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# The Hospitalist

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Dr. Sandhya Tagaram, hospitalist at UMass Memorial Medical Center in Worcester, Mass.

UMass Memorial Medical Center

## Visa worries intensify pandemic stress for immigrant hospitalist moms

**By Sarah Ludwig Rausch**

The COVID-19 pandemic has been difficult for all hospitalists, especially those who are parents of young children. For hospitalist moms who are also immigrants working on temporary H1-B visas, this stress is exacerbated. Though each story is unique, the underlying themes are the same: worries over visa renewals, the immigration process, family members back home, and the risk of illness, job loss, and deportation.

### Supporting the family

Like all health care workers, Prasanna Palabindela, MD, a hospitalist at Jennie Stuart Health in Hopkinsville, Ky., has been worried about bringing COVID-19 home to her family, especially in the beginning. Her in-laws had just arrived from India for a visit in March 2020 when the pandemic began, everything was shut down, and her in-laws were forced to settle in for an unexpected months-long stay.

Along with her elderly in-laws, who also have chronic conditions, Dr. Palabindela had two small children to worry about – a then–5-month-old daughter and a 5-year-old son. "I was more worried about them than me," she said. "I used to take showers before coming home and just do all precautions as

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# Up to half of patients in hospital for COVID-19 get acute kidney injury

**By Mitchel L. Zoler, PhD**

Acute kidney injury (AKI) is a frequent complication among patients hospitalized for COVID-19, with incidence rates of 39% and 52% in two independent, European case series presented recently at the International Society of Nephrology: 2021 World Congress. Many of the cases progressed to more severe, stage 3 AKI. Factors linked with incident AKI in the two reports included use of mechanical ventilation, vasopressors, or diuretics, and elevations in inflammatory markers.

The new findings confirm several U.S. reports published during the past year. In those reports, roughly a third of patients hospitalized for COVID-19 developed AKI during their hospital stay, said Jay L. Koyner, MD, during another renal conference, the National Kidney Foundation 2021 Spring Clinical Meetings.

Experience has shown it's bad news when hospitalized COVID-19 patients develop AKI, which can prove fatal or can lead to the development or worsening of chronic kidney disease (CKD), which in some cases rapidly progresses to end-stage disease.

## An opportunity to improve care

"COVID is giving us an opportunity to do a better job of taking care of patients who develop AKI, which is something that nephrologists have not often excelled at doing," said Dr. Koyner, professor and director of the nephrology ICU at the University of Chicago.

He cited several lessons from reports of AKI that occurs in patients hospitalized for COVID-19:

- Preexisting CKD, obesity, and severe COVID-19 appear to be risk factors for developing COVID-related AKI.
- Patients who develop AKI during acutely severe COVID-19 may have slightly worse outcomes than patients without COVID-19 who develop AKI.
- Certain genetic susceptibilities may play a role in developing COVID-19–related AKI.
- Routine follow-up of AKI is generally inadequate and is not standardized, whether AKI develops while ill with COVID-19 or in other settings.

The most encouraging AKI takeaway from COVID-19's first year is that its incidence among patients hospitalized with COVID-19 appears to have dropped from very high rates early on, possibly because of more routine use of steroids for critically ill patients with COVID-19 and a reduction in the use of ventilators, Dr. Koyner suggested.

## In-hospital diuretic treatment

One of the World Congress of Nephrology reports involved 1,248 patients admitted with confirmed COVID-19 at two tertiary care hospitals in London during March–May 2020. The average age of the patients was 69 years, 59% were men, and 17% had CKD at admission, as determined on the basis of estimated glomerular filtration rate <60 mL/min per 1.73 $m^2$.

During hospitalization, 487 patients (39%) developed AKI, including 175 (14%) with stage 3 AKI and 109 (9%) who required renal replacement therapy (dialysis or kidney transplant). The incidence of AKI peaked 5 weeks after COVID-19 admission, Paul Jewell and associates from King's College Hospital, London, reported in a poster.

Multivariate analysis identified several demographic and clinical variables that were significantly linked with an increased risk of developing AKI: male sex (which boosted risk by 55%), Black race (79% higher risk), CKD at admission (triple the risk), being hypertensive on admission (73% higher risk), and being administered diuretics during hospitalization (69% higher risk).

The findings of a risk linked with diuretic use "supports the cautious use of diuretics in patients hospitalized with COVID-19, especially in the presence of background renal impairment," the authors said.

For patients with incident AKI, the 30-day mortality rate was significantly increased; mortality was 59% higher among patients who developed stage 1 AKI and was roughly triple among patients who developed stage 2 or 3 AKI.

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

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# Surgeon General headlines Converge 2021

## Emphasizes clinician well-being

**By Thomas R. Collins**

Clinicians' well-being is a "crisis" of grave import to the public health and a top issue that he hopes to get more squarely on the public radar screen, Surgeon General Vivek Murthy, MD, MBA, said May 6 in a "fireside chat" with SHM president Danielle Scheurer, MD, MSRC, SFHM, at SHM Converge, the annual conference of the Society of Hospital Medicine.

"This is a crisis that I don't know that the country recognizes is fully important," Dr. Murthy said. "I don't think that most people in the public recognize just how extraordinarily difficult it is, for many clinicians, to come to practice. And if the clinicians continue to burn out at the rate that they are – in addition to the humanitarian crisis of people who are struggling that we should all feel concern about – it will impact care in a profound way." He said part of his plan is a "national agenda" for clinician well-being, with a clear pathway for creating an environment more conducive to providing quality patient care.

Surgeon General Vivek Murthy, MD, MBA

> *"Many of us are thinking – 'Is there actually a better way for us to live our lives and design our workdays and our choices other than what we were doing prepandemic? Can we center our lives more around the people we love and care about ... ?'"*
>
> —Dr. Murthy

Dr. Scheurer said that this was "welcome news and wonderful to hear."

"Fortunately or unfortunately, now I do think it's more in the front seat," she said, adding that "this notion of 'heal thyself,' we know doesn't work, and these are really systemic ailments that we all have to tackle together."

Dr. Murthy, a hospitalist by training, recently began his second term as Surgeon General, having served under President Obama and appointed to the post again by President Biden. This second appointment is different in the knowledge he has about the job from the start, in the enormity of the public health challenges posed by the COVID-19 pandemic, and in the political tenor of the country.

He said one of his main priorities is to "recenter our public health response" with scientists and public health leaders regaining their proper role.

"Have them be the voices that are actually speaking directly to the public, not in a way that's biased by the politics or by politicians, but it's really guided again by the science and substance of what we know needs to happen," he said.

The response to COVID goes beyond continuing an aggressive vaccination and testing campaign, he said. The pandemic has given rise to worse mental health issues such as depression and anxiety, substance use disorders, and delays in care for other medical conditions for fear of infection – and these are all priorities, Dr. Murthy said.

One "silver lining" of the pandemic is the expansion of telehealth, but this needs refining and persistence to make it work optimally for all patients, he said.

"We have to ensure that that expansion continues and that it's even – meaning that there are so many parts of the country where broadband access is a challenge for patients, so they don't have the benefits of telemedicine," he said. "We also need to ensure that these systems are integrated across our current systems, across hospitals so that we're not creating more work for clinicians when it comes to utilizing this technology to reach their patients."

Clinicians – typically viewed as coming to Capitol Hill only to push for higher payment or changes to medical liability laws – need to use their trusted voices to raise the profile of preventive care and identifying and fixing social barriers related to health, such as transportation issues and unsafe neighborhoods, Dr. Murthy said.

"No one really celebrates the heart attack that was prevented or the asthma that was prevented – we celebrate the illness that took place and was cured," he said. "We know as clinicians that if you really want to reduce human suffering that you have to focus on the prevention side of the house, and I think that unless our colleagues in medicine and in public health come together and advocate for greater investments in prevention, or a national agenda around prevention, my worry is that it won't naturally develop."

On vaccine hesitancy, Dr. Murthy said that the United States needs to work more in increasing confidence that the vaccines will work, and in access to vaccines, but, mostly, in motivation.

"What we've learned is that ultimately trusted voices are what make all the difference when it comes to vaccination," he said. "It's one of these large, people-powered movements that we have to build in our community."

> *"This notion of 'heal thyself,' we know doesn't work, and these are really systemic ailments that we all have to tackle together."*
>
> —Dr. Scheurer

SHM president Danielle Scheurer, MD, MSRC, SFHM

Dr. Scheurer noted that, with hospitalists in 90% of U.S. hospitals, they can play a big role. "If we can all do our part then we'll at least take the ball further down the field."

Dr. Murthy added that, since residency, when he cared for young cancer patients near his own age, he has focused on "finding meaning now" in his work and life. The pandemic has reinforced this, and he doesn't necessarily want life to go back to exactly how it was before the pandemic.

"Many of us are thinking – 'Is there actually a better way for us to live our lives and design our workdays and our choices other than what we were doing prepandemic? Can we center our lives more around the people we love and care about, can we design our work to accommodate our family as opposed to the other way around, to always make our families accommodate our work?' – These are the kinds of choices that we have to make as a society."

*Full coverage of SHM Converge 2021 will appear in the July issue of The Hospitalist.*

*For more articles from Converge, visit our conference landing page at www.the-hospitalist.org/hospitalist/shm-converge.*

# SHM names new Masters in Hospital Medicine at Converge 2021

This year, the Society of Hospital Medicine will induct three new Masters in Hospital Medicine (MHM), the society's highest professional honor.

SHM first introduced the MHM designation in 2010. The honor is reserved for hospitalists who have uniquely distinguished themselves in the specialty through the excellence and significance of their contributions to hospital medicine specifically and health care as a whole. SHM members are nominated for MHM consideration, and the SHM Board of Directors rigorously reviews qualifications and selects each year's MHM class.

The three hospitalists who received the MHM designation at SHM Converge 2021 are Dr. Nasim Afsar, Dr. Shaun D. Frost, and Dr. Jeffrey L. Schnipper.

## Nasim Afsar, MD, MBA, MHM

Dr. Nasim Afsar has been elected a Master in Hospital Medicine, honoring her unwavering dedication to hospital medicine and the Society as an accomplished medical leader.


Dr. Afsar

She is known for her accomplishments in establishing and optimizing complex systems of care in the ambulatory and inpatient settings. Her contributions to hospital medicine can be seen through her extensive leadership experience in health care operations, quality, finance, and management.

Dr. Afsar received her MD from the UC Davis School of Medicine, and went on to complete her residency and internship at UCSD and UCLA, internal medicine programs. She currently serves as the chief operating officer for ambulatory care for UCI Health, with the vision of delivering flawless care for the population of patients in Orange County, Calif.

Over her career, Dr. Afsar has led the development and successful implementation of forward-thinking and ambitious health care quality strategies across multiple organizations. Her work in patient safety and quality improvement has earned her numerous accolades and awards, including the 2011 John M. Eisenberg Award.

She served on SHM's Board of Directors from April 2012 through April 2020, including as president and treasurer. During her time on the board, she was instrumental in defining SHM's role in population health.

Dr. Afsar has held a variety of positions within the Society, including as chair of SHM's Hospital Quality & Patient Safety Committee, as founder and past copresident of SHM's Los Angeles Chapter, and as faculty at numerous annual conferences. She was an esteemed mentor within SHM's Project BOOST, a program within SHM's Center for Quality Improvement focused on care transitions, and served as an associate editor of the Journal of Hospital Medicine for nearly 13 years.

## Shaun D. Frost, MD, MHM

Dr. Shaun D. Frost has been elected a Master in Hospital Medicine, celebrating his enduring commitment to hospital medicine and to the Society for more than 20 years.

After completing his internal medicine residency at the University of Texas, Southwestern Medical School in 1998, he launched his career at the Cleveland Clinic Foundation, where he was a clinical assistant professor of internal medicine at Penn State's College of Medicine.


Dr. Frost

His contributions to hospital medicine can be seen through his comprehensive leadership background, commitment to medical education, innovation in hospitalist program operations, and various publications. He is also well known for his mentorship of young hospitalist leaders.

Dr. Frost currently serves as the associate medical director of care delivery systems at HealthPartners Health Insurance Plan. He is a practicing hospitalist at Regions Hospital in St. Paul, Minn., and is assistant professor at the University of Minnesota's Medical School. Prior to this role, he worked at the Cleveland Clinic as the director of Nonteaching Inpatient Services for 6 years, and also served as the Northeast Region chief medical officer of Cogent Healthcare from 2006 to 2012 where he standardized program operations through structured leadership training according to phased priorities and critical functions.

Dr. Frost is well known for his expansive contributions to the Society of Hospital Medicine, and was recognized by SHM in 2005 with the National Award for Clinical Excellence.

Dr. Frost joined the Society in 1999, and soon thereafter founded and led the Northeast Ohio Chapter. His influence, leadership, and guidance helped to shape the creation of SHM's Chapter Program, which is an integral part of the Society, connecting hospitalists at the local level.

He served on SHM's Board of Directors for 6 years, including as president and treasurer. He has spoken at many of SHM's annual conferences, participated on annual meeting planning committees, and served as course director for the annual meeting's Perioperative Medicine Precourse. He also has served as a facilitator at SHM's Leadership Academies.

Dr. Frost has led and actively participated in numerous SHM committees, councils, and workgroups, including service as the chair of SHM's Membership Committee for 5 years. In fact, the SHM fellow designations, including this very distinction, the Master in Hospital Medicine, originated within this committee under his leadership.

During his tenure as SHM president in 2012-2013, he helped to focus the organization's work to define hospital medicine's strengths and benefits to health care, culminating in the publication of the "Key Principles and Characteristics of an Effective Hospital Medicine Group."

## Jeffrey L. Schnipper, MD, MPH, MHM

Dr. Jeffrey L. Schnipper has been elected a Master in Hospital Medicine, honoring his commitment to hospital medicine as an accomplished hospitalist, researcher, and quality improvement enthusiast.

He graduated from Harvard Medical School in 1996 and went on to receive his master's degree in public health from the Harvard School of Public Health in 2001. Dr. Schnipper also completed his residency, along with a General Medicine Fellowship, at Massachusetts General Hospital in 2001.

Dr. Schnipper currently serves as the director of clinical research in Brigham and Women's Hospital's Hospital Medicine Unit. He also serves as the research director of its General Internal Medicine and Primary Care Division and the fellowship director of the Harvard-Brigham Research Fellowship in Hospital Medicine. He is an associate physician at Brigham and Women's Hospital and is professor of medicine at Harvard Medical School.


Dr. Schnipper

His contributions to hospital medicine are demonstrated through his research efforts focused on improving the quality of health care delivery for general medical patients, including inpatient diabetes management, care transitions, medication reconciliation, and hospital at home care. His medication reconciliation research project (known as MARQUIS) was funded through Agency for Healthcare Research and Quality and led to a 5+ year partnership with the SHM Center for Quality Improvement. When Dr. Schnipper obtained a second AHRQ grant for the MARQUIS2 study, he also partnered with SHM's Center for Quality Improvement.

Dr. Schnipper joined the Society in 2005 and remains an engaged member of the Boston Association of Academic Hospital Medicine Chapter. He has been a member of SHM's Annual Conference Committee and serves on the editorial team of the Journal of Hospital Medicine as an associate editor. He has been invited to speak at numerous SHM annual conferences. His research efforts and impact on the medical field can be found in over 150 peer-reviewed publications including JHM, JAMA Internal Medicine, Annals of Internal Medicine, and the Journal of the American Medical Informatics Association.

# Professional versus facility billing: What hospitalists must know

## Dramatic impact on hospital margins

**By Larry Beresford**

Coding and billing for the professional services of physicians and other practitioners in the hospital and for the hospital's facility costs are separate and distinct processes. But both reflect the totality of care given to patients in the complex, costly, heavily regulated setting of an acute care hospital. And both are essential to the financial well-being of the hospital and its providers, and to their mutual ability to survive current financial uncertainties imposed by the COVID pandemic.

"What hospitalists don't realize is that your professional billing is a completely separate entity [from the facility's billing]," said Aziz Ansari, DO, SFHM, hospitalist, professor of medicine, and associate chief medical officer for clinical optimization and revenue integrity at Loyola University Medical Center in Maywood, Ill. "Your E/M [Evaluation and Management] coding has a separate set of rules, which are not married at all to facility billing."


Dr. Ansari

Dr. Ansari presented a session at Converge – the annual conference of SHM – in May 2021, on the hospitalist's role in "Piloting the Twin Engines of the Mid-Revenue Cycle Ship," with a focus on how physician documentation can optimize both facility billing and quality of care. Hospitalists generally don't realize how much impact they actually have on their hospital's revenue cycle and quality, he said. Thorough documentation, accurately and specifically describing the patient's severity of illness and complexity, affects both.

"When a utilization management nurse calls you about a case, you need to realize they are your partner in getting it right." A simple documentation lapse that would change a case from observation to inpatient could cost the hospital $3,000 or more per case, and that can add up quickly, Dr. Ansari said. "We've seen what happened with COVID. We realized how fragile the system is, and how razor-thin hospital margins are."

### Distinction between professional and facility billing

Professional billing by hospitalist physicians and advanced practice providers is done for their individual encounters with patients and charged per visit for every day the patient is in the hospital based on the treatments, examinations, and medical decision-making required to care for that patient.

These are spelled out using E/M codes derived from Current Procedural Terminology, which is maintained by the American Medical Association for specifying what the provider did during the encounter. Other parameters of professional billing include complexity of decision-making versus amount of time spent, and a variety of modifiers.

By contrast, facility billing by hospitals is based on the complexity of the patient's condition and is generally done whether the hospitalization is considered an inpatient hospitalization or an outpatient hospitalization such as an observation stay. Inpatient hospital stays are often paid using diagnosis-related groupings (DRGs), Medicare's patient classification system for standardizing prospective payment to hospitals and encouraging cost-containment strategies.

> *"Hospitalists need to know and order the appropriate status, inpatient versus outpatient, and whether and when to order observation services, as this will affect hospital reimbursement ..."*
>
> —Dr. Locke

DRGs, which represent about half of total hospital reimbursement, are a separate payment mechanism covering all facility charges associated with the inpatient stay from admission to discharge, incorporating the costs of providing hospital care, including but not limited to space, equipment, supplies, tests, and medications. Outpatient hospital stays, by contrast, are paid based on Ambulatory Payment Classifications.

A facility bill is submitted to the payer at the end of the hospital stay, describing the patient's condition using ICD-10 diagnostic codes. All of the patient's diagnoses and comorbidities contribute to the assignment of a DRG that best captures the total hospital stay. But to make the issue more complicated, the system is evolving toward models of bundled payment that will eventually phase out traditional DRGs in favor of new systems combining inpatient and outpatient reimbursement into a single bundled episode of care.


Dr. Arafiles

Professional and facility bills for a single hospitalization may be prepared by different personnel on separate teams following different rules, although they may both be housed in the hospital's billing department. The differing rules for coding professional services versus facility services can be hard for hospitalists to appreciate, said Wendy Arafiles, MD, a pediatric hospitalist at Phoenix Children's Hospital and medical director for its clinical documentation integrity (CDI) team. An example is for uncertain diagnoses. There may be a clinical suspicion of a diagnosis, and language such as "likely bacterial pneumonia" might be sufficient for facility coding but not for professional services coding.

Hospitalists, depending on their group's size, structure, and relationship to the hospital, may be responsible for selecting the CPT codes or other parameters for the insurance claim and bill. Or these may be left to billing specialists. And those specialists could be employed by the hospital or by the hospitalist group or multispecialty medical group, or they could be contracted outside agencies that handle the billing for a fee.

### The revenue cycle

The hospital revenue cycle has a lot of cogs in the machine, Dr. Arafiles said. "This is just one of the many nuances of our crazy system. I will go out on a limb and say it is not our job as clinicians to know all of those nuances." The DRG assignment is dependent on how providers can describe the complexity of the patient and severity of the illness, even if it doesn't impact professional billing, Dr. Arafiles added.

Hospitalists don't want to think about money when providing patient care. "Our job is to provide the best care to our patients. We often utilize resources without thinking about how much they are going to cost, so that we can do what we think is necessary for our patients," she explained. But accurate diagnosis codes can capture the complexity of the care. "Maybe we don't take that part seriously enough. As long as I, as the provider, can accurately describe the complexity of my patient, I can justify why I spent all those resources and so many days caring for him or her."

Charles Locke, MD, executive medical director of care management for LifeBridge Health and assistant professor of medicine at Johns Hopkins University, Baltimore, said hospitalists typically are paid set salaries directly by the hospital, in some cases with productivity bonuses based in part on their billing and posted RVUs (relative value units). RVUs are the cornerstone of Medicare's reimbursement formula for physician services.


Dr. Locke

"Another thing to keep in mind, one might think in 2021 that the computer systems would be sophisticated enough to link up professional and facility billing to ensure that bills for each are concordant for services provided on a given day. But it turns out they are not yet well connected," Dr. Locke said.

"These are issues that everybody struggles with. Hospitalists need to know and order the appropriate status, inpatient versus outpatient, and whether and when to order observation services, as this will affect hospital reimbursement and, potentially, patient liability," he ex-

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plained.[1] If the hospital is denied its facility claim because of improper status, that denial doesn't necessary extend to a denial for the doctor's professional fee. "Hospitalists need to know these are often separated. Even though their professional fee is honored, the hospital's service charges may not be."

Dr. Locke said knowing the history of Medicare might help hospitalists to better appreciate the distinctions. When this federal entitlement was first proposed in the 1960s as a way to help older Americans in poverty obtain needed health care, organized medicine sought to be excluded from the program. "Nonhospital services and doctors' service fees were not included in the original Medicare proposal," he said. Medicare Part B was created to provide insurance for doctors' professional fees, which are still handled separately under Medicare.

Many institutions use clinical documentation for multiple purposes. "There are so many masters for this one document," Dr. Arafiles said. The information is also used for various quality and patient safety metrics and data gathering. "Every code we choose is used in many different ways by the institution. We don't know where all it goes. But we need to know how to describe how complex the case was, and how much work it entailed. The more we know about how to describe that, the better for the institution."

Dr. Arafiles views the clinical note, first and foremost, as clinical communication, so that one provider can seamlessly pick up where the previous left off. "If I use language in my note that is accurate and specific, it will be useful to all who later need it." Building on metrics such as expected versus actual 30-day readmission rates, risk-adjusted mortality, and all the ways government agencies report hospital quality, she said, "what we document has lasting impact. That's where the facility side of billing and coding is ever more important. You can't just think about your professional billing and RVUs."

## Support from the hospital

Some hospitalists may think facility billing is not their concern. But consider this: The average support or subsidy paid by U.S. hospitals for a full-time equivalent hospitalist is estimated at $198,750, according to SHM's 2020 *State of Hospital Medicine*.[2] That support reflects the difference between the cost of employing a hospitalist in a competitive labor environment and what that provider is actually able to generate in billing income, said Hardik Vora, MD, MPH, SFHM, chair of SHM's practice management committee.

With a lot of medical specialties, the physician's salary is only or largely supported by professional billing, said Dr. Vora, who is medical director for Hospital Medicine and physician advisor for utilization management and CDI at Riverside Health System, Yorktown, Va.

Dr. Vora

"Hospital medicine is different in that aspect, regardless of employment model. And that's where the concept of value comes in – how else do you bring value to the hospital that supports you?" said Dr. Vora.

Hospitalists often emphasize their contributions to quality improvement, patient safety, and hospital governance committees – all the ways they contribute to the health of the institution – as justification for their support from the hospital. But beneath all of that is the income the hospital generates from facility billing and from the hospitalist's contributions to complete, accurate, and timely documentation that can support the hospital's bills.

Typically, this hospital support to supplement hospitalist billing income is not directly tied to the income generated by facility billing or to the hospitalist's contribution to its completeness. But between growing technological sophistication and greater belt-tightening, that link may get closer over time.

## Other players

Because of the importance of complete and accurate billing to the hospital's financial well-being, specialized supportive services have evolved, from traditional utilization review or utilization management to CDI services and the role of physician advisors – experienced doctors who know well how these processes work and are able to teach providers about regulatory compliance and medical necessity.

"One of my jobs as the medical director for our hospital's CDI program is to educate residents, fellows, and newly onboarded providers to be descriptive enough in their charting to capture the complexity of the patient's condition," Dr. Arafiles said. Physician advisors and CDI programs can involve clinical providers in bringing value to the institution through their documentation. They serve as the intermediaries between the coders and the clinicians.

The CDI specialist's job description focuses on diagnosis capture and associated reimbursement. But integrity broadly defined goes to the integrity of the medical record and its contribution to quality and patient safety as well as providing a medical record that is defensible to audits, physician revenue cycle expert Glenn Krauss noted in a recent post at ICD10 Monitor.[3]

Dr. Vora sees his role as physician advisor to be the link between the hospital's executive team and the hospital's medical providers. "Providers need help in understanding a complex set of ever-changing rules of facility billing and the frequently competing priorities between facility and professional billing. I tell my providers: The longer the patient stays in the hospital, you may be generating more RVUs, but our facility may be losing money."

Hospital administrators are acutely aware of facility billing, but they don't necessarily understand the nuances of professional billing, said Jay Weatherly, MS, the cofounder of Hospitalist Billing, a company that specializes in comprehensive billing and collection solutions for hospitalist groups that are employed directly by their hospitals. But he sees an essential symbiotic relationship between hospital administrators and clinicians.

"We rely on hospitalists' record keeping to do our job. We rely on them to get it right," he said. "We want to encourage doctors to cooperate with the process. Billing should never be a physician's top priority, but it is important, nonetheless."

HBI is relentless in pursuit of the information needed for its coding and billing, but does so gently, in a way not to put off doctors, Mr. Weatherly said. "There is an art and a science associated with securing the needed information. We have great respect for the doctors we work with, yet we're all spokes in a bigger wheel, and we need to bill effectively in order to keep the wheel moving."

## What can hospitalists do?

Sources for this article say one of the best places for hospitalists to start improving their understanding of these distinctions is to ask the coders in their institution for advice on how to make the process run more smoothly.

"If you have a CDI team, they are there to help. Reach out to them," Dr. Arafiles said. Generally, medical schools and residency programs fail to convey the complexities of contemporary hospital economics to future doctors.

Hospitalists have become indispensable, Dr. Vora said. But salaries for hospitalists are going up while hospital reimbursement is going down, and hospitalists are not seeing more patients. "At some point we will no longer be able to say financial support for hospital medicine groups is just a cost of doing business for the hospital. COVID tested us – and demonstrated how much hospital executives value us as part of the team. Our organization absolutely stood behind its physicians despite financially challenging times. Now we need to do what we can to support the organization," he added.

> *"One of my jobs as the medical director for our hospital's CDI program is to educate ... providers to be descriptive enough in their charting to capture the complexity of the patient's condition."*
>
> *—Dr. Arafiles*

"As we see a significant shift to value-based payment, with its focus on value, efficiency, quality – the best care at the lowest possible price – hospital medicine as a specialty will be best positioned to help with that. If the hospital does well, we do well. We should be building relationships with the hospital's leadership team," Dr. Vora said. "You always want to contribute to that partnership to the highest level possible. When they look at us, they should see their most reliable partner."

## References

1. Locke C and Hu E. Medicare's two-midnight rule: What hospitalists must know. The Hospitalist. 2019 Feb 22.

2. Beresford L. Hospital medicine in a worldwide pandemic: State of Hospital Medicine 2020. The Hospitalist. 2020 Sep 20.

3. Krauss G. Clinical documentation integrity: Rebranding and repurposing. ICD10 Monitor. 2020 Mar 16. https://www.icd10monitor.com/clinical-documentation-integrity-rebranding-and-repurposing.


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# Successfully implementing Hospital at Home

Hospital at Home: Part 2

**By Marina S. Farah, MD, MHA**

Hospital at Home (HaH) is an innovative model for delivering hospital-level care to selected patients in the safety of their homes. Despite extensive evidence supporting HaH safety and efficacy, HaH has not been widely adopted in the United States. However, COVID-19 boosted interest in HaH by creating an urgent need for flexible hospital bed capacity and amplified concerns about hospital care safety for vulnerable populations.

In part 1 of this series, which appeared in the March 2021 issue of The Hospitalist, I discussed the history and efficacy of HaH. In this article, we turn to explore what it takes to successfully implement HaH.

## Successfully implementing Hospital at Home

HaH implementation requires five key components – people, processes, technology, supply chain, and analytics – to select and enroll patients, deliver acute care at home, and ensure a smooth postacute transition. Let's discuss each of them in more detail below.

### *Selecting and enrolling patients*

Patients eligible for HaH are identified based on their insurance, as well as clinical and social criteria. Despite a lack of public payer support, several commercial payers embraced the model for selected patients who consented to receive acute hospital care at home. The patients must meet criteria for an inpatient admission, be medically stable and have a low level of diagnostic uncertainty.

Advances in home monitoring technology expanded clinical criteria to include acutely ill patients with multiple comorbidities, including cancer. It is important that patients reside in a safe home environment and live within a reasonable distance from the hospital.

CareMore Health, an integrated health care delivery system serving more than 180,000 Medicare Advantage and Medicaid patients across nine states and Washington, D.C., launched Hospital at Home in December 2018, and rapidly scaled from a few referrals to averaging more than 20 new patients per week.

Sashidaran Moodley, MD, medical director at CareMore Health and Aspire Health, in Cerritos, Calif., shared a valuable lesson regarding launching the program: "Do not presume that, if you build it, they will come. This is a new model of care that requires physicians to change their behavior and health systems to modify their traditional admission workflows. Program designers should not limit their thinking around sourcing patients just from the emergency department."

Dr. Moodley recommends moving upstream and bring awareness to the program to drive additional referrals from primary care providers, case managers, and remote patient monitoring programs (for example, heart failure).

Linda DeCherrie, MD, clinical director of Mount Sinai at Home, based in New York, says that "educating and involving hospitalists is key." At Mount Sinai, patients who are eligible for HaH are initially evaluated by hospitalists in the ED who write initial orders and then transfer care to HaH hospitalists. HaH also can enroll eligible patients who still require hospital-level care to complete the last few days of acute hospitalization at home. Early-discharge programs have been implemented at CareMore, Presbyterian Healthcare Services in Albuquerque, and Mount Sinai.

At Mount Sinai, a program called Completing Hospitalization at Home initially started with non-COVID patients and expanded to include COVID early discharges, helping to free up much-needed hospital beds.

> *"Patients receive at least daily visits from registered nurses who carry out orders, administer medications, draw labs, and provide clinical assessment and patient education. Some organizations employ HaH nurses, while others contract with home health agencies."*

### *Delivering acute care at home*

HaH requires a well-coordinated multidisciplinary team. Patient care is directed by a team of physicians and nurse practitioners who provide daily in-person or virtual visits. For provider workflow, an ambulatory version of electronic medical records (for example, Epic) must be customized to include specialized order sets that mimic inpatient orders and diagnoses-specific care delivery protocols. HaH physicians and nurse practitioners are available 24/7 to address acute patient issues.

In addition, patients receive at least daily visits from registered nurses who carry out orders, administer medications, draw labs, and provide clinical assessment and patient education. Some organizations employ HaH nurses, while others contract with home health agencies.

Typically, patients are provided with a tablet to enable telehealth visits, as well as a blood pressure monitor, thermometer, pulse oximeter, and, if needed, scale and glucometer, that allow on-demand or continuous remote monitoring. Recent technology advances in home monitoring enhanced HaH's capability to care for complex, high-acuity patients, and increased the potential volume of patients that can be safely treated at home.

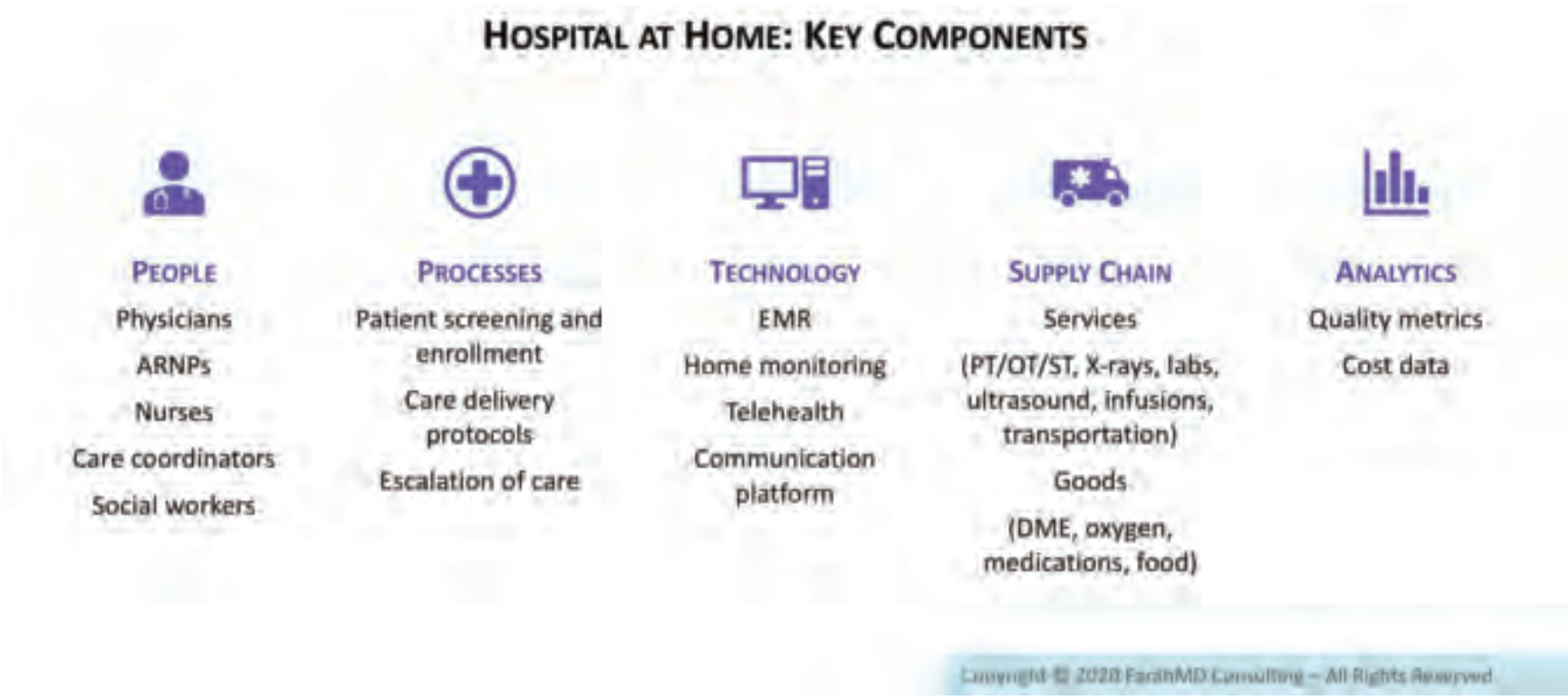
Providence St. Joseph Health, a not-for-profit health care system operating 51 hospitals and 1,085 clinics across seven states, launched their HaH program earlier this year. Per Danielsson, MD, executive medical director for hospital medicine at Swedish Medical Center in Seattle, describes it as a "high-touch, high-tech program anchored by hospitalists." The Providence HaH team utilizes a wearable medical device for patients that enables at-home continuous monitoring of vital signs such as temperature, blood pressure, heart rate, respirations, and pulse oximetry. Single-lead EKG monitoring is available for selected patients. Individual patient data are transmitted to a central command center, where a team of nurses and physicians remotely monitor HaH patients. According to Todd Czartoski, MD, chief medical technology officer at Providence, "Hospital at Home improves quality and access, and can substitute for 20%-30% of hospital admissions."

*Dr. Farah is a hospitalist, physician advisor, and Lean Six Sigma Black Belt. She is a performance improvement consultant based in Corvallis, Ore., and a member of The Hospitalist's editorial advisory board.*

In addition to patient monitoring and 24/7 provider access, some HaH programs partner with community paramedics for emergency responses. At Mount Sinai, HaH providers can trigger paramedic response, if needed. Paramedics can set up a video link with a doctor and, under the direction of a physician, will provide treatment at home or transport patients to the hospital.

HaH would be impossible without a partnership with local ancillary service providers that can promptly deliver services and goods to patient homes. Raphael Rakowski, CEO of Medically Home, a Boston-based company that partners with health care providers to build virtual hospitals at home, calls it an "acute rapid response supply chain." The services, both clinical and nonclinical, consist of infusions; x-rays; bedside ultrasound; laboratory; transportation; and skilled physical, occupational, and speech therapy. If patients require services that are not available at home (for example, a CT scan), patients can be transported to and from a diagnostic center. Medical and nonmedical goods include medications, oxygen, durable medical equipment, and even meals.

Delivery of hospital-level services




at home requires a seamless coordination between clinical teams and suppliers that relies on nursing care coordinators and supporting nonclinical staff, and is enabled by a secure text-messaging platform to communicate within the care team, with suppliers, and with other providers (for example, primary care providers and specialists).

***Ensuring smooth postacute transition***

Thirty days after hospital discharge is the most critical period, especially for elderly patients. According to one study, 19% of patients experienced adverse events within 3 weeks after hospital discharge.[1] Adverse drug events were the most common postdischarge complication, followed by procedural complications and hospital-acquired infections. Furthermore, 30-day all-cause hospital readmissions is a common occurrence. Per the Healthcare Cost and Utilization Project database, 17.1% of Medicare and 13.9% of all-payers patients were readmitted to the hospital within 30 days in 2016.[2]

It is not surprising that some organizations offer ongoing home care during the postacute period. At Mount Sinai, patients discharged from HaH continue to have access to the HaH team around the clock for 30 days to address emergencies and health concerns. Recovery Care Coordinators and social workers monitor patient health status, develop a follow-up plan, coordinate care, and answer questions. Medically Home provides 24/7 care to HaH patients for the entire duration of the acute care episode (34 days) to ensure maximum access to care and no gaps in care and communication. At Presbyterian, most HaH patients are transitioned into a Home Health episode of care to ensure continued high-quality care.

In addition to people, processes, technology, and the supply chain, HaH implementation requires capabilities to collect and analyze quality and cost data to measure program efficacy and, in some arrangements with payers, to reconcile clams data to determine shared savings or losses.

> *"The COVID-19 pandemic has created, arguably, the biggest crisis that U.S. health care has ever experienced, and it is far from over. Short term, Hospital at Home offers a solution to create flexible hospital bed capacity and deliver safe hospital-level care for vulnerable populations."*

## Partnering with third parties

Considering the resources and capabilities required for HaH program development and implementation, it is not surprising that health care providers are choosing to partner with third parties. For example, Mount Sinai partnered with Contessa Health, a Nashville, Tenn.–based company that offers hospitals a turn-key Home Recovery Care program, to assist with supply chain contracting and management, and claims data reconciliation.

Medically Home has partnered with seven health care systems, including the Mayo Clinic, Tufts Medical Center in Boston, and Adventist Health in southern California, to create virtual beds, and was expected to launch the program with 15 health care systems by the end of 2020.

Medically Home offers the following services to its partners to enable care for high-acuity patients at home:

- Assistance with hiring and training of clinical staff.
- Proprietary EMR-integrated orders, notes, and clinical protocols.
- Technology for patient monitoring by the 24/7 central command center; tablets that provide health status updates and daily schedules, and enable televisits; a video platform for video communication; and secure texting.
- Selecting, contracting with, and monitoring the performance of supply chain vendors.
- Analytics.

## The future of Hospital at Home

There is no question that HaH can offer a safe, high-quality, and lower-cost alternative to hospitalizations for select patients, which is aligned with the Centers for Medicare & Medicaid Services' triple aim of better care for individuals, better health for populations, and lower cost.[3]

The future of HaH depends on development of a common payment model that will be adopted beyond the pandemic by government and commercial payers. Current payment models vary and include capitated agreements, discounted diagnosis-related group payments for the acute episode, and discounted DRG payments plus shared losses or savings.

The COVID-19 pandemic has created, arguably, the biggest crisis that U.S. health care has ever experienced, and it is far from over. Short term, Hospital at Home offers a solution to create flexible hospital bed capacity and deliver safe hospital-level care for vulnerable populations. Long term, it may be the solution that helps achieve better care for individuals, better health for populations and lower health care costs.

## References

1. Forster AJ et al. The incidence and severity of adverse events affecting patients after discharge from the hospital. Ann Intern Med. 2003 Mar;138(3):161-7. doi: 10.7326/0003-4819-138-3-200302040-00007.

2. Bailey MK et al. Characteristics of 30-day all-cause hospital readmissions, 2010-2016. Statistical Brief 248. Agency for Healthcare Research and Quality. 2019 Feb 12. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb248-Hospital-Readmissions-2010-2016.jsp.

3. Centers for Medicare & Medicaid Services. What are the value-based programs? 2020 Jan 6. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/Value-Based-Programs.

# COVID-19 outcomes similar with ECMO or mechanical ventilation

**By Fran Lowry**

Severely ill COVID-19 patients treated with extracorporeal membrane oxygenation (ECMO) had similar survival to hospital discharge and long-term outcomes as survivors treated with mechanical ventilation alone, results of a new, multicenter study suggest.

Importantly, the study also showed that survivors, regardless of the treatment they received, experienced significant deficits following their stay in the ICU and were suffering problems with physical, psychological, and cognitive functioning for months afterward.

At 3 months after discharge, 50% of the survivors reported cognitive dysfunction, ICU-acquired weakness and depression, anxiety, or PTSD; over 25% still required supplemental oxygen; and only one in six survivors were back at work.

The findings were presented April 30 at the American Association for Thoracic Surgery annual meeting.

The study represents the efforts of a multidisciplinary team that included cardiothoracic surgeons, critical care doctors, medical staff at long-term care facilities, and physical therapists in addition to other specialists. The research followed patients at five academic centers: the University of Colorado, the University of Virginia, the University of Kentucky, Johns Hopkins University, and Vanderbilt University.

"We were a multidisciplinary team, a whole variety of people to really track the long-term outcomes for patients who have been critically ill from COVID-19 and survived to hospital discharge," presenting author Lauren J. Taylor, MD, fellow at the University of Colorado at Denver, Aurora, said in an interview.

It's unclear currently what happens to these patients once they leave the hospital, she noted. "This is information we have not had, but when we followed these patients in these multidisciplinary clinics, there was a high level of either physical, emotional, or cognitive dysfunction, even for patients who were well enough to be living at home at the time of follow-up.

"So, if you have somebody living at home and they come into the clinic, you assume they are functioning pretty well, but when you actually provide them with cognitive and psychological testing and check their physical capabilities, you find a high degree of deficits throughout the entire cohort of this study," she said.

The study was prompted by discussion with patients' family members about the rationale, risks, and benefits of ECMO cannulation in patients with COVID-19 failing mechanical ventilation, senior author Jessica V. Rove, MD, also from the University of Colorado, said in an interview.

"We wanted to find out what their hospital course would be like and what cognitive, physical, or emotional deficits might they experience if they survive," Dr. Rove said.

The investigators compared 262 mechanically ventilated patients with 46 patients cannulated for ECMO who were hospitalized between March and May 2020.

ECMO patients were younger and traveled farther but there were no significant differences in gender, race, or body mass index.

ECMO patients were mechanically ventilated for longer durations (median, 26 days vs. 13 days) and were more likely to receive inhaled pulmonary vasodilators, neuromuscular blockade, investigational COVID-19 therapies, blood transfusions, and inotropes.

They also experienced greater bleeding and clotting events ($P < .01$).

Despite a more complex critical illness course, patients treated with ECMO had similar survival at discharge and long-term outcomes, compared with those who were treated with mechanical ventilation alone.

The survival rate for ECMO patients was 69.9%, and for mechanically ventilated patients it was 69.6%.

These rates did not differ significantly based on ECMO status and rates of physical, psychological, and cognitive deficits did not differ significantly.

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

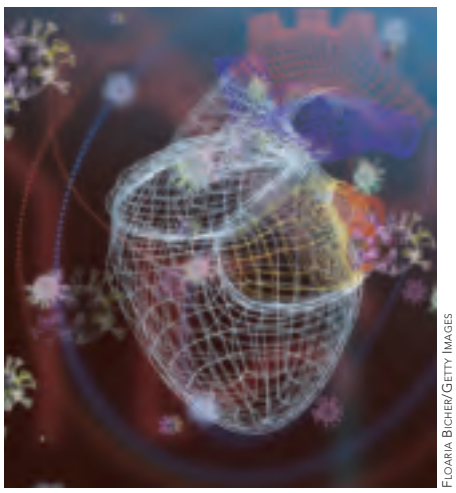
# COVID plus MI confers poor prognosis; 1 in 3 patients die in hospital

**By Megan Brooks**

COVID-19 patients with ST-segment elevation MI (STEMI) represent a population with unique demographic and clinical features resulting in a high risk for mortality, according to initial findings from the North American Cardiovascular COVID-19 Myocardial Infarction (NACMI) registry.

"This is the largest registry of COVID-positive patients presenting with STEMI [and] the results clearly illustrate the challenges and uniqueness of this patient population that deserves prompt and special attention," study cochair Timothy Henry, MD, president-elect of the Society for Cardiovascular Angiography & Interventions, said in a news release.

The NACMI registry is a collaborative effort between the SCAI, the American College of Cardiology Interventional Council, and the Canadian Association of Interventional Cardiology.



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"The rapid development of this ongoing, critically important prospective registry reflects the strong and unique collaboration of all three societies. It was gratifying to be part of this process and hopefully the results will improve the care of our patients and stimulate further research," Dr. Henry said in the news release.

The registry has enrolled 1,185 patients presenting with STEMI at 64 sites across the United States and Canada. Participants include 230 COVID-positive STEMI patients; 495 STEMI patients suspected but ultimately confirmed not to have COVID-19; and 460 age-and sex-matched control STEMI patients treated prior to the pandemic who are part of the Midwest STEMI Consortium.

The initial findings from the registry were published in the Journal of the American College of Cardiology (2021 Apr;77[16]:1994-2003).

## Atypical symptoms may explain high death rate

The primary outcome – a composite of in-hospital death, stroke, recurrent MI, or repeat unplanned revascularization – occurred in 36% of COVID-positive patients, compared with 13% of COVID-negative patients and 5% of control patients ($P < .001$ relative to controls).

This difference was driven largely by a "very high" in-hospital death rate in COVID-positive patients, lead author Santiago Garcia, MD, Minneapolis Heart Institute Foundation, said in an interview.

The in-hospital death rate was 33% in COVID-positive patients, compared with 11% in COVID-negative patients and 4% in controls. Stroke also occurred more often in COVID-positive patients at 3% versus 2% in COVID-negative and 0% in controls.

These initial findings suggest that the combination of STEMI and COVID-19 infection "confers a poor prognosis, with one in three patients succumbing to the disease, even among patients selected for invasive angiography (28% mortality)," the investigators wrote.

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

# Converging to build for tomorrow

**By Jerome C. Siy, MD, MHA, SFHM**

*Dr. Siy is division medical director, hospital specialties, in the departments of hospital medicine and community senior and palliative care at HealthPartners in Bloomington, Minn. He is the new president of SHM.*

Last month we converged virtually for our annual conference, SHM Converge – the second time since the start of the coronavirus pandemic. We are thankful for innovations and advancements in technology that have allowed the world, including SHM, to continue connecting us all together. And yet, 18 months in, having forged new roads, experienced unique and life-changing events, we long for the in-person human connection that allows us to share a common experience. At a time of imperatives in our world – a global pandemic, systemic racism, and deep geopolitical divides – more than ever, we need to converge. Isolation only festers, deepening our divisions and conflicts.

In high school, I read Robert Frost's poem "The Road Not Taken" and clung to the notion of diverging roads and choosing the road less traveled. Like most young people, my years since reading the poem were filled with attempts at forging new paths and experiencing great things – and yet, always feeling unaccomplished. Was Oscar Wilde right when he wrote: "Life imitates Art far more than Art imitates Life?" After all, these past 18 months, we have shared in the traumas of our times, and still, we remain isolated and alone. Our diverse experiences have been real, both tragic and heroic, from east to west, city to country, black to white, and red to blue.

At SHM, it's time to converge and face the great challenges of our lifetime. A deadly pandemic continues to rage around the world, bringing unprecedented human suffering and loss of lives. In its wake, this pandemic also laid bare the ugly face of systemic racism, brought our deepest divisions to the surface – all threatening the very fabric of our society. This pandemic has been a stress test for health care systems, revealing our vulnerabilities and expanding the chasm of care between urban and rural communities, all in turn worsening our growing health disparities. This moment needs convergence to rekindle connection and solidarity.

Scholars do not interpret "The Road Not Taken" as a recommendation to take the road less traveled. Instead, it is a suggestion that the diverging roads lead to a common place, having been "worn about the same" as they "equally lay." Our roads are unique and shape our lives, but so, too, does the destination our roads lead us to. At that common place, during these taxing times, SHM enables hospitalists to tackle these great challenges.

For over 2 decades of dynamic changes in health care, SHM has been the workshop where hospitalists converged to sharpen clinical skills, improve quality and safety, develop acute care models inside and outside of hospitals, advocate for better health policy, and blaze new trails. Though the issues evolved, and new ones emerge, today is no different.

Indeed, this is an historic time. This weighted moment meets us at the crossroads. A moment that demands synergy, cooperation, and creativity. A dynamic change to health care policy, advances in care innovation, renewed prioritization of public health, and rich national discourse on our social fabric; hospitalists are essential to every one of those conversations. SHM has evolved to meet our growing needs, equipping hospitalists with tools to engage at every level, and enabled us to find our common place.

Where do we go now? I suggest we continue to take the roads not taken and at the destination, build the map of tomorrow, together.

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# Visa worries

Continued from page 1

much as I can. I'm glad that I did not bring COVID, so far, to the family."

Once she could safely send her in-laws back to India, Dr. Palabindela began searching for a nanny. Daycare was out of the question because she didn't want her children to be exposed to illness. After a long search, she found a nanny who could also help her son with virtual school. "It's expensive, but still, my family and my family's health is my priority," she said.

Working on visas has caused multiple issues for Dr. Palabindela and her husband. After living in different states because of their jobs, her husband joined her in West Virginia for her residency and found a job there. When Dr. Palabindela took her current position, her husband had to quit his job in West Virginia and move with her to Kentucky for them to stay together. Unfortunately, he couldn't find a good fit for work in Kentucky, so the couple decided to put him on her visa so they wouldn't have to live apart.

Now Dr. Palabindela is the family's sole breadwinner. "That means if something happens to me, I always worry what's going to happen with my family because legally, my husband cannot work. Technically, everyone is deported back to home," she said. Not being able to work is hard for her husband too. "It's just so much stress in the family because he worked for 11 years," said Dr. Palabindela.

Through all the upheavals, Dr. Palabindela has had support from all sides. Her husband has been the biggest source. "He's my backbone. Every time, he supported me in each and every aspect," she said. Her parents and her brothers check in on her constantly to make sure she's staying safe. Even the chief at her hospital has played a significant role, going to bat for his physicians to ensure their safety.

Dr. Palabindela credits everyone who works with COVID-19 patients as heroes. "The nurses, the physicians, the housekeeping, respiratory therapist, speech therapist, physical therapy … everybody has a role. Everybody is a hero," she said. "Whoever is wearing a mask is a hero, too, because they are contributing to this community."

## Advocating for immigration reform

A lack of transparency and information in the beginning of the pandemic significantly contributed to anxiety, said Anuradha Amara, MD, MBBS, a hospitalist in Wilmington, Del. She felt that what was on the news and what was actually going on in the hospitals were quite different. Colleagues were getting sick, there wasn't enough personal protective equipment, and planning went out the window. "It's like a meteor hitting a place and then we start dealing with the aftermath, but we weren't ready before," Dr. Amara said. "We didn't have a plan for a pandemic."

Then there was the concern of either her or her husband, a cardiologist, getting sick and potentially losing their jobs and immigration status. "How am I going to go back to my country if I had to? What will happen to my family if I die? If I go on the ventilator? Those are the insecurities we found additional to the pandemic challenges we had," Dr. Amara said.

Not being able to go see their family in India or have them come visit was difficult – "it was pretty bad up there," said Dr. Amara. Fortunately, her family members in India remained safe, but there's a very real uneasiness about returning should an emergency arise. "Should I go back and then take the risk of losing my job and losing my position and my kids are here, they're going to school here. How do you decide that?" she asked.

One of the worst effects of her visa restrictions was not being able to help in New York when hospitals were so short-staffed, and the morgues were overflowing. "New York is 3 hours away from where I live, but I was in chains. I couldn't help them because of these visa restrictions," Dr. Amara said. During the emergency, the state allowed physicians from other states to practice without being licensed in New York, but immigrant physicians were not included. "Even if we wanted to, we couldn't volunteer," said Dr. Amara. "I have family in New York, and I was really worried. Out of compassion I wanted to help, but I couldn't do anything."

Dr. Amara

Before the pandemic, Dr. Amara joined in advocacy efforts for immigrant physicians through Physicians for American Healthcare Access (PAHA). "In uncertain times, like COVID, it gets worse that you're challenged with everything on top of your health, your family, and you have to be worried about deportation," she said. "We need to strengthen legislation. Nobody should suffer with immigration processes during an active pandemic or otherwise."

In the United States, 28% of physicians are immigrants. Dr. Amara pointed out that these physicians go through years of expensive training with extensive background checks at every level, yet they're classified as second preference (EB-2) workers. She believes that physicians as a group should be excluded from this category and allowed to automatically become citizens after 5 years of living in the United States and working in an underserved area.

There have been an estimated 15,000 unused green cards since 2005. And if Congress went back to 1992, there could be more than 220,000 previously unused green cards recaptured. These unused green cards are the basis behind bills H.R.2255 and S.1024, the Healthcare Workforce Resiliency Act, which has been championed by SHM and PAHA. "It will allow the frontline physicians, 15,000 of them, and 25,000 nurses, to obtain their permanent residency," said Dr. Amara. "These are people who already applied for their permanent residencies and they're still waiting."

SHM has advocated for the Act for nearly 3 years, written multiple letters on the issue, and supported it both on and off Capitol Hill. The society says the legislation would be an "important first step toward addressing a critical shortage" in the U.S. health care system by "recognizing the vital role immigrant physicians and nurses are playing in the fight against COVID-19."

Currently, SHM has a live action alert open for the reintroduced bill, and encourages members to contact their legislators and urge them to support the reintroduction of the Act by cosponsoring and working to pass the legislation.

Dr. Amara encourages physicians to start engaging in advocacy efforts early in their careers. Though she didn't begin participating until late in her career, she said being aware of and part of policies that affect medicine is important. If more physicians get involved, "there are so many things we can take care of," said Dr. Amara. "The medical profession doesn't have to be so difficult and so busy. There are ways we can make it better and I believe that. And obviously I'll continue to work and advocate for the entire medical profession, their problems, their health and well-being, to prevent burnout."

## Making time for positivity and self-care

Sandhya Tagaram, MD, a hospitalist at UMass Memorial Medical Center in Worcester, and her husband, also a hospitalist physician, had only ever read about pandemics in books. They certainly never expected to be in the middle of one. "That was a totally different level of anxiety to work as frontline physicians with two kids under 5 years and families away back home in India," she said.

Dr. Tagaram

Dr. Tagaram and her husband work opposite shifts so that one of them is always home with their two young children. "Our schedules became more challenging when the pandemic started. Between both of our schedules and with minimal childcare facilities, we managed to strike a decent work-family balance, although we experience less vacation time together. We are fortunate to have an understanding work group," said Dr. Tagaram.

Even before COVID-19, Dr. Tagaram found working on the temporary work visa challenging. "I think the pandemic has exposed the layer of uncertainty associated with it," she said. "It's incredibly stressful to imagine any minor turbulence that could alter our family and work lives. As a frontline physician mom, I take pride in raising my kids and taking care of my patients. We want to serve our communities and at the same time secure our families."

Not being able to visit family back home and travel is exceedingly difficult. Dr. Tagaram said it would be helpful if there was a separate permanent residence pathway for physicians because they play a critical role in public health and they have been an integral part of the COVID-19 pandemic response team. A separate pathway could help keep their families secure and enable them to give their best to their communities.

Amid all the anxiety, Dr. Tagaram said she and her husband realized they could not keep living with so much pressure. As parents and as physicians, they did not want their stress to leak out and affect their ability and commitment to care for their children or their patients. They decided they needed to figure out how to be positive and constructive.

"We try some daily fun activities with the

kids after returning home from work," said Dr. Tagaram. They also formed a bubble group with two other physician families so the children could interact safely. She said that it's critical that physicians take time for themselves. "We have to cultivate a serious hobby that helps to rejuvenate and calm our busy minds," said Dr. Tagaram.

She makes time every day to exercise and to read at least a few pages from a good book. She is also learning Carnatic music along with one of her daughters. And every month since March 2020, she has journaled about her work and what she learned so her daughters can read it someday. "These things keep me jazzed up," she said.

The pandemic has highlighted the fact that we are all part of one global community. "Although we hail from different backgrounds, we learned that we do have some common goals of being kind and supportive to each other and to give back to our communities. Hopefully we will continue this spirit," said Dr. Tagaram. As a physician mother, "I feel it's a privilege and honor to take care of my family and my community."

### Soldiering on in the COVID-19 war

The uncertainty everyone felt at the beginning of the pandemic was "very, very scary," said Mamtha Balla, MD, MPH, a hospitalist and clinical assistant professor in northwest Ohio. "Initially, I was so involved in it and I felt like it was like a war, a COVID-19 war, and we are soldiers in that and trying to protect and do whatever we can."

She and her husband, a geriatrician also working on an H-1B visa, have worked hard not to bring the virus home to their 2-year-old daughter. Going into 2021, Dr. Balla said, the past 2 years have been "the most hectic and emotionally draining – and physically exhausting – years of my life."

The COVID-19 vaccine has helped reduce some pressure, but Dr. Balla is still concerned about the high risk to health care workers and the new COVID-19 strains coming out. "We are really not sure what we are dealing with and how the COVID will calm," she said. "It is pretty challenging being a health care worker because not only are you responsible for your patients at the end of the day, but you are also responsible for your families."


Dr. Balla

Initially in the United States from India on a student visa in 2008, Dr. Balla was placed on an H-1B visa when she started her residency. It was during this time that her mother was diagnosed with cancer and went through surgeries and chemotherapy. "She was pretty ill," recalled Dr. Balla.

Despite the situation, Dr. Balla was afraid to go stay with her mother in case her visa application was rejected, and she couldn't complete her third year of education. "I opted not to go to India at that time because I did not want to take a chance," Dr. Balla said. "I have tears in my eyes because those are not easy moments, to withhold from seeing your parents, or to be in any other emergency where you cannot travel. That especially puts us at a higher risk emotionally and physically."

She has not seen her parents in 2½ years. Between the very real possibility of not being able to get her visa stamp and the unpredictability of how other countries are dealing with COVID-19, Dr. Balla feels it is impossible to even think of going to visit. "Even if I go, what if something happens where my visa gets stuck, or the visa office is not open?" she said. If she could not get back to the United States as planned, she would have patients left behind here.

Recently, Dr. Balla did travel to India and her passport stamp did not come on time, so her husband had to come back to the United States by himself. She had to wait for her stamp for a couple more weeks before she could leave and, in the meantime, had to make arrangements at her hospital. "It is so much trauma," she said.

There's also the worry she has about getting sick or disabled and not being able to work anymore, resulting in deportation. "Is that what we are doing for people who are working like soldiers? Are we really treating them the correct way?" Dr. Balla asked.

Dr. Balla considers all health care workers to be soldiers in the COVID-19 war. As such, she believes the government should step up to make sure they are supporting and helping these immigrant physician-soldiers who are so necessary. She applauds France's recent decision to grant citizenship to its frontline immigrant health care workers and feels that the same should be done in the United States. She filed her green card application in 2012, but she is nowhere close to getting it. (The backlog for employment-based green cards is more than 900,000 now.)

As people putting their own and their family's lives at risk to care for patients with COVID-19, Dr. Balla and her husband have talked about moving to another country or even back to India. "I am a taxpayer; I am a good human being working for the community and for the job. This is my 13th year here. If I am not eligible [for citizenship] still, then I am not sure what else I have to do to prove myself," she said. "I am owning United States citizens as my people, so please own us and help us out in this difficult scenario."

# NSAIDs don't make COVID-19 worse in hospitalized patients

**By Randy Dotinga**

NSAIDs don't boost the risk of more severe disease or death in hospitalized patients with COVID-19, a new study finds.

"To our knowledge, our prospective study includes the largest number of patients admitted to hospital with COVID-19 to date, and adds to the literature on the safety of NSAIDs and in-hospital outcomes. NSAIDs do not appear to increase the risk of worse in-hospital outcomes ..." the study authors wrote. "NSAIDs are an important analgesic modality and have a vital opioid-sparing role in pain management. Patients and clinicians should be reassured by these findings that NSAIDs are safe in the context of the pandemic."

The report was published online in The Lancet Rheumatology (2021 May 7. doi: 10.1016/S2665-9913[21]00104-1) and led by clinical research fellow Thomas M. Drake, MBChB, of the University of Edinburgh's Usher Institute.

For more than a year, researchers worldwide have debated about whether NSAIDs spell trouble for people at risk of COVID-19. In March 2020, French health officials announced that use of the painkillers such as NSAIDs may increase the severity of the disease, and they recommended that patients take acetaminophen instead.

The National Health Service in the United Kingdom made a similar recommendation. But other agencies didn't believe there was enough evidence to support ditching NSAIDs, and recent research studies published in Annals of the Rheumatic Diseases (2021 Jan 21. doi: 10.1136/annrheumdis-2020-219517) and PLoS Medicine (2020 Sep 8. doi: 10.1371/journal.pmed.1003308) suggested they may be right.

For the new study, researchers identified 72,179 patients who were treated for COVID-19 in British hospitals during January-August 2020. About 56% were men, 74% were White, and 6% took NSAIDs on a regular basis before they entered the hospital. The average age was 70.

The researchers examined whether the patients in either group were more or less likely to die in the hospital, be admitted into a critical care unit, need oxygen treatment, need a ventilator, or suffer kidney injury.

In terms of outcomes, there weren't any major gaps between the groups overall. The differences in most comparisons were statistically insignificant. For example, 31% of those who didn't take NSAIDs died vs. 30% of those who did ($P$ = .227). In both groups, 14% required critical care admission ($P$ = .476).

The researchers then focused on two matched groups of 4,205 patients: One group used NSAIDs regularly, and the other group didn't. The difference in risk of death in those who took NSAIDs vs. those who didn't was statistically insignificant (odds ratio, 0.95; 95% confidence interval, 0.84-1.07; $P$ = .35). Other comparisons were also statistically insignificant.

The findings offer insight into whether the use of NSAIDs might actually be helpful for patients who develop COVID-19. Scientists believe that COVID-19 is linked to inflammation in the body, and NSAIDs, of course, reduce inflammation. But the researchers didn't turn up any sign of a benefit.

The researchers say the study is the largest of its kind to look at the use of NSAIDs by patients who are admitted to the hospital with COVID-19.

Survey Insights

# Reflections on 10 years of hospitalist productivity

## Successful programs will recruit lifelong learners

**By Thomas W. Frederickson, MD, FACP, SFHM**

The workload of individual hospitalists has long been a hot-button issue. In a 2013 survey of hospitalists, 40% felt workloads were unsafe on a monthly basis, and 22% reported ordering unnecessary testing or procedures because of time pressure.[1] In a 2014 analysis of over 20,000 admissions to an academic hospital medicine service, increasing workload led to increased length of stay and cost per case.[2] Although these studies suggest a "sweet spot" for hospitalist workload, many groups face constant pressure to increase revenue.


Over the past decade there has been a significant change in how hospital medicine programs are financed. In the 2010 *State of Hospital Medicine* (*SoHM*), the median financial support per physician hospitalist in adult hospital medicine groups (HMGs) was $98,253. By the 2020 *SoHM*, the financial support was $198,750, an increase of $100,497 in just 10 years. When this is combined with the explosive growth in the number of hospitalists, there is one inescapable conclusion – hospital medicine is expensive.

Over this same 10 years, net collections per hospitalist grew from $194,440 in 2010 to $216,779 in 2020, an increase of $22,339. The increase was caused by higher collections per encounter, not more encounters. Additionally, median compensation for adult/internal medicine hospitalists increased over the same period from $215,000 to $307,336, an increase of $92,336, or 43%. That is an increase of 3.7% per year, more than twice the rate of inflation or wage growth in the general economy over the same period. About 75% of this increase was funded by hospital support. It is clear – health care systems continue to find value in investing in hospitalists and hospital medicine programs.

With mounting costs for hospitals, there is pressure for the hospitalist model of care to change or for yearly billable encounters per hospitalist full-time equivalent to increase. Yet, the productivity of hospitalists, as measured by median billable encounters per year has remained flat. The 2010 *SoHM* listed median number of billable encounters per year for an internal medicine hospitalist as 2,230. In 2020, the number is 2,246 – a trivial 0.7% increase per decade, what amounts to a rounding error. There has been wiggle up and down over the years, but I suspect these are not trends but noise.

So the question is why. I think it is partly because hospital medicine leaders together with the leaders of their health care systems seem to be reaching an equilibrium. Productivity will always remain an expectation. This expectation will vary based on local circumstances. But for many HMGs, the days when productivity is pushed as the primary objective seem to be disappearing. Most hospital leaders seem to now understand that high productivity can be detrimental to other program goals.

But if productivity is flat, do 40% of hospitalists still feel they are providing unsafe care on a monthly basis? Without another study we don't know, but here are some reasons why I'm hopeful. First, the hospitalist workforce is more experienced than 10 years ago and may be more efficient. Second, hospital medicine groups are larger and are therefore enabled to schedule more flexibly or enact jeopardy systems to level out workload on busy days. And lastly, hospitalists who feel they are providing unsafe care find greener pastures. The 2010 *SoHM* reported adult hospital medicine programs had a median 14.3% turnover rate. The 2020 *SoHM* turnover was 10.9%. While this is up from 2018 (7.4%) and 2016 (6.9%), the general trend is down.

Additionally, we all need to consider the possibility that there will be a disruptive innovation that will allow greater productivity for individual hospitalists while maintaining value. It is apparent the EHR is not yet that breakthrough. We all need to keep our eyes open, stay flexible, and be prepared to meet evolving demands on our programs.

We will see constant demands on hospitalists. But I'm hopeful that going forward expectations will increasingly shift away from simply working harder and seeing more patients, toward goals related to improving performance. Training programs generally produce excellent clinicians, but they often do not equip physicians to be excellent hospitalists. Successful hospital medicine programs will recruit lifelong learners and career hospitalists who are flexible and willing to innovate and adapt. The best programs will have structures in place to help excellent clinicians mature into the role of excellent hospitalists, and leaders who create and foster an environment of excellence.

Discover more 2020 *SoHM* Report data at www.hospitalmedicine.org/sohm.

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### References

1. Michtalik HJ et al. Impact of attending physician workload on patient care: A survey of hospitalists. JAMA Intern Med. 2013;173(5):375-7. doi: 10.1001/jamainternmed.2013.1864.

2. Elliott DJ et al. Effect of hospitalist workload on the quality and efficiency of care. JAMA Intern Med. 2014;174(5):786-93. doi: 10.1001/jamainternmed.2014.300.

Perspectives

# New world order: Reflecting on a year of COVID

**By Rebecca C. Jaffe, MD**

I remember sitting at the pool in San Diego. I had been there before many years prior – one of my first medical conferences. I remember the clinking of metal sail stays in the morning breeze.

Flying out this time I packed a few surgical masks. I guiltily picked up an N95 from the hospital floors the day before leaving, but then left it at home thinking it overkill. I still have it in a ziplock bag a year later – it's our emergency "what-if-we-have-to-care-for-one-another-with-COVID-in-this-tiny-house-full-of-kids" N95. Not that my husband has been fit tested. At the time, neither was I.

I returned after the conference to befuddlement over how we might fit test thousands of people, racing COVID to the front door. An overly complicated task, as we didn't even know who was supposed to be responsible for orchestrating such an effort. We didn't even know if we could spare the N95s.

Still in California, I sat by the pool wondering if anyone would acknowledge the impending new reality. At the conference we were told "don't shake hands, don't touch your face, wash your hands a lot." I gave a workshop without a mask. I ate dinner in an actual restaurant worried only about gluten-free soy sauce. I sat in a lecture hall with almost 5,000 people. I started to have a conversation with a friend from Seattle, but he needed to leave because they found a positive patient in his hospital. I listened to a prerecorded webinar by the pool from our chief safety officer saying there was a plan. I was not reassured.

When we flew home the world had already changed. There were patients in New York now. Masks had appeared in the airport news stand. Yet we breathed the air in the closed space of the red eye and forgot to be concerned. At work that Monday I asked my team – fist to 5, how worried are you about this? Brave faces and side eyes at each other and a lot of 1s or 2s held up in the air. My job this week, I told them, is to get you all to a 5.

I was working with a resident who 2 months prior I had told, as we worked together in the lounge, I don't think you're going to China on vacation. She hadn't gone, of course. I wasn't going on spring break either. On one of my last train rides a commuter friend (remember those?) told me we'll all feel a lot better once we realize that none of us are going to get to do any of the things we want to do.

The med students were still there, helping the team and hanging onto their education. I told everyone not to see any patient with a respiratory complaint until we first discussed the case. On the third day of service I had to call infection control because a hypoxic febrile patient had come to the floor without isolation orders. "Are we testing?" No, I was informed she hadn't had exposures, hadn't traveled. Speechless that we were screening for travel to Italy while living with one tiny state between us and the American epicenter, I can now recall thinking that our infection control officer did not sound well rested.

My N95 was still in a baggy at home. The PAPRS hadn't appeared yet. No one could agree what kind of mask the Centers for Disease Control and Prevention or infection control or the ID consultant of the day recommended – today we are using surgical masks, I was told. Thursday will likely be different. "Anyway, she doesn't sound like she has it." I walked to the floors.

My med student started presenting our septic viral pneumonia patient including the very well done exam that I previously forbade him from obtaining. What happened to not seeing respiratory patients, I asked. Oh, they said, well night float said it didn't sound like COVID. Insufficiently convinced by our second-year resident's unjustifiably overconfident, though ultimately correct, assessment – I held my head in my hands and give my first hallway COVID chalk talk of the new era. Complete with telling the team to question everything they thought they knew now including everything I said except "be careful." That was about when Philadelphia ran out of toilet paper.

That weekend I sat in front of a bay of computers as our Medical Officer of the Day. Air traffic control for ED patients coming in for a landing on medical teams, I watched the new biohazard warnings line up indicating respiratory isolation patients waiting for a bed. I watched CRPs and D-dimers, and looked for leukopenia. I vowed I would follow up on tests to hone my COVID illness script. I soon realized that tests lie anyway.

By the end of that week we'd fallen through the looking glass. The old rules didn't apply. We weren't going to China, or Arizona; we didn't know when the med students were coming back; the jobs we had were not the jobs we signed up for but were those that the world needed us to do; we couldn't trust our intuition or our tests; we had no experts – and yet we started to grow the humble beginnings of expertise like spring garden sprouts.


*Dr. Jaffe is division director for hospital medicine in the Department of Medicine at Thomas Jefferson University Hospital in Philadelphia.*

In a chaotic world, seeds of order take shape and then scatter like a screensaver. The skills needed to manage chaos are different from those that leaders use in simple ordered times. Order cannot be pulled from chaos by force of will or cleverness, nor can it be delegated, cascaded, demanded, or launched. Order emerges when communities that are receptive to learning see patterns through noise, and slowly, lovingly, coax moments of stability into being.

# Pfizer developing pill to treat COVID-19 symptoms

Pfizer CEO Albert Bourla, DVM, PhD, says an oral drug the company is developing to treat COVID-19 symptoms could be available to the public by the end of 2021.

"If all goes well, and we implement the same speed that we are, and if regulators do the same, and they are, I hope that (it will be available) by the end of the year," Dr. Bourla said on CNBC's Squawk Box.

So far, the only antiviral drug authorized for use with COVID-19 is remdesivir, which is produced by Gilead Sciences and must be administered by injection in a health care setting.

An oral drug such as the one Pfizer is developing could be taken at home and might keep people out of the hospital.

"Particular attention is on the oral because it provides several advantages," Dr. Bourla said. "One of them is that you don't need to go to the hospital to get the treatment, which is the case with all the injectables so far."

The drug might be effective against the emerging variants, he said. Pfizer is also working on an injectable antiviral drug.

Pfizer, with its European partner BioNTech, developed the first coronavirus vaccine authorized for use in the United States and Europe. The Pfizer pill under development would not be a vaccine to protect people from the virus but a drug to treat people who catch the virus.

The company announced in late March that it was starting clinical trials on the oral drug.

In a news release, the company said the oral drug would work by blocking protease. Protease inhibitors are used in medicines to treat HIV and hepatitis C.

A coronavirus vaccine that could be taken as a pill may enter clinical trials in the second quarter of 2021. The oral vaccine is being developed by Oravax Medical, a new joint venture of the Israeli-American company Oramed and the Indian company Premas Biotech. So far, all coronavirus vaccines are injectable.

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

PHM Fellows

# Preparing fellows for leadership roles

## Reflecting on a longitudinal leadership elective experience

**By Kathryn Westphal, MD**

The practice of pediatric hospital medicine (PHM) has been evolving and rapidly expanding over the last several decades. Not only has the scope of clinical practice matured and become more defined, but hospitalists now also have the responsibility to advance the performance of hospitals and health care systems. Pediatric hospitalists are increasingly incorporating medical education, research, high-value care, patient quality and safety initiatives, and process improvement into their careers.[1] As a result, pediatric hospitalists are occupying a wider range of administrative and leadership positions within the health care system.

The field of PHM has highlighted the importance of leadership in the practice of hospital medicine by dedicating a chapter to "Leadership in Healthcare" in the PHM Core Competencies.[1] The competencies define the expertise required of hospitalists and serve as guidance for the development of education, training, and career development series. Hospitalists may seek out opportunities for leadership training at an institutional or national level. Options may include advanced degrees, national conferences, division training seminars, or self-directed learning through reading or observational experiences. Unfortunately, all of these take time and motivation. As a result, hospitalists tend to pursue these opportunities only after they have already been appointed to leadership positions.


PHOTOTECHNO/THINKSTOCK

PHM fellowship is the optimal time to build a foundation of leadership skills. Over the course of a 2-year fellowship, fellows have a combined 16 weeks dedicated to educational activities beyond direct patient care.[2] The Accreditation Council for Graduate Medical Education (ACGME) encourages educational innovation during this time, allowing programs to create unique opportunities for their fellows that will promote progress toward their ultimate career goals.[3] This curricular framework provides the flexibility to integrate leadership training into fellowship training.

Many fellows are eager for leadership experiences and mentorship, myself included. As a pediatric chief resident, I was immersed in a diverse range of clinical, educational, research, and administrative responsibilities. I found myself in a leadership position with no prior education on how to manage people or team dynamics, make high-stress decisions on behalf of a group of people, or handle conflict. Although I learned new strategies on a daily basis, the experience showed me how much more I still had to learn in order to be a successful leader. This was one of the reasons I decided to pursue fellowship training. I think many PHM fellowship applicants feel similarly. They may have served in a leadership position in the past but feel underprepared to fulfill leadership positions in the next phase of their careers.

But despite this eagerness, evidence suggests that fellows do not feel that they receive as much management training as they need to start their careers. In a 2014 survey of PHM fellowship graduates, many held formal leadership positions within their institution (23/51) and within national organizations (6/51), despite having only 5 years of hospitalist experience on average (including time spent in fellowship). When asked about training needs, respondents identified "hospital program management" as an area where they wished they received more training during fellowship.[4]

Anyone who has gone through the PHM fellowship interview process can tell you that a common refrain of program directors is, "One of the goals of our program is to create future leaders in PHM." This led me to wonder: How do fellowship programs prepare their fellows for future leadership positions?

I began my fellowship training at Nationwide Children's Hospital in the summer of 2020. The program had just designed a longitudinal leadership elective, which the second-year fellow and I decided to pilot together. As I reflected on the first half of this academic year, I realized that it is unique experiences like this elective that make me thankful I pursued fellowship. I want to share with the hospitalist community the structure of the elective and why it has been particularly valuable with the hope that it will inspire similar opportunities for other fellows.

The program is semi-structured but allows the fellow and preceptors the flexibility to decide what activities would benefit that particular fellow. We attend a variety of administrative and committee meetings with each preceptor that expose us to the responsibilities of their positions, their leadership style in action, their approach to crisis management, and differences in divisional operations. On a monthly basis we meet with a preceptor to discuss a topic related to leadership. Examples of topics include how to run a more effective meeting, barriers to organizational change, leading in crisis, and the importance of mission, vision, values, and goals of organizations. The preceptor sends us articles or other learning materials they have found useful on the topic, and these serve as a starting point for our discussions. These discussions provide a point of reflection as we apply the day's concept to our own prior experiences or to our observations during the elective.

*Dr. Westphal is a first-year pediatric hospital medicine fellow at Nationwide Children's Hospital in Columbus, Ohio, with an interest in improving the delivery of quality care for hospitalized infants.*

The combination of learning experiences, discussions, and dedicated preceptorship has prepared me far better for future leadership than my past personal and observational experiences. I have summarized my top three reasons why this structure of leadership development is particularly valuable to me as a fellow.

First, the longitudinal structure of the elective allows us to learn from multiple preceptors over the course of the academic year. The preceptors include the current chief of hospital pediatrics at Nationwide Children's Hospital; the division director of hospital medicine at the Ohio State University Wexner Medical Center; and the physician lead for hospital medicine at one of the satellite hospitals in the region. With faculty from the Department of Pediatrics and the Department of Internal Medicine-Pediatrics in these leadership positions, we have the unique ability to compare and contrast op-

erational systems between the two different hospital systems.

Recently, we also had the opportunity to meet with both the chairman of the department of pediatrics and chief medical officer. All of these physician leaders hold a variety of administrative roles and have differing leadership philosophies, each providing useful insights. For instance, one leader ensures his team holds him accountable as the leader by always asking for honest feedback. He recommends telling those you work with to "never let me fail." Another leader acknowledges that creating 5-year plans can be daunting but encouraged us to still be intentional with our direction on a smaller scale by writing down goals for the year and sharing with a mentor. Ultimately, I came away with a wide variety of perspectives to reference as I go forward.

Second, the learning is contextualized. I can take concepts that I learn through reading and discussions and construct meaning based on observations from meetings or other encounters with different leaders. For example, after reviewing several articles on strategies to make meetings more effective, I started noticing what went well and what didn't go well in every meeting I attended. I observed preceptors employing many of the strategies successfully with positive feedback. This included not only simple practices, such as setting an agenda to provide a compass for the conversation, but also more nuanced practices like controlling the meeting but not the conversation.

After reading about leadership styles, I also found myself analyzing the qualities and strategies of leaders I encountered and reflecting on their approach, noticing what I could possibly interlace in my own practice. Several of the leaders I spoke with during the elective recommended paying attention to the actions of the ineffective bosses or mentors because they can teach you something too: how not to act. I even started applying this strategy to the popular television series The Office – Michael Scott, the regional manager of a fictional paper company, demonstrates some of the best and worst leadership skills in every episode. I am developing a repertoire of strategies to lead and motivate people.

Finally, the design allows for the real-time application of new methods to my current practice. One particularly useful tool I have learned is Leader Standard Work, a systematic method to get leaders to maintain stability, problem solve, and drive continuous improvement within their organization.[5] I have used elements of Leader Standard Work on a personal level to improve my time management skills and increase my productivity. For example, I reconceptualized my calendar as a standardized checklist, and I organized it to allot more time to critical activities, such as my research and scholarly output, and less on administrative tasks. I am also implementing changes to how I prepare and run meetings, collaborate, and communicate with members of my research team.

Mastery requires practice and feedback, so applying concepts even on a small, personal scale shortly after learning them has been very valuable. Over the last several months I have often wished I had this type of structured leadership education during my year as a chief resident. I think I could have been more intentional in my decision-making, possibly being a stronger leader for the program. Now that I am transferring skills into practice right away, I am setting the stage for lasting changes in behavior that will hopefully benefit all those that I work with in the future.

Leadership development through a customizable longitudinal elective may be an effective way to prepare PHM fellow graduates for future leadership positions. Fellows can emerge with skills and real-world practice to allow them to feel confident in future positions. However, leadership doesn't end when we get the position. We must remember to continuously ask for feedback and build upon our experiences to evolve as leaders in PHM.

## References


1. Maniscalco, J, et al. The Pediatric Hospital Medicine Core Competencies: 2020 Revision. Introduction and Methodology (C). J Hosp Med. 2020;S1;E12-E17. doi: 10.12788/jhm.3391.

2. Jerardi KE, et al; Council of Pediatric Hospital Medicine Fellowship Directors. Development of a curricular framework for pediatric hospital medicine fellowships. Pediatrics. 2017 Jul;140(1):e20170698. doi: 10.1542/peds.2017-0698.

3. ACGME program requirements for graduate medical education in pediatric hospital medicine. 2020 Edition. Accessed 2021 Jan 14.

4. Oshimura, JM et al. Current roles and perceived needs of pediatric hospital medicine fellowship graduates. Hosp Pediatr. 2016;6(10):633-7. doi: 10.1542/hpeds.2016-0031.

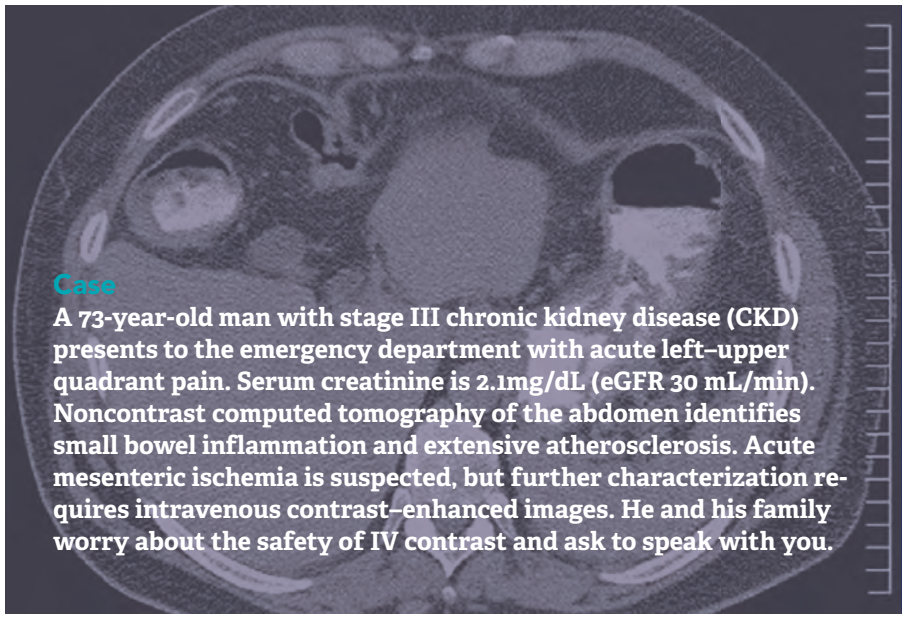
5. Murli, J. Standard work for Lean leaders: One of the keys to sustaining performance gains. Lean Institute Enterprise, Lean Institute Enterprise Inc. 4 Dec 2013. www.lean.org/common/display/?o=2493.

Key Clinical Question

# Fact or fiction? Intravascular contrast and acute kidney injury

## Withholding contrast may be the greater risk

By Mel L. Anderson, MD, MACP; Bradley M. Yamanaka, MD

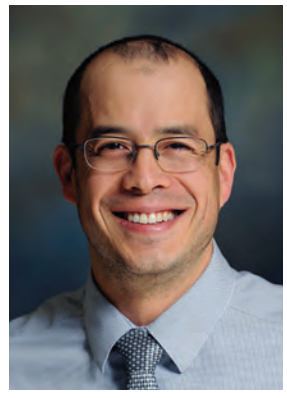


**Case**

**A 73-year-old man with stage III chronic kidney disease (CKD) presents to the emergency department with acute left–upper quadrant pain. Serum creatinine is 2.1mg/dL (eGFR 30 mL/min). Noncontrast computed tomography of the abdomen identifies small bowel inflammation and extensive atherosclerosis. Acute mesenteric ischemia is suspected, but further characterization requires intravenous contrast–enhanced images. He and his family worry about the safety of IV contrast and ask to speak with you.**

Courtesy Radiological Society of North America

Dr. Anderson



Dr. Yamanaka

*Dr. Anderson is national lead, VHA Hospital Medicine, and associate professor of medicine at the Minneapolis VA Health Care System. Dr. Yamanaka is a hospitalist at the Minneapolis VA Medical Center and an assistant professor of medicine at the University of Minnesota.*

### Introduction

Intravenous iodinated contrast material enhances tissue conspicuity in CT imaging and improves its diagnostic performance. Several case reports published in the 1950s suggested that IV administration of high-osmolality contrast provoked acute kidney injury. An ensuing series of studies associated contrast utilization with renal impairment and additional data extrapolated from cardiology arteriography studies further amplified these concerns.

Contrast media use is often cited as a leading cause of hospital-acquired acute kidney injury.[1] The associated fear of causing renal impairment or provoking the need for dialysis frequently leads clinicians to forgo contrast-enhanced CT studies or settle for suboptimal noncontrast imaging even in situations where these tests are clearly indicated. The potential for inadequate imaging to contribute to incomplete, delayed, or incorrect diagnoses represents an ongoing patient safety issue.

A growing body of literature suggests the risks of contrast-associated acute kidney injury are overstated, implying the truer danger lies with inadequate imaging, not contrast media utilization. This review discusses the definitions, risks, and incidence of contrast-associated acute kidney injury, informed by these recent studies.

### Overview of the data

Definitions of contrast-induced renal dysfunction vary in clinical studies and range from a creatinine rise of 0.5-1 mg/dL or a 25%-50% increase from baseline within 2-5 days following contrast administration. In 2012, the Kidney Disease Improving Global Outcomes working group proposed the term "contrast-associated acute kidney injury" (CA-AKI) and defined it as a plasma creatinine rise of 0.3 mg/dL within 48 hours of contrast exposure, a creatinine increase by a factor of 1.5 over baseline within 7 days of contrast administration, or a urinary volume less than 0.5 mg per kg of body weight within 6 hours of contrast exposure (AKI Network or "AKIN" criteria for CA-AKI).[2] Owing in part to inconsistent definitions and partly because of multiple potential confounders, the true incidence of contrast-associated acute kidney injury is uncertain.

The pathogenesis of CA-AKI is incompletely understood, but proposed mechanisms include direct tubular cytotoxic effects; reductions in intrarenal blood flow from contrast material–provoked arteriolar vasoconstriction and contrast-induced increases in blood viscosity; and renal microvascular thrombosis.

### Key points

- Early studies suggesting an association between IV contrast and AKI used an older formulation of contrast media not routinely used today. Importantly, these studies did not use control groups.
- Results from multiple recent large trials comparing IV contrast patients with controls suggest that AKI is not clearly linked to the receipt of IV contrast and that it varies according to baseline renal function.
- Randomized controlled trials of prophylactic normal saline or sodium bicarbonate to prevent CA-AKI show mixed results. Clinical trials comparing N-acetylcysteine with placebo showed no difference in the rates of AKI, dialysis initiation, or mortality.

Risk factors for CA-AKI overlap with those for acute kidney injury in general. These include chronic kidney disease, concurrent nephrotoxic medication use, advancing age, diabetes, hemodynamic disturbances to include intravascular volume depletion, systemic illness, and rapid arterial delivery of a large contrast volume.

Current American College of Radiology guidelines state that intravenous isotonic crystalloid volume expansion prior to contrast administration may provide some renal protection, although randomized clinical trial results are inconsistent. The largest clinical trials of N-acetylcysteine showed rates of CA-AKI, need for dialysis, and mortality were no different than placebo. Studies of intravenous sodium bicarbonate show outcomes similar to normal saline.

Introduced in the 1950s and used until the early 2000s, the osmolality of high-osmolality contrast material (HOCM) is roughly five times that of blood (1,551 mOsm/kg $H_2O$).[3] The early case reports first identifying concern for contrast-induced renal damage were of HOCM used in angiography and pyelography testing. Multiple follow-up clinical studies measured creatinine levels before and after contrast administration and classified the percentage of patients whose creatinine level rose above an arbitrary definition of renal injury as having contrast-induced renal injury. These studies formed the basis of the now longstanding concerns about contrast-associated renal dysfunction. Importantly, very few of these HOCM studies included a control group.

Following multiple studies demonstrating an improved safety profile with a similar image quality, the Food and Drug Administration approved low-osmolality contrast material (LOCM, 413-796 mOsm/kg $H_2O$) in 1985. Early adoption was slow because of its significantly higher cost and incomplete Medicare reimbursement. Prices fell following generic LOCM introduction in 1995

## Table 1. Summary of three large recent studies of CA-AKI

| Study | eGFR subgroup | N | CA-AKI no contrast | CA-AKI contrast | Odds ratio (95% CI) |
|---|---|---|---|---|---|
| Davenport et al. 2013[5] | ≥ 60 | 13,967 | 384/6,696 (5.5%) | 379/6,971 (5.4%) | 1.00 (0.86-1.12) |
| | 45-59 | 2,216 | 130/1,207 (10.8%) | 134/1,273 (10.5%) | 1.06 (0.82-1.38) |
| | 30-44 | 1,089 | 78/551 (14.2%) | 90/538 (16.7%) | 1.4 (0.997-1.97) |
| | < 30 | 116 | 14/72 (19.4%) | 16/44 (36.4%) | 2.36 (1.22-7.17)† |
| McDonald et al. 2014[6] | ≥ 90 | 1,642 | 11/821 (1.3%) | 10/821 (1.2%) | 0.91 (0.38-2.15) |
| | 60-89 | 3,870 | 39/1,935 (2.0%) | 40/1,935 (2.1) | 1.03 (0.66-1.60) |
| | 30-59 | 5,510 | 170/2,755 (6.2%) | 161/2,755 (5.8%) | 0.94 (0.76-1.18) |
| | < 30 | 1,486 | 105/743 (14.1%) | 102/743 (13.7%) | 0.97 (0.72-1.3) |
| Hinson et al. 2017[7] | ≥ 90 | 6,166 | 115/2,039 (5.6%) | 225/4,127 (5.5%) | 0.96 (0.77-1.22) |
| | 60-89 | 3,513 | 98/1,337 (7.3%) | 161/2,176 (7.4%) | 1.01 (0.78-1.31) |
| | 45-59 | 1,289 | 88/714 (12.3%) | 71/575 (12.3%) | 1.00 (0.72-1.40) |
| | 30-44 | 1,009 | 91/768 (11.8%) | 22/241 (9.1%) | 0.75 (0.46-1.22) |
| | 15-29 | 677 | 86/599 (14.4%) | 8/78 (10.3%) | 0.68 (0.32-1.47) |
| | < 15 | 46 | 10/42 (23.8%) | 1/4 (25%) | 1.07 (0.10-11.43) |

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and in 2005 Medicare approved universal reimbursement, leading to widespread use. The FDA approved an iso-osmolality contrast material (290 mOsm/kg $H_2O$) in the mid-1990s; its safety profile and image quality is similar to LOCM. Both LOCM and iso-osmolality contrast material are used in CTs today. Iso-osmolality contrast is more viscous than LOCM and is currently more expensive. Iso-osmolality and LOCM have similar rates of CA-AKI.

A clinical series published in 2008 examined serum creatinine level variation over 5 consecutive days in 30,000 predominantly hospitalized patients who did not receive intravenous contrast material. Investigators simulated contrast administration between days 1 and 2, then observed creatinine changes over the subsequent days. The incidence of acute kidney injury following the simulated contrast dose closely resembled the rates identified in earlier studies that associated contrast exposure with renal injury.[4] These results suggested that changes in renal function commonly attributed to contrast exposure may be because of other, concurrent, clinical factors.

A 2013 study compared 8,826 patients with stable renal function who received a low-osmolality contrast-enhanced CT with 8,826 patients who underwent a noncontrast study.[5] After 1:1 propensity matching, they found higher rates of CA-AKI (as defined by AKIN criteria) among only those with baseline eGFR less than 30 mL/min. There was a trend towards higher rates of CA-AKI among those with baseline eGFR of 30-44 mL/min, and no difference among the bulk of patients with normal or near normal baseline renal function.

Another large propensity score–matched study published in 2014 compared 6,254 patients who underwent a contrast enhanced CT with 6,254 patients who underwent a nonenhanced CT.

Investigators stratified this predominantly inpatient cohort by baseline eGFR. Results demonstrated similar rates of AKI between contrast material and non–contrast material cohorts. They concluded that intravenous contrast administration did not significantly affect the risk of AKI, even in patients with impaired renal function. The authors noted that the difference in contrast-mediated nephrotoxic risk in patients with eGFR less than 30 between their study and the Davenport study could be explained by their use of a different definition of CA-AKI, by differences in propensity score calculation, and by enrollment of greater numbers of patients with impaired kidney function in their study.[6]

Finally, a large single-center study published in 2017 included 16,801 ED patients divided into three groups: patients who received a contrast-enhanced CT, patients who underwent a noncontrast CT study, and a set of patients who did not undergo any CT imaging. Patients with creatinine levels under 0.4 mg/dL or over 4 mg/dL were excluded from initial analysis.

Investigators stratified each patient group by serum creatinine and eGFR and utilized both traditional contrast-induced nephropathy (serum creatinine increase of 0.5 mg/dL or a 25% increase over baseline serum creatinine level at 48-72 hours) and AKIN criteria to evaluate for acute kidney injury. Propensity score analyses comparing the contrast-enhanced group and two control groups failed to identify any significant change in AKI incidence. The authors concluded that, in situations where contrast-enhanced CT is indicated to avoid missing or delaying potential diagnoses, the risks of diagnostic failure outweigh any potential risks of contrast-induced renal injury.[7]

While these three studies utilized control groups and propensity score matching, they are retrospective in nature and unknown or omitted confounding variables could be present. Together, though, they contribute to a growing body of literature suggesting that the risk of contrast-associated AKI relates less to the contrast itself and more to concurrent clinical factors affecting kidney function. Ethical concerns have to date prevented the conduct of a randomized trial of IV contrast in CT scanning. Table 1 summarizes the findings of these three studies.

### Application of the data to the case

The patient presented with abdominal pain potentially attributable to acute mesenteric ischemia, where a delayed or missed diagnosis can be potentially fatal. He was counseled about the comparatively small risk of CA-AKI with IV contrast and underwent contrast-enhanced CT scanning without incident. The diagnosis of acute mesenteric ischemia was confirmed, and he was referred for urgent laparotomy.

### Bottom line

The absolute risk of CA-AKI varies according to baseline renal function and is not clearly linked to the receipt of IV contrast. The risks of withholding contrast may be greater than the risk of CA-AKI. Clinicians should counsel patients accordingly.

### Quiz

Which of the following is not clearly associated with acute kidney injury in hospitalized patients?

A. Decreased baseline glomerular filtration rate

B. Angiotensin-converting enzyme (ACE) inhibitor use

C. Hemodynamic instability

D. Intravenous contrast administration

Answer: D

While decreased baseline renal function, ACE inhibitors, and hemodynamic instability are known risk factors for hospital-associated renal injury, a growing body of literature suggests that intravenous contrast used in computed tomography studies does not precipitate acute kidney injury.

### References


1. Nash K et al. Hospital-acquired renal insufficiency. Am J Kidney Dis. 2002;39(5):930-6. doi: 10.1053/ajkd.2002.32766.

2. Section 4: Contrast-induced AKI. Kidney Int Suppl. 2012;2(1):69-88. doi: 10.1038/kisup.2011.34.

3. Wilmot A et al. The adoption of low-osmolar contrast agents in the United States: Historical analysis of health policy and clinical practice. AJR Am J Roentgenol. 2012;199(5):1049-53. doi: 10.2214/AJR.11.8426.

4. Newhouse JH et al. Frequency of serum creatinine changes in the absence of iodinated contrast material: Implications for studies of contrast nephrotoxicity. AJR Am J Roentgenol. 2008;191(2):376-82. doi: 10.2214/AJR.07.3280.

5. Davenport MS et al. Contrast material-induced nephrotoxicity and intravenous low-osmolality iodinated contrast material: Risk stratification by using estimated glomerular filtration rate. Radiology. 2013;268(3):719-28. doi: 10.1148/radiol.13122276.

6. McDonald JS et al. Risk of intravenous contrast material-mediated acute kidney injury: A propensity score–matched study stratified by baseline-estimated glomerular filtration rate. Radiology. 2014;271(1):65-73. doi: 10.1148/radiol.13130775.

7. Hinson JS et al. Risk of acute kidney injury after intravenous contrast media administration. Ann Emerg Med. 2017;69(5):577-86. doi: 10.1016/j.annemergmed.2016.11.021.


### Further reading


- McDonald JS et al. Frequency of acute kidney injury following intravenous contrast medium administration: A systematic review and meta-analysis. Radiology. 2013;267(1):119-28. doi: 10.1148/radiol.12121460.
- McDonald RJ et al. Behind the numbers: Propensity score analysis – a primer for the diagnostic radiologist. Radiology. 2013;269(3):640-5. doi: 10.1148/radiol.13131465.
- Luk L et al. Intravenous contrast-induced nephropathy – the rise and fall of a threatening idea. Adv Chronic Kidney Dis. 2017;24(3):169-75. doi: 10.1053/j.ackd.2017.03.001.
- Mehran R et al. Contrast-associated acute kidney injury. N Engl J Med. 2019;380(22):2146-55. doi: 10.1056/NEJMra1805256.

# In-hospital glucose management program gives dramatic savings

**By Miriam E. Tucker**

Initiatives targeting hypoglycemia and insulin pen wastage could lead to dramatic cost savings in small community hospitals, new data suggest.

The two projects are part of a dedicated inpatient glucose management service led by Mihail ("Misha") Zilbermint, MD, one of the few full-time endocrine hospitalists in the United States and one of even fewer who work at a small community hospital.

In 2019, Dr. Zilbermint and colleagues reported that their inpatient glucose management program resulted in a 27% reduction in length of stay and a 10.7% lower 30-day readmission rate. The projected cost savings for the period January 2016 to May 2017 was $953,578.

Dr. Zilbermint's team has written two new articles that document cost savings for specific elements of the program; namely, a set of hospital-wide hypoglycemia prevention measures, and an initiative that reduced duplicate inpatient insulin pen dispensing.

About one in four people in U.S. hospitals have diabetes or hyperglycemia. Large academic hospitals have endocrine divisions and training programs, but 85% of people receive care at small community hospitals.

"There are management guidelines, but they're not always followed. ... That's why I've been advocating for endocrine hospitalists to be deployed nationally," Dr. Zilbermint said. He is chief and director of endocrinology, diabetes, and metabolism at Johns Hopkins Community Physicians at Suburban Hospital, Bethesda, Md.

Commenting on behalf of the Society of Hospital Medicine, Greg Maynard, MD, MHM, program lead for SHM's Electronic Quality Improvement Programs, said that Suburban's overall program goals align with those of the SHM.

"Dedicated inpatient glycemic control teams are very important and desirable to improve the quality and safety of care for inpatients with hyperglycemia and diabetes," he said.

Regarding specific initiatives, such as those aimed at reducing hypoglycemia and insulin pen wastage, Dr. Maynard said, "All of these are feasible in a wide variety of institutions. The main barrier is getting the institutional support for people to work on these interventions. This series of studies can help spread the word about the positive return on investment."

Another barrier – the current lack of publicly reported measures or pay-for-performance programs for hypoglycemia prevention and glycemic control – may soon change, added Dr. Maynard, who is also chief quality officer at the University of California, Davis, Medical Center.

Courtesy Dr. Greg Maynard

Dr. Greg Maynard

"The National Quality Forum has endorsed new measures, and the CDC's National Healthcare Safety Network is working on ways to augment those measures and embed them into their infrastructure," he said.

Although SHM doesn't specifically endorse full-time glycemic control hospitalists over endocrinology-trained glycemic control experts, "certainly hospitalists who accrue added training are very well positioned to be an important part of these interdisciplinary teams," Dr. Maynard said.

## 'The nurses were so afraid of hypoglycemia'

Tackling hypoglycemia was Dr. Zilbermint's first priority when he started the glycemic management program at Suburban in late 2015.

"One of the most common complaints from the nurses was that a lot of their patients had hypoglycemia, especially in the ICU, when patients were placed on insulin infusion protocols. ... Every time, the nurse would have to call the attending and ask what to do," he explains.

In addition, Dr. Zilbermint says, there was no standard for treating hypoglycemia. A nurse in one unit would give 2 cups of juice, another a 50% dextrose infusion, or another, milk. Even more concerning, "the nurses were so afraid of hypoglycemia they would reflexively discontinue all insulin, including basal."

So one of the new initiatives, led by Carter Shelton, MSHCM, an administrative fellow at the Medical University of South Carolina, Charleston, was to implement a set of hospitalwide hypoglycemia-prevention measures, as described in an article published online April 21 in the Journal of Diabetes Science and Technology (2021. doi: 10.1177/19322968211008513).

## Inpatient hypoglycemia rate was cut nearly in half

This began in 2016, when the multidisciplinary Suburban Hospital Glucose Steering Committee identified four main causes of insulin-induced hypoglycemia (defined as a blood glucose level of ≤70 mg/dL in a patient who had received at least one dose of insulin in the past 24 hours) and devised solutions for each:

1. Lack of a unified hypoglycemia protocol. A formal, evidence-based, nurse-driven treatment protocol with clinical decision support in the electronic medical record was developed. The Suburban team adapted much of the protocol from one that had been recently implemented at the flagship Johns Hopkins Hospital, in Baltimore, Md.

According to that protocol, if patients are able to swallow, they are given 15 g or 30 g of carbohydrates in order to achieve a blood glucose level of 50-70 mg/dL and <50 mg/dL, respectively. Levels are checked 15 minutes later. Intravenous D50 or glucagon is reserved for patients who can't swallow.

2. For patients in critical care, the insulin infusion protocol that had been in use set blood glucose targets of 80-110 mg/dL, which resulted in hypoglycemia in nearly every patient who received an insulin infusion. This protocol was changed to the currently recommended 140 to 180 mg/dL.

3. Most patients were managed with sliding-scale insulin, an outdated yet still widely used regimen whereby insulin is given based only on current blood glucose without accounting for carbohydrates consumed with meals and not corrected until the subsequent meal. This was changed so that nurses give insulin after the patient has consumed at least 50% of their meal carbohydrates.

4. Lack of hypoglycemia reporting. A glucometrics dashboard – now used throughout the Johns Hopkins system – was adopted to produce daily hypoglycemia reports in the EMR system that could be reviewed by the inpatient glucose management service to track quality metrics and plan further interventions.

Between Jan. 1, 2016, and Sept. 30, 2019, out of 49,315 patient-days, there were 2,682 days on which any hypoglycemia occurred and 874 days on which moderate hypoglycemia occurred (≤54 mg/dL). Type 2 diabetes accounted for 84.4% of the total patient-days; type 1 for 4.4%.

The overall frequency of any hypoglycemia patient-days per month decreased from 7.5% to 3.9% during the study period ($P$ = .001). This was significant for the patients with type 2 diabetes (7.4% to 3.8%; $P$ < .0001) but not for those with type 1 diabetes (18.5% to 18.0%; $P$ = .08).

Rates of moderate hypoglycemia also decreased significantly among the patients with type 2 diabetes (1.9% to 1.0%; $P$ = .03) but not for those with type 1 diabetes (7.4% to 6.0%; $P$ = .14).

On the basis of these rates in reducing hypoglycemia, in which the inpatient hypoglycemia rate was cut nearly in half, the estimated savings in cost of care to the hospital was $98,635 during the period of January 2016 to September 2019.

## Reducing insulin pen waste

Suburban Hospital had been using insulin vials and syringes when Dr. Zilbermint first arrived there. He lobbied the administration to allow use of pens, because they're easier to use and they reduce the risk for needlestick injuries. Nurses were educated and retrained monthly in their use.

The switch to pens – aspart (Novolog Flexpen) for bolus insulin and glargine (Lantus SoloSTAR) – took place in 2018. The cost of the aspart pen was $16.19, and the cost of glargine was $25.08. Each holds

*Continued on following page*

# Watch for abnormal movements in hospitalized COVID-19 patients

**By Heidi Splete**

Myoclonus was diagnosed in about half of hospitalized COVID-19 patients who were evaluated for movement disorders, data from 50 cases show.

Abnormal movements often occur as complications from critical illness, and neurologic consultation can determine whether patients have experienced a seizure or stroke. However, restriction of bedside assessment in the wake of the COVID-19 pandemic increases the risk that abnormal movements will be missed, Jeffrey R. Clark and Eric M. Liotta, MD, of Northwestern University, Chicago, and colleagues wrote.

"Given the limited reports of abnormal movements in hospitalized COVID-19 patients and increased recognition of neurologic manifestations of COVID-19, we sought to examine the frequency and etiology of this finding as an indication of neurologic consultation," they said.

In a study published in the Journal of the Neurological Sciences (2021 Apr 15. doi: 10.1016/j.jns.2021.117377), the researchers reviewed data from the first 50 consecutive patients with COVID-19 symptoms who were hospitalized at a single center and underwent neurologic consultation between March 17, 2020, and May 18, 2020.

Overall, 11 patients (22.0%) of patients experienced abnormal movement, and all were admitted to the ICU within 7 days of meeting criteria for severe COVID-19. These patients included nine men and two women with an age range of 36-78 years. The most common comorbidities were obesity, hypertension, diabetes, chronic kidney disease, and coronary artery disease.

Myoclonus (generalized and focal) was the most common abnormal movement, and present in 6 of the 11 patients. Three cases were attributed to high-intensity sedation, and three to toxic-metabolic disturbances. In two patients, abnormal movements were attributed to focal seizures in the setting of encephalopathy, with focal facial twitching. An additional two patients experienced tremors; one showed an acute subdural hemorrhage on CT imaging. The second patient showed no sign of stroke or other abnormality on MRI and the tremor improved during the hospital stay. One patient who experienced abnormal high-amplitude nonrhythmic movements of the lower extremities was diagnosed with serotonin syndrome that resolved after discontinuing high-dose fentanyl.

The findings were limited by several factors, including the small study population and limited availability of MRI. Assessing severe COVID cases in the ICU setting presents a challenge because of limited patient participation and the potentially confounding effects of sedation and mechanical ventilation.

However, the results highlight the importance of bedside consultation for neurologic evaluation to implement timely, directed treatments.

Clinicians caring for patients with severe COVID-19 should be able to recognize abnormal movements and seek neurologic consultation when indicated.

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300 units of insulin.

After the first month, the team noticed a large increase in expenses. A quality improvement project was devised to address the issue.

"We were dispensing sometimes three or four pens per person. That's a lot. Each pen holds 300 units, so one pen should last the entire hospital stay of an average 4- or 5-day stay," Dr. Zilbermint explained. "We had to figure out where we were bleeding the money and where the pens were going."

When pens disappeared, the pharmacy would have to dispense new ones. One problem was that when patients were transferred from one unit to another, the pen would be left behind and the room would be cleaned. Sometimes the pens weren't stored properly or were misplaced. Often, they'd end up in a nurse's pocket.

The second intervention was led by Urooj Najmi, MD, of the American International School of Medicine, Atlanta. A program was instituted to reduce duplicate inpatient insulin pen dispensing, as detailed in an article published in the same issue of the Journal of Diabetes Science and Technology (2021 Apr 12. doi: 10.1177/19322968211002514).

Solutions to reduce duplicate pen dispensing included having pharmacy track daily insulin pen reports and monitor duplicate orders, with "do not dispense" instructions conveyed via the EMR system. All multidose medications, including insulin pens, were to be placed in patients' bins at the nursing station, and nurses were instructed to look for patients' insulin pens prior to their being transferred to another unit, rather than ask for a replacement pen.

From July 2018 to July 2019, 3,121 patients received insulin, of whom 95% received aspart and 47% received glargine. Of the 9,516 pens dispensed, 68% were for aspart and 32% were for glargine. During the study period, the number of pens dispensed per patient dropped from 2.2 to 1.2 for aspart and from 2.1 to 1.3 for glargine; differences were highly significant ($P$ = .0002 and $P$ = .0005, respectively).

The total amount of unnecessary dispensing during the first 4 months after initiating the pen implementation program was 58%. The average monthly cost was $11,820.68; the projected cost per year was $141,848.

Six months after the waste-reduction strategies were implemented, monthly waste had dropped to 42%, translating to an estimated potential cost savings of $66,261 over 12 months.

Because Suburban Hospital doesn't have an outpatient dispensing license, there is still wastage when patients are discharged, because they can't take their pens home with them. That remains a challenge, Dr. Zilbermint noted.

The team is working on implementing automatic A1c testing for patients admitted with hyperglycemia who either have a history of diabetes or whose blood glucose level is >140 mg/dL. Dr. Zilbermint said, "it's in the guidelines, but it's not always done."

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

In the Literature

# Clinician reviews of HM-centric research

By Lesley B. Gordon, MD, MS; Matthew A. Clark, DO; Elizabeth Herrle, MD; Kristen Bartlett, MD; Raymond M. Klein, MD

Maine Medical Center, Portland

## IN THIS ISSUE



By Lesley Gordon, MD, MS

## 1 Most patients with a history of penicillin allergy can be treated safely with cefazolin

**CLINICAL QUESTION:** How common is it to be allergic to both penicillin and cefazolin?

**BACKGROUND:** Providers commonly avoid cefazolin administration in patients with penicillin allergy. This practice is grounded in research from in the 1960s and 1970s (when production of penicillin was very different), which identified an almost 10% cross-reactivity rate of these drugs. It has been more recently hypothesized that the true cross-reactivity should be low since cefazolin does not share an R1 side chain with penicillins (or other cephalosporins).

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

**SETTING:** Of 43 studies that were quantitatively analyzed in the meta-analysis, 21 assessed surgical patients, 3 assessed pregnant women, 14 assessed outpatients, and 7 assessed inpatients and emergency department patients.

**SYNOPSIS:** This study included 6,001 patients with a reported allergy to penicillin, of which 43 were determined to be allergic to cefazolin, a frequency of 0.7%. When the patients are assessed for a "confirmed" allergy as opposed to a "self-reported or unconfirmed" allergy to penicillin, the risk is different, at 3% vs. 0.6%.

Dr. Gordon

This study also looked at the allergy in the opposite direction: It included 146 patients with a reported allergy to cefazolin, of which 3.7% were found to have an allergy to penicillin when exposed or tested. The low rate of dual allergy in patients with a reported penicillin allergy should increase confidence in using cefazolin, which is an important step toward better care of our patients, in particular those with invasive *Staphylococcus aureus* infections.

A limitation of this study is selection bias in the primary cohort studies: These studies did not expound upon why patients with penicillin allergy were not always exposed to cefazolin (i.e., was there a characteristic of the patient or their allergy history that made them not be challenged?).

**BOTTOM LINE:** Cefazolin can be used safely in patients with a reported penicillin allergy. For a confirmed anaphylactic allergy to penicillin, however, one should proceed with more caution (e.g., a test dose procedure).

**CITATION:** Sousa-Pinto B et al. Assessment of the frequency of dual allergy to penicillins and cefazolin: A systematic review and meta-analysis. JAMA Surg. 2021;156(4):e210021. doi: 10.1001/jamasurg.2021.0021.

## 2 NSAIDs may be used without detriment to kidneys in medically stable, older patients

**CLINICAL QUESTION:** How strong is the association between NSAID use and kidney injury in ambulatory older adults?

**BACKGROUND:** Older adults have high rates of both acute and chronic pain, and limited analgesic options are available to them. They are frequently not prescribed NSAIDs because of a fear of adverse effects, including kidney damage. Although it is known that NSAIDs can cause acute kidney injury, it is not known to what degree older adults are vulnerable to kidney damage from appropriate use.

**STUDY DESIGN:** Cohort study.

**SETTING:** Outpatients in Memphis, Tenn., and Pittsburgh.

**SYNOPSIS:** This study was conducted within the larger "Health ABC study" that enrolled 3,075 men and women of good physical health aged 70-79 years. Patients were interviewed annually regarding medication practices and asked to bring in medications they had used over the preceding 2 weeks. Glomerular filtration rate (GFR) was estimated via serum cysC-based CKD-EPI equation; urine albumin, creatinine, KIM-1, and IL-18 were measured. Covariates included age, gender, race, heart failure, systolic blood pressures, and use of antihypertensives, among others.

The mean age was 74 years, and 22% of participants were considered NSAID users. At baseline, there was no difference in eGFR or chronic kidney disease status between NSAID users and nonusers (24% of nonusers had eGFR less than 60 mL/min per 1.73 vs. 25% of NSAID users). Ultimately, there was no difference between rate of decline of eGFR over time (–2.2% vs. –2.3% per year), regardless of baseline eGFR or use of ACE-I/ARBs or diuretics. Median follow-up was approximately 2 years, although the eGFR was estimated for 10 years.

Limitations include self-reported NSAID data and information about the amount and duration of NSAID exposure that was not quantified. Additionally, this study can only cautiously be extrapolated to to our sick, hospitalized patients, who are more likely to be concomitantly volume depleted or have systemic inflammatory response, which makes them more vulnerable to kidney dysfunction.

**BOTTOM LINE:** Although more research is needed, it appears NSAIDs can be used judiciously in ambulatory, older patients with relatively low risk for kidney injury.

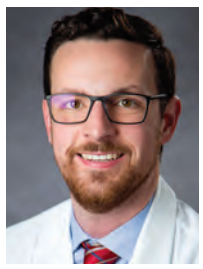
**CITATION:** Amatruda JG et al. Association of non-steroidal anti-inflammatory drugs with kidney health in ambulatory older adults. J Am Geriatr Soc. 2021;69:726-34. doi: 10.1111/jgs.16961.

*Dr. Gordon is assistant professor of medicine at Tufts University, Boston, and a hospitalist at Maine Medical Center, Portland. She is the subspecialty education coordinator of inpatient medicine for the Internal Medicine Residency Program.*

By Matthew A. Clark, DO

## 3 Increased nephrotoxicity with vancomycin and piperacillin combination

**CLINICAL QUESTION:** Does piperacillin disproportionately enhance the nephrotoxic properties of vancomycin?



Dr. Clark

**BACKGROUND:** The seemingly ubiquitous combination of vancomycin and piperacillin has recently been associated with an increased propensity for the development of acute kidney injury. It has been hypothesized that piperacillin disproportionately enhances the nephrotoxicity of vancomycin. Recent studies have failed to demonstrate that there is a clear drug-drug interaction. Additionally, such an interaction has not been observed when studied in vivo.

**STUDY DESIGN:** Disproportionality database analysis.
**SETTING:** WHO global database (VigiBase) of individual case safety reports between 1997 and 2019.
**SYNOPSIS:** Using VigiBase, investigators examined a total of 6,016 individual case safety reports involving vancomycin and acute kidney injury. Of these, 925 (15.4%) involved a combination of vancomycin and piperacillin, 339 cases involved vancomycin and cefepime, and only 197 involved vancomycin and meropenem. Compared with other vancomycin-containing regimens, the reporting odds ratio of acute kidney injury was 2.6 for vancomycin-piperacillin, 2.5 for vancomycin-cefepime, and 0.5 for vancomycin-meropenem.

Given increased attention to a possible association between combination vancomycin and piperacillin since 2014, investigators performed data analysis for the period before 2014. The reported odds ratio remained significant only for the combination of vancomycin and piperacillin. Further, this relationship persisted when all cases involving any other potentially nephrotoxic drugs were excluded from the analysis.

This study provided little control for potential confounders such as illness severity and microbiologic data. While this study supports the concept that piperacillin increases the nephrotoxicity of vancomycin, it does not provide definitive evidence. Prospective trials are needed.
**BOTTOM LINE:** The combination of vancomycin and piperacillin resulted in disproportionately more acute kidney injury than other vancomycin-containing regimens. The combination should be avoided whenever possible.
**CITATION:** Contejean A et al. Combination of vancomycin plus piperacillin and risk of acute kidney injury: A worldwide pharmacovigilance database analysis. J Antimicrob Chemother. 2021 May;76(5):1311-4. doi: 10.1093/jac/dkab003.

## 4 Restrictive transfusion strategy is noninferior in MI

**CLINICAL QUESTION:** In terms of major adverse cardiovascular events, is a restrictive transfusion strategy noninferior to a liberal strategy in the setting of MI?
**BACKGROUND:** Anemia is a common problem in the hospital. In the setting of acute coronary syndrome, it has been associated with increased cardiovascular mortality. On the other hand, transfusion of blood products has been associated with adverse events and potential harm. There is a paucity of data to guide transfusion thresholds in the context of acute coronary syndrome resulting in varied clinical practice.
**STUDY DESIGN:** Open-label, noninferiority, randomized trial.
**SETTING:** 35 hospitals in France and Spain.
**SYNOPSIS:** The REALITY trial enrolled 668 adult patients with MI (including –ST-segment elevation MI) and hemoglobin levels between 7 and 10 g/dL. Patients were randomly assigned to a restrictive strategy (transfusion for hemoglobin less than or equal to 8) or a liberal strategy (transfusion for hemoglobin less than or equal to 10) for the duration of their hospitalization.

At 30-day follow-up, 36 patients in the restrictive group and 45 patients in the liberal group experienced either death, stroke, recurrent myocardial infarction, or emergency revascularization due to ischemia. The overall relative risk of meeting this composite outcome was 0.79. This met the prespecified margin for noninferiority.

Although the relative risk margin for noninferiority of 1.25 may include clinically relevant harm, there was a clear trend toward superiority. A larger, better powered trial is needed to demonstrate superiority.
**BOTTOM LINE:** In the setting of myocardial infarction, a transfusion threshold of hemoglobin less than or equal to 8 g/dL is noninferior to a threshold of 10 g/dL with respect to major adverse cardiovascular events. In the absence of definitive guidelines, a restrictive strategy should be preferred.
**CITATION:** Ducrocq G et al. Restrictive vs. liberal red blood cell transfusion strategies in patients with acute myocardial infarction and anemia: Rationale and design of the REALITY trial. Clin Cardiol. 2021;44(2):143-50. doi: 10.1002/clc.23453.

*Dr. Clark is a rising Internal Medicine Chief Resident at Maine Medical Center in Portland.*

By Elizabeth Herrle, MD

## 5 Antibiotics and monoclonal antibodies predominate in reports of drug-induced anaphylaxis

**CLINICAL QUESTION:** Over the last 20 years, what medications have been most frequently identified in association with drug-induced anaphylactic reactions reported to the Food and Drug Administration Adverse Event Reporting System?
**BACKGROUND:** Drug-induced anaphylaxis has long been known to be a serious side effect of a variety of pharmaceutical agents. The FDA Adverse Event Reporting System is a publicly available repository of data related to adverse drug effects of all kinds. Information available in the system is the result of mandatory reports from drug manufacturers, as well as voluntary reporting by patients and health care professionals.


Dr. Herrle

**STUDY DESIGN:** Descriptive study of publicly available data.
**SETTING:** FDA Adverse Event Reporting System from 1999 to 2019.
**SYNOPSIS:** In this study, the authors evaluated all adverse drug events reported to the FDA Adverse Event Reporting System (FAERS) between 1999 and 2019 for which the identified reaction was "anaphylactic shock" or "anaphylactic reaction" (n = 47,496).

The medication classes most frequently associated with anaphylaxis reports in the United States were antibiotics (26.45%), monoclonal antibodies (51.58%), and NSAIDS/acetaminophen (28.28%). When analyzing reports from all countries, these drug classes remained the top three most commonly implicated in anaphylaxis, although their proportions were considerably different in non-U.S. reports.

The most striking trend over time noted in the data was the significant rise in anaphylaxis reported in association with monoclonal antibody therapy, which likely reflects the increased use of these agents over time.

A major limitation is that not all events in the population will be reported to the database. It should also be noted that the structure of FAERS reporting is such that all medications given within proximity to the adverse event are listed in association with the event, even if they are unlikely to be the triggering medication.
**BOTTOM LINE:** Anaphylaxis remains a significant and potentially deadly side effect of medication therapy. Monoclonal antibody therapy is emerging as a common trigger of anaphylactic events, with

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antibiotics and analgesics remaining frequent triggers as well.
**CITATION:** Yu RJ et al. Emerging causes of drug-induced anaphylaxis: A review of anaphylaxis-associated reports in the FDA Adverse Reporting System (FAERS). J Allergy Clin Immunol Pract. 2021 Feb;9(2):819-29. e2. doi: 10.1016/j.jaip.2020.09.021.

## 6 DOACs preferable to warfarin in select patients with AFib and valvular heart disease

**CLINICAL QUESTION:** In patients with valvular heart disease and atrial fibrillation, how does the safety and effectiveness of direct oral anticoagulants compare with that of warfarin?
**BACKGROUND:** While there is strong evidence for the safety and effectiveness of direct oral anticoagulants (DOAC) in the treatment of nonvalvular atrial fibrillation (AFib), less is known about the use of these agents in patients with valvular heart disease who also have AFib. Despite limited data, the use of DOACs in patients with valvular heart disease and AFib has increased in the last decade.
**STUDY DESIGN:** New user retrospective propensity score–matched cohort study.
**SETTING:** OptumInsight Clinformatics database – U.S.-based commercial health care database 2010-2019.
**SYNOPSIS:** Among the 56,336 patients included in the propensity-matched cohorts, the authors found a significant reduction in both major embolic events (hazard ratio, 0.64; 95% confidence interval, 0.59-0.70) and major bleeding events (HR, 0.67; 95% CI, 0.63-0.72) with DOACs, as compared with warfarin. This effect also persisted across a range of subgroup and sensitivity analyses. When analyzed individually, apixaban and rivaroxaban showed outcomes consistent with the overall class data. While dabigatran showed a reduction in bleeding events, it did not show a reduction in embolic events when compared with warfarin.

Important limitations of this study include a short median follow-up time (134 days for DOACs and 124 days for warfarin), small numbers of patients with mitral regurgitation or stenosis, and limited ability to adjudicate outcomes or assess medication adherence based on the nature of the data source.

Despite these limitations, this study provides real-world, population-based data in a large cohort that add to a growing body of literature supporting the safety and effectiveness of DOACs for AFib in select patients with valvular heart disease.
**BOTTOM LINE:** In this study of real-world use of DOACs in patients with AFib and valvular heart disease, these agents performed favorably in terms of safety and effectiveness outcomes when compared with warfarin therapy.
**CITATION:** Dawwas GK et al. Effectiveness and safety of direct oral anticoagulants versus warfarin in patients with valvular atrial fibrillation: A population-based cohort study. Ann Intern Med. 2021 Mar 30. doi: 10.7326/M20-6194.

*Dr. Herrle is assistant professor of medicine at Tufts University and a hospitalist at Maine Medical Center, Portland. She is the associate director of medical student education for the department of internal medicine at MMC and a medical director for clinical informatics at Maine Health.*



By Kristen Bartlett, MD

## 7 STEMI patients without modifiable risk factors at higher risk of death, especially women

**CLINICAL QUESTION:** What are the outcomes of patients with STEMI in the absence of modifiable risk factors?
**BACKGROUND:** Outcomes in patients with standard modifiable cardiovascular risk factors ("SMuRFs": hypertension, diabetes, hypercholesterolemia, and tobacco use) with ST-segment elevated myocardial infarction (STEMI) are well-documented. In contrast, less is known about outcomes in patients without standard modifiable risk factors, limiting implementation of preventive strategies in this population.


Dr. Bartlett

**STUDY DESIGN:** Retrospective study of SWEDEHEART registry of myocardial infarctions.
**SETTING:** Multicenter, Swedish cardiac care units.
**SYNOPSIS:** The study analyzed SWEDEHEART registry data from 2005 to 2018, including 62,048 patients aged 18 and older experiencing first-time STEMI with no known coronary artery disease history. In patients without modifiable risk factors ("SMuRF-less" patients) the risk of all-cause mortality at 30 days (primary outcome) was increased, as compared with those with at least one established modifiable risk factor (hazard ratio, 1.47; 95% confidence interval, 1.37-1.57). The increased mortality risk was more pronounced in women.

Patients in the SMuRF-less cohort underwent percutaneous coronary intervention at the same rate as those with known risk factors but were less likely to receive guideline-directed therapies (statin, ACEI/ARB, beta-blocker) following STEMI, with the disparity even worse among SMuRF-less women. Notably, for the subset of those who did receive appropriate therapy despite lack of risk factors, the increased risk of mortality was reduced or eliminated.

Limitations arise from the nature of the registry data; although quite complete, it is possible that SMuRFs were missed. Additionally, this is an observational study, increasing the probability of confounders that were not accounted for in analysis.
**BOTTOM LINE:** The significantly increased risk of mortality in the SMuRF-less population with STEMI was at least in part due to lower rates of guideline-directed pharmacotherapy; as hospitalists we should ensure that these therapies are prescribed universally for our patients with history of STEMI.
**CITATION:** Figtree GA et al. Mortality in STEMI patients without standard modifiable risk factors: A sex-disaggregated analysis of SWEDEHEART registry data. Lancet. 2021;397(10279):1085-94. doi: 10.1016/S0140-6736(21)00272-5.

*Dr. Bartlett is a resident physician in the Internal Medicine residency at Maine Medical Center, Portland.*

By Raymond M. Klein, MD

## 8 Canadian TIA score validated as a tool to stratify subsequent stroke risk

**CLINICAL QUESTION:** Can the Canadian TIA score be used to stratify subsequent stroke risk in emergency department patients with transient ischaemic attack, and how does it compare with the ABCD2 score?
**BACKGROUND:** The best-known score for triage of TIA is the ABCD2 score. The authors' study team previously derived the Canadian TIA as

a new triage tool using 13 predictive variables from history, physical examination, and testing routinely performed at the time of presentation to the ED. This study aimed to validate the previously derived Canadian TIA score as a tool to stratify subsequent stroke risk in patients presenting with TIA.


Dr. Klein

**SETTING:** Thirteen Canadian emergency departments, including university-affiliated tertiary care and urban community hospitals.

**STUDY DESIGN:** Multicenter prospective cohort study.

**SYNOPSIS:** A total of 7,607 patients were enrolled in the study. The primary outcome was subsequent stroke or carotid endarterectomy/carotid stenting within 7 days. The Canadian TIA score stratified the risk of the primary outcome as low (less than or equal to 0.5%), medium, or high (greater than 5%) more accurately than the ABCD2 score. Likelihood ratios ranged from 0.20 for the low-risk group (95% confidence interval, 0.09-0.44) to 2.56 for the high-risk group (95% CI, 2.02-3.25). Results were similar for a secondary outcome of stroke within 7 days, irrespective of carotid revascularization.

The data support the use of the Canadian TIA score to risk-stratify patients with TIA for subsequent early stroke. The Canadian TIA Score compared favorably with the ABCD2 score, though it requires additional study to understand how its use will impact patient care. Additionally, this prospective validation was conducted by the same study team that devised the score. The Canadian TIA score may be more cumbersome to use than the ABCD2 score, as it includes 13 variables; however, online and smartphone calculators are readily available.

**BOTTOM LINE:** The Canadian TIA score was prospectively validated as a tool to stratify 7-day risk of stroke in patients presenting to an ED with TIA and performed better than the ABCD2 score, especially for low-risk patients.

**CITATION:** Perry JJ et al. Prospective validation of Canadian TIA score and comparison with ABCD2 and ABCD2i for subsequent stroke risk after transient ischaemic attack: Multicentre prospective cohort study (published correction appears in BMJ. 2021 Feb 18;372:n453). BMJ. 2021;372:n49. doi: 10.1136/bmj.n49.

*Dr. Klein is assistant professor of medicine at Tufts University, Boston, and a hospitalist at Maine Medical Center, Portland.*

## SHORT TAKES

### Clinical practice update for management of diverticulitis

The American Gastroenterological Association provided a clinical practice update on the medical management of diverticulitis, based on an expert review of low- to moderate-quality evidence. Recommendations included the use of computed tomography to confirm the diagnosis in most hospitalized patients, selective rather than routine use of antibiotics for immunocompetent patients with mild uncomplicated diverticulitis, and follow-up colonoscopy to exclude malignancy after an episode of complicated diverticulitis or a first episode of uncomplicated diverticulitis.

**CITATION:** Peery AF et al. AGA clinical practice update on medical management of colonic diverticulitis: Expert review. Gastroenterology. 2021;160(3):906-11.e1. doi: 10.1053/j.gastro.2020.09.059.

### Vitamin C, thiamine, and hydrocortisone cocktail has no benefit for patients with sepsis

Despite early promise, this randomized control trial adds to the growing evidence that there is no benefit of treatment with Vitamin C, thiamine, and hydrocortisone for critically ill patients with sepsis and specifically no improvement in ventilator- and vasopressor-free days.

**CITATION:** Sevransky JE et al. Effect of vitamin C, thiamine, and hydrocortisone on ventilator- and vasopressor-free days in patients with sepsis: The VICTAS randomized clinical trial. JAMA. 2021;325(8):742-50. doi: 10.1001/jama.2020.24505.

### Rescue ventilation plays a pivotal role in opioid-related out-of-hospital cardiac arrest

Opioid-related out-of-hospital cardiac arrest (OHCA) has very different pathophysiology, compared with most nonopioid OHCA, given that progressive hypoxia precedes pulseless electrical arrest or systole in the former. For these patients, rescue ventilation is more important than for nonopioid OHCA; additionally, naloxone can prevent loss of pulse and should be given as early as possible.

**CITATION:** Dezfulian C et al. Opioid-associated out-of-hospital cardiac arrest: Distinctive clinical features and implications for health care and public responses: A scientific statement from the American Heart Association. Circul. 2021;143:e836-70. doi: 10.1161/CIR.0000000000000958.

# AHA guidance on blood clots linked to COVID-19 vaccine

**By Deborah Brauser**

A newly released report is offering guidance concerning rare conditions associated with COVID-19 as well as vaccines against the virus.

The report was released by the American Heart Association/American Stroke Association Stroke Council Leadership in answer to the decision April 23 by the Centers for Disease Control and Prevention and the Food and Drug Administration to lift an earlier "pause" in administration of the Johnson & Johnson (Janssen) vaccine.

That pause had been put in place after reports were received of a possible association between the J&J vaccine and cerebral venous sinus thrombosis (CVST) and thrombosis-thrombocytopenia syndrome (TTS, blood clots plus low blood platelets). CVST and TTS were also linked to patients in Europe and Canada who received the AstraZeneca COVID-19 vaccine.

However, the new report noted that these conditions are very rare.

"The risk of CVST due to infection with COVID-19 is 8-10 times higher than the risk of CVST after receiving a COVID-19 vaccine," lead author Karen L. Furie, MD, chair of the department of neurology at Brown University, Providence, R.I., said in a press release.

"The public can be reassured by the CDC's and FDA's investigation and these statistics – the likelihood of developing CVST after a COVID-19 vaccine is extremely low," said Dr. Furie, adding that the authors "urge all adults to receive any of the approved COVID-19 vaccines."

The new guidance, which was published online April 29, 2021, in Stroke (doi: 10.1161/STROKEAHA.121.035564), discusses signs and symptoms of CVST and TTS, as well as vaccine-induced immune thrombotic thrombocytopenia (VITT). It also recommends best options for treating these conditions.

In their analysis, the investigators assessed a database of 59 health care organizations and 81 million patients, 98% of whom were in the United States.

Of almost 514,000 patients diagnosed with COVID-19 between January 2020 and March 2021, 20 also received a diagnosis of CVST.

Among about 490,000 adults who received either the Pfizer or Moderna vaccines, there were no diagnosed cases of thrombocytopenia.

Dr. Furie reiterated that CVST blood clots "are very rare adverse events," but recommended that any patient with a suspected clot should be screened immediately to determine if they received a COVID vaccine during the previous few weeks.

For those who have recently received the COVID-19 vaccine, a suspected clot should be treated with nonheparin anticoagulants, Dr. Furie said.

"No heparin products in any dose should be given for suspected CVST, TTS, or VITT. With the right treatment, most patients can have a full recovery," she added. The report includes additional, detailed treatment recommendations if one of these conditions are suspected.

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

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The Future Hospitalist

# FIND: A framework for success as a first-year hospitalist

**By Ryan E. Nelson, MD; Alison K. Ashford, MD; Rachna Rawal, MD; Teela Crecelius, MD**




*Dr. Nelson is a hospitalist and instructor of medicine at Harvard Medical School and Beth Israel Deaconess Medical Center, both in Boston. Dr. Ashford is assistant professor and program director, department of internal medicine/pediatrics, at the University of Nebraska Medical Center, Omaha. Dr. Rawal is clinical assistant professor of medicine at the University of Pittsburgh Medical Center. Dr. Crecelius is assistant professor of clinical medicine at Indiana University, Indianapolis. This article is sponsored by the SHM Physicians in Training committee, which submits quarterly content to the Hospitalist on topics relevant to trainees and early-career hospitalists.*

Congratulations! You're about to start your first year as a hospitalist, and in many cases your first *real* job. Hospital medicine is an incredibly rewarding subspecialty, but the progression from resident to attending physician can be daunting. To facilitate this transition, we present **FIND (Familiarity, Identity, Network, and Direction)** – a novel, sequential framework for success as a first-year hospitalist. For each component, we provide a narrative overview and a summary bullet point for quick reference.

## Familiarity

- *Lay the foundation:* Learn the ins and outs of your job, EMR, and team.

Familiarize yourself with your surroundings. Know where your patients are located, where you can document, where to find equipment for procedures, and how to reach information technology. Proactively set up the electronic medical record on your home computer and phone. Make sure to review your responsibilities, including your call schedule, your shifts, your assigned patient panel, when you can leave campus, and how people should contact you. Also, others should know your expectations of them, especially if you are working with trainees.

Maintain a file with all of your orientation materials, including phone numbers and emails of key personnel. Know who your people are – who can access your calendar, who you can call with a clinical question or to escalate care, who can assist you with billing, and who helps with the throughput of your patients in the hospital. Take time to review your benefits, including parental leave, insurance coverage, retirement planning, vacation time, and ancillary services like laundry for your white coat. Familiarizing yourself with these basics will provide comfort and lay the foundation for your first year.

## Identity

- *Perform self-reflection:* Overcome imposter syndrome, and invest in hobbies.

One of the fundamental realizations that will occur with your first hospitalist job is that you are the attending. You walk in with a vision of your first job; be prepared to be surprised. You have earned the privilege of deciding on patient plans, and you are no longer obligated to staff with a senior physician. This is both empowering and terrifying. In a way, it may oddly remind you of intern year. A new hospital, new EMR, new colleagues, and imposter syndrome will trick you into doubting your decisions.

How to battle it? Positive thinking. You do know the basics of inpatient medicine and you do have a support system to cheer you on. As part of imposter syndrome, you may feel pressured to focus solely on work. Yet, your first job as a hospitalist is finally an amazing opportunity to focus on you. What hobbies have you been neglecting: cooking, photography, reading, more time with family, a new pet? You have the power to schedule your off-weeks. Are you interested in academics? Reserve a portion of your time off to explore scholarship opportunities at your institution. Your first job as a hospitalist is a chance to develop your identity, both as a physician and as an individual.

## Network

- *Engage your support system:* Communicate with nursing, administration, colleagues.

Networking, or building a web of mutually beneficial professional relationships, is imperative for long-term career success. Hospitalists should focus on developing their network across multiple departments, such as nursing, subspecialties, medical education, and hospital administration. Curating a broad network will increase your visibility within your organization, showcase your unique services, and demonstrate your value.

To make networking encounters impactful, express interest, actively listen, ask relevant questions, and seek areas of mutual benefit. It's equally important to cultivate these new relationships after the initial encounter and to demonstrate how your skill set will aid colleagues in achieving their professional goals. Over time, as you establish your niche, deliberate networking with those who share similar interests can lead to a wealth of new experiences and opportunities. Intentionally mastering networking early in your career provides insight into different aspects of the hospital system, new perspectives on ideas, and access to valuable guidance from other professionals. Engaging in networking to establish your support system is an essential step towards success as a first-year hospitalist.

## Direction

- *Visualize your path:* Find a mentor, and develop a mission statement and career plan.

Once you're familiar with your work environment, confident in your identity, and acquainted with your support network, you're ready for the final step – direction. Hospital medicine offers many professional avenues and clarifying your career path is challenging when attempted alone. A mentor is the necessary catalyst to find direction and purpose.

Selecting and engaging with a mentor will bolster your professional advancement, academic productivity, and most importantly, career satisfaction.[1] At its best, mentorship is a symbiotic relationship. Your mentor should inspire you, challenge you, and support your growth and emotional well-being. In turn, as the mentee, you should be proactive, establish expectations, and take responsibility for maintaining communication to ensure a successful relationship. As your career takes shape over time, you may require a mentorship team to fulfill your unique needs.

When you've established a relationship with your mentor, take time to develop 1-year and 5-year plans. Your 1-year plan should focus on a few "quick wins," often projects or opportunities at your home institution. Small victories in your first year will boost your confidence, motivation, and sense of control. Your 5-year plan should delineate the steps necessary to make your first major career transition, such as from instructor to assistant professor. Working with your mentor to draft a career mission statement is a useful first step in this process. Beginning with the end in mind will help you visualize your direction.[2]

We hope that the FIND framework will help you find your path to success as a first-year hospitalist.

## References

1. Zerzan JT et al. Making the most of mentors: A guide for mentees. Acad Med. 2009;84:140-4. doi: 10.1097/ACM.0b013e3181906e8f.

2. Covey F. The seven habits of highly effective people. 25th anniversary edition. New York: Simon and Schuster, 2013.

Hospitalist Insight

# Understanding the grieving process

Loss is inevitable – and understanding essential

**By Leif Hass, MD**

I arrived on the 6th-floor nursing unit one day last fall to find halls abuzz with people. Something didn't feel right, and then I saw a nursing colleague with tears streaming down her face. My heart dropped. She looked up at me and said, "Dr. Hass, K died last night." She started to sob. I stood dumbfounded for a moment. We had lost a beloved coworker to COVID.

There has been a collective sense of grief in our country since the beginning of the COVID-19 pandemic as we have all been suffering losses: smiles, touch, in-person relationships, a "normal life." But it went to another level for us at Alta Bates Summit Medical Center in Oakland, Calif., with the passing of a couple of our beloved teammates in the fall. Strong emotions triggered by these events caused me to pause and think: "What is grief? Is it another word for sadness? How do we work through it?"

What is the difference between sadness and grief? While related, they are temporally and functionally quite different. Sadness is an emotion, and like all emotions, we feel it in brief episodes. Those moments of profound sadness last only minutes at a time. Sadness leads to decreased physiological arousal, especially after crying. When less intense, the physiological slowing is thought to allow for some mental clarity that lets the loss sink in and moves us toward a recalibration process. These episodes of sadness occur more frequently and with greater intensity the closer we are to the triggering event.

While emotions last minutes, mood, another affective state, lasts hours to days and is less intense and specific in content. A sad mood can be present much of the time after a significant loss. Emotions predispose to moods and vice versa.

Grief, on the other hand, is a complex and lengthy process that moves us from a place of loss to a new place with a new equilibrium without the lost object. While sadness is about fully acknowledging the loss, the grieving process is about getting beyond it. The bigger the loss, the bigger the hole in your life and the longer the grieving process. Grief is a multi-emotional process with people often experiencing a range of emotions, such as shock, anger, and fear in addition to sadness.

As I grappled with my sense of loss, I realized that understanding the grieving process was going to help me as I navigate this world now full of loss. Here are a few things we should all keep in mind.

## A sense of mindful self-awareness

As we work through our grief, a mindful self-awareness can help us identify our emotions and see them as part of the grieving process. Simply anticipating emotions can lessen the impact of them when they come.

As the emotions come on, try to name them, e.g., "I am so sad," and feel the experience in the body. The sadness can be cathartic, and by focusing on the body and not the head, we can also drop the sometimes healthy, sometimes unhealthy rants and ruminations that can accompany these events. If we experience the emotions with mindful self-awareness, we can see our emotions as part of a healing, grieving process, and we will likely be able to handle them more gracefully.

In the days after the death of my nursing colleague, my sad mood would be interrupted with flares of anger triggered by thoughts of those not wearing masks or spreading misinformation. Moving my thoughts to the emotions, I would say to myself, "I am really angry, and I am angry because of these deaths." I felt the recognition of the emotions helped me better ride the big waves on the grieving journey.

Counter to the thinking of the 20th century, research by George Bonanno at Columbia University found that the majority of bereavement is met with resilience. We will be sad, we might have moments of anger or denial or fear, but for most of us, despite the gravity of the loss, our innate resilience will lead about 50%-80% of us to recover to near our baseline in months. It is nice to know we are not repressing things if we don't pass through all the stages postulated by Elisabeth Kübler-Ross, MD, the dominate paradigm in the field.[1]

For those grieving, this idea of resilience being the norm can provide reassurance during tough moments. While our degree of resilience will depend on our loss and our circumstance, the work of Lucy Hone, PhD, suggests that resilience can be fostered. Many of the negative feelings we experience have a flip side we can seek out. We can be grateful for what remains and what the departed has left us with. We can aid in our grieving journey by using many of the resources available from UC Berkeley's Greater Good in Action (https://ggia.berkeley.edu/).

While most grief is met with resilience, complicated grieving with persistent negative moods and emotions is common. We should consider seeking professional help if our emotions and pattern of thought continue to feel unhealthy.

## Meaning and wisdom, not acceptance

Another change in our understanding of grief is this: Instead of "acceptance" being seen as the end result of grieving, meaning and wisdom are now recognized as the outcomes. Research has found that efforts to find meaning in loss facilitates the grieving process.

As time passes and our sadness lessens, the loved one doesn't leave us but stays with us as a better understanding of the beauty and complexity of life. The loss, through grieving, is transformed to wisdom that will guide us through future challenges and help us make sense of the world.

Last week, masked and robed and with an iPad in hand so the family could join the conversation, I was talking to Ms. B who is hospitalized with COVID-19. She said, "I just keep thinking, 'Why is this happening to me? To all of us?' And then I realized that it is a message from God that we need to do a better job of taking care of each other, and I suddenly felt a little better. What do you think, Dr. Hass?"

"Wow," I said. "Thank you for sharing that. There is definitely some truth there. There is a lot to learn from the pandemic about how we care for each other. I need to keep that in mind when I start feeling down."

So much is going on now: climate change, a racial reckoning, frightening political dysfunction, and a global pandemic that has upended our daily routines and the economy. It is hard to keep track of all the loss and uncertainty. We might not know why feelings of sadness, anger, and anxiety come on, but if we can meet these emotions with mindful equanimity, see them as part of our intrinsic healing process and keep in mind that our path will likely be toward one of wisdom and sense-making, we can better navigate these profoundly unsettling times.

Just as sadness is not grief, joy alone does not lead to happiness. A happy life comes as much from meaning as joy. While unbridled joy might be in short supply, our grief, our work as hospitalists with the suffering, and confronting the many problems our world faces gives us the opportunity to lead a meaningful life. If we couple this search for meaning with healthy habits that promote well-being, such as hugs, investing in relationships, and moving our body in the natural world, we can survive these crazy times and be wiser beings as a result of our experiences.

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## Reference

1. Bonanno GA and Boerner K. The stage theory of grief. JAMA. 2007;297(24):2692-4. doi: 10.1001/jama.297.24.2693-a.

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