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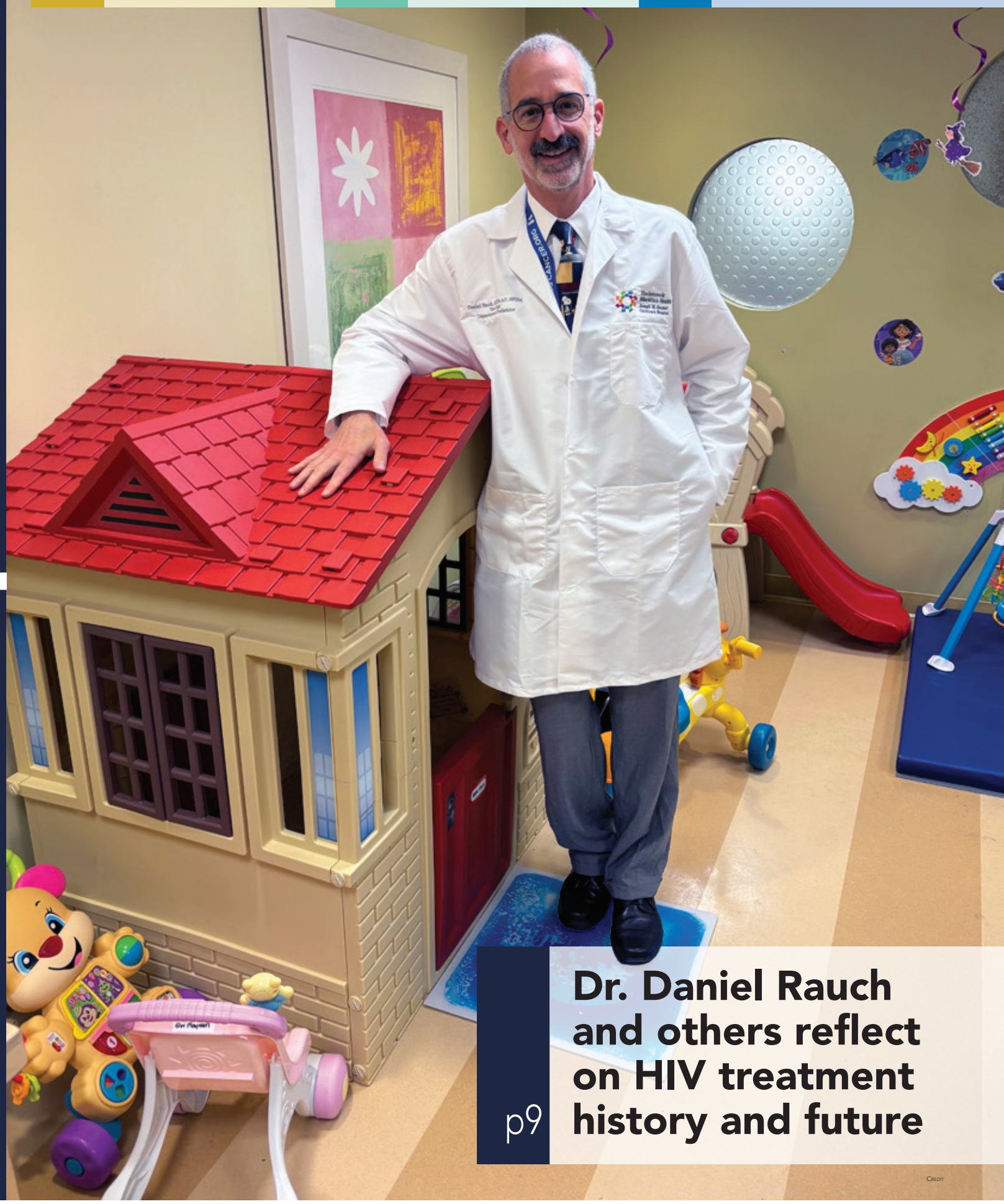

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The Hospitalist Editorial Board Applications

If you're an SHM member interested in sharing your expertise with readers of *The Hospitalist*, consider applying for the editorial board. Board members develop content, recommend sources, and may write articles. Meetings are held virtually each month and in person at SHM Converge. We seek diverse candidates who are passionate about hospital medicine and engaged in SHM. Trainees in adult or pediatric hospital medicine, including med-peds, are encouraged to apply.

Members serve two-year terms, while trainees serve one-year terms. The deadline for submissions is January 15, 2026. Scan the QR code for more information and to apply.

Introducing the Literature Lounge

As readers of *The Hospitalist* know, our In the Literature column is quite popular, with hospitalist groups lined up to contribute.

This popularity inspired the creation of Literature Lounge—an online-only column that features literature reviews with a twist—a video review. To learn more about this new column, scan the QR code or email Lisa Casinger at lcasinger@wiley.com.

From *JHM*

The *Journal of Hospital Medicine* Editor's Pick this month is Pathways to Promotion: A Road Map for Growth and Impact in Academic Medicine.

Promotion plays a crucial role in the career development and fulfillment of academic hospitalists, despite various challenges unique to this field. It offers a structured path for professional growth, recognition, and expanded opportunities in academia and leadership. In this article, the authors explore barriers to advancement, benefits of promotion, mentorship and community, and impact and burnout protection. Check out *The Hospitalist's* feature, Navigating the Path to Promotion, on page 13 and scan the QR code to read the *JHM* article.

Get Published!

If you're an SHM member interested in contributing to *The Hospitalist*, there are lots of opportunities.

We publish articles about the news, trends, and issues that affect hospital medicine. Topics include everything from clinical and practice management to quality, career, leadership, pediatrics, and more.

And, if you want to express yourself creatively, there's HM Voices, our online area showcasing poetry, creative writing, or creative visuals.

Scan the QR code for more information about clinical options (In the Literature, Key Clinical Questions, Interpreting Diagnostic Tests), and HM Voices.

THE Hospitalist®

December 2025
Volume 29 | No. 12

Leading Hospital Medicine Forward Through Connection, Advocacy, and Excellence

By Eric E. Howell, MD, MHM, SHM CEO

It is truly an incredible time. Even as we witness the immense and rapid growth of our specialty and the dynamic evolution of medicine, we find ourselves asking critical questions about the clinicians we want to be, the components of practicing medicine that bring the greatest sense of joy and fulfillment, and the outcomes we want to realize for our patients. Being a clinician has never been easy, but the past few years have amplified challenges for all of us. As hospitalists, we operate within a large, often fragmented healthcare system that can feel at odds with our goals, sometimes minimizing our impact or complicating our efforts to provide seamless, continuous care. Many of the assumptions that we previously made are undercut and contested, and so we find ourselves on the frontlines seeking ways to innovate, anchor in the evidence base, and identify viable pathways forward. As witnesses to the full arc of hospitalization from admission through discharge, we ask our patients to place their trust in us, even as trust in science and institutions faces unprecedented strain. We find solidarity in our collective experiences as we seek autonomy to exercise greater agency over our clinical environments, and to deliver the exceptional care our patients deserve.

Many of you may just be embarking on your career in hospital medicine, while others are mid-career, balancing demanding clinical roles with administrative responsibilities and searching for a greater connection with fellow hospitalists. And yet, like me, some of you have been practicing since hospital medicine's earliest days, and are now mentoring younger physicians, leading teams, and evolving alongside the field itself with the same agility that has defined our specialty over the last 25 years.

As your chosen professional society, SHM is here to advocate for you—the individual hospitalist. We are focused on both your present needs and your future as the pace of change accelerates. The rapid growth places sharp demands on the individuals practicing hospital medicine, and so our priorities are rooted in what you need to achieve clinical excellence: support for teaching and training house staff, timely clinical education, and tools to enhance your day-to-day practice. In 2025, we focused on those priorities and developed Clinical Quick Talks, a go-to resource for practical learning. We published our State of Hospital Medicine Report, which is the most comprehensive national overview of practice trends, staffing, compensation, and operational models grounded in data from individuals and groups. Additionally, we continue to amplify your voices as researchers, storytellers, and changemakers in hospital medicine through our publications.

We have had an eventful year as a community. We gathered in Las Vegas at SHM Converge to celebrate our growing community, provided more than 12 educational tracks, welcomed students who represent the future of hospital medicine as part of our Pathways program, and awarded two very bright and worthy students with medical assistance scholarships in recognition of their contributions. We honored our esteemed Awards of Excellence recipients, who are the embodiment of greatness in hospital medicine. Additionally, we presented two inaugural grants to our SHM Global and Rural Health Foundation awardees. Our vast network of chapters continues to grow, providing great avenues of connection and community and serving as a bastion of SHM member enthusiasm and hospitalist pride. SHM continues to advocate for hospitalists and hospitalized patients—working on advancing our longstanding policy priorities like observation care, supporting the hospital medicine workforce, and physician payment reform, while responding to emergent policy issues like Medicaid reform and physician immigration barriers as they arose.

In the months ahead, we will continue to focus on championing the work and contributions of hospitalists. We will advocate for policies that underscore and elevate the value of hospitalists. SHM will also speak about the risks of policies that are detrimental to the health and well-being of the patients we serve. We will navigate the uncertainties ahead with resolve, commitment, and the knowledge that the progress in advancing and improving acute care has never come easily.


Dr. Howell

We are ALL part of a dynamic hospital medicine specialty. I am honored to find a sense of community among you. ■

UC San Diego Health

By Alan Moazzam, MD, MBA, FACP, Bryan Huang, MD, CHCQM-PhyAdv, FHM, Diana Childers, MD, FHM, Harshal Mehdi, MD, MBA, Kevin Kwak, MD, Lobna Shahatto, MD, Maryann Ally, MD, MPH, FACP, FHM, McKenna Johnson, MD, and Yan (Ann) Xing, MS, MD

University of California San Diego Health, San Diego

IN THIS ISSUE

By Alan Moazzam, MD, MBA, FACP

1 Circadian Rhythms in Night Shift Medical Staff

CLINICAL QUESTION: Night shift work exposes medical personnel to a range of physiological and psycho-cognitive health risks. Are there evidence-based strategies that can help mitigate these risks?

Dr. Moazzam

BACKGROUND: Night shift work is an unavoidable reality of modern healthcare. However, humans are not nocturnal creatures, and this type of work confers long-term health risks to our bodies. This systematic review synthesizes current evidence on the risks of night shift work and suggests potential interventions to reduce harm.

STUDY DESIGN: Systematic review

SETTING: A search of MEDLINE databases was conducted for articles published between 2019 and 2024 using keywords such as "night shift," "shift work," and "sleep disorder." Out of 403 articles identified, 38 met the inclusion criteria for final analysis.

SYNOPSIS: The selected studies largely support a consensus: night shift work increases the risk of biological, physiological, and psychological health issues. Several actionable strategies to mitigate these risks emerged from the review. For shift scheduling, a three-night-shift-per-week schedule was associated with poorer sleep quality compared to other scheduling patterns.

Individuals with a morning chronotype experienced worse sleep quality on days off than those with evening chronotypes, indicating a mismatch between biological predisposition and work demands. On average, night shift workers gained 8 kg of body weight, largely due to increased snacking and hyperphagia, leading to central obesity. This could potentially be mitigated by consuming a high-protein meal before shifts. Moreover, post-shift sleep quality can be improved with a high-protein meal immediately after the shift.

To address these findings, solutions were proposed. Night shift workers should undergo regular screening for hypertension, insulin resistance, weight gain, and mental health disorders. Shift schedules should consider individual chronotypes to optimize alignment with circadian biology. Nutritional interventions, particularly high-protein dietary strategies, may help mitigate weight gain and improve sleep quality. Certain shift patterns are more disruptive to sleep and should be reevaluated in scheduling practices.

BOTTOM LINE: Healthcare institutions should consider adopting tailored wellness and screening programs to support the unique needs of their night shift workforce.

CITATION: Czyż-Szypenbejl K, Mędrzycka-Dąbrowska W. The impact of night work on the sleep and health of medical staff-a review of the latest scientific reports. *J Clin Med*. 2024;13(15):4505. doi: 10.3390/jcm13154505.

Dr. Moazzam is a hospitalist and an assistant clinical professor of medicine at UC San Diego Health in San Diego.

By Bryan Huang, MD, CHCQM-PhyAdv, FHM

2 Catheter Ablation Versus Antiarrhythmic Drug Therapy for Ventricular Tachycardia

CLINICAL QUESTION: Among patients with ischemic cardiomyopathy and ventricular tachycardia, is catheter ablation or antiarrhythmic drug therapy a more effective initial strategy?

Dr. Huang

BACKGROUND: Implantable cardioverter-defibrillators (ICDs) have been shown to improve survival in patients with prior myocardial infarction and ventricular tachycardia. However, ICDs do not prevent subsequent episodes of ventricular tachycardia. An earlier study, the VANISH trial, showed a role for ablation in patients when antiarrhythmic drug therapy was ineffective. Prior trials have not examined catheter ablation as first-line therapy.

STUDY DESIGN: Open-label, randomized trial

SETTING: 22 centers in Canada, the U.S., and France

SYNOPSIS: 416 patients with prior myocardial infarction and ventricular tachycardia were randomized to undergo catheter ablation or receive antiarrhythmic drug therapy. All patients had an ICD. Catheter ablation was performed within 14 days after randomization, and patients receiving antiarrhythmic drug therapy were given sotalol or amiodarone. Patients were followed for a median of 4.3 years.

The primary composite end point of death from any cause or, more than 14 days after randomization, ventricular tachycardia storm, appropriate ICD shock, or sustained ventricular tachycardia treated by medical intervention occurred in 50.7% of the catheter ablation group and 60.6% of patients assigned to drug therapy (hazard ratio, 0.75; 95% CI, 0.58 to 0.97; P = 0.03). The difference between trial groups was due to a lower number of ICD shocks and episodes of treated ventricular tachycardia in the ablation group.

BOTTOM LINE: Consider catheter ablation as an initial management strategy in patients with ischemic cardiomyopathy and ventricular tachycardia.

CITATION: Sapp JL, et al. VANISH2 Study Team. Catheter ablation or antiarrhythmic drugs for ventricular tachycardia. *N Engl J Med*. 2025;392(8):737-747. doi: 10.1056/NEJMoa2409501.

Dr. Huang is a clinical professor of medicine in the division of hospital medicine and a physician advisor at UC San Diego Health in San Diego.

By Diana Childers, MD, FHM

3 Optimal Dose of Intranasal Insulin Administration for Reducing Postoperative Delirium Incidence in Older Patients Undergoing Hip Fracture Surgery

CLINICAL QUESTION: Does intranasal insulin administration reduce postoperative delirium in older patients undergoing hip fracture surgery?


Dr. Childers

BACKGROUND: Cerebral hypometabolism may be a therapeutic target for the management of delirium in older, hospitalized patients. Insulin delivered via the intranasal route acts directly on the central nervous system and has been shown to enhance cerebral metabolism and improve cognition in people with dementia, without hypoglycemic episodes. This study looked at the effective intranasal insulin dose for patients undergoing hip surgery.

STUDY DESIGN: Randomized, double-blinded, placebo-controlled trial

SETTING: Single academic hospital in China

SYNOPSIS: Patients over the age of 65 undergoing unilateral hip arthroplasty or closed reduction and intramedullary nailing under spinal anesthesia were randomly assigned to receive intranasal saline (control group), 20 units of intranasal detemir insulin (I-20 group), or 40 units of intranasal detemir insulin (I-40 group). Cohorts received their respective medication the day before surgery, 50 minutes before surgery, and at 7 p.m. on the day of surgery. The primary outcome was the incidence of postoperative delirium. Pertinent exclusion criteria include body mass index greater than 24, insulin allergy, and inability to communicate. 144 patients were initially enrolled, 14 were excluded due to transfer to the ICU, and four were excluded due to conversion from spinal analgesia to general anesthesia, surgery greater than three hours, or refusal of spinal analgesia. 130 patients were included in the analysis. All patients received 8 to 10 mg of dexamethasone in the operative setting.

Patients were evaluated for post-op delirium daily, within three days of surgical intervention. Prior to delirium, patients were evaluated for sedation using the Richmond Agitation-Sedation Scale. If the patient was deeply sedated or unarousable, the assessment was terminated. If not, the patient underwent scoring with the Confusion Assessment Method.

Compared to the control group, the I-20 and I-40 groups showed significantly lower incidence of post-op delirium within the first three days, with the control group at 39.5% versus 11.4% and 14.3% in the I-20 and I-40 groups, respectively. While the incidence of post-op delirium tended to be lower in the I-20 group than the I-40 group, the difference was not statistically significant. There were no hypoglycemic episodes reported.

BOTTOM LINE: Given that current medication options for delirium often have significant risks and side effects, intranasal insulin may be a safe prophylactic strategy to minimize post-op delirium in patients undergoing hip surgery with spinal anesthesia.

CITATION: Li Y, et al. Optimal dose of intranasal insulin administration for reducing postoperative delirium incidence in older patients undergoing hip fracture surgery. *Am J Geriatr Psychiatry*. 2025;33(8):891-900. doi: 10.1016/j.jagp.2025.03.009.

Dr. Childers is an associate clinical professor in the division of hospital medicine and a hospitalist at UC San Diego Health in San Diego.

By Harshal Mehdi, MD, MBA

4 Role of Ponsegromab in Treating Malignancy-Related Cachexia

CLINICAL QUESTION: Does treatment with ponsegromab, a monoclonal antibody inhibiting growth differentiation factor 15 (GDF-15), improve weight gain in patients with malignancy?

BACKGROUND: Patients with malignancy are at increased risk for cachexia. GDF-15, a stress-induced cytokine, has shown involvement in weight-loss regulation and the cachexia pathway. Ponsegromab tests the hypothesis that GDF-15 is a key driver of cachexia. Its clinical efficacy was evaluated in a phase 2 trial.

STUDY DESIGN: Randomized, double-blinded, placebo-controlled, dose-ranging trial

SETTING: 74 sites in 11 countries

SYNOPSIS: 187 patients with malignancy (40% non-small-cell lung cancer, 32% pancreatic cancer, and 29% colorectal cancer), cachexia (involuntary weight loss of at least 5% within previous six months), and elevated serum GDF-15 (at least 1,500 pg/mL) were randomly assigned doses of Ponsegromab in a 1:1:1:1 ratio of 100 mg, 200 mg, 400 mg, and placebo, respectively. The primary endpoint was the change in body weight after 12 weeks. Across all treatment arms, ponsegromab showed a significant, dose-dependent increase in baseline weight compared to placebo. The median group difference was 1.22 kg (95% credible interval [CrI], 0.37 to 2.25) in the 100-mg group, 1.92 kg (95% CrI, 0.92 to 2.97) in the 200-mg group, and 2.81 kg (95% CrI, 1.55 to 4.08) in the 400-mg group compared to placebo. Adverse events (most commonly diarrhea, nausea, and vomiting) were reported in 70% of the treatment group and 80% of the placebo group. Limitations included underrepresented populations (limited to white and Asian populations) and no clear correlation of ponsegromab-mediated weight gain to the amount of change in GDF-15 levels.

BOTTOM LINE: In patients with specific malignancies (non-small-cell lung cancer, pancreatic cancer, and colorectal cancer), ponsegromab improves cachexia.

CITATION: Groarke JD, et al. Ponsegromab for the treatment of cancer cachexia. *N Engl J Med*. 2024;391:2291-2303. doi: 10.1056/NEJMoa2409515.

Dr. Mehdi is an assistant clinical professor and a hospitalist at UC San Diego Health in San Diego.

By Kevin Kwak, MD

5 Characteristics of Inpatient Code Status Discussions

CLINICAL QUESTION: What are the characteristics of inpatient code status discussions and how can they be improved?


Dr. Kwak

BACKGROUND: Code status discussions are highly prevalent and encouraged in the inpatient setting. The characteristics of these discussions vary among physicians, and there is room for improvement to ensure concordance with patients' values.

STUDY DESIGN: A retrospective cohort study

SETTING: Four medical centers affiliated with the University of Toronto

SYNOPSIS: Of the encounters with a documented code status discussion, 26% (29 patients) involved physician recommendations. These recommendations ranged from passive suggestions, where the decision was ultimately deferred to the patient or surrogate, to the physicians actively not offering certain interventions, such as resuscitation. The study also found that the rationale used for providing treatment recommendations generally fit into one of two categories: poor prognosis and alignment with patient goals. Furthermore, the term "quality of life" was used frequently in these code discussions. This term was usually used in contrast to "quantity of life" and/or to portray a poor prognosis. There was a clear lack of documentation of the patients' specific values when discussing their quality of life.

BOTTOM LINE: Treatment recommendations found in code status discussions typically involved de-escalation of care or restricting invasive interventions. The term "quality of life" was used frequently to justify these recommendations, although there was an absence of details on what this term meant for the patients.

CITATION: Melvin RG, et al. Characterizing physician recommendations within code status documentation: a multicentre cohort study and qualitative discourse analysis. *J Gen Intern Med*. 2025. doi: 10.1007/s11606-025-09402-z.

Dr. Kwak is a hospitalist and an assistant clinical professor of medicine at UC San Diego Health in San Diego.

By Lobna Shahatto, MD

6 Monoclonal Antibody Abelacimab Compared to Rivaroxaban Had Lower Rates of Bleeding Complications

CLINICAL QUESTION: Can the inhibition of free factor XI with a monoclonal antibody be used for stroke prevention in Atrial fibrillation patients?


Dr. Shahatto

BACKGROUND: Atrial fibrillation is a common arrhythmia with a significant risk of stroke, with need for anticoagulation in most cases. Many direct oral anticoagulants are available but have a risk of bleeding. Factor XI is essential for thrombosis but not essential for hemostasis. Therefore, factor XI inhibition should potentially have lower rates of bleeding. Abelacimab is a human monoclonal antibody that binds to the catalytic domain of Factor XI and also inhibits the activated form of the factor.

STUDY DESIGN: Partially blinded, randomized trial. Double blinded with respect to the two groups who received different doses of abelacimab, but open-label with respect to whether assigned to the abelacimab or rivaroxaban group.

SETTINGS: Study conducted at 95 centers in seven countries from 2021 to 2023, including the

U.S., Canada, Hungary, and Korea. Most patients were white. Patients were at least 55 years of age, had atrial fibrillation and plan for anticoagulation with CHADsVASc score of 4+. The median age was 74 years.

SYNOPSIS: From March to Dec 2021, 1,280 patients were randomized to receive one dose of trial therapy. One group received a 150-mg subcutaneous injection of abelacimab, the second received 90 mg of abelacimab, and the third received oral rivaroxaban at 20 mg daily. Free Factor XI levels were measured in both abelacimab groups to ensure a reduction in serum levels was present.

26 patients in the 150-mg abelacimab group and 21 patients in the 90-mg abelacimab group, as compared with 66 patients in the rivaroxaban group, had the primary endpoint of major bleeding. The trial was terminated early in September 2023 because both dose levels of abelacimab relative to rivaroxaban had a lower incidence of major bleeding.

BOTTOM LINE: The trial drug abelacimab demonstrated fewer overall adverse effects of major bleeding compared to rivaroxaban. However, more studies are ongoing to determine stroke prevention for this medication.

CITATION: Ruff CT, et al. Abelacimab versus rivaroxaban in patients with atrial fibrillation. *N Engl J Med*. 2025;392(4):361-371. doi: 10.1056/NEJMoa2406674.

Dr. Shahatto is an assistant clinical professor of medicine and a hospitalist at UC San Diego Health in San Diego.

By Maryann Ally, MD, MPH, FACP, FHM

7 Inebilizumab Can Treat IgG4-Related Disease

CLINICAL QUESTION: Is inebilizumab a safe and effective treatment option for IgG4-related disease?


Dr. Ally

BACKGROUND: Treatment for IgG4-related disease flares currently involves glucocorticoid use and previously had no approved treatment specifically for IgG4-related disease.

STUDY DESIGN: Phase 3, randomized, parallel-cohort, double-blind, placebo-controlled trial

SETTING: 80 sites in 22 countries

SYNOPSIS: IgG4-related disease is an inflammatory process that involves initial CD19+ B cells aggregating together, followed by CD20+ B cells, which may lead to fibrosis of multiple organs. 5.3 persons per 100,000 in the U.S. have this diagnosis. Currently, glucocorticoids are used to prevent flares, but maintaining remission from IgG4-related disease is limited when steroids are weaned. Additionally, chronic steroid use places patients at risk for steroid-induced hyperglycemia and osteoporosis. The MITIGATE trial studied the efficacy and safety of inebilizumab, a human monoclonal antibody that targets CD19+ B cells, in patients with active IgG4-related disease affecting two or more organs. All patients took steroids for three to eight weeks and were weaned off steroids prior to randomization. Patients in the treatment arm received pre-treatment medication to prevent an infusion reaction. Patients received 300 mg of IV inebilizumab on day one, day 15, and at week 26.

Inebilizumab decreased IgG4-related disease flares by 87% (P <0.001). Annualized flare rates, or the number of disease flares over a year, were lower in those treated with inebilizumab (P <0.001), compared to the placebo group. Adverse events for inebilizumab participants included coronavirus, lymphopenia, and urinary tract infection.

BOTTOM LINE: Inebilizumab should be considered for the treatment of IgG4-related diseases as an alternative to steroids.

CITATION: Stone JH, et al. Inebilizumab for treatment of IgG4-related disease. *N Engl J Med*. 2025;392(12):1168-1177. doi:10.1056/NEJMoa2409712.

Dr. Ally is a clinical professor of medicine, a hospitalist in the division of hospital medicine, and a physician advisor at UC San Diego Health in San Diego.

By McKenna Johnson, MD

8 Extended Reduced-Dose Apixaban for Treatment of VTE in Cancer Patients

CLINICAL QUESTION: Following full-dose treatment for six months, is reduced-dose apixaban noninferior to full-dose apixaban for the prevention of further recurrence of venous thromboembolism (VTE) in cancer patients?


Dr. Johnson

BACKGROUND: For cancer patients with VTE, current guidelines recommend six months of full-dose anticoagulation followed by continuous anticoagulation while the cancer is active or therapy is ongoing. However, anticoagulation has a significant risk of bleeding, particularly when needed for long-term or indefinite treatment duration. Optimal treatment regimen after the initial six months is unclear.

STUDY DESIGN: Randomized, double-blinded, noninferiority trial

SETTING: Large international trial (121 centers, 11 countries)

SYNOPSIS: After six months of full-dose anticoagulation following an initial VTE, 1,766 patients with active cancer were randomized to full-dose apixaban (5 mg twice daily) versus reduced-dose apixaban (2.5 mg twice daily). During a median follow-up time of 11.8 months, recurrent VTE occurred in 2.1% of the reduced-dose group versus 2.8% of the full-dose group (adjusted subhazard ratio, 0.76; 95% confidence interval [CI], 0.41 to 1.41, P = 0.001 for noninferiority), demonstrating that reduced-dose apixaban was noninferior for the prevention of VTE. The secondary outcome of major or clinically relevant bleeding was significantly lower in the reduced-dose apixaban group (adjusted subhazard ratio, 0.75; 95% CI, 0.58 to 0.97; P = 0.03).

Trial patients likely had better performance status and fewer comorbidities than hospitalized cancer patients. 92.6% of patients had Eastern Cooperative Oncology Group performance status of 0 to 1 and the trial excluded patients with primary brain tumors, intracranial metastases, abnormal liver tests, platelets under 75,000, and creatinine clearance under 30. Hospitalists should consider that their patients may have a higher risk of VTE recurrence and significant bleeding than the study population.

BOTTOM LINE: Reduced-dose apixaban is noninferior compared to full-dose apixaban for the prevention of recurrent VTE in cancer patients and has a significantly lower risk of bleeding.

CITATION: Mahé I, et al. Extended reduced-dose apixaban for cancer-associated venous thromboembolism. *N Engl J Med*. 2025;392:1363-1373. doi: 10.1056/NEJMoa2416112.

Dr. Johnson is an assistant clinical professor and a hospitalist at UC San Diego Health in San Diego.

By Yan (Ann) Xing, MS, MD

9 Statin Use and Risk of HCC, Hepatic Decompensation, and Liver Fibrosis in Patients with Chronic Liver Disease

CLINICAL QUESTION: Does statin use lower the risk of hepatocellular carcinoma (HCC) and hepatic decompensation in patients with chronic liver disease by mitigating liver fibrosis progression?

BACKGROUND: Metabolic and alcohol-related liver diseases have become the major cause of hepatocellular carcinoma. Experimental studies suggest that statins may prevent hepatocarcinogenesis via anti-inflammatory, antifibrotic, and antioxidant mechanisms, but the association between statin use and incidence of HCC and hepatic decompensation is not fully understood.


Dr. Xing

STUDY DESIGN: Retrospective cohort study

SETTING: One hospital system, including 10 hospitals, with a research patient data registry of approximately four million patients in the U.S.

SYNOPSIS: Among 16,591 adults aged 40 and over with chronic liver disease (CLD), statin users were compared to the non-users, with the primary outcome as incidence of HCC and the secondary outcome as incidence of hepatic decompensation. Fibrosis was assessed by FIB-4 scores. Over 10 years, statin exposure was linked to lower HCC incidence (3.8% versus 8.0%; 95% CI, –5.3 to –3.1) and hepatic decompensation (10.6% versus 19.5%; CI, 10.6% to –7.3%). Patients with at least 600 cumulative defined daily doses had the lowest incidence of HCC (3.5%) compared with 8% of nonusers (95% CI, –5.6 to –3.2), highlighting a duration-response relationship. Statin users were more likely to transition from high to intermediate (31.8%; 95% CI, 28.0% to 35.9%) or to low (7.0%; 95% CI, 5.2% to 9.6%) FIB-4 score groups, compared with 18.8% (95% CI, 17.2% to 20.6%) and 4.3% (95% CI, 3.5% to 5.2%) of nonusers (P < 0.001). Limitations include possible confounding factors such as socioeconomic status, in addition to the inability to account for younger patients and different etiologies of CLD.

BOTTOM LINE: In patients with CLD, statin use, particularly of longer duration, was associated with a reduced risk of HCC and hepatic decompensation, supporting the potential role of statins in HCC prevention through their role in mitigating fibrosis progression.

CITATION: Choi J, et al. Statin use and risk of hepatocellular carcinoma and liver fibrosis in chronic liver disease. *JAMA Intern Med*. 2025;185(5):522-530. doi: 10.1001/jamainternmed.2025.0115.

Dr. Xing is an assistant clinical professor and a hospitalist at UC San Diego Health in San Diego. ■

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Abdominal POCUS: Accelerating Critical Diagnosis of Free Fluid and More

By Elian D. Abou Asala, MD, MBA

Abdominal ultrasound has become central in hospital medicine as a rapid, noninvasive, and radiation-free imaging modality for the evaluation of a wide range of acute and subacute abdominal conditions, in addition to its utility in evaluating volume status and offering procedural guidance.[1,2]

It plays an essential role in diagnosing pathologies in specific patient groups like children and pregnant women, where ultrasound is the preferred initial imaging test to address acute abdominal pain.[3,4]

The Society of Critical Care Medicine and the Infectious Diseases Society of America note that abdominal ultrasound is useful in critically ill patients with fever when abdominal symptoms or abnormal liver tests are present, aiding in the diagnosis of conditions such as acalculous cholecystitis, abscess, and appendicitis.[5]

Point-of-care ultrasound (POCUS) performed by hospitalists or non-radiologists has demonstrated moderate to excellent diagnostic accuracy for key abdominal pathologies after brief training and can alter management in a significant proportion of cases, with the diagnostic yield being highest when clinical suspicion is guided by history, physical examination, and laboratory findings.[6-9]

With that noted, operator skill and experience are critical determinants of diagnostic accuracy, and limitations include reduced sensitivity for certain pathologies and operator dependence.[8,9]

Case

A 65-year-old female with a history of end-stage renal disease secondary to focal segmental glomerulosclerosis presented to the emergency department for nausea that started earlier the same day. She had a renal transplant two years ago and is on immunosuppression.

On examination, Murphy's sign was slightly positive. Labs showed stable kidney function with a high-normal white blood count. Computed tomography of the abdomen and pelvis showed questionable increased gallbladder wall thickness. A right upper quadrant ultrasound was ordered; however, it was not available overnight. The patient started reporting abdominal pain with worsening nausea and vomiting. Abdominal POCUS performed overnight by the nocturnist showed increased gallbladder wall thickness with pericholecystic fluid concerning for acute cholecystitis. Surgery evaluated the patient at the bedside, and the patient was taken to the operating room overnight for cholecystectomy.

Clinical pearl

Abdominal ultrasound serves as a convenient and effective tool to avoid delays in detecting life-threatening conditions, especially when resources are limited. This has been endorsed by multiple professional societies.[10,11]

Case

A 28-year-old patient with homozygous sickle cell disease was admitted for abdominal pain and found to be in a vaso-occlusive pain crisis requiring IV opioids and hydration. On hospital day two, the patient had an unwitnessed fall in the bathroom and subsequently developed acute, severe left upper quadrant abdominal pain with hypotension. The physical exam revealed abdominal guarding and rebound tenderness. POCUS performed by the hospitalist showed free fluid in Morison's pouch and the splenorenal recess. An immediate CT of the abdomen confirmed hemoperitoneum with evidence of splenic injury. The patient was taken emergently to the operating room.

Clinical pearl

POCUS is a rapid bedside tool that can reliably detect intraperitoneal free fluid when done with an experienced hand. In this case, it enabled prompt recognition of splenic rupture, expediting surgical management and ensuring patient safety.[12,13]

Case

A 45-year-old male with a history of pancreatic cancer with retroperitoneal metastasis was admitted to the hospital for intractable nausea and vomiting post-chemotherapy session. Abdominal pain was benign without tenderness or distention, so a CT was not pursued. Labs showed acute kidney injury presumed to be pre-renal due to low oral intake and volume loss with vomiting. The patient was started on aggressive IV hydration.

Dr. Abou Asala

Dr. Abou Asala is a hospitalist and associate staff physician in the department of hospital medicine of the Cleveland Clinic Foundation, and a clinical assistant professor of medicine at the Cleveland Clinic Lerner College of Medicine, both in Cleveland.

On his first night in the hospital, the patient started having worsening left flank pain. A CT was ordered, but was considered non-emergent, so radiology prioritized other CTs overnight with plans to take the patient for a CT in the morning.

POCUS was performed overnight at the bedside, revealing moderate left-sided hydronephrosis. Urology was consulted and boarded the patient in the early morning for obstructive uropathy with acute kidney injury.

POCUS can facilitate prompt and accurate diagnosis of urinary tract obstruction, enabling timely urology consultation and initia-

tion of definitive management, enhancing patient safety and avoiding harm of delayed diagnosis.

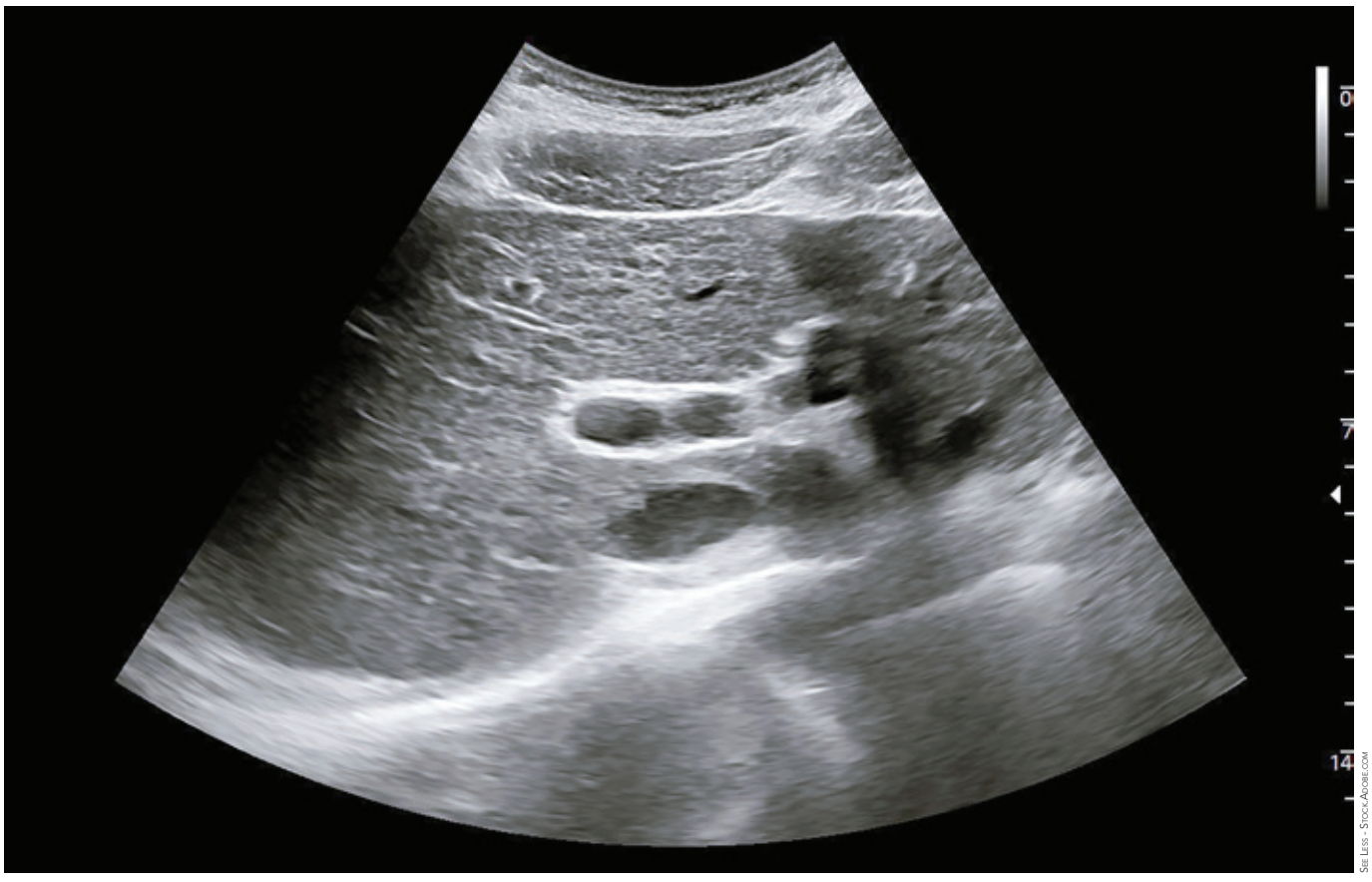
Clinical pearl

POCUS plays a central role in the rapid diagnosis of hydronephrosis at the bedside. It is highly sensitive to detect collecting system dilation and can be performed by non-radiologists with appropriate training, enabling timely identification of urinary tract obstruction. POCUS demonstrates sensitivity and specificity in the range of 85% to 90% for hydronephrosis, supporting its use as a first-line diagnostic tool to guide further management decisions.[14,15]

Case

A 62-year-old cachectic male with a history of heavy tobacco use presented with vague epigastric discomfort. A pulsatile abdominal mass was detected on exam. A CT was ordered but was considered non-emergent, and other CTs were prioritized overnight.

A bedside abdominal POCUS was performed by a hospitalist overnight, which revealed a 6.5 cm infrarenal abdominal aortic aneurysm. Due to these findings, a CT angiogram was done overnight and revealed an aneurysm with impending rupture. The finding prompted immediate vascular surgery consultation. The patient was taken to surgery overnight.



Ultrasound image shows signs of chronic liver parenchymal disease.

POCUS enabled rapid, non-invasive detection of a potentially life-threatening condition.

Clinical pearl

POCUS is highly effective in detecting abdominal aortic aneurysm, with sensitivity and specificity consistently reported in the range of 97% to 100% when performed by trained clinicians.[16]

In summary, abdominal POCUS is a rapid, noninvasive tool for the initial detection of cholecystitis, intra-abdominal free fluid, hydronephrosis, and abdominal aortic aneurysm.[17] Limitations still exist, however, and include operator dependency and reduced sensitivity for subtle or early findings.[18] While formal imaging remains necessary for equivocal or complex cases, POCUS serves as a handy tool in the initial evaluation, especially when resources are limited.[19] ■

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HIV Treatment Has Come a Long Way, Although Complications, Comorbidities Remain

The success of new drugs was a public health watershed moment for HIV care

By Vanessa Caceres

When hospitalists and other physicians who regularly treat patients with human immunodeficiency virus (HIV) reflect on the infection's initial days versus now, they are amazed at how far things have come. This year marks 30 years since 1995, the peak year for AIDS-related deaths in the U.S., when more than 50,000 deaths were reported.[1]

"It's really one of those unbelievable public health stories," said Daniel Rauch, MD, FAAP, SFHM, professor of pediatrics with Hackensack Meridian School of Medicine, and director of the division of pediatric hospital medicine and the division of general academic pediatrics at Hackensack Meridian Children's Health, both in Hackensack, New Jersey. Dr. Rauch worked with pediatric AIDS patients and mothers with HIV and AIDS in the early 1990s at Jacobi Medical Center in New York.


Dr. Rauch

Although HIV still exists, affecting an estimated 1.2 million people in the U.S., it's come a long way from a life-limiting disease to a chronic health issue that patients may manage just like they do diabetes or heart disease.[1]

Hospitalists and other in-hospital practitioners still play an important role in identifying HIV, begivnning treatments if they have not been started yet, managing opportunistic infections for those with advanced AIDS, and linking patients to outpatient support and care coordination.

The Hospitalist spoke with several hospitalists, infectious disease specialists, and other physicians to find out how care for patients living with HIV has evolved—and how hospitalists can most effectively help. Here's what we learned.

Pivotal Changes

Much of the change in HIV and how it affects patients is due to treatment revolutions. Many physicians note the introduction of azidothymidine, or AZT, for HIV/AIDS in 1987, but say the next round of treatments after AZT brought in the biggest change.

"I believe the most pivotal moment in HIV treatment was the development of highly active antiretroviral therapy, or combination therapy," said Michael Davis, DO, MPH, an infectious disease physician at Parkview Health in Fort Wayne, Indiana. "The development of these therapies gave us a chance to fully control the virus, eliminate HIV as a death sentence, and turn it into a chronic disease."


Dr. Davis

This type of therapy was introduced in the mid-1990s.

Combination therapy has decreased pill fatigue and allowed those with HIV to live longer, healthier lives with less hassle.[2]

Although combination therapy is effective, the initial combinations had many side effects and were hard for patients to take, said Monica Gandhi, MD, MPH, director of the UCSF-Bay Area Center for AIDS Research and professor of medicine and associate chief of UCSF's division of HIV, infectious diseases, and global medicine. Dr. Gandhi is also the medical director of the Ward 86 HIV Clinic at San Francisco General Hospital in San Francisco. When side effects were hard to manage, physicians would encourage patients to use the therapy and then take a break, with the goal of lowering the viral load. This continued as a strategy until the mid-2000s, when a single-pill combination for HIV became available and when the Strategies for Management of Antiretroviral Therapy, or SMART, study showed that taking breaks in therapy was not good for long-term outcomes, Dr. Gandhi explains.[3]


Dr. Gandhi

The combination of using a few pills eventually led to single-tablet regimens, including Atripla and Genvoya, followed by single-tablet regimens with high barriers to resistance, such as Triumeq, Biktarvy, and Symtuza, Dr. Davis said.

Today's common treatment regimens include antiretroviral therapy given by pill or injection. While these are effective at helping patients manage HIV, their cost can still be an issue and requires funding to maintain ongoing care via private or public health insurance and/or through the Ryan White HIV/AIDS Program, Dr. Davis said.

At Dr. Gandhi's clinic, the main treatment goals are to start treatment the same day that HIV is diagnosed, try to use a single-pill combination for starting therapy (which can be changed later to the injectable combination), and ensure that patients become virologically suppressed, with no detectable level of virus in their blood.

"After the availability of medications that were effective and had lower rates of long-term side effects, the current focus is on convenience of administration while maintaining efficacy and minimal long-term side effects," said Jose G. Castro, MD, FIDSA, clinical chief of the division of infectious diseases and program director for the Jackson Memorial Hospital/University of Miami infectious diseases fellowship program in Miami.


Dr. Castro

Future therapies aim for even more convenience for patients living with HIV.

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Screening is important (about 13% of patients who have HIV don't know it) and recommended for everyone 15 to 65 years old.

Logistical Challenges, Stigma

Although HIV treatment has progressed tremendously, there are still challenges to managing it well.

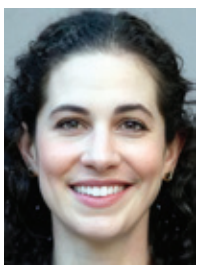
One major challenge is reaching all patients who need care. For example, having the right medications is not important if someone can't store them safely because they are unhoused, said Tyler Evans, MD, MS, MPH, who is CEO, chief medical officer, and co-founder of the Wellness Equity Alliance, which aims to address systemic inequities in health. Dr. Evans is also the author of "Pandemics, Poverty, and Politics: Decoding the Social and Political Drivers of Pandemics from Plague to COVID-19" and has treated patients living with HIV around the globe. This is one reason he advocates bringing care directly to places like shelters, encampments, and schools versus waiting for people to come to clinics.


Dr. Evans

Building on Dr. Evans' point, socioeconomics is often a factor in the care of those with HIV.

"Many patients who struggle with medication compliance and HIV control also may face issues with housing instability, poverty, mental health, or substance abuse," Dr. Davis said. "The availability of wrap-around services such as social workers, case managers, therapists, and substance use disorder counselors can be essential to ensuring successful HIV control in patients."

Getting patients to return for appointments in an outpatient setting can be a challenge because of everything else they manage in life, said Allison Bond, MD, MA, an assistant clinical professor in the department of medicine, divisions of infectious diseases and hospital medicine, and director of the department of medicine grand rounds at UCSF in San Francisco.


Dr. Bond

This is why many clinics focusing on HIV care have ways to connect patients with resources they need beyond just medical care. It also may be why HIV injections that are spaced apart by several weeks or months are often useful, Dr. Gandhi said.

"With everything else going on in life, patients will, if you call them, come in for their injection because they want to get that off their plate so they can concentrate on other issues. We use injectables in those with housing insecurity or other challenges, and it's been successful," she said.

Although living with HIV is less of a stigma than it once was, there still can be some resistance attached to that label, making treatment a challenge. Sometimes, the stigma comes from the patient's own beliefs. Dr. Gandhi said she hears some patients say that they can take their blood pressure or cholesterol medications, but hesitate to accept that they need to take their HIV medications. Injectable treatments—which are given by healthcare practitioners and do not need daily pill-taking—can be useful to combat stigma.

Getting more patients who are at high risk to use preventive medications also can be a challenge, Dr. Castro said. He also encounters patients who live with HIV but don't use treatment for it for a variety of reasons.

Health Complications

In addition to socioeconomic and logistical challenges, there are also health complications that patients living with HIV may sometimes face—especially when there is a late presentation of HIV infection.

Patients with end-stage AIDS are susceptible to a variety of "opportunistic infections" or infections which occur when the immune system is compromised, including fungal infections like cryptococcosis, pneumocystis pneumonia, and histoplasmosis; infections by viruses like cytomegalovirus and human herpes virus-8; parasitic infections like toxoplasmosis, accompanying infections such as viral hepatitis B and C, and other infections.

Dr. Evans often finds himself managing long-term comorbidities such as kidney disease, cancer, and metabolic issues. This is part of the reality of patients living longer but aging into chronic disease, often with fewer resources, he said.

Specialists say they also commonly see cardiovascular disease in patients living with HIV. "The mechanism for this increased risk is still not fully understood," Dr. Davis said. "However, there is some speculation that there could be residual inflammation from the virus and immune activation that may contribute to the elevated risk." There appears to be less of a risk among patients living with HIV who also use a statin, he said.

Obesity is another common comorbidity, as several of the newer antiretrovirals can have weight gain as a side effect. Some patients are able to maintain a healthy weight with lifestyle changes, while others struggle.

"With the widespread use of GLP-1 agonists, many HIV providers have been exploring the weight loss drug space and are starting some of their patients on GLP-1s," Dr. Davis said.

The Role of Hospitalists in HIV Management

Hospitalists are in a particularly prime spot to help patients with HIV—be it newly diagnosed or not—to manage their health.

"Hospitalists have a lot of ability to change people's lives, even if [people living with HIV] are leaving the hospital. And hospitalists can always call infectious disease if they need anything," Dr. Gandhi said.

Here are just some of the ways that hospitalists can help:

- Help patients feel comfortable. A caring, affirming approach and tone with a patient may help them start to advocate for their own care, versus speaking with them in a dismissive or stigmatizing tone, Dr. Evans said.
- Be careful with the language that you use. Dr. Davis recommends trying to use inclusive language and understanding a patient's gender identity or pronouns when addressing them. For example, "living with HIV" is preferable to "HIV patient." He also said that new terminology has basically eliminated the use of the term AIDS, as that still has significant stigma. "For those patients that have low CD4 counts, we have transitioned to using the term 'advanced HIV' instead," Dr. Davis said.
- Screen more patients. About 13% of patients who have HIV don't know it, according to the U.S. Department of Health and Human Services.[1] More screening can help more people start treatment if needed. "Normalizing HIV testing will help to decrease the stigma of the infection," Dr. Castro said. Policies about HIV testing may vary by facility. Other health facilities may choose to screen only patients who are at a higher risk for HIV but are at the hospital for any reason. "Hospitalists should think about being aggressive with testing. Got a broken ankle? Get an HIV test. We've picked up so much by establishing that," Dr. Gandhi said. This includes finding people with HIV who may consider themselves low risk, such as post-menopausal women. The U.S. Preventive Services Task Force recommends HIV screening for everyone between the ages of 15 and 65 years old.

- If someone is newly diagnosed, start HIV medications in the hospital. This is also applicable if someone has a prior HIV diagnosis, but they aren't virally suppressed, Dr. Bond said. "Work to start that medication in the hospital and facilitate outpatient follow-up to the best of your ability," she said. "This cross-section of the population also tends to have a lack of engagement in care. This might be the time that they are a captive audience, and we can really help move their care forward."
- Connect them with outpatient providers for coordination of care. Of course, you also can connect them with an HIV team if you have one at your hospital, Dr. Bond said. "I think for every patient with HIV who is not yet in care here, we try to have a warm handoff between the patient's inpatient team and the outpatient infectious disease physician and the social worker," she said.
- Work with younger patients on medication adherence. Although medications are more tolerable nowadays, adherence can still be hard for younger patients, Dr. Rauch said. "Teenagers are still teenagers. Work with them and try to get them to be responsible because it's a chronic disease at this point and not an imminent death sentence. They really can look forward to participating in life, going to college, and having a family," he said.

Policies and Prevention

Going forward, in addition to continuous improvement of treatments, there's more that can be done related to policies and prevention, according to physicians.

The number of new HIV infections decreased by 12% from 2018 to 2022, from 36,300 to 31,800, respectively.[1] This decrease likely occurred due to a jump in pre-exposure prophylaxis, or PrEP, prescriptions, viral suppression, and more HIV testing, according to the Department of Health and Human Services. Still, "it's not gone, so we need to keep the messaging about safe sex and keep the diagnostic question in our mind," Dr. Rauch said.

That includes making patients aware of pre-exposure prophylaxis. Plus, the "U=U" campaign, which stands for undetectable equals untransmittable, is particularly helpful, physicians say.

"As the message implies, if your HIV viral load is undetectable in blood, then the transmission risks are negligible," Dr. Davis said. Viral load levels less than 200 copies essentially prevent risk for transmission to others.[4]"Knowing that you can still live around friends and families or even be in an intimate relationship with your partner without being afraid of transmission is a huge burden taken off the shoulders of those living with HIV."

Continued education for the public and community outreach, especially in underserved areas, remains important. This includes sexual education to help prevent sexually transmitted diseases and taking patients' comprehensive sexual history to help educate on preventive strategies, Dr. Castro said. In addition to hospitalists, emergency department, urgent care, and primary care practitioners all have a role to play in prevention messages.

Maintaining federal funding through the Ryan White HIV/AIDS Program and helping to provide affordable health insurance for underserved populations remains crucial, Dr. Davis said. "Without access to medications, HIV incidence will likely increase due to the inability to afford medications that keep viremia controlled and therefore prevent transmission," he said.

As part of comprehensive care for patients, increased funding for comprehensive mental health and substance use care is also important, Dr. Davis said.

"Policies should be enacted that will facilitate strategies to prevent 'leaks' where people drop out of care, enabling targeted interventions to improve engagement and outcomes like maintaining an undetectable viral load, which prevents transmission," Dr. Castro said.

Vanessa Caceres is a medical writer in Bradenton, Fla.

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Demystifying Performance Measures for Hospitalists: CAUTI and CLABSI

By Chris Bruti, MD, MPH, SFHM, Vidushi Golla, MD, FACP, Hardik Vora, MBBS, MPH, FACP, SFHM, and Eileen Barrett, MD, MPH, SFHM

Healthcare-associated infections (HAIs), a term coined by the National Health Safety Network in 2005, refers to infections that arise in any inpatient or outpatient setting and appear within 48 hours after hospitalization, within 30 days after receiving healthcare, or up to 90 days after undergoing certain surgical procedures. There is substantial economic burden, morbidity and mortality, and risk of antibiotic resistance associated with these infections. Therefore, hospitals are encouraged and, in many states, mandated by state legislation to report HAIs. National Health Safety Network is the largest tracking system across the U.S. and has an extensive guide defining HAIs.

Prevention of two HAIs, catheter-associated urinary tract infections (CAUTI) and central line-associated bloodstream infections (CLABSI), keeps hospitalists particularly engaged. Hospital systems invest heavily in preventing these infections by establishing multidisciplinary committees including nurses, physicians, and infection prevention personnel. Hospital leadership routinely measures HAI performance as it can affect patients as well as hospitals' quality metrics and can result in financial losses and reputational damage when performance is lower than desired. The patient-level, administrative, and financial negative effects of CLABSI and CAUTI have made HAI prevention an important goal for all hospitalists.

Cases

Case 1: A 69-year-old woman with uncontrolled diabetes and heart failure was admitted to the ICU for septic shock, placed on vasopressors and strict monitoring of urine output. She improved and was later transferred to the floor with a Foley catheter in place on day five of her hospitalization. The Foley was removed that afternoon on the medical floor. Later that day, the patient developed a fever, and after appropriate assessment, the patient was diagnosed with a urinary tract infection that was defined as a CAUTI due to the Foley being present the same day. Per hospital policy, the general medical unit and the current treating hospitalist were "responsible" for the CAUTI and underwent an event review.

Case 2: A 72-year-old man was admitted to the ICU for septic shock from the emergency department, where a central line had been placed. He was able to be stabilized and on day five was transferred to the floor for further care with the central line in place due to the absence of other vascular access. After two attempts at peripheral access, the patient declined further attempts and requested to leave the central line in place after extensive counseling on the risks of doing so. The patient had a fever on day seven of hospitalization, was found to be bacteremic, and was diagnosed with CLABSI. The infection was attributed in the performance measurement system to the hospitalist group and the current treating hospitalist.

Discussion

The cases above illustrate some of the difficulties of using HAIs as an individual hospitalist or hospital medicine group performance metric. The goal for hospitalists is always to reduce harm to patients and the system through appropriate Foley catheter and central line stewardship. This requires more nuance than a simple measure, however, as many patient- and system-level factors should be considered.

Hospitalists can influence CAUTI and CLABSI rates by using evidence-based indications for indwelling catheter placement, evaluating ongoing need for indwelling catheters, and removing indwelling catheters as soon as they are not required or indicated. Procedural hospitalists can also reduce infection rate by using proper sterile techniques with central line placement. Hospitalists should also practice "culture stewardship" and order urine or blood cultures only when clinically indicated. However, as noted in case scenarios above, attribution can be a challenge when using CAUTI and CLABSI as a performance indicator for an individual hospitalist or a hospital-medicine group—especially if the metric is used for financial incentives, financial penalties, or other punitive action.

Apart from challenges with determining appropriate attribution, there are unintended consequences of CAUTI and CLABSI reduction efforts.

If not approached thoughtfully, overzealous administrative efforts to reduce CAUTI and CLABSI rates can result in deviation from the standard of care when managing patients who would typically benefit from indwelling urinary or central venous catheters. Such efforts may also undermine patient preferences. Hospitalists may be directly or indirectly incentivized to treat possible catheter-associated infections empirically rather than according to culture-and-sensitivity-driven antimicrobial therapy, and instead of following best practice recommendations from expert consensus guidelines. Many hospitalists may be incentivized to avoid catheter utilization above all else, resulting in unintended patient harm. Foley catheter avoidance may lead to urethral trauma from repeated straight catheterization and significant patient dissatisfaction. Central venous catheter avoidance may lead to tissue necrosis from vasopressor infiltration in a peripheral IV. Finally, health systems may divert valuable resources to optimize CAUTI and CLABSI rates rather than investing in clinical practices that would lead to improved clinical outcomes.

Focusing only on hospitalists' behaviors can distract from efforts to develop initiatives such as nurse-driven protocols for catheter removal, adoption of devices that may reduce CAUTI and CLABSI risk (such as external urinary catheters, peripherally inserted central catheters, and midline catheters), and creating a culture of safety where reducing HAIs is an interprofessional, enterprise-wide endeavor.

Conclusion

While acknowledging the vital importance of reducing CAUTI and CLABSI rates, we recommend against using CAUTI and CLABSI rates as a high-stakes measure for individual hospitalists or hospitalist groups. If hospital medicine groups are required to include CAUTI and CLABSI rates as a performance metric, we would suggest process measures as opposed to outcome measures. An example of a process measure would be the frequency of documentation of the indication for placement and the ongoing need for indwelling catheters. Documentation that reflects daily assessment, justification, and challenges to timely removal (which may include patient preferences, end-of-life considerations, or other challenges) should be encouraged. Hospitalists should continue to be involved in hospital-wide and unit-based interprofessional CAUTI and CLABSI prevention measures and HAI prevention committees, and should work in collaboration with nurses and infection prevention personnel to reduce these highly avoidable events throughout organizations. ■


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The authors are members of SHM's Performance Measurement and Reporting Committee, which created this series to explore quality measures common in hospital medicine.

For additional information about this measure, scan the QR code for the companion table prepared by members of SHM's Performance Measurement and Reporting Committee. SHM member login required.

Navigating the Path to Promotion

Understanding criteria, challenges, and opportunities

By Thomas R. Collins

Valerie Lang, MD, MHPE, is a hospitalist at the University of Rochester School of Medicine in Rochester, N.Y.—where she's also a tenured professor of medicine, a major academic achievement that is particularly notable for a hospitalist.

But achieving that rank, she said, was anything but pre-ordained.

Dr. Lang

When she was an assistant professor and was applying for promotion to associate professor, she had to demonstrate achievements in scholarship. Her work involved the development of an interactive virtual patient curriculum used in the education of medical students across the country. But this kind of scholarship didn't strike leaders involved in the promotions process as particularly important, Dr. Lang said. At one point, her work was described as a "case report," she recalled.

Gaps Remain in Promotion Criteria

"It really wasn't understood because the promotions criteria were interpreted through the lens of people who had made their clinical careers doing clinical or bench research, and, at that point, what counted were your grants and publications in peer-reviewed journals," Dr. Lang said. "Those aren't bad things—but it was very constricting."

Since then, the promotion process has become more accommodating to hospitalists, with more appreciation of their entire body of work and recognition of a wider range of scholarship, Dr. Lang said. Years after her hard-fought promotion to associate professor, her promotion to full professor was a much simpler process. But a gap still remains between the promotions criteria at most medical schools and the work that hospitalists do on a daily basis, she and others say.

"I've seen some enormous shifts in the promotions process," Dr. Lang said. "But I think that even with shifts, there's still some legacy of traditional approaches to the promotions process that still impact hospitalists a lot."

High-ranking hospitalists and promotion-seeking hospitalists alike say that—even though it's been about two decades since hospital medicine was first recognized as a medical subspecialty—the promotion process is still ill-fitted to their work, putting an added burden on hospitalists if they want to climb up through the academic ranks. Despite the challenges, they say, there are specific steps hospitalists can take to prepare themselves once the time for promotion comes around, with awareness and early preparation chief among them.

Dr. Migliore

Chris Migliore, MD, a hospitalist and assistant professor of medicine at Columbia University's Vagelos College of Physicians and Surgeons in New York, said the promotions criteria, for the most part, predate the hospital-medicine field, and don't contemplate the intense, day-to-day workload of hospitalists who usually have little time to do much else.

"The entire discipline was formed after many of these protocols for advancement for promotion were put into place," said Dr. Migliore, who himself has been preparing for the promotion process to become an associate professor. "It's such a unique role that those promotion processes didn't even consider someone in that unique of a role where all we're doing is taking care of patients."

Too Many Variations

Sahar Rooholamini, MD, MPH, a hospitalist, assistant dean for faculty recruitment and retention, and associate professor of pediatrics at the University of Washington in Seattle, where she has long been involved in the promotions process, said the variation of the promotions criteria from medical school to medical school also poses a challenge for hospitalists preparing themselves for the process.

Dr. Rooholamini

"If you've seen one institution's promotion guidelines, you've seen one institution's promotion guidelines," she said.

The University of Rochester's avenues for promotion are just one example of the complexities hospitalists have to consider.[1]

There are professional titles—such as professor of clinical medicine—for which no national reputation or scholarship is required. And there are academic titles, such as professor of medicine. Some academic titles have a clinical and teaching component, which many hospitalists choose. These may require minimal scholarship, but do require a national reputation for promotion to associate professor, Dr. Lang said.

Some hospitalists pursue the scholarship component, with "scholarship" generally meaning a tangible product or platform others can build on, one that undergoes peer review and is publicly disseminated. The advantage of being promoted via this component is that these faculty are eligible for tenure and sabbaticals.

"It's important for hospitalists to understand these nuances," Dr. Lang said.

Across medical schools, there are differences in the tracks that are offered, with different emphases depending on the track you're in. But some threads seem to run through many medical schools' promotion criteria.

Stumbling Blocks

Common stumbling blocks for hospitalists looking to be promoted from assistant professor to associate professor—often the first major promotion attempt undertaken by hospitalists—include requirements for a budding national reputation and publication requirements. Both of these require having time away from daily clinical demands in order to develop that part of the promotion portfolio.

At Columbia, promotion to associate professor with an "applied healthcare or public sciences" focus—often the track hospitalists would choose—requires a "strong regional reputation and emerging national reputation."[2]

The criteria also include "authorship of book chapters, case reports, or membership in clinical or public health research as a site investigator for large multicenter trials or public health intervention disciplines." There is a requirement for "development of guidelines/patient care or public health protocols." Both of these, Dr. Migliore noted, involve a peer-reviewed publication component.

A look at a sampling of other medical school promotion criteria shows that many of them mention a scholarship requirement.

The Northwestern University promotions criteria for clinical associate professor call for

"a local and regional reputation as an outstanding clinician and/or scholar in his/her area of expertise." Clinical impact and recognition are measured in part by "development and implementation of clinical protocols and guidelines, clinical programs, and/or quality initiatives; demonstration of unique clinical expertise; and publication of original papers, case reports, reviews, editorials, and book chapters."[3]

At the University of Washington, candidates for associate professor of clinical practice must have a "local or regional recognition for excellence." They also have to demonstrate outstanding clinical care, professionalism, and teaching over a sustained period, and must have "participated meaningfully" in one of five scholarship domains, at least locally.[4]

Dr. Rooholamini said that the University of Washington—like many schools—lays out the promotions process online and tries to support hospitalists and all physicians in their promotions efforts.

"If we want to recruit and retain excellent people, they need to understand how they are going to progress in their career, how they're going to be promoted, and what resources are available to them. We really try to help people thrive," she said. "Each university is going to have a different structure for this, but we are trying ... to provide a central place where people can go, at least to start asking questions."

She said guidance on the promotions process should be highlighted at the time of hiring, though she acknowledged this sometimes can be easier said than done.

She said this period can be "like drinking from a firehose—it's a lot of information, but ideally this would be part of onboarding."

Kathryn Westphal, MD, assistant professor of medicine at The Ohio State University in Columbus, said the university has been helpful in her pursuit of promotion.


Dr. Westphal

"They have been supportive of my clinical work and areas of scholarship and education," she said. "I am fortunate to have non-clinical time for these endeavors, which have helped me work towards the criteria for promotion."

At Ohio State, in addition to teaching, mentoring, and clinical work, candidates for associate professor in the clinician educator pathway must show "contributions to scholarship, a portion of which should be peer-reviewed journal publications either focused on the pedagogy of education or based on their clinical expertise."[5]

Dr. Migliore said hospitalists are not usually very proactive in tracking their progress to promotion because there is often little time or incentive to do so.

"They will have to choose—am I going to spend this time writing two papers and doing research, making sure that I can become an associate professor, versus, am I going to continue to see patients in clinic and rack up my RVUs to meet my clinical compensation targets so I can get full bonuses?" he said.

"I just don't believe the incentives are there," he said. "If you're going to compete on publications and length of stay, length of stay wins."

In the course of a hectic day, it's very easy for hospitalists to pay little attention to the promotion process, especially if it is difficult to navigate, he said.

"We are so busy taking care of patients that when we are confronted with these complex or Rube Goldberg-type systems, a lot of people are like: 'Is this required?'" And when the answer is "no," he says, the hospitalists respond with, "I'm ignoring it."

Dr. Lang has done research showing that hospitalists are less likely to seek out promotions if they see the criteria as not dovetailing with their identity as a hospitalist.[6]

"How hospitalists identify themselves is part of the challenge," she said. "If they see that their professional identity doesn't align with what the criteria value"—or if the criteria aren't practiced in the way it appears they should be—"then you get a lot of distrust and a lack of motivation."

She also found that hospitalists seeking promotion might have a hard time with the national-reputation requirement.

"That trips a lot of people up. Partly because if they've been focused on investing their work in the institution and less on traveling to conferences and networking outside the institutions, they sometimes can't meet that criteria," she said. "Reputation's very vague, it's nebulous. There's a lot of concern that it's wrought with bias, especially depending on the niche that you're working in."

Dr. Migliore said that academic institutions themselves can benefit from hospitalists being motivated to pursue promotions.

"Promotion for a hospitalist would lend credence to the field of hospital medicine when looked at by an outsider, or within a particular institution," he said. "If more hospitalists are at advanced ranks, this may increase their academic clout at an academic institution."

As it stands, though, he said, he works with more than one hospitalist at the assistant professor rank who "will likely never be an associate professor, but they are the best inpatient doctors I know."

Tips from the Trenches

These hospitalists—speaking from different ranks and perspectives but all of whom have thought about or studied the promotions process—offered several suggestions for navigating the process:

Understand the promotion criteria. Medical schools tend to publish their criteria online. They are often dozens of pages of dry reading, but hospitalists should read and have a good understanding of the criteria very early in their career so that they can begin preparing as soon as possible.

Dr. Rooholamini said that early-career hospitalists, when applying for jobs, tend to ask about things like call schedule, compensation, and education opportunities, and not about how the promotions process works. They are, she said, "happy to contribute and do the work but have very little context about what the scaffolding (is), what track they're on, what they need to do to get promoted."

They need to understand which tracks are available, whether clinical, education, or research-focused; which track they should choose; whether it's possible to switch tracks; how that switch might take place; and the timing of everything.

In other words, they should take charge of the process, she said.

"For people having gone through all this training and all this work, I would not assume someone is going to tell you when you're ready for promotion," Dr. Rooholamini said. "And instead, be proactive about it on the front end."

Dr. Migliore said he was only somewhat exaggerating when he said the promotions process is "100 percent opaque" to most early-career hospitalists. Instead of taking an interest in the process, there is "indeterminate optimism where we just expect good things for no reason."

Tips for Writing Promotion Letters

By Thomas R. Collins

If you are asked to write a letter of recommendation in support of a candidate seeking promotion, it can end up being an important factor that could have an impact on the rest of the applicant's career.

Two high-ranking hospitalists with experience in the promotions process have these tips for putting these letters together:

Don't treat it like a traditional recommendation letter. "The number one thing is, this is different than writing a letter for a medical student for residency. This is different than writing a letter for a colleague who's applying for a job," said Sahar Rooholamini, MD, MPH, a hospitalist and associate professor of pediatrics at the University of Washington in Seattle.

This is an arm's-length letter usually requested by the promotions committee to help them understand how you see the qualifications of the candidate matching, or not matching, the position they're seeking. No mentors or close collaborators, for example, are permitted to write such letters.

Know what's being asked for. The letter writer should read the request letter closely to fully understand the domains to be covered, Dr. Rooholamini said. Then they should synthesize the applicant's accomplishments and awards and conclude with their assessment.

Valerie Lang, MD, MHPE, a hospitalist at the University of Rochester School of Medicine in Rochester, N.Y., agreed.

"The criteria should be provided to you," she said. "Take a look at them and be sure to address these in the letter."

Look at other examples. Especially if they're writing one for the first time, it can be helpful to see similar letters that have been written by others, Dr. Rooholamini said.

"Ask to see a couple of these, because there is no one template, and it's helpful to see how people have organized it," she said.

If there is something you can't address, don't pretend otherwise. Dr. Lang said, "There are different components for which faculty are promoted—e.g., clinical care, teaching, research/scholarship. If you can't comment on a particular area"—for example, if you have no insight into the quality of their clinical care—"then just say so."

You are the responsible party, even if you use AI. Dr. Lang said that it has become more common for people to use AI for letter writing, but this has to be done with care.

"If you do this, you're still responsible for the content, so proofread carefully," she said. "Your own professional perspective on the promotion is important. If you need to defer to AI to write the whole letter for whatever reason,"—if you have too many obligations, say—"then you might consider declining to write it." ■

"Promotion is one of those things where we just expect people to figure it out—and that's just not how that works," he said.

Seek a mentor. Dr. Lang said that seeking out a mentor is important because mentors can help early-career hospitalists understand the nuances of the promotions process at that particular institution. Even though the criteria are written out in detail, how they are interpreted and put into practice—such as which criteria might be given more weight than others—varies from place to place.

"You really do need to have somebody who understands the local context and the local culture," Dr. Lang said.

Dr. Rooholamini said that if finding a traditional mentor is not possible, then you could ask two or three people whose opinion you value, and who have diverse experiences, to get together a couple of times a year to offer advice to hospitalists who are seeking it.

"You can form your own career development committee," she said.

Dr. Migliore said he has been meeting with a mentor to review his portfolio as he prepares to seek promotion to associate professor. Mentors also can help new hospitalists understand the process when they are first starting out, he said.

Track your progress. Dr. Westphal said she has created a document for this.

"I personally have created an Excel sheet with the criteria for promotion on my pathway to track my activities, roles, and publications," she said. "This makes it easy for me to see where I have gaps and where my strengths are, as opposed to going through my CV, which is more tedious."

Dr. Westphal has also helped create a database of faculty who have expressed willingness to write external letters of recommendation.

Seek time for research. Dr. Westphal said she has protected non-clinical time for scholarly work, but not all hospitalists do. She said it depends on your track and your positions. But she sought it out from the beginning, she said.

"Completing a pediatric hospital medicine fellowship allowed me to establish a pattern of productivity that could be continued if given the time as faculty, which the division and department supported with my initial contract," she said.

Get involved with societies. To prepare for promotion to associate professor, being involved with societies—such as the Society of Hospital Medicine or the Society of General Internal Medicine—can help develop the often-required "emerging national reputation," Dr. Migliore said.

"It is amazing, if you do really good work, how fast these spots open up," he said. "It does snowball into a national opportunity."

That, he said, is "what I have found to be the most effective—and, to be honest, the fastest—way to get national recognition, is to do really good work with a society." ■

Tom Collins is a medical writer based in South Florida.

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How We Did It

Embracing Tele-Hospitalist Cross-Coverage Model as a Solution for Staffing Shortages

By Jeydith Gutierrez, MD, MPH, Emily Cohen, MD, and Neha Jindal, MD

Staffing shortages in hospital medicine affect hospitals nationwide, presenting a critical challenge. The Association of American Medical Colleges projects a shortage of up to 86,000 physicians by 2036.[1] Hospitalist positions remain hard to fill, with vacancy rates ranging from 7% to 20% depending on the region.[2] Rural communities are more severely affected, including within the Veterans Health Administration (VHA), where 96% of rural VHA hospitals reported inpatient staffing vacancies in 2019.[3]

Rural VHA hospitals serve a critical need for millions of veterans living in rural areas, allowing them to receive care closer to their homes and support systems, which results in better outcomes.[4,5] Yet, maintaining inpatient staffing around the clock is challenging and costly. Moreover, VHA hospitals often have large campuses that include regular inpatient units, nursing homes, inpatient rehabilitation, psychiatry units, and long-term care, which amount to a large physical footprint, creating additional challenges for 24/7 coverage.

Solution Overview

The VA National Tele-Hospital Medicine (Tele-HM) program was created in 2019 as an innovative staffing model to support rural VHA hospitals. The pilot program supporting one site during the daytime showed high care-team acceptance and decreased length of stay.[6]

The Tele-HM Cross-Coverage Model

Given the critical need of many facilities for additional staffing support during weekends, holidays, evenings, and nighttime hours (often referred to as "WHEN" hours), the Tele-HM program implemented a gradual expansion to provide cross-coverage support to multiple rural VHA hospitals. With support from the Office of Rural Health's Enterprise-Wide Initiative, or EWI, program, Tele-HM cross-coverage services launched in the summer of 2023, serving just two hospitals initially with weekend and holiday service, and expanded to night coverage in September 2024. Similar night coverage models have been described in the community setting and have gained popularity among critical-access hospitals.[7]

The program's primary objectives included:

Dr. Gutierrez

Dr. Cohen

Dr. Jindal

Dr. Gutierrez is a clinical associate professor of internal medicine, interim division director of hospital medicine at the University of Iowa Carver College of Medicine in Iowa City, Iowa, and the director of the VA National TeleHospital Medicine program. Dr. Cohen works for the VA Clinical Resource Hubs in more remote and complex areas of the U.S., where there are gaps in coverage (primary care, specialty care, urgent, emergency, and hospital medicine care).Dr. Cohen delivers primary, urgent, emergency, and hospital medicine care across the VA system, extending her reach to multiple sites through coordinated telehealth systems and team-based models of care, bringing years of academic clinical experience to these sites while expanding access to resource limited areas of the U.S. Dr. Jindal is a hospitalist and section chief for hospital medicine at the Veterans Affairs New York Harbor Healthcare System, Manhattan campus, and an assistant professor in the department of medicine at NYU Grossman School of Medicine, both in New York, and deputy director of the VA National TeleHospital Medicine program.

- Providing 24/7 access to high-quality, timely, hospital medicine expertise for rural veterans admitted to rural VA facilities
- Supporting the workforce at rural VHA hospitals and enabling schedule flexibility
- Expanding system capacity and reducing the need for community care utilization
- Reducing staffing inefficiencies and optimizing workforce utilization

- Decreasing unnecessary escalations of care for after-hours evaluations

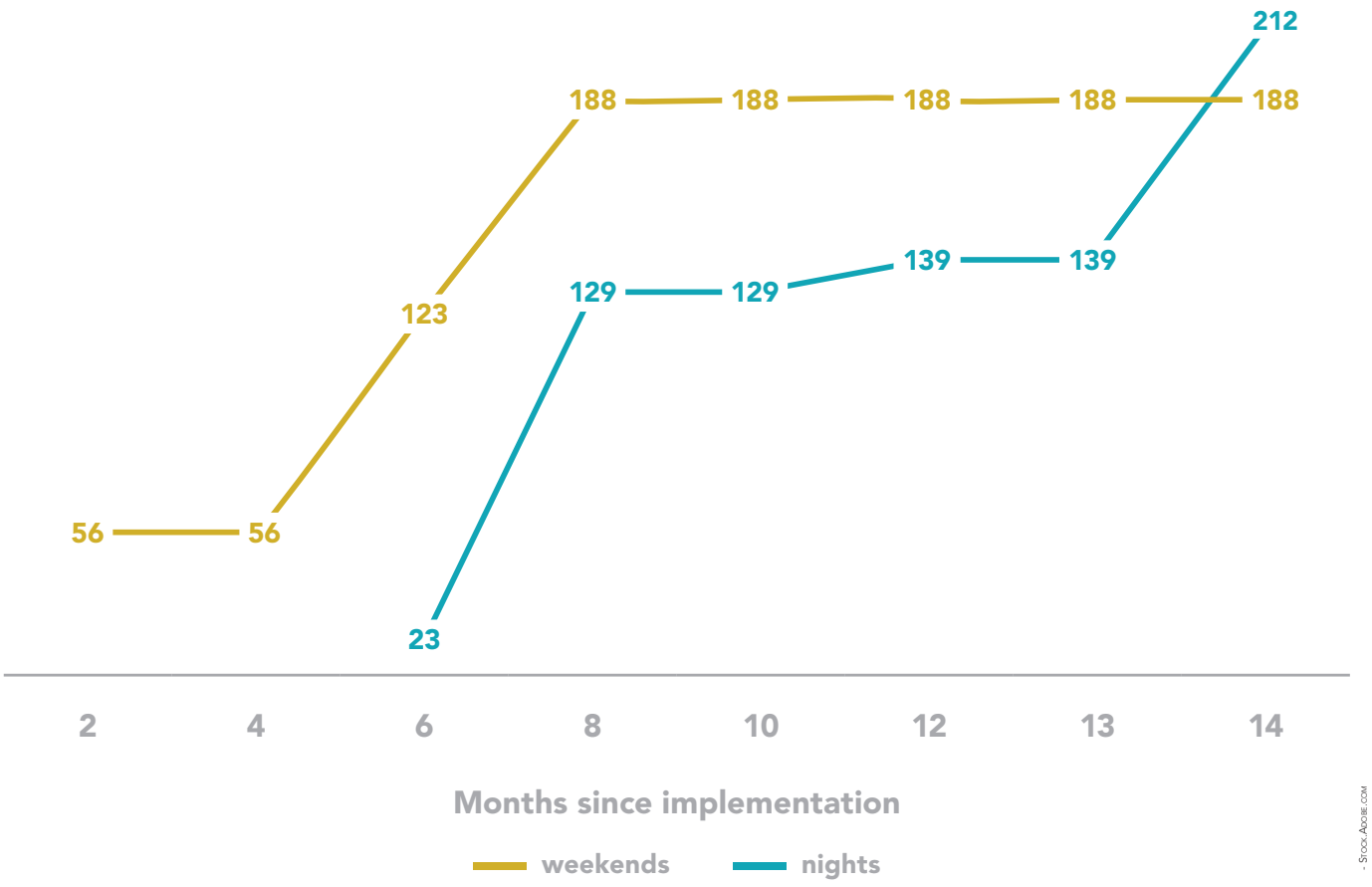
Given that a single telehospitalist can provide support to several facilities simultaneously, Tele-HM allows local practitioners to focus on the care of the most critically ill patients, while the telehospitalist can provide support for less acute patients, cross-coverage needs, and after-hours admissions. The model then promotes more efficient staffing structures, allows for built-in surge capacity, and promotes staff retention of on-site hospitals that can decrease their night coverage.

Implementation Process

The Tele-HM program is comprised of a national network of experienced, board-certified, Veterans Administration (VA) hospitalists, a nurse coordinator, and an administrative team. The VA Tele-HM hub is hosted by the Iowa City VA Healthcare System, and experienced hospitalists from across the country deliver care, leveraging the 2018 VA's "Anywhere to Anywhere" initiative that allows VA doctors and other healthcare clinicians "to administer care to veterans using telehealth, or virtual technology, regardless of where in the United States the provider or veteran is located, including when care will occur across state lines or outside a VA facility."[8]

Tele-HM uses the simplest technology possible to achieve the goal of delivering high-quality care. As such, only a modest upfront investment is needed to deploy the program, including video-capable, portable devices at the patient site, a tele-stethoscope, and optional peripherals (high-resolution camera, digital otoscope, etc.). Tele-HM practitioners access electronic health records, perform assessments via synchronous video telehealth secure portal, and collaborate with onsite nurses, tele-presenters, or practitioners (trainees, nurse practitioners, physician assistants, or non-medical specialists) to obtain all the relevant information and provide comprehensive care.

Figure 1. Number of Beds Covered By the Tele-HM Cross-Coverage



The Tele-HM cross-coverage model involves a three-phase implementation:

1. Pre-implementation (two to four months before go-live): During this phase, local teams in collaboration with the Tele-HM leadership meet regularly to identify the need for and the scope of services, complete administrative and credentialing processes, develop clinical protocols, procure equipment, and educate both "spoke" site and Tele-HM staff. Pre-implementation interviews with key local staff, and (if possible) site visits were conducted to learn about perceptions and attitudes toward the Tele-HM program, discover any anticipated challenges, build trust among teams, and facilitate the development of clinical care processes.

2. Implementation phase (go-live): this includes simulation and launching the selected service model. Currently, the VA Tele-HM program offers three models of care:

- Cross-coverage support: providing after-hours coverage and attending to the needs of patients admitted to VA acute, subacute, or residential settings
- Primary telehospitalist staffing: independently completing admissions, triages, and consults with the assistance of an on-site nursing staff or a tele-presenter
- Team-based care model: Tele-HM providing oversight or consultation of trainees or advanced practice practitioners

Facilities can select the service model based on their needs and local resources. During the shifts, Tele-HM clinicians have direct communication with the spoke sites using an online secure platform, conduct video visits for patient evaluations, place orders, and document in the chart. Written and verbal hand-off between Tele-HM providers and on-site practitioners allows for seamless transitions and optimal continuity of care.

3. Post-implementation phase: Tele-HM leadership teams and spoke site leaders join ongoing programmatic calls to facilitate continuous process improvements, identify any issues, and modify protocols based on changing needs. The Tele-HM team or the spoke sites will suggest opportunities for care process improvements if identified. Post-implementation surveys are also distributed to the spoke site staff and veterans served at regular intervals to assess satisfaction with the program.

Outcomes and Impact

Since 2019, the VA Tele-HM program has grown to meet the needs of rural veterans, implementing services at 11 rural VHA hospitals across eight states. The services have completed more than 7,500 patient encounters for more than 2,500 veterans. Six VHA hospitals have adopted the Tele-HM cross-coverage model in the past two years, with one more in the queue. Almost 6,000 hours of coverage for nights, weekends, and holidays have been provided to the Tele-HM cross-coverage spoke sites, and the practitioners have completed more than 1,300 clinical contacts.

The number of beds covered by the program has rapidly increased both for weekend and nighttime hours, as shown in Figure 1.

Veteran experience with the program has been overwhelmingly positive. Of 120 post-discharge patient phone surveys completed (180 attempted, 67% response rate) by veterans who interacted with the program, 96% were satisfied or very satisfied with the care they received during the hospitalization, 95% agree or strongly agree that telehospitalist practitioners managed their care well, more than 90% reported excellent communication skills for the practitioners, including explaining things in ways the patient could understand and listening attentively to their concerns, and 95% did not report any issues with the technology or connectivity.

On-site care teams have reported the program's positive impacts: staffing and scheduling flexibility, built-in surge capacity, leave coverage, increased retention and job satisfaction for onsite staff, and significant cost savings.

Tele-HM cross-coverage has resulted in cost reductions of an average of $600,000 annually in savings per site and allowed for a reduction of an average of two full-time equivalent (FTE) onsite clinicians, without affecting access or timeliness of veteran care. In addition, partner sites have reported significant reductions in

Key Points

- The Tele-HM cross-coverage program is revolutionizing rural veteran care by providing high-quality on-demand hospitalist physician expertise 24/7.
- The program ensures continuous access to care at rural VA medical centers despite severe staffing shortages.
- By covering multiple facilities simultaneously, the Tele-HM program optimizes hospitalist workforce utilization across the VHA, reduces external transfers, and facilitates the dissemination of best practices across the VHA.
- This model can be used by other healthcare systems providing services to smaller and rural hospitals with low patient volume to increase staffing efficiency while maintaining access to care.
- Future directions include expanding the model and leveraging technology solutions to optimize triage and communication functions.

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unnecessary escalations of care to the emergency department or inpatient units from the nursing homes or residential programs. These quantifiable successes illustrate the program's effectiveness in improving access, quality of care, and operational efficiency while reducing costs.

With the increasing need to optimize access to care, increased shortages of hospitalists nationwide, and ongoing efforts to reduce costs, telehospitalist programs, and in particular the telehospitalist cross-coverage model, offer a sustainable solution for federal agencies and multi-site healthcare systems. By covering multiple sites simultaneously, it optimizes workforce utilization, bed capacity, reduces external transfers, and facilitates the adoption of best practices across multiple sites. Given that federal physicians can deliver care across state lines, and the fact that the VHA has been a pioneer in the development and adoption of telehealth programs, the VHA is a prime environment to expand this model. With a national reach, the program can continue to help the VHA to share its hospitalist workforce across the enterprise to support the more than 130 VA hospitals, serving more than nine million veterans. Lessons from the program can be extrapolated to other multi-site healthcare systems with growing footprints and increased need for efficiency.

Lessons Learned

Flexibility is a key aspect of program development and implementation. Despite the VA being a national healthcare system, each facility has a series of unique and specific needs. A key driver of success for the program has been striking a balance between meeting sites' unique needs and standardizing processes across sites to allow scalability.

Continuous stakeholder engagement and local clinical champions are important. Clinical champions help inform clinical processes, ensure they are appropriate for the local context, and anticipate potential barriers, while stakeholders align goals and vision for the program and effectively communicate with their teams.

Pre-implementation site visits facilitate deployment and increase trust. Direct observation of local resources, processes, and operations by the Tele-HM team facilitated the development of more comprehensive training materials for the Tele-HM staff and helped build trust with the partner spoke site.

Ongoing feedback ensures sustainability. Adjustments and modifications based on outcomes, feedback, and changes in need are critical to sustainment.

Disseminating best practices expands quality improvement. Many Tele-HM providers are academic hospitalists, which has helped to disseminate evidence-based practices more expeditiously to rural facilities. For example, Tele-HM team members participated in a nationwide task force to improve alcohol withdrawal syndrome treatment across the VHA.

A strong administrative team and internal communication mechanisms are critical. Program administrative support helps to ensure seamless deployment and implementation. Strong internal communication channels and robust training materials allow the program to keep practitioners continuously up to date, which promotes ongoing success.

The VHA Tele-HM cross-coverage model adds to the body of evidence that telehealth use for after-hours hospitalist care is feasible, safe, and cost-effective.[7,9]

Future Directions

Future steps include expanding the Tele-HM service to more VHA hospitals across the country; providing surge capacity for rural and urban facilities, emergency coverage, and disaster response; and even expanding to sites outside the VHA to facilitate consultations and care coordination for veterans admitted to community hospitals.

Tele-HM is also exploring further technological enhancements to improve service delivery, including a pilot technology solution for triaging requests from different sites, which will allow the program to further streamline communication and reduce response times. The program aims to extend its reach while continuing to refine processes for even greater efficiency and effectiveness. ■

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Overdiagnosis in the Inpatient Setting: Lessons from Goldilocks

How hospitalists can make a difference

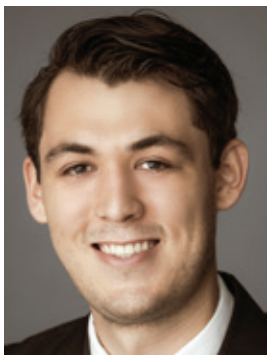
By Nikolai E. Bayro-Jablonski, MD, Sonali L. Iyer, MD, FACP, and Richard M. Wardrop, MD, PhD, MACP, FAAP, SFHM

A 68-year-old male with left hemiplegia resulting from a cerebrovascular accident, type 2 diabetes mellitus, and a left ureteral stone presents to the emergency department with diarrhea, dysuria, and urinary urgency.

Urinary frequency began three days before admission, and dysuria started two days prior. The urine exhibited a pink discoloration. These urinary symptoms were accompanied by abdominal and flank pain, fatigue, and sleep disturbances due to frequent bathroom trips. The diarrhea commenced one week earlier, without any associated melena or hematochezia, and was accompanied by rigors. The patient denies experiencing any nausea, vomiting, chest pain, or shortness of breath.

Urinalysis revealed 3+ protein, a high level of leukocyte esterase with a white blood cell count exceeding 182, significant hemoglobin with a red blood cell count of 103, and numerous bacteria. A CT scan of the abdomen and pelvis identified a 4 mm left renal stone without perinephric stranding or inflammatory changes in the colon. In the emergency department, the patient presented with a systolic blood pressure of 86 mmHg, a respiratory rate of 15 breaths per minute, a pulse of 100 beats per minute, and a white blood cell count of 10.9. A one-liter fluid bolus was given, resulting in a systolic blood pressure recovery to 119 mmHg and a pulse of 97. Blood cultures and lactate levels were obtained, and ceftriaxone was initiated. The patient was transferred to the hospital medicine team, having met two of the four systemic inflammatory response syndrome, or SIRS, criteria for sepsis.

When analyzing this case, consider the following question: Is this patient benefiting from the standard-of-care sepsis bundle?



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Definitions

The pursuit of certainty is ingrained in the medical profession, and diagnostic uncertainty is perceived as undesirable and uncomfortable.[1] As contemporary medical practice is scrutinized through the lens of high-value care, this attitude of "chasing a diagnosis" has been highlighted as a potential risk for medical overuse, and its occurrence is categorized as overdiagnosis.[1]

Overdiagnosis is broadly understood as the labeling of a person with a disease or abnormal condition that would not have caused the person harm if left undiscovered.[2] Although the diagnosis is accurate and the finding represents a true positive, individuals derive no clinical benefit from it, and it may expose them to physical, psychological, or financial harm.[2-4] Examples include incidentalomas, solitary pulmonary nodules, thyroid nodules, subsegmental pulmonary embolisms, and other entities such as the sepsis diagnosis, based on systemic inflammatory response syndrome criteria, as described in the clinical vignette. In this piece, we explore the complex interplay that surrounds overdiagnosis, including its drivers, triggers, and consequences. In addition, we explore risk mitigation strategies, highlight current challenges, and contextualize overdiagnosis in the inpatient setting.

A Model for Overdiagnosis

As an epistemological problem, the issue of overdiagnosis materializes from the convergence of unreliable information (inherent to our imperfect diagnostic means) and the need to identify and categorize disease early to improve outcomes. The tension between these two realities is further influenced by therapeutic interventions that expose patients to harm and provide varying degrees of clinical benefits.[5]

Table 1. Initiatives to mitigate overdiagnosis

INTERVENTION	DESCRIPTION
Changing institutional priorities	Supporting an institutionally driven focus on overuse reduction strategies, both at the provider and the community level.[1]
Research	Endorsing research protocols focused on evaluating the risk factors, the consequences, and the potential solutions for overdiagnosis. Modifying the structure of diagnostic test evaluation to allow for evaluation of the impact that the tests have on patients' outcomes instead of focusing solely on the accuracy of the study.[3,19]
Campaigns	Medical-journal-led awareness campaigns such as *JAMA's* "Less is More," *BMJ's* "Too Much Medicine," and *The Lancet's* "Medical Overuse" highlight the negative impact of overdiagnosis on the health of patients.[20] Additionally, the American Board of Internal Medicine's "Choosing Wisely" campaign was established in 2012 to reduce wasteful care and encourage conversations about treatment with patients.[1]
Revised terminology	Revising the medical terminology to better reflect the expected outcomes of clinical findings has already been implemented, as in the case of "cervical intraepithelial neoplasia" (CIN). These efforts aim to decrease the treatment burden and allow for higher adoption of "watch and wait" strategies that decrease the harm of overtreatment.[2]
Medical education	Incorporating concepts related to overuse and overdiagnosis in medical training. Modifying problem-based learning to encourage a high-value, probabilistic approach rather than a possibilistic one. Discourage black-and-white thinking; nurture, instead, critical thinking and a tolerance for uncertainty.[1,3,19]
Shared decision making and patient education	Promoting shared decision making concerning screening practices, discussing the potential harms and benefits, and considering the individual risk profile of the patients. Providing education about direct-to-consumer advertising for diagnostic tests, fostering open communications where patients can voice their concerns regarding individual risk for disease.[1,2,21,22]
Changing screening practices	Migrating from a general screening strategy to a limited, high-risk screening strategy to decrease the risk of overdiagnosis. Adopting screening strategies shown to reduce mortality with high-quality medical evidence. Fostering dialogue with patients regarding the potential risks and benefits of medical screening, particularly concerning overdiagnosis.[2,23,24]
Developing guidelines with overdiagnosis in mind	Incorporating a systematic evaluation of the risk of overdiagnosis into guideline recommendations, similar to the existing GRADE approach to grading the quality of the evidence.[17]

Figure 1. Hospital Course

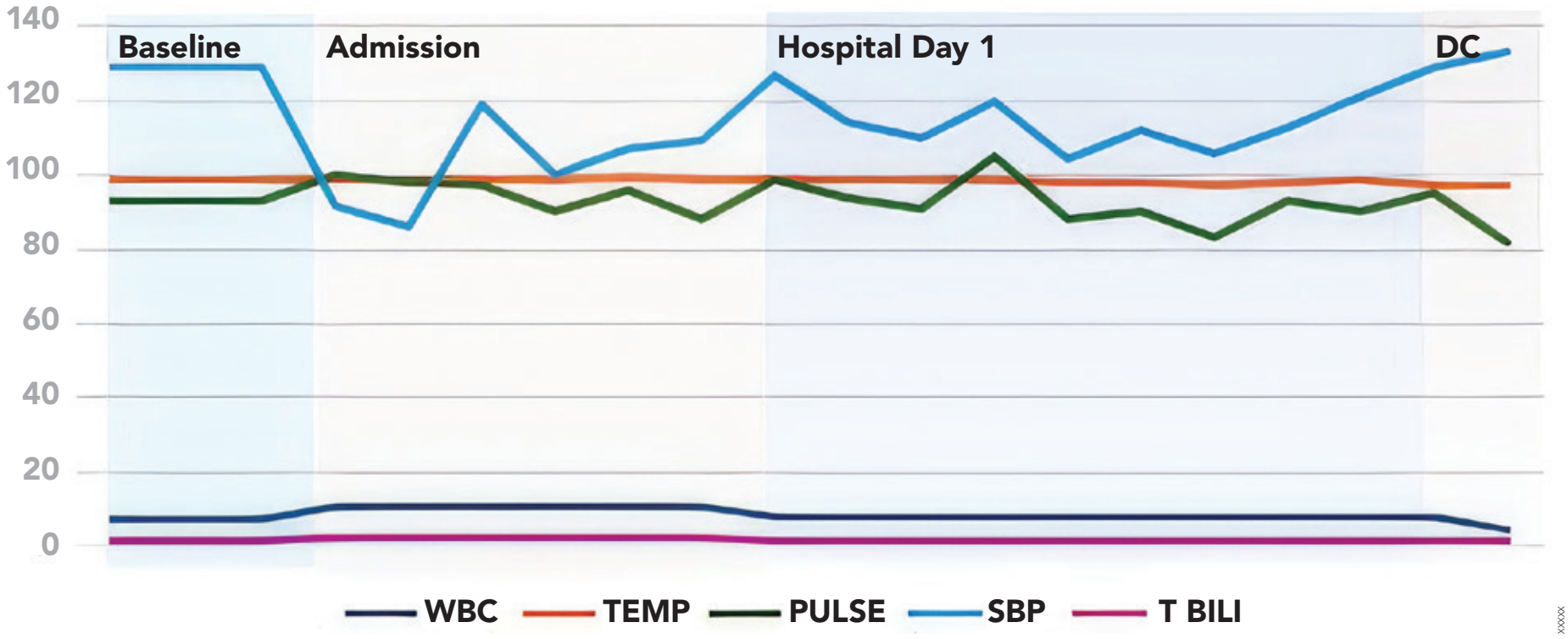

Figure 1. Timeline showing the evolution of relevant vital signs and laboratory values from the clinical vignette presented above

Although originating from this opposition, overdiagnosis is only significant in the right epidemiological environment. A rich reservoir of an undiagnosed subclinical disease is needed, consisting of low-grade instances of the disease that, in the absence of intentional search, would elude detection.[2] In addition, a readily available diagnostic method with the capability of detecting these instances is needed, allowing the clinician to "tap" into this reservoir, usually prompted by standardized screening protocols or extensive diagnostic workups.[2]

This complex interplay results in the overdiagnosis conundrum, where efforts to decrease underdiagnosis of serious occult disease lead to an increase in the identification and potential treatment of subclinical and benign forms of the disease, which would have never been identified otherwise and would not have an impact on the patient's clinical outcomes.

Drivers

With this model in mind, several drivers have been identified that increase the risk of overdiagnosis in a population. These include factors related to medical practice, patients, and the healthcare system as well as technological advancements, economic interests, and cultural beliefs.[6] These factors often work in tandem, leading to clinical practice shifts that expose a larger part of the population to unnecessary testing and treatment.

As many of these factors stem from forces that drive decision making in the medical field, the role of healthcare professionals in impacting the rate of overdiagnosis cannot be overstated.[6] An intolerance towards uncertainty is often cited as a powerful motivator for diagnostic testing. Three potential factors underlying unnecessary testing include problem-based learning strategies in medical education that encourage a shotgun approach to diagnosis; perceived pressure exerted by patients to perform wider investigations; and fear of litigation.[3]

The contribution of industry interests to the growing rate of overdiagnosis has been extensively discussed in the literature.[3,7,8] A recent example of this occurred in 2013 when an expert panel recommendation for a modification of the indications for statin medications increased the number of healthy people taking the medications by more than 13.5 million in the U.S. alone.[9] When analyzing the panel, eight out of the 16 panelists had industry ties, including the chairman and two additional co-chairs.[10] This pattern is not unusual, as research shows that 75% of members of panels responsible for defining the most common diseases in the U.S. have ties to industry that stood to benefit from expanded definitions.[11] Additionally, the use of industry-issued direct-to-consumer marketing capitalizing on a patient's fear of undiagnosed disease has also been highlighted as an important factor in the growing rate of unnecessary diagnostic procedures.[3,7]

Several systemic features also factor into the increasing rate of overdiagnosis. Fee-for-service reimbursement, for example, financially rewards medical practice that errs on the side of providing more care. Another notable case is supply-sensitive care, where higher capacity drives medical utilization and is bound to uncover an excess of abnormalities. Finally, underuse-focused healthcare-quality evaluations lead to physicians showing a disproportionate improvement in quality indicators aimed at insufficient use when compared to resource overuse.[3]

Impact of Overdiagnosis

The relevance behind mitigating the risk of overdiagnosis lies in its negative impact on patients, medical practice, healthcare institutions, and the environment.[1,3,12,13] A conceptual map created by Korenstein et al. of the consequences of overuse can be used to describe the negative impact that overdiagnosis has on patients. This framework describes six distinct categories of harm: physical effects, psychological effects, treatment burden, social effects, financial strain, and overall dissatisfaction with health care.[14]

The negative impact that overdiagnosis has on the physical health of patients stems from the underlying risk posed by medical diagnostic methods and therapeutic interventions. As described by Coon et al., "a single test can give rise to a cascade of events, many of which have the potential to harm."[3] It is through that chain of events that a screening test, virtually harmless on its own, has the potential to impair quality of life and lead to increased morbidity and mortality caused by adverse effects and complications of unnecessary subsequent testing or treatment.[1,12]

These diagnostic and therapeutic efforts represent an important financial strain for both patients and the healthcare system. Unnecessary and wasteful care is estimated to constitute between 21% and 47% of all healthcare-related expenditure, a number that probably doesn't fully represent the waste associated with overdiagnosis, as in many cases it is assumed to be necessary, regardless of its benefit to the patient.[12,15]

An often-overlooked consequence of overdiagnosis is the psychological harm associated with being labeled with a disease. This identification impacts the relationship between patients and themselves, their close relatives, and society as a whole, putting the patient at risk for stigmatization and further morbidity, and indirectly placing them at a disadvantage when applying for health benefits.[2,12,16,17]

The negative impact that overdiagnosis has on the environment is a matter of current discussion in the academic field, as the healthcare sector contributes 4.6% of greenhouse-gas emissions, and overtreatment (frequently secondary to overdiagnosis) contributes up to $101.2 billion (U.S.) in annual cost of medical waste.[13,18]

Mitigating the Risk

The growing body of clinical evidence showing the harm caused by overdiagnosis has sparked significant interest in developing initiatives that counteract the risk factors associated with its development. These include changes in institutional priorities, research focus, medical screening, and shared decision making, as well as awareness campaigns, modifications of the medical education curriculum, and the development of clinical guidelines that consider overdiagnosis (Table 1).

Looking back at the case vignette, the patient was admitted to the medical ward with a diagnosis of sepsis and continued on antibiotics and aggressive volume control. A close follow-up of the patient's vitals and relevant laboratory values (Figure 1) showed an unusually quick resolution, which prompted the team to reconsider the initial diagnosis.

Sepsis Overdiagnosis: A Case Analysis

As the most expensive inpatient condition in the U.S., sepsis not only affects patients' outcomes and well-being but also places a

burden on institutional resources.[25] Even with its diagnostic revision, sepsis remains a challenging entity to identify due to its complex clinical presentation, the wide spectrum of mimics, and the substantial increases in mortality associated with treatment delay.[25–28] This milieu has led to institutional practices that favor prompt treatment initiation over diagnostic certainty, in the hope that by acting aggressively, patient outcomes can be improved.[27,29] However, studies exploring the clinical impact of these "bundled sepsis care" practices reported increased rates of antibiotic use without significant reductions in sepsis mortality trends.[27,30] This raised concerns about a growing rate of sepsis overdiagnosis, prompting several groups to examine their cohorts in this light. Interestingly, published studies vary considerably in their results, with overdiagnosis incidence estimates ranging from 8.5% to 43%.[25,27,28,30] In addition to methodological concerns relating to the inherent limitations of retrospective studies, these varying results point to a significant problem in the study of overdiagnosis in clinical practice: its identification.

Challenge of Identifying Overdiagnosis

One of the biggest challenges surrounding the identification and characterization of overdiagnosis lies in its measurement. The traditional approach to identifying overdiagnosis relies on a careful analysis of clinical studies based on population screening programs, with multiple methods available to quantify its incidence.[31] However, results vary widely depending on the methodology used, even when studying the same condition.[2,4] In their state-of-the-art review, Senevirathna and colleagues explore the available methods for quantifying overdiagnosis, analyzing their limitations, and addressing the varying results obtained with each approach.[4] Nonetheless, solving the problem of adequately measuring overdiagnosis does not address a bigger problem in its clinical applicability.

Overdiagnosis is, by definition, a retrospective diagnosis. It is the product of a decision taken in clinical uncertainty. It can only be properly named as such once the identified disease is proven to be harmless and the consequences of overtreatment have already occurred. Thus, while it remains a useful tool in identifying population trends, its current definition is of no clinical benefit for the individual patient. With this in mind, several authors have proposed modifying the formal concept of overdiagnosis for it to apply to the care of individual patients, with some even suggesting that

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a reconceptualization of our idea of disease is needed for this to be possible.[16,32–34]

The issue of overdiagnosis challenges our traditional conceptions of disease. By highlighting the inadequacy of diagnostic criteria and uncovering the existence of states that fit poorly into our traditionally dichotomic conception of health, overdiagnosis encourages doctors and patients to think differently about cases that fall within this borderline zone. When approaching this question, authors argue for the adoption of alternative accounts of disease, some labeling it a "vague concept" that does not have clear boundaries and thus allows for the classification of borderline cases that resist traditional labeling.[7,16] In addition, such a definition underlines the relationship between our inherently flawed diagnostic criteria and the conceptions of disease, as well as our subjective accounts of harm, risk, and dysfunction used to characterize it.[16]

Conclusion

While overdiagnosis may be a phenomenon that neither physicians nor patients frequently consider, there is clearly potential for harm as a result. Due to the nature of our diagnostic model and our collective ethical imperative of beneficence towards our patients, physicians' inherent need to be precise and exact can paradoxically lead to downstream effects that are undesirable. While it is of course difficult to identify overdiagnosis in real time and thus mitigate its risks to patients and our health care system, many well-known examples exist and can be reviewed with the hope of informing current and future practice. Likewise, although several strategies exist to mitigate the risk and harms of overdiagnosis, knowledge combined with practical approaches is favored. ■

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To Pair Furosemide with Albumin or Not?

The dilemma of managing diuretic resistance

By Mehraneh Khalighi, MD, and Lily Ackermann, MD

FLIPSIDE

Furosemide, a highly protein-bound organic acid, promotes free water clearance and natriuresis by entering the proximal tubules of the kidneys and blocking the sodium-potassium-chloride co-transporters in the thick ascending loop of Henle, thus inhibiting the reabsorption of sodium and chloride.[1] It is a potent loop diuretic commonly used for the management of fluid overload. However, diuretic resistance, defined as the failure to achieve the desired level of diuresis despite maximal doses of diuretics, can occur in certain clinical situations.[2]

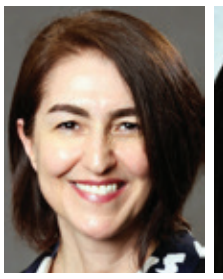
Hypoalbuminemia resulting from co-morbidities such as nephrotic syndrome, malnutrition, and cirrhosis has been associated with diuretic resistance stemming from decreased tubular secretion of furosemide into the urine.[3–5] Other causes of diuretic resistance include vasoconstriction of kidney blood vessels, resulting in decreased delivery of diuretics and compensatory tubular sodium reabsorption in congestive heart failure (CHF) and impaired tubular secretion of diuretics in chronic kidney disease (CKD).[2]

Although the co-administration of albumin and furosemide in cases of diuretic resistance has been proposed to enhance the diuretic effect by restoring plasma oncotic pressure and facilitating the renal distribution and efficacy of furosemide, the clinical impact of this approach remains a topic of ongoing debate and may vary depending on the underlying cause of diuretic resistance.[6-8] We review the evidence for and against the use of albumin to enhance the diuretic effect of furosemide.

Albumin Enhances the Diuretic Effect of Furosemide

You take over the care of a 67-year-old man with known CHF and stage 3 CKD, who was admitted to the hospital two days ago with worsening dyspnea. On admission, he had significant bilateral lower extremity edema, pulmonary crackles, and jugular venous distension. His labs revealed a creatinine level of 1.5 mg/dL and a serum albumin level of 2.1 g/dL. Initial treatment with intravenous furosemide 80 mg twice daily has been ineffective, and the patient has had minimal urine output with progressive weight gain and persistent dyspnea.

You suspect diuretic resistance, which is exacerbated by hypoalbuminemia, and administer 30 g of intravenous albumin followed by a 100 mg bolus of intravenous furosemide. The patient has a substantial increase in urine output and a decrease in dyspnea over the next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12 hours. You decide to continue intravenous albumin followed by furosemide twice daily until the patient is euvolemic.

Albumin Does Not Enhance the Diuretic Effect of Furosemide and May Have Harmful Effects

You take over the care of a 67-year-old man with known CHF who was admitted to the hospital two days ago with worsening dyspnea. On admission, he had significant bilateral lower extremity edema, pulmonary crackles, and jugular venous distension. His labs revealed a creatinine level of 1.1 mg/dL and a serum albumin level within normal range. Initial treatment with intravenous furosemide 80 mg twice daily has been ineffective, and the patient has had minimal urine output with progressive weight gain and persistent dyspnea.

You suspect diuretic resistance and administer 30 g of intravenous albumin followed by a 100 mg bolus of intravenous furosemide, hoping to enhance the diuretic response. The patient continues to have minimal urine output with progression of dyspnea and edema over the next 24 hours despite albumin administration.

Discussion

Diuretic resistance presents a common clinical challenge in hospitalized patients and has been associated with prolonged hospital stays, increased readmission rates, and elevated mortality rates.[9,10] Co-administration of albumin and furosemide in cases of diuretic resistance has been proposed to enhance diuresis.

A 2021 meta-analysis evaluating the efficacy of furosemide and albumin co-administration found increased diuretic effect with co-administration of high-dose albumin (> 30 g; *P* = .02) and furosemide.[6] Urine output increased by an average of 31.45 mL/hour (95% confidence interval [CI], 19.30 to 43.59) compared to furosemide treatment alone. However, the administered doses of albumin varied widely among the included studies, ranging from 6 g to 40 g, or weight-based dosing at 0.5 g/kg.[6] Patients with impaired renal function, particularly those with baseline creatinine level greater than 1.2 mg/dL (*P* = .07) or an estimated glomerular filtration rate of less than 60 ml/min/1.73m2 (*P* = .10), tended to exhibit a better response to the co-administration of albumin and furosemide, but without statistical significance. Increase in urine output was mainly observed within 12 hours of albumin infusion (*P* = .01), which is an ideal interval for a convenient twice-daily dosing regimen in the hospital.[6] Additionally, there was significant heterogeneity among the included studies, characterized by limited participant enrollment and varying treatment responses. These factors contribute to uncertainty in the clinical application of these findings, as demonstrated by the observed difference in urine output, which, although statistically significant, is likely without meaningful clinical impact. Another meta-analysis of 10 studies also showed that administering albumin with furosemide led to a significant increase in the amount of urine volume (231 mL; 95% CI, 135.5 to 326.5) and sodium excretion (15.9 mEq; 95% CI, 4.9 to 26.8) in eight hours. However, these differences were not significant at 24 hours.[11]

Notably, in low albumin states (<2.5 g/dL; *P* = .04) like nephrotic syndrome, cirrhosis, or severe malnutrition, co-administration of high-dose albumin and furosemide improved urine output and sodium excretion.[6] However, the beneficial effect of plasma albumin is transient due to rapid urinary loss of the infused albumin. The Kidney Disease: Improving Global Outcomes, or KDIGO, guideline states that in nephrotic patients, most administered albumin is rapidly excreted, and any effect on plasma albumin is short-lived.[6,7] Similarly, in patients with cirrhosis, an open-label, randomized, controlled trial using albumin with furosemide to help augment diuresis did not significantly increase the diuretic effect.[12]

Another potentially beneficial application of the co-administration of albumin and furosemide is in critically ill patients, where combination therapy may aid in achieving the desired levels of fluid removal while maintaining hemodynamic stability by providing colloidal volume support alongside diuresis.[13,14] In addition to hemodynamic stabilization, this approach may improve oxygenation in patients with hypoproteinemia and acute lung injury.[14] However, a non-blinded, prospective, randomized trial demonstrated no significant increase in urine output when albumin was used with furosemide for diuresis in critically ill patients with hypoalbuminemia.[15] Additionally, the efficacy of edema resolution remains unclear.[6]

Finally, albumin administration is not without potential risks. Albumin is a colloid derived from human plasma, which can rapidly increase intravascular volume and acutely worsen hypertension, lead to pulmonary edema, or exacerbate acute heart failure in patients who are not truly hypovolemic or in those with renal and cardiac dysfunction.[7,16,17] As with any blood-derived product, there is a risk of allergic reactions, especially in those with IgA deficiency, anaphylaxis, or transmission of infectious agents, although these are rare with highly purified modern preparations.[18] Albumin is also expensive and limited in supply compared to other evidence-based strategies to address diuretic resistance, such as dual nephron blockade with the addition of either a thiazide-like diuretic (e.g., metolazone) or a carbonic anhydrase inhibitor (e.g., acetazolamide).[19,20] Moreover, sodium-glucose co-transporter 2 inhibitors (e.g., empagliflozin or dapagliflozin) can be added to help augment diuresis along with diuretic dose escalation guided by spot urine sodium measurements.[19,20]

Growing evidence cautions against the routine use of furosemide-albumin co-administration, as literature evaluating the effects of albumin as an adjunct to diuresis is primarily limited to low-quality, heterogeneous studies that have observed conflicting results. Several meta-analyses have concluded that the co-administration of albumin and furosemide has a marginal and short-lived increase in urine output and sodium excretion in select populations with hypoalbuminemia or CKD.[6,8,11,21,22] Yet other studies have failed to demonstrate a consistent or clinically meaningful benefit of using albumin with furosemide compared to furosemide alone. Given the potential risks and increased costs associated with the addition of albumin, its routine use should be reserved for clinical situations with established treatment guidelines where its benefit is well-established, such as volume expansion after large-volume paracentesis or in spontaneous bacterial peritonitis with cirrhosis. However, co-administration of albumin and furosemide may be appropriate in certain diuretic-resistant patients with hypoalbuminemia or CKD who have exhausted all other treatment options.

The clinical effectiveness of co-administration of albumin and furosemide to overcome diuretic resistance remains controversial, and further large-scale, randomized, controlled trials are needed to definitively assess its efficacy and safety in diuretic-resistant clinical settings. ■

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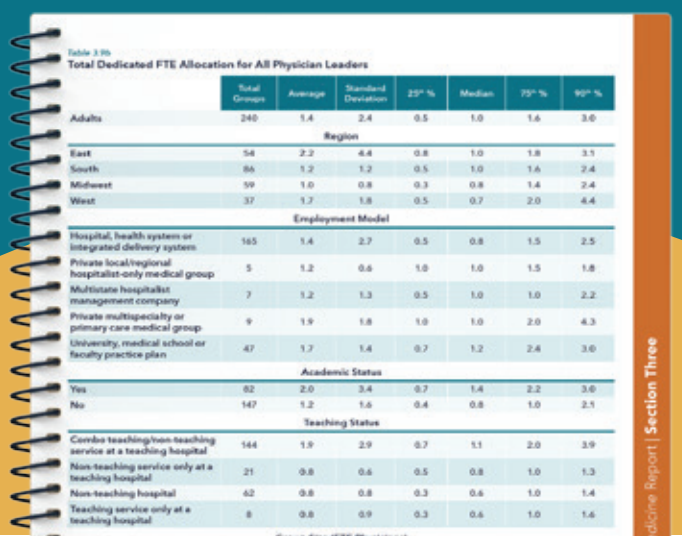

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