doernberg said.

“We’re not going to eradicate COVID,” she said. “We’re still going to need treatments for people who either don’t respond to the vaccine or haven’t gotten the vaccine or developed disease despite the vaccine.”

Oral formulations are desperately needed, agreed Kenneth Johnson, PhD, professor of molecular biosciences at the University of Texas at Austin.

Right now, remdesivir treatments involve patients being hooked up to an IV for 30-120 minutes each day for 5 days. And the cost of a 5-day course of remdesivir ranges from \$2,340 to \$3,120 in the United States.

“We’re hoping we can come up with something that is a little bit easier to administer, and without as many concerns for toxic side effects,” he said.

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

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# Global HM

Continued from page 1

Clinic, Johns Hopkins Medicine, and Weill-Cornell Medical School, have established teaching outposts in other countries, with opportunities for resident training that prepares future hospitalists on the ground.

SHM CEO Eric E. Howell, MD, MHM, said that he personally has interacted with developing hospital medicine programs in six countries, who called upon him in part because of his past research on managing length of hospital stays. Dr. Howell counts himself among a few dozen U.S. hospitalists who are regularly invited to come and consult or to give talks to established or developing hospitalist programs in other countries. Because of the COVID-19 epidemic, in-person visits to other countries have largely been curtailed, but that has introduced a virtual world of online meetings.

"I think the interesting thing about the 'international consultants' for hospital medicine is that, while they come from professionally diverse backgrounds, they are all

working to solve remarkably similar problems: how to make health care more affordable and higher quality while staying abreast of up-to-date best practice for physicians," he said.

"Hospital care is costly no matter where you go. Other countries are also trying to limit expense in ways that don't compromise the quality of that care," Dr. Howell said. Also, hospitalized patients are more complex than ever, with increasing severity of illness and comorbidities, which makes having a hospitalist available on site more important.

Dr. Howell hopes to encourage more dialogue with international colleagues. SHM has established collaborations with medical societies in other countries and makes time at its conferences for international hospitalist participants to meet and



Dr. Howell

share their experiences. Hospitalists from 33 countries were represented at SHM's 2017 conference, and the upcoming virtual SHM Converge, May 3-7, 2021, includes a dedicated international session. SHM chapters have formed in a number of other countries.

Flora Kisuule, MD, MPH, SFHM, director of the Division of Hospital Medicine at Johns Hopkins Bayview Medical Center in Baltimore, said her international hospital medicine work<sup>1</sup> started 7 years ago when she was invited to the Middle East to help Aramco, the Saudi Arabian Oil Company, develop a hospital medicine program based on the U.S. model for its employees. This was a joint venture with Johns Hopkins Medicine. "We went there and looked at their processes and made recommendations such as duration of hospitalist shifts and how to expand the footprint of hospital medicine in the hospital," she said.

Then Dr. Kisuule was asked to help develop a hospital medicine program in Panama, where the drivers for developing hospital medicine were improving quality of care and ensuring patient safety. The biggest barrier has been remuneration and how to pay salaries that will allow doctors to work at only one hospital. In Panama, doctors typically work at multiple hospitals or clinics so they can earn enough to make ends meet.

## The need for professional identity

Arpana Vidyarthi, MD, "grew up" professionally in hospital medicine at the University of California, San Francisco, a pioneering institution for hospital medicine, and in SHM. "We used to say: If you've seen one hospital medicine group, you've seen one hospital medicine group," she said.

Dr. Vidyarthi went to Singapore in 2011, taking a job as a hospitalist at Singapore General Hospital and the affiliated Duke-National University Medical School, eventually directing the Division of Advanced Internal Medicine (general and hospital medicine) at the National University Health System, before moving back to UCSF in 2020.

"Professional identity is one of the biggest benefits hospital medicine can bestow in Singapore and across Asia, where general medicine is underdeveloped. Just as it did 20 years ago in the U.S., that professional identity offers a road map to achieving competency in practicing

medicine in the hospital setting," Dr. Vidyarthi said.

At UCSF, the professional identity of a hospitalist is broad but defined. The research agenda, quality, safety, and educational competencies are specific, seen through a system lens, she added. "We take pride in that professional identity. This is an opportunity for countries where general medicine is underdeveloped and undervalued."

But the term hospital medicine – or the American model – isn't always welcomed by health care systems in other countries, Dr. Vidyarthi said. "The label of 'hospital medicine' brings people together in professional identity, and that professional identity opens doors. But for it to have legs in other countries, those skills need to be of value to the local system. It needs to make sense, as it did in the United States, and to add value for the identified gaps that need to be filled."

In Singapore, the health care system turned to the model of acute medical units (AMUs) and the acute medicine physician specialty developed in the United Kingdom, which created a new way of delivering care, a new geography of care, and new set of competencies around which

to build training and certification.

AMUs manage the majority of acute medical patients who present to the emergency department and get admitted, with initial treatment



Dr. Vidyarthi

for a maximum of 72 hours. Acute physicians, trained in the specialty of assessment, diagnosis, and treatment of adult patients with urgent medical needs, work in a unit situated between the emergency department entrance and the specialty care units. This specialty has been recognized since 2009.<sup>2</sup>

"Acute medicine is the standard care model in the U.K. and is now found in all government hospitals in Singapore. This model is being adapted across Europe, Asia, and the Pacific Islands," Dr. Vidyarthi said. "Advantages include the specific geography of the unit, and outcomes that are value-added to these systems such as decreased use of hospital beds in areas with very high bed occupancy rates."

In many locales, a variety of titles are used to describe doctors who are not hospitalists as we understand



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A nurse treats a COVID-19 patient at Hospital São Vicente in Curitiba.

them but whose work is based in the hospital, including house officer, duty officer, junior officer, registrar, or general practitioner. Often these hospital-based doctors, who may in fact be residents or nongraduated trainees, lack the training and the scope of practice of a hospitalist. Because they typically need to consult the supervising physician before making inpatient management decisions, they aren't able to provide the timely response to the patient's changing medical condition that is needed to manage today's acute patients.

### The definition of fee schedule

In South Korea, a hospitalist model has emerged since 2015 in response to the insufficient number of hospital-based physicians needed to cover all admitted patients and to address related issues of patient safety, health care quality, and limitations on total hours per week medical residents are allowed to work. South Korea in 1989 adopted a universal National Health Insurance System, which took 12 years to implement. But inadequate coverage for medical work in the hospital has deterred physicians from choosing to work there. South Korea had longer lengths of hospital stay, fewer practicing physicians per 1,000 patients, and a much higher number of hospital patients per practicing physician than other countries in the Organization for Economic Cooperation and Development, according to a new study in the *Journal of Hospital Medicine* detailing hospitalist development in South Korea.<sup>3</sup>

A council representing leading medical associations was formed to develop a South Korean hospitalist system and charged by the Ministry of Health with designing an official proposal for implementing it. A pilot study focused on quality and on defining a fee schedule for hospital work was tested in 4 hospitals, and then a second phase in 31 of

South Korea's 344 general hospitals tested the proposed fee schedule, said Wonjeong Chae, MPH, the first named author on the study, based in the Department of Public Health in the College of Medicine at Yonsei University in Seoul. "But we're still working on making the fee schedule better," she said.

Ms. Chae estimates that there are about 250 working hospitalists in South Korea today, which leaves a lot of gaps in practice. "We did learn from America, but we have a different system, so the American concept had to be adapted. Hospital medicine is still growing in Korea despite the impact of the pandemic. We are at the beginning stages of development, but we expect it will grow more with government support."

In Brazil, a handful of hospital medicine pioneers such as Guilherme Barcellos, MD, SFHM, in Porto Alegre have tried to grow the hospitalist model, networking with colleagues across Latin America through the Pan American Society of Hospitalists and the Brazilian chapter of SHM.

Individual hospitals have developed hospitalist programs, but there is no national model to lead the way. Frequent turnover for the Minister of Health position has made it harder to develop consistent national policy, and the country is largely still in the early stages of developing hospital medicine, depending on isolated initiatives, as Dr. Barcellos described it in a November 2015 article in *The Hospitalist*.<sup>4</sup> Growth is slow in Brazil but continuing, with new programs such as the one led by Reginaldo Filho, MD, at Hospital São Vicente in Curitiba standing out in the confrontation against COVID-19, Dr. Barcellos said.



Dr. Kisuule

### The question of what we can learn from others

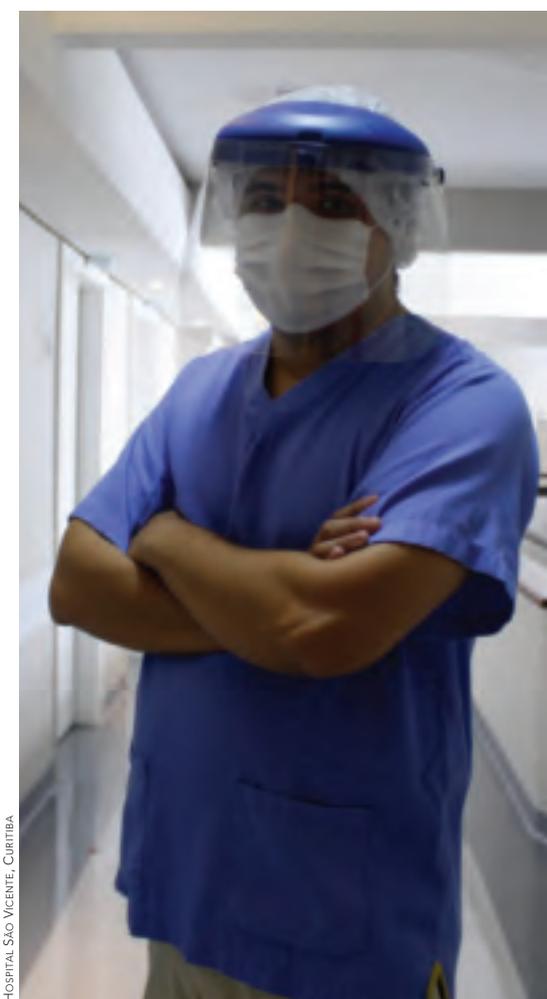
India-born, U.S.-trained hospitalist Anand Kartha, MD, MS, SFHM, currently heads the Hospital Medicine Program at Hamad General Hospital in Doha, Qatar. He moved from Boston to this small nation on the Arabian Peninsula in 2014. Under the leadership of the hospital's Department of Medicine, this program was developed to address difficulties such as scheduling, making transitions in care, and networking with home care and other providers – the same issues seen in hospitals around the world.

These are not novel problems, Dr. Kartha said, but all of them have a common solution in evidence-based practice. "As hospitalists, our key is to collaborate with everyone in the hospital, using the multidisciplinary approach that is a unique feature of hospital medicine."

The model has continued to spread across hospitals in Qatar, including academic and community programs. "We now have a full-fledged academic hospitalist system, which collaborates with community hospitals and community programs including a women's hospital and an oncologic hospital," he said. "Now the focus is on expanding resource capacity and the internal pipeline for hospitalists. I am getting graduates from Weill Cornell Medicine in Qatar." Another key collaborator has been the Boston-based Institute for Healthcare Improvement, helping to develop best practices in Qatar and sponsoring the annual Middle East Forum on Quality and Safety in Health Care.

The residency training program at Hamad General is accredited by Accreditation Council for Graduate Medical Education, with the same expected competencies as in the U.S. "We don't use the term 'hospitalist,'" Dr. Kartha said. "It's better to focus on the model of care – which clearly was American. That model has encountered some resistance in some countries – on many of the same grounds U.S. hospitalists faced 20 years ago. You have to be sensitive to local culture. For hospitalists to succeed internationally, they have to possess a high degree of cultural intelligence." There's no shortage of issues such as language barriers, he said. "But that's no different than at Boston Medical Center."

SHM's Middle East Chapter was off to a great start and then was slowed down by regional politics and COVID-19, but is looking forward to a great reboot in 2021, Dr.



Dr. Reginaldo Filho.

Kartha said. The pandemic also has been an opportunity to show how hospital medicine is the backbone of the hospital's ability to respond, although of course many other professionals also pitched in.

Other countries around the world have learned a lot from the American model of hospital medicine. But sources for this article wonder if U.S. hospitalists, in turn, could learn from their adaptations and innovations.

"We can all learn better how to practice our field of medicine in the hospital with less resource utilization," Dr. Vidyarthi concluded. "So many innovations are happening around us. If we open our eyes to our global colleagues and infuse some of their ideas, it could be wonderful for hospital professionals in the United States."

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# Clinician reviews of HM-centric research

By Perry H. Dubin, MD, MPH; Jennifer Heinen, MD; Michael Hession, MD;  
Douglas J. Koo, MD, MPH, FHM; David W. Rawson, MD; Joshua Allen-Dicker, MD, MPH, SFHM

Memorial Sloan Kettering Cancer Center, New York

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By Perry H. Dubin, MD, MPH

### 1 Prophylaxis with hydrochloroquine not superior to placebo in preventing SARS-CoV-2

**CLINICAL QUESTION:** Does pre-exposure prophylaxis with hydroxychloroquine reduce or prevent infection with SARS-CoV-2 in high-risk health care workers?

**BACKGROUND:** There is no known medication-based prevention regimen for the SARS-CoV-2 virus.

**STUDY DESIGN:** A double-blind placebo-controlled randomized study.

**SETTING:** The University of Pennsylvania health care system's main Philadelphia hospitals.

**SYNOPSIS:** Study authors randomized 132 health care workers to receive hydroxychloroquine or placebo. Participants underwent swab for SARS-CoV-2 RT-PCR test at baseline and at 4 and 8 weeks. The second interim analysis met the predefined futility requirement, and the study was halted before the total accrual goal.

The rate of SARS-CoV-2 positivity by nasopharyngeal PCR swabs was similar in both groups (6.3% hydroxychloroquine vs. 6.6% placebo;  $P > .99$ ). There were no grade 3 or 4 adverse events (AE) reported. However, there were significantly more AEs reported in the hydroxychloroquine arm vs. placebo arms (45% vs. 26%;  $P = .03$ ). The most frequent AE

in the hydroxychloroquine group was diarrhea. There were no significant differences in cardiac AEs or in changes in corrected QT interval.

**BOTTOM LINE:** Prophylaxis with hydroxychloroquine did not significantly prevent infection with SARS-CoV-2. Hydroxychloroquine was associated with more adverse events than placebo.

**CITATION:** Abella BS et al. Efficacy and safety of hydroxychloroquine vs. placebo for pre-exposure SARS-CoV-2 prophylaxis among health care workers. *JAMA Intern Med.* 2020 Sep 30;181(2):195-202. doi: 10.1001/jamainternmed.2020.6319.



Dr. Dubin

### 2 Highly rated hospitals unlikely in minority communities or low-income areas

**CLINICAL QUESTION:** Is there an association between socioeconomic factors and hospital star rating?

**BACKGROUND:** Centers for Medicare & Medicaid Services developed the Hospital Quality Star Rating as a patient-oriented guide to identifying hospitals that provide high-quality care. This study aimed to examine the relationship between hospital Star Rating performance, socioeconomic factors, and geography.

**STUDY DESIGN:** Retrospective study and cross-sectional logistic and multinomial logistic regression analyses.

**SETTING:** Data review and analysis from a variety of sources including www.medicare.gov, Health Resources and Services Administration, and Dartmouth Atlas Project.

**SYNOPSIS:** The authors compared Star Ratings from 3,075 acute care hospitals across the United States with socioeconomic variables from the communities served by the hospital, including percentage minority population, household income, education attainment, Medicare/Medicaid dual eligibility, urban/rural designation, and geographic region. Regression models were used to identify which variables might correlate with lower Star scores.

The study found that high minority, lower socioeconomic, and lower educated populations had a higher probability of living in counties with hospitals with one-star ratings.

**BOTTOM LINE:** Areas that have a higher minority percentage, lower education level, and lower socioeconomic status were less likely to be served by hospitals with higher star ratings. **CITATION:** Shi B et al. Relationship of hospital star ratings to race, education, and community income. *J Hosp Med.* 2020;15:588-93. doi: 10.12788/jhm.3393.

*Dr. Dubin is an assistant attending hospitalist at Memorial Sloan Kettering Cancer Center, New York.*

By Jennifer Heinen, MD

### 3 Ultrabrief screening tool developed for postoperative delirium

**CLINICAL QUESTION:** What combination of questions is most effective as a rapid screen for delirium in older adults following major elective surgery?

**BACKGROUND:** One of the most frequent postoperative issues in the elderly, delirium can lead to negative patient outcomes such as longer lengths of stay, increased morbidity and mortality, and increased risk of discharge to a facility. Previous research has identified sensitive ultrabrief delirium screens in a gener-

al medicine population but has not examined high functioning adults over the age of 70 years undergoing elective major surgery.

**STUDY DESIGN:** Secondary retrospective analysis of the ongoing Successful Aging After Elective Surgery prospective cohort study.

**SETTING:** Three academic medical centers.

**SYNOPSIS:** The authors analyzed data from a series of daily in-hospital assessments of 560 adults over the age of 70 years with the Confusion Assessment Method (CAM) delirium reference standard administered on postoperative days 1 and 2. Of all the potential 1-, 2-, or 3-item combinations from the 12-item CAM, the screen with the highest

sensitivity and specificity for the detection of delirium consisted of three items: Does the patient report feeling confused? Can the patient complete the months of the year backward?

And does the patient appear sleepy? (sensitivity 92%, specificity 72%).

Given the inclusion of a majority white, highly educated cohort in this analysis, the authors note limitations including lack of generalizability to racial/ethnic minorities and those with lower educational attainment or preexisting physical/mental disabilities.

**BOTTOM LINE:** A three-item ultrabrief screen may successfully identify delirium in older postoperative patients with a sensitivity of greater than 90%.

**CITATION:** Sillner AY et al. Ultrabrief screens for detecting delirium in postoperative cognitively intact older adults. *J Hosp Med.* 2020 Sept;15(9):544-7. doi: 10.12788/jhm.3410.

### 4 Short course of oral corticosteroids linked with increased risk of severe adverse events

**CLINICAL QUESTION:** Do short (14 days or fewer) courses of oral corticosteroids increase the risk of gas-



Dr. Heinen

### Multicomponent approaches to preventing delirium associated with a decreased risk of delirium

In a meta-analysis of 10 randomized controlled trials comparing multicomponent approaches (ranging from increased nursing protocols to pharmacologic interventions) with usual care to prevent hospital-acquired delirium, multicomponent approaches were associated with decreased risk of delirium events and length of delirium-days.

**CITATION:** Leon-Salas B et al. Multicomponent interventions for the prevention of delirium in hospitalized older people: A meta analysis. *J Am Geriatr Soc.* 2020 Sep 9;68(12):2947-54. doi: 10.1111/jgs.16768.

### USPSTF recommends screening adults about unhealthy drug use

The U.S. Preventative Services Task Force recommends screening by asking questions about unhealthy drug use (not testing biological specimens) in adults age 18 years or older (B recommendation). In adolescents aged 12-17 years, the current evidence is insufficient to assess the balance of benefits and harms of screening (I statement).

**CITATION:** U.S. Preventive Services Task Force. Screening for unhealthy drug use: U.S. preventive services task force recommendation statement. *JAMA.* 2020;323(22):2301-9. doi:10.1001/jama.2020.8020.

### Interventions targeting mental health for physicians and nurses can improve levels of stress, anxiety, and depression

In a systematic review of 29 randomized controlled trials of interventions to improve mental health and well-being in health care workers, mindfulness- and cognitive-behavioral therapy-based interventions were often effective in reducing levels of stress, anxiety, and depression, although interventions that targeted physical activity, body mass index, or blood pressure were generally less efficacious.

**CITATION:** Mazurek Melnyk B et al. Interventions to improve mental health, well-being, physical health, and lifestyle behaviors in physicians and nurses. *Am J Health Promot.* 2020;34(8):929-41. doi: 10.1177/0890117120920451.

trointestinal bleed, sepsis, and heart failure?

**BACKGROUND:** The negative impact of long-term oral corticosteroid therapy is well established. Existing clinical guidelines often recommend short steroid courses (otherwise known as “bursts”) for treatment of a variety of inflammatory diseases; however, the potential risks associated with these courses have not been well studied.

**STUDY DESIGN:** Self-controlled case series.

**SETTING:** National Health Insurance Research Database of medical claims records in Taiwan.

**SYNOPSIS:** Over a 3-year period, this population-based study identified 2,623,327 patients between the ages of 20 and 64 years (mean age, 38) who received an oral corticosteroid burst (defined as 14 days or fewer of therapy). Using a self-controlled design, they found that the risks of gastrointestinal bleeding (incidence rate ratio, 1.8; confidence interval, 1.75-1.84), sepsis (IRR, 1.99; CI, 1.7-2.32), and heart failure (IRR, 2.37; CI, 2.13-2.63) were significantly higher 5-30 days after steroid initiation when compared with the reference period of 5-90 days prior to steroid initiation.

The population studied was predominantly young and relatively healthy (85% had a Charlson Comorbidity Index of 0); thus, the results may not be generalizable to the elderly (older than 65) and younger (younger than 20) patients, or those with significant underlying comorbidities.

**BOTTOM LINE:** Short courses of oral corticosteroids may increase the risk of gastrointestinal bleeding, sepsis, and heart failure within the first month after therapy. Physicians prescribing steroid bursts should weigh benefits against the risks of rare but potentially severe adverse events.

**CITATION:** Yao TC et al. Association between oral corticosteroid bursts and severe adverse events: A nationwide population-based cohort study. *Ann Intern Med.* 2020 Sep 1;173(5):325-30. doi: 10.7326/M20-0432.

*Dr. Heinen is an assistant attending hospitalist at Memorial Sloan Kettering Cancer Center, New York.*

By Michael Hession, MD

### 5 Opiate use associated with increased risk for CAP

**CLINICAL QUESTION:** Are opioids a risk factor for community-acquired pneumonia (CAP) requiring hospitalization?

**BACKGROUND:** CAP is among the most common infectious causes of death in the United States. Emerging data suggest that opioids – in addition

to their known sedating, as well as respiratory-suppressing, effects – may increase the risk or severity of CAP resulting from immunosuppression through an unidentified mechanism. This article seeks to identify opioids as an additional risk factor for CAP.

**STUDY DESIGN:** Systematic review and meta-analysis.

**SETTING:** Health systems in the United States, Canada, and Finland.

**SYNOPSIS:** Investigators identified eight studies, including 567,472 patients, that examined opioid exposures and risk of CAP. They found that opioid prescriptions are associated with an overall increase of 57% in the risk of CAP requiring hospitalization (odds ratio, 1.57 [95% CI, 1.34, 1.84]; hazard ratio, 1.18 [95% CI, 1.00, 1.40]). None of these studies directly compared the risk of CAP for patients on immunosuppressive vs. nonimmunosuppressive opioids; however, there



Dr. Hession

was no significant difference between them in the author's pooled analysis.

Different cut-off points for high-dose morphine equivalent daily doses across studies precluded the authors from investigating dose-response relationships. The authors also note these findings may not be generalizable beyond the postoperative and chronically ill patient populations included in the studies.

**BOTTOM LINE:** These findings suggest that, among chronically ill and postoperative patients, opioids are a risk factor for CAP.

**CITATION:** Steffens C et al. The association between prescribed opioid receipt and community-acquired pneumonia in adults: A systematic review and meta-analysis. *J Gen Intern Med.* 2020 Sep 3;35(11):3315. doi: 10.1007/s11606-020-06155-9.

### 6 Integrating machine learning and performance feedback promotes advanced care planning

**CLINICAL QUESTION:** Can clinician-directed, electronic interventions promote serious illness conversations (SICs)?

**BACKGROUND:** In prior research, oncologists were able to identify fewer than half of cancer patients expected to die within 6-12 months, while algorithms employing machine learning were more accurately able to predict mortality risk. By combining machine learning mortality

calculations, clinician prompts, and performance feedback, investigators sought to increase the rate of SICs.

**STUDY DESIGN:** Stepped-wedge cluster randomized controlled trial.

**SETTING:** Medical oncology clinics within the University of Pennsylvania Health System.

**SYNOPSIS:** The study included 78 oncology clinicians, in eight clinic groupings, who received standardized training in SICs. In a stepped-wedge design, clinicians received SIC performance feedback, a list of upcoming patients with a less than 10% 180-day mortality risk as predicted by a validated algorithm, and real-time text reminders to engage patients in SICs.

Over a 6-month study period including 26,059 patient encounters, investigators found that a significantly increased rate of SICs occurred in the intervention group, compared with controls (4.6% vs. 1.3%) across all risk groups. Among high-risk patient encounters, the rate of SICs also significantly increased (15.2% vs. 3.6%).

**BOTTOM LINE:** Interventions combining predicted mortality with clinician-directed feedback and clinical reminders led to significantly increased rates of SICs in the oncology clinic setting, particularly for high-risk patients.

**CITATION:** Manz CR et al. Effect of integrating machine learning mortality estimates with behavioral nudges to clinicians on serious illness conversations among patients with cancer. *JAMA Oncol.* 2020 Oct 15;6(12):e204759. doi: 10.1001/jamaoncol.2020.4759.

*Dr. Hession is an assistant attending hospitalist at Memorial Sloan Kettering Cancer Center, New York.*

By Douglas J. Koo, MPH, FHM

### 7 Use of inpatient metered-dose inhalers may result in cost savings

**CLINICAL QUESTION:** Does transitioning from nebulizers to metered-dose inhalers (MDI) result in cost savings?

**BACKGROUND:** MDIs with spacers are clinically equivalent to nebulizers when used properly.

**STUDY DESIGN:** Spreadsheet model.

**SETTING:** Academic medical center.

**SYNOPSIS:** Using cost models which factored in number of patients, medication costs, labor costs for nebulized medications, and education for MDIs, this study showed that switching to MDIs after 24 hours of nebulizers results in cost savings, compared with nebulized medications only. Specifically, the marginal cost saving for every five

*Continued on following page*

Continued from previous page

patients transitioning to MDIs was estimated at \$288.20 for the internal model and \$187.50 for the external model. Savings are largely from the reduction of labor costs of nebulizer administration. The cost comparisons of providing the treatments are institution specific and depend on staff delivering the medications and providing patient education (i.e., student pharmacists vs. other staff).

**BOTTOM LINE:** Transitioning from nebulizers to MDIs may result in cost savings from the reduction of labor costs.

**CITATION:** Kondo R et al. Cost saving simulation for the transition from nebulizer to combination of nebulizer and metered-dose inhalers (MD). *Chest*. 2020; 158(4):A29. doi: 10.1016/j.chest.2020.08.069.

## 8 Assessing the impact of palliative care interventions in chronic noncancer illness

**CLINICAL QUESTION:** What is the association between palliative care interventions and acute health care use, symptom burden, and quality of life in adults with chronic noncancer illness?

**BACKGROUND:** Evidence supports the benefits of palliative care for patients with cancer, yet there are twice as many patients with noncancer illness and palliative care needs.

**STUDY DESIGN:** Systematic review and meta-analysis.

**SETTING:** Academic medical centers.

**SYNOPSIS:** This study of 28 randomized controlled trials of 13,664 patients with noncancer illness (mostly heart failure) found that receipt of palliative care interventions was statistically significantly associated with less ED use, less hospitalization, and lower symptom burden; however, it was not significantly associated with disease-generic or disease-specific measures of quality of life. This finding may result from significant heterogeneity in the interventions between trials and the statistical impact of a large study with high risk of bias.

**BOTTOM LINE:** Palliative care, compared with usual care, is associated with less acute health care use and modestly lower symptom burden but no difference in quality of life.

**CITATION:** Quinn KL et al. As-

sociation of receipt of palliative care interventions with health care use, quality of life, and symptom burden among adults with chronic noncancer illness: A systematic review and meta-analysis. *JAMA*. 2020;324(14):1439-50. doi: 10.1001/jama.2020.14205.

*Dr. Koo is an associate attending hospitalist at Memorial Sloan Kettering Cancer Center, New York.*

By David W. Rawson, MD

## 9 SGLT2 inhibitors improve CV and kidney-related outcomes in patients with T2D

**CLINICAL QUESTION:** Does the effectiveness of SGLT2 inhibitors for cardiovascular- and kidney-related outcomes vary across the class of medications or by the presence or absence of preexisting cardiovascular or chronic kidney disease?

**BACKGROUND:** Randomized, controlled trials have demonstrated that, in patients with type 2 diabetes, SGLT2 inhibitors are associated with favorable kidney-related and cardiovascular outcomes, including reductions in major adverse cardiac events and hospitalizations for heart failure; however, the consistency of effects across the four different SGLT2 inhibitors available in the United States remains uncertain.

**STUDY DESIGN:** Meta-analysis.

**SETTING:** English-language search of literature published between January 1, 2015, and January 31, 2020.

**SYNOPSIS:** The authors identified six randomized, controlled trials that included 46,969 total patients with type 2 diabetes, of whom 66.2% had known preexisting atherosclerotic cardiovascular disease. Outcomes included major adverse cardiovascular events (myocardial infarction, stroke, or death from cardiovascular causes), hospitalization for heart failure, and composite kidney outcomes (including worsening eGFR or creatinine, end-stage renal disease, or death from kidney-related causes). Median follow-up in the included trials ranged from 2.4 to 4.2 years.

Analysis showed that SGLT2 inhibitors were associated with a lower risk of major adverse cardiovascular events (hazard ratio, 0.90; 95% CI, 0.85-0.95), kidney outcomes (HR, 0.62; 95% CI, 0.56-0.70), and hospitalization for heart failure (HR, 0.68; 95% CI, 0.61-0.76). SGLT2 inhibitors were also associated with lower rates of death from cardiovascular causes (HR, 0.85; 95% CI, 0.78-0.93), although significant heterogeneity was observed for this outcome, with

empagliflozin having the most significant effect. Associations with improved kidney outcomes and decreased hospitalizations for heart failure were consistent across the class of SGLT2 inhibitors.

**BOTTOM LINE:** In patients with type 2 diabetes, all SGLT2 inhibitors are associated with reductions in major adverse cardiac events and adverse kidney-related outcomes, but for rates of death from cardiovascular causes, there is heterogeneity across SGLT2 inhibitors.

**CITATION:** McGuire D et al. Association of SGLT2 inhibitors with cardiovascular and kidney outcomes in patients with type 2 diabetes. *JAMA Cardiol*;6(2):148-58. doi: 10.1001/jamacardio.2020.4511.

## 10 Shared decision-making tool for anticoagulation decisions in AFib may improve communication

**CLINICAL QUESTION:** Does the use of a shared decision-making (SDM) tool improve the quality of SDM and anticoagulation choices for patients with atrial fibrillation (AFib) who are at risk of stroke?

**BACKGROUND:** Shared decision-making is widely recommended to individualize the anticoagulation treatment of patients with nonvalvular AFib who are at risk of stroke. Tools to help facilitate



Dr. Rawson

SDM about anticoagulation have not been rigorously evaluated for efficacy in RCTs.

**STUDY DESIGN:** Multicenter, non-blinded, randomized controlled trial.

**SETTING:** Three academic medical centers, one suburban group practice, and one urban safety-net health system in the United States, between Jan. 30, 2017, and June 27, 2019.

**SYNOPSIS:** Of patients with nonvalvular AFib, 922 were randomized to either the intervention arm, which incorporated a standardized tool for SDM about anticoagulation, or to standard care. The SDM tool consisted of individualized patient risk assessments for outcomes like stroke and major bleeding, sample language to describe those risks, and a comparison of medication options. Multiple measures of the quality of SDM were studied, including patient-reported outcomes (quality of communication, satisfaction with treatment deci-

## Preop stress testing prior to total hip or knee arthroplasty is declining without an increase in cardiac complications

A large retrospective cross-sectional study found that, between 2006 and 2017, preoperative stress testing for total hip and knee arthroplasties declined, while at the same time, rates of perioperative myocardial infarction and cardiac arrest in patients with a Revised Cardiac Risk Index (RCRI) of 1 or more did not significantly change. The authors recommend additional investigation as to when perioperative stress testing may be warranted.

**CITATION:** Rubin DS et al. Frequency and outcomes of preoperative stress testing in total hip and knee arthroplasty from 2004 to 2017. *JAMA Cardiol*. 2020 Sep 30; 6(1):13-20. doi: 10.1001/jamacardio.2020.4311.

sions), clinician-reported outcomes (satisfaction with discussion), and ratings of patient engagement by independent observers.

Patients in both arms reported high quality of communication, high levels of knowledge, and low decisional conflict, with no significant differences between treatment arms. Clinicians were significantly more satisfied with the quality of encounters in the intervention arm (88.3%), compared with the standard-care arm (61.8%). Scores of patient involvement in decision-making were higher in the intervention arm. No significant difference was found with respect to encounter duration or treatment decisions.

**BOTTOM LINE:** Use of a shared decision-making tool led to significant improvements in clinician satisfaction and patient engagement with decision-making, without a significant effect on treatment decisions or duration of the encounter.

**CITATION:** Kunneman M et al. Assessment of shared decision-making for stroke prevention in patients with atrial fibrillation. *JAMA Intern Med*. 2020;180(9):1215-1224. doi: 10.1001/jamainternmed.2020.2908.

*Dr. Rawson is an assistant attending hospitalist at Memorial Sloan Kettering Cancer Center, New York.*

*This article was updated with an additional author since publication. Dr. Allen-Dicker was responsible for article selection and editing of his team's submissions.*



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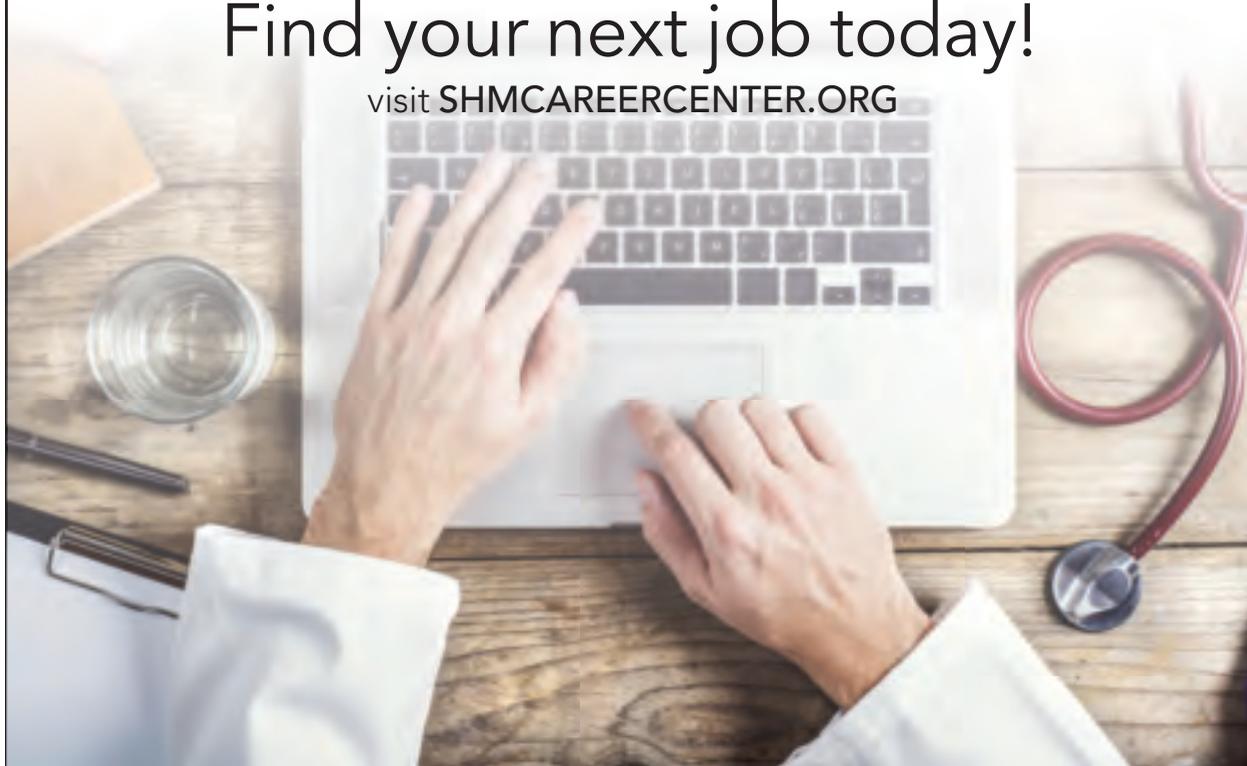
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## Community PHM

## The COVID-19 push to evolve

By Magna Dias, MD

Has anyone else noticed how slow it has been on your pediatric floors? Well, you are not alone.

The COVID pandemic has had a significant impact on health care volumes, with pediatric volumes decreasing across the nation. A Children's Hospital Association CEO survey, currently unpublished, noted a 10%-20% decline in inpatient admissions and a 30%-50% decline in pediatric ED visits this past year. Even our usual respiratory surge has been disrupted. The rate of influenza tracked by the CDC is around 1%, compared with the usual seasonal flu baseline national rate of 2.6%. These COVID-related declines have occurred amidst the backdrop of already-decreasing inpatient admissions because of the great work of the pediatric hospital medicine (PHM) community in reducing unnecessary admissions and lengths of stay.

For many hospitals, several factors related to the pandemic have raised significant financial concerns. According to Becker Hospital Review, as of August 2020 over 500 hospitals had furloughed workers. While 26 of those hospitals had brought back workers by December 2020, many did not. Similar financial concerns were noted in a Kaufmann Hall report from January 2021, which showed a median drop of 55% in operating margins. The CARES Act helped reduce some of the detrimental impact on operating margins, but it did not diminish the added burden of personal protective equipment expenses, longer length of stay for COVID patients, and a reimbursement shift to more government payors and uninsured caused by pandemic-forced job losses.

COVID's impact specific to pediatric hospital medicine has been substantial. A recent unpublished survey by the PHM Economics Research Collaborative (PERC) demonstrated how COVID has affected pediatric hospital medicine programs. Forty-five unique PHM programs from over 21 states responded, with 98% reporting a decrease in pediatric inpatient admissions as well as ED visits. About 11% reported temporary unit closures, while 51% of all programs reported staffing restrictions ranging from hiring freezes to downsizing

the number of hospitalists in the group. Salaries decreased in 26% of reporting programs, and 20%-56% described reduced benefits, ranging from less CME/vacation time and stipends to retirement benefits. The three most frequent benefit losses included annual salary increases, educational stipends, and bonuses.

Community hospitals felt the palpable, financial strain of decreasing pediatric admissions well before the pandemic. Hospitals like MedStar Franklin Square Hospital in Baltimore and Harrington Hospital in Southbridge, Mass., had decided to close their pediatrics units before COVID hit. In a 2014 unpublished survey of 349 community PHM (CPHM) programs, 57% of respondents felt that finances and justification for a pediatric program were primary concerns.

Responding to financial stressors is not a novel challenge for CPHM programs. To keep these vital pediatric programs in place despite lower inpatient volumes, those of us in CPHM have learned many lessons over the years on how to adapt. Such adaptations have included diversification in procedures and multifloor coverage in the hospital. Voiding cystourethrogram catheterizations and circumcisions are now more commonly performed by CPHM providers, who may also cover multiple areas of the hospital, including the ED, NICU, and well-newborn nursery. Comanagement of subspecialty or surgical patients is yet another example of such diversification.

Furthermore, the PERC survey showed that some PHM programs temporarily covered pediatric ICUs and step-down units and began doing ED and urgent care coverage as primary providers. Most programs reported no change in newborn visits while 16% reported an increase in newborn volume and 14% reported a decrease in newborn volume. My own health system was one of the groups that had an increase in newborn volume. This was caused by community pediatricians who had stopped coming in to see their own newborns. This coverage adjustment has yet to return to baseline and will likely become permanent.

There was a 11% increase from pre-pandemic baselines (from 9% to 20%) in programs doing telemedicine. Most respondents stated that

they will continue to offer telemedicine with an additional 25% of programs considering starting. There was also a slight increase during the pandemic of coverage of mental health units (from 11% to 13%), which may have led 11% of respondents to consider the addition of this service. The survey also noted that about 28% of PHM programs performed circumcisions, frenectomies, and sedation pre-pandemic, and 14%-18% are considering adding these services.

Overall, the financial stressors are improving, but our need to adapt in PHM is more pressing than ever. The pandemic has given us the push for evolution and some opportunities that did not exist before. One is the use of telemedicine to expand our subspecialty support to community hospitals, as well as to children's hospitals in areas where subspecialists are in short supply. These telemedicine consults are being reimbursed for the first time, which allows more access to these services.

With the pandemic, many hospitals are moving to single room occupancy models. Construction to add more beds is costly, and unnecessary if we can utilize community hospitals to keep appropriate patients in their home communities. The opportunity to partner with community hospital programs to provide telemedicine support should not be overlooked. This is also an opportunity for academic referral centers to have more open beds for critical care and highly specialized patients.

Another opportunity is to expand scope by changing age limits, as 18% of respondents to the PERC survey reported that they had started to care for adults since the pandemic. The Pediatric Overflow Planning Contingency Response Network (POPCoRN) has been a valuable resource for education on caring for adults, guidance on which patient populations are appropriate, and the resources needed to do this. While caring for older adults, even in their 90s, was a pandemic-related phenomenon, there is an opportunity to see if the age limit we care for should be raised to 21, or even 25, as some CPHM programs had been doing pre-pandemic.

Along with the expansion of age limits, there are many other areas of opportunity highlighted within the PERC survey. These include expand-



Dr. Dias is a clinical associate professor of pediatrics at Yale University, New Haven, Conn., in the division of pediatric hospital medicine.

ing coverage within pediatric ICUs, EDs, and urgent care areas, along with coverage of well newborns that were previously covered by community pediatricians. Also, the increase of mental health admissions is another area where PHM programs might expand their services.

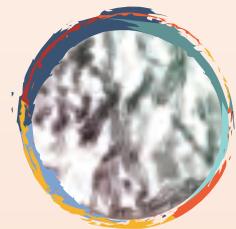
While I hope the financial stressors improve, hope is not a plan and therefore we need to think and prepare for what the post-COVID future may look like. Some have predicted a rebound pediatric respiratory surge next year as the masks come off and children return to in-person learning and daycare. This may be true, but we would be foolish not to use lessons from the pandemic as well as the past to consider options in our toolkit to become more financially stable. POPCoRN, as well as the American Academy of Pediatrics' listserv and subcommittees, have been a source of collaboration and shared knowledge during a time when we have needed to quickly respond to ever-changing information. These networks and information sharing should be leveraged once the dust settles for us to prepare for future challenges.

New innovations may arise as we look at how we address the growing need for mental health services and incorporate new procedures, like point-of-care ultrasound. As Charles Darwin said: "It is not the strongest of the species that survives nor the most intelligent that survives. It is the one that is most adaptable to change." It is time for us to evolve.

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