April 2023

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QUALITY Hospitalists give back to their communities

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SHM's president, Dr. Kris Rehm, shares SHM's vision and mission for the coming years

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### Anticoagulate **CAA** patients?

p21 Drs. Nepaul, Mujahid, Neupane, and med students Guo, Fierro, McCrae ask yes or no

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**VISIT US ONLINE FOR EXCLUSIVE** CONTENT

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IN THE NEXT ISSUE ...

Well-being, joy in the job, and mental health



For patients hospitalized with COVID-19,1 HELP REDUCE DISEASE PROGRESSION AND SHORTEN RECOVERY TIME<sup>1,2</sup>

#### INDICATION

VEKLURY is indicated for the treatment of COVID-19 in adults and pediatric patients ( $\geq$ 28 days old and weighing  $\geq$ 3 kg) with positive results of SARS-CoV-2 viral testing, who are:

• Hospitalized, or

• Not hospitalized, have mild-to-moderate COVID-19, and are at high risk for progression to severe COVID-19, including hospitalization or death.

#### **IMPORTANT SAFETY INFORMATION**

#### Contraindication

• VEKLURY is contraindicated in patients with a history of clinically significant hypersensitivity reactions to VEKLURY or any of its components.

#### Warnings and precautions

- Hypersensitivity, including infusion-related and anaphylactic reactions: Hypersensitivity, including infusion-related and anaphylactic reactions, has been observed during and following administration of VEKLURY; most reactions occurred within 1 hour. Monitor patients during infusion and observe for at least 1 hour after infusion is complete for signs and symptoms of hypersensitivity as clinically appropriate. Symptoms may include hypotension, hypertension, tachycardia, bradycardia, hypoxia, fever, dyspnea, wheezing, angioedema, rash, nausea, diaphoresis, and shivering. Slower infusion rates (maximum infusion time of up to 120 minutes) can potentially prevent these reactions. If a severe infusion-related hypersensitivity reaction occurs, immediately discontinue VEKLURY and initiate appropriate treatment (see Contraindications).
- Increased risk of transaminase elevations: Transaminase elevations have been observed in healthy volunteers and in patients with COVID-19 who received VEKLURY; these elevations have also been reported as a clinical feature of COVID-19. Perform hepatic laboratory testing in all patients (see Dosage and administration). Consider discontinuing VEKLURY if ALT levels increase to >10x ULN. Discontinue VEKLURY if ALT elevation is accompanied by signs or symptoms of liver inflammation.
- Risk of reduced antiviral activity when coadministered with chloroquine or hydroxychloroquine: Coadministration of VEKLURY with chloroquine phosphate or hydroxychloroquine sulfate is not recommended based on data from cell culture experiments, demonstrating potential antagonism, which may lead to a decrease in the antiviral activity of VEKLURY.

#### Adverse reactions

- The most common adverse reaction (≥5% all grades) was nausea.
- The most common lab abnormalities ( $\geq$ 5% all grades) were increases in ALT and AST.

#### **Drug interactions**

• Drug interaction trials of VEKLURY and other concomitant medications have not been conducted in humans.

#### Dosage and administration

- Dosage:
  - For adults and pediatric patients weighing ≥40 kg: 200 mg on Day 1, followed by once-daily maintenance doses of 100 mg from Day 2, administered only via intravenous infusion.
- For pediatric patients ≥28 days old and weighing ≥3 kg to <40 kg: 5 mg/kg on Day 1, followed by once-daily maintenance doses of 2.5 mg/kg from Day 2, administered only via intravenous infusion.</p>

ECMO=extracorporeal membrane oxygenation.

# In the ACTT-1 overall study population, patients experienced



#### Median 10 days with VEKLURY vs 15 days with placebo; recovery rate ratio: 1.29 (95% Cl, 1.12 to 1.49), p<0.001<sup>1,2</sup>

 Recovery was defined as patients who were no longer hospitalized or hospitalized but no longer required ongoing COVID-19 medical care

#### Significantly greater likelihood of improvement in clinical status, a key secondary endpoint<sup>1</sup>

• Patients were 54% more likely to have improved clinical status on Day 15 vs placebo; odds ratio for improvement: 1.54 (95% Cl, 1.25 to 1.91)

#### Helped reduce progression to more severe disease, an additional secondary endpoint<sup>1-3</sup>

- 7% absolute reduction in incidence of new noninvasive ventilation or high-flow oxygen with VEKLURY (17%, n=307) vs placebo (24%, n=266) in patients who did not receive either at baseline (95% Cl, -14 to -1)
- 10% absolute reduction in incidence of new mechanical ventilation or ECMO with VEKLURY (13%, n=402) vs placebo (23%, n=364) in patients who did not receive either at baseline (95% Cl, -15 to -4)

#### Adverse reaction frequency was comparable between VEKLURY and placebo<sup>1</sup>

All adverse reactions (ARs), Grades ≥3: 41 (8%) with VEKLURY vs 46 (9%) with placebo; serious ARs: 2 (0.4%)\* vs 3 (0.6%); ARs leading to treatment discontinuation: 11 (2%)<sup>+</sup> vs 15 (3%)

ACTT-1 was a randomized, double-blind, placebo-controlled, phase 3 clinical trial in hospitalized patients with confirmed SARS-CoV-2 infection and mild, moderate, or severe COVID-19. Patients received VEKLURY (n=541) or placebo (n=521) for up to 10 days. The primary endpoint was time to recovery within 29 days after randomization. Secondary endpoints included clinical status of patients on Day 15 as assessed on an 8-point ordinal scale and incidence of new high-flow oxygen requirement or new mechanical ventilation or ECMO.<sup>1</sup>

\*Seizure (n=1), infusion-related reaction (n=1).

<sup>†</sup>Seizure (n=1), infusion-related reaction (n=1), transaminases increased (n=3), ALT increased and AST increased (n=1), GFR decreased (n=2), acute kidney injury (n=3).

### **IMPORTANT SAFETY INFORMATION (cont'd)**

#### Dosage and administration (cont'd)

#### Treatment duration:

- For patients who are hospitalized and require invasive mechanical ventilation and/or ECMO, the recommended total treatment duration is 10 days. VEKLURY should be initiated as soon as possible after diagnosis of symptomatic COVID-19.
- For patients who are hospitalized and do not require invasive mechanical ventilation and/or ECMO, the recommended treatment duration is 5 days. If a patient does not demonstrate clinical improvement, treatment may be extended up to 5 additional days, for a <u>total</u> treatment duration of up to 10 days.
- For patients who are not hospitalized, diagnosed with mild-to-moderate COVID-19, and are at high risk for progression to severe COVID-19, including hospitalization or death, the recommended total treatment duration is 3 days. VEKLURY should be initiated as soon as possible after diagnosis of symptomatic COVID-19 and within 7 days of symptom onset.
- **Testing prior to and during treatment:** Perform eGFR, hepatic laboratory, and prothrombin time testing prior to initiating VEKLURY and during use as clinically appropriate.
- Renal impairment: VEKLURY is not recommended in individuals with eGFR <30 mL/min.
- Dose preparation and administration:
- There are two different formulations of VEKLURY: VEKLURY for injection (supplied as 100 mg lyophilized powder in vial), the only approved dosage form of VEKLURY for pediatric patients weighing 3 kg to <40 kg;</li>
- and VEKLURY injection (supplied as 100 mg/20 mL [5 mg/mL] solution in vial). See full Prescribing Information.
- Administration should take place under conditions where management of severe hypersensitivity reactions, such as anaphylaxis, is possible.

#### **Pregnancy and lactation**

- **Pregnancy:** A pregnancy registry has been established. There are insufficient human data on the use of VEKLURY during pregnancy. COVID-19 is associated with adverse maternal and fetal outcomes, including preeclampsia, eclampsia, preterm birth, premature rupture of membranes, venous thromboembolic disease, and fetal death.
- Lactation: It is not known whether VEKLURY can pass into breast milk. Breastfeeding individuals with COVID-19 should follow practices according to clinical guidelines to avoid exposing the infant to COVID-19.

#### Please see Brief Summary of full Prescribing Information on the following page.

**References: 1.** Veklury. Prescribing Information. Gilead Sciences, Inc.; 2022. **2.** Beigel JH, Tomashek KM, Dodd LE, et al; ACTT-1 Study Group. Remdesivir for the treatment of COVID-19—final report. *N Engl J Med.* 2020;383(19):1813-1826. doi:10.1056/NEJMoa2007764 **3.** Beigel JH, Tomashek KM, Dodd LE, et al; ACTT-1 Study Group. Remdesivir for the treatment of COVID-19—final report. Supplementary appendix. *N Engl J Med.* 2020;383(19):1813-1826. Accessed May 24, 2022. https://www.nejm.org/doi/suppl/10.1056/NEJMoa2007764/suppl\_file/nejmoa2007764\_appendix.pdf



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#### VEKLURY<sup>®</sup> (remdesivir)

### Brief summary of full Prescribing Information. Please see full Prescribing Information. Rx Only.

#### INDICATIONS AND USAGE

VEKLURY is indicated for the treatment of COVID-19 in adults and pediatric patients (≥28 days old and weighing ≥3 kg), with positive results of SARS-CoV-2 viral testing, who are: • Hospitalized, or

• Not hospitalized, with mild-to-moderate COVID-19, and at high risk for progression to severe COVID-19, including hospitalization or death.

### DOSAGE AND ADMINISTRATION [Also see Warnings and Precautions, Adverse Reactions, and Use in Specific Populations]:

**Testing Before Initiation and During Treatment:** Perform eGFR, hepatic laboratory, and prothrombin time testing prior to initiating VEKLURY and during use as clinically appropriate.

### Recommended Dosage in Adults and Pediatric Patients $\geq$ 28 Days Old and Weighing $\geq$ 3 kg:

- For adults and pediatric patients weighing ≥40 kg: 200 mg on Day 1, followed by oncedaily maintenance doses of 100 mg from Day 2, administered only via intravenous infusion.
- For pediatric patients ≥28 days old and weighing ≥3 kg: 5 mg/kg on Day 1, followed by once-daily maintenance doses of 2.5 mg/kg from Day 2, administered only via intravenous infusion.

#### **Treatment Duration:**

- For patients who are hospitalized and require invasive mechanical ventilation and/ or ECMO, the recommended total treatment duration is 10 days. VEKLURY should be initiated as soon as possible after diagnosis of symptomatic COVID-19.
- For patients who are hospitalized and do not require invasive mechanical ventilation and/or ECMO, the recommended treatment duration is 5 days. If a patient does not demonstrate clinical improvement, treatment may be extended up to 5 additional days, for a total treatment duration of up to 10 days.
- For patients who are not hospitalized, diagnosed with mild-to-moderate COVID-19, and at high risk for progression to severe COVID-19, including hospitalization or death, the recommended total treatment duration is 3 days. VEKLURY should be initiated as soon as possible after diagnosis of symptomatic COVID-19 and within 7 days of symptom onset.

### **Renal Impairment:** VEKLURY is not recommended in individuals with eGFR <30 mL/min. **Dose Preparation and Administration** [See full **Prescribing Information** for complete instructions on dose preparation, administration, and storage]:

VEKLURY must be prepared and administered under supervision of a healthcare provider and must be administered via intravenous infusion only, over 30 to 120 minutes. Do not administer the prepared diluted solution simultaneously with any other medication.

- VEKLURY for injection (supplied as 100 mg lyophilized powder in vial) must be reconstituted with Sterile Water for Injection prior to diluting in a 100 mL or 250 mL 0.9% sodium chloride infusion bag.
- Care should be taken during admixture to prevent inadvertent microbial contamination; there is no preservative or bacteriostatic agent present in these products.

Dosage Preparation and Administration in Pediatric Patients  $\geq$ 28 Days of Age and Weighing 3 kg to <40 kg:

The only approved dosage form of VEKLURY for pediatric patients  $\geq$ 28 days of age and weighing 3 kg to <40 kg is VEKLURY for injection (supplied as 100 mg lyophilized powder in vial). Carefully follow the product-specific preparation instructions.

#### CONTRAINDICATIONS [Also see Warnings and Precautions]:

VEKLURY is contraindicated in patients with a history of clinically significant hypersensitivity reactions to VEKLURY or any of its components.

WARNINGS AND PRECAUTIONS [Also see Contraindications, Dosage and Administration, Adverse Reactions, and Drug Interactions]:

Hypersensitivity, Including Infusion-related and Anaphylactic Reactions: Hypersensitivity, including infusion-related and anaphylactic reactions, has been observed during and following administration of VEKLURY; most reactions occurred within 1 hour. Monitor patients during infusion and observe for at least 1 hour after infusion is complete for signs and symptoms of hypersensitivity as clinically appropriate. Symptoms may include hypotension, hypertension, tachycardia, bradycardia, hypoxia, fever, dyspnea, wheezing, angioedema, rash, nausea, diaphoresis, and shivering. Slower infusion rates (maximum infusion time  $\leq$ 120 minutes) can potentially prevent these signs and symptoms. If a severe infusion-related hypersensitivity reaction occurs, immediately discontinue VEKLURY and initiate appropriate treatment.

**Increased Risk of Transaminase Elevations:** Transaminase elevations have been observed in healthy volunteers and in patients with COVID-19 who received VEKLURY; the transaminase elevations were mild to moderate (Grades 1-2) in severity and resolved upon discontinuation. Because transaminase elevations have been reported as a clinical feature of COVID-19, and the incidence was similar in patients receiving placebo versus VEKLURY in clinical trials, discerning the contribution of VEKLURY to transaminase elevations in patients with COVID-19 can be challenging. Perform hepatic laboratory testing in all patients.

• Consider discontinuing VEKLURY if ALT levels increase to >10x ULN.

 Discontinue VEKLURY if ALT elevation is accompanied by signs or symptoms of liver inflammation.

**Risk of Reduced Antiviral Activity When Coadministered With Chloroquine or Hydroxychloroquine:** Coadministration of VEKLURY with chloroquine phosphate or hydroxychloroquine sulfate is not recommended based on data from cell culture experiments, demonstrating potential antagonism which may lead to a decrease in the antiviral activity of VEKLURY.

#### ADVERSE REACTIONS [Also see Warnings and Precautions]:

Clinical Trials Experience: The safety of VEKLURY is based on data from three Phase 3

studies in 1,313 hospitalized adult subjects with COVID-19, four Phase 1 studies in 131 healthy adults, and from patients with COVID-19 who received VEKLURY under the Emergency Use Authorization or in a compassionate use program. The NIAID ACTT-1 study was conducted in hospitalized subjects with mild, moderate, and severe COVID-19 treated with VEKLURY (n=532) for up to 10 days. Study GS-US-540-5773 (Study 5773) included subjects hospitalized with severe COVID-19 and treated with VEKLURY for 5 (n=200) or 10 days (n=197). Study GS-US-540-5774 (Study 5774) was conducted in hospitalized subjects with moderate COVID-19 and treated with VEKLURY for 5 (n=191) or 10 days (n=193).

Adverse Reactions: The most common adverse reaction (≥5% all grades) was nausea.

*Less Common Adverse Reactions:* Clinically significant adverse reactions reported in <2% of subjects exposed to VEKLURY in clinical trials include hypersensitivity reactions, generalized seizures, and rash.

*Laboratory Abnormalities:* In a Phase 1 study in healthy adults, elevations in ALT were observed in 9 of 20 subjects receiving 10 days of VEKLURY (Grade 1, n=8; Grade 2, n=1); the elevations in ALT resolved upon discontinuation. No subjects (0 of 9) who received 5 days of VEKLURY had graded increases in ALT.

Laboratory abnormalities (Grades 3 or 4) occurring in  $\geq$ 3% of subjects receiving VEKLURY in Trials NIAID ACTT-1, Study 5773, and/or Study 5774, respectively, were ALT increased (3%,  $\leq$ 8%,  $\leq$ 3%), AST increased (6%,  $\leq$ 7%, n/a), creatinine clearance decreased, Cockcroft-Gault formula (18%,  $\leq$ 19%,  $\leq$ 5%), creatinine increased (15%,  $\leq$ 15%, n/a), eGFR decreased (18%, n/a, n/a), glucose increased (12%,  $\leq$ 11%,  $\leq$ 4%), hemoglobin decreased (15%,  $\leq$ 8%,  $\leq$ 3%), lymphocytes decreased (11%, n/a, n/a), and prothrombin time increased (9%, n/a, n/a).

#### DRUG INTERACTIONS [Also see Warnings and Precautions]:

Due to potential antagonism based on data from cell culture experiments, concomitant use of VEKLURY with chloroquine phosphate or hydroxychloroquine sulfate is not recommended.

Drug-drug interaction trials of VEKLURY and other concomitant medications have not been conducted in humans. Remdesivir and its metabolites are in vitro substrates and/or inhibitors of certain drug metabolizing enzymes and transporters. The clinical relevance of these in vitro assessments has not been established.

### **USE IN SPECIFIC POPULATIONS** [Also see **Dosage and Administration** and **Warnings and Precautions**]:

#### Pregnancy

*Risk Summary:* There are insufficient human data on the use of VEKLURY during pregnancy to inform a drug-associated risk of major birth defects, miscarriage, or adverse maternal or fetal outcomes. COVID-19 is associated with adverse maternal and fetal outcomes, including preeclampsia, eclampsia, preterm birth, premature rupture of membranes, venous thromboembolic disease, and fetal death.

#### Lactation

*Risk Summary:* There are no available data on the presence of remdesivir in human milk, the effects on the breastfed infant, or the effects on milk production. In animal studies, remdesivir and metabolites have been detected in the nursing pups of mothers given remdesivir, likely due to the presence of remdesivir in milk. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for VEKLURY and any potential adverse effects on the breastfeed child from VEKLURY or from the underlying maternal condition. Breastfeeding individuals with COVID-19 should follow practices according to clinical guidelines to avoid exposing the infant to COVID-19.

#### Pediatric Use

The safety and effectiveness of VEKLURY for the treatment of COVID-19 have been established in pediatric patients  $\geq$ 28 days old and weighing  $\geq$ 3 kg. Use in this age group is supported by the following:

#### - Trials in adults

- An open-label trial (Study GS-US-540-5823) in 53 hospitalized pediatric subjects

#### **Geriatric Use**

Dosage adjustment is not required in patients over the age of 65 years. Appropriate caution should be exercised in the administration of VEKLURY and monitoring of elderly patients, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of potential concomitant disease or other drug therapy.

#### Renal Impairment

All patients must have an eGFR determined before starting VEKLURY and while receiving VEKLURY as clinically appropriate. VEKLURY is not recommended in patients with eGFR less than 30 mL/min.

#### Hepatic Impairment

Perform hepatic laboratory testing in all patients before starting VEKLURY and while receiving VEKLURY as clinically appropriate.

#### OVERDOSAGE

There is no human experience of acute overdosage with VEKLURY. Treatment of overdose with VEKLURY should consist of general supportive measures including monitoring of vital signs and observation of the clinical status of the patient. There is no specific antidote for overdose with VEKLURY.

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#### SHM'S DIVERSITY AND INCLUSION STATEMENT

Hospitalists are charged with treating individuals at their most vulnerable moments, when being respected as a whole person is crucial to advancing patients' healing and wellness. Within our workforce, diversity is a strength in all its forms, which helps us learn about the human experience, grow as leaders, and ultimately create a respectful environment for all regardless of age, race, religion, national origin, gender identity, sexual orientation, socioeconomic status, appearance, or ability. To this end, the Society of Hospital Medicine will work to eliminate health disparities for our patients and foster inclusive and equitable cultures across our care teams and institutions with the goal of moving medicine and humanity forward.

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# Here's to New Beginnings

#### By Kris Rehm, MD, SFHM, **SHM president**

love the feeling new beginnings bring. For me, it happens every New Year's Day and in early July when new interns begin their

I've been *particularly* excited for this new beginning and am so grateful to have learned from Dr. Rachel Thompson and all the presidents and leaders who've served before me. SHM truly is an organization that strives to recruit and maintain a diverse membership. While there have been past presidents representing family medicine (Dr. Bob Harrington) and med/peds (Drs. Danielle Scheurer and Chris Frost), I'm proud to represent pediatric hospitalists as the first president of the society with a background of pediatrics alone.

These past few years have been incredibly trying, but we are emerging stronger-energized from an amazing conference with a renewed focus on improving the lives of our patients and the well-being of our workforce. One of the biggest benefits of being president is the opportunity to travel to local chapter and regional meetings and representing SHM at meetings with other medical professional societies. I hope I'm able to meet with many of you as I travel over the coming year. Please let me know how I can help your chapter thrive in 2023 and 2024.

In addition to in-person events, Rachel and I have begun hosting a virtual series called The Prez Room, where we've met with members like you to understand your needs and learn how SHM can better serve hospitalists. Please be on the lookout for upcoming invitations. All are welcome, and I would enjoy getting the opportunity to have a

As a Board, we're constantly looking to position SHM for longterm success as hospital medicine evolves. Beginning in May of 2022, the Board began to reimagine our mission, vision, and goals, and we've continued to refine these directives over the year in Board meetings and with many of you. Over the past 25 years, we have seen such significant growth in our field, and it was time to consider if our mission and vision were aligned with today's needs.

After much thoughtful and deliberate discussion, we have



Dr. Rehm

Dr. Rehm is the associate chief medical officer of children's services in the department of pediatrics at Vanderbilt University Medical Center in Nashville, Tenn.

arrived at SHM's revised mission and vision, which we are confident reflects the current and desired future states of our society.

#### **SHM Vision**

To be the professional home of hospitalists dedicated to exceptional and equitable care for acutely ill patients.

#### **SHM Mission**

As the home for hospitalists, SHM activates and engages our community to:

- Advocate for our specialty, our members, and the diverse patients we serve.
- Promote high-value care and optimal outcomes for acutely ill patients.
- Meet the evolving educational needs of a dynamic specialty.
- Cultivate an inclusive community for hospitalists and support career growth and well-being.
- Advance the research and innovation of health care delivery, quality, safety, and experience across the care continuum.

We are hopeful these directives can drive our work in meaningful ways for years to come. I'm sure many of you have worked on your home institution's mission; for us at SHM, it has been incredibly powerful to reflect on the successes of our organization, but to also move forward with renewed focus. As we move into considerations for the governance of the organization, I look forward to hearing from you about how SHM can best support you personally and professionally in what I hope will be a really spectacular year.

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> journeys with the excitement and anxiety that is the start of the new academic year. For the SHM Board, the new year started at SHM Converge 2023, and, personally, I am incredibly honored to begin my term as president of our society.

conversation with you.

The Hospitalist

# **SHM News**

#### The Hospitalist Welcomes New Board Members

The Hospitalist's editorial advisory board is a volunteer group of SHM members working in hospitalist groups all across the country. They share their time and experience in hospital medicine to ensure the magazine remains relevant to its readers.

The group meets monthly to discuss hot topics in hospital medicine and meets annually at the SHM annual conference. Two-year terms are seated during the SHM annual conference.

Welcome to our new editorial board members:

- Rob Craven, MD, FACP, CHC-QM-PHYADV, SFHM
- Patrick Desamours, PA-C, MBA, CHC, SFHM
- Venkat P. Gundareddy, MBBS, MPH, SFHM
- Andrea R. Hadley, MD, FAAP
- Semie Kang, DO, FHM
- Arunab Mehta, MD, MEd
- Nkemdilim Mgbojikwe, MD
- Jennifer K. Readlynn, MD, FHM
- Christopher J. Russo, MD, FAAP
- Lauren Spaeth, OMS III Student

- Kate Wimberly, MD
- Yuting Ye, MD

We'd like to thank our outgoing editorial board members for their time, ideas, and overall contributions to the magazine:

- Kathryn Bakkum, MD
- Harry Cho, MD
- James Kim, MD
- Anna Nelson, DO
- Venkataraman Palabindala, MD, FHM
- Kranthi Sitammagari, MD
- Amith Skandhan, MD, FHM
- Lonika Sood, MD, FACP, FHM
- Amit Vashist, MD, MBA, CPE, FACP, FAPA

#### SHM's Atlanta Chapter Flexes Recruitment Muscle

During the early days of the COVID-19 pandemic, hospitalists were inundated on the front lines, placing patients' and communities' needs above their own. As the pandemic evolved, hospitalists realized the need for connection and collaboration with their peers in their local communities, and they turned to SHM chapters to provide them with a space to share



their frustrations, successes, and exhaustion. Local chapters have allowed hospitalists to form bonds that have become stronger than ever over the past few years as the landscape of the pandemic—and of health care as a whole—continues to evolve.

To encourage even more hospitalists to experience the benefits of local chapters and SHM on the national level, SHM held a Chapter Recruitment Competition in the fall of 2022, offering a 25% discount to first-time members. The Atlanta Chapter, which has been actively growing over the past several years, brought home the top prize.

SHM's Atlanta chapter has been among SHM's most vibrant chapters. Despite having to overcome significant challenges during the early days of the pandemic, including a drop in active membership, the Atlanta chapter currently boasts an all-time high number of members, with 555 hospital medicine professionals in the chapter's network following the competition.

"In order to maximize the impact of our SHM Atlanta chapter, we wanted to focus on membership growth during 2022, and I think the SHM campaign was a great incentive for our non-members," said Ingrid Pinzon, MD, FACP, CH-CQM-PHYADV, FHM, president of the SHM Atlanta chapter and assistant professor of hospital medicine at Emory Johns Creek Hospital in Johns Creek, Ga. "New members always bring fresh ideas, great energy, and more opportunities to meet."

To help with their recruitment efforts, Atlanta chapter members developed a personalized flyer (shown above) they distributed to local hospitals, and they hosted an in-person session on perioperative medicine, and a webinar, "Estate Planning 101: Protecting Your Assets and Family," in collaboration with the Southwest Georgia Chapter. Additionally, in December, the chapter held an in-person networking and trivia event to connect with the local hospital medicine community.

The chapter has been actively engaging with and recruiting members long before the competition period. Chapter leadership has personally reached out to meeting and event attendees, thanking thank them for participating and encouraging them to attend the next gathering. While at events, chapter members often conducted surveys to determine topics of high interest to SHM members.

What's next? The sky is the limit, according to Dr. Pinzon.

"The future belongs to those who believe in the beauty of their dreams, and my dream is for our Atlanta chapter to be one of the biggest in the USA."

#### **Publishing Opportunities**

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



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

#### **Movers and Shakers**

Are you an SHM member with good news to share? If you or someone on your team has recently been promoted, changed jobs, or has other good news to share, we'd like to hear from you. Send your information and headshot to us at lcasinger@wiley.com. We hope to see you in an upcoming issue!



Click the QR code to read about the latest Movers and Shakers.

#### JHM March Issue

Learn more about the gender difference in COVID-19-related manuscript authorship during the pandmic, career development and promotion of diverse faculty, tips for success as a pediatrics chief resident, and more in the March issue of the Journal of Hospital Medicine.



6

# **Cleveland Clinic Research Reviews**

In the Literature

By Arunab Mehta, MD, MEd, Demetra Gibson, MD, MPH, Salome Arobelidze MD, MEd, FACP, Kunjam Modha, MD, FACP, SFHM, and Heather Hofmann MD, FACP

Cleveland Clinic, Cleveland, Ohio

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#### By Arunab Mehta, MD, MEd

Peer discussion decreases practice intensity and increases clinical certainty

CLINICAL QUESTION: Do team-based discus-

sion strategies among resident physicians affect practice intensity and clinical certainty?

#### BACKGROUND: Stud-

ies have shown that the learning environment for a resident physician explains variations in practice intensity more than individual



Dr. Mehta

personality traits. It is important to understand the ways in which learning environments influence residents' development of practice patterns to identify targets for improvement in graduate medical education. Team-based approaches to decision making have been shown to have a positive impact through aggregation of individual judgements and team-based discussions. Practice intensity is the likelihood of ordering diagnostic tests, empiric therapies, or subspecialty consultations while clinical certainty is the proportion of "definitely yes" or "definitely no" in clinical decision making in this study.

**STUDY DESIGN:** Multicenter vignette-based study

### **SETTING:** Seven internal medicine residency programs in the U.S.

SYNOPSIS: Of 651 eligible internal medicine residents, 222 participated (34% response rate). A vignette-based instrument was adapted to measure practice intensity (PI) and clinical certainty (CC). Participants formed groups and completed each item of the instrument individually and as a group with time for peer discussion in between individual and group responses. Mean individual PI score was 2.33, where a higher score indicates a more intense practice style. Measured group PI score was 2.29, which was significantly lower than the predicted PI score with a mean difference of 0.04 (SD, 0.10; 95% CI, 0.02-0.07; P, 0.0002). Individual CC score was 0.475 while the average measured group CC score was 0.493 which was significantly higher than the predicted CC score with a mean difference of 0.018 (SD, 0.073; CI, 0.0006-0.0356; P, 0.022).

**BOTTOM LINE:** Peer discussion in a team-based setting decreases practice intensity and increases clinical certainty in graduate medical education.

**CITATION:** Etherington NB, et al. Peer discussion decreases practice intensity and increases certainty in clinical decision-making among internal medicine residents. *J Grad Med Educ.* 2021 Jun;13(3):371-6.

Curriculum transition from lecturebased to team-based learning is associated with improvement in Internal Medicine In-Training Examination® (IM-ITE®) scores

**CLINICAL QUESTION:** Does team-based learning in residency curricula have an impact on knowledge acquisition and standardized testing performance as compared to traditional lecture-based curricula?

**BACKGROUND:** Medical knowledge is traditionally taught to resident physicians in a series of one-hour noontime lectures. With team-based learning (TBL), learners acquire knowledge through advance reading assignments and then learn to apply this knowledge through real-world problem-solving exercises led by a faculty facilitator. In graduate medical education (GME), TBL has been shown to promote learning and teamwork, learner engagement, clinical skills development, and learner and faculty satisfaction. There is limited literature describing its effect on standardized testing performance in GME.

**STUDY DESIGN:** Single-center, retrospective, cohort study

**SETTING:** University-based internal medicine residency

**SYNOPSIS:** Residents enrolled in academic years 2011–2012 and 2012–2013 comprised the lecture cohort, and those enrolled in 2015–2016 and 2016–2017 the TBL cohort. Of 120 residents, 60 were in the lecture cohort and 60 in the TBL cohort. The IM-ITE® percent correct scores were higher with TBL than lecture (postgraduate year (PGY) 1, 61.0% versus 55.0%, P <.001; PGY 2, 69.0% versus 59.7%, P <.001; PGY 3, 73.2% versus 61.7%, P <.001). In a multivariable regression analysis of three PGYs combined, the transition from lecture to TBL resulted in an increase in IM-ITE $^{\circ}$  Z-score of 0.415 (*P* <.001). Limitations included this being a single-center observational study.

**BOTTOM LINE:** Compared to a lecture-based curriculum, TBL was associated with improved resident medical knowledge acquisition as evidenced by higher IM-ITE® scores.

**CITATION:** Schynoll G, et al. curriculum transition from lecture-based to team-based learning is associated with improved performance on internal medicine in-training examination. *J Grad Med Educ.* 2021;13(5):691-8.

Dr. Mehta was formerly a unit-based director at the Cleveland Clinic and is now an assistant professor of medicine and a clinician-educator at the University of Cincinnati Medical Center, Cincinnati, and president of the SHM Lake Erie/ Northern Ohio Chapter.

#### By Demetra Gibson, MD, MPH

Remdesivir use improves mortality in COVID-19 in non-ventilated hospitalized patients

CLINICAL QUESTION: Does remdesivir have mortality benefit in patients with COVID-19?

#### **BACKGROUND:** The

Solidarity trial previously reported preliminary mortality analyses for remdesivir, lopinavir, hydroxychloroquine, and interferon beta-1a use in COVID-19 inpatients. The latter three



Dr. Gibson

drugs were discontinued due to futility, but randomization to remdesivir continued. This review presents final results of the Solidarity trial and all other relevant trials of remdesivir at time of publication.

**STUDY DESIGN:** Randomized control trial and meta-analysis

**SETTING:** Inpatients with COVID-19 infection from 454 hospitals in 35 countries in World Health Organization (WHO) regions between March 2020 and January 2021. These results were compared to a systematic review of the WHO Cochrane database for published COVID-19 treatment randomized inpatient trials.

**SYNOPSIS:** A total of 8,275 patients were randomly allocated (1:1) to remdesivir or control (local standard of care, no placebo). For the study's primary endpoint of in-hospital mortality, findings were similar to the preliminary results. Patients not ventilated who received remdesivir had lower mortality than those who did not; all those not ventilated (11.9% versus 13.5%; *P*=0.02) and patients not ventilated but on oxygen (14.6% versus 16.3%; *P*=0.03). There was no statistically significant difference in overall mortality, mortality of those already ventilated, or mortality in those not ventilated and not on oxygen. For all patients not ventilated initially, rate of progression to ventilation was similar between both groups (14.1%

#### IN THE LITERATURE

versus 15.7%; P=0.04). However, when looking at a composite outcome of death or progression to ventilation, the remdesivir group had better outcomes (19.6% versus 22.5%; P=0.001). Comparing Solidarity to other trials, there were differences in how respiratory support was categorized (for example low flow versus high flow oxygen versus non-invasive ventilation). Three categories were defined: no oxygen; not ventilated but on oxygen; and ventilated. In meta-analysis there was no difference in overall mortality or mortality in ventilated patients. There was improvement in mortality in the combined non-ventilated subgroups (*P*=0.006).

**BOTTOM LINE:** Remdesivir improves mortality in hospitalized patients who are not already ventilated. The progression to ventilation benefit is only seen when combined with the outcome of mortality. More studies are needed to better understand how this mortality benefit may vary with different levels of oxygen support.

**CITATION:** WHO Solidarity Trial Consortium. Remdesivir and three other drugs for hospitalised patients with COVID-19: final results of the WHO Solidarity randomised trial and updated meta-analyses. Lancet. 2022;399(10339):1941-53.

#### Association of chronic medication adherence with ED visits and hospitalizations

**CLINICAL QUESTION:** Is there an association between chronic medication adherence and emergency department (ED) visits and hospitalizations?

**BACKGROUND:** Medication adherence for hypertension and diabetes has been shown to be associated with decreased health care visits and decreased health care costs, however it is usually examined for one medication or medication group. Adherence can vary between different medications and patients may take more than one medication. This study examines the association between overall medication adherence for 23 chronic medications and ED visits and hospitalizations.

**STUDY DESIGN:** Retrospective chart review

SETTING: Patients with diabetes or hypertension, aged 50-74 years, treated with at least one antihypertensive or antidiabetic medication in Clalit Health Services health maintenance organization in Tel Aviv, Israel.

SYNOPSIS: A total of 268,792 patients were included in the study. 81.1% had hypertension, 59.5% had diabetes, and 40.6% had both. Information on medications prescribed was collected for 2017. The mean number of antihypertensive and antidiabetic medications prescribed was 2.2 ±1.1. Monthly filled prescription was used as a proxy for medication use. Each patient's adherence rate was calculated for each medication, then averaged to obtain the personal adherence rate. Personal adherence rates were stratified into five categories of increasing adherence with 4.2% of participants in the lowest category (adherence 1-20%) and 42.5% in the highest category (adherence of 81-100%). Information about ED visits and hospitalizations were collected from the electronic medical record for 2016-2018. ED visits were recorded in 19.1%, 8.1% were hospitalized in internal medicine wards, and 3.8% were hospitalized in surgical wards. The odds of an ED visit or hospitalization were consistently lower in the group with highest adherence compared to lowest adherence. In 2017 the adjusted odds ratio for ED visits was 0.64, confidence interval [0.61, 0.67],

hospitalization in internal medicine wards 0.56 [0.52, 0.60] and hospitalization in surgical wards 0.63 [0.53, 0.70]. Similar findings were seen when examining the years 2016 and 2018.

**BOTTOM LINE:** The probability of ED visit or hospitalization is lower in patients with high medication adherence. Hospitalists should consider examining patients' medication adherence, and tools to increase adherence, to prevent readmission.

#### CITATION: Shani M, et al. Associations of chronic medication adherence with emergency room visits and hospitalizations. J Gen Intern Med. 2022;37(5):1060-4.

Dr. Gibson is an assistant professor of medicine at the Cleveland Clinic Lerner College of Medicine and staff physician in the department of hospital medicine and department of medical operations at the Cleveland Clinic, Cleveland.

#### By Salome Arobelidze MD, MEd, FACP

SER-109, an oral microbiome therapy for recurrent Clostridioides difficile infection

**CLINICAL QUESTION:** In patients with recur-

rent Clostridioides difficile infection (rCDI), is the use of oral microbiome therapy associated with reduced risk of recurrence of the infection?

#### **BACKGROUND:** The

treatment for rCDI remains suboptimal because current therapies do not address

Dr. Arobelidze

fundamental aspects of the two-phase life cycle of this pathogen. Vancomycin and fidaxomicin lead to symptom relief by killing toxin-producing C. difficile bacteria that cause colonic inflammation and diarrhea, but do not kill C. difficile spores, which can rapidly germinate into toxin-producing vegetative bacteria after discontinuation of treatment. Antibiotics are necessary but not sufficient to achieve sustained clinical response. SER-109, an investigational oral microbiome therapeutic composed of live purified Firmicutes bacterial spores, was developed to reduce the risk of rCDI, by limiting the C. difficile spore germination in patients with three or more episodes of C. difficile infection within 12 months.

**STUDY DESIGN:** SER-109 versus placebo in the treatment of adults with recurrent Clostridium difficile infection (ECOSPOR III) was a phase 3, randomized, double-blind, multicenter, placebo-controlled trial

SETTING: Fifty-six investigator sites in U.S. and Canada from July 2017 to September 2020

**SYNOPSIS:** The study enrolled 182 patients with 89 patients assigned to receive SER-109 and 93 assigned to receive placebo. The mean age of the patients was 65.5 years and 93% were white. Inclusion criteria included having an acute episode, defined as three or more unformed bowel movements for two consecutive days, positive C. difficile toxin test, and resolution of the symptoms while receiving 10 to 21 days of antibiotic therapy. SER-109 and placebo were administered as four matching oral capsules once daily for three consecutive days. The primary efficacy objective was met: SER-109 was found to be superior to placebo in reducing the risk of rCDI with recurrence of 12% in the SER-109 group compared to 40% in the placebo group (RR, 0.32; CI 95%, 0.18 to 0.58; P < 0.001). The benefit was seen in patients older or younger than 65 years of age and in those treated with vancomycin or fidaxomicin. SER-109 had

### **SHORT TAKES**

By Heather Hofmann MD, FACP

#### Alcohol use disorder, hospitalized for pneumonia: don't forget thiamine

A retrospective cohort study showed a 20% reduction in mortality

for patients with alcohol use disorder when given thiamine early in admission for pneumonia.

#### **CITATION:** Baron SW, et al. Early treatment with

thiamine and mortality



Dr. Hoffman

among patients with alcohol use disorder who are hospitalized for pneumonia. J Hosp Med. 2022;17(8):585-93.

#### "CLICK Trial": consider thiazide for hypertension in CKD IV

A double-blind, randomized trial showed that chlorthalidone decreased systolic blood pressure by a mean of 11 mm Hg for patients with uncontrolled hypertension and stage IV chronic kidney disease, and improved albuminuria at 12 weeks.

#### **CITATION:** Agarwal R, et al. Chlorthalidone for hypertension in advanced chronic kidney disease. N Engl J Med. 2021;385(27):2507-19.

Dr. Hofmann was formerly an associate staff physician at the Cleveland Clinic and is now an assistant professor of medicine at Loma Linda University in Loma Linda, Calif.

similar safety profile as placebo; most symptoms were gastrointestinal and mild to moderate severity. The study limitations included underrepresentation of minority populations.

**BOTTOM LINE:** Oral administration of SER-109 was superior to placebo in reducing the risk of rCDI using a two-pronged treatment approach: antibiotics to kill toxin-producing bacteria, followed by microbiome therapeutic to inhibit C. difficile spore germination and bacterial replication through microbiome repair.

**CITATION:** Feuerstadt P, et al. SER-109, an oral microbiome therapy for recurrent Clostridioides difficile infection. N Engl J Med. 2022;386(3):220-9.

Endovascular therapy for acute stroke with a large ischemic region

CLINICAL QUESTION: Does endovascular therapy for acute stroke with large ischemic region have better functional outcomes compared to medical therapy alone without increasing the risk of major adverse effects?

BACKGROUND: Guidelines recommend consideration of endovascular therapy when there is occlusion of the M1 segment of the middle cerebral artery (MCA) or internal carotid artery (ICA) and when imaging indicates that the size of infarct area is not large, as defined by Alberta Stroke Program Early Computed Tomographic Score (ASPECTS) value of a least 6 (range from 0-10 with lower values indicating greater infarct burden). Patients with large infarctions (e.g., those with an ASPECTS value of 5 or less) have been generally excluded from clinical trials of endovascular therapy or represented in small numbers. Modified Rankin scale has been used for assessment of value of quality of life at the level of function in stroke clinical trials with a scale from 0 to 6 with



higher scores indicating greater disability.

**STUDY DESIGN:** Multicenter, open-label, randomized clinical trial

SETTINGS: 45 hospitals in Japan from November 2018 to September 2021

**SYNOPSIS:** The study enrolled 203 patients, with 101 assigned to the endovascular-therapy group and 102 to the medical-care group. The mean age of the patients was 76 years and 44.3% were women. The median National Institutes of Health Stroke Scale (NIHSS) at trial entry was 22 and median ASPECTS value was 3 at admission. Modified Rankin score of 0-3 at 90 days was observed in 31% of patients in the endovascular group and 12.7% in the the medical group (RR, 2.43; 95% CI, 1.35 to 4.37; P=0.002). In the endovascular group, 31% of patients had improvement of at least 8 points on the NIHSS at 48 hours after admission compared to 8.8% in the medical-care group (RR, 3.51; 95% CI, 1.76 to 7.00). The occurrence of any intracranial hemorrhage within 48 hours was higher in the endovascular-therapy than in the medical-care group (58.0% versus 31.4%; RR, 1.85; 95% CI, 1.33 to 2.58; P <0.001), but there was no significant between-group difference in symptomatic intracranial hemorrhage within 48 hours or death at 90 days. The study limitations included lack of generalizability beyond the Japanese population.

**BOTTOM LINE:** The functional outcomes in patients with acute stroke and a large ischemic region at 90 days were better with endovascular therapy than with medical care alone, but endovascular therapy was associated with an increased incidence of intracranial hemorrhage. However, there was no significant between-group difference in symptomatic intracranial hemorrhage.

**CITATION:** Yoshimura S. et al. Endovascular therapy for acute stroke with a large ischemic region. N Engl J Med. 2022;386(14):1303-13.

Dr. Arobelidze is an associate staff physician at the Cleveland Clinic, Cleveland, and a clinical assistant professor of medicine at the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University of Medicine.

By Kunjam Modha, MD, FACP, SFHM



CLINICAL QUESTION: Is 14 days of antibiotic treatment better than 7 days in afebrile men with urinary tract infection (UTI)?

#### **BACKGROUND:** In the era of antibiotic

various

infections

nia, UTI in



Dr. Modha

women. cellulitis, etc.) with shorter durations of antibiotics. Shorter treatment durations increase compliance, reduce cost as well as adverse effects, and help control emergence of antibiotic resistance.

**STUDY DESIGN:** Randomized, double-blind, placebo-controlled, noninferiority trial

SETTING: Two U.S. Veterans Affairs medical centers in Minneapolis and Houston

SYNOPSIS: Out of 1,058 eligible men, 272 were randomized. Afebrile men with presumed UTI were treated with 7 days of either ciprofloxacin or sulfamethoxazole-trimethoprim and then randomized to receive either continued antibiotic therapy (n=136) or placebo (n=136) for days 8 to 14 of treatment. Primary outcome was resolution of UTI symptoms by 14 days of completion of active antibiotic treatment. Secondary outcomes were recurrence of symptoms and adverse effects of treatment. Symptom resolution occurred in 93.1% in the 7-day group versus 90.42% in the 14-day group (difference, 2.9% which met the noninferiority cut-off). Recurrence of symptoms occurred in 9.9 % in the 7-day group and 12.9% in the 14-day group (p=0.70). Adverse effects occurred in 20.6% in the 7-day group and 23.4% in the 14-day group. Limitations included empiric treatment of UTI in a subset of patients, with pre-treatment urinalysis obtained in 93% of participants and pre-treatment urine culture in 12.1% of participants. Enrollment did not reach the planned 290 participants, thus possibly decreasing study power to identify statistical significance.

**BOTTOM LINE:** In afebrile men with suspected UTI, treatment with ciprofloxacin or sulfamethoxazole-trimethoprim for 7 days is noninferior to 14 days with respect to resolution of UTI symptoms.

**CITATION:** Drekonja DM, et al. Effect of 7 vs 14 days of antibiotic therapy on resolution of symptoms among afebrile men with urinary tract infection: A randomized clinical trial. JAMA. 2021;326(4):324-31.

Oral tebipenem pivoxil hydrobromide is noninferior to intravenous ertapenem in complicated UTI

**CLINICAL QUESTION:** Is oral carbapenem tebipenem effective in treating complicated urinary tract infection (UTI)?

**BACKGROUND:** Antimicrobial resistance among pathogens, especially gram-negative organisms, is increasing worldwide. Extended-spectrum beta-lactamase-producing and fluroquinolone-resistant Enterobacteriaceae have become limited to no oral antibiotic options, posing a clinical and financial concern due to need for inpatient treatment with intravenous agents.

STUDY DESIGN: Phase 3, randomized, double-blind, double-dummy, noninferiority trial

**SETTING:** 95 centers in Central and Eastern Europe, South Africa, and the U.S.

SYNOPSIS: 1,372 hospitalized adult patients with complicated UTI or acute pyelonephritis were randomly assigned in a 1:1 ratio to either receive oral tebipenem (plus intravenous placebo) or intravenous ertapenem (plus oral placebo) for 7-10 days (14 days in patients with bacteremia). Patients with severe hepatic and renal impairment, septic shock, or immunocompromised state were excluded. Approximately half the participants had complicated UTI in each group. About 70% in the

tebipenem group and 66% in the ertapenem group had bacteremia. The primary efficacy endpoint was a composite of clinical cure and favorable microbiologic response at a test-of-cure visit on day 19 (±2 days). Clinical cure at the test-ofcure visit was observed in 93.1% of the patients who received tebipenem versus 93.6% of patients who received ertapenem (weighted difference, -0.6 percentage point; 95% CI, -4.0 to 2.8). Overall incidence of adverse effects was about 26% in both groups. Most participants were enrolled from Europe, thus organism strains and resistance patterns may differ from other countries.

**BOTTOM LINE:** Oral tebipenem is noninferior to intravenous ertapenem in the treatment of complicated UTI and acute pyelonephritis.

**CITATION:** Eckburg PB, et al. Oral tebipenem pivoxil hydrobromide in complicated urinary tract infection. N Engl J Med. 2022;386(14):1327-38.

Dr. Modha is a staff physician in the department of hospital medicine at the Cleveland Clinic, Cleveland, and an assistant professor of medicine at Cleveland Clinic Lerner College of Medicine of Case Western Reserve University of Medicine.

**Congratulations to** All of Our 2022 Chapter **Excellence** Award **Recipients!** 



We are proud to recognize all of the outstanding work that every chapter has put into carrying out our mission at SHM.

Please join us in congratulating all 2022 **Chapter Excellence Award recipients:** 





# The 7 Deadly Sins for LOS

#### By Vinícius Sabedot Soares, MD, MSc, MBA, FHM

ospitalization is an essential resource for the treatment of many patients, but are we doing it in the safest and most efficient way? Achieving effective hospitalizations with a lower length of stay (LOS) has become essential to treat more patients with limited bed resources. Reducing the LOS also promotes timely access for patients waiting in the emergency department, or for those who are ready for discharge from the intensive care unit.

Prolonged hospitalization is a complex problem: it comes from the patient's profile, therapeutic planning patterns, and from failures in several processes that aren't within the physician's control. However, sometimes we develop habits that contribute to unnecessary LOS. I have, in the past, fallen into several of these habits myself.

As a hospitalist, I've dealt with the LOS as the attending physician, team coordinator, preceptor of resident physicians, and hospital-medicine services-implementation consultant. Throughout these experiences, some problems showed up that are likely common in most hospitals.

Whether you're an attending physician or a manager of medical teams, check if any of these seven "deadly sins" are present in your practice:

- 1. Not planning the entire hospitalization. Can you tell me when your patient will be discharged? Maybe your answer is, "I don't know, it depends on how they respond to treatment." In point of fact, you made a diagnostic hypothesis and an investigation/ treatment approach for today, but it's necessary to go further. Hospitalization is like a project (with a beginning, middle, and end) with varying degrees of uncertainties and risks, and if you don't draw up an execution plan early, it will be heavily influenced by circumstances. This may not only increase the LOS, but also make you lose focus, leading to medical errors and risks to the patient. The final goal of any hospitalization is hospital discharge. Clearly define what is necessary for your patient to be discharged and plan how to achieve it, then you'll be able to assertively predict the discharge date.
- 2. Doing all the investigation/ treatment during hospitalization. This is very common in academic hospitals, where the



interest in observing the entire hypothesis-investigation-treatment-result cycle is natural for students. This makes sense when thinking only about the learning process. However, it doesn't justify keeping a stabilized patient in the hospital if outpatient alternatives for additional investigation and treatment are safe and available. Moreover, this habit sometimes comes from a false assumption that it's safer to do everything in an inpatient setting, which isn't true. Every day of a hospital stay comes with risks of adverse events, so remember to put it in perspective. It's important to understand the hospital as a part of the health system: it has a specific role in care pathways, integrated into the outpatient and home-care structure.

- 3. Adjusting medications for the home only when the patient is ready to be discharged from the hospital. Medication reconciliation is fundamental to safe care transitions and contributes to the LOS as well. If you have a therapeutic plan and it's working, it's feasible to anticipate these adjustments at least two or three days before the estimated date of discharge. Common examples of this problem are adjusting the oral anticoagulant warfarin only when the patient already has conditions for discharge, and leaving the patient education on how to manage subcutaneous drugs and other self-care issues for discharge day.
- 4. **Prolonging the patient's stay over the weekend to discharge on Monday.** It's common to extend the hospital stay to the next week for other reasons than clinical stabilization and safety issues. The patient or their family may be concerned about how to proceed if things get worse during the weekend at home, so they ask the doctor

to discharge them on Monday. Sometimes, it's a decision made to (unnecessarily) "monitor the patient" at the end of therapy before discharge, usually doing some control labs on Monday.

- 5. Not checking the patient's family support prior to the date of discharge. Talk with family members early about discharge, explaining the patient's care and support needs when coming back home. Also, be aware of problems related to the transition of care and the patient's post-discharge destination. You should put the multidisciplinary team together on the case as soon as possible.
- 6. Requesting excessive consultation from other specialties (often with vague questions). When calling a colleague from another specialty for consultation, be clear about your doubts and what you need answered. With too many specialists on the case, care coordination can become difficult, with ambiguous recommendations. Also, the expert evaluation will be too broad, with little value added to your patient's care plan, if you pose vague questions. Ask appropriate, direct questions to get clear answers.
- 7. Requesting complementary exams whose results do not change the therapeutic plan. Whenever you request an exam, ask yourself if it's really necessary and aligned with the care plan. Be aware of the possible results and what you'll do with each one; consider if there are faster alternatives (from execution until results) that adequately answer your questions. Can it be done safely and timely in an outpatient setting? Do not request "routine" or "control" tests if the results won't change your plan.

I hope this list was helpful for



Dr. Soares

Dr. Soares has been working with hospital-medicine implementation projects in Brazil for more than 10 years and is currently working as projects coordinator at Eficiência Hospitalista in Porto Alegre, Rio Grande do Sul, Brazil.

you to analyze your daily practice. We need to aim for adaptability in clinical practice to get better results and generate greater value for the patient and the health system. Part of that goal involves the best use of resources; not only which ones to use, but also when (during hospitalization or on an outpatient basis, for example). Keep your patients at the hospital only for the time necessary, no more or less.

Can you think of more "sins" frequently observed in clinical practice that also lead to prolonged hospitalization? I welcome your comments.

Dr. Soares has been working with hospital-medicine implementation projects in Brazil for more than 10 years and is currently working as projects coordinator at Eficiência Hospitalista in Porto Alegre, Rio Grande do Sul, Brazil.

# **Hospitalist Volunteers Give Back** to Their Communities



Paris Regional Walk with a Doc events.

**TOP:** Senior Prime Time and Red Hat Society members with Dr. Mark Gibbons (2021).

MIDDLE: Dr. Green and walkers in Oak Park in West Paris, considered a lower socioeconomic area, (2017).

BOTTOM: Dr. Green with walkers on the steps of the Paris Public Library after their walk in Bywaters Park (2018).





#### **By Larry Beresford**

or National Volunteer Month, April 2023, The Hospitalist celebrates four hospitalists who've found innovative ways to contribute their professional expertise to their communities.

Bringing their clinical skills as physicians, management skills perfected in their hospitals, and a commitment to public service, they illustrate the wide range of settings and roles where physicians are making a difference. They provide medical care to the underserved, staff or supervise medical student-run or street clinics, share their expertise in health education, introduce potential future physicians from underrepresented populations to science-based health careers, and in other ways promote diversity and equity in the communities where they live and work.

#### Dr. Green loves to walk

Ten years ago, Amanda Green, MD,

FACP, HMDC, CPPS, FHM, a hospitalist and the chief medical officer at Paris Regional Medical Center in Paris, Texas,



brought Walk with a Doc to Paris. As the local program's volunteer walk leader, she handles logistics and recruiting other doctors, and occasionally steps in to give the brief, health-educational talk that's integral to the walk experience.

Walk with a Doc was created by David Sabgir, MD, a cardiologist in Columbus, Ohio. In 2005, he invited his patients to go for a health-promoting walk with him in a local park—and 100 people showed up. An official non-profit since 2009, there are now more than 500 Walk with a Doc chapters worldwide that promote healthier lifestyles through walking.

When the Texas Medical Association adopted the concept, Dr. Green saw an article in the association's magazine and signed up "We meet monthly. A doctor leads the walk, first giving an informal three-to-five-minute health talk, usually about how healthy living practices impact overall health, and then we walk, usually around two miles."

The program has gone into medically underserved neighborhoods in Paris, trying to capture different



One of the early Walk with a Doc events at Dragon Park (2015), ABOVE. BELOW, Dr. Green and Senior Prime Time members in their indoor workout space (2019).

groups of people, Dr. Green said. "I've done it at every track and trail in town." But more recently it's also evolved into a de facto wellness program for the hospital's employees. "That's where our hospitalists got more involved. I'd say at least half of our 12-member group has come out to lead at least one walk," she said. "I talk it up to my hospitalist doctors. I let them pick a health topic they have an interest in."

Two of the most recent walks, for example, were hosted by Biolese Konwe, MD, who discussed prediabetes, and Honey Cheruiyot, MD, who discussed good sleep hygiene.

Walking is one of the best things people can do for their health, Dr. Green said. Almost any medical condition treated by doctors could be improved by walking regularly. She tries to do it every day. "I really enjoy it." Paris doctors can even write a prescription for their patients to go for a walk or get other exercise and include contact information for Walk with a Doc.

Dr. Green also enjoys the personal interactions of the walks. "You always feel you get a lot out of it. It's just a fun community event for all ages. People bring their children, their baby strollers, and their pets."

Dr. Green became a hospitalist more or less by accident while working part-time in an outpatient clinic with two young children at home. Her boss invited her to a lunch talk about a new hospital medicine program starting at Paris Regional. He volunteered for them to job-share a position. "So, I became a hospitalist. That was 14 years ago."

Subsequently, she became the hospital medicine group's leader, then hospital chief medical officer and medical director for the Lamar County Health District. She's also active with the local school district's School Health Advisory Committee, the St. Joseph Community Foundation, United Way, several local hospice programs, hospital ethics, and equity committees—and anything that promotes prevention.

There are lots of opportunities for hospitalists to get involved in community service, Dr. Green said. "With so many internists choosing careers in hospital medicine rather than primary care, that's where the medical workforce is." And the COVID-19 pandemic has only heightened the importance of educating the public on health issues.

"I appreciate every hospitalist doing what they can to make their communities better, even if it



doesn't involve a named program. Whether it's in the schools, in our parents' nursing homes, or at the supermarket—we're educating people all the time. It's the nature of what we do as doctors."

#### Dr. Park works to reduce disparities

Clare Park, DO, knew she wanted to be a hospi-

talist, delivering expert clinical care to high-acuity hospitalized patients, while still a resident at the University of Rochester (UR), Medical Center in Rochester, N.Y. "But I knew, fundamental to my identity as a physician and my personal values, that I was



Dr. Park

also going to be working to reduce health care disparities. Since I was first hired into the hospital medicine division here at UR, I've been looking for ways to build health-equity work into my role."

Dr. Park, assistant professor of medicine at the UR School of Medicine and Dentistry, joined the hospital's Inclusion, Diversity, Equity, and Awareness (IDEA) Committee as a new hire. Then she started reaching beyond the hospital's walls into volunteer roles centered on helping create career pathways for future physicians and health care professionals, encouraging learners from identities that are under-represented in medicine.

For example, UR hosts a Young Scientists Club for 5th and 6th graders from the Rochester school district. Dr. Park coordinates Saturday programs at the hospital for members of this club. "I am the coordinator for mini-medical-school sessions, which teach students about different organ systems," she said.

"We had 50 students bussed in from Rochester city schools. They got a sense of what it looks like inside a hospital. Five resident doctors gave a presentation about cardiac health, the circulatory system, and cardiac arrest—teaching basic cardiology, CPR, and life-support skills to the students, who got to practice CPR on the mannikins. They loved that. In the open Q-and-A period, they had such great questions about what it's like to be a doctor."

One of the Rochester high schools has a science teacher who runs a health-careers teaching track. "I coordinate with her to bring in physician volunteers to talk to the students, sharing their stories and their expertise," she said. "Many of the physician volunteers also come from backgrounds that are underrepresented in medicine, so that's an immediate way for kids to envision themselves as future scientists or future physicians," she said.

Dr. Park's current community focus is the Bridge Mentorship Hub, a tool designed to



Resident volunteers for the University of Rochester's Young Scientists Program include, L to R: Charlotte Blumrosen, MD, Nneka Ogbutor, MD, Shannon Moyer, MD, Clare Park, DO, Irene Martinez, MD, Rebekah Roll, MD

MD, Clare Park, DO, Irene Martinez, MD, Rebel support pathway programs for future physicians from backgrounds underrepresented in medicine. "Historically, we've had difficulty finding sustainable ways to identify mentors and volunteers for these programs, although not for lack of interest by the faculty. We are trying to 'bridge' the gap to connect mentors and mentees."

The Bridge program started in three departments and is now part of UR's Office of Equity and Inclusion. "We have institutional support for creating more opportunities for additional folks who might not have the bandwidth to go out and find these different programs and opportunities on their own," she said.

Dr. Park has found that with strong support from the hospital's departmental and division leadership, her volunteer activities have grown to become part of her day job. "Yes, I did those things initially as a volunteer commitment, but the leadership in my organization recognized the importance of this work and got behind it. A lot of these things have been considered above and beyond—and volunteer. But it has gotten enmeshed in our culture."

The connections she makes help link the hospital with the larger community and build trust in the institution. "My hospital medicine chief sees the community work as bringing tremendous value to the division, even though it's not hospitalist specific. He sees the way it has connected me to people in other divisions."

As a result, the lines between volunteering in the community and her day job are no longer hard and fast, Dr. Park said. "It's a misconception to say these are things we do completely outside of our day jobs. I see so many ways being a hospitalist has helped to support this work," she said. Ultimately, that meant giving her protected time for the Bridge programs. "And my department has created multiple opportunities for me to advertise the work I do to other doctors," she said. Leadership is also looking at how to value community work in the same way as research or other institutional priorities when it comes to promotions.

It can be hard to work in the U.S. health system, where it often feels that profits are placed over people, Dr. Park said. But the extracurricular work she does makes her feel that she's having a positive impact. "Some of the best advice I got in residency was to work within your circle of influence. When I feel completely overwhelmed by systemic issues, knowing I have created space for students to thrive, to see their place and their path in life, while creating opportunities for other doctors to also have that volunteer experience, is the best way I can both work in my circle and expand that circle."

## Dr. Makowski sees hope for the future of medicine

Beth Makowski, DO, FACOI, FHM, division chief

for hospital medicine with Corewell Health in Grand Rapids, Mich., was asked by medical students at Michigan State University's Grand Rapids campus to help them launch a street-medicine program to give back to their community. "We started planning in



Dr. Makowski

2018-19 and took our proposal to the University," she said. "We were pleasantly surprised to hear 'yes' from everybody we spoke to. They saw this as a worthwhile program."

Dr. Makowski is now the volunteer medical director for Grand Rapids Street Medicine, although the program is primarily run on a dayto-day basis by the medical students through their decision-making body. It offers a free, multidisciplinary medical clinic for persons experiencing homelessness, working in several settings in close collaboration with other services in Grand Rapids established to help those in need, including the fire department's homeless-outreach team. The Grand Rapids Mel Trotter Ministries homeless shelter was seeking to establish a full-service medical clinic onsite in its shelter. Dr. Makowski's student team was at the table when a brick-and-mortar clinic called Community Partners Medical Clinic was proposed. "There's now a fully renovated, brand-new clinic at the Mel Trotter shelter, which we staff on Thursdays. It's been incredible to have access to such a great facility in this setting," she said. "We also do community outreach, usually in partnership with local churches—on church grounds, in community centers, or out in the community, such as in parks, wherever the patients might be."

Grand Rapids Street Medicine employs students at all different levels of their medical education. "They may be early or late in their training. We let them do as much as they're ready to do and support them with things they're not yet familiar with. We also allow them to take as much time as they need to go through the medical exam and history with the patient." They are supervised by volunteer attending physicians, mostly from internal or family medicine, and residents. "The students report out to us about the patient's concerns and needs, and then we all go back in and see the patient together," Dr. Makowski said.

"It's a learning opportunity for the medical students but also an opportunity for them to serve the community. There's a little magic in that. It's really inspirational to see how engaged they are in that work. We know there's a gap in care for those experiencing homelessness in our community. The students do a really great job connecting with patients that otherwise may have been lost to the medical community or developed distrust of physicians."

Dr. Makowski has encouraged the participation of volunteer physicians from her hospitalist group in the street clinic. "Since I took over as division chief in October 2021, I've wanted to provide growth opportunities for my team," she said.

#### QUALITY

"It's been cool to see hospitalists get involved with this work. We know how to provide transitional primary care, connecting people back to primary care. A lot of the care in the street medicine clinic is like what we do in the hospital, managing, for example, diabetes or hypertension. So it's not outside of our wheelhousealthough we don't necessarily appreciate that until we get out there on the front lines and see it for ourselves," she said.

"My own role has evolved. I was part of all the work to get the clinic off the ground, to make the right connections, and talk to the right people at the organizations," she said. "Now, several years later, we have student leadership that has really taken over all that. I'm not positioned to be running the day-to-day operations of a clinic for people with homelessness while still doing my other job. But I was well positioned to help them get started," she said.

Now she provides more operational support and helps with things like supporting the implementation of an electronic medical record system donated to the clinic. "I help with my experience as a physician and administrator to fill in the gaps where they just don't have a lot of experience," she said.

"It's really fulfilling. On days when you're tired and have worked a long day, and then you go down to the clinic, everybody really appreciates getting the medical care they need in these settings. It just drives it home for me," she said. "I really believe in the students and believe in what they can accomplish. They're incredible people, so motivated, so intelligent. I have so much hope for the future of medicine when I work with them because they care so much about this work."

#### Dr. Hozayen finds the heart of primarycare medicine in a neighborhood clinic

Sameh Hozayen, MD, MSc, FACP, cardiologist,

hospitalist, and assistant professor of medicine at the University of Minnesota in Minneapolis, trained in Cairo, Egypt. He came to this country 14 years ago with a vision for a multidisciplinary form of health care where those from different professional roles in the



Dr. Hoyazen

patient's care regularly confer with each other face-to-face, with enough time to spend with their patients regardless of income, insurance or lack thereof, whether they can pay for their care or not—because there's no charge for the care.

The U.S. health care system doesn't often offer him that kind of opportunity-except when he volunteers at the Phillips Neighborhood Clinic (PNC), a student-run health service housed in a church basement in a largely Spanish-speaking neighborhood in South Minneapolis. "At the PNC, we see patients regardless of their citizenship, immigrant status, language, ethnicity, race, gender, religion, or socio-economic status. None of that matters. You walk in and you're seen by a team of students under the preceptorship of volunteer preceptors," he said.

Dr. Hozayen does a four-hour volunteer shift once a month at PNC, which is open two evenings a week. The health care team also includes students of audiology, health care administration, medicine, medical lab science, nursing, nutrition, occupational therapy, pharmacy, physical therapy, occupational therapy, public health, and social work. Care is provided by these professional students with fully licensed clinicians as their preceptors.



Grand Rapids Street Medicine team, L to R: Victoria Moaddel, M3, Jon Giolitti, M2, Jesse Skok, MD PGY3 Family Medicine, Christine Shafer, M3, Kyle Krzesowik, M3, Beth Makowski, DO, and Amanda Schoonover, M3.

Each patient's case is reviewed by the full multi-disciplinary team (as many as 20 people) standing in a huddle, focused on one patient. "Before I let the medical student leave, I provide teaching. But I let the student lead and do what they are trained to do," Dr. Hozayen said. "This is an integral part of their medical education, at one of the biggest student-led clinics in the country, and all of the preceptors are volunteers." Most of the students and the preceptors come from the University.

PNC, open since 2003, is a joint project of the University of Minnesota Medical School and the University of Minnesota Physicians medical group. Its medical director is Brian Sick, MD, director of the division of general internal medicine at the University of Minnesota, who Dr. Hozayen considers a mentor. About a dozen hospitalists from Dr. Hozayen's group practice also volunteer there.

All the lab tests and prescriptions are provided at a reduced cost, courtesy of nearby Fairview Health Care. Community health workers provide guidance in securing the patients more regular and permanent sources of primary health care, typically in a primary care clinic. "This program is not designed to take over as full, permanent primary care service," he said.

What does Dr. Hozayen bring back to his day job from a shift at the clinic? "The multi-disciplinary nature of the work at PNC is something I really appreciate. When possible, I try to meet other professionals in person to talk about our patients. It doesn't always work, but I try," he said.

"I don't know why we can't do this in other primary care settings across the country. I know it's time-consuming, but conventional medical care is time-consuming for the patient, and still manages to be very expensive." Dr. Hoyazen also appreciates the opportunity to deliver culturally sensitive care, especially for patients with whom he shares a cultural background. "I'm Middle Eastern, Egyptian, a non-native, a Muslim. I understand those cultural backgrounds, including people from Somalia, who represent one of the largest immigrant populations in Minnesota."

He is also called on to confer on such patients by his hospitalist colleagues. For example, some African or Muslim families might feel a powerful sense of responsibility to bring their loved one home from the hospital as soon as possible, rather than let them go to a transitional-care unit for a period of rehabilitation before returning home. "As someone from their culture, I can tell them this is a way for their loved one to get the physical therapy they need to recover their muscle mass so they can then go home with more independence," he said.

"I went to medical school at age 17 because I wanted to eliminate pain and suffering," Dr. Hozayen said. "My grandmother died from a medical error, and I didn't want anyone else's grandmother to go through that." He said he thinks PNC represents what primary care should be across the country. "This clinic, with its quality of multidisciplinary, compassionate care, exemplifies everything I'd like to see in medicine."

Larry Beresford is an Oakland, Calif.-based freelance medical journalist and long-time contributor to The Hospitalist.

# SHM Fellows—Class of 2023

he Society of Hospital Medicine proudly announces the 2023 class of Masters, Senior Fellows, and Fellows in Hospital Medicine. Congratulations!

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# **Fellowships Help Train—and Retain**

Fellowships offer experience handling specialty care, research, and academic work, but program content varies widely

#### By Sue Coons

he number of hospital medicine fellowships has grow over the years. At last count, there were three administrative fellowships, 40 internal medicine fellowships, 13 family practice fellowships, and 26 pediatric fellowships listed on the SHM website.

The UC San Diego (UCSD) Division of Hospital Medicine

Fellowship program grew from a junior faculty mentoring program that was offered to new hires early in their careers, said



Dr. Ramos

Pedro Ramos, MD, FHM, program director, and internist. "Although the program worked well for mentoring, we found that the clinical workload for new hires made it difficult to get a foothold into QI [quality improvement], medical education, and other aspects of working in an academic environment."

The program began in 2020 with one fellow who has since remained with the division. The program is mostly self-funded by the clinical work the fellow does, Dr. Ramos said. "Our fellow works as a 0.5 clinical FTE [full-time equivalent] with a slight reduction that we use to pay for various courses and projects they do in the non-clinical time."

Academic training is an important piece of the UCSD program. "Part of the training is making sure that we develop a fellow who can be well matched and suited for academic positions elsewhere," he said. For example, the fellow takes courses in the Clinical Research Enhancement through Supplemental Training program. "There are courses in statistics. how to understand clinical research. and even how to improve their scientific writing skills," Dr. Ramos said. The Business and Entrepreneurship Acumen in Medicine business-school collaboration gives the fellow a look into the business side of medicine.

The fellow at UCSD creates an individual plan for the year and is placed on multiple committees and assigned various projects and teaching responsibilities. "We want the fellow to explore different areas of hospital medicine, from teaching various learner levels both in a clinical and non-clinical environment, QI projects of different scales, mentoring, and busi-



ness," Dr. Ramos said. The program is also considering adding pointof-care ultrasound certification.

"[The program] gives the early career hospitalist an opportunity to develop skills needed for a career in academic medicine without being overburdened with clinical work," Dr. Ramos said. "It allows them to explore different possibilities in hospital medicine so that they can better understand and define their career path."

There are also fellowships for advanced practice providers (APPs).

Starting as a "generalist" in hospital medicine for new advanced practice providers (APPs) can be overwhelming, with patients having a broad spectrum of comorbidities, illnesses, and undifferentiated complaints. "First-year hospital medicine APPs who don't get postgraduate training will say they are drowning at first. There are so many diagnoses and things to know," said Brian Wolfe, MD, associate professor at the University of Colorado

School of Medicine in Aurora, Colo. Dr. Wolfe is also the

is also the director of the school's Advanced Practice Fellowship (APF) in hospital medicine, one of the first such programs in the country. He and others say hospital medicine fellowships increase the competence—and confidence—of hospitalists and hospital medicine, nurse practitioners (NPs), and physician assistants (PAs).

The fellowship programs also help retain these key employees. "Most NPs and PAs don't go through postgraduate training, but [the fellowship] has allowed many of them to obtain a level of competence they might not have had on their own or certainly not so early in their careers," Dr. Wolfe said. "I think the fellowship has vaulted many folks along in their careers."

High APP turnover is often due to decreased feelings of competence and confidence during their transition from trainees to medical practitioners, said researchers who surveyed 11 APP fellowships in hospital medicine in 2018 and published their findings in the *Journal of Hospital Medicine.*<sup>1</sup> "APPs who have completed fellowships feel more confident and able to succeed in their field."

Data suggest a more successful transition to practice, with greater retention for APPs who have gone through these programs, said Radha M Denmark, a hospital medicine nurse practitioner and director of advanced practice education and professional development at the University of New Mexico (UNM), in Albuquerque. UNM has had its own fellowship program since 2019.

#### Details of the programs

The University of Colorado's APF in hospital medicine program began in 2009. Since that time, the 13-month program has graduated more than 98 fellows. Although the fellows are not guaranteed employment and are not required to stay at the hospital system after graduation, Dr. Wolfe, who took over the program in 2012, said the system has been able to train internally and retain 90% of its ideal candidates. "It's a 13-month vetting process as opposed to hiring someone based on a couple of interviews."

In this program, the junior fellows spend time on general medicine clinical experience and core medicine didactics. They start with a few patients and add to the number as they gain experience. Then they move into the intermediate phase of enhancing their skills and working with inpatient specialties. In the second part of the fellowship, senior fellows spend time training their junior counterparts. "That pushes their growth and allows them to expand their knowledge," Dr. Wolfe said.



the-hospitalist.org

The program was tweaked continuously over the years but has settled in since 2019. One of the major changes has been implementing structured teaching rounds, Dr. Wolfe said. Every morning, fellows present patients to faculty and get immediate feedback. "This has developed both a sense of team and a stronger relationship between our faculty and the fellows."

Ms. Denmark and colleagues built the UNM APP program around the National Nurse Practitioner Residency and Fellowship Training Consortium accreditation standards and used the core competencies of hospital medicine as the backbone for the curriculum. She found it helpful to reach out to an experienced mentor in the process, too.

Funding for these programs can vary according to the institution, Ms. Denmark said. Some health care systems fund theirs; others are funded by the internal medicine department. "At UNM, the fellows are employed by the hospital, and then we're credentialed through the department of internal medicine."

The APP program provides ongoing evaluation of participants for a year, Ms. Denmark said, with overseeing faculty continually providing feedback. If a fellow struggles, the faculty can develop a remediation plan to help that fellow succeed. She is pleased that the program has helped the hospital with retention. "We've graduated two cohorts now, a total of four NP/PAs, and we've retained all of them even through the pandemic," Ms. Denmark said. "That's pretty remarkable."

#### The case for standardization

The actual number of hospital medicine fellowships seems to be slowly growing, although that number can be hard to pin down. Ms. Demark said she has gathered a list of 16 fellowships across the country through her own research.

That doesn't mean the programs are similar, however. The *Journal of Hospital Medicine* researchers found in 2018 that although the 11 advanced practice practitioner fellowship programs they surveyed used some of the same reasoning and resources to build their programs, the programs had "little standardization in terms of curriculum or assessment."<sup>1</sup> The article showed that on that national snapshot, "there is not a lot of standardization across these programs," she said.

Dr. Ramos said he and colleagues are currently working with SHM to get a better understanding of what is needed at the national level for advanced training in hospital medicine. "At any given time there seem to be about 30 various hospital medicine fellowships available for MDs and a smaller group of fellowships for APPs. One of our goals is to make the connection between those looking for a fellowship to those who offer them easier to find and highlighting differences between programs."

One possibility of standardizing the content would be through program accreditation. Accreditation is still in its early evolution for these fellowship programs, Ms. Denmark said. The National Nurse Practitioner Residency and Fellowship Training Consortium and the American Nurses Credentialing Center offer accreditation for joint NP/PA fellowship programs. The Accreditation Review Commission on Education for the Physician Assistant offers accreditation for PA programs. The American Association of Colleges of Nursing offers accreditation for NP programs.

Because of the cost and intensive process, most programs have not yet pursued accreditation. This may change if postgraduate fellowships get other funding such as from the government. "Then accreditation will be a necessary step so that all programs are adhering to the highest standards for their fellows," Dr. Wolfe said.

If all programs were accredited, it would be easier to track how many APP fellowship programs exist in the country, Ms. Denmark said. The rigor of the programs would be similar, and data collection would be easier. Accreditation would also make creating "fellowships" that consist of a structured onboarding program with 12 weeks of education and then some one-on-one training more difficult, she said.

#### Advice for new programs

What about hospital systems that don't current-

ly have a hospital medicine fellowship program and are considering starting one? They need to examine their needs, Dr. Wolfe said. "Are they trying to train a few employees? If so, there are simpler, less time-intensive ways to have a rigorous onboarding." He believes that a program should last at least six months, preferably a year.

"[You] don't really start these programs for the sake of just having a program," Ms. Denmark said. "You start them because you want to attract people to your organization or group, and you want to keep them afterward."

"Figure out what it is that your institution does well and what you can truly offer someone," Dr. Ramos said. "Then be patient. You want to have the right candidate for the job [for the candidate] and your program to be successful."

Systems that want to create an educational platform also need to make sure they have a culture that supports it. "At the end of the day all your programmatic design will fall apart if you don't have the cultural atmosphere where physicians and [advanced practice providers] are partnering to educate these fellows and help them and achieve to the top of their licenses," Dr. Wolfe said.

Physician buy-in was difficult in the early stages of the Colorado APF program since the concept was foreign to most physicians, Dr. Wolfe said. Now new faculty physicians get hired and think the [fellows] are "awesome." "They have really bought into the culture [now], but that did take some convincing early on."

Faculty involvement is key to having a successful hospital medicine fellowship, Dr. Wolfe said. "At the end of the day, it comes down to how dedicated your faculty are at the bedside to clinically educate folks and push their medical decision making."

Sue Coons is a medical writer in Chapel Hill, NC. She also has worked in the hospital patient access area for 10 years.

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# DEI in Motion: The Formation of SHM's Diversity, Equity, and Inclusion Committee

By Amira del Pino-Jones, MD, Marisha Burden, MD, FACP, SFHM, Jenna Goldstein, MA, Areeba Kara, MD, MS, FACP, SFHM, and Flora Kisuule, MD, MPH, SFHM

irst, do no harm." This is the oath we take as health care providers when we enter the medical profession. And, while previously thought of as an "add-on" to research, medical education, and clinical care, it's clear that diversity, equity, and inclusion (DEI) must be integrated into all aspects of the work we do, not only to prevent harm, but to improve ourselves, uphold our patients' trust, and make our communities healthier. In 2018, SHM began the process of creating an infrastructure for

DEI to help inform our work as hospitalists and as an organization. In a new series in *The Hospitalist*, we as members of the DEI committee will describe our journey, lessons learned along the way, and experiences in the field, with the goal of informing those who are leading organizational change in DEI and all those who can advocate for it in their institutions.

#### **Creating safe spaces**

At each annual conference, SHM hosts Special Interest Forums (SIFs). SIFs give members a chance to connect with individuals with





Dr. Kara

Dr. Kisuule

Dr. del Pino-Jones Dr. Burden

Dr. del Pino-Jones is an associate professor, division of hospital medicine, and associate dean for diversity, equity, and inclusion at the University of Colorado School of Medicine in Aurora, Colo. Dr. Burden is the division head

of hospital medicine and professor of medicine at the University of Colorado School of Medicine in Aurora, Colo. Ms. Goldstein is SHM's chief of staff. Dr. Kara is an associate professor of clinical medicine and associate division chief-general internal medicine at the Indiana University School of Medicine, Indianapolis. Dr. Kisuule is director of the division of hospital medicine at Johns Hopkins Bayview Medical Center in Baltimore. similar interests and they provide safe spaces for members to share their experiences and have meaningful discussions about issues that directly impact our practices.

In 2018, individuals from institutions across the country gathered for the first Diversity and Inclusion SIF. The session began with a simple question, "Why are you here?" The answers ranged from wanting to improve structural diversity within hospital medicine groups, divisions, and residency programs (i.e., enhance diversity recruitment), to wanting to learn more about allyship, and leading change at home institutions (i.e., improving the culture and climate in respect to DEI).

After defining what DEI means to each of us, the group brainstormed ways organizations such as SHM can promote DEI. This included prioritizing speaker diversity and gender equity at meetings and conferences, increasing educational offerings related to DEI (sessions on unconscious bias, best practices in diversity recruitment, etc.), recognizing colleagues who show leadership in promoting DEI, and lastly, forming a committee to oversee these efforts.

#### **Our mission**

The discussions that took place during that first SIF served as the framework for building a formal DEI group within SHM. The DEI Special Interest Group (SIG) laid the foundation for much of the work that has since been implemented in the DEI space. The group began by defining its mission and constructing what would become SHM's Diversity and Inclusion Statement: "Hospitalists are charged with treating individuals at their most vulnerable moments, when being respected as a whole person is crucial to advance patients' healing and wellness. Within our workforce, diversity is a strength in all its forms, which helps us learn about the human experience, grow as leaders, and ultimately create a respectful environment for all regardless of age, race, religion, national origin, gender identity, sexual orientation, socioeconomic status, appearance, or ability. To this end, the Society of Hospital Medicine will work to eliminate health disparities for our patients and foster inclusive and equitable cultures across our care teams and institutions with the goal of moving medicine and humanity forward."

The SIG helped spearhead the creation of the Leadership in DEI award which recognizes individuals in hospital medicine who've developed innovative programs to improve the care of marginalized communities and promoted best practices in DEI.

It also considered SHM Converge and supported the implementation

#### How it All Began

In 2018, SHM dug in and started the process of creating a diversity, equity, and inclusion (DEI) program that not only set the tone for the Society, but informed hospitalists in their work.

That year at Converge, the first DEI Special Interest Forum was held, connecting like-minded members. The discussion focused on wanting to improve diversity within hospital medicine groups, divisions, and residency programs, learning more about allyship, and leading change in home institutions.

That discussion served as the framework for building the DEI Special Interest Group (SIG).

of a DEI-specific track, aimed to create an inclusive environment (ensuring lactation rooms and offering conference ribbons for preferred pronouns), and evaluated the impact of SHM's open-call process on gender representation among Converge speakers.

#### **Broadening our impact**

Following the death of George Floyd in 2020, there was a national refocus on DEI and justice. As the twin pandemics of COVID-19 and racism collided. SHM responded with the commission of a time-limited task force to look critically at SHM's work in promoting DEI and justice. This task force was charged with formally defining a DEI agenda for SHM and was asked to make specific recommendations to the SHM Board of Directors. The work of the task force was anchored by the principles of transparency, advocacy, innovation, and collaboration.

The task force recommended several short- and long-term strategies to improve DEI in hospital medicine. Importantly, it was recognized that to continue this work in a committed, consistent, and enduring way, a committee would be necessary. The task force formally asked the Board to approve a committee to support accountability for the reliable integration of DEI into all aspects of SHM's work and the Board approved.

#### **DEI committee**

The first SHM DEI committee convened in 2020 and it has defined several enduring goals to support the integration of DEI practices and thereby support the organization's membership and governance. The committee aspires to:

- Engage underrepresented minorities in medicine and enhance the pathway for future hospitalists
- More broadly disseminate DEI practices for translation into practice
- Define a framework to facilitate

Read more about the SIG on page 19. The DEI SIG's work includes spearheading the creation of the Leadership in DEI award and supporting the implementation of a DEI-specific Converge track.

George Floyd's death in 2020 was the catalyst for a national refocus on DEI and justice. This, coupled with COVID-19, led SHM to form a time-limited task force to turn a critical eye toward reviewing SHM's DEI efforts thus far. Based on the task force's request, the SHM Board approved the foundation of a committee to support accountability for the reliable integration of DEI into all aspects of SHM's work.

baseline diversity data collection To describe the diversity of our organization, to understand where we are and want to go, and to deploy data-driven interventions, the committee prioritized enhanced collection of diversity data for members. The committee researched best practices for collecting diversity data and reviewed validated surveys to determine the categories that would be most helpful, and inclusive, when collecting information on demographics such as race, ethnicity, gender(s), and sexual orientation. In collaboration with the membership team, the committee was able to add these categories to the data collection tool to better inform SHM's membership profiles. Thank you to those who've updated their profiles! If you haven't yet, we encourage you to do so by logging into your account at hospitalmedicine.org.

Creating pathways into medicine for underrepresented students is another committee priority. Our medical-student mentorship program began during SHM Converge 2022 in Nashville, Tenn. when we invited students from the Student National Medical Association at Meharry College to the conference. The students attended part of the conference free of charge and networked with other hospitalists and leadership. The highlight for the students, as well as committee members and SHM leadership, was a round-table discussion with several committee members and SHM's CEO, Eric E. Howell, MD, MHM, in which we learned more about our students' paths to medicine and career aspirations. As a group, we were able to discuss barriers and facilitators we had faced in our careers and brainstorm ways to mitigate those barriers and leverage resources. We continue to provide mentorship for the students via regular check-ins and interview-prep sessions to support sustained relationships throughout their careers.

SHM is in the second year of its Hospital Medicine Diversity, Equity, and Inclusion Scholarship, which is made possible by our generous Keystone Sponsor, Vituity. Through this fund, SHM provides \$25,000 scholarships to third-year medical students underrepresented in medicine who have an interest in pursuing a career in hospital medicine and practicing in an underserved community. The goal of the scholarship aligns with one of the DEI committee's missions—to support the growth of a diverse health care workforce.

#### **Lessons learned**

We learned several key lessons throughout the process of developing SHM's DEI committee:

- 1. Engage leadership and stakeholders early and often. This allows for buy-in and collaboration and is integral to building the trust needed to move efforts forward more efficiently and effectively and in fostering longterm engagement and sustainability.
- 2. **Have a clear mission.** This is what will guide your strategic planning and serve as a reference when you feel you're veering off track.
- 3. Understand common barriers and facilitators to move this work forward. In our case, understanding the process for the formation of committees in our organization helped us better understand what was needed to advance to the next step and use available resources.
- 4. **It's okay to start small.** It's okay to begin with a small group and then have an open call to engage all interested parties. You may be surprised by who comes to the table and the ideas they bring with them. With time, you can broaden your mission and scope, and continue to build initiatives.
- 5. **Celebrate wins! DEI work is rewarding and challenging.** It's important to pause and celebrate successes, even the small ones, and the overall progress that is made.

Hospitalists are the fastest-growing specialty in medicine. We care for patients when they're at their most vulnerable. We are scholars, educators, quality-improvement experts, researchers, leaders, and advocates. In future articles in this DEI series, we look forward to sharing our progress with the hospital-medicine community and discussing important lessons in DEI to shape the future of our profession. In the next article, we'll share plans to build our undergraduate mentorship program.

While we're a long way from achieving diversity, equity, and inclusion in medicine, we are closer today than we were yesterday. With the committed force of hospitalists around the nation and a society that supports us, we'll get closer every day.

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#### **By Richard Quinn**

iversity, equity, and inclusion. DEI. Sometimes the buzzword that DEI has become can evoke a sense of being overwhelmed. So many things can seem to fall short of important goals that even trying seems futile.

Wrong, says Areeba Kara, MD, MS, FACP,

SFHM, co-chair of SHM's DEI Special Interest Group.

"You absolutely have to break it down into smaller problems," said Dr. Kara, an associate professor of clinical medicine and associate division chief of the division of general internal medicine at the Indiana



University School of Medicine in Indianapolis. "It's the sum of the whole. Fix every process we can...Every little thing we do, if we stop and think for one moment, 'How can I make this more inclusive? 'How can I make this fairer?' I think we can get there."

SHM's Special Interest Groups are intended to "create communities of hospitalists around topics of interest practice areas and/or care models." In today's practice environment, perhaps no group touches on personal, professional, and patient-centeredness like the DEI community. That might explain its 1,618 members—yes, it's one of the largest SIGs.

SIG co-chair Marisha Burden, MD, FACP, SFHM, says the value of focusing on DEI is self-evi-

dent. "It is bringing opportunity to everyone so that we all thrive, and we make better decisions when we bring more diverse backgrounds and perspectives," said the professor of med-



icine and division head of hospital medicine at

# SIG Spotlight: DEI

the University of Colorado School of Medicine in Aurora.

"Thinking about diversity, equity, inclusion, and justice in every single facet of what we do is really critical to ensuring a successful workforce and, frankly, successful patient care and organizational outcomes. It is the foundational component of everything we do. So, taking that lens, whether it's how we offer something at a national meeting, how we ensure we mitigate bias in our patient care, or how we ensure equal opportunity for all. It's just very important principles for everything we do."

Drs. Burden and Kara encourage everyone to find their own "why" and identify what they can do in their own spheres of influence. It could be spending five extra minutes with a patient, using interpreters, and being mindful of not using stigmatizing language in the documentation. It could also be advocating at institutional and national levels.

"As leaders of the Society's DEI SIG, we have witnessed first-hand the difference the dedication and enthusiasm the DEI SIG members have brought to this work—truly leading change," the pair wrote in an email to *The Hospitalist*.

Take a paper published in 2020 in the *Journal* of Hospital Medicine, "SPEAKers at the National Society of Hospital Medicine Meeting: A Follow-UP Study of Gender Equity for Conference Speakers from 2015 to 2019. The SPEAK UP Study."

The report found that by having an open call for speakers—versus leadership choosing speakers outright—the representation of women increased, as did satisfaction scores for sessions. The results were so noticeable, the study's conclusion questions whether "an open-call process with peer review for speakers may be a systematic process that national meetings could replicate to reduce gender inequities."

"What if you implement something as simple as, an open-call process, what does it do for diversity?" Dr. Burden said. "When you implement this very strategic process, a very simple open-call process, it removes the gender inequities that previously existed. We studied this and published our findings and that was one example of sharing knowledge with others so they can learn and perhaps implement it in their day-to-day practice. What are some simple things we can do every day to make our work better, more equitable?"

Dr. Kara, born and raised in Karachi, Pakistan, knows the value of diversity, as she and her husband hail from Asia, and her children were born in the United States.

"I would hope we can evolve into a space where I don't have to be a minoritized person in this country to understand what the experience (of other minoritized individuals) is like," she said. "I would like to think we're all compassionate and empathetic enough to be able to understand why we need to spend that extra time to build that trust."

Coming from that perspective, Dr. Kara says it's incumbent on hospitalists to put themselves in the shoes of their patients.

"You have to remember that the person in the hospital bed is going through some really horrible things, and they're not always going to be their best self," she said. "So, all I can do is be my best self at that moment. That is what I've tried to model for myself."

Both Drs. Kara and Burden agree that DEI can seem so broad as to be implacable, but with a combination of improved results, greater opportunity for all, and a healthy dose of humanity, the wins are worth the effort, they say.

"We know that diverse teams are more successful in almost any way you choose to measure success. We know that to eliminate health care disparities we need to become more diverse and intentionally inclusive. There's data, there are the moral principles, and for me, there's also a little bit of a selfish push, because my family does not look like families from here, and I want to make this better for them. There's always that."

Richard Quinn is a freelance writer in New Jersey.

SHM



# **Chapter Spotlight: North Jersey**

#### **By Richard Quinn**

orth Jersey, which represents the area between the upper Delaware River and the Atlantic Ocean, is considered part of the greater New York City metropolitan area; it has a higher population compared to the rest of the state. Colloquially, North Jersey includes everything north of 1-295 in the west and everything north of I-195 in the east.

Since 2014, it's been home to Gazala Dave, MD, who is now president of the SHM North Jersey Chapter. Here she's found a



Dr. Dave

professional family and a sense of community.

"It is important to be together in a community," said Dr. Dave, a hospitalist with Valley Health System, which covers parts of New Jersey and New York. "To have that kind of nurturing, interactive environment to learn from each other, to learn from our experiences, and to work on our weaknesses together as a group so we can grow together and provide quality-based care to all hospitalized patients."

Dr. Dave, who went through medical school and residency in her native India, rose to vice president of the chapter before the pandemic and took the reins in 2020, a role she's held since. She acknowledges the challenges in the early days of the COVID-19 pandemic, especially given the severity of hospital admissions and deaths in metropolitan New York, one of the densest population centers in the world.

"As frontline workers, COVID-19 affected our physical burnout and the mental health of all physicians," Dr. Dave said. "We, as hospitalists, were frontline workers, and throughout the pandemic, we, as a group, continued to support and motivate each other."

Dr. Dave says the chapter worked to hold virtual meetings as often as possible "to discuss various strategies adopted across the state and neighboring states so we could improvise accordingly, as we were all going through a learning curve.

"This was all new to us," she said. "During the pandemic, we continued to hold virtual seminars addressing physician well-being. Even though we could not hold in-person events, it was very essential for us to meet and connect as a community, and thanks to the miracles of modern-day medicine that we were finally able to have an in-person event."

But, perhaps unsurprisingly, Dr. Dave was immensely proud of how her chapter's members—and health care professionals as a whole—mostly emerged for the better from the largest public health crisis in a generation.

"Through the COVID-19 pandemic, it has been tough and challenging for all health care workers," she said. "But, once again, we, as hospitalists, have proven that no matter what circumstances and challenges we are put through, we continue to strive and provide high-quality and valuable care to our patients."

That progress makes it a little hard to argue to replace Dr. Dave as the chapter head, given that the roughly 250-member group last year was given a Gold Award by SHM as part of the national society's 2021 Chapter Excellence Awards. The recognition—one of four award-level designations meant to honor "good hospital medicine citizenship while demonstrating innovation and sustainability"—was a point of validation for Dr. Dave.

"It means a lot coming out of the pandemic," she said. "It was a joint effort. I would like to thank all the program directors, fellow hospitalists, our leadership team, and all the participants who helped make these in-person events a huge success despite just coming out of the pandemic."

The chapter held four in-person events in 2022, perhaps none more popular than its poster competition.

"We are proud that this event

was a huge success coming out of a pandemic," Dr. Dave said. "It is this event that brings together the medical student, residents, and hospitalists. It helps us showcase our specialty to the medical students and provides a window to the lifestyle and values added by hospitalists to the health care system."

To Dr. Dave, that's a value that hospitalists need to understand both professionally and personally.

"It is difficult because, as physicians, we think everything is going well with us. We want to take care of our patients, and we want to take care of those nearest to us. We can completely forget how this is all impacting our personal life. That's why I think it was very essential (during Covid) to have that tactile environment because I think this is when we realized it and we were able to downpour our feelings, our emotions, the stresses, and the health issues we had been through, and move past the pandemic."

Now, Dr. Dave sees the chapter's role as providing that sense of a professional family that lured her in nearly a decade ago.

"We want to continue to provide a fun, nurturing, collaborative, interactive environment for all hospitalists to come together," she says. "Not only across New Jersey but through the entire country."

Richard Quinn is a freelance writer in New Jersey.

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### **Key Clinical Question**

# To Anticoagulate or Not? The Ongoing Dilemma Among CAA Patients

By Aaron Nepaul, MD, Janet Guo, BS, Cassandra Fierro, BS, Brian McCrae, BS, Nadia Mujahid, MD, and Iva Neupane, MD

#### Case

A 93-year-old female with dementia and cerebral amyloid angiopathy (CAA) presented after a mechanical fall. She was on apixaban for a deep vein thrombosis (DVT) from three months prior, which was complicated by an intracerebral hemorrhage (ICH). Evaluation in the emergency department revealed a left femoral neck fracture. She was admitted to the care of the orthopedic trauma team and the geriatric medicine team was consulted for medical co-management.

#### Brief overview of the issue

Unlike Alzheimer's disease, where extracellular amyloid beta plaques deposit in the tissues between nerve cells, CAA is defined by amyloid beta plaques collected within the media and adventitia of small- and medium-sized blood vessels of the brain.<sup>1</sup>

Hereditary CAA is rare and occurs most commonly in the younger population whereas sporadic CAA has greater prevalence and severity with increasing age.<sup>2</sup> While a definite diagnosis of CAA can only be established postmortem via a pathologic exam showing amyloid deposition, a probable diagnosis is often made in living patients and may be supported by MRI imaging.

Characteristic findings can include multiple acute hemorrhagic cerebral lesions or chronic changes including microbleeds with hemosiderin deposition, white matter changes, and "microinfarctions." <sup>3</sup> With CAA comes a greatly increased risk of ICH which can be problematic for patients at risk of falls or those indicated for anticoagulation therapies.

#### **Key Points**

- CAA dramatically increases the risk of intracerebral hemorrhage and requires extreme caution when considering anticoagulation therapies.
- A patient-centered and multidisciplinary approach to management is required when considering competing risks of bleeding versus thrombosis in patients with CAA.
- Characteristic MRI findings of CAA can include multiple acute hemorrhagic cerebral lesions or chronic changes including microbleeds with hemosiderin deposition, white matter changes, and "microinfarctions."



Dr. Nepaul is a geriatric medicine fellow at the Warren Alpert Medical School, division of geriatric and palliative medicine, at Brown University in Providence, R.I. Janet Guo, BS, Cassandra Fierro, BS, and Brian McCrae, BS are medical students at the Warren Alpert Medicine School of Brown University in Providence, R.I. Dr. Mujahid is co-director of the geriatric fracture program at Rhode Island Hospital, medical director for the transitional care unit at Steere House Nursing and Rehabilitation Center, and associate professor of medicine at the Warren Alpert Medical School of Brown University in Providence, R.I. Dr. Neupane is a geriatrician at Rhode Island Hospital and Miriam Hospital, an assistant professor in the division of geriatrics and palliative medicine, and the geriatric medicine fellowship associate program director at the Warren Alpert Medical School of Brown University in Provi-

#### Table 1: Risks of thrombosis and bleeding

RISK OF THROMBOSIS	RISK OF BLEEDING
Prior DVT	Use of anticoagulation
Surgery type and extent	History of ICH
General anesthesia	Cerebral amyloid angiopathy
Immobilization	History of falls

days.15

#### **Overview of the data**

CAA carries a high risk of spontaneous intraparenchymal bleeding and its prevalence increases with age in the elderly population.<sup>2</sup> The proportion of spontaneous hemorrhages attributed to CAA in elderly patients ranges from 10% to 20% in the autopsy series and up to 34% in the clinical series.<sup>4.5</sup> In individuals affected by CAA, prior ICH has been associated with a 10-fold increased risk of recurrent ICH compared to those without.<sup>6</sup>

Warfarin has been found to increase the risk of ICH by seven to 10 times.<sup>78</sup> Furthermore, it increases the severity of bleeding, accounting for approximately 60% of associated mortality.<sup>9</sup> Aspirin has also been shown to increase the risk of intracerebral bleeding.<sup>10</sup> No study has reported the effect of direct oral anticoagulants (DOACs) on CAA specifically.

While our patient had an increased bleeding risk from CAA, this was complicated by her acute long bone fracture with conflicting risks of its own. There is a high risk of DVT associated with long bone fractures,11 as well as with surgical procedures and general anesthesia.12,13 Poor mobility after falls, especially in the setting of fracture, adds to the risk of developing DVT.<sup>14</sup> Another notable risk in this patient is her advanced age and history of frequent falls. Orthopedic hip surgery has a known increased risk of VTE events which can be reduced by up to 60% with thromboprophylaxis.<sup>15</sup> The American College of Chest Physicians recommends routine use of DVT prophylaxis for at least 10 to 14 days minimum and extending up to 35

Application to case We evaluated this patient for preoperative

risk prior to anticipated orthopedic surgery. Given that she was ambulatory at baseline and had no identified risk factors on the Revised Cardiac Risk Index she did not require further preoperative diagnostic assessment.<sup>16</sup> Apixaban was held upon admission, and on hospital day

See Table 1 for a comparison of factors in-

creasing bleeding risk versus thrombosis risk.

Dr. Neupane

### **Additional Reading**

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#### **KEY CLINICAL QUESTION**

number one, she successfully underwent closed reduction and percutaneous pinning of the femoral neck.

Following surgery, a discussion of the risks and benefits regarding anticoagulation occurred in a patient-centered manner with an interdisciplinary team that included the patient, family, orthopedic team, and geriatric medicine team. An ultrasound of the lower extremities was repeated during this hospitalization to evaluate for any residual clot burden, which was negative. The ultrasound result, in addition to her CAA history and orthopedic surgery, were all significant factors in this discussion.

A patient-centered plan was made with a decision to stop anticoagulation altogether and indefinitely. As recommended by physical therapy, she was encouraged to ambulate daily with assistance and to use anti-embolism stockings and sequential compression devices for non-pharmacologic DVT prophylaxis.

#### **Bottom line**

CAA dramatically increases the risk of intracerebral hemorrhage and requires extreme caution when considering anticoagulation therapies.

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#### **Identifying CAA**

- 1. You receive the pathology report after an examination of the brain of an 89-year-old patient who passed away from ICH secondary to cerebral amyloid angiopathy. Which of the following characteristic findings would you expect the pathologist to have found in your patient with cerebral amyloid angiopathy?
  - a. Amyloid beta plaque deposition in tissues between nerve cells
  - b. Tau fibrillary tangles on brain imaging
  - c. Amyloid beta plaque deposition within blood vessels of the brain
  - d. Multifocal white matter lesions representing demyelinating plaques

Answer: C. Cerebral amyloid angiopathy is notable for amyloid beta plaque deposition within the media and adventitia of the small and medium-sized blood vessels of the brain. This is distinguishable from Alzheimer's disease, where hallmarks include the presence of extracellular amyloid beta plaques deposited in the tissues between nerve cells and tau fibrillary tangles. The last answer choice is often found in multiple sclerosis patients upon neuroimaging such as FLAIR MRI.

#### Effect of cerebral amyloid angiography on bleeding risk

- 2. One of your patients has CAA. They don't know much about CAA and are wondering what some of the major risks of this disease are. You tell them:
  - a. CAA has an increased risk of ICH
  - b. CAA has an increased risk of pulmonary fibrosis
  - c. CAA carries no increased risk; reassure the patient their condition will not affect their health
  - d. CAA has an increased risk of peripheral neuropathy

Answer: A. In individuals affected by CAA, prior ICH has been associated with a 10-fold increased risk of recurrent ICH compared to those without. There is a high stroke risk for those with CAA and it should be one of the major concerns when treating a patient with CAA. The rest of the answer choices are incorrect–there are no known associations of CAA with lung hypoplasia or peripheral neuropathy.

#### Managing CAA with comorbidities

- 3. A 73-year-old patient is recovering from a spontaneous lobar hemorrhage and was subsequently found to have CAA by MRI. Her past medical history includes atrial fibrillation which is currently being managed with warfarin. You discuss with the patient that:
  - a. She should maintain her current warfarin therapy
  - b. She should be switched from warfarin to a DOAC for easier management
  - c. She may be a candidate for a left atrial appendage closure procedure and taken off anticoagulant therapy
  - d. Both B and C are suitable options after having a patient-centered discussion of the risks and benefits of both options

Answer: D. Warfarin confers the highest risk of ICH in CAA patients making DOACs the more preferable choice for anticoagulation. In addition, given this patient's history of spontaneous bleeding, the provider may deem her unsuitable for any future anticoagulant treatment and recommend a left atrial appendage closure to prevent the risk of clotting due to her atrial fibrillation. In all cases of CAA, a patient-centered discussion should be held to identify the most appropriate course of treatment.

#### Best approach to DVT prophylaxis

- 4. An 87-year-old woman is brought to the emergency department by her son after falling at home and reportedly not being able to ambulate. There is no history of head trauma. Her past medical history includes ICH secondary to cerebral amyloid angiopathy. Physical examination shows moderate tenderness to the left hip and a limited range of motion. X-ray reveals an intertrochanteric hip fracture. The patient decides to undergo open reduction internal fixation of the hip. What is the best approach to DVT prophylaxis for this patient?
  - a. Start the patient on low molecular weight heparin prior to surgery and continue its use up to 35 days post-surgery
  - b. Discuss with the patient and her health care team the risks and benefits of starting anticoagulation prophylaxis prior to commencing surgery
  - c. Continue with surgery without initiating prophylactic medication
  - d. Start the patient on rivaroxaban prior to surgery and discontinue immediately post-surgery

Answer: B. While the American College of Chest Physicians recommends the use of DVT prophylaxis for at least 10 to 14 days minimum and up to 35 days post-surgery, the patient has a history of CAA which confers a risk of suffering another ICH. The best approach would be to discuss with both the patient and her health care team the risks and benefits of DVT prophylaxis in order to come up with a shared final decision.

Quiz:

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