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## The ally in the waiting room

Improving communication with patients' loved ones

By Eric Butterman

**W**e think of a patient's recovery happening in multiple locations – in a hospital room or a rehabilitation facility, for example. But many clinicians may not consider the opportunity to aid healing that lies in the waiting room.

The waiting room is where a patient's loved ones often are, and they, sometimes more than anyone, can unlock the path to a patient's quicker recovery. Friends and family can offer encouragement, as they have an existing bond of trust that can help if a patient needs reinforcement to take their medications or follow other health care advice.

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# Physicians, make a plan to vote

By Anika Kumar, MD, FHM, FAAP

In March 2020, following the announcement of the United States' first death related to COVID-19, many physicians began using their voices to discuss the shortage of personal protective equipment (PPE). Many physicians, myself included, petitioned elected leaders at the community, state, and federal levels to address the PPE shortage.

Historically, physicians have advocated for improved public health. From seat belt laws in the 1980s and 1990s to the Affordable Care Act in the 2000s, physicians have testified at the community, state, and federal levels to advocate for the health and safety of our patients and the public. Yet while we have been making our voices heard, we are often silent at the ballot box.

In the 1996 and 2000 elections, physicians voted 9% less often than the general public, and compared with lawyers – professionals with similar educational attainment and finances – physicians voted 22% less often.<sup>1</sup> It is unclear why physicians are less likely to vote. In a 2016 article, David Grande, MD, and Katrina Armstrong, MD, postulated that physicians may not vote because our work hours create barriers to visiting polls.<sup>2</sup>

Despite our lack of engagement at the ballot box, voting is important to improving our patients' social determinants of health. In a recently published systematic review, the authors found several studies supporting the association between voting and social determinants of health. Their review found that, when large numbers of people from communities participated in voting, it translated into greater influence over determining who held political power in that community. Those with power introduced and supported policies responding to their constituents' needs, ultimately influencing their constituents' social determinants of health.<sup>3</sup> By voting, we as physicians are helping to address the social determinants of health in our communities.

Many medical students have been doing their part to improve the social determinants of health in their communities by pledging to vote. In 2018, the American Medical Student Association launched their "Med Out the Vote" initiative prior to the



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election. The organization called on all health care providers and providers in training to pledge to vote in the election.<sup>4</sup> They are continuing these efforts for the 2020 elections.

We should join our nation's medical students by also pledging to vote. To begin, we can all *Make A Plan To Vote*. Each plan should include the following:

- **Register to vote:** In many states eligible voters can register online.
- **Request an absentee ballot:** Many states require registered voters to request absentee ballots online or by mail.
- **Vote:** Submit an absentee ballot prior to election or vote in-person on election day. Some counties allow voting early in person.

In practice, our plans will differ slightly because each state has its own election laws.

This election season let us ensure all physician voices are heard. *Make A Plan To Vote* for your patients and communities.

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# The Authority/Accountability balance

Evaluating your career trajectory

By Thomas McIlraith, MD,  
SFHM, CLHM

I have had the pleasure of working on the Society of Hospital Medicine's signature Leadership Academies since 2010, and I enjoy working with hospital medicine leaders from around the country every year. I started as a hospital medicine leader in 2000 and served during the unprecedented growth of the field when it was "the most rapidly growing specialty in the history of medicine."

Most businesses dream of having a year of double-digit growth; my department grew an average of 15% annually for more than 10 years. These unique experiences have taught me many lessons and afforded me the opportunity to watch many stars of hospital medicine rise, as well as to learn from several

*"Long-term goals, such as taking on a new hospital contract, are the big-picture stuff that can make or break the career of an HMG leader. Long-term goals also need to be delineated in the job description, along with specific time stamps and the resources you need."*

less-scrupulous leaders about the darker side of hospital politics.

One of the lessons I learned the hard way about hospital politics is striking the "Authority/Accountability balance" in your career. I shared this perspective at the SHM annual conference in 2018, at speaking engagements on the West Coast, and with my leadership group at the academies. I am sharing it with you because the feedback I have received has been very positive.

The Authority/Accountability balance is a tool for evaluating your current career trajectory and measuring if it is set up for success or failure. The essence is that your Authority and Accountability need to be balanced for you to be successful in your career, regardless of your station. Everybody from the hospitalist fresh out of residency to the CEO needs to have Authority and Accountability in balance to be successful. And as you use the tool to measure your own potential for success or failure, learn to apply it to those who report to you.

I believe the rising tide lifts all boats and the success of your subor-

ordinates, through mentoring and support, will add to your success. There is another, more cynical view of subordinates that can be identified using the Authority/Accountability balance, which I will address.

## Authority

In this construct, "Authority" has a much broader meaning than just the ability to tell people what to do. The ability to tell people what to do is important but not sufficient for success in hospital politics.

Financial resources are essential for a successful Authority/Accountability balance – not only the hardware such as computers, telephones, pagers, and so on, but also clerical support, technical support, and analytic support so that you are getting high-quality data on the performance of the members of your hospital medicine group (HMG). These

"soft" resources (clerical, technical, and analytical) are often overlooked as needs that HMG leaders must advocate for; I speak with many HMG leaders who remain under-resourced with "soft" assets. However, being appropriately resourced in these areas can be transformational for a group. Hospitalists don't like doing clerical work, and if you don't like a menial job assigned to you, you probably won't do it very well. Having an unlicensed person dedicated to these clerical activities not only will cost less, but will ensure the job is done better.

Reporting structure is critically important, often overlooked, and historically misaligned in HMGs. When hospital medicine was starting in the late 1990s and early 2000s, rapidly growing hospitalist groups were typically led by young, early-career physicians who had chosen hospital medicine as a career. The problem was that they often lacked the seniority and connections at the executive level to advocate for their HMG. All too often the hospitalist group was tucked in under another department or division which, in turn,

reported HMG updates and issues to the board of directors and the CEO.

A common reporting structure in the early days was that a senior member of the medical staff, or group, had once worked in the hospital and therefore "understood" the issues and challenges that the hospitalists were facing. It was up to this physician with seniority and connections to advocate for the hospitalists as they saw fit. The problem was that the hospital landscape was, and is, constantly evolving in innumerable ways. These "once removed" reporting structures for HMGs failed to get the required information on the rapidly changing, and evolving, hospitalist landscape to the desks of executives who had the financial and structural control to address the challenges that the hospitalists in the trenches were facing.

Numerous HMGs failed in the early days of hospital medicine because of this type of misaligned reporting structure. This is a lesson that should not be forgotten: Make sure your HMG leader has a seat at the table where executive decisions are made, including but not limited to the board of directors. To be in balance, you have to be "in the room where it happens."

## Accountability

The outcomes that you are responsible for need to be explicit, appropriately resourced with Authority, and clearly spelled out in your job description. Your job description is a document you should know, own, and revisit regularly with whomever you report to, in order to ensure success.

Once you have the Authority side of the equation appropriately resourced, setting outcomes that are a stretch, but still realistic and achievable within the scope of your position, is critical to your success. It is good to think about short-, medium-, and long-term goals, especially if you are in a leadership role. For example, one expectation you will have, regardless of your station, is that you keep up on your email and answer your phone. These are short-term goals that will often be included in your job description. However, taking on a new hospital contract and making sure that it has 24/7 hospitalist coverage, that



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all the hospitalists are meeting the geometric mean length of stay, and that all the physicians are having 15 encounters per day doesn't happen immediately. Long-term goals, such as taking on a new hospital contract, are the big-picture stuff that can make or break the career of an HMG leader. Long-term goals also need to be delineated in the job description, along with specific time stamps and the resources you need to accomplish big-ticket items – which are spelled out in the Authority side (that is, physician recruiter, secretary, background checks, and so on).

One of the classic misuses of Accountability is the "Fall Guy" scenario. The Fall Guy scenario is often used by cynical hospital and medical group executives to expand their influence while limiting their liability. In the Fall Guy scenario, the executive is surrounded with junior partners who are underpowered with Authority, and then the executive makes decisions for which the junior partners are Accountable. This allows the senior executive to make risky decisions on behalf of the hospital or medical group without the liability of being held accountable when the decision-making process fails. When the risky, and often

ill-informed, decision fails, the junior partner who lacked the Authority to make the decision – but held the Accountability for it – becomes the Fall Guy for the failed endeavor. This is a critical outcome that the Authority/Accountability balance can help you avoid, if you use it wisely and properly.

If you find yourself in the Fall Guy position, it is time for a change. The Authority, the Accountability, or both need to change so that they are in better balance. Or your employer needs to change. Changing employers is an outcome worth avoiding, if at all possible. I have scrutinized thousands of resumes in my career, and frequent job changes always wave a red flag to prospective employers. However, changing jobs remains a crucial option if you are being set up for failure when Authority and Accountability are out of balance.

If you are unable to negotiate for the balance that will allow you to be successful with your current group, remember that HMG leaders are a prized commodity and in short supply. Leaving a group that has been your career is hard, but it is better to leave than stay in a position where you are set up for failure as the Fall Guy. Further, the most effective time to expand your Authority is when you are negotiating the terms of a new position. Changing positions is the nuclear option. However, it is better than becoming the Fall Guy, and a change can create opportunities that will accelerate your career and influence, if done right.

When I talk about Authority/Accountability balance, I always counter the Fall Guy with an ignominious historical figure: General George B. McClellan. General McClellan was the commander of the Army of the Potomac during the early years of the American Civil War. General McClellan had the industrial might of the Union north at his beck and call, as well as extraordinary resources for recruiting and retaining soldiers for his army. At every encounter with General Robert E. Lee's Army of Northern Virginia, General McClellan outnumbered them, sometimes by more than two to one. Yet General McClellan was outfoxed repeatedly for the same reason: He failed to take decisive action.

Every time that McClellan failed, he blamed insufficient resources and told President Lincoln that he needed more troops and more equipment to be successful. In summary, while the Fall Guy scenario needs to be avoided, once you are adequately resourced, success re-



quires taking decisive and strategic action, or you will suffer as did General McClellan. Failing to act when you are appropriately resourced can be just as damaging to your career and credibility as allowing yourself to become the Fall Guy.

#### Job description

Everybody has somebody that they report to, no matter how high up on the executive ladder they have climbed. Even the CEO must report to the board of directors. And that reporting structure usually involves periodic formal reviews. Your for-

*“Despite my cynicism toward executives in the medical field, I personally advocate for supporting the career development of those around you and advise against furthering your career at the expense of others.”*

mal review is a good time to go over your job description, note what is relevant, remove what is irrelevant, and add new elements that have evolved in importance since your last review.

Job descriptions take many forms, but they always include a list of qualifications. If you have the job, you have the qualifications, so that is not likely to change. You may become more qualified for a higher-level

position, but that is an entirely different discussion. I like to think of a well-written job description as including short-term and long-term goals. Short-term goals are usually the daily stuff that keeps operations running smoothly but garners little attention. Examples would include staying current on your emails, answering your phone, organizing meetings, and regularly attending various committees. Even some of these short-term goals can and will change over time. I always enjoyed quality oversight in my department, but as the department and my responsibilities grew, I realized I couldn't do everything that I wanted to do. I needed to focus on the things only I could do and delegate those things that could be done by someone else, even though I wanted to continue doing them myself. I created a position for a clinical quality officer, and quality oversight moved off of my job description.

Long-term goals are the aspirational items, such as increasing market share, decreasing readmissions, improving patient satisfaction, and the like. Effective leaders are often focused on these aspirational, long-term goals, but they still must effectively execute their short-term goals. Stephen Covey outlines the dilemma with the “time management matrix” in his seminal work “The 7 Habits of Highly Effective People.” An in-depth discussion is beyond the scope of this article, but the time management matrix places tasks into one of four categories based on urgency and importance,

and provides strategies for staying up on short-term goals while continually moving long-term goals forward.

If you show up at your review with a list of accomplishments as well as an understanding of how the “time management matrix” affects your responsibilities, your boss will be impressed. It is also worth mentioning that Covey's first habit is “Proactivity.” He uses the term Proactivity in a much more nuanced form than we typically think of, however. Simply put, Proactivity is the opposite of Reactivity, and it is another invaluable tool for success with those long-term goals that will help you make a name for yourself.

When you show up for your review, be it annual, biannual, or other, be prepared. Not only should you bring your job description and recommendations for how it should be adapted in the changing environment, but also bring examples of your accomplishments since the last review.

I talk with leaders frequently who are hardworking and diligent and hate bragging about their achievements; I get that. At the same time, if you don't inform your superiors about your successes, there is no guarantee that they will hear about them or understand them in the appropriate context. Bragging about how great you are in the physician's lounge is annoying; telling your boss about your accomplishments since the last review is critical to maintaining

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# Hospitalists and unit-based assignments

By Isha Puri, MD, MPH, FHM

What seems like a usual day to a seasoned hospitalist can be a daunting task for a new hospitalist. A routine day as a hospitalist begins with pre-rounding, organizing, familiarizing, and gathering data on the list of patients, and most importantly prioritizing the tasks for the day. I have experienced both traditional and unit-based rounding models, and the geographic (unit-based) rounding model stands out for me.

The push for geographic rounding comes from the need to achieve excellence in patient care, coordination with nursing staff, higher HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) scores, better provider satisfaction, and efficiency in work flow and in documentation. The goal is typically to use this well-established tool to provide quality care to acutely ill patients admitted to the hospital, creating an environment of improved communication with the staff. It's a "patient-centered care" model – if the patient wants to see a physician, it's quicker to get to the patient and provides more visibility for the physician. These encounters result in improved patient-provider relationships, which in turn influences HCAHPS scores. Proximity encourages empathy, better work flow, and productivity.

The American health care system is intense and complex, and effective hospital medicine groups (HMGs) strive to provide quality care. Performance of an effective HMG is often scored on a "balanced score card." The "balanced score" eval-

uates performance on domains such as clinical quality and safety, financial stability, HCAHPS, and operational effectiveness (length of stay and readmission rates). In my experience, effective unit-based rounding positively influences all the measures of the balanced score card.

Multidisciplinary roundings (MDRs) provide a platform where "the team" meets every morning to discuss the daily plan of care, everyone gets on the same page, and unit-based assignments facilitate hospitalist participation in MDRs. MDRs typically are a collaborative effort between care team members, such as a case manager, nurse, and hospitalist, physical therapist, and pharmacist. Each team member provides a precise input.

Team members feel accountable and are better prepared for the day. It's easier to develop a rapport with your patient when the same organized, comprehensive plan of care gets

communicated to the patient.

It is important that each team member is prepared prior to the rounds. The total time for the rounds is often tightly controlled, as a fundamental concern is that MDRs can take up too much time. Use of a checklist or whiteboard during the unit-based rounds can improve efficiency. Mid-day MDRs are another gem in patient care, where the team proactively addresses early barriers in patient care and discharge plans for the next day.

The 2020 *State of Hospital Medicine* report highlights utilization of unit-based rounding, including breakdowns based on employment model. In groups serving adults patients only, 43% of university/medical school practices utilized unit-based assignments versus 48% for hospital-em-



Dr. Puri is a hospitalist at Lahey Hospital and Medical Center in Burlington, Mass., and is a member of SHM's Practice Analysis Committee.

ployed HMGs and only 32% for HMGs employed by multistate management companies. In HMGs that served pediatric patients only, 27% utilized unit-based assignments.

Undoubtedly geographic rounding has its own challenges. The pros and cons and the feasibility needs to be determined by each HMG. It's often best to conduct the unit-based rounds on a few units and then roll it out to all the floors.

An important prerequisite to establishing a unit-based model for rounding is a detailed data analysis of total number of patients in various units to ensure there is adequate staffing. It

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the momentum of past accomplishments. If you are not willing to toot your own horn, there is a very good chance that your horn will remain silent. I don't think self-promotion comes easily to anyone, and it has to be done with a degree of humility and sensitivity; but it has to be done, so prepare for it.

## Importance of teamwork

We talk about teamwork and collaboration as hospitalists, and SHM is always underscoring the importance of teamwork and highlighting examples of successful teamwork in its many conferences and publications. Most hospital executives are focused on their own careers, however, and many have no reservations about damaging your career (your brand) if they think it will promote theirs. You have to look out for yourself and size up every leadership position you get into.

Physicians can expect their ca-

reers to last decades. The average hospital CEO has a tenure of less than 3.5 years, however, and when a new CEO is hired, almost half of chief financial, chief operating, and chief information officers are fired within 9 months. You may be focused on the long-term success of your organization as you plan your career, but many hospital administrators are interested only in short-term gains. It is similar to some members of Congress who are interested only in what they need to do now to win the next election and not in the long-term needs of the country. You should understand this disconnect when dealing with hospital executives, and how you and your credibility can become cannon fodder in their quest for short-term self-preservation.

You have to look out for and take care of yourself as you promote your group. With a better understanding of the Authority/Accountability balance, you have new tools

to assess your chances of success and to advocate for yourself so that you and your group can be successful.

Despite my cynicism toward executives in the medical field, I personally advocate for supporting the career development of those around you and advise against furthering your career at the expense of others. Many unscrupulous executives will use this approach, surrounding themselves with Fall Guys, but my experience shows that this is not a sustainable strategy for success. It can lead to short-term gains, but eventually the piper must be paid. Moreover, the most successful medical executives and leaders that I have encountered have been those who genuinely cared about their subordinates, looked out for them, and selflessly promoted their careers.

In the age of social media, tearing others down seems to be the fastest way to get more "likes." However, I

strongly believe that you can't build up your group, and our profession, just by tearing people down. Lending a helping hand may bring you less attention in the short term, but such action raises your stature, creates loyalty, and leads to sustainable success for the long run.

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must be practical to localize providers to different units, and complexity of various units can differ. At Lahey Hospital and Medical Center in Burlington, Mass., an efficient unit-based model has been achieved with complex units typically assigned two providers. Units including oncology and the progressive care unit can be a challenge, because of higher intensity and patient turnover.

Each unit is tagged to another unit in the same geographical area; these units are designated “sister pods.” The intention of these units is to strike a balance and level off patient load when needed. This process helps with standardization of the work between the providers. A big challenge of the unit-based model is to understand that it’s not always feasible to maintain consistency in patient assignments. Some patients can get transferred to a different unit because of limited telemetry and specialty units. At Lahey the provider manages their own patient as “patient drift” happens, in an attempt to maintain continuity of care.

The ultimate goal of unit-based assignments is to improve quality, financial, and operational metrics for the organization and take a deeper dive into provider and staff satisfaction. The simplest benefit for a hospitalist is to reduce travel time while rounding.

Education and teaching opportunities during the daily MDRs are still debatable. Another big step in this area may be a “resident-centered MDR” with the dual goals of improving both quality of care and resident education by focusing on evidence-based medicine.

### Utilization of Unit-Based Assignments

	Total Groups	Yes	No
Pediatric Only	95	27.4%	72.6%
<b>Employment Model</b>			
Hospital, Health System or Integrated Delivery System	56	25.0%	75.0%
University, Medical School or Faculty Practice	31	25.8%	74.2%

This table was taken from the 2020 SoHM Report.

### Utilization of Unit-Based Assignments

	Total Groups	Yes	No
Adults Only	368	42.7%	57.3%
<b>Employment Model</b>			
Hospital, Health System or IDS	202	48.5%	51.5%
Private Local/Regional HMG	13	38.5%	61.5%
Multistate Management Company	90	32.2%	67.8%
Private Multispecialty or Primary Care Group	14	35.7%	64.3%
University, Med School or Faculty Practice	42	42.9%	57.1%

#### Footnote

The Survey question for this table asked whether the group used unit-based assignments (geographic rounding) for some or all of its hospitalists but excluded observation units as these are commonly staffed by hospitalists. Larger groups tended to have unit-based assignments.

This table was taken from the 2020 SoHM Report.



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## Key Clinical Question

# How do you manage common inpatient oncologic emergencies?

Three routinely encountered emergencies in the inpatient setting

By Krishna A. Chokshi, MD; and Cardinale Smith, MD, PhD

## Case

Mr. Williams is a 56-year-old man with newly diagnosed metastatic prostate cancer, diabetes mellitus, peptic ulcer disease, and hypertension. He is admitted with back pain and lower extremity weakness worsening over 2 weeks. He denies loss of sensation or bowel and bladder incontinence and can walk. MRI confirms cord compression at T10. What initial and subsequent steroid doses would be of most benefit to administer?

In 2016, there were an estimated 15,338,988 people living with cancer in the United States.<sup>1</sup> As such, it is important that hospitalists be proficient in managing oncologic emergencies that can arise during the natural history of cancer or from its treatment. This article will review three emergencies that are routinely encountered in the inpatient setting: malignant spinal cord compression (MSCC), hypercalcemia of malignancy (HCM), and febrile neutropenia (FN).

## Malignant spinal cord compression

Treatment of MSCC usually aims to preserve function rather than reverse established deficits. MSCC from epidural tumor metastasis develops in 5%-14% of all cancer cases,<sup>2</sup> with back pain as the most common symptom. Nearly 60%-85% of patients have weakness at the time of diagnosis,<sup>3</sup> and unfortunately, nearly two-thirds of patients will be nonambulatory at presentation.

While timely steroid administration in addition to definitive treatment may maintain ambulatory capacity at 1 year after therapy,<sup>4</sup> there is no consensus on the optimal loading and maintenance dose and duration of steroids.

## Overview of the data

Although there are no formal guidelines on optimal steroid dosing for MSCC, it is common practice for dexamethasone to be initially dosed

at 10 mg followed by 4 mg every 4-6 hours.<sup>5</sup> The use of higher doses of dexamethasone may result in improvement in neurologic deficits, but has higher risks for toxicity and is not universally supported in the literature.

A study conducted by Vecht and colleagues demonstrated few differences between initial high-dose and low-dose dexamethasone.<sup>6</sup> Intravenous administration of either 10 mg or 100 mg dexamethasone, both followed by total 16 mg of dexamethasone orally per day, showed no significant difference in mobility or survival between the groups.

In a prospective study by Heimdal and colleagues that evaluated the relationship between dexamethasone dose and toxicity, higher doses of steroids had no meaningful impact on neurological symptoms and resulted in more severe side effects.<sup>7</sup> Patients were either given a 96-mg IV loading dose, gradually tapered over 2 weeks, or enrolled in the low-dose group in which they received 4 mg IV dexamethasone four times per day with a taper over 2 weeks. The high-dose group experienced side effects in 28.6% of patients, with 14.3% experiencing serious side effects.

Meanwhile, 7.9% of the low-dose group exhibited some side effects, with none experiencing serious adverse effects. The high-dose group did not experience a significant increase in mobility (57.1% vs. 57.9%).

## Key takeaways

Dexamethasone 10 mg oral or IV followed by 4 mg every 4-6 hours until definitive treatment is started is associated with improved neurologic outcomes and minimal adverse side effects. Higher doses of steroids are unlikely to offer more benefit. In patients with paraplegia or autonomic dysfunction, the ability to restore neurologic function is reduced and the burdens of steroid treatment may outweigh its benefits.<sup>5</sup>

## Case continued

Mr. Williams completed treatment for MSCC but was still complaining of extreme lethargy and noticed an increase in thirst and no bowel movement in 5 days. His serum calcium was 14 mg/dL.

## Hypercalcemia of malignancy

HCM is the most common paraneoplastic syndrome, observed in nearly 30% of patients with advanced cancer. It is a poor prognostic indicator, and approximately half of all patients with HCM will die within 30 days.<sup>8</sup> Cancer is the most common reason for hypercalcemia in the inpatient setting<sup>9</sup> and is most often associated with multiple myeloma, non-small cell lung cancer, breast cancer, renal cell carcinoma, non-Hodgkins lymphoma, and leukemia.

Hypercalcemia most often presents with cognitive changes and lethargy, anorexia, nausea, constipation, polyuria and polydipsia,



Dr. Chokshi

Dr. Smith

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and renal failure. Bradycardia and shortened QT interval are seen more with severe hypercalcemia.

## Management of hypercalcemia of malignancy

Management of HCM depends on corrected calcium or ionized calcium levels, chronicity, degree of symptoms, and presence of renal failure. In general, mild asymptomatic hypercalcemia can be managed with outpatient care. Serum calcium greater than 14 mg/dL should be treated regardless of symptoms (Table 1).

For mild to moderate HCM, management involves saline administration to achieve euvolemia and calcitonin, which has temporizing effects. Early administration of IV

TABLE 1

## Management of hypercalcemia of malignancy

Serum calcium	Severity	Management approach
10.5-11.9 mg/dL	Mild	If the patient is asymptomatic and hypercalcemia developed chronically, it may not require urgent treatment; can usually treat with isotonic fluids.
12.0-13.9 mg/dL	Moderate	Isotonic fluids alone are usually insufficient; can use calcitriol with bisphosphonate therapy.
>14 mg/dL	Severe	Should be treated even in patients without symptoms. Management is similar to moderate hypercalcemia. If >18 mg/dL, worsening renal failure, or inability to tolerate IV fluid, may need to consider dialysis.

Source: Dr. Chokshi, Dr. Smith

## Agents used for the treatment of hypercalcemia of malignancy

Agent	Indication	Mechanism of action	Dosing	Onset of activity	Duration	Adverse effects
Normal saline	All severity of HCM. Goal is to achieve euvoolemia.	Volume expansion; increases renal excretion of Ca.	200-300 mL/hr with goal urinary output >100-150 mL/hr	6 hours	Hours	Hypervolemia. Caution in oliguria or heart failure.
Calcitonin	Temporizes hypercalcemia. Reduces serum calcium by roughly 1 mg/dL. To be given concurrent to bisphosphonates.	Inhibits osteoclast activity; increases renal excretion of Ca; inhibits GI absorption of Ca.	4-8 units/kg IM or subcutaneously	2 hours	6-8 hours	Nausea, flushing, hypersensitivity, local reaction symptoms, hypophosphatemia, nephrotoxicity.
Pamidronate	Moderate to severe HCM.	Inhibits osteoclast activity.	60-90 mg IV administered over 2-6 hours	<24 hours	7-14 days	Osteonecrosis of jaw with long-term use.
Zoledronic acid	Superior to pamidronate in moderate to severe hypercalcemia.	Inhibits osteoclast activity.	4-8 mg IV administered over 15 minutes	24-48 hours	2-3 days	Same as pamidronate. Has been used with creatinine >4.5 mg/dL with dose reduction.
Denosumab	HCM refractory to IV bisphosphonates. HCM in advanced renal failure.	Inhibits RANKL binding to RANK, inhibiting osteoclast formation.	120 mg subcutaneously every 4 weeks w/ loading doses on days 8, 15	9 days	1-4 days	Fatigue, nausea, dermatitis, hypocalcemia hypophosphatemia, worsened in renal failure.
Glucocorticoids	Can be useful for lymphomas that produce 1,25-dihydroxyvitamin D.	Reduces hypercalcemia from calcitriol overproduction.	60 mg by mouth prednisone; hydrocortisone 100 mg every 6 hr	2-5 days	Days to weeks	Hyperglycemia, myopathy, GI bleed.

Source: Dr. Chokshi, Dr. Smith

bisphosphonates for moderate to severe HCM is beneficial because onset of action is 24-48 hours. Furosemide for management of HCM has fallen out of favor unless the patient develops hypervolemia. Denosumab has been Food and Drug Administration approved for HCM refractory to bisphosphonate therapy and can manage HCM in 64% of patients who did not respond adequately to bisphosphonate therapy.<sup>10</sup> Because it can be used in advanced renal failure without dose adjustment, it is first-line therapy in this population, although the risk for hypocalcemia is increased in renal failure. For patients with serum calcium greater than 18 mg/dL, worsening renal failure, or in-

ability to tolerate IV fluids, dialysis with a low-calcium bath should be considered (Table 2).

#### Zoledronic acid versus pamidronate

A single dose of zoledronic acid normalizes the serum calcium concentration in 88% of patients, compared with 70% of those who received pamidronate, in a pooled analysis of two phase 3 trials.<sup>11</sup> The median duration of normocalcemia was longer for those receiving zoledronic acid (32-43 days vs. 18 days). The efficacy of the 4-mg and 8-mg zoledronic acid doses were similar, but the 4-mg dose was recommended because of renal toxicity and increased mortality associated with the higher dose. Despite these data, many specialists

maintain that pamidronate, which is less expensive, is of similar clinical efficacy to zoledronic acid.<sup>12</sup>

#### Key takeaways

Management of HCM should be determined by the severity of the calcium level. The mainstay of treatment includes hydration with normal saline, calcitonin, and bisphosphonate therapy; zoledronic acid is preferred over pamidronate. For patients refractory to bisphosphonates or patients with renal insufficiency, denosumab should be used.

#### Case continued: Febrile neutropenia

Febrile neutropenia is defined as a single oral temperature of 100.9° F or a temperature of 100.4° F sustained over a 1-hour period in a patient with absolute neutrophil count (ANC) less than 1,000 cells/mL or ANC expected to decrease to less than 500 cells/mL within a 48-

hour period.<sup>13</sup> Up to 30% of patients with solid tumors develop febrile neutropenia after chemotherapy, and nearly 80% of patients with hematologic malignancy or after hematopoietic stem cell therapy (HSCT) experience it.

Even though an infectious etiology is identified in only 30%-40% of cases, all patients with febrile neutropenia should initially receive at least empiric gram-negative coverage. The mortality rate is nearly 70% in neutropenic patients who do not receive empiric antibiotics and is reduced to 4%-20% with antibiotics.<sup>14</sup>

#### Risk stratification for febrile neutropenia and early discharge

Talcott's Rules, the Multinational Association for Supportive Care in Cancer (MASCC) score, and the Clinical Index of Stable Febrile Neutropenia (CISNE) are validated tools to determine low-risk febrile neutropenia patients (Tables 3 and 4). The Infectious Diseases Society of America guidelines validated the use of MASCC in 2002 but found that CISNE had better performance than other tools. Coyne and colleagues conducted a retrospective cohort study to assess these two risk stratification tools in the ED and found that the CISNE was 98.3% specific for identifying adverse outcomes, whereas the MASCC was 54.2% specific.<sup>15</sup>

A study by Talcott and colleagues used Talcott's Rules to identify low-risk febrile neutropenia patients, who were randomized to early discharge with home intravenous antibiotics versus continued inpatient management. There were no significant differences in the primary outcomes, defined as any change in clinical status requiring medical evaluation.<sup>16</sup> Another study suggested that discharge after 24 hours based on clinical stability

Continued on following page

TABLE 3

## Multinational Association for Supportive Care in Cancer index

Characteristic	Weight
Burden of febrile neutropenia with no or mild symptoms <sup>1</sup>	5
No hypotension (systolic BP >90 mmHg)	5
No chronic obstructive pulmonary disease <sup>2</sup>	4
Solid tumor or hematological malignancy with no previous fungal infection <sup>3</sup>	4
No dehydration requiring parenteral fluids	3
Burden of febrile neutropenia with moderate symptoms <sup>4</sup>	3
Outpatient status	3
Age <60 years	2

1. Burden of febrile neutropenia refers to general clinical status as influenced by the febrile neutropenic episode. It is evaluated in accordance with the following scale: no symptoms (5), mild symptoms (5), moderate symptoms (3), severe symptoms (0), moribund (0).
2. Chronic obstructive pulmonary disease means active chronic bronchitis, emphysema, decrease in FEVs, need for oxygen therapy and/or steroids and/or bronchodilators.
3. Previous fungal infection means demonstrated fungal infection or empirically treated suspected fungal infection.
4. Points attributed to the variable "burden of febrile neutropenia" are not cumulative. Thus, the maximum theoretical score is therefore 26. A score of ≥21 is considered low risk and a score of <21 as high risk (positive predictive value of 91%, specificity of 68%, and sensitivity of 71%).

Source: Ann Emerg Med. 2017;69(6):755-64. doi: 10.1016/j.annemergmed.2016.11.007

TABLE 4

## Clinical Index of Stable Febrile Neutropenia

Characteristic	Points
Eastern Cooperative Oncology Group performance score ≥2	2
Stress-induced hyperglycemia (initial blood glucose ≥121 mg/dL, or ≥250 mg/dL in diabetic patients or those on steroids)	2
Chronic obstructive pulmonary disease	1
Chronic cardiovascular disease	1
Mucositis grade ≥2	1
Monocytes <200 cells/mcL	1
Scoring	Interpretation
Low risk = 0	1.1%-1.5% risk of complication within 7 days
Intermediate risk = 1-2	4%-6.2% risk of complication within 7 days
High risk = ≥3	34%-95% risk of complication within 7 days

Source: Ann Emerg Med. 2017;69(6):755-64. doi: 10.1016/j.annemergmed.2016.11.007

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with outpatient oral antibiotics was noninferior to standard inpatient and intravenous antibiotic therapy.<sup>17</sup> A Cochrane review in 2013 of 22 randomized controlled trials determined that oral antibiotics were an acceptable treatment for low-risk patients.<sup>18</sup>

### Key takeaways

Though the MASCC is highly sensitive in identifying low-risk febrile neutropenia patients, it should be used with clinical caution because up to 11% of patients characterized as low risk developed severe complications.<sup>19</sup> If a low-risk patient with solid tumor malignancy has adequate home support, lives within an hour of the hospital, and has access to follow-up within 72 hours, oral antibiotics and early discharge can be considered.

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## Quiz



**M**rs. Smith is a 64-year-old woman with endometrial cancer with temperature of 100.4° F at home. She takes no antibiotics, has no other medical history, and was sent in from clinic and admitted for further management. She feels well, and preliminary infectious workup is negative. She has been afebrile for more than 24 hours, and her ANC is 600 cells/mL.

Her son's soccer game is tomorrow, and she would like to be present. Her family is involved in her care. Under what conditions can she be discharged?

- A. She should not be discharged until full course of empiric intravenous antibiotics is completed.
- B. Consider discharge in another 24 hours if she remains afebrile.
- C. Discharge if low risk by MASCC or CISNE, with oral doses of levofloxacin or moxifloxacin or oral ciprofloxacin and amoxicillin/clavulanic acid.

**Answer: C.** The patient has a solid tumor malignancy, is low risk by both MASCC and CISNE, and can most likely be discharged if she is clinically stable or improved. A 7-day course of antibiotics is recommended with close follow-up.

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## Unexpected results in COVID-19 cytokine data

By Damian McNamara

**T**he immune system overactivation known as a “cytokine storm” does not play a major role in more severe COVID-19 outcomes, according to unexpected findings in new research. The findings stand in direct contrast to many previous reports.

“We were indeed surprised by the results of our study,” senior study author Peter Pickkers, MD, PhD, said in an interview.

In a unique approach, Dr. Pickkers and colleagues compared cytokine levels in critically ill people with COVID-19 with those in patients with bacterial sepsis, trauma, and after cardiac arrest.

“For the first time, we measured the cytokines in different diseases using the same methods. Our results convincingly show that the circulating cytokine concentrations are not higher, but lower, compared to other diseases,” said Dr. Pickkers, who is affiliated with the department of

intensive care medicine at Radboud University Medical Center in Nijmegen, the Netherlands.

The team's research was published online on Sept. 3 in a letter in *JAMA*.

### Cytokines lower than expected

Normally, cytokines trigger inflammation and promote healing after trauma, infection, or other conditions.

Although a cytokine storm remains ill defined, the authors noted, many researchers have implicated a hyperinflammatory response involving these small proteins in the pathophysiology of COVID-19.

The question remains, however, whether all cytokine storms strike people with different conditions the same way.

Dr. Pickkers, lead author Matthijs Kox, PhD, and colleagues studied 46 people with COVID-19 and acute respiratory distress syndrome (ARDS) who were admitted to the ICU at Radboud University Medical Center. All participants underwent mechan-

Continued on following page

# 2020 has been quite a year

By Danielle Scheurer, MD, MSCR, SFHM

I remember New Year's Day 2020, full of hope and wonderment of what the year would bring. I was coming into the Society of Hospital Medicine as the incoming President, taking the 2020 reins in the organization's 20th year. It would be a year of transitioning to a new CEO, reinvigorating our membership engagement efforts, and renewing a strategic plan for forward progress into the next decade. It would be a year chock full of travel, speaking engagements, and meetings with thousands of hospitalists around the globe.

What I didn't know is that we would soon face the grim reality that the long-voiced concern of infectious disease experts and epidemiologists would come true. That our colleagues and friends and families would be infected, hospitalized, and die from this new disease, for which there were no good, effective treatments. That our ability to come together as a nation to implement basic infection control and epidemiologic practices would be fractured, uncoordinated, and ineffective. That within 6 months of the first case on U.S. soil, we would witness 5,270,000 people being infected from the disease, and about 200,000 dying from it. And that the stunning toll of the disease would ripple into every nook and cranny of our society, from the economy to the fabric of our families and to the mental and physical health of all of our citizens.

However, what I couldn't have known on this past New Year's Day is how incredibly resilient and innovative our hospital medicine society and community would be not only to endure this new way of working and living, but also to find ways

to improve upon how we care for all patients, despite COVID-19. What I couldn't have known is how hospitalists would pivot to new arenas of care settings, including the EDs, ICUs, "COVID units," and telehealth – flawlessly and seamlessly filling care gaps that would otherwise be catastrophically unfilled.

What I couldn't have known is how we would be willing to come back into work, day after day, to care for our patients, despite the risks to ourselves and our families. What I couldn't have known is how hospitalists would come together as a community to network and share knowledge in unprecedented ways, both humbly and proactively – knowing that we would not have all the answers but that we probably had better answers than most. What I couldn't have known is that the SHM staff would pivot our entire SHM team away from previous "staple" offerings (e.g., live meetings) to virtual learning and network opportunities, which would be attended at rates higher than ever seen before, including live webinars, HMX exchanges, and e-learning. What I couldn't have known is that we would figure out, in a matter of weeks, what treatments were and were not effective for our patients and get those treatments to them despite the difficulties. And what I couldn't have known is how much prouder I would be, more than ever before, to tell people: "I am a hospitalist."

I took my son to the dentist recently, and when we were just about to leave, the dentist asked: "What do you do for a living?" and I stated: "I am a hospitalist." He slowly breathed in and replied: "Oh ... wow ... you have really seen things ..." Yes, we have.



Dr. Scheurer is chief quality officer and professor of medicine at the Medical University of South Carolina, Charleston. She is president of SHM.

So, is 2020 shaping up as expected? Absolutely not! But I am more inspired, humbled, and motivated than ever to proudly serve SHM with more energy and enthusiasm than I would have dreamed on New Year's Day. And even if we can't see each other in person (as we so naively planned), through virtual meetings (national, regional, and chapter), webinars, social media, and other listening modes, we will still be able to connect as a community and share ideas and issues as we muddle through the remainder of 2020 and beyond. We need each other more than ever before, and I am so proud to be a part of this SHM family.

Continued from previous page

ical ventilation and were treated between March 11 and April 27, 2020.

The investigators measured plasma levels of cytokines, including tumor necrosis factor (TNF), interleukin-6, and IL-8. They compared results in this group with those in 51 patients who experienced septic shock and ARDS, 15 patients with septic shock without ARDS, 30 people with out-of-hospital cardiac arrest, and 62 people who experienced multiple traumas. They used historical data for the non-COVID-19 cohorts.

## Conditional findings assessed

Compared with patients with septic shock and ARDS, the COVID-19 cohort had lower levels of TNF, IL-6, and IL-8. The differences were statistically significant for TNF ( $P < .01$ ), as well as for IL-6 and IL-8 concentrations (for both,  $P < .001$ ).

In addition, the COVID-19 group had significantly lower IL-6 and IL-8 concentrations compared with the patients who had septic shock without ARDS.

The researchers likewise found lower concentrations of IL-8 in patients with COVID-19, compared with the out-of-hospital cardiac arrest patients. IL-8 levels did not

**“The findings of this preliminary analysis suggest COVID-19 may not be characterized by cytokine storm.”**

differ between the COVID-19 and trauma groups.

Furthermore, the researchers found no differences in IL-6 concentrations between patients with COVID-19 and those who experienced out-of-hospital cardiac arrest or trauma.

However, levels of TNF in people with COVID-19 were higher than in trauma patients.

The small sample sizes and single-center study design are limitations. “The findings of this preliminary

analysis suggest COVID-19 may not be characterized by cytokine storm,” the researchers noted. However, they added, “whether anticytokine therapies will benefit patients with COVID-19 remains to be determined.”

Going forward, Dr. Pickkers and colleagues are investigating the effectiveness of different treatments to lower cytokine levels. They are treating people with COVID-19, for example, with the IL-1 cytokine inhibitor anakinra and steroids.

They also plan to assess the long-term effects of COVID-19 on the immune system. “Following an infection, it is known that the immune system may be suppressed for a longer period of time, and we are determining to what extent this is also present in COVID-19 patients,” Dr. Pickkers said.

## Enough to cause a storm?

The study “is quite interesting, and data in this paper are consistent with our data,” Tadamitsu Kishimoto, MD, PhD, of the department of immune

regulation at the Immunology Frontier Research Center at Osaka (Japan) University, said in an interview.

His study, published online Aug. 21 in PNAS, also revealed lower serum IL-6 levels among people with COVID-19, compared with patients with bacterial ARDS or sepsis.

Dr. Kishimoto drew a distinction, however: COVID-19 patients can develop severe respiratory failure, suggesting a distinct immune reaction, compared with patients with bacterial sepsis. SARS-CoV-2 directly infects and activates endothelial cells rather than macrophages, as occurs in sepsis.

For this reason, Dr. Kishimoto said, “SARS-CoV-2 infection causes critical illness and severe dysfunction in respiratory organs and induces a cytokine storm,” even in the setting of lower but still elevated serum IL-6 levels.

Dr. Pickkers and Dr. Kishimoto reported no relevant financial relationships.

A version of this story originally appeared on Medscape.com.

# Improving communication

Continued from page 1

But if loved ones are going to help patients, they need help from clinicians. Beyond being potential allies, they are also hurting, experiencing worry or confusion in a world of medical jargon.

The coronavirus changes the relationship of patients and their loved ones, as patients are often isolated or limited in the number of visitors they are allowed to see. A smartphone replaces the smiling faces of friends and relatives at their bedside, and a text is a poor substitute for a hug.

The Hospitalist asked some experienced hospitalists for insight on how best to communicate with patients' loved ones to improve outcomes for all, medically and emotionally.

## Team approach

"Patients feel isolated, terrified, and vulnerable but still need an advocate in the hospital, so daily communication with a patient's loved one is important to give a sense that the patient is looked after," said Kari Esbensen, MD, PhD, a hospitalist and palliative care expert at Emory University Hospital Midtown, Atlanta.

Glenn Rosenbluth, MD, a pediatric hospitalist and director, quality and safety programs, at the University of California, San Francisco, Benioff Children's Hospital, agreed. He said that the most important thing is to communicate, period.

"We fall into this pattern of 'out of sight, out of mind,'" he said. "We need to take the extra step to find out who a patient's loved ones are. If it is a clinical visit, ask the patient, or maybe get the information from a caseworker, or just pay attention to who is dropping in to see the patient. Having a second person available to jot down notes, or having a handy list of questions – it all helps the patient. We forget that sometimes it can seem like a whirlwind for the patient when they are hurting. We have to remember that a loved one is important to a patient's care team and we need to include them, empower them, and show that we want to hear their voices."

## Quick takeaways

### • **Get beyond personal protective equipment.**

A conversation with a patient's loved one might be easier to achieve via phone, without all the protective gear in the way.

• **Encourage adherence.** Speaking with patients and loved ones together may be more effective. They may reach agreement quicker on how best to adhere to medical advice.

• **Accept clues from loved ones.** They might give you a better sense of a patient's worries, or help you to connect better with those in your care.

• **Be present.** You have a long to-do list but do not let empathy fall off it, even if you feel overwhelmed.

• **Listen.** By finding out what a patient's loved ones know, you can figure out what they don't know – and need to.

Dr. Esbensen said it is critical to start off on the right foot when communicating with a patient's loved one, especially during the current pandemic.

"With COVID-19, the most important thing is to speak honestly, to say hope for the best but prepare for the worst-case scenario," Dr. Esbensen said. "We've seen that conditions can shift dramatically in short periods of time. The loved one needs to have a sense of the positive and negative possibilities. Families tend to lack understanding of the changes in the patient that are caused by COVID-19. The patient can come out of the hospital debilitated, very different than when they entered the hospital, and we need to warn people close to them about this. Unrealistic expectations need to be guarded against if a patient's loved ones are going to help."

Perhaps the best form of communication with a patient's loved ones is an often-forgotten skill: listening.

"Get an idea from the patient's loved ones of what the issues are, as well as their idea of what they think of the disease and how it spreads," Dr. Esbensen said. "Sometimes they are right on target but sometimes there are misinterpretations and we need to help them understand it better. It's not a 'one-size-fits-all' speech that we should give, but try to say, 'tell me what you think is going on, what you think you've heard, and what you're worried about,' and learn what is most important to the patient. Start on those terms and adapt; this way you can correct and address what makes them most fearful, which can be different for each loved one. For some, the concern could be that they have children or other vulnerable people in the house. Finding out these other issues is important."

Venkatrao Medarametla, MD, SFHM, medical director for hospital medicine at Baystate Medical Center, Springfield, Mass., emphasized that, in a time when hospitalists are being pulled in every direction, it is easy to lose your attention.

"It's very important that family members know you're present with them," he said. "This can be an emotional time and they need empathy. It's very easy for our list of tasks to get in the way of communicating, including with our body language."

Dr. Medarametla said one of the reasons to communicate with patients' loved ones is to calm them – a patient's relatives or their friends may not be under your medical care, but they are still human beings.

"A lot of people just want information and want to be helpful, but we also need to realize that, while we are caring for many patients, this one person is the patient they are focused on," said Laura Nell Hodo, MD, a pediatric hospitalist at Kravis Children's Hospital at Mount Sinai in New York. "Don't rush, and if you know that a patient's loved one needs more time, make sure it can be found – if not then, at least later on the phone. Fifteen to 20 minutes may be what's needed, and you can't shortchange them."

Dr. Hodo said that a patient's loved ones often

do not realize it is possible to receive phone calls from hospitalists. "We need to remind them that they can get in touch with us. We have to remember how helpless they can feel and how they want to understand what is happening in the hospital."

For medical adherence issues, sometimes it is best to communicate with the patient and loved



Dr. Rosenbluth

*"We have to remember that a loved one is important to a patient's care team and we need to include them, empower them, and show that we want to hear their voices."*

one at the same time, Dr. Hodo advised. "Whether it's for medication or postdischarge exercises, if they both receive the information together it can reinforce adherence. But you also need to remember that the patient may only want a loved one told about certain things, or possibly nothing at all. We need to make sure we understand the patient's wishes, regardless of whether we think a person close to them can be an ally or not."

Dr. Esbensen also noted that a loved one can give hospitalists important clues to the emotional components of a patient's care.

"I remember a patient whose wife told me how he worked in a garage, how he was strong and did not want people to think he was a weak guy just because of what was happening to him," Dr. Esbensen said. "I didn't know that he felt he might be perceived in this way. I mentioned to him how I learned he was a good mechanic and he perked up and felt seen in a different light. These things make a difference."

But when is the best time to speak with a

patient's loved ones? Since much communication is done via phone during the pandemic, there are different philosophies.

"We had a debate among colleagues to see how each of us did it," Dr. Rosenbluth said. "Some try to call after each patient encounter, while they are outside the room and it's fresh in their mind, but others find it better to make the call after their rounds, to give the person their full attention. Most of the time I try to do it that way."

Dr. Rosenbluth noted that, in the current environment, a phone call may be better than a face-to-face conversation with patients' loved ones.

"We're covered in so much gear to protect us from the coronavirus that it can feel like a great distance exists

between us and the person with whom we're speaking," he said. "It's strange, but the phone can make the conversation seem more relaxed and may get people to open up more."

#### Even when they leave

All the hospitalists affirmed that loved ones can make a big difference for the patient through



Dr. Hodo

*"My experience from working in adult coronavirus units is that the thinking about the loved ones' role in patient care – and communication with them – might just change."*

all aspects of care. Long after a patient returns home, the support of loved ones can have a profound impact in speeding healing and improving long-term outcomes.

Dr. Esbensen said COVID-19 and other serious illnesses can leave a patient needing support, and maybe a "push" when feeling low keeps them from adhering to medical advice.

you cannot assume a patient is on their own, because there are protocols keeping people from physically being present in the patient's room. My experience from working in adult coronavirus units is that the thinking about the loved ones' role in patient care – and communication with them – might just change. ... At least, I hope so."

COURTESY DR. LAURA NELL HODO

"It's not just in the hospital but after discharge," she said. "A person offering support can really help patients throughout their journey, and much success in recovering from illness occurs after the transition home. Having the support of that one person a patient trusts can be critical."

Dr. Hodo believes that the coronavirus pandemic could forever change the way hospitalists communicate with patients and their loved ones.

"I work in pediatrics and we know serious medical decisions can't be made without guardians or parents," she said. "But in adult medicine doctors may not automatically ask the patient about calling someone for input on decision-making. With COVID,

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## SoHM Report Sneak Peek

More than half of Adult HMGs continue to operate on a 7 days on/7 days off schedule, while Pediatric HMGs use more variable scheduling for their practice.

*Figure 1.14*  
**Predominant Scheduling Patterns in HMGs**

Scheduling Pattern	Adult HMGs	Pediatric HMGs	Adult/Pediatric HMGs
7 days on followed by 7 days off	56.1%	10.4%	21.7%
Other fixed rotating block schedule	9.6%	2.1%	13.0%
M-F, with rotating or moonlighter weekend coverage	3.2%	12.5%	4.3%
Variable schedule	27.0%	60.4%	43.5%
Other	4.0%	14.6%	17.4%

# A 'foolproof' way to diagnose narrow complex tachycardias on EKGs

By Bruce Jancin

MDedge News

A hospitalist looking at an EKG showing a narrow complex tachycardia needs to be able to come up with an accurate diagnosis of the rhythm pronto. And hospitalist Meghan Mary Walsh, MD, MPH, has developed a simple and efficient method for doing so within a minute or two that she's used with great success on the wards and in teaching medical students and residents for nearly a decade.

"You're busy on the wards. You may have a patient who's unstable. You need to make diagnostic decisions very rapidly. And this is a foolproof way to make the correct diagnosis every time," she promised at HM20 Virtual, hosted by the Society of Hospital Medicine.

Her method involves asking three questions about the 12-lead EKG:

## 1) What's the rate?

A narrow complex tachycardia by definition needs to be both narrow and fast, with a QRS complex of less than 0.12 seconds and a heart rate above 100 bpm.

Knowing how far above 100 bpm the rate is will help with the differential diagnosis.

## 2) Is the rhythm regular or irregular?

"If I put the EKG 10 feet away from you, you should still be able to look at it and say the QRS is either systematically marching out – boom, boom, boom – or there is an irregular sea of QRS complexes where the RR intervals are variable and inconsistent," said Dr. Walsh, a hospitalist at the University of Minnesota, Minneapolis, and chief academic officer at Hennepin Healthcare, where she oversees all medical students and residents training in the health system.

This distinction between a regular and irregular rhythm immediately narrows the differential by dividing the diagnostic possibilities into two columns (see chart). She urged her audience to commit the list to memory or keep it handy on

their cell phone or in a notebook.

"If it's irregular I'm going down the right column; if it's regular I'm going down the left. And then I'm systematically running the drill," she explained.

## 3) Are upright p waves present before each QRS complex in leads II and V1?

This information rules out some of the eight items in the differential diagnosis and rules in others.

## Narrow complex tachycardias with an irregular rhythm

There are only three:

**Atrial fibrillation:** The heart rate is typically 110-160 bpm, although it can occasionally go higher. The rhythm is irregularly irregular: No two RR intervals on the EKG are exactly the same. And there are no p waves.

"If it's faster than 100 bpm, irregularly irregular, and no p waves, the conclusion is very simple: It's AFib," Dr. Walsh said.

## Multifocal atrial tachycardia (MAT):

The heart rate is generally 100-150 bpm but can sometimes climb to about 180 bpm. The PP, PR, and RR intervals

are varied, inconsistent, and don't repeat. Most importantly, there are three or more different p-wave morphologies in the same lead. One p wave might look like a tall mountain peak, another could be short and flat, and perhaps the next is big and broad.

MAT often occurs in patients with a structurally abnormal atrium – for example, in the setting of pulmonary hypertension leading to right atrial enlargement, with resultant depolarization occurring all over the atrium.

"Don't confuse MAT with AFib: One has p waves, one does not. Otherwise they can look very similar," she said.

**Atrial flutter with variable conduction:** A hallmark of this reentrant tachycardia is the atrial flutter waves occurring at about 300 bpm between each QRS complex.

"On board renewal exams, the question is often asked, 'Which

leads are the best identifiers of atrial flutter?' And the answer is the inferior leads II, III, and aVF," she said.

Another classic feature of atrial flutter with variable conduction is cluster beating attributable to a varied ventricular response. This

And then it will similarly ramp back down in stages, with the up/down pattern being repeated.

Sinus tachycardia is generally a reflection of underlying significant systemic illness, such as sepsis, hypotension, or anemia.

**Atrial tachycardia:** The heart

## Narrow complex tachycardias: Here's the breakdown

The differential diagnosis	
Regular rhythm	Irregular rhythm
1) Sinus tachycardia	1) Atrial fibrillation
2) Atrial tachycardia	2) Multifocal atrial tachycardia
3) Atrial flutter	3) Atrial flutter with variable conduction
4) AV reentrant tachycardias	
5) Accelerated junctional rhythm	

Source: Dr. Walsh

results in a repeated pattern of irregular RR intervals: There might be a 2:1 block in AV conduction for several beats, then maybe a 4:1 block for several more, with resultant lengthening of the RR interval, then 3:1, with shortening of RR. This regularly irregular sequence is repeated throughout the EKG.

"Look for a pattern amidst the chaos," the hospitalist advised.

The heart rate might be roughly 150 bpm with a 2:1 block, or 100 bpm with a 3:1 block. The p waves in atrial flutter with variable conduction can be either negatively or positively deflected.

## Narrow complex tachycardias with a regular rhythm

**Sinus tachycardia:** The heart rate is typically less than 160 bpm, the QRS complexes show a regular pattern, and upright p waves are clearly visible in leads II and V1.

The distinguishing feature of this arrhythmia is the ramping up and ramping down of the heart rate. The tachycardia is typically less than 160 bpm. But the rate doesn't suddenly jump from, say, 70 to 140 bpm in a flash while the patient is lying in the hospital bed. A trip to the telemetry room for a look at the telemetry strip will tell the tale: The heart rate will have progressively ramped up from 70, to 80, then 90, then 100, 110, 120, 130, to perhaps 140 bpm.

rate is generally 100-140 bpm, and p waves are present. But unlike in sinus tachycardia, the patient with atrial tachycardia lying in bed with a heart rate of 140 bpm is not in a state of profound neurohormonal activation and is not all that sick.

Another diagnostic clue is provided by a look at the telemonitoring strip. Unlike in sinus tachycardia, where the heart rate ramps up and then back down repeatedly, in atrial tachycardia the heart rate very quickly ramps up in stages to, say, 140 bpm, and then hangs there.

**Atrial flutter:** This is the only narrow complex tachycardia that appears in both the regular and irregular rhythm columns. It belongs in the irregular rhythm column when there is variable conduction and cluster beating, with a regularly irregular pattern of RR intervals. In contrast, when atrial flutter is in the regular rhythm column, it's because the atrioventricular node is steadily conducting the atrial depolarizations at a rate of about 300 bpm. So there's no cluster beating. As in atrial flutter with variable conduction, the flutter waves are visible most often in leads II, III, and aVF, where they can be either positively or negatively deflected.

**AV reentrant tachycardias:** These

*Continued on following page*



# Risk stratification key in acute pulmonary embolism

By Bruce Jancin

MDedge News

All intermediate-risk pulmonary embolism is not the same, Victor F. Tapson, MD, declared at HM20 Virtual, hosted by the Society of Hospital Medicine.

The best current guidelines on the management of acute pulmonary embolism (PE) recommend a risk stratification strategy that involves further subdivision of intermediate-risk PE into intermediate to low or intermediate to high risk. This additional classification is worthwhile because it has important treatment implications.

Patients with intermediate- to low-risk PE, along with those who have truly low-risk PE, require anticoagulation only. In contrast, patients with intermediate- to high-risk PE are at increased risk of decompensation. They have a much higher in-hospital mortality than those with intermediate- to low-risk PE. So hospitalists may want to consult their hospitals' PE response team (PERT), if there is one, or whoever on staff is involved in helping make decisions about the appropriateness of more aggressive interventions, such as catheter-directed thrombolysis or catheter-directed clot extraction, said Dr. Tapson, director of the venous thromboembolism and pulmonary vascular disease research program at Cedars-Sinai Medical Center in Los Angeles.

"We don't have evidence of any real proven mortality difference yet in the intermediate- to high-risk PE group by being more aggressive. I think if the right patients were studied we could see a mortality difference. But one thing I've noted is that by being more aggressive – in a cautious manner, in selected patients – we clearly shorten the hospital stay by doing catheter-directed therapy in some of these folks. It saves money," he observed.

Once the diagnosis of PE is confirmed, the first priority is to get anticoagulation started in all patients with an acceptable bleeding risk, since there is convincing evidence that anticoagulation reduces mortality in PE. The 2019 European Society of Cardiology guidelines recommend a direct-acting oral anticoagulant over warfarin on the basis of persuasive evidence of lower risk of major bleeding coupled with equal or better effectiveness in preventing recurrent PE.

Dr. Tapson said it's worthwhile for hospitalists to take a close look at these European guidelines (Eur Respir J. 2019 Oct 9. doi: 10.1183/13993003.01647-2019).

"I think our European friends did a really nice job with those guidelines. They're great guidelines, better than many of the others out there. I think they're very, very usable," he said. "I took part in the ACCP [American College of Chest Physicians] guidelines for years. I think they're very rigorous in terms of the evidence base, but because they're so rigorous there's just tons of 2C recommendations, which are basically suggestions. The ESC guidelines are more robust."

## Risk stratification

Once anticoagulation is on board, the next task is risk stratification to determine the need for more aggressive therapy. A high-risk PE is best defined hemodynamically as one causing a systolic blood pressure below 90 mm Hg for at least 15 minutes. The term "high risk" is increasingly replacing "massive" PE, because the size of the clot doesn't necessarily correlate with its hemodynamic impact.

An intermediate-risk PE is marked by a simplified Pulmonary Embolism Severity Index (sPESI) score of 1 or more, right ventricular dysfunction on echocardiography or CT angiography, or an elevated cardiac troponin level.

The sPESI is a validated, user-friendly tool that grants 1 point each for age over 80, background cardiopulmonary disease, a systolic blood pressure below 100 mm Hg, cancer, a heart rate of 110 bpm or more, and an oxygen saturation level below 90%.

"All you really need to know about a patient's sPESI score is: Is it more than zero?" he explained.

Indeed, patients with an sPESI score of 0 have a 30-day mortality of 1%. With a score of 1 or more, however, that risk jumps to 10.9%.

No scoring system is 100% accurate, though, and Dr. Tapson emphasized that clinician gestalt plays an important role in PE risk stratification. In terms of clinical indicators of risk, he pays special attention to heart rate.

"I think if I had to pick the one thing that drives my decision the most about whether someone needs more aggressive therapy than anticoagulation, it's probably heart rate," he said.

"If the heart rate is 70, the patient is probably very stable. Of course, that might not hold up in a patient with conduction problems or who is on a beta-blocker, but in general if I see someone who looks good, has a relatively small pulmonary embolism, and a low heart rate, it makes me feel much better. If the heart rate is 130 or 120, I'm much more concerned."

Both the European guidelines and the PERT Consortium guidelines on the diagnosis, treatment, and follow-up of acute PE



Patients with intermediate- to high-risk PE are at increased risk of decompensation.

(Clin Appl Thromb Hemost. 2019 Jun 17. doi: 10.1177/1076029619853037), which Dr. Tapson coauthored, recommend substratifying intermediate-risk PE into intermediate to low or intermediate to high risk. It's a straightforward matter: If a patient has either right ventricular dysfunction on imaging or an elevated cardiac troponin, that's an intermediate- to low-risk PE warranting anticoagulation only. On the other hand, if both right ventricular dysfunction and an elevated troponin are present, the patient has an intermediate- to high-risk PE. Since this distinction translates to a difference in outcome, a consultation with PERT or an experienced PE interventionalist is in order for the intermediate- to high-risk PE, he said.

Dr. Tapson reported receiving research funding from Bayer, Bristol-Myers Squibb, Janssen, BiO2, EKOS/BTG, and Daiichi. He is also a consultant to Janssen and BiO2, and on speakers' bureaus for EKOS/BTG and Janssen.

Continued from previous page

reentrant tachycardias can take two forms. In atrioventricular nodal reentrant tachycardia (AVnRT), the aberrant pathway is found entirely within the AV node, whereas in atrioventricular reentrant tachycardia (AVRT) the aberrant pathway is found outside the AV node. AVnRT is more common than AVRT. As in

atrial flutter, there is no ramp up in heart rate. Patients will be lying in their hospital bed with a heart rate of, say, 80 bpm, and then suddenly it jumps to 180, 200, or even as high as 240 bpm "almost in a split second," Dr. Walsh said.

No other narrow complex tachycardia reaches so high a heart rate. In both of these reentrant tachycar-

dias the p waves are often buried in the QRS complex and can be tough to see. It's very difficult to differentiate AVnRT from AVRT except by an electrophysiologic study.

**Accelerated junctional tachycardia:** This is most commonly the slowest of the narrow complex tachycardias, with a heart rate of less than 120 bpm.

"In the case of accelerated junctional tachycardia, think slow, think 'regular,' think of a rate often just over 100, usually with p waves after the QRS that are inverted because there's retrograde conduction," she advised.

Dr. Walsh reported having no financial conflicts of interest regarding her presentation.

# Batten down the hatches for thyroid storm

By Bruce Jancin

MDedge News

**T**hyroid storm is a life-threatening endocrine emergency for which, remarkably, there are no definitive diagnostic tests, and the management of which is supported by a startlingly weak evidence base.

“What’s tricky is there really are no specific biochemical level cutoffs for thyroid storm, and also no unique laboratory abnormalities. So in the end, it’s a clinical diagnosis and a clinical judgment,” Stephanie B. Mayer, MD, MHSc, observed at HM20 Virtual, hosted by the Society of Hospital Medicine.

Moreover, there are no prospective clinical trials addressing the treatment of thyroid storm, and the 2016 American Thyroid Association clinical practice guidelines on the topic are based upon low-quality evidence from case reports and studies dating back to the 1970s and 1980s. UpToDate reached the same conclusion in 2020, noted Dr. Mayer, an endocrinologist at Virginia Commonwealth University, Richmond.

Thinking that perhaps the guideline writing panel had missed something, she asked a university medical research librarian to custom-build a comprehensive search for studies on thyroid storm management. The search proved unrewarding, she said.

“The evidence is, unfortunately, a little disappointing,” Dr. Mayer explained.

Thyroid storm is a rare condition, but one that hospitalists must be ready for. Dr. Mayer highlighted current best practices in diagnosis and management.

## A high-mortality emergency

Thyroid storm is an extreme manifestation of thyrotoxicosis, which is marked by multiorgan dysfunction and rapid decompensation. In a large, first-of-its-kind, national retrospective U.S. study, the incidence of thyroid storm was 0.57-0.76 cases per 100,000 persons per year. Thyroid storm accounted for 16% of the more than 121,000 hospital discharges featuring a primary diagnosis of thyrotoxicosis. The in-hospital mortality rate for patients with thyroid storm was 1.2%-3.6% during the 10-year study period, a rate 12-fold higher than that among patients with thyrotoxicosis without thyroid storm (*Thyroid*. 2019 Jan;29[1]:36-43).

Dr. Mayer highlighted a multicenter French study that underscored the current hefty morbidity and mortality associated with thyroid storm. Among 92 patients admitted to the ICU for thyroid storm, the in-ICU mortality rate was 17%, and the mortality rate 6 months after admission was 22%. Independent risk factors for in-ICU mortality were multiorgan failure and the occurrence of cardiogenic shock within the first 48 hours in the ICU (*Crit Care Med*. 2020 Jan;48[1]:83-90).

## Diagnosis of thyroid storm

The most user-friendly system for assistance in diagnosing thyroid storm is the one put forth by the Japan Thyroid Association and the Japan

Endocrine Society, in Dr. Mayer’s view. As a prerequisite to the diagnosis a patient must have thyrotoxicosis as evidenced by elevated free thyroxine (free T<sub>4</sub>) and free or total triiodothyronine (T<sub>3</sub>), which in the vast majority of cases, is accompanied by low thyroid-stimulating hormone (TSH).

The Japanese diagnostic system for thyroid storm relies on five categories of organ system-based clinical features. This approach places greater weight on disturbances of consciousness – restlessness, delirium, agitation, psychosis,



lethargy, coma – than the other four components, which consist of fever of at least 100.4° F, tachycardia of 130 or more beats per minute, heart failure signs and symptoms, and gastrointestinal/hepatic involvement as evidenced by nausea, vomiting, hyperdefecation, and/or a total bilirubin level of 3.0 mg/dL or more.

The Japanese approach offers two paths to a definite diagnosis of thyroid storm. One requires at least one CNS manifestation plus symptoms drawn from any one of the other four categories. The other route, for patients without evident CNS symptoms, requires the presence of symptoms from at least three of the other four categories, Dr. Mayer said.

A patient is categorized as having suspected rather than definite thyroid storm if the CNS criterion isn’t met but any two of the others are. A patient also qualifies for suspected thyroid storm when CNS manifestations plus symptoms from at least one other category are present, but thyroid hormone levels aren’t available (*Endocr J*. 2016 Dec 30;63[12]:1025-64).

## Management of thyroid storm

There is usually a precipitating event that drives the transition from smoldering thyrotoxicosis to thyroid storm.

“The big thing is to look for and treat the underlying precipitating event,” the endocrinologist stressed.

It’s often a systemic insult: severe infection, trauma, surgery, an acute MI, diabetic ketoacidosis, pulmonary embolism, or perhaps having just gone through labor. Iodine exposure in the form of IV contrast or taking amiodarone, which contains

37% iodine by weight, can also fan thyrotoxicosis into thyroid storm. Abrupt discontinuation of antithyroid medication is another common cause.

Fluid and electrolyte replacement, oxygen if appropriate, cooling blankets, and other supportive measures are also important.

Medical management targets multiple steps in thyroid hormone production and action to quell thyroid storm. The first order of business is to inhibit synthesis of new thyroid hormone by prescribing a thioamide. Dr. Mayer favors propylthiouracil over methimazole for this purpose because, not only does it block the thyroid gland from synthesizing new hormone, it also reduces conversion of T<sub>4</sub> to T<sub>3</sub>. Propylthiouracil is usually given orally as a 500- to 1,000-mg loading dose, then 250 mg every 4 hours. The drug can also be given rectally or by nasogastric tube.

One hour or more after starting the thioamide, inorganic iodine is started to inhibit release of preformed hormone from the thyroid gland. Five drops of saturated solution of potassium iodide given every 6 hours is the recommended dose; it provides 764 mg of iodide per day. Lugol’s solution dosed at four to eight drops every 6-8 hours is an effective alternative.

Simultaneous with starting the patient on inorganic iodine, a low-dose beta-blocker is introduced to control adrenergic symptoms.

“Propranolol is first line because it also decreases T<sub>4</sub> to T<sub>3</sub> conversion and it’s noncardioselective, so it’s better than a cardioselective beta-blocker at reducing sympathetic tone-related symptoms, such as agitation, fever, and psychosis,” the endocrinologist explained.

At the same time that propranolol at 60-80 mg is given orally every 4 hours and iodine are started, the patient is placed on glucocorticoids as another means of reducing peripheral conversion of T<sub>4</sub> to T<sub>3</sub>. The options are intravenous hydrocortisone at 100-300 mg/day in divided doses or dexamethasone at 2 mg every 6 hours.

Aspirin and NSAIDs should be avoided as antipyretics because they can actually raise T<sub>3</sub> and T<sub>4</sub> levels. Acetaminophen is the right fever-lowering agent in the setting of thyroid storm.

Dr. Mayer has occasionally had to reach for one of several backup therapies. Prescribing a bile acid sequestrant – 20-30 g/day of cholestyramine or colestipol – will trap thyroid hormone in the intestine, preventing it from recirculating.

“Be careful to dose it away from the other medications,” she cautioned.

Also, therapeutic plasmapheresis is effective at rapidly removing circulating thyroid hormone in patients who don’t show early clinical improvement in response to multipronged medical therapy.

Dr. Mayer offered a couple of final tips to hospitalists regarding thyroid storm: Know who directs plasmapheresis at your hospital, and keep the American Thyroid Association management guidelines handy (*Thyroid*. 2016 Oct;26[10]:1343-421).

She reported receiving funding from both NovoNordisk and Astra Zeneca.

# Developing COVID-19 hospital protocols during the pandemic

By Thomas R. Collins

MDedge News

**A**s hospitalists and other physicians at the University of Texas at Austin considered how to treat COVID-19 patients in the early weeks of the pandemic, one question they had to consider was: What about convalescent plasma?

All they had to go on were small case series in Ebola, SARS, and MERS and a few small, nonrandomized COVID-19 studies showing a possible benefit and minimal risk, but the evidence was only “toward the middle or bottom” of the evidence pyramid, said Johanna Busch, MD, of the department of internal medicine at Dell Medical Center at the university.

The center’s COVID-19 committee asked a few of its members – infectious disease and internal medicine physicians – to analyze the literature and other factors. In the end, the committee – which meets regularly and also includes pulmonology–critical care experts, nursing experts, and others – recommended using convalescent plasma because of the evidence and the available supply. But in subsequent meetings, as the pandemic surged in the South and the supply dwindled, the committee changed its recommendation for convalescent plasma to more limited use, she said during HM20 Virtual, hosted by the Society of Hospital Medicine.

Dell’s experience with the therapy is one example of how the center had to quickly develop protocols for managing a pandemic with essentially no solid evidence for treatment and a system that had never been challenged before to the same degree.

“It’s all about teamwork,” said W. Michael Brode, MD, of the department of internal medicine at Dell. “The interprofessional team members know their roles and have shared expectations because they have a common understanding of the protocol.” It’s okay to deviate from the protocol, he said, as long as the language exists to communicate these deviations.

“Maybe the approach is more important than the actual content,” he said.

What Dr. Brode and Dr. Busch described was in large part a fine-tuning of communication – being available to communicate in real time and being aware of when certain specialists should be contacted – for instance, to determine at what oxy-

*“It’s all about teamwork. The interprofessional team members know their roles and have shared expectations because they have a common understanding of the protocol.”*

genation level internal medicine staff should get in touch with the pulmonary–critical care team.

Dr. Brode said that the groundwork is laid for productive meetings, with agendas announced ahead of time and readings assigned and presenters ready with near-finished products at meeting time, “with a clear path for operationalizing it.”

“We don’t want people kind of riffing off the top of their heads,” he said.

Committee members are encouraged to be as specific as possible when giving input into COVID-19 care decisions, he said.

“We’re so used to dealing with uncertainty, but that doesn’t really help when we’re trying to make tough decisions,” Dr. Brode said. They might be asked, “What are you going to write in your consult note template?” or “It’s 1:00 a.m. and your intern’s panicked and calling you – what are you going to tell them to do over the phone?”

The recommendations have to go into writing and are incorporated into the electronic medical record, a process that required some workarounds, he said. He also noted that the committee learned early on that they should assume that no one reads the e-mails – especially after being off for a period of time – so they likely won’t digest updates on an email-by-email basis.

“We quickly learned,” Dr. Brode said, “that this information needs to live on a Web site or [be] linked to the most up-to-date version in a cloud-sharing platform.”

In a question-and-answer discussion, session viewers expressed enthusiasm for the presenters’ one-

page summary of protocols – much more, they said, and it could feel overwhelming.

Dr. Busch and Dr. Brode were asked how standardized order sets for COVID patients could be justified without comparison to a

with COVID and COVID patients that some of those markers were not really informing any of our clinical decisions,” she said. “Obviously, as literature comes out we may reevaluate what goes into that standard order set and how frequently we follow labs.”

Dr. Brode said the context – a pandemic – has to be considered.

“In an ideal world, we could show that the intervention is superior through a randomized fashion with a control group, but really our thought process behind it is just, what is the default?” he said. “I looked at the order sets [as] not that they’re going to be dictating care, but it’s really like the guardrails of what’s reasonable. And when you’re in the middle of a surge, what is usually reasonable and easiest is what is going to be done.”

Dr. Busch and Dr. Brode reported no relevant financial relationships.

control group that didn’t use the standard order set.

Dr. Busch responded that, while there was no controlled trial, the order sets they use have evolved based on experience.

“At the beginning, we were following every inflammatory marker known to mankind, and then we realized as we gained more experience



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# Performance status, molecular testing key to metastatic cancer prognosis

By Bruce Jancin

MDedge News

Performance status and molecular testing results are key tools in prognosticating for patients with newly diagnosed metastatic solid tumors, according to Sam Brondfield, MD, MA, an inpatient medical oncologist at the University of California, San Francisco.

Oncologists have at their fingertips a voluminous and ever-growing body of clinical trials data to draw on for prognostication. Yet many hospitalists will be surprised to learn that this wealth of information is of little value in the inpatient settings where they work, he said at HM20 Virtual, hosted by the Society of Hospital Medicine.

“The applicability of clinical trials data to hospitalized patients is generally poor. That’s an important caveat to keep in mind,” Dr. Brondfield said.

Enrollment in clinical trials is usually restricted to patients with a score of 0 or 1 on the Eastern Clinical Oncology Group performance status, meaning their cancer is causing minimal or no disruption to their life (see graphic). Sometimes trials will include patients with a performance status of 2 on the ECOG scale, a tool developed nearly 40 years ago, but clinical trials virtually never enroll those with an ECOG status of 3 or 4. Yet most hospitalized patients with metastatic cancer have an ECOG performance status of 3 or worse. Thus, the clinical trials outcome data are of little relevance.

“In oncology the distinction between ECOG 2 and 3 is very important,” Dr. Brondfield emphasized.

When he talks about treatment options with hospitalized patients who have metastatic cancer and poor performance status – that is, ECOG 3 or 4 – he’ll often say: “Assuming you feel better and can go home, that’s when these clinical trial data may apply better to you.”

Dr. Brondfield cautioned against quoting the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) 5-year overall survival data when hospitalized patients with advanced cancer ask

how long they have to live. For one thing, the national average 5-year overall survival figure is hardly an individualized assessment. Plus, oncology is a fast-moving field in which important treatment advances occur all the time, and the SEER data lag far behind. For example, when Dr. Brondfield recently looked up the current SEER 5-year survival for patients diagnosed with metastatic non-small cell lung cancer (NSCLC), the figure quoted was less

## ECOG performance status

Grade	Description of patient
0	Fully active, able to carry on all predisease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light housework, office work
2	Ambulatory and capable of all self-care but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited self-care; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any self-care; totally confined to bed or chair
5	Dead

Source: Eastern Clinical Oncology Group

than 6%, and it was drawn from data accrued in 2009-2015. That simply doesn’t reflect contemporary practice.

Indeed, it’s no longer true that the average survival of patients with metastatic NSCLC is less than a year. In the practice-changing KEYNOTE-189 randomized trial, which accrued participants in 2016-2017, the median overall survival of patients randomized to pembrolizumab (Keytruda) plus standard cytotoxic chemotherapy was 22 months, compared with 11 months with chemotherapy plus placebo (J Clin Oncol. 2020 May 10. doi: 10.1200/JCO.19.03136). As a result, immunotherapy with a programmed death-1 inhibitor such as pembrolizumab in combination with chemotherapy is now standard practice in patients with metastatic NSCLC without targetable mutations.

## Performance status guides treatment decision-making

Hospitalists can help oncologists in decision-making regarding whether to offer palliative systemic therapy to patients with advanced meta-

static cancer and poor performance status by determining whether that status is caused by the cancer itself or some other cause that’s not easily reversible, such as liver failure.

Take, for example, the inpatient with advanced SCLC. This is an aggressive and chemosensitive cancer. Dr. Brondfield said he is among many medical oncologists who are convinced that, if poor performance status in a patient with advanced SCLC is caused by the cancer itself,

ic cytotoxic cancer-directed therapy is appropriate for patients with poor performance status who have one of several specific relatively nonchemoresponsive types of metastatic cancer. These include esophageal, gastric, and head and neck cancers.

On the other hand, advanced SCLC isn’t the only type of metastatic cancer that’s so chemosensitive that he and many other oncologists believe aggressive chemotherapy should be offered even in the face of poor patient performance status attributable to the cancer itself.

Take, for example, colorectal cancer with no more than five metastases to the lung or liver, provided those metastases are treatable with resection or radiation. “Those patients are actually curable at a high rate. They have about a 30%-40% cure rate. So those patients, even if they have poor performance status, if we can get them up for surgery or radiation, we usually do try to treat them aggressively,” Dr. Brondfield said.

There are other often chemoresponsive metastatic cancers for which oncologists frequently recommend aggressive treatment to improve quality of life in patients with poor performance status. These cancers include aggressive lymphomas, which are actually often curable; multiple myeloma; testicular and germ cell cancers; NSCLC with a targetable mutation, which is often responsive to oral medications; and prostate and well-differentiated thyroid cancers, which can usually be treated with hormone- or iodine-based therapies rather than more toxic intravenous cytotoxic chemotherapy.

The impact of inpatient palliative chemotherapy in patients with poor performance status and advanced solid cancers not on the short list of highly chemosensitive cancers has not been well studied. A recent retrospective study of 228 such patients who received inpatient palliative chemotherapy at a large Brazilian academic medical center provided little reason for enthusiasm regarding the practice. Survival was short, with 30- and 60-day survival rates of 56% and 39%, respectively. Plus, 30% of patients

*Continued on following page*

# Population health can improve postdischarge care

By Thomas R. Collins

MDedge News

With the United States spending the most per capita on health care among industrialized nations but having the worst aggregate health outcomes, there's a stark need for improvement, according to an expert at HM20 Virtual, hosted by the Society of Hospital Medicine.

Broadening the focus beyond the four walls of the hospital can bring better results while also saving money, said Adam Myers, MD, chief of population health at Cleveland Clinic. Dr. Myers described the way his health system has begun to pay more careful attention to the needs of specific kinds of patients and tailoring posthospitalization care accordingly, with in-person and virtual home visits, and postdischarge clinics.

With an increasing attention to value, health care organizations have to change their structure or risk going the way of the Choluteca Bridge in Honduras, Dr. Myers said. The Choluteca Bridge was built to be hurricane proof, but was nonetheless rendered useless in 1998 after Hurricane Mitch shifted the very course of the river beneath it.

Similarly, the way health care is delivered often does not meet the needs of the population.

"Our national system has been focused almost entirely on inpatient care," Dr. Myers said. "A lot of the transition in care is outside of facilities and outside the walls of our inpatient settings."

Instead, he said a focus on population health – understanding and tending to the needs of people rather than just treating them when they show up at clinics – should involve more outpa-

tient care that is less centralized, fees based on outcomes and patient experience rather than simply volume of services, team approaches rather than single-provider care, and a general attention to preserving health rather than treating sickness.

At Cleveland Clinic, care teams try to understand not just the care that is medically necessary, but what is wanted and justified, as well as how to deliver that care safely, reliably, and affordably with outcomes that patients and families desire.



Dr. Myers

The results are striking. After increasing the number of ambulatory patient "touches" for those with chronic disease, inpatient care – disliked by patients and costly to health centers – decreased. From the first quarter of 2018, outpatient visits increased 9%, while inpatient visits dropped 7.4%, Dr. Myers said.

"As we managed patients more effectively on an outpatient basis, their need for inpatient care diminished," he said. "It works."

Cleveland Clinic has also made changes designed to reduce costly readmissions, using virtual visits, house calls, time reserved for team meetings to identify patients with gaps in their care, and attention to nonmedical determinants of health, such as assessing fall risk at home and addressing lack of nutritious food options in a community.

The health system has seen a 28% reduction in the cost of care attributed to house calls, 12% cost reduction attributed to better care coordination,

and a 49% decrease in hospital days for "superutilizers" of the ED, Dr. Myers said.

Postdischarge clinics – where patients can be seen for the first few visits after hospitalization – have also been valuable for many health systems, because they are closely in tune with what happened during the inpatient stay. These clinics are staffed by hospitalists, interns, residents, or ambulatory clinicians. Dr. Myers said hospitalists tend to have an improved perspective after working in a discharge clinic, with more concern about a patient's needs once they leave the hospital bed.

"Those hospitalists that I know who have participated in programs like this start to act a bit more like primary care physicians," he said.

In a Q&A session after Dr. Myers' presentation, he discussed how hospitalists can affect the many layers of health care policy, factors that often overlap with population health.

He noted that medical care accounts for only about 20% of patient outcomes – the rest involve social and environmental factors.

"I don't know about you, but I'm not satisfied only impacting 20% of health outcomes," he said. First, physicians need to understand what is happening in their communities, and the health policies that are preventing improvement. Then, build partnerships to help fix these problems. He pointed to lead poisoning as an example.

"If you think about it, lead poisoning is a social housing problem that shows up as a health care issue. Unless we are getting out into the community and mitigating the root problem, we will have to treat it over and over again," he said.

Dr. Myers reported no relevant financial disclosures.

Continued from previous page

were admitted to the ICU, where they received aggressive and costly end-of-life care. The investigators found these results suggestive of overprescribing of inpatient palliative chemotherapy (BMC Palliat Care. 2019 May 20;18[1]:42. doi: 10.1186/s12904-019-0427-4).

Of note, the investigators found in a multivariate analysis that an elevated bilirubin was associated with a 217% increased risk of 30-day mortality, and hypercalcemia was associated with a 119% increased risk.

"That's something to take into account when these decisions are being made," Dr. Brondfield advised.

In response to an audience comment that oncologists often seem overly optimistic about prognosis, Dr. Brondfield observed, "I think it's very common for there to be a

disagreement between the oncologist wanting to be aggressive for a sick inpatient and the hospitalist or generalist provider thinking: "This person looks way too sick for chemotherapy."

For this reason he is a firm believer in having multidisciplinary conversations regarding prognosis in challenging situations involving hospitalized patients with advanced cancer. An oncologist can bring to such discussions a detailed understanding of clinical trial and molecular data as well as information about the patient's response to the first round of therapy. But lots of other factors are relevant to prognosis, including nutritional status, comorbidities, and the intuitive eyeball test of how a patient might do. The patient's family, primary care provider, oncologist, the hospitalist,

and the palliative care team will have perspectives of their own.

## Molecular testing is now the norm in metastatic cancers

These days oncologists order molecular testing for most patients with metastatic carcinomas to determine eligibility for targeted therapy, suitability for participation in clinical trials, prognostication, and/or assistance in determining the site of origin if that's unclear.

A single-pass fine-needle aspiration biopsy doesn't provide enough tissue for molecular testing. It's therefore important to order initially a multipass fine-needle aspiration to avoid the need for a repeat biopsy, which is uncomfortable for the patient and can delay diagnosis and treatment.

Dr. Brondfield advised waiting for molecular testing results to come

in before trying to prognosticate in patients with a metastatic cancer for which targetable mutations might be present. Survival rates can vary substantially depending upon those test results. Take, for example, metastatic NSCLC: Just within the past year, clinical trials have been published reporting overall survival rates of 39 months in patients with treatable mutations in epidermal growth factor receptor, 42 months with anaplastic lymphoma kinase mutations, and 51 months in patients whose tumor signature features mutations in c-ros oncogene 1, as compared with 22 months with no targetable mutations in the KEYNOTE-189 trial.

"There's a lot of heterogeneity around how metastatic tumors behave and respond to therapy. Not all metastatic cancers are the same," the oncologist emphasized.

# Drug allergy in the chart? Ask patients for specifics

By Thomas R. Collins

MDedge News

**P**aige Wickner, MD, MPH, medical director for quality and safety at Brigham and Women's Hospital and assistant professor at Harvard Medical School, both in Boston, described a scenario that might sound familiar to hospitalists.

A 72-year-old man is admitted to the hospital for a lung transplant, and has a listed allergy to "sulfa," contained in antibiotics and other medications. His medical records say his reaction was "rash."

What do you do?

The answer, Dr. Wickner said, speaking at HM20 Virtual, sponsored by the Society of Hospital Medicine, is to first ask more questions for clarification. How bad was the rash? Was it blistering? To what type of sulfa did the patient have a reaction?

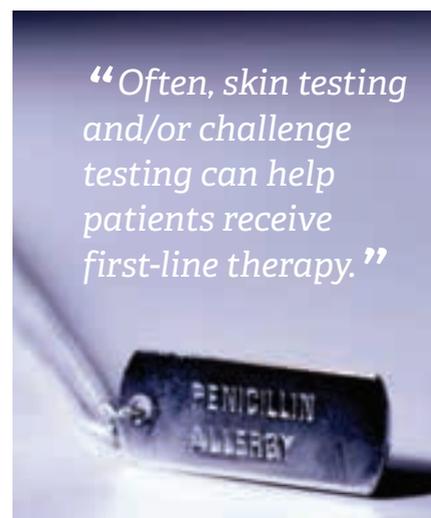
These questions can help determine the next steps. For sulfa-based antibiotics, hospitalists can often desensitize patients with certain reaction characteristics using widely studied protocols to allow the patient to temporarily take a sulfa-containing medication.

The dominant message of Dr. Wickner's talk on drug allergies was to get clear details on the allergic reaction – it can help guide clinicians through a path forward, either finding an alternative drug or performing further evaluation and perhaps continuing with the drug in question if the allergy turns out not to be a major concern.

"Please, for all of your patients, take an allergy history on every listed medication; often you will be able to remove or clarify the medical record and the changes can be life saving," she said.

For instance, desensitization to sulfa for patients who've had a mor-

billiform rash without a fever can be done on an outpatient basis. But if the patient had hives, or became short of breath or anaphylactic, it needs to be done as an inpatient by an allergist, she said.



*"Often, skin testing and/or challenge testing can help patients receive first-line therapy."*

symptoms, and the timing – an immediate reaction is much different than a symptom that showed up days later.

"Sometimes they'll say they're allergic to penicillin, but will tell you they've taken Augmentin or amoxicillin, so you can take that allergy off the list," Dr. Wickner said.

At Brigham and Women's Hospital and Massachusetts General Hospital, Boston, physicians have developed protocols for assessing and managing suspected allergies to penicillin, aspirin and NSAIDs, and trimethoprim/sulfamethoxazole – helpful tools, she said, because the nature and context of the reaction can matter a great deal in how to respond to the listed allergy.

If someone has a reaction, and you think it might be anaphylaxis, don't spend time pondering it, Dr. Wickner said. "If that thought crosses your mind, treat it like anaphylaxis, then analyze after the fact." Most patients with anaphylaxis have some cutaneous sign, even if it's just flushing.

Dr. Wickner said that, if an allergist is available, take advantage of that. "If allergy is available in-house, utilize them. Often, skin testing and/or challenge testing can help patients receive first-line therapy."

In a question-and-answer session after her presentation, Dr. Wickner said that hospitalists "have a huge role to play" in drug allergy delabeling.

"We would love to have a more standard practice of allergy reconciliation, just like we do with medication reconciliation," she said. Asking questions to get more specifics is essential – and simply asking directly about each listed allergen is "step one, and you'll really find it's going to broaden the things that you can do for your patients."

Asked about whether reactions listed as allergies are frequently just adverse effects, Dr. Wickner said that patients who say they are frequently nauseous – rather than breaking out into a rash, for example – might not be having a true allergic reaction. After careful consideration, they might be better managed with anti-nausea medication than avoidance of the drug.

Dr. Wickner reported no relevant financial disclosures.



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# Hospitalists balance work, family as pandemic boosts stress

By Thomas R. Collins

MDedge News

In a Q&A session at HM20 Virtual, hosted by the Society of Hospital Medicine, Heather Nye, MD, PhD, SFHM, professor of medicine at the University of California, San Francisco, and David J. Alfandre, MD, MPH, associate professor of medicine at New York University Langone, discussed strategies to help hospitalists tend to their personal wellness during the COVID-19 pandemic.

The speakers described the complicated logistics and emotional and psychological strain that has come

*“We empathize with our patients, and we empathize with our children and what their experience is.”*

from working during the pandemic, while balancing home responsibilities and parenting. The session was an opportunity to humanize hospitalists' experience as they straddle work and family.

Dr. Nye said she was still “warming up to personal wellness” because there have been so many other demands over the past several months, but that taking the time to go for walks – to bring on a feeling of health even more than the physical benefits – has been helpful. Even before the pandemic, she said, she brought a guitar



Dr. Nye

to the office to take a few minutes for a hobby for which she can't seem to find uninterrupted time at home.

“Bringing a little bit of yourself into your work life goes a long way for a lot of people,” she said.

Child care and odd hours always have been a challenge for hospitalists, the presenters said, and for those in academia, any “wiggle room” in the schedule is often taken up by education, administration, and research projects.

Dr. Alfandre said etching out time for yourself must be “a priority, or it won't happen.” Doing so, he said, “feels indulgent but it's not. It's central to being able to do the kind of work you do when you're at the hospital, at the office, and when you're back home again.”

Dr. Nye observed that, while working from home on nonclinical work, “recognizing how little I got done was a big surprise,” and she had to “grow comfortable with that” and learn to live with the uncertainty about when that was going to change.

Both physicians described the emotional toll of worrying about their children if they have to continue distance learning.



Dr. Alfandre

Dr. Alfandre said that a shared Google calendar for his wife and him – with appointments, work obligations,

children's doctor's appointments, recitals – has been helpful, removing the strain of having to remind each other. He said that there are skills used at work that hospitalists can use at home – such as not getting upset with a child for crying about a spilled drink – in the same way that a physician wouldn't get upset with a patient concerned about a test.

*“I feel like sharing that part of our job [with] our kids helps them understand that there are very, very big problems out there.”*

“We empathize with our patients, and we empathize with our children and what their experience is,” he said. Similarly, seeing family members crowd around a smartphone video call to check in with a COVID-19 patient can be a helpful reminder to appreciate going home to family at the end of the day.

When her children get upset that she has to go in to work, Dr. Nye said, it has been helpful to explain that her many patients are suffering



and scared and need her help.

“I feel like sharing that part of our job [with] our kids helps them understand that there are very, very big problems out there – that they don't have to know too much about

and be frightened about – but [that knowledge] just gives them a little perspective.”

Dr. Nye and Dr. Alfandre said they had no financial conflicts of interest.

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# Heart failure: Practice-changing developments for hospitalists

By Bruce Jancin

MDedge News

A recently validated, easy-to-use calculator of predicted 7-day mortality risk in patients presenting with acute decompensated heart failure is well worth incorporating into hospitalist clinical practice, Dustin T. Smith, MD, said at HM20 Virtual, hosted by the Society of Hospital Medicine.

The risk prediction tool, called the Emergency Heart Failure Mortality Risk Grade (EHMRG), can help guide clinical decision-making as to whether a patient presenting with acute heart failure is appropriate for early discharge or should instead be admitted for inpatient monitoring and more aggressive therapy, explained Dr. Smith, a hospitalist at Emory University in Atlanta.

In addition to the EHMRG, other highlights of his wide-ranging update on recent practice-changing developments in heart failure directly relevant to hospitalists included the introduction of a simple, evidence-based tool for differentiating heart failure with preserved ejection fraction from other potential causes of unexplained dyspnea on exertion in euvoletic patients, and a study debunking what has been called the potassium repletion reflex in patients with acute heart failure undergoing diuresis.

## The ACUTE study

Heart failure is an area of special interest for Dr. Smith. He has been surprised to find that virtually no hospitalists, emergency medicine physicians, or cardiologists he has spoken with have heard of the EHMRG or its validation in the ACUTE (Acute Congestive Heart Failure Urgent Care Evaluation) study. Yet this is a very handy tool for hospitalists, he observed.

The EHMRG algorithm utilizes nine variables for which data are readily available for every patient who arrives at the emergency department with acute heart failure. The variables are age, arrival by ambulance, heart rate, systolic blood pressure, potassium level, oxygen saturation, troponin, serum creatine, and presence or absence of active cancer. The information is entered into a cell phone app, which spits out the patient's estimated 7-day mortality risk. The algorithm divides patients into one of five risk groups ranging from very low to very high. With the addition of data input as to the presence or absence of ST-segment depression on the 12-lead ECG, the weighted algorithm will simultaneously generate an estimated 30-day mortality risk.

ACUTE was a prospective, observational, real-world validation study of EHMRG involving 1,983 patients seeking emergency department care for acute heart failure at nine Canadian hospitals. The actual 7-day mortality rate was 0% in the very-low-risk group, 0% in the low-risk group,

0.6% with an intermediate-risk EHMRG, 1.9% with high risk, and 3.9% in the very-high-risk group. The corresponding 30-day mortality rates were 0%, 1.9%, 3.9%, 5.9%, and 14.3%.

The University of Toronto investigators also asked participating physicians for their clinical estimates of 7-day mortality risk while blinded to the EHMRG predictions. The algorithm proved more accurate than physician predictions across the board. Indeed, physicians consistently overestimated the mortality risk for all categories



Dr. Smith

*“I’m sure you’ve all written orders to keep the potassium greater than 4.0 mEq/L and the magnesium above 2 mEq/L about a million times, like I have.”*

except the very-high-risk one, where they underestimated the true risk (Circulation. 2019 Feb 26;139[9]:1146-56).

Given that heart failure remains year after year at the top of the list of most frequent causes for hospital admission, and that there is compelling evidence that many low-risk patients get hospitalized while potentially unsafe early discharges also occur, the EHMRG score fills an important unmet need.

“I think this can help inform us as to who with acute heart failure potentially needs to come into the hospital and who doesn’t,” Dr. Smith said. “I think the sweet spot here is that, if you’re in the low- or very-low-risk category, your 7-day mortality is less than 1%; in fact, in this study it’s zero. But once you get to category 3 – the intermediate category – you’re talking about a 7-day mortality of 1%-2%, which I think is high enough to warrant hospital admission for treatment and to watch them, not just send them home.”

## The H2FPEF score

Diagnosis of heart failure with preserved ejection fraction (HFpEF) is a challenge in euvoletic patients with clear lungs and dyspnea on exertion. Investigators at the Mayo Clinic have developed and subsequently validated a weighted score known as the H2FPEF score that’s of great assistance in this task. The score is based upon a set of six simple variables universally available in patients undergoing diagnostic work-up for the numerous potential causes for dyspnea on exertion. Together these six variables comprise the acronym H2FPEF:

- **Heavy:** One point for a body mass index greater than 30 kg/m<sup>2</sup>.
- **Hypertension:** One point for being on two or more antihypertensive drugs.
- **Atrial fibrillation:** Three points for paroxysmal or persistent AF.
- **Pulmonary hypertension:** One point for having a Doppler echocardiographic estimated pulmonary artery systolic pressure greater than 35 mm Hg.
- **Elder:** One point for age greater than 60 years.
- **Filling pressure:** One point for a Doppler echocardiographic E/e’ ratio above 9.

The total score can range from 0 to 9 (Circulation. 2018 Aug 28;138[9]:861-70).

Each 1-point increase in the score essentially doubled a patient’s risk of having HFpEF as opposed to pulmonary embolism or some other cause for the dyspnea.

“I really like this H2FPEF score. The score works very, very well. Once you get to a score of 6 or above, the probability of HFpEF is more than 90%, which is pretty powerful. I think this is worthwhile,” Dr. Smith said.

In their derivation and validation cohorts, the Mayo Clinic investigators used as their gold standard for diagnosis of HFpEF invasive hemodynamic exercise testing with a pulmonary artery catheter in place to measure pressures. A score that enables hospitalists to lessen the need for that kind of costly invasive testing is most welcome.

“Here’s how I’d use this score: With an H2FPEF score of 0-1, HFpEF is unlikely. With an intermediate score of 2-5, additional testing is warranted. If the score is high, 6-9, I think HFpEF is likely,” the hospitalist said.

Dr. Smith isn’t the only big fan of the H2FPEF score. In an editorial accompanying publication of the score’s validation study, Walter J. Paulus, MD, PhD, hailed the H2FPEF score as “a unique tour de force” which constitutes a major advance beyond the confusing diagnostic recommendations for HFpEF issued by the European Society of Cardiology and the American Society of Echocardiography, which he said have been “met by skepticism qualifying them as overcomplicated and even triggered disbelief in the existence of HFpEF.”

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# Managing acute pain in inpatients on OUD therapy

By Bruce Jancin

MDedge News

**A**s the opioid epidemic rolls on, hospitalists can expect to increasingly encounter the challenge of treating acute pain in inpatients on medication-assisted treatment for opioid use disorder.

“This is something we’re going to see more frequently, and many of us already have,” Theresa E. Vettese, MD, said at HM20 Virtual, hosted by the Society of Hospital Medicine.

The drastic drop in prescriptions for opioid pain medications in the last several years hasn’t curtailed the current opioid epidemic. Instead, the epidemic has to a great extent morphed into expanded use of illicit heroin and fentanyl, noted Dr. Vettese, an internist, hospitalist, and palliative care physician at Emory University and Grady Memorial Hospital in Atlanta.

## Mythbusting

Treatment of acute pain in hospitalized patients on opioid agonist therapy for opioid use disorder (OUD) is actually pretty straightforward once a few common myths have been dispelled, she said.

One of these myths – common among both physicians and patients in treatment for OUD – is that prescribing opioids for management of acute pain will place such patients at risk for OUD relapse.

“In fact, the data really strongly

suggest this is not the case,” Dr. Vettese said. “It will not worsen addiction. But if we don’t aggressively treat these patients’ acute pain, it puts them at higher risk for bad outcomes.”

Another myth – this one not uncommon among hospital pharmacy departments – is that only physicians with a special certification can prescribe methadone for inpatients.

“The federal laws are clear: Any physician who has a DEA license can prescribe methadone in the hospital acute care setting, not only for pain management, but also for treatment of opioid withdrawal. You can’t prescribe it in the outpatient setting for opioid withdrawal – that has to be dispensed through a federally regulated methadone outpatient treatment program. But in the hospital, we can feel safe that we can do so. You may need to educate your pharmacist about this,” she said.

Hospitalists also can prescribe buprenorphine in the acute care inpatient setting, both for pain and treatment of opioid withdrawal, without need for a DEA waiver.

“It’s useful to get some skills in using buprenorphine in the inpatient setting. You don’t need an X waiver, but I encourage everyone to do the X-waiver training because it’s a terrific educational session. It’s 8 hours for physicians and well worth it,” Dr. Vettese noted.

By federal law the inpatient physician also can prescribe 3 days of buprenorphine at discharge to get the

patient to an outpatient provider.

Misconceptions also abound about NSAIDs as a nonopioid component of acute pain management in hospitalized patients. They actually are extremely effective for the treatment of musculoskeletal,



orthopedic, procedural, migraine, and some types of cancer pain. The number needed to treat (NNT) for postoperative pain relief for ibuprofen or celecoxib is 2.5, and when used in conjunction with acetaminophen at 325 mg every 4 hours, that NNT drops to 1.5, similar to the NNT of 1.7 for oxycodone at 15 mg. It should be noted, however, that the bar defining effective pain relief in randomized studies is set rather low: a 50% greater reduction in pain than achieved with placebo.

Many hospitalists would like to use NSAIDs more often, but they’re leery of the associated risks of GI

bleeding, ischemic cardiovascular events, and worsening kidney function. Dr. Vettese offered several risk-mitigation strategies to increase the use of NSAIDs as opioid-sparing agents for acute pain management.

She has changed her own clinical practice with regard to using NSAIDs in patients with chronic kidney disease in response to a 2019 systematic review by investigators at the University of Ottawa (Curr Opin Nephrol Hypertens. 2019 Mar;28[2]:163-70).

“This was a game changer for me because in this review, low-dose NSAIDs were safe in that they didn’t significantly increase the risk of worsening kidney failure even in patients with stage 3 chronic kidney disease. So this has expanded my use of NSAIDs in this population through stage 3 CKD. With a creatinine clearance below 30, however, kidney failure worsened rapidly, so I don’t do it in patients with CKD stage 4,” Dr. Vettese said.

Gastroenterologists categorize patients as being at high risk of GI bleeding related to NSAID use if they have a history of a complicated ulcer or they have at least three of the following risk factors: age above 65 years, history of an uncomplicated ulcer, being on high-dose NSAID therapy, or concurrent use of aspirin, glucocorticoids, or anticoagulants. Patients are considered at moderate risk if they have one or two of the risk factors, and low risk

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Particularly interesting were the variables rejected for inclusion in the H2FPEF score because they failed to achieve statistical significance as predictors, even though they’re often considered important in defining HFpEF, he noted. These included left atrial volume index, sex, and levels of circulating N-terminal pro-brain natriuretic peptide, wrote Dr. Paulus, professor of cardiac pathophysiology at VU University, Amsterdam.

## Debunking the potassium repletion reflex

Longstanding conventional wisdom holds that patients hospitalized for heart failure need to maintain a serum potassium above 4.0 mEq/L.

“I’m sure you’ve all written orders to keep the potassium greater than 4.0 mEq/L and the magnesium above 2mEq/L about a million times, like I have,” Dr. Smith said.

But it turns out this traditional practice, which involves a huge cost in terms of time, money, and health care resources, is supported by weak evidence – and an important recent study has now debunked what the investigators termed the potassium “repletion reflex.”

The investigators at the University of Massachusetts identified 4,995 patients admitted with exacerbation of acute heart failure and a normal admission serum potassium level of 3.5-5.0 mEq/L. More than 70% received potassium repletion at least once within a 72-hour observation window, during which 2,080 patients maintained a low-normal serum potassium below 4.0 mEq/L, 2,326 had a mid-normal level of 4.0-4.5 mEq/L, and 589 had a high-normal level of more than 4.5 mEq/L but not more than 5.0 mEq/L.

The study had three endpoints: in-hospital mortality, transfer to the intensive care unit,

and hospital length of stay. After statistical adjustment for comorbidities, demographics, and severity at admission, there was no difference between the low- and mid-normal serum potassium groups in any of the three endpoints. In contrast, the high-normal potassium group had a significantly longer length of stay, by a median of 0.6 extra days. The high-normal group also had a 78% increased likelihood of ICU transfer and a 51% increased risk of in-hospital mortality, although neither of these differences reached statistical significance (J Hosp Med. 2019 Dec 1;14[12]:729-36).

“A potassium greater than 4.5 mEq/L may be associated with increased risk of worse outcomes,” Dr. Smith observed. “I think the sweet spot may be 3.5-4.5 mEq/L based on this study.”

He reported having no financial conflicts regarding his presentation.

# HM20 Virtual: Improved supervision of residents

By Ann-Marie Tantoco, MD, FAAP, FHM

## HM20 Virtual session title

Call Me Maybe: Balancing Resident Autonomy With Sensible Supervision

## Presenter

Daniel Steinberg, MD, SFHM, FACP

## Session summary

In this session, Dr. Steinberg, professor of medicine and medical education, associate chair for education, and residency program director in the department of medicine at Icahn School of Medicine at Mount Sinai, New York, presented key factors, techniques, and approaches to supervising residents. He discussed the important balance of resident autonomy and supervision, especially since attendings need to focus on learner education along with patient care and safety.

Dr. Steinberg stated that resident supervision is driven by three factors: what residents need, what residents want, and what the supervisor can provide. Although data are mixed on whether supervision improves patient outcomes, supervision is essential for patient care and resident education. Dr. Steinberg showcased several relevant medical

education studies relating to supervision and focused on a key question: Do you trust the resident?

The review of medical education literature discussed the meaning and development of trust, oral case presentations to determine trust, and the influence of supervisor experience. One study looked at the attendings' remote access of EMR, which allows for remote supervision as a great way to determine trust of the resident. Another study showed that attendings want more communication than what residents provide and that the saying "Page me if you need me" does not encourage communication from residents as much as attendings would desire.

## Key takeaways

- Resident supervision is driven by what residents need, what residents want, and what the supervisor can provide.
- Trust can be determined from direct supervision, oral presentations, and remote access of EMR, but it is also influenced by attending experience and style.
- To increase resident communication with the attending, do not say "Page me if you need me." Instead, an attending should specifically state when a call to an attending is required.



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Continued from previous page

if they have none. Dr. Vettese said that, while NSAIDs clearly should be avoided in the high-risk group, moderate-risk patients are a different matter.

"Many avoid the use of NSAIDs with moderate risk, but I think we can expand their use if we use the right NSAID and we use protective strategies," Dr. Vettese said.

Celecoxib is the safest drug in terms of upper GI bleeding risk, but ibuprofen is close. They are associated with a 2.2-fold increased risk of bleeding when compared with risk in patients not on an NSAID. Naproxen or indomethacin use carries a fourfold to fivefold increased risk.

"Celecoxib with a proton pump inhibitor is safest, followed by celecoxib alone, followed by ibuprofen with a proton pump inhibitor. So I advocate using NSAIDs more frequently in people who are at moderate risk by using them with a PPI," she said.

There is persuasive evidence of increased cardiovascular risk in association with even short-duration NSAIDs, as the drugs are utilized in the treatment of acute pain in hospitalized patients. That being said, Dr. Vettese believes hospitalists can use these drugs safely in more pa-

tients by following a thoughtful cardiovascular risk-mitigation strategy developed by Italian investigators (Ther Adv Drug Saf. 2017 Jun;8[6]:173-82).

## Communicating about pain management

"Communication is always the key to effective pain management in every situation," Dr. Vettese emphasized.

"I talk to the patient about the goals of effective pain management. I'll discourage the use of the 1-10 pain scale, and instead, I'll be honest about expectations, saying, 'You have a problem that will cause acute pain, and it's unlikely that I will be able to completely relieve your pain. The goal is to improve your function so that you can get up and go to the bathroom by yourself, and so that you can sleep for a few hours. That's how we're going to measure the efficacy of our pain-management program.'"

She explains to the patient that she'll be using nonopioid medications and nondrug therapies along with oral opioid pain medications, which are less risky than IV opioids. She offers reassurance that this treatment strategy won't cause an OUD relapse. She lets the patient

know up-front that the opioids will be tapered as the acute pain improves.

For the patient who comes into the hospital on buprenorphine for OUD, she immediately checks with the state prescription drug monitoring program to make sure ev-

*"Many avoid the use of NSAIDs with moderate risk, but I think we can expand their use if we use the right NSAID and we use protective strategies."*

everything is above board and there's no indication of doctor shopping for prescriptions. For in-hospital acute pain, it's safe and effective to continue the outpatient dose. On an outpatient basis, however, the drug is given once daily. On that dosing schedule both the euphoric effect as well as the analgesic effect are lost, so for acute pain management in the hospital it's recommended to split the dose into twice- or thrice-daily doses to achieve an analgesic effect.

Oral NSAIDs are part of the treatment strategy whenever possible.

For severe acute pain, Dr. Vettese will prescribe an immediate-release opioid having a high affinity to the mu opioid receptor, such as oral hydromorphone, on an as-needed basis. The drug has onset of effect in 30 minutes, peak effect in 1 hour, and a duration of effect of 4-6 hours, although she recommends going with 4 hours to provide adequate analgesia.

"These patients will require much higher doses than the patients who are opioid naive," she advised.

For the patient with acute pain who is admitted while on methadone for OUD, it's important to call the outpatient treatment program to verify the dosage.

"You can split the dose of methadone to try to get better analgesia, although I can tell you that patients who are treated with methadone for OUD frequently don't want to do that. And if they don't want to, then I don't," the hospitalist said.

As with the patient on buprenorphine for OUD, she'll use additional oral immediate-release opioids as needed for acute severe pain in a patient on methadone for medication-assisted OUD treatment.

Dr. Vettese reported having no financial conflicts regarding her presentation.



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- Up to \$40K sign on bonus

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## The Future Hospitalist

## A strong mentor/mentee relationship

Establish clear expectations from the beginning

By Jessica Zimmerberg-Helms, MD, and Patrick Rendon, MD

### I. Finding a mentor

#### Case

You are a 27-year-old first-year resident who is seeking mentorship. You are halfway through the year and are thinking about your goals and future. You have a general interest in hematology/oncology but have limited experience and would like to gain more experience with clinically relevant scholarship. However, you do not know anyone in the field and are not sure who to ask for guidance.

#### Stage 1: Seeking the right mentor

Start first with your area of interest and then look broadly. In this case the resident is interested in heme/onc. The first place to look is on the heme/onc department website or in the faculty directory. It can be helpful to look at what the potential mentor has published recently and/or look at a version of their CV on the faculty directory or website. This can help determine how productive they are and help assess whether you share similar interests, and whether they have worked with many learners in the past.

It is also important to do some background work and ask around about potential mentors. Often resident colleagues and fellows have a good sense of current projects and which faculty work well with learners. Lastly, it is important to also look at non-heme/onc physicians as there may be internal medicine physicians or surgeons who are doing hematology or oncology research that more align with your interests.

After you have assessed whether you think this person would be a strong mentor for you, it is time to reach out. People are flattered to be asked and part of their promotion criteria is their ability to mentor. Do not assume that a potential mentor is too busy! Let him or her make that decision. Remember the worst a mentor can say is “no.” Even if they do not have time or the need for a mentee at the present time, they generally will offer some assistance or direction on who to ask.

Start with a straightforward, but pleasant email. Waiting up to 2 weeks for a response is reasonable. If after 2 weeks you have not received word, feel free to reach out again asking politely if he or she would be willing to work with you. Do not be afraid to ask bluntly for their guidance and mentorship and have a specific project or area of research that you would like their assistance with.

### II. Optimizing the mentor/mentee relationship

#### Case continued

Success! Your email was received with interest by a hematologist who has done several projects, comes highly recommended by other residents,

and worked with students and residents in the past. The project involves anticoagulation on the inpatient service. You are set to meet with her next month.

#### Stage 2: Establishing expectations and goals

Now comes the hard work in establishing an excellent mentor/mentee relationship. Before you meet with your mentor, brainstorm first. What do you want out of the relationship? A publication? Career advice? A fellowship position? You should feel empowered in knowing that you as the mentee are in the driver seat, but this relationship should be mutually beneficial. Consider basing the relationship and initial discussions on these key questions:

##### 1. My goals

- What are my goals? It is okay not to know but be ready to communicate some information to your mentor.
- Remember to also ask your mentor what their goals are for you as well.

##### 2. Outcome

- What type of outcome are both you and your mentor looking for from the relationship?

##### 3. Expectations

- What mentorship expectations do you have?
- What are your mentor's expectations of you?

Once you feel you have a sense of what you are looking for out of the relationship, it is important to communicate this with the mentor to establish congruent expectations of one another. For example, think about asking your mentor if the two of you can establish a mentor/mentee contract. This is a written document that can be found online and establishes a mutual agreement of roles, responsibilities, and expectations of one another for the relationship. It can further help to open a line for honest and consistent feedback. This can also give you a formalized endpoint and agreed-upon scope for the mentoring relationship. Having a check-in preestablished in a contract reduces any potentially awkward conversations about redefining the relationship down the road. (For example, what if our case resident decides to pursue GI? It could happen.)

#### Stage 3: Establishing a common goal

After you have determined the goals and expectations of the relationship together (remember, this is a relationship), it is time to start exploring possible projects and establishing goals for those projects. Having a quality improvement or research project will determine a common goal to work toward and help establish and define the relationship.

Once you have delineated broadly what the project(s) should be, develop smaller SMART (specific, measurable, achievable, relevant, time-bound) goals to move the project forward. These goals determine stopping points for evaluation and feedback, which further establish the rela-



Dr. Zimmerberg-Helms



Dr. Rendon

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tionship and keep the project(s) progressing. For example, one goal could be to write the first draft of the proposal for your quality improvement project within 3 weeks.

#### Stage 4: Continuing communication

With any project it is important to stay on the same page as your mentor and be clear to establish “who is doing what by when.” Do not expect accountability to be the mentor's job. Remember that you are in the driver's seat and that you should propose how often you need to meet and what those meetings look like by developing an agenda. You can have an open discussion and allow your mentor to help determine a reasonable timeline. Remember, the more you communicate your goals, the better your mentor will be able to address them.

One pro tip is to always exceed your mentor's expectations – if you think you need 2 weeks to complete a task, ask for 3-4 weeks. This gives you extra padding in case of unforeseen circumstances and makes you look like a “rockstar” if you hit a deadline 1-2 weeks earlier than planned.

### III. Ending and/or redefining the relationship

#### Case continued

You are now a senior resident who's published multiple articles in the past year, and have completed an anticoagulation project for inpatients with pulmonary emboli. You look back on your experience and what stands out is the extent of your gratitude and appreciation for your incredible mentor. Not only do you feel that your mentor has guided you in your career and with your scholarship, but you feel that he or she has shaped your character and talent set. At this point your mentor is both a teacher and guide, but now also a friend. While you feel there is always more that you can learn from her, you are ready to explore new interests. How do you effectively end or redefine this relationship?

*Continued on following page*

## HM20 Virtual

# Key takeaways for the pediatric hospitalist

By Anika Kumar, MD, FHM, FAAP; Vignesh Doraiswamy, MD; Ann-Marie Tantoco, MD, FHM, FAAP

The HM20 Virtual conference in August was filled with excellent content that can be applied by all hospitalists. This article summarizes some key concepts and takeaways for the pediatric hospitalist.

## Racism and bias in medicine

**HM20 Virtual session:** Structural Racism and Bias in Hospital Medicine During Two Pandemics

**Presenters:** Nathan Chomilo, MD, FAAP; and Benji K. Mathews, MD, SFHM

Dr. Chomilo, of HealthPartners in Minneapolis, explained how racial disparities are a symptom of racism. The presenters showed how structural racism has been propagated in medicine with the Hospital Survey and Construction Act of 1964 that allowed segregated hospitals, as well as the racism that exists within the “hidden curriculum.”

Dr. Chomilo discussed how personal experiences of racism can lead to worse health outcomes, including depression, obesity, and overall poor health. Dr. Mathews, also of HealthPartners, explained how implicit biases can be addressed at the individual level, the organizational level, and simultaneously at both to create an antiracist culture. He presented strategies to mitigate individual biases; recognize when biases may be triggered; check biases at the door; connect with others from different backgrounds as equals; and practice antiracism by being an active bystander. Dr. Chomilo concluded the session by sharing that we can all grow by addressing racism at “our houses” (health care systems, medical schools, payer systems) with the goal to create an antiracist system.

## Key takeaways

- Racial disparities are a symptom of structural racism that has been propagated in medicine for centuries.
- Addressing implicit biases at the individual level, organization level, and simultaneously at both levels can help leaders model and promote an antiracism culture.

**HM20 Virtual session:** When Grief and Crises Intersect: Perspectives of a Black Physician in the Time of Two Pandemics

**Presenter:** Kimberly Manning, MD, FACP, FAAP

Dr. Manning, of Emory University in Atlanta, discussed the dual pandemics of COVID-19 and the racism that we are currently experiencing, and described the unique perspective of Black Americans. Though it is easy to see that COVID-19 is a pandemic, racism is not always seen in this way. Dr. Manning demonstrated that, when a pandemic is defined as “that which occurs over a wide geographic area and affects a high proportion of the population,” racism is absolutely a pandemic. Black Americans have been disproportionately affected by COVID-19. Dr. Manning said we often hear that we are in “unprecedented times” but as far as racism is concerned, there is nothing new about this. She shared stories of personal milestones; but each of these instances, though marked by beauty, was also marked by something truly awful. Each time she had a reason to smile, there was something awful going on in the country that showed how racism was still present. Dr. Manning said that, though these were her stories, all Black Americans can recount the same stories, emotions, and feelings of grief.

Dr. Manning concluded by sharing how we can “Do The Work” to combat the pandemic of racism: broaden



Dr. Kumar



Dr. Doraiswamy



Dr. Tantoco

*Dr. Kumar is the pediatric editor of The Hospitalist. She is clinical assistant professor of pediatrics at the Cleveland Clinic Lerner College of Medicine at Case Western Reserve University and a pediatric hospitalist at Cleveland Clinic Children's. Dr. Doraiswamy is an assistant professor of medicine and pediatrics and a med-peds hospitalist at The Ohio State University and Nationwide Children's Hospital, both in Columbus. Dr. Tantoco is an academic med-peds hospitalist practicing in Northwestern Memorial Hospital, Chicago, and Ann & Robert H. Lurie Children's Hospital of Chicago.*

our funds of knowledge, remember that people are grieving, explore our implicit biases, be brave bystanders, and avoid performative allyship.

## Key takeaways

- Though the COVID-19 pandemic is unprecedented, the pandemic of racism is not.
- We must “Do The Work” to combat everyday racism and to be cognizant of what our Black colleagues are going through every day.

## Immigrant hospitalist challenges

**HM20 Virtual session:** The Immigrant Hospitalist: Navigating the Uncertain Terrain During COVID-19

**Presenters:** Manpreet S. Malik, MD, FHM; and Benji K. Mathews, MD, SFHM

Dr. Malik of Emory University in Atlanta, and Dr. Mathews of HealthPartners, opened this session by sharing their personal stories as immigrant physicians in the United States. Dr. Malik noted that physicians born outside the United States make up 29% of U.S. physicians, and

32% of hospitalists are international medical graduates.

The presenters revealed the structural hurdles immigrant physicians face, including lack of empowerment until achieving permanent residency status; limited leadership, administrative, and academic roles; concerns for job security and financial stability; and experiencing micro- and macroaggressions at work. The presenters shared a framework for a developmental orientation inclined toward cultural competency beginning with denial, followed by polarization, progressing to minimization, advancing to acceptance, and culminating in adaptation.

They concluded the session by stressing the importance of advocacy for immigrant physicians and encouraged colleagues to become engaged in efforts within their professional organizations.

## Key takeaway

- Immigrant physicians experience structural challenges to their professional advancement because of their residency status.

*Continued from previous page*

## Stage 5: Redefining your mentoring relationship

First, go back to the expectations or contract established early in the relationship. The check-in is a key time in the relationship to reevaluate goals and priorities. At this point you may decide to amicably end the relationship or project, or move on to a new project with a change in your role. For example, the quality improvement project may change to research, or you as the mentee

have a change in focus (e.g., change in specialty or scholarly focus).

In summary, the interaction between you and your mentor should be a relationship. And the keys to a great relationship are:

1. **Establish clear expectations from the beginning.** This clarifies the relationship and helps the mentee and mentor to become more successful.
2. **Maintain clear and open communication throughout the relationship.**

3. **Define your goals and discuss them with your mentor early. (Have we mentioned the importance of goals enough?)** After all, your goal is the reason you started pursuing this relationship in the first place.

In clinical training having guidance can greatly enhance your experience and direct your future career in unexpected ways. We hope that using these tools will guide you toward forging a strong mentor/mentee relationship.



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