

**QUALITY FOCUS**

Antibiotic stewardship

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KEY CLINICAL QUESTIONSSTIs:
When to admit

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**JOHN NELSON, MD, MHM**

Thinking about productivity

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The Hospitalist

VOLUME 21 No. 10 | OCTOBER 2017

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Hospitalists struggle with opioid epidemic's rising toll

Confronting a prescribing 'black box'

By Bryn Nelson, PhD

It's the stuff of doctors' nightmares. In a recent analysis of attitudes, beliefs, and practices regarding opioid prescribing, one hospitalist described how a patient had overdosed: "She crushed up the oxycodone we were giving her in the hospital and shot it up through her central line and died."¹

Another hospitalist recounted how a patient, after having her gallbladder removed, asked for a prescription to tide her over until she could see her primary care physician. "I later found out she had forged my script and had changed it from 18 pills to 180 pills. She took it all over the state to try to fill."

Susan Calcaterra, MD, MPH, of the

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**MEMBER SPOTLIGHT****Jeffrey Wiese,
MD, MHM**

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Walking the halls of power

Hospitalists held key federal government positions in recent years

By Suzanne Bopp

Hospital medicine may be a young specialty, but it is already playing a significant role in both frontline patient care and, increasingly, in shaping public policy. Case in point: Two hospitalists serving currently in key roles in the federal government, and two former top civil servants, each of whom are examples of the growing influence of the hospitalist perspective.

"The hospitalist viewpoint of the health care system is a unique one, and it lends itself very well to the challenges of our current delivery system reform. We're reforming the health care system to deliver care more cost effectively," said Ron Greeno, MD, FCCP, MHM, SHM president and chair of the SHM Public Policy committee. "Hospitalists are trained to do that – they go to work every day to do that."

Leading the FDA

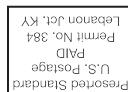
One of the four is Scott Gottlieb, MD, Commissioner of the Food and Drug Administration, formerly a resident fellow at the American Enterprise Institute (AEI), where he studied health care reform, the Centers for Medicare & Medicaid Services, and the FDA.

"He's the perfect person for that job and is looking to shake things up," Dr. Greeno said. "There are a lot of things that can improve in terms of how drugs get to market, including lower cost generic drugs."

That's an issue Dr. Gottlieb has been championing for years, and his understanding of the issue also makes him well prepared to take this position now, Dr. Greeno said.

"Dr. Gottlieb's nomination comes at a momentous time for the agency, which Mr. Trump has promised to significantly remake," the New York

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Bringing critical care training to hospitalists

By David Aymond, MD, and Eric Siegal, MD, SFHM

It's 9 p.m., and the ER calls you to admit a 60-year-old woman with COPD and multilobar pneumonia. She's hypoxic, intubated, and hypotensive after 3 L of crystalloid.

You're asked to evaluate a patient who has developed stridor after an anterior cervical decompression and fusion. He seems to have responded to racemic

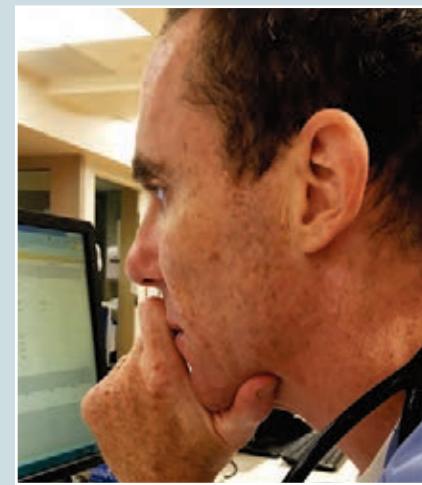
The growing shortage of board-certified intensivists in the United States has pushed hospitalists to the front lines of acute care medicine, and in many U.S. hospitals, hospitalists function as de facto intensivists.

epinephrine. Is he okay or not? What should you do next?

A patient develops dyspnea and chest pain after a total knee replacement. Chest CT shows extensive bilateral PE and a dilated right ventricle. She's normotensive, but tachycardic and tachypneic. Now what?

If these situations resonate with you, you're not alone. Tens of thousands of hospitalists triage and manage critically ill patients, often with limited or no support from critical care specialists. The growing shortage of board-certified intensivists in the United States has pushed hospitalists to the front lines of acute care medicine, and in many U.S. hospitals, hospitalists function as de facto intensivists.

Recognizing this growing phenomenon, SHM convened a task force of hospitalists and intensivists to quantify the problem and to develop tools and curricula to support hospitalists who provide critical care services. Our mission is make sure that every hospitalist who cares for critically ill patients has the skills and knowledge necessary to do so safely and competently. We're working to define the scale and scope of the problem, advocate for hospitalists who



Dr. Aymond is associate clinical professor of medicine at Louisiana State University, Alexandria, and a hospitalist ICU provider at Byrd Regional Hospital, Leesville, La., and Lake Charles (La.) Memorial Hospital. Dr. Siegal is adjunct clinical professor of medicine at the University of Wisconsin-Madison and an intensivist at Aurora Health Care.

provide critical care services, and develop educational content to fill gaps in knowledge and skill. We hope to offer a comprehensive but flexible critical care curriculum to meet the needs of hospitalists across the range of knowledge and skills.

When we can, we'll leverage existing critical care courses and content and build that into our curriculum. When we can't find material that is appropriate for hospitalists, we'll develop our own. As a first step, we have produced targeted CME-eligible web-based education modules on the SHM Learning Portal covering high-risk clinical scenarios that hospitalists commonly encounter:

- Airway management for the hospitalist
- Noninvasive positive pressure ventilation
- Arrhythmias
- High-risk pulmonary embolism

The courses will be laid out in a stepwise format; completing tasks in one will enhance the learning in subsequent modules.

This is an ambitious project, and we still have a long way to go. Have a scenario that we haven't covered? Like what you see? We'd love to hear your feedback and ideas. Please contact education@hospitalmedicine.org. **TH**

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Q&A

Understanding people is complex yet essential for effective leadership

Veteran SHM member Jeffrey Wiese, MD, MHM, offers advice for early-career hospitalists

By Felicia Steele

Editor's note: Each month, Society of Hospital Medicine puts the spotlight on some of our most active members who are making substantial contributions to hospital medicine. Log on to www.hospitalmedicine.org/getinvolved for more information on how you can lend your expertise to help SHM improve the care of hospitalized patients.

This month, The Hospitalist spotlights Jeffrey Wiese, MD, FACP, MHM, senior associate dean for graduate medical education at the Tulane University Health Sciences Center in New Orleans, and director of the Tulane Internal Medicine Program, as well as an associate chair of the department of medicine and a professor of medicine at Tulane University, New Orleans. Dr. Wiese has been a faculty member at SHM's Leadership Academy for many years, is distinguished as a Master in Hospital Medicine, and has served in various other positions throughout his time as an SHM member.

What are the requirements to become a Master in Hospital Medicine, and how has this designation been beneficial to your career?

I have been an SHM member since the early years (early 2000s, I think), and I became a Master in Hospital Medicine (MHM) in 2013. I see the MHM designation as recognizing accomplishments that have been critical in advancing the field of hospital medicine and SHM as a society.

I would guess that my contributions to the SHM Board, being SHM president, cofounding (with others) the Academic Hospitalist Academy, founding (with others) the Quality Safety Educators Academy, and being the founding chair of the American Board of Internal Medicine's Focused Practice in Hospital Medicine pathway were probably what led to my induction.

The salient question probably isn't "How has this designation been beneficial to my career?" but, rather, "How, after receiving the MHM designation, has my career bene-



fited hospital medicine and SHM?"

To my mind, there are some awards in life that recognize excellence in the completion of a task. They herald the end of a finite game: a "best research project" award, for example. But then there are a special few recognitions that, while they recognize past contributions, focus more upon the future than the past. They are infinite recognitions, because implicitly, they are recognitions of "promise" as much as achievement. They convey the organization's trust in, and high expectations for, the recipient.

In sum, they are simultaneously an honor and an obligation ... an obligation and an expectation that the recipient will continue to do even more. In academic parlance, being "tenured" is a good example; for the Society of Hospital Medicine, the equivalent is the MHM recognition. I have done a lot for SHM, but the MHM designation obligates me to do even more. Honoring that obligation is what I plan to do with my career.

How did you become involved with SHM's Leadership Academy, and how has the program developed over the years?

I started doing a 1-hour talk when the Mastering Teamwork course started. I did that for a couple of years but, as my career was evolving into higher-level institutional and hospital leadership, there was much more to talk about than I could fit into 1 hour.

The core of my leadership message is based in the "character ethic" (being better than who you are) and not the popular "personality ethic" (looking better than you are). So it's that ... plus all of the leadership mistakes I have made along the way. And

The salient question probably isn't 'How has this designation been beneficial to my career?' but, rather, 'How, after receiving the MHM designation, has my career benefited hospital medicine and SHM?'

—Jeffrey Wiese, MD, FACP, MHM

that's a lot of mistakes ... enough to fill 9 hours of Mastering Teamwork.

In your opinion, what are some of the main takeaways for those who participate in SHM's Leadership Academy?

Two of the three core components of great leadership are having a mission and purpose and being sincere. Leadership Academy can't deliver the first two, so participants do have to come prepared to be trained.

Understanding people is the third core component, and mastering that skill is really complex. It is not something you can do with a clever slogan and a new lapel pin. It comes in many forms: teamwork, communication, networking, dealing with crisis, orchestrating change, etc. But at its core, Leadership Academy is all about training future leaders in how to understand people ... and to develop the skills to inspire, motivate, and move their team to greater heights. Because at its core, leadership is about getting people to go places they otherwise didn't want to go and to do things that they didn't already want to do. And, to do that, you have to understand people.

As an active SHM member of many years, what advice do you have for members who wish to get more involved?

You have to start somewhere, and you have to see the entry-level years as investing in yourself. There will be sacrifice involved, so don't expect immediate returns on the investment, and the first few years might not be that fun.

Every year, there is a call for committee membership, and you need to get involved in one or more of those committees. Find the most senior hospitalist, who is the most

involved in SHM, and tell her that you want to be on an SHM committee, and could she nominate you? If you do not have that luxury, then pay attention at the SHM annual conference. The SHM president-elect is responsible for building out the SHM committee nominees; as president, you are always looking to find enthusiastic people to be on the committees. Receiving emails from enthusiastic members is more welcome than you might think. As soon as that person is announced, find her email and start making the request to be on a committee. Be open to the assignment: Even if it is not your favorite committee, being there is more important than not.

But remember, networking and reputation are "two tailed." You can improve your reputation by meaningful and consistent participation on a committee (leading to higher and better leadership opportunities), but you can also tarnish it by being assigned to a committee and not doing anything. You do that once, and there is a high probability that you will not be asked back again.

Great strategy, at the end of the day, is always putting yourself in a position with the maximum number of options. The key to personal development strategy is networking. The more people you know, the higher the probability that your email box will light up with the "Hey, do you want to collaborate on this project together?" sort of emails. Attend the annual conferences, attend the SHM Academies (Leadership, Quality and Safety Educators Academy, Academic Hospitalist Academy, etc.). Build genuine relationships with the people you meet there, and the rest will work out just fine. **TH**

Ms. Steele is the marketing communications specialist at the Society of Hospital Medicine.

SHM suggests tweaks to CMS QPP proposal

Doctors may tie personal risk to hospital value-based purchasing performance

By Gregory Twachtman

The Society of Hospital Medicine approves of the direction the Centers for Medicare & Medicaid Services is heading when it comes to measuring pay-for-performance for hospitalists in its Quality Payment Program (QPP) but is suggesting some tweaks to make it a better system.

The proposed CMS 2018 update to the QPP, the value-based payment scheme developed by the Medicare Access and CHIP Reauthorization Act (MACRA), included an option that would allow all physicians who primarily practice in a hospital setting to report as a unified group under the hospital umbrella – as an alternative to reporting as an individual in the Merit-Based Incentive Payment System (MIPS) track.

"Instead of reporting MIPS metrics, they will be able to opt out and tie their risk to the hospital value-based purchasing performance at their hospital," SHM president Ron Greeno, MD, MHM, said. "That is a completely new way to measure physician performance. We like it as a concept because it creates more alignment between the hospital-based doctors and the hospital. It is why CMS likes it also."

He said there is lot to like in that option, although there are things that need to be changed as well.

One key area SHM would like to see changed is how time spent in a hospital is measured. In the CMS proposal, codes related to site of service capture only those in the emergency room and those admitted for in-patient services. Doctors who are seeing patients on an observation basis before they are admitted are not captured and could not be included in the facility payment.

"Observation services are virtually indistinguishable from inpatient care and frequently occur on the same wards of the hospital," SHM said in Aug. 21, 2017, comments to CMS on the proposed QPP update, noting that observational care is built around the two-midnight rule.

"We disagree with this interpretation," the SHM letter continues. "While it is true observation is generally time limited for a given patient, practice structures and provider scheduling have a profound [impact] on the proportion of observation care an individual clinician provides." The letter noted that hospitalists who are on observation service could have a high proportion of observation (outpatient) billing, which could in turn exclude them from qualifying for a facility-based reporting option "despite the fact they are truly

threshold would at least provide a kind of safety net for hospitalists who are caring for high numbers of patients on observation."

Another key area that needs to be addressed is the quality metrics that are used for scoring, which Dr. Greeno acknowledged is "surprisingly hard to do."

For the 2018 reporting year, CMS is proposing that the required number of measures for the MIPS program be six, the same as it currently is for 2017. While SHM agrees with this level, "we remind CMS that even six measures may be a challenge for

and I don't know that all hospitalist groups have access to reporting those ways," Dr. Seymann said. "Most folks are reporting when they submit their billing claims. That takes two measures away from them. That may significantly decrease your score, even if you are trying your best."

While Dr. Seymann applauded CMS for the slow rollout of the MIPS program in general, "we haven't seen great progress as far as the growth of available relevant measures for hospitalists, and I am not confident that 2 years down the line we are going to have 12 measures to choose from."

He did suggest that hospitalists would like a greater variety of measures and want to be measured on the quality of care they provide.

"We truly believe that the majority of hospitalist groups are really heavily invested in improving the quality of care that is provided at their hospitals – that is a big part of the culture of hospital medicine in general," Dr. Seymann said. "We want to make our ability to succeed and participate in this program as effective as we can. We want to try to minimize barriers to hospitalists hitting this one out of the park."

—Gregory Seymann, MD, SFHM



'We want to make our ability to succeed and participate in this program as effective as we can. We want to try to minimize barriers to hospitalists hitting this one out of the park.'

hospital-based inpatient providers."

Dr. Greeno noted that some hospitals have hospitalists that exclusively provide observational care.

The proposal designates physicians who meet a 75% threshold of providing care in an emergency room or in-patient setting as eligible to opt into facility-based reporting.

SHM suggests that, if observation services cannot be included in the 75% threshold, those services should be included and "couple the calculation with a cross-check to ensure most other billing is also hospital based. As a further check, CMS could look at specialty codes – is the provider also enrolled in Medicare as a hospitalist?" SHM also recommends lowering the threshold "to 70% or, ideally, 60%. Due to the wide variation in hospitalist practice, we are uncomfortable with the use of thresholds in general, but lowering this

some providers, including hospitalists, to meet. Concerted efforts should be made to ensure that those providers who have fewer than six measures available for reporting are not disadvantaged in any way."

Gregory Seymann, MD, SFHM, hospitalist and professor at the University of California, San Diego, noted that, for example, "one of the measures is about the way you put in a central venous catheter. For groups that don't do that, then you are not likely to be able to report on that measure. You are not going to be able to reap the full benefits of the quality bonus, even if you are practicing high-quality care in all other aspects of your practice."

Two of the six hospitalist-specific quality metrics relate to heart attacks, Dr. Seymann noted.

"Most hospitalists do take care of these patients, but they can only be reported via registry or via an electronic health record,

SHM also noted that certain measures rarely meet the volume threshold, which could ultimately put hospitalists at a disadvantage when it comes to receiving bonus payments.

"This is not an acceptable outcome, and we strongly urge CMS to develop a solution for providers with low-volume measures, such as removing low-volume measures from the Quality category score," SHM wrote.

Ultimately, Dr. Greeno believes the facility reporting opt-in will survive when the rule is finalized.

"We fully expect there to be a facility-based option for hospital-based doctors, including hospitalists," he said. "So rather than reporting on physician metrics, especially metrics through MIPS, they can get rewarded or penalized based on the hospital value-based purchasing metrics for their hospital." **TH**

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Bezlotoxumab may lower risk of *C. difficile* readmissions

By Eli Zimmerman

FROM CLINICAL INFECTIOUS DISEASES

Clostridium difficile infection (CDI) patients treated with bezlotoxumab were less likely to be readmitted for recurring symptoms within 30 days of discharge, according to a phase 3 trial funded by Merck.

Recurrent CDI is a burden on both patients and providers, increasing health risks with each recurrence and eating through hospital resources, according to Vimalanand S. Prabhu, PhD, associate prin-

cipal scientist for Merck.

"Approximately 25% of patients experience recurrent CDI. ... After a first recurrence of CDI, the probability of a second recurrence is approximately 38%," according to a study cited by Dr. Prabhu and colleagues (Clin Infect Dis. 2014 Aug 1;59[3]:345-54). "Recent model-based estimates place the 2014 economic cost of CDI at \$5.4 billion in the United States, mostly attributable to hospitalization."

In a randomized, double-blind, placebo-controlled, study of 1,050 CDI patients, a total of 27 (5%) of 530 of those given bezlotoxumab were re-hospitalized 30 days after discharge, compared with 58 (11%)

of 520 patients in the placebo group (Clin Infect Dis. 2017 Aug 11. doi: 10.1093/cid/cix523).

Patients were gathered from 322 sites across 30 countries between November 2011 and May 2015.

When measuring CDI-related readmissions, the investigators found use of bezlotoxumab reduced rCDI hospitalizations by 6%, and by approximately 8% in high-risk patients, such as those over 65 years old or with severe CDI.

Bezlotoxumab works by binding to CDI toxin B, a primary cause of CDI symptoms, according to Dr. Prabhu and fellow investigators. The researchers suggested that

bezlotoxumab could be a prevailing factor in fighting the rate of CDI infections, which accounted for 29,000 deaths in 2011 (N Engl J Med. 2015 Jun 11;372[24]:2368-9).

Investigators acknowledged that patients admitted for the study may be healthier than the real-world CDI population.

All investigators reported some financial involvement, whether being a full-time employee of or acting as a consultant for Merck, which funded the study. Individually, investigators reported financial ties to similar medical companies, such as Pfizer and AstraZeneca. **TH**

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Scheduling patterns in hospital medicine

Increasing discontent with 7-on/7-off schedule

By Rachel George, MD, MBA,
CPE, SFHM

For years, the Society of Hospital Medicine has been asking hospital medicine programs about operational metrics in order to understand and catalog how they are functioning and evolving. After compensation, the scheduling patterns that hospital medicine groups (HMGs) are using is the most reviewed item in the report.

When hospital medicine first started, 7 days working followed by 7 days off (7-on/7-off) quickly became vogue. No one really knows how this happened, but it was most likely due to the fact that hospital medicine most closely resembled emergency medicine and scheduling similar to emergency medicine seemed to make sense (that is, 14 shifts per month). That along with the assumption that continuity of care was critical in inpatient care and would improve quality most likely resulted in the popularity of the 7-on/7-off schedule.

Each new survey allows us the opportunity to observe changes in scheduling patterns as hospital medicine matures and to see which scheduling patterns gain or lose popularity.

In the most recent survey in 2016, HMGs were once again asked to comment on how they schedule. Groups were able to choose from five scheduling options:

1. Seven days on followed by 7 days off
2. Other fixed rotation block schedules (such as 5-on/5-off; or 10-on/5-off)
3. Monday to Friday with rotating weekend coverage
4. Variable schedule
5. Other

For HMG programs that serve only adult populations, a majority of them (48%) follow a fixed rotating schedule either 7 days on followed by 7 days off, or some other fixed schedule, while 31% of programs that responded stated that they used a Monday-to-Friday schedule. For the programs as a whole, it would seem that the 7-on/7-off schedule was quickly losing popularity while the Monday-to-Friday schedule



'Each new survey allows us the opportunity to observe changes in scheduling patterns as hospital medicine matures and to see which scheduling patterns gain or lose popularity.'

— Rachel George, MD, MBA, CPE, SFHM

was increasingly being used. However, this broad generalization doesn't really give you the full picture.

Upon analyzing the data further, we see some distinct differences arise based on program size. Small programs (fewer than 10 full-time employees [FTEs]) are much more likely to schedule a Monday-to-Friday schedule than any other model, whereas only a handful of large programs (greater than 20 FTEs) schedule in this way, rather choosing to use a 7-on/7-off schedule.

The last survey was done in 2014 and a lot has changed since then. Significantly more programs responded in 2017, compared with 2014 (530 vs. 355) and the majority of this increase was made up of smaller programs (fewer than 10 FTEs). Programs with four or fewer FTEs, compared with the prior survey, increased by over 400% (37 programs in 2014 vs. 151 programs in 2016). Overall, programs with fewer than 10 FTEs constituted over 50% of the total programs that responded in 2016 (whereas they made up only a third in 2014). This was particularly significant since size of the program was the one variable that determined how a program might schedule – other factors like geographic region, academic status, or primary hospital GME status did not show significant variance in how groups scheduled.

The second major change that occurred is that these same small programs (those with fewer than 10 FTEs) moved overwhelmingly to a Monday-to-Friday schedule. In 2014, only 3% of small programs sched-

uled using a Monday-to-Friday pattern, but in 2016 almost 50% of small programs reported scheduling in this way. This change in the overall composition of programs, with small programs now making up over 50% of the programs that reported, and the specific change in how small programs schedule results in a noteworthy decrease of programs using a 7 days on followed by 7 days off (7-on/7-off) schedule (53.8% in 2014 and only 38.1% in 2016), and a corresponding increase in the number of programs that schedule using a Monday-to-Friday schedule (4% in 2014 to 31% in 2016).

In distinct contrast to programs with fewer than 10 FTEs, a very similar number of programs with greater than 20 FTEs reported in 2016 as in 2014 – there was no increase in this subgroup. I'm not clear at this time if this is because there is truly no increase in the number of large programs nationally, or if there is another factor causing larger programs to under-report. The large programs that did report data in 2016 continue to utilize a 7-on/7-off schedule or another fixed rotating block schedule more than 50% of the time. In fact, the utilization of one of these two scheduling patterns increased slightly from 2014 to 2016 (from 52% to 58%). Those that did not use one of the prior mentioned scheduling patterns were most likely to schedule with a variable schedule. A Monday-to-Friday schedule was almost never used in programs of this size and showed no significant change from 2014 to 2016.

This snapshot highlights the changing landscape in hospital medicine. Hospital medicine is penetrating more and more into smaller and smaller hospitals, and has even made it into critical access hospitals. As recently as 5-10 years ago, it was felt that these hospitals were too small to have a hospital medicine program. This is likely one of the reasons for the increase in programs with four or fewer FTEs. There has also been increasing discontent with the 7-on/7-off schedule, which many feel is leading to burnout. Bob Wachter, MD, famously said during the closing plenary of the 2016 Society of Hospital Medicine Annual Meeting that the 7-on/7-off schedule was "a mistake." Despite this brewing discontent, larger programs have not changed their scheduling patterns, likely because finding a another scheduling pattern that is effective, supports high-quality care, and is sustainable for such a large group is challenging.

Many people will say that there are as many different types of hospital medicine programs as there are hospital medicine programs. This is true for scheduling as for other aspects of hospital medicine operations. As we continue to grow and evolve as an industry, scheduling patterns will continue to change and evolve as well. For now, two patterns are emerging – smaller programs are utilizing a Monday-to-Friday schedule and larger programs are utilizing a 7-on/7-off schedule. Only time will tell if these scheduling patterns persist or continue to evolve. **TH**

Dr. George is a board-certified internal medicine physician and practicing hospitalist with over 15 years of experience in hospital medicine. She has been actively involved in the Society of Hospital Medicine and has participated in and chaired multiple committees and task forces. She is currently executive vice president and chief medical officer of Hospital Medicine at Schumacher Clinical Partners, a national provider of emergency medicine and hospital medicine services. She lives in the northwest suburbs of Chicago with her family.

FDA approves Vabomere for complicated UTI in adults

By Erin Cheslow

The Food and Drug Administration has approved Vabomere (meropenem and vaborbactam) for adults with complicated urinary tract infection (cUTI), including pyelonephritis caused by susceptible Enterobacteriaceae, the agency has announced.

The approval was based on results of the TANGO 1 trial, a phase 3, multicenter, double-blind study of 545 adult patients with cUTI. Overall, 98.4% of patients treated with Vabomere saw improvement

in symptoms and negative urine culture tests by the end of intravenous treatment, compared with 94.3% of those treated with piperacillin/tazobactam (95% confidence interval, 0.3%-8.8%). Improvement continued in about 77% of patients treated with Vabomere who had resolved symptoms 7 days after completing treatment, compared with about 73% of those who were treated with piperacillin/tazobactam, the FDA said Aug. 29 in a press release.

Vabomere contains meropenem, an antibacterial, and vaborbactam, a potent selective beta-lactamase inhibitor. The drug is admin-

istered intravenously, and the recommended dosage is 4 grams (meropenem 2 grams and vaborbactam 2 grams) in a 3-hour infusion every 8 hours in patients aged 18 and older, the drug's developer, The Medicines Company, said in a statement released Aug. 30. The recommended duration of treatment for Vabomere is up to 14 days.

Headache, infusion-site reactions, and diarrhea were common adverse effects of Vabomere. The drug also has been associated with allergic reactions and seizures, so it should not be administered to patients with a history of anaphylaxis.

"Vabomere represents a significant new advancement in addressing [Klebsiella pneumoniae carbapenemase]-producing Enterobacteriaceae, for which there are currently limited treatment options," Clive A. Meanwell, MD, PhD, chief executive officer of The Medicines Company, said in the statement.

Rempex Pharmaceuticals, a Medicines Company unit, received the approval. The Medicines Company said the drug is expected to be available before the end of the year. **TH**

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The Hospital Leader blog

'Sicker and quicker' discharges are raising costs more than you think

By Bradley Flansbaum, DO, MPH,
MHM

You have lowered length of stay. Congratulations: You're fired.

For several decades, providers working within hospitals have had incentives to reduce stay durations and keep patient flow tip-top. Diagnosis Related Group (DRG)-based and capitated payments expedited that shift.

Accompanying the change, physicians became more aware of the potential repercussions of sicker and quicker discharges. They began to monitor their care and, as best as possible, use what measures they could as a proxy for quality (readmissions and hospital-acquired conditions). Providers balanced the harms of a continued stay with the benefits of added days, not to mention the need for cost savings.

However, the narrow focus on the hospital stay – the first 3-7 days of illness – distracted us from the weeks after discharge. With the acceleration of the turnaround of inpatient stays, we cast patients to post-acute settings unprepared for the hardships they might face. By the latter, I mean, greater frailty risk, more reliance on others for help, and a greater need for skilled support. Moreover, the feedback loop and chain of communication between the acute and post-acute environments did not mature in step with the faster pace of hospital flow.

I recognize this because of the cognitive dissonance providers now experience because of the mixed messages delivered by hospital leaders.

On the one hand, the DRG-driven system that we have binds the hospital's bottom line – and that is not going away. On the other, we are paying more attention to excessive costs in post-acute settings, that is, subacute facilities when home health will do or more intense acute rehabilitation rather than the subacute route.

Making determinations as to whether a certain course is proper, whether a patient

will be safe, whether families can provide adequate agency and backing, and whether we can avail community services takes time. Sicker and quicker; mindful of short-term outcomes; worked when we had postdischarge blinders on. As we remove such obstacles, and payment incentives change to cover broader intervals of time, we have to adapt. And that means leadership must realize that the practices that held hospitals in sound financial stead in years past are heading toward

extinction – or, at best, falling out of favor.

Compare the costs of routine hospital care with the added expense of post-acute care, then multiply that extra expense times an aging, dependent population, and you add billions of dollars to the recovery tab. Some of these expenses are necessary, and some are not; a stay at a skilled nursing facility, for example, doubles the cost of an episode. TH

Read the full post at hospitalleader.org.

ALSO ON 'THE HOSPITAL LEADER' BLOG



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NEWS & NOTES

Here's what's trending at SHM

Get the latest news about upcoming events, new programs, and SHM initiatives

By Brett Radler

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► SHM's Clinical Documentation & Coding for Hospitalists (formerly CODE-H) recently launched an updated program with all-new content that offers hospitalists the latest information on best practices in coding, documentation, and compliance from national experts. It provides eight recorded webinar sessions presented by expert faculty, downloadable resources, and an interactive discussion forum on SHM's online community.

CME credits are offered through an evaluation following the webinars. Each participant is eligible for CME credits for completion of the series.

To learn more, visit [hospitalmedicine.org/CODEH](#). If you have questions on the new program, please contact [education@hospitalmedicine.org](#). TH

Mr. Radler is marketing communications manager at the Society of Hospital Medicine.

SNEAK
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Journal of Hospital Medicine

Sound and light levels are similarly disruptive in ICU and non-ICU wards

By Stuti J. Jaiswal, MD, PhD,
Solana Garcia, Robert L. Owens,
MD

BACKGROUND: Hospitalized patients frequently report poor sleep; this is partly because of the inpatient environment. In-hospital sound and light levels are not well described on non-intensive care unit wards. Although non-ICU wards may have lower average and peak noise levels, sound level changes (SLCs), which are important in disrupting sleep, may still be a substantial problem.

OBJECTIVE: To compare ambient sound and light levels, including SLCs, in ICU and non-ICU environments.

DESIGN: Observational study.

SETTING: Tertiary-care hospital.

MEASUREMENTS: Sound measurements of 0.5 Hz were analyzed to provide average hourly sound levels, sound peaks, and SLCs greater than or equal to 17.5 decibels (dB). For light data, measurements taken at 2-minute intervals provided average and maximum light levels.

RESULTS: The ICU rooms were louder than non-ICU wards; hourly averages ranged from 56.1 plus or minus 1.3 dB to 60.3 plus or minus 1.7 dB in the ICU, 47.3 plus or minus 3.7 dB to 55.1 plus or minus 3.7 dB on the telemetry floor, and 44.6 plus or minus 2.1 dB to 53.7 plus or minus 3.6 dB on the general ward. However, SLCs greater than or equal to 17.5 dB were not statistically different (ICU, 203.9 plus or minus 28.8 times; non-ICU, 270.9 plus or minus 39.5; $P = 0.11$). In both ICU and non-ICU wards, average daytime light levels were less than 250 lux, and peak light levels occurred in the afternoon and early evening.

CONCLUSIONS: While quieter, non-ICU wards have as many SLCs as ICUs do, which has implications for quality-improvement measurements. Efforts to further reduce average noise levels might be counterproductive. Light levels in the hospital (ICU and non-ICU) may not be optimal for maintenance of a normal circadian rhythm for most people. **TH**

ALSO IN JHM THIS MONTH



Associations of physician empathy with patient anxiety and ratings of communication in hospital admission encounters

AUTHORS: Rachel Weiss, MD, Eric Vittinghoff, PhD, MPH, Margaret C. Fang, MD, MPH, Jenica E. W. Cimino, Kristen Adams Chasteen, MD, Robert M. Arnold, MD, Andrew D. Auerbach, MD, Wendy G. Anderson, MD, MS

A concise tool for measuring care coordination from the provider's perspective in the hospital setting

AUTHORS: Christine M. Weston, PhD, and Sehyo Yune, MD, Eric B. Bass, MD, MPH, Scott A. Berkowitz, MD, MBA, Daniel J. Brotman, MD, Amy Deutschendorf, MS, RN, ACNS-BC, Eric E. Howell, MD, Melissa B. Richardson, MBA Carol Sylvester, RN, MS, Albert W. Wu, MD, MPH

Post-intensive care unit psychiatric comorbidity and quality of life

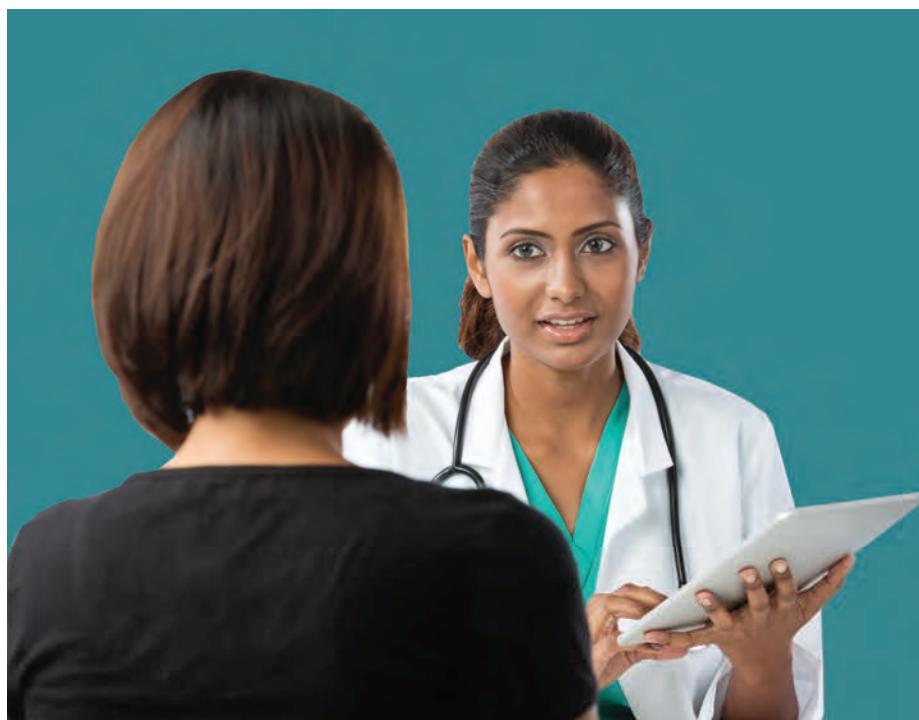
AUTHORS: Sophia Wang, MD, and Chris Mosher, MD, Anthony J. Perkins, MS, Sujuan Gao, PhD, Sue Lasiter, RN, PhD, Sikandar Khan, MD, Malaz Boustani, MD, MPH, Babar Khan, MD, MS

An opportunity to improve Medicare's planned readmissions measure

AUTHORS: Chad Ellimoottil, MD, MS, Roger K. Khouri Jr., MD, Apoorv Dhir, BA, Hechuan Hou, MS, David C. Miller, MD, MPH, James M. Dupree, MD, MPH

Against medical advice discharges

AUTHORS: David Alfandre, MD, MSPH, Jay Brenner, MD, Eberechukwu Onukwugha, MS, PhD



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Universal screening for alcohol misuse effective and efficient

By Eli Zimmerman

FROM JOURNAL OF HEPATOLOGY

Universal screening for alcohol misuse in acute medical admissions is feasible and can reduce readmissions for liver disease, according to a new study.

Detecting patients' alcohol misuse early can help treat or prevent alcohol-related liver disease, such as cirrhosis; however, screening is not being used in a routine, effective way, according to Greta Westwood, PhD, head of Nursing, Midwifery, and AHP Research at Portsmouth (England) Hospitals and her fellow investigators.

"In primary care, screening is highly variable, and treatment rates are low, often focusing on patients who already have advanced psychiatric or physical illness," Dr. Westwood and her colleagues wrote. "In addition, many patients with alcohol use disorders do not fully engage with primary care services for a variety of reasons, often leading to excessive use of the hospital ED as the first point of contact."

Investigators conducted a retrospective, observational study of 53,165 patients who were admitted to the acute medical unit at Queen Alexandra Hospital in Portsmouth between July 2011 and March 2014 (*J Hepatol.* 2017 Sep;67[3]:559-67).

More than half of patients were male (52%), the average patient age was 67 years, and the patients had an average of three previous hospital admissions.

Of the patients observed, 48,211 (90.68%) completed the screening test, while the remaining 4,934 (9.32%) did not.

Those who were not screened had a higher mortality rate than did those who were



Katarzyna Blaszczyk/Thinkstock

(8.30% vs 6.17%; P less than .001), were more likely to be discharged the same day (3.37% vs. 1.87%; P less than .001), and were more likely to discharge themselves (29.67% vs. 13.31%; P less than .001).

The screening process, an electronic modified version of the Paddington Alcohol Test, consisted of the nurses' asking a series of questions about types of alcohol consumed, frequency and maximum daily amount, whether the admission was considered alcohol related, and they documented signs of alcohol withdrawal.

Patients were then given a score based on how the answers compared with the healthy level of alcohol consumption, with 0-2 points considered "low risk," 3-5 points

considered "increasing risk," and 6-10 points considered "high risk."

Those assigned a low-risk status were not referred to intervention, but doctors recommended increasing-risk patients attend a community alcohol intervention team for brief intervention, while high-risk patients were automatically referred to an Alcohol Specialist Nursing Service (ASNS).

Of those screened, there were 1,135 patients (2.33%) considered at increasing risk of alcohol misuse and 1,921 (3.98%) at high risk.

While 68.5% of patients with a high-risk score were referred to the ASNS, all those who were referred completed the medical detoxification course, according to investigators.

High-risk patients were found to have had, on average, more hospital visits than increasing- and low-risk patients – 4.74 visits, compared with 2.92 and 3.00, respectively; they also reported more ED trips – 7.68 visits, compared with 3.81 and 2.64, respectively.

Dr. Westwood and her colleagues found that, when using the screening tool, investigators were more likely to find signs of alcohol-related liver disease among those with higher scores.

Liver, pancreatic, and digestive disorders accounted for 22.1% of primary admission codes of high-risk patients, compared with 3.2% of low-risk patients.

Investigators wrote that this tool can help doctors identify at-risk patients early and attack the problem of alcohol misuse head on and in a timely manner.

"It is vital that patients with cirrhosis who continue to drink are identified and referred to dedicated hospital alcohol care teams," Dr. Westwood and her colleagues wrote. "Screening can identify patients at an increased risk of alcohol-related harm whose range of diagnoses is not dissimilar to lower-risk patients and whose misuse of alcohol might otherwise have not been identified."

Investigators did not account for decreased scores or testing effectiveness in patients readmitted and retested. Additionally, the long-term impact of ASNS care is still being studied.

Two investigators reported affiliations with the Learning Clinic, which created and licensed the analysis program that is part of the screening tool. All other investigators, including Dr. Westwood, reported no relevant financial disclosures. **TH**

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Forgo supplemental oxygen in adequately perfused patients

By Amy Karon

FROM THE ESC CONGRESS 2017

Supplemental oxygen did not prevent mortality or rehospitalization among patients with suspected myocardial infarction whose oxygen saturation on room air exceeded 90%, investigators reported.

Rates of all-cause mortality at 1 year were 5% among patients who received supplemental oxygen through an open face mask (6 liters per minute for 6-12 hours) and 5.1% among patients who breathed room air, said Robin Hofmann, MD, of Karolinska Institutet, Stockholm, and his associates. In addition, rehospitalization for MI occurred in 3.8% of patients who received supplemental oxygen and 3.3% of those breathed room air. The findings of the randomized registry-based trial of 6,629 patients were presented at the annual congress of the European Society of Cardiology and published simultaneously in the *New England Journal of Medicine*.

Guidelines recommend oxygen supplementation in MI, and the practice has persisted for more than a century, but adequately powered trials of hard clinical endpoints are lacking. Above-normal oxygen saturation can potentially worsen reperfusion injury by causing coronary vasoconstriction and increasing production of reactive oxygen species, the researchers noted.

Notably, the Australian Air Versus Oxygen in Myocardial Infarction (AVOID) trial found that oxygen supplementation was associated with larger infarct sizes in patients with

ST-segment elevation myocardial infarction, and a recent Cochrane report did not support routine oxygen supplementation for MI.

The current trial enrolled patients aged 30 years and older who had chest pain or shortness of breath lasting less than 6 hours, an oxygen saturation of at least 90% on pulse oximetry, and either electrocardiographic evidence of ischemia or elevated cardiac troponin T or I levels (*N Engl J Med.* 2017 Aug 28. doi: 10.1056/NEJMoa1706222).

Oxygen therapy lasted a median of 11.6 hours, after which median oxygen saturation levels were 99% in the intervention group and 97% in the control group.

A total of 62 patients (2%) who received oxygen developed hypoxemia, as did 254 patients (8%) who breathed room air. Median highest troponin levels during hospitalization were 946.5 ng per L and 983.0 ng per L, respectively. A total of 166 (5%) patients in the oxygen group and 168 (5.1%) control patients died from any cause by a year after treatment (hazard ratio, 0.97; P = .8). Likewise, supplemental oxygen did not prevent rehospitalization with MI within 1 year (HR, 1.13; P = .3).

"Because power for evaluation of the primary endpoint was lower than anticipated, we cannot completely rule out a small beneficial or detrimental effect of oxygen on mortality," the researchers wrote. But clinical differences were unlikely, based on the superimposable time-to-event curves through 12 months, the consistent results across subgroups, and the neutral findings on secondary clinical endpoints, they added.

The Swedish Research Council, the Swedish Heart-Lung Foundation, and the Swedish Foundation for Strategic Research funded the study. Dr. Hofmann disclosed research grants from these entities. **TH**

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Practice should change

The study by Hofmann and coworkers provides definitive evidence for a lack of benefit of supplemental oxygen therapy in patients with acute myocardial infarction who have normal oxygen saturation.

Although the mechanisms underlying physiological and biochemical adaptation to myocardial ischemia are complex, the answer to the question is straightforward, and its implications for coronary care are indisputable: Supplemental oxygen provides no benefit to patients with acute coronary syndromes who do not have hypoxemia. It is clearly time for clinical practice to change to reflect this definitive evidence.

Joseph Loscalzo, MD, PhD, is in the department of medicine, Brigham and Women's Hospital, Boston. He is an editor-at-large for the *New England Journal of Medicine*. He had no other disclosures. These comments are from his accompanying editorial (*N Engl J Med.* 2017 Aug 28. doi: 10.1056/NEJMMe1709250).

SHM pushes to protect patients from ‘surprise’ out-of-network expenses

Resolution intends to provide guidance to state lawmakers

By Gregory Twachtman

Patients entering a hospital should not be on the hook for costs related to out-of-network insurance coverage when that hospital is in-network, according to the Society of Hospital Medicine and other major medical societies, especially if it is an emergency situation and the patient is unable to make an informed choice regarding who is administering care to them.

“We want to see it come to a resolution that does not put patients in jeopardy for paying these extra costs when they are going to a hospital that is in-network,

and they assume that the physicians are in-network,” Ron Greeno, MD, FCCP, MHM, president of the Society of Hospital Medicine, said in an interview.

To that end, SHM joined a group of other medical societies in introducing a resolution that ultimately passed at a summer 2017 American Medical Association delegates meeting. That resolution highlighted a number of principles related to unexpected out-of-network care, including (1) ensuring that patients are not financially penalized for receiving unexpected care from an out-of-network provider; (2) insurers must meet appropriate network adequacy standards; (3) insurers must be transparent in informing enrollees of out-of-network costs prior to scheduled procedures; and (4) insurers must provide reasonable and timely access to in-network physicians.

Other groups signing onto the resolution include the American College of Emergency Physicians, the American Academy of Orthopedic Surgeons, the American College of Radiology, the American Society of Anesthesiologists, the College of American Pathologists, the American Association of Neurological Surgeons, and the Congress of Neurological Surgeons.

“States are tackling this on a state-by-state basis and creating laws that are meant to protect patients from being placed in legal jeopardy,” Dr. Greeno said. “But you still want to maintain the rights of the health plan and the physicians to negotiate in good faith. That is basically the stance we take.”

According to Dr. Greeno, the joint resolution passed at the AMA meeting was “designed to make recommendations to states who are considering such laws.” The medical societies want to provide guidance on what to include in those laws that will make the process fair. “If you have a law that says ‘out of network doctors cannot balance

bill at a hospital that is in-network,’ then the health plans have no reason to negotiate in good faith,” he said. “They will just pay those doctors whatever they feel like paying them.”

Ultimately, though, the resolution was about medical societies affirming their desire to protect patients from burdensome, unexpected bills.

“We want to make sure whatever laws are

passed that they actually protect the patients while maintaining the ability of physicians and health plans to negotiate in good faith to a mutual resolution,” Dr. Greeno said. **TH**

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Dr. Greeno

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department of family medicine at the University of Colorado at Denver, Aurora; a hospitalist at Denver Health Hospital; and lead author of the recent study, says that the dramatic anecdotes don't surprise her.

"These are not uncommon events," she said. "Across the country, you hear about overdose, you hear about people abusing fentanyl, and I think, when you have an addiction, your judgment of the dangers associated with your personal opioid use may be limited."

Some critics have blamed the ubiquity of opioid prescriptions on the controversial movement to establish pain as a vital sign. Multiple investigations also have accused the pharmaceutical industry of aggressively promoting these prescription drugs while downplaying their risks. The Centers for Disease Control and Prevention found that, in fact, so many opioid prescriptions were being written by 2012 that the 259 million scripts could have supplied every U.S. adult with his and her own bottle. In August 2017, President Trump declared the opioid crisis a national emergency, although opinions differ regarding the best ways forward.

Until recently, however, few studies had



Dr. Calcaterra

looked at how inpatient prescribing may be fueling a surging epidemic that already has exacted a staggering toll. So far, the early data paint a disturbing picture that suggests hospitals are both a part of the problem and a key to its solution.

"This has been a very, very rapidly evolving change from very little opioid use to widespread opioid use with the belief that there weren't consequences," said Hilary Mosher, MD, FHM, of the department of internal medicine at the University of Iowa in Iowa City. Hospitalists have to own their role in contributing to the current reality, she said, while also recognizing their power and responsibility to be agents of change. "We're learning as we're going," said Dr. Mosher, who is also a hospitalist with the Iowa City Veterans Affairs Health Care System. "I think rather than looking back and saying, 'Oh, my gosh, what have we done? Look at everything we did wrong,' we've got to assess where we are and say, 'How do we do right?'"

A 'black box'

Changing the trajectory will be difficult. From 2002 to 2015, the nation's overdose death rate from opioid analgesics, heroin, and synthetic opioids, such as fentanyl, nearly tripled, and studies suggest that

prescription painkillers have become major gateway drugs for heroin.² In the last 3 years alone, fentanyl-related deaths soared by more than 500%, and annual mortality from all drug overdoses has blown by the peak of the HIV/AIDS epidemic in 1995, when nearly 51,000 died from the disease.³

Amid the ringing alarm bells, hospitals have remained a largely neglected "regulatory dead zone" for opioids, said Shoshana Herzig, MD, MPH, of the department of medicine at Harvard Medical School, Boston, and director of hospital medicine research at Beth Israel Deaconess Medical Center, also in Boston. In an editorial accompanying the recent study of hospitalist perspectives, Dr. Herzig called the inpatient setting an opioid prescribing "black box."⁴

In a previous analysis of 1.1 million nonsurgical hospital admissions, however, she and colleagues found that opioids were prescribed to 51% of all patients.⁵ More than half of those with inpatient exposure were still taking opioids on their discharge day. With other studies suggesting that such practices may be contributing to chronic opioid use long after hospitalization, Dr. Herzig wrote, "reigning in inpatient prescribing may be a crucial step in curbing the opioid epidemic as a whole."

A recent study led by Anupam Jena, MD, PhD, a health care policy expert at Harvard Medical School, echoes the refrain. "It's kind of remarkable that the hospital setting hasn't really been studied, and it's an

important setting," he said. When he and colleagues did their own analysis of hospitalized Medicare beneficiaries, they found that 15% of previously opioid-naïve patients were discharged with a prescription.⁶ Of those patients, more than 40% remained on opioids 3 months after discharge. The research also revealed a nearly twofold variation in prescription rates across hospitals.

Study coauthor Pinar Karaca-Mandic, PhD, a health economist at the University of Minnesota School of Public Health in Minneapolis, said the group's research was motivated by a prior study in which they found that more than 30% of Medicare beneficiaries with opioid prescriptions were getting them from multiple providers.⁷ Nearly two-thirds of those prescriptions were concurrent. Although the study couldn't assess appropriateness, Dr. Karaca-Mandic said that concurrent prescriptions from multiple providers correlated with higher rates of opioid-related hospitalization.

Some hospitalists have asserted that the increase in opioid prescriptions may partially be tied to pressure to reduce 30-day readmission rates; Dr. Jena and Dr. Karaca-Mandic's work leaves open the possibility that such prescriptions may increase readmissions instead. The researchers, however, say a bigger driving force may be financial pressure tied to discharging patients earlier or scoring higher on quality measures that gauge factors, such as pain management. Hospitals that scored

CONTINUED ON FOLLOWING PAGE

SHM's RADEO program aids safer opioid prescribing

By Bryn Nelson, PhD

In January 2017, the U.S. Centers for Medicare & Medicaid Services honored SHM for its hospital patient safety and quality improvement efforts. A big reason for the plaudits was the society's successful program and implementation toolkit called Reducing Adverse Drug Events related to Opioids (RADEO), now in its second phase.

Kevin Vuernick, senior project manager of SHM's Center for Hospital Innovation and Improvement, says that the freely available RADEO guide explains how to develop and carry out quality improvement projects related to inpatient opioid prescribing. One of the first steps was devising interventions that hospitalists could implement to reduce opioid-related adverse events. An independent evaluator will help analyze the program's data, best practices, and outcomes.

Five hospitals participated in the program's first phase, with another 10 joining the second phase, which began in November 2016. Thomas Frederickson, MD, FACP, SFHM, medical director for

hospital medicine and palliative care at CHI Health in Omaha, Neb., was lead author of the implementation guide and has been a mentor in both phases of the program. The guide has been well received so far, he says, because it presents existing evidence and practical advice on launching opioid-related quality improvement efforts. "It's just a start, but I do think it's a start in the right direction," Dr. Frederickson said. Subsequent versions of the guide, he added, will be updated to reflect new evidence on transitions of care, prescribing guidelines, and monitoring.

Keri Holmes-Maybank, MD, MSCR, FHM, an academic hospitalist at the Medical University of South Carolina, Charleston, said that the RADEO guide has been a "phenomenal" resource. Dr. Holmes-Maybank, who led her medical center's involvement in RADEO's first round, says the guide helped her identify areas that her institution could work on. For one project, the medical university implemented the Pasero Opioid-Induced Sedation Scale to help prevent adverse opioid-related events, such as life-threatening respiratory depression.

For a second project, the center combined existing discharge information into a more comprehensive document that could be given to patients to educate them and their caregivers better.

Dr. Holmes-Maybank is now a mentor for a Texas hospital in RADEO's second round. Her mentee institution is hoping to change its approach to prescribing opioids with a revised order set, drop its reliance on the visual analog scale for pain in favor of functional assessments, and produce an explanatory video for patients to help reset their expectations. She "cannot wait" to learn from that hospital's experience and see if their lessons might apply to her own institution as well, she said.

St. Anthony Hospital in Oklahoma City first used RADEO to revisit how it was evaluating patients' pain and then widened the scope to reassess how it was managing its opioid treatment and narcotic use. "We just kept swinging at the tree, trying to hit the low-hanging fruit and seeing what we could improve upon," said Matthew Jared, MD, a hospitalist at St. Anthony and its program lead during its involvement in phase one of RADEO.

RADEO has also helped the hospital provide patients with a beefed-up informational handout either at the beginning of their stay or when they're first prescribed opioids. Initiating the educational process earlier in the course of care, Dr. Jared said, has reshaped expectations and eased previously difficult conversations. In fact, early results suggest a trend toward improved patient satisfaction scores – a result that could be an "exciting breakthrough" for the hospital if it holds, he said.

Dr. Jared is hoping to build on the momentum with a plan to develop better in-house protocols for monitoring pain, employing alternative treatments, and establishing clear lines of communication. "That's our next step forward: really taking what we've learned and beginning to implement it into a holistic type of pain management within the hospital that each physician can tailor to the individual patient but still have the framework to support them," he said. This ambitious plan is precisely the goal of RADEO, Mr. Vuernick said: providing the catalyst for change not just for hospital medicine but also for entire institutions.

CONTINUED FROM PREVIOUS PAGE

better on the Hospital Consumer Assessment of Healthcare Providers and Systems' measures of inpatient pain control, their study found, were slightly more likely to discharge patients on opioids.

Keri Holmes-Maybank, MD, MSCR, FHM, an academic hospitalist at the Medical University of South Carolina, Charleston, says a lack of clear evidence and guidelines, unrealistic expectations, and variable patient responses to opioids are compounding a "very frustrating and very scary" situation for hospital medicine. Hospitalists who conclude that a patient-requested antibiotic will do more harm than good, for example, usually feel comfortable saying no. "But a patient can talk you into an opioid," she said. "It's much harder to stand your ground with that, even though we need to be viewing it the same way."



Dr. Jena

The pain paradox

The desire to alleviate pain, as doctors are discovering, often has replaced one harm with another inadvertently. Perhaps the single largest contributing factor, Dr. Herzig said, is the subjectivity of pain and the difficulty in discerning whether a patient's self-reporting can be trusted. "We want to relieve suffering," she said, "but we also don't want to give a patient a drug to which they may develop an addiction or to which they may already be addicted, and so therein lies the conundrum."

Dr. Calcaterra said she and many other hospitalists struggle with the issue regularly. Most physicians are comfortable addressing a "very obvious source of pain," such as trauma, heart attack, or surgery, she said. But treating more nebulous pain from chronic conditions

or syndromes that lack clear supporting data can be tricky. Bridging the potential divide between patients' understanding of how their pain might be managed and what options are realistically available,

she noted, may depend upon establishing clear up-front expectations and effectively communicating the treatment plan and goals.

Some medical providers are also beginning to focus less on visual pain assessments and more on clinically meaningful functional improvements. "For example, instead of asking, 'What level is your pain today?' we might say, 'Were you able to get up and work with physical therapy today?' and 'Were you able to get out of the bed to the chair while maintaining your pain at a tolerable level?'" Dr. Herzig said.

In addition, providers are recognizing that they should be clearer in telling patients that a complete absence of pain is not only unrealistic but also potentially harmful. "It takes time to have those discussions with patients, where you're trying to explain to them, 'Pain is the body's way of telling you don't do that, and you need to have some pain in order to know what your limitations are,'" Dr. Herzig said.

She strongly emphasized the importance of trying nonopioid analgesics first, especially given their superior effectiveness for certain types of pain. "And then, if you do go on to prescribe opioids, you should always pair them with nonopioid analgesics," she said.

From talking with hospitalized patients, Dr. Mosher and her colleagues found that pain-related suffering can be manifested in or exacerbated by poor sleep or diet, boredom, physical discomfort, immobility, or inability to maintain comforting activities. In other words, how can the hospital improve sleeping conditions or address the understandable anxiety around health issues or being in a strange new environment and losing control? "One of the upsides of all this is that it may drive us to really think about, and make thoughtful investments in, changing the hospital to be a more therapeutic environment," Dr. Mosher said.

Chronic use and discharge dilemmas

What about patients who already used opioids regularly before their hospital admission? In a 2014 study, Dr. Mosher and her colleagues found that, among patients admitted to Veterans Affairs hospitals between 2009 and 2011, more than one in four were on chronic opioid therapy in the 6 months prior to their hospitalization.⁸ That subset of patients, the study suggested, was at greater risk for both 30-day readmission and death.

Determining whether an opioid prescription is appropriate or not, though, takes time. "Hospitalists are often terribly busy," Dr. Mosher said. "There's a lot of pressure

to move people through the hospital. It's a big ask to say, 'How will hospitalists do what might be ideal?' versus 'What can we do?'" A workable solution, she said, may depend upon a cultural shift in recognizing that "pain is not something you measure by numbers," but rather a part of a patient's complex medical condition that may require consultations and coordination with specialists both within and beyond the hospital.

Sometimes, relatively simple questions can go a long way. When Dr. Mosher asks patients on opioids whether they help, she said, "I've had very few patients who will say it makes the pain go away." Likewise, she contends that very few patients have been informed of potential side effects such as decreased muscle mass, osteoporosis, and endocrinopathy. Men on opioids can have a significant reduction in testosterone levels that negatively affects their sex life. When Dr. Mosher has talked to them about the downsides of long-term use, more than a few have requested her help in weaning them off the drugs.

If given the time to educate such patients and consider how their chronic pain and opioid use might be connected to the hospitalization, she said, "We can find opportunities to use that as a change moment."

Discharging a patient with a well-considered opioid prescription can still present multiple challenges. The best-case scenario, Dr. Calcaterra said, is to coordinate a plan with the patient's primary care provider. "A lot of patients that we take care of, though, don't have a follow-up provider. They don't have a primary care physician," she said.

The opioid epidemic also has walloped many communities that lack sufficient

Naloxone: Difficult conversations about a potential lifesaver

Assessing an opioid-safety intervention

By Bryn Nelson, PhD

New tools to help minimize the risk of opioid-related adverse events are becoming more widely available, although providers are still struggling over how best to implement them.

A recent study by Shane Mueller, MSW, and Ingrid Binswanger, MD, at Kaiser Permanente Colorado Institute for Health Research, Denver, for instance, found that doctors are frequently uncomfortable prescribing the opioid antagonist naloxone to counteract a potential overdose.¹

The discomfort may prevent doctors from having difficult but necessary conversations about the medication's risks and benefits, says Mr. Mueller, a project manager at the institute. For

their part, patients recognized the utility of naloxone but were afraid that accepting a prescription for it would suggest that they were misusing their opioid medication.

Although much of the research was conducted in outpatient settings, the researchers say several lessons may be translated to the hospital readily. "Patients were really willing to embrace the idea of naloxone when it was framed to be used in a worst-case scenario," Mr. Mueller said; some providers, for example, compared it to having a fire extinguisher in the house. "I think one patient said, 'You know, I don't plan on starting a fire in my kitchen, but it's good to have there just

in case something goes wrong.'

Another important lesson, Mr. Mueller said, is to consider multiple factors that might heighten the overdose risk, such as a change in the prescription or a medical condition like renal failure.

Including those considerations in a conversation might help destigmatize the topic and help patients who are concerned that they might be perceived as misusing the medication.

The study suggested that, when providers adopted a nonjudgmental and better-safe-than-sorry tone, patients were much more willing to accept the message and the naloxone prescription. "It seemed like patients were also more amenable to receiving naloxone when they thought about other people in their home who could potentially experience an overdose just

by having medication in the home," said Dr. Binswanger, a senior investigator at Kaiser Permanente. Framing the prescription as protection for loved ones, then, also can be effective.

Ideally, opioid-safety interventions should be more patient centered, emphasizing safer home storage to prevent secondary exposures and educating patients fully about the medication's downsides, she said.

"They may have been on them a long time but never been fully informed of the risks," she said. Among her group's future research goals, Dr. Binswanger hopes to investigate how best to communicate such risks to patients.

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resources for at-risk patients, whether it's alternative pain therapy or a buprenorphine clinic. "If you look at access to medication-assisted therapies, the lights are out for a lot of America. There just isn't access," Dr. Mosher said. The limited options can set up a frustrating quandary: Hospitalists may be reluctant to wean patients off opioids and get them on buprenorphine if there's no reliable resource to continue the therapy after a postdischarge handoff.

Until better safety nets and evidence-based protocols are woven together, hospitalists may need to make judgment calls based on their experience and available data and be creative in using existing resources to help their patients. Although electronic prescribing may help reduce the potential for tampering with a doctor's script, Dr. Calcaterra said, diversion of opioid pills remains a "huge issue across the United States." Several states now limit the amount of opioids that can be prescribed upon discharge, and hospitalists in many states can access prescription drug monitoring programs to determine whether patients are receiving opioids from other providers.

Pushing for proactive solutions

One of the biggest unmet needs, according to multiple hospitalists, is a clear and uniform set of inpatient prescribing guidelines. A consensus document might address some of the high variability in opioid prescribing practices seen by experts, such as Dr. Jena. "That's a big issue because it's that variability that leads to adverse consequences for patients when the opioids are



about striking the right balance on opioids and about "trying to find an objective way to treat a subjective problem." Because he and his hospitalist counterparts see 95% of St. Anthony's inpatients, however, he said hospital medicine is uniquely positioned to help initiate a more holistic and consistent opioid management plan. "We're key in the equation of trying to get this under control in a way that's healthy and respectful to the patient and to the staff," he said. **TH**

Dr. Bryn Nelson is a freelance writer in Seattle.

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Times wrote on March 29,¹ prior to his confirmation. "The next commissioner will be charged with putting into practice a far-reaching law, passed in December, aimed at bringing drugs to market more quickly."

In addition to his work at the AEI, Dr. Gottlieb served on SHM's Public Policy committee. He was a clinical assistant professor at New York University and advised the U.S. Department of Health & Human Services as a member of the Federal Health IT Policy committee.

Steering national quality programs

Kate Goodrich's, MD, MHS preparation for her government role included experience with several sides of the health care system: Dr. Goodrich, was the director

of the Division of Hospital Medicine at George Washington University Hospital, one of the first hospitalist programs in the Washington area. She worked at an inpatient rehab facility and has practiced in ambulatory care.

"That's allowed me to see a variety of different facets of the health care system writ large," Dr. Goodrich said. "Understanding how systems work, I think, is really key to making policy decisions."

Now, as chief medical officer of CMS and director of the Center for Clinical Standards and Quality (CCSQ), she's helping drive those policy decisions, overseeing multiple quality measurement and value-based



Dr. Greeno

purchasing programs and health and safety standards for hospitals.

Dr. Goodrich still makes rounds at George Washington Hospital on weekends. "It allows me to have a sort of in-your-bones understanding of the challenges of frontline providers," she said. "I'm able to understand the clinician point of view in our policy decisions." She's also able to see first-hand the effects of those policy decisions on clinicians, patients, and health care systems.

As physician leaders within their organizations, hospitalists fit naturally into other leadership positions, she said. "Hospitalists often take leadership roles around quality of care and efficiency and flow and those sorts of thing," Dr. Goodrich said. "I think it is a very natural progression for hospitalists to get interested in health care and medicine from that viewpoint, which then might allow them to make a leap into another type of field."

Innovating at CMS

Until very recently, pediatric hospitalist Patrick Conway, MD, FAAP, MHM, served as deputy administrator for Innovation and Quality at the Centers for Medicare & Medicaid Services and director of the Center for Medicare and Medicaid Innovation. On Oct. 1, he took on a new challenge, becoming president and CEO of Blue Cross and Blue Shield of North Carolina (Blue Cross NC).



Dr. Conway

While at CMS, Dr. Conway was responsible for leading for all policy coordination and execution across Medicare, Medicaid, and the Children's Health Insurance Program. He also headed up health care delivery system transformation at CMS, and in his CMMI role, he was responsible for launching new payment and service delivery models.

Dr. Conway was selected as a Master of Hospital Medicine by SHM, and received the HHS Secretary's Award for Distinguished Service, the Secretary's highest distinction for excellence. The Patient Safety Movement Foundation gave him their Humanitarian Award, and in February 2017, he received the American Medical Association's Dr. Nathan Davis Award for Outstanding Government Service. He

also was elected to the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine in 2014.

Prior to joining CMS, Dr. Conway oversaw clinical operations and research at Cincinnati Children's Hospital Medical Center as director of hospital medicine, with a focus on improving patient outcomes across the health system.

Improving the country's health

Obesity, tobacco-related disease, mental illness, and addiction are some of the issues Vivek H. Murthy, MD, targeted while serving as the 19th U.S. Surgeon General. He was appointed to the position by President Obama in 2014, and was relieved of his duties by President Trump in April 2017.

Dr. Murthy, a hospitalist at Brigham and Women's Hospital in Boston before he was confirmed as Surgeon General (at 37, the youngest one ever), also has an extensive record of health care-related entrepreneurship and outreach. He cofounded VISIONS, an HIV/AIDS education program in India and the United States, and the Swasthya project, a community health partnership in rural India. Dr. Murthy founded Doctors for Obama (later Doctors for America), a nonprofit organization of physicians and medical

students dedicated to creating equal access to affordable health care nationwide.

Dr. Murthy has said that addiction should be seen as a chronic illness, not a character flaw, and last year sent a letter to 2.3 million health care providers nationwide, encouraging them to join a national effort to reform prescribing practices.

According to Dr. Greeno, each of these hospitalists illuminates new paths for others in the field. "I think for young people who are trying to identify what career path they want to pursue, this is something that can't be anything but good for our specialty—and good for the health system," he said. "Hospitalists have the perfect clinical background and mindset to help our health care system get to where it needs to go. It's a huge challenge. It's going to be a ton of work, and the stakes are very, very high." TH

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Pediatric hospitalists take on the challenge of antibiotic stewardship

Quality-improvement approach aligns well with stewardship

By Kelly April Tyrrell

When Carol Glaser, MD, was in training, the philosophy around antibiotic prescribing often went something like this: "Ten days of antibiotics is good, but let's do a few more days just to be sure," she said.

Today, however, the new mantra is "less is more." Dr. Glaser is an experienced pediatric infectious disease physician and the lead physician for pediatric antimicrobial stewardship at The Permanente Medical Group, Kaiser Permanente, at the Oakland (Calif.) Medical Center. While antibiotic stewardship is an issue relevant to nearly all hospitalists, for pediatric patients, the considerations can be unique and particularly serious.

For instance, "we know there is a potential impact [of antibiotics] on the microbiome, and, from a pediatric standpoint, it's not entirely clear what the consequences are for those types of changes," said pediatric hospitalist Samir Shah, MD, MSCE, SFHM. "With children, the potential consequences may be far more significant, and we're just at the cusp of beginning to understand what those are. ... It's important to think about long-term consequences in the face of uncertainty."

Dr. Shah, a pediatric infectious disease physician at Cincinnati Children's Hospital, spoke last spring at HM17, the Society of Hospital Medicine's annual meeting. His talk drew from issues raised on pediatric hospital medicine electronic mailing lists and from audience questions. These centered on decisions regarding the use of intravenous versus oral antibiotics for pediatric patients – or what he refers to as intravenous-to-oral conversion – as well as antibiotic treatment duration.

"For many conditions in pediatrics, we used to treat with intravenous antibiotics initially – and sometimes for the entire course – and now we're using oral antibiotics for the entire course," Dr. Shah said. He noted that urinary tract infections were once treated with IV antibiotics in the hospital but are now routinely treated orally in an outpatient setting.

Dr. Shah cited two studies, both of which he coauthored as part of the Pediatric Research in Inpatient Settings Network, which compared intravenous versus oral antibiotics treatments given after discharge: The first, published in *JAMA Pediatrics* in 2014, examined treatment for osteomyelitis, while the second, which focused on complicated pneumonia, was published in *Pediatrics* in 2016.^{1,2}



'Quality improvement is really about changing the system, and hospitalists, who excel in QI, are poised to help drive antimicrobial stewardship efforts.'

— Samir Shah, MD, MSCE, SFHM

Both were observational, retrospective studies involving more than 2,000 children across more than 30 hospitals. The *JAMA Pediatrics* study found that roughly half of the patients were discharged with a peripherally inserted central catheter (PICC) line, and half were prescribed oral antibiotics. In some hospitals, 100% of patients were sent home with a PICC line, and in others, all children were sent home on oral antibiotics. Although treatment failure rates were the same for both groups, 15% of the patients sent home with a PICC line had to return to the emergency department because of PICC-related complications. Some were hospitalized.¹

The *Pediatrics* study found less variation in PICC versus oral antibiotic use across hospitals for patients with complicated pneumonia, but the treatment failure rate was slightly higher for PICC patients at 3.2%, compared with 2.6% for those on oral antibiotics. This difference, however, was not statistically significant. PICC-related complications were observed in 7.1% of patients with PICC lines also were more likely to experience adverse drug reactions, compared with patients on oral antibiotics.²

"PICC lines have some advantages, particularly when children are unable or unwilling to take oral antibiotics, but they also have risks" said Dr. Shah. "If outcomes are equivalent, why would you subject patients to the risks of a catheter? And, every time they get a fever at home with a PICC line, they need urgent evaluation for the possibility of a catheter-associated bacterial infection. There is an emotional cost, as well, to taking care of catheters in the home setting."

Additionally, economic pressures are compelling hospitals to reduce costs and resource utilization while maintaining or improving the quality of care, Dr. Shah pointed out. "Hospitalists do many things well, and quality improvement is one of those areas. That approach really aligns

with antimicrobial stewardship, and there is greater incentive with episode-based payment models and financial penalties for excess readmissions. Reducing post-discharge IV antibiotic use aligns with stewardship goals and reduces the likelihood of hospital readmissions."

The hospital medicine division at Dr. Shah's hospital helped assemble a multidisciplinary team involving emergency physicians, pharmacists, nursing staff, hospitalists, and infectious disease physicians to encourage the use of appropriate, narrow-spectrum antibiotics and reduce the duration of antibiotic therapies. For example, skin and soft-tissue infections that were once treated for 10-14 days are now sufficiently treated in 5-7 days. These efforts to improve outcomes through better adherence to evidence-based practices, including better stewardship, earned the team the SHM Teamwork in Quality Improvement Award in 2014.

"Quality improvement is really about changing the system, and hospitalists, who excel in QI, are poised to help drive antimicrobial stewardship efforts," Dr. Shah said.

At Oakland Medical Center, Dr. Glaser helped implement handshake rounds, an idea they adopted from a group in Colorado. Every day, with every patient, the antimicrobial stewardship team meets with representatives of the teams – pediatric intensive care, the wards, the neonatal ICU, and others – to review antibiotic treatment plans for the choice of antimicrobial drug, for the duration of treatment, and for specific conditions. "We work really closely with hospitalists and our strong pediatric pharmacy team every day to ask: 'Do we have the right dose? Do we really need to use this antibiotic?'" Dr. Glaser said.

Last year, she also worked to incorporate antimicrobial stewardship principles into the hospital's residency program. "I think the most important thing we're doing is changing the culture," she said.

"For these young physicians, we're giving them the knowledge to empower them rather than telling them what to do and giving them a better, fundamental understanding of infectious disease."

For instance, most pediatric respiratory illnesses are caused by a virus, yet physicians will still prescribe antibiotics for a host of reasons – including the expectations of parents, the guesswork that can go into diagnosing a young patient who cannot describe what is wrong, and the fear that children will get sicker if an antibiotic is not started early.

"A lot of it is figuring out the best approach with the least amount of side effects but covering what we need to cover for a given patient," she said.

A number of physicians from Dr. Glaser's team presented stewardship data from their hospital at the July 2017 Pediatric Hospital Medicine meeting in Nashville, Tenn., demonstrating that, overall, they are using fewer antibiotics and that fewer of those used are broad spectrum. This satisfies the "pillars of stewardship," Dr. Glaser said. Use antibiotics only when you need them, use them only as long as you need, and then make sure you use the most narrow-spectrum antibiotic you possibly can, she said.

Oakland Medical Center has benefited from a strong commitment to antimicrobial stewardship efforts, Dr. Glaser said, noting that many programs may lack such support, a problem that can be one of the biggest hurdles antimicrobial stewardship efforts face. The support at her hospital "has been an immense help in getting our program to where it is today." ■

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Identifying high-value care practices

Measuring observable markers of HVC at the bedside

A new tool can help where hospitalists need it most: at the bedside.

The focus on providing high-value care (HVC) continues to grow and expand in health care today. Still, most education around HVC currently happens in a formalized setting – lectures, modules, and so on, says Carolyn D. Sy, MD, interim director of the Hospital Medicine Service at the University of Washington, Seattle, and coauthor of a recent abstract about a new tool to address this shortcoming.

"There are no instruments for measuring HVC discussions or practices at the bedside, confounding efforts to assess behavior changes associated with curricular interventions," she said.

So she and other doctors undertook a study to identify 10 HVC topics in three domains (quality, cost, patient values), then measured their reliability with the goal of designing an HVC Rounding Tool and showing that it is an effective tool to measure observable markers of HVC at the bedside.

"This is critical as it addresses an important educational gap in translating HVC from theoretical knowledge to bedside practice," Dr. Sy said.

The tool is designed to capture multidisciplinary participation, she says, including involvement from not only faculty, fellows, or trainees, but also nursing, pharmacists, families, and other members of the health care team. The tool can be used as a peer feedback instrument to help physicians integrate HVC topics during bedside rounds or as a metric to assess the educational efficacy of future curriculum.



"The HVC Rounding Tool provides an opportunity for faculty development through peer observation and feedback on the integration and role modeling of HVC at the bedside," Dr. Sy said. "It also is an instrument to help assess the educational efficacy of formal HVC curriculum and translation into bedside practice. Lastly, it is a tool that could be used to measure the relationship between HVC behaviors and actual patient outcomes such as length of stay, readmissions, cost of hospitalization – a feature with increasing importance given our move toward value-based health care." **TH**

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Quick byte

Telemental health visits are on the rise

Telemental health visits are on the rise.

Researchers analyzed Medicare fee-for-service claims for the period 2004-2014 related to telemedicine used for mental health care, also known as telemental health. Their study population comprised rural beneficiaries with a diagnosis of any mental illness or serious mental illness. Over the years studied, the number of telemental health visits grew, on average, by 45.1% annually.

In 2014, there were 5.3 and 11.8 telemental health visits per 100 rural beneficiaries with any mental illness or serious mental illness, respectively. **TH**

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Developing machines that detect disease

Technologies may be available in 3-5 years

Smells – of skin, breath, or bodily fluids – can, in some cases, reveal the presence of disease. This fact has led researchers to try to build an odor sensor that could make a fast, reliable diagnosis, and now the field may be on the verge of a breakthrough, according to a recent article in the New York Times.

In addition to various efforts in Austria, Switzerland, and Japan, an English manufacturer – Owlstone Medical – has been making headway with an odor analysis technology. It will be part of a National Health Service trial that will test the sensor for diagnosing lung cancer. The company also is conducting a trial using urine samples to detect colon cancer; its program allows changing the software to change what disease you detect.

Meanwhile, an Israeli chemical engineer, Hossam Haick, is using similar technology, with molecular receptors that have an affinity for certain biomarkers of disease found in the breath. Artificial intelligence allows the sensors to improve with each use, and a paper published last year showed that this system could distinguish among 17 different diseases with up to 86% accuracy.



And in the United States, researchers from the Monell Chemical Senses Center and the University of Pennsylvania are working on an odor sensor that detects ovarian cancer in samples of blood plasma. They chose plasma because it is less likely than breath or urine to be affected by other factors such as diet or environmental chemicals.

These technologies could be available to doctors in 3-5 years, experts say. **TH**

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Taking urine samples from infants

Parents and clinicians reported high satisfaction using the method.

Urinary tract infection (UTI) is one of the most common bacterial infections in young febrile infants, but doctors know that collecting a urine sample to diagnose or exclude UTI can be very challenging in practice.

Recently, researchers in Australia conducted a randomized controlled trial in a pediatric hospital emergency department to test a method that could stimulate voiding within 5 minutes. It's called the Quick-Wee method, and the technique involves the clinician rubbing the suprapubic area of the child in a circular pattern with gauze soaked in cold saline held with disposable plastic forceps. In the trial, this was done until the sample was obtained or until 5 minutes passed.

The researchers found the Quick-Wee method resulted in a significantly higher rate of voiding within 5 minutes compared with standard clean catch urine (31% vs. 12%, P less than .001).

"The Quick-Wee method requires minimal resources and is a simple way to trigger faster voiding for clean catch urine from infants," said coauthor Jonathan Kaufman, MD. "Parents and clinicians reported high

satisfaction using the method."

For some young children, when a urine sample is required, a catheter or suprapubic needle aspirate sample will be indicated, he added. "But for many others, the Quick-Wee method may allow clinicians to collect a clean catch sample, and spare the need for painful and invasive procedures in some circumstances." **TH**

Reference

Kaufman J, Fitzpatrick P, Tosif S, et al. Faster clean catch urine collection (Quick-Wee method) from infants: Randomised controlled trial. BMJ 2017;357:j1341. doi: 10.1136/bmj.j1341. Accessed June 12, 2017.



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Applying Choosing Wisely principles to telemetry and catheter use

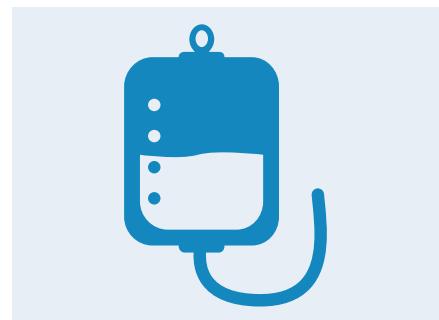
A ‘silent’ reminder within the EHR made a difference

The Choosing Wisely recommendations for hospitalists have launched numerous research projects. One dealing with telemetry and catheter use was published in September's American Journal of Medicine.

After reviewing the literature on how people were implementing these recommendations, the researchers noticed most projects “1) narrowly focused on only one of the recommendations; 2) often used intrusive interventions that appeared to be burdensome and not adaptable to physician workflow; and 3) were expensive to implement,” said lead author Charlie M. Wray, DO, MS, of the Division of Hospital Medicine, San Francisco Veterans Affairs Medical Center, and the University of California, San Francisco. “We set out to design a project that could minimize these aspects while hopefully decreasing the use of telemetry and Foley catheters.”

The researchers created a “silent” reminder that was posted on a widely used screen within their EHR and was only activated when the user clicked on it.

“Additionally, we wanted to make sure that this intervention made its way to teaching rounds and the patients’ bedsides,” Dr. Wray said. “So, when the attendings and residents would print out their daily census, it would contain the reminders, which allowed the team to quickly review which patients were actively using telemetry or had a Foley and discuss, at a team-level, whose telemetry or Foley could be stopped.”



The project demonstrated a trend toward less telemetry use, less time spent on telemetry, fewer catheters ordered, and more selective utilization of catheters in sicker patients.

“We believe that our project shows that the bundling of interventions has the potential to impart an effect on a greater proportion of the population than those that focus on a single issue,” Dr. Wray said. “Second, future interventions that look to utilize EHR-based clinical reminders should consider utilizing a ‘silent’ design that is prominent but doesn’t intrude upon practitioners workflow.”

You don’t need to be at a large academic institution to implement this idea, he added. “A few hours with your IT expert and a champion who is willing to take the lead could easily implement this project and hopefully see similar outcomes.” **TH**

Reference

Wray CM, Fahrenbach J, Bassi N, et al. Improving value by reducing unnecessary telemetry and urinary catheter utilization in hospitalized patients. *Am J Med.* Sep 2017;130(9):1037-41.

Improving transitions for elderly patients

Connecting the hospital-based team with clinicians at SNFs

Transitions are always a time of concern for hospitalists, and the transition from hospital to skilled nursing facilities (SNF) is no exception.

“During the transition and in the 30 days after discharge from the hospital to a SNF, patients are at high risk for death, rehospitalization, and high-cost health care,” said Amber Moore, MD, MPH, a hospitalist at Beth Israel Deaconess Medical Center, and instructor of medicine, Harvard Medical School. “Elderly adults are especially vulnerable because of impairments that may prevent them from participating in the discharge process and an increase in the risk that information is lost or incomplete during the care transition.”

To address this, she and several other physicians studied a novel video-conference program called Extension for Community Health Outcomes—Care Transitions (ECHO-CT) that connects an interdisciplinary hospital-based team with clinicians at SNFs to help reduce patient mortality, hospital readmission, skilled nursing facility length of stay, and 30-day health care costs.

The results of their study suggest that this intervention significantly decreased SNF length of stay, readmission rate, and costs of care, she says; the model they used is reproducible and has the potential to significantly improve care of these patients.

“Our model was hospitalist run and is a mechanism to help hospitalists improve care

to their patients during the transition time and beyond,” Dr. Moore said. “Furthermore, in participating in this model, hospitalists have the opportunity to better understand the challenges that face their patients after discharge and learn from postacute care providers.”

Ideally, she would like to see the model spread to other hospitals; she says hospitalists are well positioned to set up this program at their institution. “I also hope that our study highlights the incredible opportunity for improvement in the care of patients during transition from hospital to SNF and encourages hospitalists to look for innovative ways to improve care at this transition,” she said. **TH**

Reference

Moore AB, Krupp JE, Dufour AB, et al. Improving transitions to post-acute care for elderly patients using a novel video-conferencing program: ECHO-Care Transitions. *Am J Med.* 2017 May 25. doi: 10.1016/j.amjmed.2017.04.041. Accessed June 6, 2017.



Increase in sepsis incidence stable from 2009 to 2014

By Richard Franki

The trend for sepsis incidence from 2009 to 2014, “calculated relative to the observed 2014 rates,” was a stable increase of 0.6% per year using the more accurate of two forms of analysis, investigators reported.

The incidence of sepsis was an adjusted 5.9% among hospitalized adults in 2014, with in-hospital mortality of 15%, according to a retrospective cohort study published online Sept. 13 in *JAMA*.

“Most studies [of sepsis incidence] have used claims data, but increasing clinical awareness, changes in diagnosis and coding practices, and variable definitions have led to uncertainty about the accuracy of reported trends,” wrote Chanu Rhee, MD, of Harvard Medical School, Boston, and his associates (*JAMA*. 2017 Sep 13. doi: 10.1001/jama.2017.13836).

They used two methods – one involving claims-based estimates using ICD-9-CM codes and the other based on clinical data from electronic health records – to analyze

data for more than 2.9 million adults admitted to 409 U.S. academic, community, and federal acute-care hospitals in 2014. The claims-based “explicit-codes” approach used discharge diagnoses of severe sepsis (995.92) or septic shock (785.52), while the EHR-based, clinical-criteria method included blood cultures, antibiotics, and concurrent organ dysfunction with or without the criterion of a lactate level of 2.0 mmol/L or greater, the investigators said.

The explicit-codes approach produced an increase of 10.3% per year in sepsis incidence from 2009 to 2014, compared with 0.6% per year for the clinical-criteria approach, while in-hospital mortality declined by 7% a year using explicit codes and 3.3% using clinical criteria, Dr. Rhee and his associates reported.

“EHR-based criteria were more sensitive than explicit sepsis codes on medical record review, with comparable [positive predictive value]; EHR-based criteria had similar sensitivity to implicit or explicit codes combined but higher [positive predictive value],” they said.

The estimates provided by Dr. Rhee and his associates provide “a clearer understanding of trends in the incidence and mortality of sepsis in the United States but also a better understanding of the challenges in improving ICD coding to accurately document the global burden of sepsis,” Kristina E. Rudd, MD, of the University of Washington, Seattle, and her associates said in an editorial (*JAMA*. 2017 Sep 13. doi: 10.1001/jama.2017.13697).

The study was funded by the Centers for Disease Control and Prevention, Agency for Healthcare Research and Quality, National Institutes of Health, Department of Veterans Affairs, National Institutes of Health Clinical Center, and National Institute of Allergy and Infectious Diseases. Three of Dr. Rhee’s associates reported receiving personal fees from private companies or serving on advisory boards or as consultants. No other authors reported disclosures. Dr. Rudd and her associates had no conflicts of interest to report. **TH**

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KEY CLINICAL QUESTION



When do patients with skin and soft-tissue infections require hospital admission and intravenous antibiotics?

SSTIs encompass a wide variety of clinical presentations and severity

KEY POINTS

- SSTIs encompass a wide variety of clinical presentations and severity, and can be mimicked by a number of noninfectious medical conditions
- The majority of SSTIs are caused by gram-positive organisms, most notably *Staphylococcus aureus* and B-hemolytic streptococci
- Evaluation of the severity of disease, using a grading system, is essential to determining appropriate initial management
- Hospitalization and broad-spectrum antibiotics should be individually determined based on specific criteria, not empirically initiated for all presentations

By Julia Perry, MD,
Robert Fogerty, MD,
Christopher Sankey, MD, SFHM

Yale Academic Hospitalist Program, Yale School of Medicine, New Haven, Conn.

Case

A 54-year-old gentleman with a history of type 2 diabetes mellitus presents with several days of progressive left lower extremity redness, pain, swelling, and subjective fevers.

On physical examination the patient is afebrile and hemodynamically stable. The left lower extremity is swollen, warm, and tender to light palpation with an irregular area of erythema extending anteriorly from the ankle to just below the knee. There are no areas of purulence or fluctuance. Labs are notable for a mild leukocytosis of 11,500 cells/mcL. An ultrasound shows no evidence of deep vein thrombosis, and the patient is started on vancomycin and ceftazidime and admitted for intravenous antibiotics.

Does the patient require hospital admission and continuation of intravenous antibiotics?

Introduction

Skin and soft-tissue infection (SSTI) was the most rapidly increasing reason for hospitalization in the early 2000s and remains a common reason to seek health care in both the ambulatory and inpatient setting.

The clinical presentation of SSTIs can vary greatly. Consequently, the management of SSTIs can be as simple as a short course of outpatient oral antibiotics or escalate to as complicated as surgical intervention and/or prolonged courses of IV antibiotics. Given the frequency with which these infections result in hospital admission, it is essential for the practicing hospitalist to be able to appropriately triage and treat SSTIs in order to ensure adequate therapy, while simultaneously reducing unnecessary hospital days and avoiding indiscriminate exposure to broad-spectrum antibiotics.

Pathophysiology and clinical presentation

SSTIs represent a diverse range of presentations and severities from superficial impetigo to life-threatening necrotizing infections, with abscesses and cellulitis being most commonly diagnosed.¹

All SSTIs emerge from microbial invasion of the layers of the skin and underlying soft tissues. The accepted mini-



Dr. Perry



Dr. Fogerty



Dr. Sankey

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mal criteria for diagnosis of an SSTI are erythema, edema, and warmth and tenderness of the affected area. Comorbid conditions that impair skin integrity, such as lymphedema, chronic inflammation (for example, eczema), intertrigo, or venous insufficiency therefore increase the risk of infection. However, the strongest risk factor for development of an SSTI is disruption of the skin barrier via trauma (foreign body, bite wound), ulceration, laceration, fissures, or surgical wound.^{2,3}

The hallmark features of SSTI are present in other noninfectious skin disorders, thus often yielding misdiagnosis. In a study of 259 patients hospitalized for lower extremity cellulitis, 79 patients (30.5%) were misdiagnosed.⁴ The most

common mimic of SSTI is stasis dermatitis due to chronic venous insufficiency. Other conditions that are often misdiagnosed as SSTI include deep venous thrombosis, lymphedema, lipodermatosclerosis, contact dermatitis, and papular urticaria (Table 1). Differentiating between true SSTI and these “pseudo-cellulitic” conditions is essential to reducing unnecessary hospitalization and exposure to antibiotics, which contribute to nosocomial infection, iatrogenic injury (that is, *Clostridium difficile* infection, anaphylaxis) and avoidable health care costs.

Microbiology

The majority of SSTIs are caused by gram-positive organisms, most notably *Staphylococcus aureus* (methicillin-

Table 1: Common mimics of lower-extremity cellulitis^{5,6}

Mimic	Clinical features
Stasis dermatitis	Typically presents with ill-defined erythema and hyperpigmentation, often circumferential and bilateral. Generally nontender. Not associated with systemic signs of infection. Chronic, often present for years.
Deep venous thrombosis	Unilateral swelling of lower extremity inconsistently associated with pain. Not associated with marked erythema or fever.
Lymphedema	Ill-defined erythema associated with nonpitting edema, usually unilateral and nontender. Generally chronic and associated with history of anatomic malformation or surgical intervention.
Lipodermatosclerosis	Acute: Severe lower-extremity pain, erythema, edema, and warmth often with history of venous insufficiency and absence of systemic inflammation. Chronic: Well-demarcated erythema with woody induration and bronzed appearance. Nontender.
Contact dermatitis	Erythematous plaques/patches with well-defined borders with pruritis more prominent than pain.
Papular urticaria	Well-demarcated erythematous plaques that are intensely pruritic and lack warmth or tenderness

sensitive and methicillin-resistant) and B-hemolytic streptococci.⁷⁻⁹

In the majority of cases, the causative pathogen is not identified; superficial culture data are often confounded and positive results do not guarantee pathogenicity of the identified organism. However, the mechanism of bacterial entry, location of infection, and presence of underlying medical conditions also influence the infectious organism(s).

For example, infections of the lower extremities may involve enteric organisms such as *Escherichia coli* and *Enterococcus* due to fecal runoff. SSTIs due to cat and dog bites commonly involve *Pasteurella multocida*, while hot tub exposure and intravenous drug use increase the risk of infection with *Pseudomonas aeruginosa*. Patients with neutropenia are at increased risk for fungal and yeast infections. Consequently, an assessment for potential risk factors is essential in determining appropriate management. Common pathogens associated with various clinical presentations and risk factors are outlined in Table 2.

In addition to host risk factors, the type of SSTI may hint at the most likely organisms. Among purulent ("culturable") SSTIs, up to 76% of infections are due to *S. aureus*, whereas in diffuse ("nonculturable") cellulitis, the majority of cases are attributable to B-hemolytic streptococcus.⁸ The role of *S. aureus* in SSTIs is further complicated by the rise of methicillin-resistant *S. aureus* (MRSA), both nosocomial and community acquired. It is estimated that 25%-50% of all *S. aureus* isolates in the United States show methicillin resistance.^{7,9} Despite the rising prevalence of MRSA, reflexive

Table 2: Risk factors and associated pathogens^{3,10}

Risk factor	Associated pathogens
All SSTIs	Methicillin-susceptible <i>Staphylococcus aureus</i> , beta-hemolytic streptococci
Intravenous drug use	MRSA, <i>Pseudomonas aeruginosa</i>
Animal bites	<i>Pasteurella</i> , <i>Bacteroides</i> , <i>Moraxella</i>
Human bites	<i>Corynebacterium</i> , <i>Bacteroides</i> , <i>Prevotella</i>
Aquatic injury	<i>Vibrio</i> species, <i>Aeromonas</i> species, <i>Mycobacterium marinum</i> , <i>Pseudomonas</i>
Necrotizing fasciitis	Group A <i>Streptococcus</i> , <i>Clostridium</i>
Necrotic wounds	Anaerobic species, <i>Pseudomonas</i>
Chronic liver disease	<i>Vibrio</i> species, <i>Pseudomonas</i> , <i>Campylobacter</i> , <i>Escherichia coli</i> , <i>Neisseria gonorrhoeae</i>
Chronic kidney disease	<i>Vibrio</i> species, <i>E. coli</i> , <i>N. meningitidis</i>
Neutropenia	Fungal infections
Immunosuppression (transplant, HIV, chronic steroids, chemotherapy)	<i>S. pneumoniae</i> , <i>M. tuberculosis</i> , <i>E. coli</i> , <i>Campylobacter</i> , <i>Serratia</i> , <i>Haemophilus influenzae</i> , <i>Cryptococcus</i>

tachycardia, altered mental status, tachypnea, hypotension).

- Location of infection with increased risk of local complication (face, brain, hand, perineum).
- Indication of deep tissue infection (for example, crepitus, bullae, or hemorrhage).
- Comorbid conditions predisposing to more severe infection (liver or renal disease, immunocompromised state including neutropenia or active chemotherapy, vascular insufficiency).

The presence of any of these risk factors indicates moderate severity disease, for which hospitalization and intravenous antibiotics are warranted.^{10,11} Evidence of systemic disease progressing to end-organ dysfunction (for example, sepsis spectrum disorders) or evidence of rapid progression of infection or deep tissue involvement suggests severe disease. In the absence of these clinical findings, mild disease can be diagnosed and a trial of outpatient management with oral antibiotics is appropriate.

In an assessment for necrotic infection, the Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) score can help to distinguish severe cellulitis from necrotizing infections that require immediate surgical evaluation. The LRINEC score uses readily available laboratory markers to stratify patients into tertiles of risk for necrotizing fasciitis. While this objective score can identify patients who may require immediate surgical intervention, any patient with a clinical history or exam concerning for necrotizing infection should be urgently evaluated for possible surgical debridement.^{6,11}

Management

Nonpurulent disease

Nonpurulent SSTIs include cellulitis and necrotizing infections such as necrotizing fasciitis. In the absence of risk factors for particular infectious agents (see above), mild infections can be managed with a trial of oral antibiotics with coverage for streptococcal species such as cephalexin, clindamycin, or amoxicillin-clavulanate.

Empiric coverage for MRSA is not recommended and has been shown

required but may be considered in patients with risk factors for MRSA. Generally, blood or cutaneous cultures are not recommended given an expected yield of positive culture to be less than 5%,¹⁴ but may be considered in patients with immunosuppression or neutropenia or evidence of systemic inflammatory response.

Severe infections should be evaluated for the need for surgical debridement. Empiric antibiotic coverage for *Streptococcus pyogenes*, MRSA, and gram-negative and anaerobic species is warranted. If necrotizing infection is suspected or diagnosed, immediate surgical debridement is indicated. Culture data from surgical debridement should be obtained and can be useful for tailoring therapy. While blood cultures remain unlikely to yield useful data, it is reasonable to obtain them in severe disease. Empiric antibiotic coverage should be broad and narrowed based on surgical specimens. The general recommendation regarding duration of antibiotics is 5 days; however, longer courses of up to 14 days may be required if there is minimal improvement after initial therapy.¹¹

Purulent disease

Purulent SSTIs by definition involve collections of pus and include abscesses, furuncles, and carbuncles. In all purulent

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Table 3: Host risk factors for MRSA infection⁶

Recent hospitalization or surgery
Residency in long-term care facility
Hemodialysis
Prior MRSA infection or colonization
Recent antibiotic use
Intravenous drug use
Contact sports
Close contacts with MRSA infection
Crowded living environment (homeless shelters, prisons, military)
Men who have sex with men

treatment for MRSA should be avoided in the absence of high-risk presentations (for example, purulent SSTI) or patient risk factors for MRSA (Table 3).

Severity of infection

Given the variety of clinical presentations of SSTIs, an evaluation of the severity of disease is essential to determining appropriate initial management, including the need for hospitalization and intravenous antibiotics. Several grading systems have been proposed to assist in determining severity. High-risk features that are common to these systems include:

- Evidence of systemic infection (fever,

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SSTIs, incision and drainage is indicated.

For mild disease, incision and drainage is considered definitive management and deep wound cultures and antibiotics are not required. In moderate purulent SSTI, culture of the drained fluid should be obtained, and antibiotics administered with empiric therapy to include coverage for MRSA. Patients at risk for community-acquired MRSA can be given oral agents such as trimethoprim-sulfamethoxazole, clindamycin, or doxycycline (depending upon local antibiogram data) with antibiotics narrowed based on culture data.

For less treatment failure with oral agents, dosing should be weight based with a minimum of 5 mg/kg per day of bactrim or 10 mg/kg per day of clindamycin.¹⁵ Those with risk factors for nosocomial MRSA may warrant intravenous antibiotics, even in moderate disease. Patients with severe purulent disease require intravenous antibiotics with coverage for MRSA with vancomycin, daptomycin or linezolid and subsequently narrowed based on culture data.¹¹

Back to the case

Our patient presented with a case of mild, nonpurulent cellulitis. While he does have a mildly elevated white blood

Skin and soft-tissue infection was the most rapidly increasing reason for hospitalization in the early 2000s and remains a common reason to seek health care in both the ambulatory and inpatient setting.

cell count, he has no other signs of systemic infection or underlying conditions predisposing to more severe disease. Hospital admission is not required and de-escalation of antibiotics to an oral agent is appropriate.

If the patient exhibited other signs of systemic infection (that is, fever or tachycardia) hospital admission or admission to observation status for IV antibiotics would be appropriate; however, de-escalation would still be recommended as MRSA coverage is not warranted. We suggest discharge from the emergency department with oral cephalexin, provided no prohibitive allergy is known, with outpatient follow-up to ensure resolution of infection.

Bottom line

SSTIs encompass a wide variety of clin-

ical presentations and severity, and can be mimicked by a number of noninfectious medical conditions. If an infectious process is considered most likely, the need for hospitalization and broad-spectrum antibiotics should be individually determined based on specific criteria, and not empirically initiated for all presentations. TH

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Q&A

Focused on value-based care: Harry Cho, MD

Dr. Cho joins The Hospitalist Editorial Advisory Board

By Eli Zimmerman

Education and service have always been important for Harry Cho, MD, who recently joined the editorial advisory board of *The Hospitalist*.

From joining AmeriCorps as a fresh faced college graduate, to his ongoing work as assistant professor of medicine and director of quality, safety, and value for the division of hospital medicine at Mount Sinai in New York, and as senior fellow at the Lown Institute, Dr. Cho has found a passion in helping others learn.

"It's always been a part of me; I remember teaching some classes in college and starting a program in Philadelphia with my buddies," said Dr. Cho. "I love that whole aspect. I think mentorship and teaching is essential."

When not teaching or working with patients, Dr. Cho is committed to improving value-based medicine, a path that has lead him to create the High Value Chair Initiatives, a program dedicated to offering clinicians resources on how to reduce wasteful testing and harmful practices.

Dr. Cho said he is excited to contribute as one of eight new members of *The Hospitalist* editorial advisory board in 2017 and took time to tell us more about himself in a recent interview.

QUESTION: Why did you choose medicine as a career?

ANSWER: Right after I finished undergrad at Cornell, I spent the summer and the following year doing AmeriCorps, which is service learning work, and I worked in the inner city of Philadelphia. I worked on after-school programs and weekend programs for inner-city youth, and I loved it. I was organizing and developing these programs, and I thought it was fantastic. The one thing that I thought was lacking, and I think what really drove me to get into medicine, was that at the end of the day, although I felt really connected with all the kids, I felt like I was a role model, like I was a mentor, and we had a really good connection, but I wanted something a little bit more concrete on improving outcomes. I knew we made connections, but I really

wanted to know more – such as, did we reduce the dropout rate in high school for these students? I think that's why medicine was really interesting.

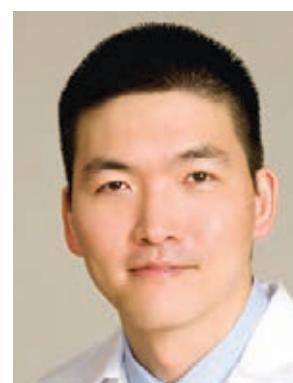
Q: How did you end up in hospital medicine?

A: I think it's a lot of things. I love the acuity, I love playing the quarterback in a

this. With quality improvement and the electronic medical record system, a lot of us are expected to do more. I still get queries from clinical documentation saying, "I need you to document this for billing purposes" or "I need you to document this for increasing the expected length of stay," and doctors are not quite at the point where they can balance these requirements in an effective

Q: Outside of hospital work, what else are you interested in?

A: High-value care is kind of my central aim right now. I want to expand it, and I want to do things on a national scale. We formed a High Value Care committee again and I'm hoping to create new guidelines to reduce overuse, overtesting, and possibly Choosing Wisely. Outside



'I love the acuity, I love playing the quarterback in a place where a lot of things are going back and forth and you have to coordinate with others. You have to make sure you see the patient from top to bottom, the holistic picture, and I love that part.'

— Harry Cho, MD

place where a lot of things are going back and forth and you have to coordinate with others. You have to make sure you see the patient from top to bottom, the holistic picture, and I love that part. I also love the action and the communication and the teamwork aspect of it.

Q: What part of being a hospitalist do you like the most?

A: I love the education on a daily basis: the morning rounds where you walk around for an hour or 2 with your team, and you teach them at the bedside, and these little pearls come up along the way. My career is positioned more within quality, value improvement, and safety, so I think that participating in the education process is really helpful. I think hospital medicine has taken over that spirit in the hospital setting, and I love that.

Q: Which part do you like the least?

A: I think we're in a unique time right now. Burnout is getting a little tougher to beat. People are getting a bit more tired, and I don't think we have a good solution to solve

way. There tends to be an emphasis on "one more click," one more thing to document, just one more thing to do on the checklist. It's getting more complex.

Q: What is the most rewarding part of your work?

A: Larger scale accomplishments. When you give a talk, or teach a group of residents during morning rounds, and they look at you with wonder because you have this teaching pearl they've never heard before, and they think you're an amazing attending – that's very instant gratification, but not very rewarding. I've been participating in the Right Care educator program, and we have a High Value Care curriculum that we've been implementing across the country, and we've just finished our second year. There are around 60 programs involved, and it's a great feeling. You're not seeing actual people face to face after they've been taught, and you're not getting that instant gratification. But just knowing what one of those chief residents who has implemented the program is feeling, and extrapolating across the number of programs this year alone, that makes me feel good.

of medicine, I like photography. Nothing professional, but I love taking pictures, especially nature and travel. Back in the days when my knees weren't having a lot of problems, I used to do a lot of running and martial arts, too.

Q: Where do you see yourself in 10 years?

A: I'm not sure if I will go the chief medical officer or chief quality officer route. That's probably where I see myself. I definitely want to continue making bigger changes on a national scale, like implementing the overuse educator program across the country.

Q: What do you see as the future of hospital medicine?

A: Value-based health care is always going to get bigger as the cost of health care and the cost of overuse rises, and we start to see a lot of harms outlined in research. We're going to be on top of it much more, because the hospital setting is complex and continues to change. 

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Axillary thermometry is the best choice for newborns

By M. Alexander Otto

AT PHM 2017

NASHVILLE, TENN. — Axillary thermometry outperformed both rectal and temporal artery thermometry in 205 newborns aged 12-72 hours in a study performed at the University of North Carolina at Chapel Hill.

The infants had two temperatures taken by each method over a period of 15 minutes, for a total of six readings per child and 1,230 measurements overall. Axillary thermometry proved both accurate and reliable. Rectal thermometry was accurate but less reliable, and temporal thermometry was reliable but less accurate.

The American Academy of Pediatrics recommends rectal thermometers as the gold standard for children under 3 years old, but axillary thermometers are widely used, and temporal artery thermometers are becoming common. Nurses at the University of North Carolina generally have been using axillary thermometers in the nursery; they're more convenient and less traumatic than rectal thermometers — especially for the provider — and there's no risk of rectal injury. Parents, however, have been told to

use rectal thermometers when they take their baby home.

Lead investigator Ketan Nadkarni, MD, a 3rd-year pediatrics resident, and his colleagues wanted to compare the three methods head to head to make sure axillary



Dr. Nadkarni

thermometers were okay to use in the nursery, and to see if it really was necessary to tell parents to use rectal thermometers; many are reluctant to use them. Plus, "there's been a lot of controversy" in pediatrics "over the best way to measure temperature," Dr.

Nadkarni said at the Pediatric Hospital Medicine annual meeting.

"With our data, we think axillary is what we should continue to use in the newborn nursery," he said. Some attending physicians still are hesitant to recommend axillary thermometers to new parents, but "all of the nurses are aware of" the study findings "and a lot of the residents are, too, so I think we are starting to move" in that direction.

The study had some unexpected findings as well: "The biggest surprise was how wide the distribution of rectal temperatures was. The distribution" around the mean "was way larger than we had thought, so [rectal thermometry was] not very reliable at all. Our study surprisingly exhibited suboptimal performance in terms of reliability," for rectal thermometry, he said at the meeting, which was sponsored by the Society of Hospital Medicine, the American Academy of Pediatrics, and the Academic Pediatric Association.

Specifically, the average distance of any given rectal measurement from the mean rectal temperature of 98.3° F was 0.45° F. The second rectal temperature in the study sometimes varied a half a degree or more from the first taken shortly before, in the same infant.

The average distance of an axillary temperature from the axillary mean of 98.32° F was 0.32° F; for temporal thermometry it was 0.34° F from a mean of 98.55° F.

Another surprise was that temporal thermometry overestimated temperature by an average of about a quarter of a degree, compared with rectal readings. Even small overestimates could lead to unnecessary sepsis work-ups; "the last thing we want is to hospitalize these kids when they don't need to be," Dr. Nadkarni said.

The mean axillary and rectal temperatures, meanwhile, were only 0.02° F apart, which was not statistically significant. "Axillary was absolutely interchangeable with rectal in terms of accuracy," he said.

The children were born at 37 weeks' gestation or later, and were excluded if they had a temperature of 100.4° F or higher by any method. Rectal and axillary temperatures were taken with a Welch Allyn Sure-Temp Plus 690. Temple temperatures were taken with an Exergen TAT-2000c.

The investigators plan to run a similar trial in the ED with children up to 3 months old.

There was no external funding for the work, and Dr. Nadkarni had no relevant financial disclosures. **TH**

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The Hospitalist

IN THE LITERATURE



ITL: Physician reviews of HM-centric research

By Tao Xu, MD, David C. Portnoy, MD, Michael Herscher, MD, MA, Aveena Kochar, MD, Andrew Chung, MD

Division of Hospital Medicine, Icahn School of Medicine of the Mount Sinai Health System, New York.

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By Tao Xu, MD

1 Mortality risks associated with emergency admission during weekends and public holidays: An analysis of electronic health records

CLINICAL QUESTION: What factors contribute to increased mortality in weekend hospital admissions?

BACKGROUND: The "weekend effect" is a commonly known phenomenon, where patients admitted to the hospital on weekends have higher mortality risk than those admitted on weekdays. However, little is known about the factors contributing to the excess mortality associated with weekend admissions.

STUDY DESIGN: Retrospective analysis.

SETTING: Four Oxford University National Health Service hospitals in the United Kingdom (a district general hospital, a large teaching hospital, a specialist orthopedic hospital, and a major cancer center).

SYNOPSIS: Data from the Infections in Oxfordshire Research Database of 503,938 admissions between Jan. 1, 2006, and Dec. 31, 2014 were analyzed. Thirty-day mortality was 4.7%, 5.1%, and 5.8% for patients admitted during weekdays, weekends, and public holidays, respectively (P less

than .0001). Fifteen routine hematology and biochemistry test results were determined to be prognostic of high mortality risk. Adjustment for these routine test

results reduced excess mortality associated with emergency admissions on weekends and public holidays. Excess mortality was notable for patients admitted on Saturdays and Sundays between 11:00 a.m. and 3:00 p.m. Hospital staffing and workload were not associated with excess mortality. The study is limited by a lack of additional patient factors such as vital signs and blood gas results that may further explain excess mortality on weekends and public holidays.

BOTTOM LINE: Patient factors, including laboratory abnormalities, rather than hospital workload and staffing may be the major contributing factors for the excess mortality seen for emergency admissions on weekends and public holidays.

CITATION: Walker AS, Mason A, Quan TP, et al. Mortality risks associated with emergency admissions during weekends and public holidays: An analysis of



Dr. Xu

electronic health records. *The Lancet.* 2017;390(10089):62-72.

2 Rib fracture diagnosis in the panson era

CLINICAL QUESTION: Do rib fractures observed on chest CT carry the same morbidity and mortality risk as those observed in chest radiograph?

BACKGROUND: Traditionally studies have shown that first and second rib fractures on chest radiograph after blunt trauma are associated with substantial morbidity and mortality. With growing frequency of CT imaging in the "panson" era, it is unknown whether similar rib fractures found on CT carry the same meaning.

STUDY DESIGN: Secondary analysis of two prospective observational studies.

SETTING: 10 level I trauma centers.

SYNOPSIS: Data from the National Emergency X-Radiography Utilization Study showed that, of the 8,661 patients who suffered blunt trauma and received both chest radiograph and chest CT, 23.9% had rib fractures. Rib fractures were observed in 66.1% of chest CT-only cases. Patients with rib fractures had a higher admission rate (88.7% versus 45.8%) and higher mortality (5.6% versus 2.7%) than patients without rib fractures. Mortality rate and great-vessel injury were higher in those with first or second rib fractures. The mortality of patients with rib fractures observed only on chest CT was not statistically different from those whose fractures were also seen in chest radiograph. The study included patients who were more severely injured and may have been more likely to receive a CT, which may have led to an overestimation of fractures found. The actual causes of admission and death were not reviewed.

BOTTOM LINE: CT in trauma-imaging protocol can identify patients with rib fractures well, compared with combined CT with chest radiograph. Rib fractures are associated with higher rates of admission and mortality risk than those without rib fractures. Specifically, first or second rib fractures are found to have greater risk for mortality and great-vessel injury.

CITATION: Murphy CE 4th, Raja AS, Baumann BM, et al. Rib fracture diagnosis in the panson era. *Ann Emerg Med.* 2017. doi: 10.1016/j.annemergmed.2017.04.011.

3 Rates, predictors, and variability of interhospital transfers: A national evaluation

CLINICAL QUESTION: What is the national frequency of interhospital transfers, and are

there any patient or hospital factors that predict these transfers?

BACKGROUND: Interhospital patient transfers may be due to the need for a specialized service, but the factors and patterns have not been well studied.

CONTINUED ON FOLLOWING PAGE

SHORT TAKES

Cardiac testing of Emergency Department patients with chest pain leads to increased revascularization without reduction in admissions for acute MI

Retrospective cohort study of ED patients presenting with chest pain but without evidence of ischemia, shows that noninvasive cardiac testing of these patients lead to more coronary angiograms (92.1 per 1,000 patients) within 30 days, but no significant reduction of admissions for acute MI at 1 year (remained 7.8 per 1,000 patients tested).

CITATION: Sandhu AT, Heidenreich PA, Bhattacharya J, Bundorf MK. Cardiovascular testing and clinical outcomes in Emergency Department patients with chest pain. *JAMA Intern Med.* Published online 2017 June 26. doi: 10.1001/jamainternmed.2017.2432.

Facebook star ratings and 'likes' correlate with patient satisfaction scores

In a cross-sectional analysis of 136 New York State hospitals, the study found increased Facebook star ratings correlated (P less than .003) with overall increased HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) score (21/23 HCAHPS). HCAHPS measures also positively correlated (P less than .05) with adjusted number of "likes" on Facebook but to a lesser degree (3/21 HCAHPS). Neither star ratings nor number of "likes" correlate with Medicare spending or 30-day all-cause readmission rate.

CITATION: Campbell L, Yue L. Are Facebook user ratings associated with hospital cost, quality, and patient satisfaction? *BMJ Qual Saf.* 2017 Jul 19. doi:10.1136/bmjqqs-2016-006291.

STUDY DESIGN: Cross-sectional analysis.
SETTING: All acute care hospitals in the United States.

SYNOPSIS: Using data from the 2013 Centers for Medicare & Medicaid Services and the 2013 American Hospital Association, this study showed that 1.5% of the 6.6 million eligible beneficiaries underwent interhospital transfer (IHT). Patient and hospital characteristics that increased the odds of IHT included age 74-85 years, nonblack race, higher comorbidity, lower diagnosis-related group weight, fewer recent hospitalizations, and hospitalization in the Northeast region of the United States. Lower case mix index was associated with increased odds of IHT. Rates of IHT remain variable, after adjusting for patient and hospital characteristics. This study was restricted to the Medicare population so did not represent all populations. IHT from the emergency room was not assessed, and those who were transferred more than once (to another hospital and back) were not included.

BOTTOM LINE: A large number of Medicare patients undergo IHT nationally, and the rate varies widely based on patient factors, geography, and other factors unrelated to patient or hospital characteristics.

CITATION: Mueller SK, Jie Zheng, Orav EJ, Schnipper JL. Rates, predictors, and variability of interhospital transfers: A national evaluation. *J Hosp Med*. 2017;6:435-42.

Dr. Xu is assistant professor and hospitalist, Icahn School of Medicine of the Mount Sinai Health System, New York.

By David C. Portnoy, MD

4 Antiplatelet therapy can be continued through surgery without increased risk of reintervention for bleeding

CLINICAL QUESTION: Does continuing antiplatelet therapy through noncardiac surgery increase the risk of postoperative blood transfusion or surgical reintervention for bleeding?

BACKGROUND: Many prior studies have analyzed the risks and benefits of holding versus continuing antiplatelet therapy

in the perioperative setting, but heterogeneity in outcome reporting has limited the ability to compare and contrast studies.

STUDY DESIGN: Meta-analysis.

SETTING: Both domestic and international studies were included in the meta-analysis.

SYNOPSIS: With a MEDLINE search, 37 studies with over 30,000 patients total were identified and included in the meta-analysis. Studies compared outcomes of transfusion and surgical reintervention for bleeding in patients receiving noncardiac surgery. Patients were either on no antiplatelet therapy, single therapy, or dual-antiplatelet therapy (DAPT). Relative risk of transfusion escalated in proportion to the amount of antiplatelet therapy; there was a 14% increased risk (95% confidence



Dr. Portnoy

interval, 1.03-1.26) with aspirin over control and a 33% (95% CI, 1.15-1.55) increased risk with DAPT over control.

Risk of surgical reintervention for bleeding, however, was not increased above control whether on aspirin (relative risk, 0.96; 95% CI, 0.76-1.22), clopidogrel (RR, 1.84; 95% CI, 0.87-3.87), or DAPT (RR, 1.51; 95% CI, 0.92-2.49).

BOTTOM LINE: In noncardiac surgery, continuing aspirin or DAPT perioperatively increases the need for transfusion, but not the need for surgical reintervention for bleeding.

CITATION: Columbo JA, Lambour AJ, Sundling RA, et al. A meta-analysis of the impact of aspirin, clopidogrel, and dual-antiplatelet therapy on bleeding complications in noncardiac surgery. *Ann Surg*. 2017;20(20):1-9.

5 CABG and PCI with drug-eluting stents for left main coronary disease have superior outcomes to medical therapy alone

CLINICAL QUESTION: Does coronary artery bypass grafting (CABG) have superior mortality outcomes to percutaneous coronary intervention (PCI) for left main coronary disease, and how do these interventions compare with medical therapy alone?

BACKGROUND: Optimal therapy for left main coronary disease is a highly researched topic with CABG having been standard therapy of choice for several decades. However, most studies have not included data comparing CABG to newer drug-eluting stent (DES) generations and no studies have directly compared PCI with DES to medical therapy alone (MTA).

STUDY DESIGN: Meta-analysis.

SETTING: Largely European acute care hospitals as well as some VA hospitals.

SYNOPSIS: With PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, a review of PubMed and Cochrane databases was conducted, yielding eight RCTs, including a total of 4,850 patients. Six of the RCTs compared CABG with DES, while two compared CABG with MTA. Network meta-analysis was used to compare DES with MTA. At 5 years there were no differences in all-cause mortality between CABG and DES groups (RR, 0.94; 95% CI, 0.68-1.32), though both groups had lower mortality than MTA (RR, 0.21; 95% CI, 0.09-0.47 for CABG vs. MTA and RR, 0.20; 95% CI, 0.08-0.46 for DES vs MTA).

PCI did have higher risk of revascularization at 5 years (RR, 1.68; 95% CI, 1.36-2.08) and lower risk of stroke at 1 year (RR, 0.21; 95% CI, 0.07-0.63), compared with CABG, suggesting younger patients might prefer CABG to avoid revascularization, and older patients may prefer PCI to avoid postprocedural morbidity.

BOTTOM LINE: For patients with left main disease, CABG and PCI with DES appear equally effective with regards to prevention of all-cause mortality and both are superior to MTA.

CITATION: Shah R, Morsy MS, Weiman DS, and Vetrovec GW. Meta-analysis

comparing coronary artery bypass grafting to drug-eluting stents. *Am J Cardiol*. 2017;120:63-8.

6 Renal dosing of non-vitamin K antagonist oral anticoagulants in atrial fibrillation is important in preventing thrombotic and bleeding complications

CLINICAL QUESTION: Does renal underdosing and overdosing of non-vitamin K antagonist oral anticoagulants (NOACs) impact the risk of thrombotic and bleeding complications?

BACKGROUND: All of the NOACs have at least partial renal clearance, but compliance with Food and Drug Administration-labeled renal dosing recommendations is inconsistent. This study examines the risk of adverse thrombotic and bleeding events in patients with improper anticoagulant dosing.

STUDY DESIGN: Retrospective cohort study.

SETTING: United States (OptumLabs data warehouse, a database of over 100 million patients hospitalized in the United States in the last 20 years).

SYNOPSIS: With use of data from the OptumLabs data warehouse of privately insured and Medicare Advantage enrollees, 14,865 patients with nonvalvular atrial fibrillation who were started on NOACs (apixaban, dabigatran, or rivaroxaban) were identified. Creatinine values within the year before treatment were used to calculate an estimated glomerular filtration rate (eGFR).

Of patients qualifying for renal dose reduction, 43% received the standard dosing (overdose). Of patients not qualifying for renal dose reduction, 13% received a reduced dose (underdose). The overdosed group had a higher rate of bleeding events, compared with controls (hazard ratio, 2.19; 95% CI, 1.07-4.46).

The underdosed group had a higher rate of stroke (HR, 4.87; 95% CI, 1.30-18.26). **BOTTOM LINE:** Excessive dosing of NOACs in patients with renal insufficiency is common and is associated with bleeding.

CITATION: Yao X, Shah ND, Sangaralingham LR, Gersh BJ, and Noseworthy PA. Non-vitamin K antagonist oral anti-coagulant dosing in patients with atrial fibrillation and renal dysfunction. *JACC*. 2017;69(23):2779-90.

Dr. Portnoy is hospitalist and instructor of medicine, Icahn School of Medicine of the Mount Sinai Health System.

By Michael Herscher, MD, MA

7 Home noninvasive ventilation reduces COPD readmissions

CLINICAL QUESTION: Is there a benefit to home noninvasive ventilation (NIV) following a hospital admission for chronic obstructive pulmonary disease (COPD) exacerbation?

BACKGROUND: Preventing hospital readmission following a COPD exacerbation is a priority; however, the role of NIV in this situation remains uncertain.

STUDY DESIGN: Multicenter, randomized

controlled trial.

SETTING: 13 medical centers in the United Kingdom.

SYNOPSIS: Investigators randomized 116 patients with COPD and persistent hypercapnia (paCO_2 less than 53) 2-4 weeks following a COPD exacerbation to either home oxygen therapy with NIV or to home oxygen therapy alone. The study's primary endpoint was a composite of time to readmission or death within 12 months. They found

that the median time to this endpoint was significantly longer in the intervention group (1.4 vs. 4.3 months; 95% CI, 0.31-0.77; $P = .002$) and that the absolute risk reduction was 17.0% (80.4% vs. 63.4%; 95% CI, 0.1%-34.0%). The differences were driven by readmissions, as the mortality rate did not differ significantly between groups, although the study was not powered to evaluate this. Of note, the median NIV settings were 24/4, which constitutes a "high-pressure strategy" which may account for the benefits seen in this study that have been absent in some other trials.

BOTTOM LINE: NIV reduced readmissions in patients with COPD and persistent hypercapnia several weeks following an acute exacerbation.

CITATION: Murphy PB, Rehal S, Arbane G, et al. Effect of home noninvasive ventilation with oxygen therapy vs. oxygen therapy alone on hospital readmission or death after an acute COPD exacerbation, a randomized clinical trial. *JAMA*. 2017;317(21):2177-86.

8 Incidental lung nodules are frequently not mentioned in hospital discharge summary

CLINICAL QUESTION: How often are incidentally found pulmonary nodules and instructions for follow-up included in the discharge summary?

BACKGROUND: Lung nodules are frequent incidental findings on imaging, but it is unclear whether patients are subsequently receiving the recommended follow-up.

STUDY DESIGN: Retrospective cohort study.

SETTING: Single academic medical center in the United States.

SYNOPSIS: The authors identified 7,173 patients who had undergone abdominal CT scans during their admission and reviewed charts of 402 patients who had incidentally found pulmonary nodules identified on the scans. For each of the patients, discharge summaries were evaluated to determine whether they made reference to the nodules and whether follow-up instructions were included. Of the 208 patients noted to have nodules requiring follow-up, only 48 (23%) had discharge summaries that mentioned the nodules. Factors associated with including the nodules in the discharge summary were the radiologist recommending further surveillance, radiologist including the nodule in the summary heading of the report, and being on a medical as opposed to a surgi-



Dr. Herscher

cal service. The authors concluded that systems-based approaches to incidentally found lung nodules are needed to ensure adequate follow-up.

BOTTOM LINE: Incidentally found lung nodules are often not included in discharge documentation and therefore may not receive the recommended follow-up.

CITATION: Bates R, Plooster C, Croghan I, et al. Incidental pulmonary nodules reported on CT abdominal imaging: Frequency and factors affecting inclusion in the hospital discharge summary. *J Hosp Med*. 2017;6:454-7.

9 Doctors' and nurses' predictions of ICU outcomes have variable accuracy

CLINICAL QUESTION: How accurate are doctors and nurses at predicting survival and functional outcomes in critically ill patients?

BACKGROUND: Doctors have been shown to have moderate accuracy at predicting in-hospital mortality in critically ill patients; however, little is known about their ability to predict longer-term outcomes.

STUDY DESIGN: Prospective cohort study.

SETTING: Five medical and surgical ICUs in three hospitals in Philadelphia.

SYNOPSIS: Physicians and nurses predicted survival and functional outcomes for critically ill patients requiring mechanical ventilation or vasopressors. Outcomes predicted were in-hospital and 6-month mortality and ability to return to original residence, toilet independently, ambulate stairs, remember most things, think clearly, and solve problems.

Six-month follow-up was completed for 299 patients. Accuracy was highest when either physicians or nurses expressed confidence in their predictions; doctors confident in their predictions of 6-month survival had a positive likelihood ratio of 33.00 (95% CI, 8.34-130.63). Both doctors and nurses least accurately predicted cognitive function (positive LR, 2.36; 95% CI, 1.36-4.12; negative LR, 0.75; 95% CI, 0.61-0.92 for doctors, positive LR, 1.50; 95% CI, 0.86-2.60; negative LR, 0.88; 95% CI, 0.73-1.06 for nurses), while doctors most accurately predicted 6-month mortality (positive LR, 5.91; 95% CI, 3.74-9.32; negative LR, 0.41; 95% CI, 0.33-0.52) and nurses most accurately predicted in-hospital mortality (positive LR, 4.71; 95% CI, 2.94-7.56; negative LR, 0.6; 95% CI, 0.49-0.75).

BOTTOM LINE: Doctors and nurses were better at predicting mortality than they were at predicting cognition, and their predicted outcomes were most accurate when they expressed a high degree of confidence in the predictions.

CITATION: Detsky ME, Harhay MO, Bayard DF, et al. Discriminative accuracy of physician and nurse predictions for survival and functional outcomes 6 months after an ICU admission. *JAMA*. 2017;317(21):2187-95.

Dr. Herscher is assistant professor, division of hospital medicine, Icahn School of Medicine of the Mount Sinai Health System.

By Aveena Kochar, MD

10 Elderly patients' view and the discussion of discontinuing cancer screening

CLINICAL QUESTION: How do elderly patients feel about discontinuing cancer screening, and how should their doctors communicate this topic to them?

BACKGROUND: Subjecting patients with limited life expectancy to cancer screening can cause harm, but patient preference on the subject and the manner physicians communicate this recommendation is unknown.

STUDY DESIGN: Qualitative study.

SETTING: Four programs associated with an urban academic center.

SYNOPSIS: Through interviews, questionnaires, and medical records of 40 community-dwelling adults, over the age of 65,

the study found that participants support discontinuing cancer screening based on individual health status. Participants preferred that physicians use health and functional status rather than risks and benefits of test or life

expectancy. They do not understand the predictors of life expectancy, are doubtful of physicians' ability to predict it, and feel discussing it is depressing. While participants were divided on whether the term "life expectancy" should be used, they preferred "this test will not extend your life" to "you may not live long enough to benefit from this test."

The study is limited to one center with participants with high levels of trust in their established physician which may not reflect other patients. The study required self-reporting and thus is susceptible to recall bias. Decisions of hypothetical examples could be discordant with actual decisions a participant might make.

BOTTOM LINE: Elderly patients are amenable to stopping cancer screening when communicated by their established physician and prefer to not discuss life expectancy.

CITATION: Schoenborn NL, Lee K, Pollack CE, et al. Older adults' views and communication preferences about cancer screening and cessation. *JAMA Intern Med*. 2017;2017 Jun 12. doi: 10.1001/jamainternmed.2017.1778.

11 Summary of guidelines for DMARDs for elective surgery

CLINICAL QUESTION: What is the best management for disease-modifying anti-rheumatic drugs (DMARDs) for patients with RA, ankylosing spondylitis, psoriatic arthritis, juvenile idiopathic arthritis, or systemic lupus erythematosus (SLE) undergoing elective total knee arthroplasty (TKA) or total hip arthroplasty (THA)?

BACKGROUND: There are limited data in the evaluation of risks of flare with stopping DMARDs versus the risks of infection with continuing them perioperatively for

elective TKA or THA, which are procedures frequently required by this patient population.

STUDY DESIGN: Multistep systematic literature review.

SETTING: Collaboration between American College of Rheumatology and American Association of Hip and Knee Surgeons.

SYNOPSIS: Through literature review and a requirement of 80% agreement by the panel, seven recommendations were created. Continue methotrexate, leflunomide, hydroxychloroquine, and sulfasalazine. Biologic agents should be held with surgery scheduled at the end of dosing cycle and restarted when the wound is healed, sutures/staples are removed, and there are no signs of infection (~14 days). Tofacitinib should be held for all conditions except SLE for 1 week. For severe SLE, continue mycophenolate mofetil, azathioprine, cyclosporine, or tacrolimus but hold for 1 week for nonsevere SLE. If current dose of glucocorticoids is less than 20 mg/day, the current dose should be administered rather than administering stress-dose steroids.

Limitations include a limited number of studies conducted in the perioperative period, the existing data are based on lower dosages, and it is unknown whether results can be extrapolated to surgical procedures beyond TKA and THA. Addi-

CONTINUED ON FOLLOWING PAGE

SHORT TAKES

Candida auris remains an ongoing health care facility transmission risk

Multidrug-resistant fungus *Candida auris* is an emerging pathogen and a transmission risk across health care facilities. From June 2016 through May 2017, 77 cases of clinical infection have been reported to the Centers for Disease Control and Prevention from seven states, though most (90%) cases are clustered in the New York City metropolitan area. Most patients had multiple medical conditions and extensive health care facility exposure. The CDC recommends contact precautions, private rooming, daily and terminal cleaning with disinfectant active against *Clostridium difficile* spores, and notification to receiving health care facilities about *C. auris* colonization or infection on transfer to help reduce the spread of *C. auris* throughout the United States.

CITATION: Tsay S, Welsh RM, Adams EH, et al. Notes from the field: Ongoing transmission of *Candida auris* in health care facilities – United States, June 2016–May 2017. *MMWR Morb Mortal Wkly Rep*. 2017;66:51415.

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tionally there is a need for further studies on glucocorticoid management and biologic agents.

BOTTOM LINE: Perioperative management of DMARDs is complex and understudied, but the review provides an evidence-based guide for patients undergoing TKA and THA.

CITATION: Goodman SM, Springer B, Gordon G, et al. 2017 American College of Rheumatology/American Association of Hip and Knee Surgeons Guideline for the Perioperative Management of Antirheumatic Medication in Patients With Rheumatic Diseases Undergoing Elective Total Hip or Total Knee Arthroplasty. *Arthritis Care Res.* 2017 Aug;69(8):1111-24.

Dr. Kocher is hospitalist and assistant professor of medicine, Icahn School of Medicine of the Mount Sinai Health System.

By Andrew Chung, MD

12 Antibiotics after incision and drainage for simple abscesses improves outcomes

CLINICAL QUESTION: Does antibiotic administration after incision and drainage of simple abscesses improve cure rates?

BACKGROUND: Abscesses are the most

common skin and soft-tissue infection, and most patients seek outpatient treatment. Limited data have shown that antibiotic treatment directed at *Staphylococcus aureus* after incision and drainage is effective, though the efficacy of adjunctive antibiotic therapy versus incision and drainage alone is unclear.

STUDY DESIGN: Prospective, randomized, double-blind placebo-controlled.

SETTING: Multicenter outpatient facilities across the United States.

SYNOPSIS: After successful incision and drainage of a simple abscess, 786 outpatients (505 adults, 281 children) were randomized to receive either clindamycin, trimethoprim-sulfamethoxazole (TMP-SMX), or placebo for 10 days. The rate of clinical cure was 83.1% in the clindamycin group, 81.7% in the TMP-SMX group, and 68.9% in the placebo group. The cure rate was significantly lower in the placebo group, compared with either of the antibiotic groups. The difference in cure rate was not significant between the clindamycin and



Dr. Chung

TMP-SMX groups. Cure rates in culture-positive *S. aureus* patients were significantly higher in both antibiotic groups, compared with placebo. Rates of adverse events were higher in the clindamycin group (21.9%) than the TMP-SMX group (11.1%) or the placebo group (12.5%), though all adverse events resolved without sequelae.

BOTTOM LINE: Antibiotic therapy after incision and drainage for simple abscesses is associated with improved cure rate and decreased recurrence.

CITATION: Daum RS, Miller LG, Immergluck L, et al. A placebo-controlled trial of antibiotics for smaller skin abscesses. *N Engl J Med.* 2017 Jun 29;376(26):2545-55.

13 Price transparency of laboratory testing does not change provider ordering habits

CLINICAL QUESTION: Does price transparency of laboratory tests at the point of order entry affect provider ordering behavior?

BACKGROUND: Up to 30% of laboratory testing may be unnecessary, and health systems are seeking ways to effectively influence provider ordering of tests to reduce costs and improve value to patients. Price transparency and cost displaying is one strategy that has had mixed results in influencing provider ordering and reducing the amount

of unnecessary laboratory testing.

STUDY DESIGN: Randomized clinical trial.

SETTING: Three urban academic hospitals in Philadelphia.

SYNOPSIS: Sixty inpatient laboratory tests were randomized to either display Medicare fees at the point of order entry or not. Changes in outcomes were followed for 1 year preintervention and 1 year post intervention. The population included 98,529 patients comprising 142,921 hospital admissions. Tests ordered per patient-day and Medicare-associated fees did not significantly change in the intervention group or the control group in the year after the intervention, compared to the year preintervention.

BOTTOM LINE: Displaying laboratory testing fees at the point of order entry did not lead to a significant change in provider ordering behavior or reduction in costs.

CITATION: Sedrak MS, Myers JS, Small DS, et al. Effect of a price transparency intervention in the electronic health record on clinician ordering of inpatient laboratory tests: The PRICE randomized clinical trial. *JAMA Intern Med.* 2017 Jul 1;177(7):939-45. **TH**

Dr. Chung is hospitalist and assistant professor of medicine, Icahn School of Medicine of the Mount Sinai Health System.

Rheumatic heart disease persists in poorest regions

By Amy Karon

FROM NEW ENGLAND JOURNAL OF MEDICINE

Global mortality due to rheumatic heart disease fell by about 48% during a recent 25-year period, but some of the poorest areas of the world were

left behind, according to a report in the *New England Journal of Medicine*.

Those regions included Oceania, South Asia, and central sub-Saharan Africa, where rheumatic heart disease remains endemic, wrote David A. Watkins, MD, MPH, of the University of Washington, Seattle, and his coinvestigators.

"We estimate that 10 persons per 1,000

population living in South Asia and central sub-Saharan Africa and 15 persons per 1,000 population in Oceania were living with rheumatic heart disease in the year 2015," they wrote. "Improvements in the measurement of the burden of rheumatic heart disease will assist in planning for its control and will help identify countries where further investments are needed."

Rheumatic heart disease is a sequela of untreated streptococcal pharyngitis, which is associated with poverty, overcrowding, poor sanitation, and other social predictors of poor health. In high-income countries, treatment with penicillin G and improved sanitation had nearly eliminated rheumatic heart disease by the late 20th century, but local studies pointed to ongoing morbidity and mortality in lower-income regions.

To better define the problem, Dr. Watkins and his associates analyzed epidemiologic studies of rheumatic heart disease from 1990 through 2015. They used the Cause of Death Ensemble model, which estimates mortality more reliably than older methods, and DisMod-MR (version 2.1), which sums epidemiologic data from multiple sources and corrects for gaps and inconsistencies (*N Engl J Med.* 2017;377:713-22).

Worldwide, about 319,400 individuals died of rheumatic heart disease in 2015, the researchers reported. Age-adjusted death rates fell by about 48% (95% confidence interval, 45%-51%), from 9.2 deaths per 100,000 population in 1990 to 4.8 deaths per 100,000 population in 2015. But this global trend masked striking regional disparities.

In 1990, 77% of deaths from rheumatic heart disease occurred in endemic

areas of Africa, South Asia, Oceania, and the Caribbean; by 2015, 82% of deaths occurred in endemic regions. Oceania, South Asia, and central sub-Saharan Africa had the highest death rates and were the only regions where the 95% confidence intervals for 1990 and 2015 overlapped, the investigators noted.

In 2015, age-standardized death rates exceeded 10 deaths per 100,000 population in the Central African Republic, Federated States of Micronesia, Fiji, India, Kiribati, Lesotho, Marshall Islands, Pakistan, Papua New Guinea, Solomon Islands, and Vanuatu, they reported. Estimated fatalities were highest in India (119,100 deaths), China (72,600), and Pakistan (18,900). They estimated that in 2015, there were 33.2 million cases of rheumatic heart disease and 10.5 million associated disability-adjusted life-years globally.

The study excluded "borderline" or subclinical rheumatic heart disease, which is detected by echocardiography and whose management remains unclear. "Better data for low-income and middle-income countries are needed to guide policies for the control of rheumatic heart disease," the investigators wrote. They recommended studying death certificate misclassifications, disease prevalence among adults, and longitudinal trends in nonfatal outcomes and excess mortality.

Funders of the study included the Bill and Melinda Gates Foundation and the Medtronic Foundation. Dr. Watkins disclosed grants from the Medtronic Foundation during the conduct of the study and grants from the Bill and Melinda Gates Foundation outside the submitted work. **TH**

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How to reduce NICU transfers for asymptomatic hypoglycemia

By M. Alexander Otto

AT PHM 2017

NASHVILLE, TENN. — At the University of North Carolina at Chapel Hill, many infants who would previously have been transferred to the neonatal ICU for asymptomatic hypoglycemia now are staying with their moms, thanks to a new protocol that holds off on blood glucose testing until infants are fed for the first time and glucose homeostasis can begin.

Not too long ago, the university realized it had a problem that's probably familiar to other institutions: Its system to monitor newborns at risk for hypoglycemia — those born to diabetic mothers, or who are small or large for gestational age — put too many infants with asymptomatic hypoglycemia into the NICU when they didn't really need to be there.

Nurse practitioners "were tired of transferring babies they felt were responsive to feeding and did not actually require NICU care," and "a growing number of families were unhappy with being separated from infants that were well appearing and feeding well at a time when moms were trying to establish breast feeding and bonding. There was frustration with our protocol," which "seemed rigid and

outdated," said Ashley Sutton, MD, a pediatric hospitalist at the university.

Under the old system, blood glucose was checked within an hour of birth whether the infant had fed or not, and infants were sent to the NICU if glucose levels were below 25 mg/dL; the protocol didn't take into account the normal physiologic glucose nadir after birth, or allow enough time for the initiation of glucose homeostasis. While nursery staff waited for NICU personnel to arrive,

"[We'd do] nothing, when moms were there with milk," Dr. Sutton said at the Pediatric Hospital Medicine annual meeting.

To fix the problem, Dr. Sutton and others on a multidisciplinary team implemented the American Academy of Pediatrics' 2011 guidelines for monitoring glucose homeostasis in late-preterm and term newborns at-risk for hypoglycemia, with an additional mandate to initiate immediate, continual skin-to-skin contact at delivery (*Pediatrics*. 2011 Mar;127[3]:575-9).

Under the new system, children are fed with either their mom's or a donor's breast



Dr. Sutton

milk within an hour of birth, and the initial glucose check comes at 90 minutes; infants are transferred if blood glucose remains below 25 mg/dL after the second feeding. After 4 hours of life, glucose levels below 35 mg/dL trigger an evaluation for symptoms, not necessarily an automatic NICU transfer.

Labor and delivery nurses also are empowered "to immediately feed the baby no matter what number [they are] seeing," Dr. Sutton said at the meeting, sponsored by the Society of Hospital Medicine, the American Academy of Pediatrics, and the Academic Pediatric Association.

The efforts have made a difference. The transfer rate for at-risk infants has fallen

from 17% to 3%, and skin-to-skin contact is initiated within the first hour of life in 64%, up from 45%. Feeding of at-risk infants within the first hour has increased from 43% to 61%, and the first glucose check comes at an average of 97 minutes. The number of unnecessary NICU transfers of at-risk infants has fallen sharply.

Meanwhile, there's been no increase in sepsis evaluations, adverse events, readmissions, and the rates of symptomatic hypoglycemia.

Dr. Sutton and her colleagues had no industry disclosures. The work was funded by the National Institutes of Health. aotto@frontlinemedcom.com

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Study: Don't separate NAS infants from mothers

By M. Alexander Otto

AT PHM 2017

NASHVILLE, TENN. — When newborns withdrawing from opioids stay with their mothers after delivery instead of going to the neonatal ICU, they are far less likely to receive morphine and other drugs and leave the hospital days sooner; they also are more likely to go home with their mother, a meta-analysis showed.

The analysis likely is the first to pool results from studies of rooming-in for infants with neonatal abstinence syndrome (NAS). A strong case has been building for several years that newborns do better with rooming-in, instead of the traditional NICU housing and opioid dosing based on a symptom checklist.

Out of 400 abstracts and reports, the investigators singled out the 6 strongest studies that were published during 2007-2017, involved more than 500 infants, and compared traditional outcomes with rooming-in outcomes.

"We found consistent evidence that rooming-in is more effective than standard care in the NICU for infants with NAS. Based on these findings, we believe rooming-in should be established as the new evidence-based standard of care" said Kanak Verma, a medical student at Dartmouth College, Hanover, N.H.

Rooming-in was associated with a 63% reduction in the need for pharmacotherapy, a decrease in length of stay by more than 10 days, and a decrease in cost from — in one study — a mean of almost \$45,000 per NAS infant stay to just over \$10,000.

"We were worried that by rooming-in we would be undertreating infants with NAS, and that they would be at increased risk for readmission, but there was no statistically significant increase ... for infants rooming in with their mothers," Ms. Verma said at the Pediatric Hospital Medical annual meeting.

"Mothers who use opioid replacements have decreased ability to bond" with their infants. Rooming-in helps create that bond, and probably made discharge with a family member more likely, said coinvestigator Cassandra Rendon, also a Dartmouth medical student.

It's unclear what exactly accounts for the better results, but "having a baby stay with

[its] mom creates an opportunity for a lot of things that we know are effective," including skin-to-skin contact, breastfeeding, and involvement of mothers in the care and monitoring of their infants, Ms. Rendon said.

Also, "we know that in babies with NAS, a low-stimulation environment is ideal," Ms. Verma said at the meeting, sponsored by the



Ms. Verma and Ms. Rendon

Society of Hospital Medicine, the American Academy of Pediatrics, and the Academic Pediatric Association. That's a challenge in a busy NICU, but "we can create that in an isolated room with just the mother."

At least one of the studies used a new, more holistic approach to assess the need for pharmacologic management in NAS. Symptom scores still are considered, but how well the infant is eating, sleeping, and able to be consoled are considered as well. With the traditional symptom checklist, "we end up just treating the number, instead of treating the baby. What Dartmouth and other facilities are doing is looking at" how well the baby is doing overall, Ms. Rendon said.

If the baby is otherwise doing well, providers are less likely to give opioids. The decreased use of opioids leads, in turn, to shorter stays.

Dartmouth is collaborating with Yale University in New Haven, Conn., and the Boston Medical Center to integrate the new treatment model into standard practice. For other centers interested in doing the same, Ms. Verma noted that nursery staff buy-in is essential. Nurses and others have to be comfortable "taking these patients out of the NICU" and treating them in a new way.

The investigators had no relevant financial disclosures. aotto@frontlinemedcom.com

Hospital-led interventions cut pediatric asthma hospitalizations

By Bianca Nogrady

FROM JAMA PEDIATRICS

Hospital-driven interventions designed to improve management of asthma in children achieved significant reductions in monthly asthma-related hospitalizations and emergency department visits, according to a paper published online Sept. 18 in *JAMA Pediatrics*.

Long-term management of pediatric asthma is challenging, and around 40% of children and adolescents hospitalized with the disease tend to be rehospitalized or revisit the emergency department (ED) within 12 months, according to Carolyn M. Kercsmar, MD, of Children's Hospital Medical Center in Cincinnati, and her coauthors.

"Traditional care models do not adequately address underlying risk factors, propagating disparities and costly health care use," they wrote (*JAMA Pediatrics*. 2017, Sep 18. doi: 10.1001/jamapediatrics.2017.2600).

This study, initiated by Cincinnati Children's Hospital Medical Center, involved a range of interventions implemented with inpatients and outpatients and through the community setting, targeting the region's more than 36,000 children and adolescents with asthma, approximately 13,000 of whom were Medicaid insured.

These included a program that gave all patients a 30-day supply of medications,

an asthma action plan, and standardized inhaler training; an asthma-specific history and physical examination form prompting assessment of chronic asthma control, severity, and triggers; a home health pathway of up to five in-home nurse visits; and care coordinators who applied interventions such as a risk assessment, education, medication home delivery, collaboration with a Medicaid managed care practitioner, and improved access to community resources.

Over the 5-year study, researchers saw a 41.8% relative reduction in asthma-related hospitalizations – from 8.1 to 4.7 per 10,000 Medicaid patients per month. Asthma-related visits to the ED decreased by 42.4%, from 21.5 to 12.4 per 10,000 Medicaid patients per month, and the percentage of patients rehospitalized or who returned to the ED for asthma within 30 days declined from 12% to 7%, "within 3 years of implementation of the inpatient care interventions," the researchers noted.

There was also a significant increase in the percentage of patients discharged with a 30-day supply of inhaled controller medications, from 50% in May 2008 to 90% in May 2010, and the percentage of patients discharged with a short course of oral corticosteroids increased from 0% to 70% by March 2011.

Outpatient processes ensured that Asthma Control Test scores were collected and that patients were provided with asthma action plans. This was associ-

Biopsychosocial model can improve pediatric asthma outcomes

Of importance, any future efforts to replicate this work in a patient-centered way should include consideration of how information on asthma management is communicated to and understood by patients. Standard tools such as asthma action plans often contain language and other information that is inaccessible to populations with low health literacy levels.

After years of elevated morbidity, the work of Kercsmar et al. is a demonstration of how interdisciplinary care focused within a biopsychosocial model can improve outcomes for vulnerable children.

Future efforts to replicate these results in other communities should continue to emphasize this patient-centered, biopsychosocial philosophy, with heightened attention to the challenges that remain for children and families.

*Sean M. Frey, MD, and Jill S. Halterman, MD, MPH, are in the department of pediatrics at the University of Rochester (N.Y.) School of Medicine and Dentistry. These comments are taken from an accompanying editorial (*JAMA Pediatrics*. 2017, Sep 18. doi: 10.1001/jamapediatrics.2017.2609). No conflicts of interest were declared.*

ated with an increase in the percentage of patients with well-controlled asthma from 48% to 54%.

"Implementation of an integrated, multilevel approach focused on enhancing availability and accessibility of treatments, removing barriers to adherence, mitigating risks related to adverse exposures, and augmenting self-management and collaborative relationships between the family and the health care system was associated with improved asthma outcomes," the authors wrote.

Noting that previous research has

found 38%-70% of patients do not get their prescribed medications at hospital discharge, the authors said they believed giving a 30-day supply of all daily asthma medications at discharge was a key part of their success.

The study was supported by the Cincinnati Children's Hospital Medical Center and one author received a grant from the National Institutes of Health.

One author declared compensation for a committee role on a study of asthma treatments in children. No other conflicts of interest were declared.

Identifying clinical pathways for injection drug-related infectious sequelae

SHM grantee, med student seeks career as a hospitalist-administrator

By Yun Li

Editor's Note: The Society of Hospital Medicine's (SHM's) Physician in Training Committee launched a scholarship program in 2015 for medical students to help transform health care and revolutionize patient care. The program has been expanded for the 2017-2018 year, offering two options for students to receive funding and engage in scholarly work during their first, second, and third years of medical school. As a part of the longitudinal (18-month) program, recipients are required to write about their experience on a monthly basis.

It is not surprising that my medical school – home to a group of passionate thought leaders in health service and policy research, including the Dartmouth Atlas and Accountable Care Organization – required all first-year medical students to take a course called "health care delivery science."

The course offered me the first glimpse into quality improvement. However, because of a lack of clinical context, much of the course remained theoretical until my

clinical years. During the hospital medicine rotation, I took care of a 40-year-old patient who was newly diagnosed with metastatic pancreatic cancer. It was challenging to deliver devastatingly bad news. The patient and family, however, were most confused and frustrated by the roles of different specialists and care providers, the purpose and scheduling of procedures, and diet arrangement. I wondered how I could make their experience better.

During my additional year of MBA training, I learned about value delivery, operational excellence, and macro health care trends focusing on patient satisfaction. These concepts brought me to the realization that, to achieve the best patient outcome and the most rewarding physician-patient relationship, physicians need not only excellent clinical knowledge and skills, but also the ability to empower an interdisciplinary team, engage in quality improvement, and strive for institutional excellence. My patients and my training served as the original incentives for me to plan a career as a clinician-administrator, as well as applying for the SHM grant.

After several meetings with my mentor, Professor Jonathan Huntington, a hospitalist, MD-PhD researcher, and director of Care Coordination Center at Dartmouth-Hitchcock Medical Center (DHMC), we identified a research area that has rising interest, importance, and relevance to the rural New Hampshire population. It is about identifying a clinical

pathway for injection drug-related infectious sequelae.

Because of the unique bio-socio-psycho needs of injection drug users, hospitalizations due to injection-related infection sequelae often contribute to increased length of stay, readmission rates, and expenses out of state and federal health care funding. Prolonged stays also result in the waste of tertiary care resources for non-tertiary needs, underutilization of regional care resources such as community and critical access hospitals, and increased care burden,

as most patients travel long distances to obtain care.

We will pilot and implement a clinical pathway in the medicine units and measure length of stay, readmission rate, patient satisfaction rating, infectious disease provider follow-up rate, and hospitalization cost. I appreciate the grant support from SHM, and am looking forward to working with Dr. Huntington and other providers at DHMC, as well as developing myself professionally. **TH**

Ms. Li is an MD/MBA student attending Geisel School of Medicine and Tuck School of Business at Dartmouth, Hanover, N.H. She obtained her Bachelor of Arts degree from Hanover College double-majoring in Economics and Biological Chemistry. Ms. Li participated in research in injury epidemiology and genetics, and has conducted studies on traditional Tibetan medicine, rural health, health nongovernmental organizations, and digital health. Her career interest is practicing hospital medicine and geriatrics as a clinician/administrator, either in the United States or China. Ms. Li is a student member of the Society of Hospital Medicine.



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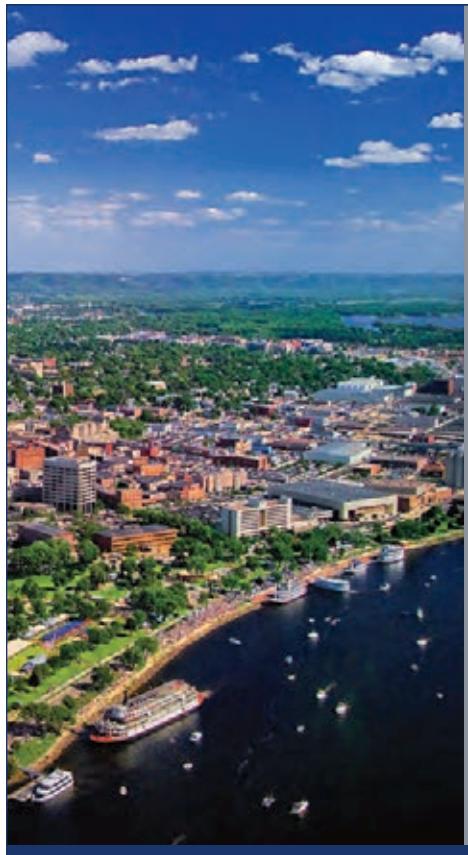
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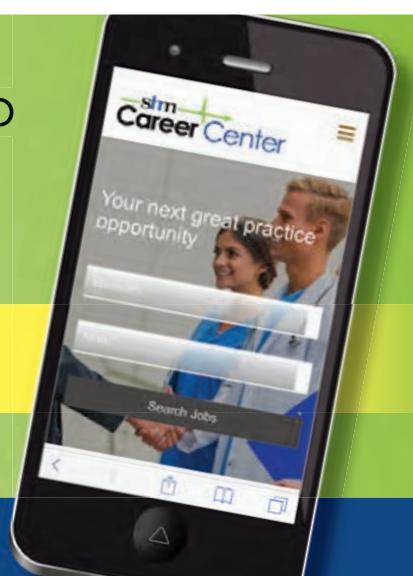
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Hospitalists & Nocturnists Greater St. Louis Area

Mercy Clinic is seeking Hospitalists and Nocturnists to join established Hospitalist teams at various hospital locations throughout the Greater St. Louis area.

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Joan Humphries | Manager, Physician Recruitment
p 314.364.3821 | f 314.364.2597 | Joan.Humphries@mercy.net
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INDIANA: Med-Peds Hospitalist Program

Schneck Medical Center, located in Seymour, IN, is looking to add an additional physician to our Med/Peds Hospitalist Program.

Opportunity

- \$90,000 Sign-on bonus / Loan repayment
- 10-hour shifts with home call
- 26 PTO days
- RN and social workers dedicated to Hospitalist coordination
- Yearly \$2,500 CME allowance with 3 days/year PTO for CME
- Attends C-sections
- Newborn and pediatric consults
- Admits to pediatric unit
- Neonatal stabilization prior to transport
- Hospitalist to pediatric patients

Environment

- Our Hospitalists are highly regarded by our other physicians and considered to be INPATIENT EXPERTS.
- Duties include a lot of specialty work, including:
 - Surgical Consultations
 - Managing ICU Patients - Variety of Care
 - Leading Quality Initiatives
 - Surgical Co-Management
 - Cardiology Support
 - Ventilator Care
- Friendly Environment with a very collegial medical staff
- Current Hospitalists work as a TEAM
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Contact: Fayeann Hurley
Schneck Medical Center Physician Recruitment
411 W Tipton St., Seymour, IN 47274
p: 812-523-7849 • c: 812-498-9500
www.schneckmed.org

Hospitalist Position in Picturesque Bridgton, Maine: Bridgton Hospital, part of the Central Maine Medical Family, seeks BE/BC Internist to join its well-established Hospitalist program. Candidates may choose part-time (7-8 shifts/month) to full-time (15 shifts/month) position. Located 45 miles west of Portland, Bridgton Hospital is located in the beautiful Lakes Region of Maine and boasts a wide array of outdoor activities including boating, kayaking, fishing, and skiing.

Benefits include medical student loan assistance, competitive salary, highly qualified colleagues and excellent quality of life.

For more information visit our website at
www.bridgtonhospital.org

Interested candidates should contact
Julia Lauver, CMMC Physician Recruitment
300 Main Street, Lewiston, ME 04240
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Make an impact as part of our Hospitalist team.

Christiana Care Health System, one of the nation's largest health care providers and ranked No. 3 in the Philadelphia region by *U.S. News & World Report*, is recruiting for Internal Medicine physicians to join our progressive academic hospitalist program in our acute care hospitals located in Newark and Wilmington, Delaware. Christiana Care is a Level-I Trauma Center with more than 1,100 beds and is ranked 21st in the nation for hospital admissions.

Qualified candidates must possess excellent clinical, communication and interpersonal skills; work collaboratively; and enjoy teaching. Hospitalists are encouraged to be thought leaders through participation in team initiatives and projects.

We offer flexible schedules, competitive salary/benefits, relocation reimbursement and generous time off. Living in Delaware offers low taxes, excellent dining and cultural venues, and short drives to Philadelphia, New York City, and all Delaware and New Jersey beach resorts.

Take your hospitalist career further. Submit your CV to Amy Bird at abird@christianacare.org.

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UNIVERSITY OF MICHIGAN DIVISION OF HOSPITAL MEDICINE



The University of Michigan, Division of Hospital Medicine seeks BC/BE internists to join our growing and dynamic division. Hospitalist duties include teaching of medical residents and students, direct patient care in our non-resident and short-stay units and involvement in quality improvement and patient safety initiatives. Novel clinical platforms that feature specialty concentrations (hematology/oncology service, renal transplant service and bone marrow transplant teams) as well as full-time nocturnist positions are also available. Our medical short stay unit provides care for both observation and inpatient status patients and incorporates advanced practice providers as part of the medical team.

The ideal candidate will have trained at, or have clinical experience at a major US academic medical center. Sponsorship of H1B and green cards is considered on a case-by-case basis for outstanding individuals. Research opportunities and hospitalist investigator positions are also available for qualified candidates. An educational loan forgiveness program provides up to \$50,000 in loan forgiveness for qualifying educational loans.

The University of Michigan is an equal opportunity/affirmative action employer and encourages applications from women and minorities.

Mail or email cover letter and CV to:

Mail Vineet Chopra, MD, MSc, Chief, Division of Hospital Medicine,
UH South Unit 4, 1500 East Medical Center Drive, Ann Arbor, MI 48109-5226

Email kcreed@umich.edu

WWW.MEDICINE.UMICH.EDU/HOSPITAL-MEDICINE

Academic Hospitalists and Nocturnists at Mount Sinai Health System, NYC



Mount Sinai

The Division of Hospital Medicine (DHM) of the Mount Sinai Health System, NY, is recruiting hospitalists to care for patients admitted to the Medical Service. Opportunities are available at Mount Sinai Hospital, Mount Sinai Beth Israel, Mount Sinai St. Luke's, and Mount Sinai West Hospitals in Manhattan, and at Mount Sinai Queens Hospital. Positions are available for physicians with leadership experience as well as junior attendings who want to develop their career in a dynamic and expanding Division. Night and part-time positions are also available.

Our hospitalists play a central role in enhancing the quality of patient care and medical education. Opportunities are available in quality and patient safety initiatives, house staff and medical student education, and research. Mount Sinai Medical Center is nationally recognized as a center of excellence in patient care and is an equal opportunity/affirmative action employer.

Mount Sinai Medical Center - An EEO/AAD/V Employer. Interested candidates should send their CV to Natasha Lawrence at natasha.lawrence@mountsinai.org

ACADEMIC NOCTURNIST HOSPITALIST

The Division of General Internal Medicine at Penn State Health Milton S. Hershey Medical Center, Penn State College of Medicine (Hershey, PA) is seeking a BC/BE Internal Medicine NOCTURNIST HOSPITALIST to join our highly regarded team. Successful candidates will hold a faculty appointment to Penn State College of Medicine and will be responsible for the care in patients at Hershey Medical Center. Individuals should have experience in hospital medicine and be comfortable managing patients in a sub-acute care setting.

Our Nocturnists are a part of the Hospital Medicine program and will work in collaboration with advanced practice clinicians and residents. Primary focus will be on overnight hospital admission for patients to the Internal Medicine service. Supervisory responsibilities also exist for bedside procedures, and proficiency in central line placement, paracentesis, arthrocentesis, and lumbar puncture is required. The position also supervises overnight Code Blue and Adult Rapid Response Team calls. This position directly supervises medical residents and provides for teaching opportunity as well.

Competitive salary and benefits among highly qualified, friendly colleagues foster networking opportunities. Excellent schools, affordable cost of living, great family-oriented lifestyle with a multitude of outdoor activities year-round. Relocation assistance, CME funds, Penn State University tuition discount for employees and dependents, LTD and Life insurance, and so much more!

Appropriate candidates must possess an MD, DO, or foreign equivalent; be Board Certified in Internal Medicine and have or be able to acquire a license to practice in the Commonwealth of Pennsylvania. Qualified applicants should upload a letter of interest and CV at: <http://tinyurl.com/j29p3fz> Ref Job ID#**4524**

For additional information, please contact:

Brian Mc Gillen, MD — Director, Hospitalist Medicine
Penn State Milton S. Hershey Medical Center
c/o Heather Peffley, PHR FASPR – Physician Recruiter
hpeffley@hmc.psu.edu



The Penn State Milton S. Hershey Medical Center is committed to affirmative action, equal opportunity and the diversity of its workforce. Equal Opportunity Employer – Minorities/Women/Protected Veterans/Disabled.



Division of Hospital Medicine of Cooper University Hospital Board Certified/Eligible Internal Medicine and Family Medicine Hospitalists and Nocturnists

The Division of Hospital Medicine of Cooper University Hospital seeks motivated physicians to join a dynamic team of 80 physicians and 20 nurse practitioners at more than ten locations in Southern New Jersey.

Highlights:

- Full-time or part-time Hospitalist positions
- Day or night shifts available
- Flexible scheduling
- Teaching opportunities with residents and medical students
- Emphasis on patient experience, quality and safety
- Average encounter number of 14-18/day
- Secure employment with low physician turnover
- Potential for career advancement in administrative, quality or educational roles

Cooper University Hospital is a 635 bed teaching hospital. We are the only tertiary care center and the first Advanced Certified Comprehensive Stroke Center in Southern New Jersey. We employ more than 900 physicians and 325 trainees in all medical and surgical specialties. Cooper University Hospital has its own on-campus medical school, the Cooper Medical School of Rowan University. The Cooper Health System maintains multiple partnerships with local and national institutions, including the MD Anderson Cancer Center.

Employment Eligibility:

Must be Board Certified/Eligible in Internal or Family Medicine

Contact Information:

Lauren Simon, Administrative Supervisor, 856-342-3150

Simon-Lauren@cooperhealth.edu www.cooperhealth.org

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Based in Greenwood, SC, Self Medical Group is multi-practice, multi-specialty group is seeking a BE/BC Nocturnist for an expanding practice. Self Regional Healthcare is a 300 bed non-for-profit, DNV accredited facility providing a wide range of specialty services to our surrounding communities.

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About Greenwood, S.C.:

Just an hour from Columbia and Greenville, Greenwood, or as it is called the "Emerald City," offers a temperate climate, year-round golf and recreation and lakeside living at pristine Lake Greenwood. It is also home to the S.C. Festival of Flowers, a celebration of flora that features larger-than-life size topiaries during the month of June.

Email: tcamp@selfregional.org

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Infectious Diseases Critical Care

Creighton is developing a stand-alone one-year Critical Care fellowship. Combining our Infectious Diseases fellowship with a subsequent Critical Care fellowship might be very attractive if you are considering a career in Infectious Diseases Critical Care.

Our ID fellowship in Omaha offers a collegial learning environment and the high quality of living in the Midwest. Our fellows' experiences include clinics (continuity, HIV, travel), inpatient rotations (including compromised host), antimicrobial stewardship, hospital epidemiology, research, quality improvement, telemedicine, and teaching. Program has 30 years of accreditation. Former fellows' careers include private practice, academia, public health, and ID Critical Care. Applicants must have completed an ACGME-accredited IM residency before start date (7/1/18). We require a J-1 visa for international applicants. Apply with ERAS through medical specialties Match. Contact MichelleConnors@creighton.edu for details.



New York University School of Medicine

Department of Medicine: Director of Hospital Medicine

Location: New York, NY

Closes: October 31, 2017

at 11:59 PM Eastern Time (GMT.4 hours)

NYU Langone is one of the nation's premier academic medical centers. Our trifold mission to serve, teach, and discover is achieved daily through an integrated academic culture devoted to excellence in patient care, education, and research.

At NYU Langone's Tisch Hospital, a 725 bed tertiary care facility, our patients come from around New York City and around the world. We take every measure to ensure that patients and their families are comfortable, as well as confident in the fact that our experts use a team approach to deliver the most advanced care possible.

The NYU Hospitalist Program applies inpatient medical expertise to care for hospitalized patients and to advance academic hospital medicine. Reporting to the Chief of Medicine at Tisch Hospital and the Director of the Division of General Internal Medicine and Clinical Innovation, the Director will be responsible for the management of the team of hospitalists and the broad array of interdepartmental collaborations.

QUALIFICATIONS

Ideal Candidate:

- Will model outstanding clinical care and teaching
- Has demonstrated significant leadership skills
- Participates in national professional societies and can mentor junior faculty
- Demonstrates Scholarship in Quality Improvement, Patient Safety, Value Based Management and High Reliability Organizations.

Minimum Qualifications include ABIM or Subspecialty Certification and at least 5 years of hospital medicine experience in an academic medical center. Strong clinical and communication skills are essential. Significant experience in operational management as well as medical education is critical.

NYU Langone Medical Center is an equal opportunity and affirmative action employer committed to diversity and inclusion in all aspects of recruiting and employment. All qualified individuals are encouraged to apply and will receive consideration without regard to race, color, gender, gender identity or expression, sex, sexual orientation, transgender status, gender dysphoria, national origin, age, religion, disability, military and veteran status, marital or parental status, citizenship status, genetic information or any other factor which cannot lawfully be used as a basis for an employment decision.

APPLICATION INSTRUCTIONS

Please note that applications will be kept confidential. Log into Interfolio to apply or if you don't have an account please create one below.

Application materials may be submitted beginning July 24, 2017.

Prepare your application materials now by logging in (<https://account.interfolio.com/login>) to Interfolio, or if you don't have an account, create one now (<https://apply.interfolio.com/43245>)

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Division Chief ~ Hospital Medicine Division

The Department of Medicine at the University of Rochester—Strong Memorial Hospital is currently seeking a new Division Chief for our Hospital Medicine Division. This Division comprises of 35 full and part-time faculty members who not only assist with the care of a large inpatient medical service but also play a key role in the department's educational programs. This position reports directly to the Chairman of the Department of Medicine. Ideal candidates will have leadership experience, excellent interpersonal skills, expertise in quality improvement and a strong interest in medical education. The Hospital Medicine Division is noted for providing high quality education to a broad array of learners including outstanding residents in our Internal Medicine and Medicine-Pediatrics residency programs. Several members of the division have been recognized at the national level for their academic educational contributions and scholarship. The University of Rochester Medical Center is the premier academic health center in upstate New York. Visit our web site to learn more about our innovative Department and our regional health system. Appropriate candidates must possess an MD or DO or foreign equivalent; be Board Certified in Internal Medicine; and meet NY state licensing requirements. Applicants should have achieved an academic rank of Associate Professor or higher; possess excellent communication and organizational skills and a strong work ethic.

Send CV and Cover letter to:

Linda_Marchionda@URMC.Rochester.edu

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Full-time and part-time openings are available, as are opportunities for Nocturnists. At our large multi-specialty practice with approximately 400 providers, we strive to offer our patients a full scope of healthcare services throughout the Sacramento area. Our award-winning Hospitalist program has around 70 providers and currently serves 4 major hospitals in the area.

Sacramento offers a wide variety of activities to enjoy, including fine dining, shopping, biking, boating, river rafting, skiing and cultural events. Our physicians utilize leading edge technology, including EMR, and enjoy a comprehensive, excellent compensation and benefits package in a collegial, supportive environment.

For more information, please contact: Physician Recruitment Phone: 888-599-7787 | Email: providers@dignityhealth.org

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Position Highlights:

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Portland, Oregon and Southwest Washington

Hospitalists Opportunities



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Join our team and create your own legacy.

Located in the beautiful Pacific Northwest, **Legacy Health** is currently seeking experienced **Hospitalists** to join our dynamic and well established yet expanding Hospitalist Program. Enjoy competitive compensation plans, unique staffing and flexible scheduling with easy access to a wide variety of specialists. We have a well-established GME department and internal medicine residency program and we are also seeking experienced clinician educators.

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- | | |
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As a nationally known and respected health care provider, **Legacy Health** offers an outstanding work environment, competitive salary and comprehensive benefits. Learn more about us and apply on our website at www.legacyhealth.org. For additional information please contact Forrest Brown at (503) 415-5982 or toll free, (866) 888-4428. Email: FoBrown@lhs.org. AA/EOE/VETS/Disabled



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The Ohio State University Wexner Medical Center

Join a Leader in Hospital Medicine

As one of the nation's largest academic hospitalist programs, we offer a variety of teaching and non-teaching inpatient and consultative services.

OSUWMC Division of Hospital Medicine is dedicated to the health and well-being of our patients, team members, and the OSUWMC community. We are currently seeking exceptional individuals to join our highly regarded team. We focus on improving the lives of our patients and faculty by providing personalized, patient-centered, evidence-based medical care of the highest quality. Our clinical practice meets rigorous standards of scholarship, and we are devoted to serving as expert educators and mentors to the next generation of physicians.

Preferred candidates are BC/BE in Internal Medicine or Internal Medicine-Pediatrics, have work experience or residency training at an academic medical center, and possess excellent inpatient, teamwork, and clinical skills.

We are an Equal Opportunity/Affirmative Action Employer. Qualified women, minorities, Vietnam-era and disabled Veterans, and individuals with disabilities are encouraged to apply. This is not a J-1 opportunity.

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Hospital Medicine Faculty Positions

The Section of Hospital Medicine at Vanderbilt University seeks talented BC/BE Internal Medicine physicians to join the full time faculty at the level of Assistant, Associate, or full Professor, on a clinical, academic, or research track.

Clinical positions, including daytime, nocturnist, extensivist or mixed roles, are available for well-trained physicians who wish to focus on direct patient care and medical consultation. We offer flexible scheduling, access to top specialists, and opportunities to engage in teaching, quality improvement, and scholarship. An academic clinician-educator track position is 80% clinical, with additional responsibilities in teaching, scholarship, quality improvement, and administration for qualified candidates. A physician-scientist track provides 80% time for research in collaboration with established investigators in health services research, quality improvement, patient safety, behavioral sciences, and biomedical informatics.

Vanderbilt University Medical Center is a leader in providing high-quality, cost-effective care. With robust programs in quality improvement and clinical research, a highly-developed electronic health record, Magnet Recognition for nursing care, competitive salaries and benefits, and a highly supportive environment for faculty, Vanderbilt is a great place to work. With a booming economy and friendly environment, Nashville, TN is a top place to live.

Please electronically submit a letter of interest and CV to:
anne.n.axon@vanderbilt.edu

HOSPITALIST

The Division of Internal Medicine at Penn State Hershey Medical Center, The Pennsylvania State University College of Medicine, is accepting applications for **HOSPITALIST** positions. Successful candidates will hold a faculty appointment to Penn State College of Medicine and will be responsible for the care in patients at Penn State Hershey Medical Center. Individuals should have experience in hospital medicine and be comfortable managing patients in a sub-acute care setting. Hospitalists will be part of the post-acute care program and will work in collaboration with advanced practice clinicians, residents, and staff. In addition, the candidate will supervise physicians-in-training, both graduate and undergraduate level, as well as participate in other educational initiatives. The candidate will be encouraged to develop quality improvement projects in transitions of care and other scholarly pursuits around caring for this population. This opportunity has potential for growth into a leadership role as a medical director and/or other leadership roles.

Competitive salary and benefits among highly qualified, friendly colleagues foster networking opportunities. Relocation assistance, CME funds, Penn State University tuition discount for employees and dependents, LTD and Life insurance, and so much more!

Known for home of the Hershey chocolate bar, Hershey, PA is rich in history and offers a diverse culture. Our local neighborhoods boast a reasonable cost of living whether you prefer a more suburban setting or thriving city rich in theater, arts, and culture. Hershey, PA is home to the Hershey Bears hockey team and close to the Harrisburg Senators baseball team. The Susquehanna River, various ski slopes and the Appalachian Trail are in our backyard, offering many outdoor activities for all seasons.



The Penn State Milton S. Hershey Medical Center is committed to affirmative action, equal opportunity and the diversity of its workforce. Equal Opportunity Employer – Minorities/Women/Protected Veterans/Disabled.

Successful candidates require the following:

- Medical degree - M.D., D.O. or foreign equivalent
- Completion of an accredited Internal Medicine Residency program
- Eligibility to acquire a license to practice in the Commonwealth of Pennsylvania
- Board eligible/certified in Internal Medicine
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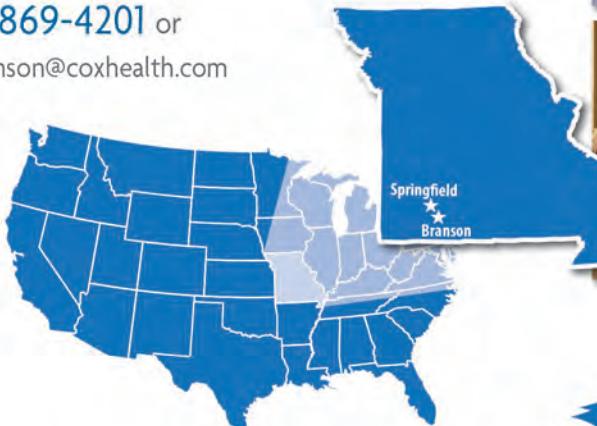
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Debra Ferrari, Manager, Medical Staff Recruitment

Bassett Healthcare Network

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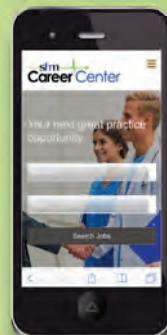
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Thinking about productivity: Survey data 2017

What are 'reasonable expectations' for compensation and productivity?



Dr. Nelson has had a career in clinical practice as a hospitalist starting in 1988. He is cofounder and past president of SHM, and principal in Nelson Flores Hospital Medicine Consultants. He is codirector for SHM's practice management courses.

John.nelson@nelsonflores.com

The 2017 MGMA survey data on compensation and productivity were released last June. While the numbers aren't surprising, reviewing them always gets me thinking about factors that influence reasonable expectations for compensation and productivity in any individual hospitalist group.

The data were collected in early 2017, reflecting work done in 2016, and show a national median hospitalist compensation for internal medicine physicians of \$284,000, up from \$278,500 the year before. Since MGMA added a hospitalist category to the survey, compensation has been growing significantly faster than inflation, even though productivity has been essentially flat. I've always thought that the high demand for hospitalists, which isn't letting up much, in the face of a limited supply is probably the most significant force causing hospitalist compensation to rise faster than in most other specialties.

The survey shows a median of 2,114 billed encounters and 4,159 wRVUs (work relative value units) generated per internal medicine hospitalist annually (family medicine hospitalists are reported separately). These numbers have been pretty stable for many years.

Whether it is reasonable to expect hospitalists in your group to produce at this level is a question that can unspool into a lengthy conversation. Below are several assertions I regularly hear others make about productivity, and following each is my commentary.

'Surveys show only what is most typical, not what is optimal. Our field suffers from concerning levels of burnout, essentially proving that median levels of productivity shown in surveys is too high.'

I share this concern, but this is a complicated issue. You'll have to make up your own mind regarding how significantly workload influences hospitalist burnout. But the modest amount of published research on this topic suggests that workload itself isn't as strongly associated with burnout as you might think. I'm certain workload does play a role, but other factors such as "occupational solidarity" seem to matter more. Lowering workload in some settings might be appropriate, but without other interventions may not influence work-related stress and burnout as much as might be hoped.

'Surveys don't capture unbillable activities ('unbillable wRVUs'),

so are a poor frame of reference when thinking about productivity expectations in our own group.'

It's true that hospitalists do a lot of work that isn't captured in wRVUs. My work with many groups around the country suggests the amount and difficulty of this unbillable work is reasonably similar across most groups. We all spend time with hand-offs, managing paperwork such as charge capture and completing forms, responding to a rapid response call that doesn't lead to a billable charge, etc. The average amount of this sort of work is built into the survey. Clearly some groups are outliers with meaningfully more unbillable work than elsewhere, but that can be a difficult or impossible thing to prove.

'My hospital has unique barriers to efficiency/productivity, so it's more difficult to achieve levels of productivity shown in surveys.'

This is another way of expressing the previous issue. To support this assertion hospitalists will mention that it is tougher to be productive at their hospital because they're a referral center with unusually sick and complicated patients; they teach trainees in addition to clinical care; and/or their patients and families are unusually demanding, so they take much more time than at other places.

Yet for each of these issues I also hear the reverse argument regularly. Hospitalists point out that because they're a small hospital (not a referral center) they lack the support of other specialties so must manage all aspects of care themselves; they don't have residents to help do some of the work; and their patients are unsophisticated and lack social support. For these reasons, the argument goes, they shouldn't be expected to achieve levels of productivity shown in surveys.

I have worked with hospitalist groups that I am convinced do face unusual barriers to efficiency that are meaningful enough that, unless the barriers can be addressed, I think productivity expectations should be lower than survey benchmarks. For example, in most academic medical centers and a very small number of nonacademic hospitals, only the attending physician writes orders; consulting doctors don't. This means that the attending hospitalist must check a patient's chart repeatedly through the day just to see if the consultant proposed even small things like ordering a routine lab test, advancing the diet, etc., that the hospitalist must order.

A separate daytime admitter shift is

a modest barrier to efficiency that is so common it is clearly factored into survey results. Most hospitalist groups with more than about five doctors working daily have one doctor (or more than one in large groups) manage admissions while the rest round and are protected from admissions.

While this may have a number of benefits, overall hospitalist efficiency isn't one of them. It means that all patients, not just those admitted at night, will have a handoff from the admitting provider to a new attending for the first rounding visit. This new attending will spend additional time becoming familiar with the patient – time that wouldn't be necessary had that doctor performed the admission visit herself.

'Our hospitalist group is always being asked to take on more duties, such as managing med reconciliation, taking referrals from an additional PCP group, or serving as admitting and attending physician for patients previously admitted by a different specialty (which now serves in the consultant role). For this reason, it's necessary to steadily lower hospitalist productivity expectations over time.'

A hospitalist today probably spends a quarter of the day doing things I didn't have to do at the outset of my career in the 1980s. So my impulse is to agree that, as the breadth of our responsibilities expands, expected wRVU productivity should fall. But surveys over the last 15-20 years don't show this happening, and the pressure to maintain productivity levels isn't likely to let up. Rather than generating fewer wRVUs (seeing fewer patients), hospital medicine, like health care as a whole, faces the challenge of continually improving our efficiency.

'Surveys are only one frame of reference for determining expectations at my particular hospitalist group. There are other factors to consider as well.'

This is absolutely true. There may be many reasons for your group to set expectations that are meaningfully different from survey figures. Just make sure your rationale for doing so is well considered and effectively communicated to other stakeholders, such as those in finance and organizational leadership at your organization. 



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