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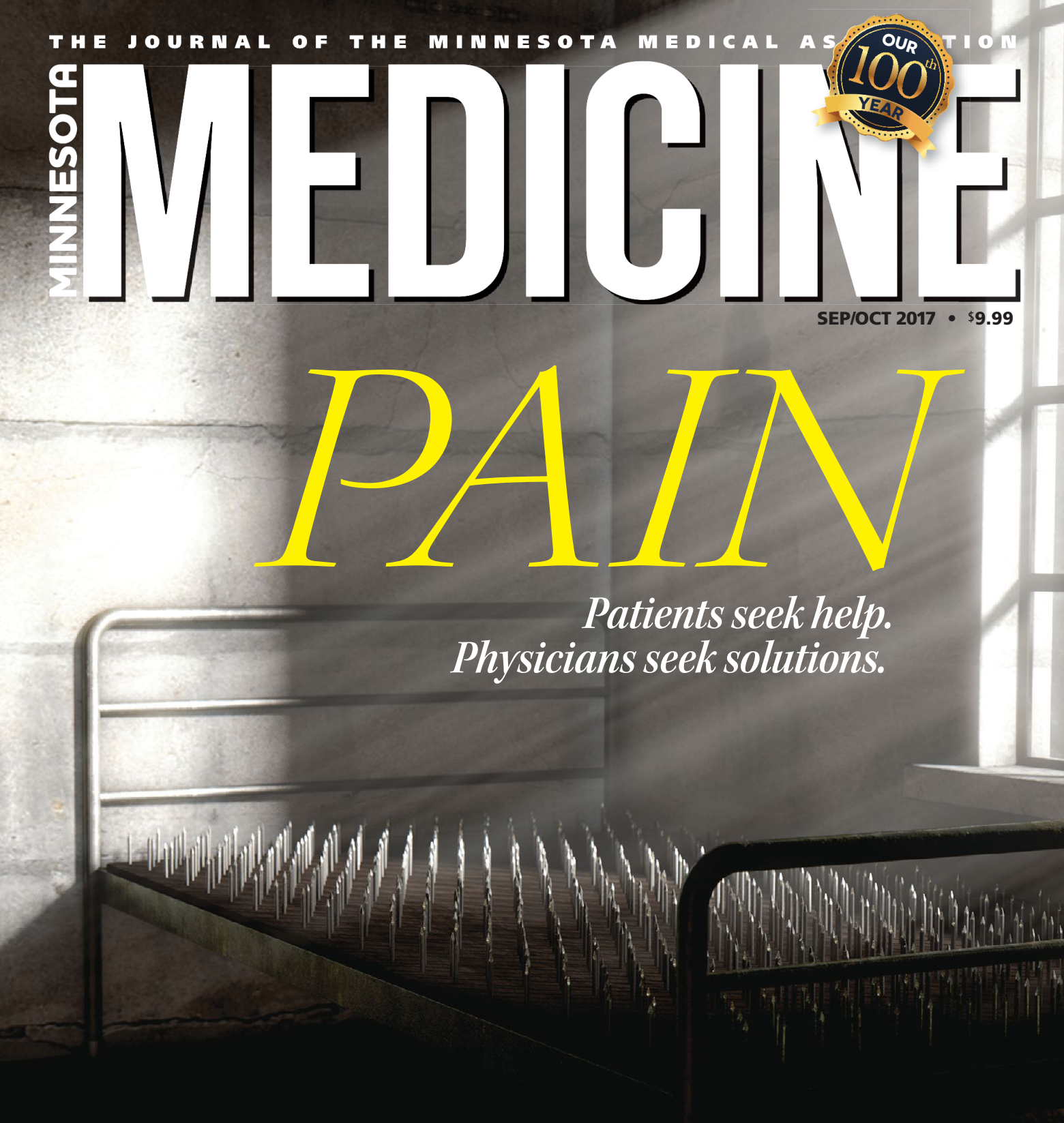

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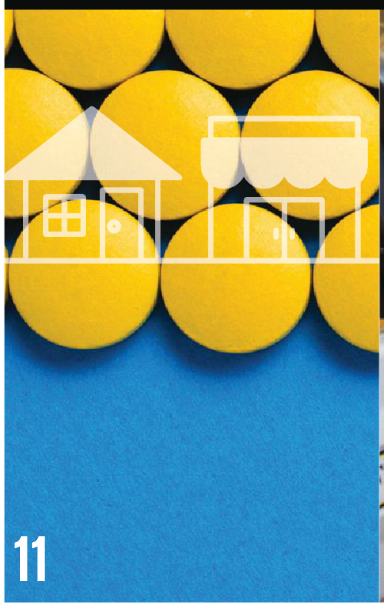

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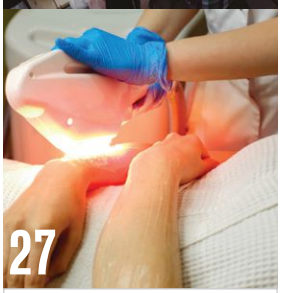

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PHOTO BY SCOTT WALKER

Charles R. Meyer, MD, Editor in Chief

The right tool for the job

Medicine's tool chest is still waiting for the perfect pain tool.

My father loved his tools. He built a long cabinet that hung on the wall, stretching the full length of his workbench. Every screwdriver, hammer and chisel had its assigned place where he would dutifully return them, cleaned and oiled, after each project. A handyman's handyman who seemingly could fix anything, he had numerous adages about tools. "Take care of your tools and they will last a lifetime," he opined. And they did. Many of his antique tools grace my not-so-organized tool room. One of his favorite rules was, "You need the right tool for the job," which explains the veritable hardware store variety in his basement. This maxim could also apply to other activities, including medicine.

Medicine's tool chest is varied and growing. We have antibiotics for virtually every infection, statins to lower cholesterol and combat atherosclerosis, and biologics to treat rheumatoid arthritis and other inflammatory diseases. We have surgeries that tackle previously unfixable problems with less invasion and discomfort for the patient. And we have radiologists who fix problems previously touched only by surgeons.

Yet, even though the tool chest is expanding, there remain seemingly unrepairable diseases. Some, such as the common cold, heal themselves even though we have nothing to offer. Others, such as brain tumors, still resist curative attempts and kill their victim relatively quickly. And some, such as chronic pain, confound the treatment machinations of physicians and condemn victims to a life of suffering.

We do have some tools for treating chronic pain. Over-the-counter analgesics are a start, but they frequently fall short. Invasive interventions such as epidural injections and nerve ablations work for a select few. When these fail, the need for stronger pain medication quickly enters the treacherous shoals of narcotic prescriptions with all the dangers of habituation, addiction and overdose.

Another of my father's principles was understanding the job before you choose your tool. With chronic pain, part of medical science's handicap is that we really don't understand its biochemistry, physiology and psychology. We know something about the gate theory of pain and how it contributes to chronic pain. We know something about humoral agents that contribute to the sensation of pain. And we know a little bit about post-traumatic stress and previous abuse and their ability to lay the groundwork for a life of chronic pain. But, to reference a frequently repaired item in my father's experience, we really don't know how the whole dishwasher works.

This month's issue covers a lot of "perhaps" in the treatment of pain. Perhaps a multidisciplinary pain program will steer some patients away from the death spiral of narcotic use. Perhaps acupuncture will supplement other treatments, allowing patients to minimize their narcotics. Perhaps cannabis or some yet-to-be-released non-narcotic analgesic will become a viable alternative to opioids. And perhaps we will find something simple and safe, such as a better diet, that will help chronic pain sufferers. Lots of "perhaps" provides some hope for the future.

Despite a basement full of tools of every description and decades of thoughtful tinkering, my dad couldn't fix everything. Like physicians everywhere treating chronic pain, he would utter a soft, out-of-character "damn" when he was stymied and had to search for a new tool. Medicine's tool chest is still waiting for the perfect pain tool.

Minnesota Medicine Editor-in-Chief Charles R. Meyer can be reached at charles.073@gmail.com.

Acupuncture in the ER

In some Minnesota emergency departments, patients may opt for an alternative to pain-relief drugs.

PHOTO BY HANNAH LYNCH, ALLINA HEALTH

Adam Reinstein offers acupuncture to patients seeking pain relief in the emergency department at Abbott Northwestern Hospital.

Pain is a common complaint among patients admitted to the emergency department at Abbott Northwestern Hospital in Minneapolis. If the case is acute, staff might administer pain-relief medication. But in less dire situations, the attending physician may refer the patient to meet with Adam Reinstein, MAOM, LAc, the department's full-time acupuncturist.

"After getting consent and putting in the needles, I'll spend anywhere from two to 45 minutes with the patient, depending on the day," Reinstein says. "In addition to impacting pain, I've found that acupuncture often reduces nausea and anxiety."

A form of traditional Chinese medicine, acupuncture has been used to treat pain for thousands of years, and some U.S. health care providers have experimented with the practice for more than a decade. Abbott, for example, began providing acupuncture as an inpatient service in 2004.

Research on the effectiveness of acupuncture is often disputed, however, and doctors both in and outside the ER have been slow to embrace the practice. Abbott, which assigned Reinstein to his current position in 2013, is widely believed to be the first U.S. facility to offer acupuncture services in its emergency department. This past May, St. Francis Regional Medical Center in Shakopee—which, like Abbott, is affiliated with Allina Health—became the second.

Chris Kapsner, MD, the medical director of Abbott's emergency department, sees several benefits to offering acupuncture. In addition to potentially offering relief from pain, nausea and anxiety, the treatment has none of the side effects associated with many pain-relieving drugs. What's more, given the recent spread of opioid addiction in America, many health care providers are eager to reduce their use of potentially addictive medications.

"We're always looking for methods of dealing with pain other than narcotics," Kapsner says.

Evidence supporting the use of acupuncture to treat pain in the emergency department can be hard to find. A 2016 study conducted by the Penny George Institute for Health and Healing found that, in observational trials, acupuncture was "acceptable and effective" for pain and anxiety. This past June, the *Medical Journal of Australia* published a study concluding that "the effectiveness of acupuncture alone was comparable with that of pharmacotherapy," but also noting that "neither acupuncture nor standard pharmacotherapy afforded patients presenting to EDs with back pain, ankle injury or migraine clinically relevant reduction in pain within an hour."

Without more solid evidence of acupuncture's effectiveness in an emergency department setting, health insurers are unlikely to reimburse providers for the service. Both Abbott and St. Francis absorb their ER acupuncture costs within their operational budgets, unable to bill insurers and unwilling to charge patients.

Indisputable conclusions regarding the benefits of acupuncture—for patients and for the bottom line—may not arrive anytime soon. But advocates like Reinstein say introducing the practice has produced positive impacts. And they don't mind if skeptics dismiss the results as little more than a placebo effect.

Reinstein, for instance, values the time he gets to spend with patients. (For safety reasons, he never leaves the room once needles are inserted.) "Sometimes, people just need to talk. They might be alone. They might be scared," he says. "I think providing that level of care and comfort is what we're supposed to do in hospitals."

– JOEL HOEKSTRA

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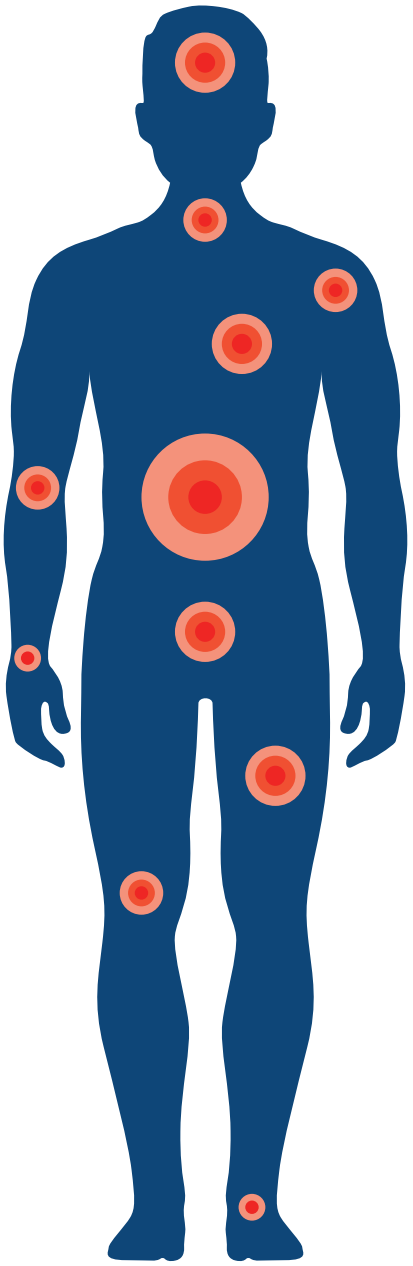
Pain

It's time for a new paradigm

A look at an updated treatment guideline from the Institute for Clinical Systems Improvement (ICSI)

BY MICHAEL HOOTEN, MD, DAVID THORSON, MD, CHARLES REZNIKOFF, MD, AUDREY HANSEN, BSN, MA, AND JODIE DVORKIN, MD

The 2016 ICSI guideline addresses the entire continuum of acute, subacute and chronic noncancer pain in adults. Detailed guidance for a comprehensive assessment and treatment of pain is included. Updated evidence-based and best-practice recommendations focus less on pain score and more on active management of pain based on function and helping patients reach their goals. The goals of the guideline are to increase use of nonopioid pain options and to promote safe practices around the prescription and management of opioids.



All pain is legitimate. All pain is real. But not all pain can be treated the same way.

Certainly, if the present opioid crisis has taught us anything, it's that our previous thinking about pain—both assessing and treating it—has been misguided. It is time for a paradigm shift.

In 2016, the Institute for Clinical Systems Improvement (ICSI) Pain Work Group created a new comprehensive pain guideline: Pain: Assessment, Non-Opioid Treatment Approaches and Opioid Management. This new guideline addresses the entire continuum of acute, subacute and chronic noncancer pain in adults. It's designed to help primary care providers develop systems that support assessment, treatment and ongoing management of patients with pain.

Updated evidence-based and best-practice recommendations in the guideline focus less on pain score and pain elimination and more on active management of pain based on function and helping patients reach their goals. Another critical theme within the guideline is safety, with an emphasis on mitigating the harms of opioids by understanding contraindications, drug interactions and adverse effects.

The following is a high-level look at the guideline. The full version is freely available at bit.ly/PainGuideline.

Assessment

As advised in the ICSI pain guideline, the following questions are key components of an assessment that helps determine a treatment plan.

What is the severity of the pain, and how does it affect quality of life and functional status?

To help tailor the treatment plan, explore important components of the patient's history, including pain intensity, quality of life, and function. Pain scores alone are not sufficient. Use validated tools to make these assessments.

What is the diagnosis and mechanism of the pain?

Consider the following types of pain generators when evaluating a pain patient: neuropathic, musculoskeletal, inflammatory and visceral. In addition, for patients presenting with an indeterminate pain generator, assess for past exposure to opioids and current opioid use. Opioid-induced pain from opioid withdrawal, opioid-induced hyperalgesia or opioid tolerance should be considered in the differential diagnosis.

Are there physical and/or behavioral health comorbidities?

A multitude of physical comorbidities (e.g., diabetes, COPD and dementia) are associated with pain. These must be diagnosed and appropriately managed. For patients with cognitive impairments, it's imperative that the treatment team has expertise in deciphering nonverbal indicators of pain symptoms. In addition, it is necessary to assess for behavioral health problems, including depression, anxiety, PTSD and substance abuse disorders.

What barriers might interfere with successful treatment?

It's important to consider resources when working with the patient to determine a treatment plan. Access to resources such as housing, employment, transportation and social support affects a patient's ability to carry out the plan. The health care team must address potential socioeconomic barriers that may hinder patient engagement.

Treatment plan

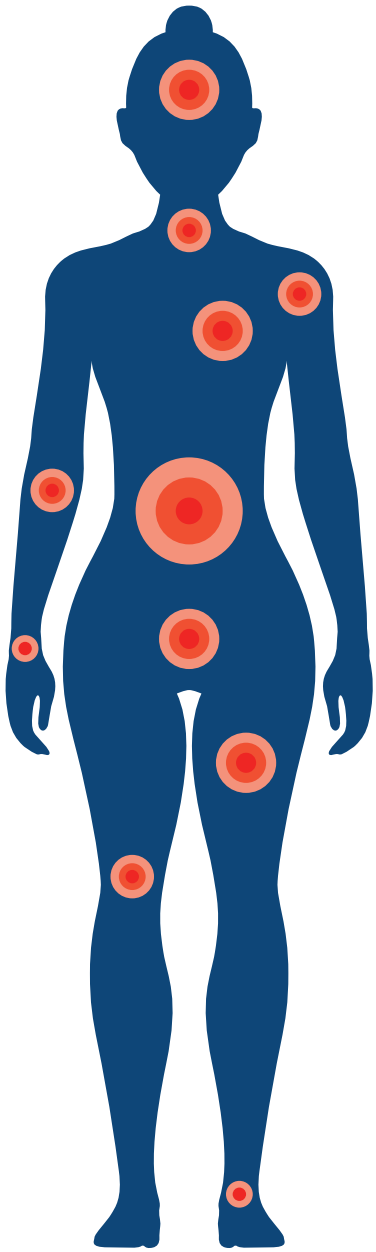
In counseling patients about their treatment, consider taking the following steps:

- Let the patient know you believe that the pain is real.
- Ask the patient to take an active role in the treatment plan.
- Avoid telling patients to let pain be their guide regarding activity and taking medications.
- Schedule regular return visits.
- Reinforce wellness behaviors, such as increased activity.
- Enlist the family or other supports.
- Assist the patient in returning to work.
- Acknowledge that chronic pain is a complicated problem, but emphasize that management strategies aimed at improving function and enhancing quality of life are available.

Nonpharmacologic strategies

Psychotherapy

Psychotherapy techniques, such as cognitive behavioral therapy or mindfulness-based stress reduction, can help many patients who have chronic pain improve their emotional and physical function.



Therapy should be focused on guiding the patient to cope with the functional limitations the pain causes and to manage their expectations of the treatment plan.

Patients with chronic pain benefit from psychotherapy even if they don't have a diagnosed mental health disorder. However, mental health diagnoses are more prevalent in chronic pain patients.

Physical rehabilitation

When appropriate, exercise should be a component of the treatment plan for a patient with chronic pain. Passive modalities should be performed only as an adjunct to a concomitant active physical therapy or exercise program. Extending physical therapy beyond eight to 12 weeks for chronic pain patients should be based on objective clinical improvement.

Interventional treatment

Interventional treatment refers to various percutaneous or minor surgical procedures targeting potential anatomic pain sources. Such treatments are generally considered for patients who have failed conservative treatment.

Complementary and integrative medicine

There is some evidence suggesting that acupuncture may be helpful with musculoskeletal pain and that tai chi and yoga may help with chronic back pain. These may be potential adjuncts to other modalities.

Pharmacologic strategies

Don't rely upon pharmacologic treatment alone for treatment of chronic pain; rather, use it as an adjunct to other modalities. A thorough medication history is critical to the development of an effective treatment plan. The history should include use of prescription medications, over-the-counter medications, herbals and supplements. Always first ask if a nonopioid approach has been tried. If one hasn't, pursue such an approach before proceeding with an opioid.

Nonopioid pain management

The nonopioid medications listed below may have select use for specific pain syndromes:

- Acetaminophen.
- Anticonvulsants.
- Antidepressants (tricyclic antidepressants or serotonin norepinephrine reuptake inhibitors).
- Glucocorticoids.
- Muscle relaxants and antispasmodics.
- Nonsteroidal anti-inflammatory drugs.

Sedative hypnotics, including benzodiazepines and carisoprodol, should rarely be used, and if they are, it should be for short-term (lasting less than one week) treatment of muscle spasms. Use of nonsedative hypnotic muscle relaxants is of low benefit. If they are used, limit the length of use to less than four weeks. Do not prescribe carisoprodol for pain.

Opioid pain management

The following are general principles related to opioid management:

- Avoid using opioids for chronic pain.
- Avoid using opioids for patients with substance abuse disorder or concomitant benzodiazepine use.
- Use opioid risk-assessment tools in combination with the clinical picture to guide care.
- For the first opioid prescription for patients with acute pain, prescribe the lowest possible effective dose of a short-acting opioid, not to exceed 100 MME total. Instruct patients that three days or less will often be sufficient.
- For patients presenting in acute pain who are already on chronic opioids, are opioid-tolerant or are on methadone, consider prescribing an additional 100 MME maximum for this acute episode, with a plan to return to their baseline dose as soon as possible.
- Discuss storage and opioid disposal options with patients at the first opioid prescription and in follow-up visits, as needed.
- Consider offering the patient and close contacts (such as family members, friends and/or caretakers) a naloxone kit.
- For high-risk patients, query the prescription monitoring program (PMP). Consider also querying for all other patients receiving opioids.
- When initiating an opioid prescription, monitor patients within a month to evaluate harms and benefits and to assess treatment goals. Patients on stable opioid doses should be seen every three months.
- Have referral sources for psychiatric treatment, substance use disorder treatment, physical therapy and pain medicine available, to provide as needed.
- Recognize the symptoms of opioid use disorder, understand the treatment options for it, and have available a referral source who can address it.
- Discuss and offer opioid tapering at intervals of six months for all patients on chronic opioids.

Special populations

Before prescribing opioids to women of childbearing age, counsel them about the risks that opioids and other, nonopioid analgesics (e.g., anticonvulsants) pose to pregnancy and contraception. Also offer pregnancy testing.

Regularly counsel women of childbearing age who are already using opioids about the risks of opioids during pregnancy, and offer reproductive health advice.

Assess geriatric patients for risks of falls, cognitive decline, respiratory malfunction and renal malfunction before prescribing opioids. If impairment or risk is detected in a geriatric patient, consider reducing the initial opioid dose by at least 50 percent.

It is also noteworthy that the guideline emphasizes the importance of patient engagement and shared decision-making in the development of a treatment plan. It received the seal of approval from ICSI's Patient Advisory Council.

The full guideline includes appendices with detailed information on nonopioid and opioid pharmacology. When the continued use of opioids is unavoidable for patients with chronic pain, the guideline provides recommendations for management and discusses indications for discontinuation and/or tapering. **MM**

Michael Hooten, an anesthesiologist and pain medicine specialist at Mayo Clinic; David Thorson, a family medicine physician at Entira Family Clinics; and Charles Reznikoff, an addiction medicine specialist at Hennepin County Medical Center, are members of the work group that developed the ICSI pain guideline. Audrey Hansen and Jodie Dvorkin are health care consultants at ICSI.

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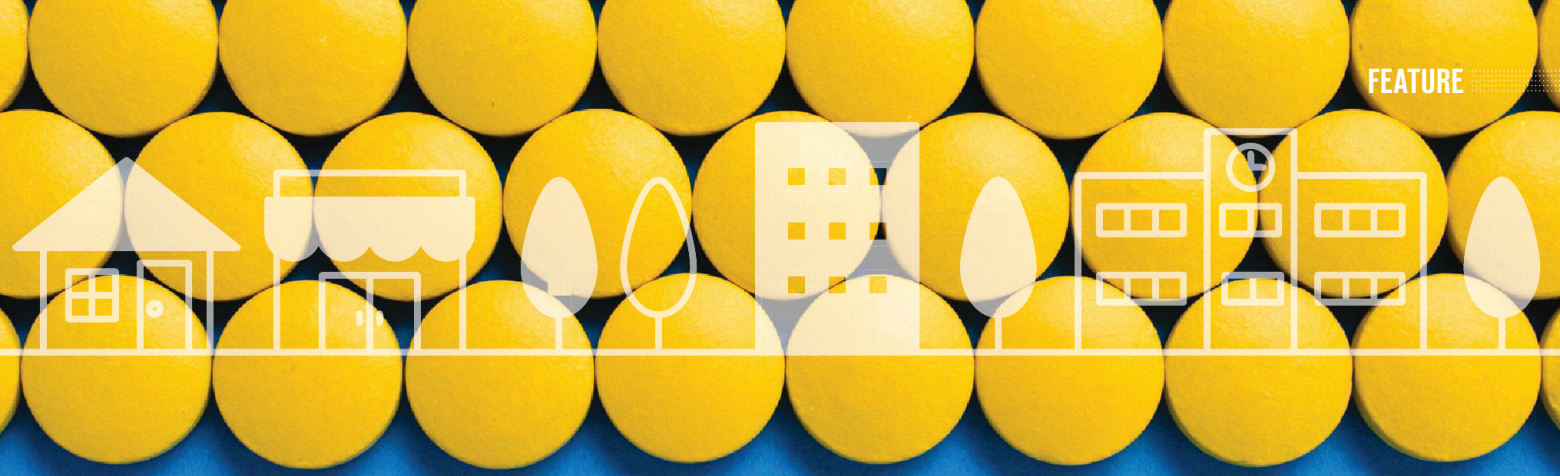


SMALL TOWNS *tackle a* BIG PROBLEM

Rural Minnesota health care organizations are gaining traction in the fight against opioid abuse

BY CARMEN PEOTA

When Kurt Devine, MD, returned to practice in 2014 at CHI St. Gabriel's Health Family Medical Center in Little Falls, Minnesota, he expected to work at a slower pace than he once had. He'd taken a six-year break from practicing full-scope family medicine and was hoping for a more manageable workload as he approached retirement. Devine was not expecting to be pulled into the vortex of the opioid abuse problem. He might not have been—had he followed his first inclination and skipped the monthly meetings of the community's newly reformed opioid task force.

"I was asked to be on the task force two to three times before I went to a meeting," he admits. But when he began to look closely at what had happened in his community in recent years, he felt compelled to get involved.

Patients were seeking narcotics for pain. Prescription narcotics were showing up at overdose and crime scenes. Therapeutic drug monitoring—assigned to people seeking additional pain medicine—was the most common diagnosis in the local emergency room.

"Once you see what's going on, it's pretty difficult to walk away," Devine says. "It's like walking away from a train wreck."

He and other task force members began connecting the dots and saw a line between the problems on the street and the 100,000 pills a month coming out of the town's three pharmacies. They realized they needed to, as Devine puts it, "turn the spigot of pills off." It was common sense, he says.

As community members talked, they realized their focus needed to be on prescriptions written for patients with chronic noncancer pain. Family Medical Center staff had the idea of creating a substance abuse care team that would first identify all of the clinic's patients taking opioids for chronic pain and then, one by one, develop a care plan for each of them.

PHOTO COURTESY CHI ST. GABRIEL'S HEALTH

Heather Bell and Kurt Devine team up to plan care for patients in Little Falls taking opioids for chronic pain.

With funding from a State Innovation Model grant, the clinic assembled such a team, which consists of Devine, family physician Heather Bell, MD, a nurse and a social worker. All members perform their care team work in addition to their other clinic duties.

The team reviews medical records, including imaging and lab results, of every Family Medical Center patient taking opioids for chronic pain, asking: Why are they on the opioid? How much are they taking? Have they explored other therapies? In addition, team members seek to identify factors, such as sleep apnea, that might put the patient at a high risk for overdose. They discuss their findings, along with any other information gleaned from clinic or pharmacy staff and law enforcement personnel that might suggest a problem. Bell and Devine then make recommendations to the patient's prescriber.

Through this process, the team might, for example, uncover that a patient struggles with anxiety as well as pain, which might lead to a recommendation that the

patient's care plan include reducing their opioid dose while introducing treatment for the anxiety. The team might also recommend the patient taper the opioid dose while trying physical therapy or acupuncture to help with pain relief.

Devine says his team has encountered patients taking as much as six times the medication dose they should be using. When team members talk with the patient's prescriber, they emphasize safety and education. "If you sit down and talk with a physician and spend an hour explaining why we're doing this and the risks of the way we used to do this, they get it, and they change, and they understand," he says.

"It is very time-consuming," Bell says of the care team's work, explaining that on one day in July, they spent an hour discussing four patients, three of whom had been on their agenda before, and they still didn't come up with care plans for those individuals. She also notes that the team hasn't even gotten to 500 people on its list.

Nevertheless, the process appears to be working. In mid-July, the clinic reported that 308 patients formerly on narcotics had been weaned from them. One of the town's pharmacies cut more than $750,000 worth of narcotic prescriptions last year. And therapeutic drug monitoring is no longer the area's top ER diagnosis. (It's No. 20.) Now, state and national officials are holding up Little Falls as a model.

More early adopters

One of the first communities to follow the town's lead is Hibbing, Minnesota, where a nurse at Fairview Mesaba Clinics is leading the charge. Danielle Jones, RN, became concerned about opioids while staffing the clinic's refill line. "It seemed like every month, people had some sort of excuse—I'm going out of town, I need it refilled early," she says. "It was kind of overwhelming."

Jones watched a video about the Little Falls efforts. "It was so inspiring because their whole community is involved," she notes. She wondered if her town could replicate that work.

A Statewide Effort

Jeff Schiff, MD, medical director for Minnesota's Department of Human Services (DHS), is leading a statewide effort to improve pain prescribing for noncancer pain patients in the Medicaid population. "We found we had 19,000 people who were chronic users of opioids," he says.

Schiff says the DHS decided to target prescribing in the post-acute phase, five to 45 days after an injury or event. "If people hurt themselves, they should get pain control," he says. "Our goal is to move them off opioids after the acute event and on to other nonpharmacologic [interventions] and nonopioid medications."

That said, Schiff emphasizes that appropriate treatment requires carefully assessing the needs of individuals. "We don't just want to cut people off," he says. "Some will wean successfully, and others will need addiction treatment or they may go off and get street drugs. We want to be careful."

The state has developed guidelines for prescribing during the acute phase. And it plans to begin giving physicians feedback on their prescribing. "We want to go to our highest prescribers in a specialty and say, compared to your peers, here's how much you prescribe," he says. "Our goal is to have them see where they're at, compared with their peers, while it's confidential, protected information, and to change their prescribing," he says. The state is also developing tools for talking to patients about opioids. "We know these conversations aren't always easy to have."

Schiff says physicians haven't understood their role in the opioid crisis but are receptive to help now, especially with regard to patients who have chronic pain. "They know those folks need more help than to just keep on filling prescriptions." – CP

In her new role as chronic pain care coordinator, Jones is attempting to do just that. She has a list of 872 patients who take narcotics for chronic pain. She's alerted other health care providers that each of those patients is on a controlled substance, and the providers are bringing them into the clinic every three months to monitor them and have them undergo urine drug tests. Meanwhile, Jones is reviewing the patients' medical records, calculating morphine equivalents, and checking the Minnesota Prescription Monitoring Program.

"I kind of do the grunt work," she says. She reports what she finds to physicians and other clinicians, often after consulting with Devine in Little Falls.

Although it's been less than a year since Jones started this work, she already sees signs prescribers are changing. "They're being more cautious," she says.

Prescribers in small towns across northern Minnesota, Wisconsin and North Dakota, where Essentia Health has clinics, are also more cautious than they once were about prescribing opioids for chronic pain. Five years ago, the health system discovered that not only were its clinicians writing a large number of prescriptions for opioids, but there was great variability among prescribers in the amount of opioids prescribed and the number of prescriptions written.

"So we started to look at this and started to get control," says Joseph Bianco, MD, Essentia director of primary care. Without guidance from elsewhere, Essentia staff established their own best practices regarding the use of narcotics

and worked to educate clinicians about the dangers of opioids and their ineffectiveness for certain types of pain. In 2013, Essentia adopted its Chronic Opioid Analgesic Therapy principles, which explicitly state that the organization recognizes that opioids are not generally effective for long-term treatment of chronic noncancer pain. Since then, Essentia has adapted its practices to reflect new guidance on opioid use as it has emerged.

Essentia now considers opioid prescribing a critical quality and safety issue. The health system tracks its own performance on such metrics as whether patients taking opioids are receiving an opioid agreement (a written document providing education about their care plan and responsibilities). Essentia also is giving physicians more time—an extra hour a year—to spend with each of their patients on narcotics.

"For our clinicians to be successful with this," Bianco says, "they have to have the time to make the right diagnosis, prescribe judiciously, closely monitor patients who are on narcotics, and decrease the amount of narcotics used."

Bianco reports that the number of Essentia patients taking opioids for chronic pain has dropped by 40 percent since 2014. And total morphine equivalents have gone down about 30 percent.

More work to do

Back in Little Falls, Devine estimates he now spends about 20 percent of his time on the opioid issue. He's not delivering babies as he once did, but he's busier than ever. In addition to the work they're doing on opioid prescribing, he and Bell have become Suboxone prescribers to better care for those with addiction.

The two also are sharing with other physicians what they've learned about caring for people with chronic pain. They not only take calls from clinicians like Jones in Hibbing, who have specific questions about specific patients, but they speak to groups at other clinics, and they're writing a manual so that more health care providers can replicate what they're doing. State legislation passed this year provides funding to support these efforts.

Devine says the response from physicians has been positive. But he's realistic about the work ahead. "I think this has to be a total change of physician culture," he says, noting the ultimate goal is that no one else dies of an opioid overdose. "That's how we're all going to be judged." **MM**

Carmen Peota is a Minneapolis freelance writer.

Old-School PAIN SCHOOL

Courage Kenny embraces interdisciplinary rehabilitation, a retro approach to treating chronic pain

BY SCOTT A. BRIGGS

Theresa was skeptical. She'd suffered pain in her back and shoulders for a dozen years. She'd tried to quell it with medication, physical therapy, chiropractic care and acupuncture, but none of those approaches provided satisfactory relief. When she heard about another option—the Courage Kenny Chronic Pain Rehabilitation Program, a three-week, residential outpatient treatment regimen—she wondered if it would be worth the trouble.

"I've got a family," she says. "Three weeks is a huge chunk of time to devote."

Nevertheless, Theresa gave it a try. After her first five days, she went home for the weekend to embark on a three-and-a-half-hour road trip with her family. "Road trips are notoriously bad," she says. "I'm cranky, and therefore, everybody else is cranky." But this time was different, she reports. "I wasn't as anxious. I wasn't as tense. I had a change in the way I thought about my pain. I dealt with it in a different way."

Courage Kenny staff lead Stephen, a patient, through aerobic exercise sessions each day he's in the Chronic Pain Rehabilitation Program.

PHOTO BY ANTHONY BRETT SCHRECK

Teaching self-management

Some have dubbed Courage Kenny's pain program "pain school" or "pain camp," due in part to its residential component (most participants stay overnight in dormitory-like rooms at a Courage Kenny facility in Golden Valley) and its fairly rigid, consistent Monday-Friday schedule. Each day includes aquatic therapy in a warm pool; mild aerobic exercise using fitness equipment; and time for yoga, tai chi, mindful meditation or other relaxation techniques. Interspersed between those activities are group discussion sessions focused

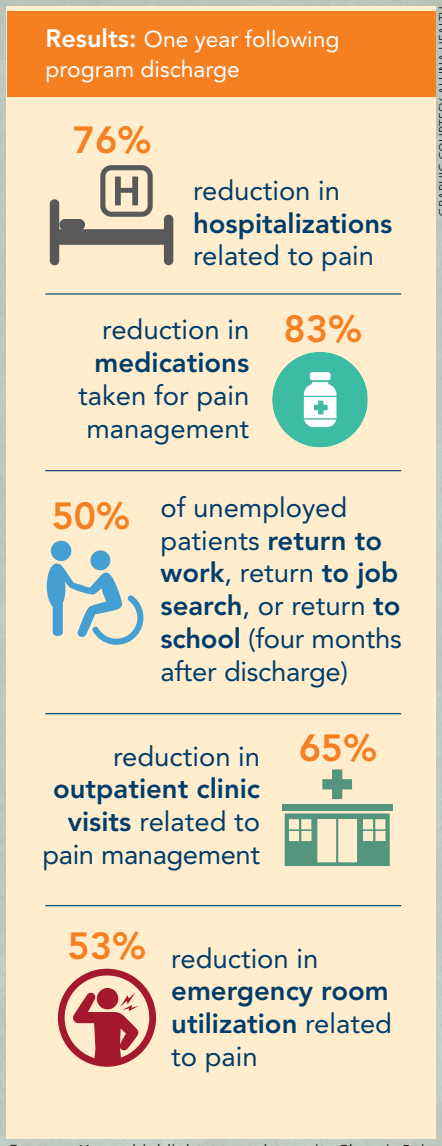
on coping, activity planning, intimacy and other aspects of life commonly affected by chronic pain.

Education is a key program component. Many people arrive feeling powerless over pain that has long disrupted their personal and professional lives. The Courage Kenny approach is geared toward improving people's ability to manage their symptoms on their own, thus reducing their dependence on the health care system and enabling them to more fully participate in activities that matter to them.

"I felt like I put my whole family's life on pause because I couldn't do anything, even with my kids," says Mark, recalling how, after a 2015 work-related accident, recuperation seemed full of peaks and—more commonly—valleys. "I felt like I would climb a mountain and then I'd fall off the other side. I'd do something and hurt so bad, I couldn't do anything for days." At Courage Kenny, however, Mark discovered how regulating his activity level could help him stay more consistently active with less risk of pain flare-ups. "I learned more about how to deal with my pain and manage it in those three weeks than I did in a year and a half of dealing with this," he says.

Another key objective at Courage Kenny is to prepare patients to re-enter the job market. Many report that pain has forced—and kept—them out for work for months or even years.

"We're seeing folks who are distressed," confirms Murray McAllister, PsyD, LP, Courage Kenny clinical director of pain services. "We provide them with a very supportive environment in which they slowly start pursing a full-time activity schedule, Monday through Friday, that simulates a return-to-work schedule. All the while, we teach them how to cope with the level of pain that they might have when becoming active. So by the time they end the program, they've become confident that they can manage their pain and be active on a full-time basis."



GRAPHIC COURTESY ALLINA HEALTH

Courage Kenny highlights several ways its Chronic Pain Rehabilitation Program benefits patients.

Not a new idea

The Courage Kenny program is one of just a handful of intensive chronic pain programs in Minnesota focused on treatment through rehabilitation. (Mayo Clinic in Rochester, Essentia Health in Duluth and the Minneapolis VA have similar offerings.) However, the scarcity of such programs doesn't indicate they're employing a new, untested approach. Far from it, McAllister assures.

"Pain rehabilitation programs used to be the only form of pain clinic there was," he says. "If you went to a pain clinic in the '70s and the '80s and even into the beginning of the '90s, you went to a program much like ours." But starting in the late 1980s, McAllister explains, a surge in the use of spinal surgeries, medications, and interventions such as nerve blocks and steroid injections to treat chronic pain led to the disappearance of many programs that called for a long-term commitment to achieving change in health behavior. "Because we sort of live in a quick-fix society, it was somewhat hard to compete with those other strategies," he says. "That's not to say that they are any more effective. In fact, they're probably less effective for the chronic pain population we serve. But they're certainly easier."

Fighting fear and overactive nerves

McAllister says rehabilitation helps patients learn to resist their instinctive fear of aggravating pain or triggering re-injury, which often holds them back from rewarding experiences that could provide physiological and psychological benefits. Angela, a patient whose lower back and leg pain kept her largely homebound for two years following an on-the-job injury, says her Courage Kenny experience helped her retrieve her sense of humor and become motivated to socialize and exercise. "When I get on the bike, I know that my pain is still there, but if I just keep trying and trying, it's like, I think I can do it; I know I can do it."

McAllister also touts the rehabilitation treatment model's ability to address heightened sensitivity that he says can remain within the nervous system long after tissue damage caused by an injury has healed.

"When the nerves are stuck in this high state of reactivity, everything can start to hurt," he explains. For example, some patients might experience pain merely by sitting in a chair, even if no injury is occurring. "They're not herniating discs every time they sit in the chair," McAllister says. "It's because the nerves in their back are so reactive that even the stimulus of sitting in the chair produces pain."

Courage Kenny tackles such challenges with an interdisciplinary staff of specialists in medicine, psychology, physical and occupational therapy, chemical dependency,

exercise physiology, therapeutic recreation, vocational services, and nutrition services. In addition to participating in exercise, cognitive behavioral therapies and relaxation therapies, some program participants benefit from antidepressant and antiepileptic medications, which act on the brain to calm the nervous system down.

Although the Courage Kenny program embraces mindfulness exercises including yoga, tai chi and meditation, it does not incorporate complementary modalities such as chiropractic care or acupuncture.

"There is some data for chiropractic care that supports its use; there is some data for acupuncture," McAllister notes. "But these therapies are reliant on a provider to deliver. We're really focused on, 'What can the patient do?'"

Outcomes and evidence

Many patients enter Courage Kenny having long used opioids to treat their pain. Although the chronic pain rehabilitation program is not a chemical dependency program, outcome data indicates that narcotic pain medication use among its patients decreased 83 percent after program completion. In addition, during the first year following discharge, program participants' use of medical services for pain dropped—including a 76 percent decrease in hospitalizations, a 65 percent drop in outpatient clinic visits and a 53 percent reduction in emergency room use. Meanwhile, within four months of discharge, half of the program's participants either returned to work, restarted a job search or began schooling.

McAllister stresses his program's approach to pain management is also backed up by empirical data from other sources and by current treatment guidelines from the American College of Physicians and the American Pain Society.

"I'm not just making this up," he says. "Because this is the oldest form of chronic pain management, dating back to the 1960s, there is literally four decades of published data supporting this form of care. Almost every decade since the '70s, there has been what's called a meta-analysis showing that this is effective.

"We've had exponential growth since 1990 of spine surgeries, interventional procedures and opioids," he continues, "and we now have an exponential growth of disability claims for chronic pain as well as opioid addiction and accidental death. So we're rediscovering, as a society: There really is no quick fix. If you want to be healthy, if you want your back healthy, there's no substitute for the hard work of exercise, stress management, eating right and healthy living—which is what the data supported all along."

Cutting costs

Another benefit of the rehabilitation model is its cost, McAllister adds. Not only are such programs less expensive than surgeries and other alternative interventions, he says, "but they're also reducing health care utilization downstream, because these are therapies that are learned, and when people practice them through the course of the rest of their life, they no longer need to rely on the health care system to do it for them." That emphasis on self-management may be increasingly important, McAllister notes, if industry payment practices veer from fee-for-service arrangements toward more population-based approaches. "If we get a set amount of money for this population, for example, and that's all the money we're going to get, how we reduce health care utilization becomes a really important business model," he says.

Signs of success

The Minnesota Legislature gave Courage Kenny a vote of confidence this year by approving a two-year Department of Human Services demonstration project allowing Medical Assistance to cover the costs of the chronic pain program. Meanwhile, patients are praising a program that has loosened the grip pain has long held upon their lives.

"I love to ride motorcycles," says Stephen, whose back pain over the past two years has limited his rides to 30 minutes, tops—and stalled his annual sojourns to the Sturgis Motorcycle Rally in South Dakota. Less than a week into his Courage Kenny treatment, Stephen already had high hopes that he'd be back in the saddle again.

"If I practice the deep breathing, the yoga they had us do, some of the meditation, I do think, maybe not by the end of this year, but maybe next year, I might be able to ride to Sturgis," he predicts. "That's a good 10, 12 hours on a bike. I would like to do that again." **MM**

Scott A. Briggs is editor of *Minnesota Medicine*.

One lawmaker's plea

In an open letter to physicians, a Minnesota legislator seeks support in the fight against opioid addiction

BY DAVE BAKER

As a fairly new legislator in the Minnesota House of Representatives, I want to say how grateful I am to see articles about opioids in *Minnesota Medicine* (see May-June 2017) and to hear about opportunities our medical professionals now have to become properly informed about these drugs and the serious risks associated with them. It's encouraging to see more educational opioid workshops and webinars become available.

However, I can't help but wonder, if only more physicians had had this information before prescribing painkillers became normalized, how different the current opioid crisis in our country might be.

My family is one of the thousands in Minnesota directly affected by this. My first-born son, Dan, died of an accidental heroin overdose just three weeks after celebrating his 25th birthday. At age 19, he had moderate pain in his lower back stemming from a sports injury, and he was almost immediately prescribed opioids. We knew nothing of what was to come.

Over the next four to five years, our son's personality changed. We watched the life drain from his once-sparkling blue eyes. When he couldn't immediately get painkillers, he turned to heroin. My son would have never gone near heroin if it weren't for prescription painkillers.

One of the main reasons I became a policymaker was to try to help educate Minnesotans about opioid use and to prevent what happened to my family from happening to others. At present, I believe the work that needs to be done starts with you, the prescribing doctor.

PMP and mandates

According to the Centers for Disease Control and Prevention, as many as one in four people who receive prescription opioids long-term for noncancer pain in primary care settings struggles with addiction. As of July 1, 2017, every licensed prescriber in Minnesota is required to register and maintain a user account with the Prescription Monitoring Program (PMP). It's far from a perfect system—and we're working on that—but it's one way to prevent your patients from going farther down a path toward opioid addiction.

In the Legislature, I'm working to enact further prescription mandates. Ideas we're exploring include placing limits on how many pills should be prescribed, requiring labeling updates and warnings, and even assessing a fee on pain medications to help address the societal strains the opioid epidemic has put on families, treatment centers, child protection services, law enforcement agencies and many others. Some states with mandates regarding opioid prescribing practices are seeing reductions in opioid prescribing rates, so I'm going to keep pushing our state in that direction.

I urge you to sign in to the PMP today. We need to begin undoing the damage that pharmaceutical companies did when they introduced this "nonaddictive" medication—one that is two molecules away from heroin—and made it an everyday part of many Americans' lives.

An appeal for help

I know the opioid crisis is not news to you. What I'm trying to do is to ask, sincerely, as someone who has seen firsthand what a seemingly harmless medication prescription can do to an innocent person: Before you prescribe opiates to new patients, please understand the gravity of the possible consequences.

I am honored and grateful to have the opportunity to write to you. I hope you'll join me in the fight against the normalization of opioids in Minnesota. Change begins with each one of us, and you truly have the power to make a drastic difference in your patients' lives. The more educated and passionate you are about this topic, the healthier and better the people of our great state will be. We need you now more than ever.

Rep. Dave Baker (R)
District 17B
Proud father of Daniel Baker, 1986-2011
rep.dave.baker@house.mn
651-296-6206

P.S. I am always listening for better ways to address the opioid epidemic. I would love to hear from you directly about how we can combat this crisis. **MM**

With better food, feel better

A diet that eases inflammation leads to less pain

BY JAMES ANDERSON, MD

Chronic pain is a total body experience. It affects every aspect of a person's life. At the HealthEast Pain Center, it's become apparent to us that much of the chronic pain we see today does not seem to be adequately relieved by opioids. Opioids can help relieve acute pain, but they can also introduce their own array of side effects, especially with chronic use.

Often, opioids don't significantly reduce pain. For patients who have hyperalgesia (increased sensitivity to pain), opioids may even make things worse. When patients with hyperalgesia take an opioid, they feel an initial decrease in pain (usually lasting several hours), but they will often experience an increase in chronic pain over time, secondary to plasticity changes that occur in the nervous system. This leads to a need for higher doses of narcotics to obtain the short-lived relief again—and the cycle goes on.

I believe hyperalgesia is much more common than previously thought. That's one reason we pursue non-narcotic therapies to help relieve pain. Diet has become one of our key tools. Helping the body repair damaged tissues, optimize its function and decrease painful impulses through diet can be an effective long-term approach to pain relief.[1] To quote Hippocrates, "Let food be thy medicine."

Granted, Hippocrates didn't have a Walgreens to send his patients to. But he also didn't have to deal with a pharmaceutical industry constantly claiming, "Here is a drug to fix your problem."

Obviously, some medications are very useful, but often, a medication is used to reverse something that has developed because of a poor diet. If we help a patient change their diet, we can sometimes fix, or at least diminish, the targeted problem without introducing any of the side effects that medications might bring.

Fighting inflammation

The standard American diet is basically an inflammatory diet. It frequently includes a high amount of sugar, which causes increased insulin secretion and fat storage. In addition, the fat cells themselves secrete inflammatory compounds. Certain fats cause more inflammation than others.

Inflammation increases pain by amplifying pain impulses, starting at the nerve endings in the skin and other tissues and continuing along several pathways throughout the central nervous system. When we seek to reduce pain by improving nutrition, our main goal is to decrease inflammation and thereby dampen this ongoing amplification process.

Herbs and spices

Often, when I mention dietary treatment for pain, patients think I'm going to give them supplements instead of pain medications. Although that's not necessarily the case, several herbs and spices—including turmeric, ginger, basil, oregano and thyme—do contain antioxidants and have anti-inflammatory properties.[2] Oxidation causes free-radical formation, which damages tissue and increases inflammation. I think of the herbs and spices I recommend not as replacements for pain pills, but rather, as helpful additions to an anti-inflammatory diet.

Sugar

When addressing pain through dietary change, our initial focus is on decreasing sugar intake. Sugar itself is not inherently bad, but when the amount of sugar consumed is more than the body uses in a day, problems can arise.[3] The average American consumes at least ten times the amount of sugar needed.

Excess sugar intake can contribute to increased insulin release, which can result in high levels of insulin circulating in the blood, a condition called hyperinsulinemia. An elevated sugar level also causes glycation (HbA1C) of proteins. It's not clear if the high sugar level or the hyperinsulinemia (or some other factor) is the cause, but eating too much sugar is associated with most so-called "diseases of western civilization," including obesity, heart disease, neurodegenerative diseases such as Alzheimer's dementia, and chronic inflammation and pain.[4]

The most practical way to decrease sugar intake is to cut out added sugar. High fructose corn syrup is the most common sugar added to processed foods. It is much cheaper to produce than table sugar, which is made from sugar beets and cane sugar.

Grains and gluten

Grains contain B vitamins and fiber, but there are several factors that can cause them to increase inflammation. Soy can cause such problems, but our main concern is wheat. We try to eliminate as much wheat as possible, at least initially, from the patient's diet.

The chief concern about wheat is its gluten content. Gluten is a protein in wheat, barley and rye that can trigger the release of zonulin (a protein) in the intestinal wall, causing breakdown of the tight junctions between intestinal mucosal cells.[5] This can create a "leaky gut," a condition in which undigested proteins enter the circulation. Those proteins may then trigger an immune response and lead to autoimmune disease. If you develop antibodies to gluten, you have celiac disease. Researchers studying several other autoimmune diseases are considering a leaky gut as the initiating cause of the illnesses.[6]

There is some variability in the genetics of zonulin production. It's estimated that as many as one-third to one-half of the population may not produce enough zonulin to cause any problems. So they may be able to eat wheat and other grains without any bad effects. Currently, the process of determining whether someone is prone to having problems with zonulin is one of trial and error, accomplished by removing wheat from the patient's diet and seeing if they improve. However, there is a new lab test to measure zonulin, so our understanding of this topic may become clearer in the near future.

Some proteins in wheat have been associated with rheumatoid arthritis—an example of an autoimmune disease that may develop secondary to a leaky gut.[7] These wheat proteins have similar structure to proteins in our joints. When the wheat protein enters the blood stream, the immune system sees it as a foreign substance and produces an antibody against it. This antibody then attacks the joint tissue—a process called "molecular mimicry." I've seen patients who eliminate wheat from their diet and gain noticeable improvement in their joint pains.

Most grains also have a very high glycemic index. This increases the amount of sugar the body has to handle, which adds to the problems we discussed earlier regarding sugar intake.

Fats and meat

Next, we look at fats. For starters, we recommend eliminating partially hydrogenated oils and vegetable oils (including canola, corn and soybean oils). These are added to processed foods mainly to extend their shelf life. They have been shown to cause inflammation and are associated with elevated LDL and heart disease.

A discussion of fats also raises questions about meat. Vegetables should make up more than 60 percent of our diet, and a vegetarian diet is healthier than the standard American diet, but I feel it has been shown that our body does better with some of the protein and other nutrients found in meat (including seafood and eggs).

Most problems that arise from eating meat are related to the quantity eaten and the combination of fats the meat contains. The optimal amount of meat for most people is probably only about 4 to 6 ounces a day—about as much as in a single hamburger patty. The ingredients we focus on are the polyunsaturated fatty acids omega-3 and omega-6.[8] Omega-6 fatty acids go through the arachidonic pathway, causing increased production of inflammatory compounds. Omega-3 fatty

acids do not metabolize to arachidonic acid and are anti-inflammatory.[9-11]

The American diet is composed of far more omega-6 fats than omega-3 fats, in a ratio of about 20:1. Ideally, this should be 2:1 or 3:1 to decrease inflammation. We can decrease omega-6 fats and increase omega-3 fats by eating grass-fed, free-range animals and wild-caught fish and seafood, rather than corn-fed feedlot animals. Animals get their omega-3 fats from the wild plants they eat. If they are fed only corn in a feedlot, they are getting mainly omega-6 fats.

Eating free-range animals, however, is usually not quite adequate to consume an optimal mix of fatty acids. So I recommend taking a fish oil supplement or cod liver oil. These products usually provide a combination of docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). The DHA is the most important ingredient, as our brains are predominantly made of DHA and cholesterol. DHA helps maintain the function of the nerve cell membranes and myelin sheaths.[12] This is especially important in children, whose nervous systems are growing rapidly. Meanwhile, studies suggest that low cholesterol may be related to dementia. Memory and concentration problems are also known side effects of statin drugs.

Besides fish oil, the other supplement I recommend is vitamin D3 at 1,000-2,000 units per day, as people don't get enough vitamin D through sun exposure during most of the year in Minnesota, and connections are being discovered between low vitamin D levels and many illnesses and conditions, including pain.[13,14]

Gut health

One of the biggest reasons it's difficult to determine the best diet to follow is that we are all genetically and metabolically diverse. We are also starting at varying degrees of metabolic and gut dysfunction, depending on what we have been eating. The best diet for an individual depends on the changing health of their gut. There are foods that might be causing problems now, but when the gut heals and is functioning normally, the person might be able to eat those foods in moderation without any side effects.

Another key component in influencing health and comfort is our microbiota, the bacteria in our intestines.[15] These organisms play a critical role, not only in the digestion of food, but also through their interaction with our immune system. Bad bacteria thrive on sugar. Good bacteria like fiber. We know that fiber helps prevent colon cancer. One theory explains that fiber has a physical, dilutional effect, in which the fiber cleans carcinogens out of the gut. Another theory posits that the gut bacteria digest the fiber into short-chain fatty acids, such as butyrate, which have inhibitory effects on cancer cells.[16]

Gut bacteria also produce several nutrients that are essential for us. Ninety percent of the serotonin and 50 percent of the dopamine in our body are located in our gut. The descending (inhibitory) system that decreases pain is a serotonergic pathway. This explains how it is thought that antidepressants, which increase serotonin by inhibiting its reuptake, work to decrease pain. But wouldn't it be better to achieve that result by having healthy bacteria in the gut increase the serotonin, rather than by taking a pill?

Elimination diet

If a patient has followed the advice above (decrease sugar intake, decrease processed food, eliminate wheat and eat healthy meat) and is still not experiencing much pain relief, the next step is an elimination diet. This involves eliminating entire food groups from the diet and then gradually adding them back and observing any effects.

The main types of foods that can contribute to pain problems include:

- Legumes (lectins)
- Dairy (lactose and casein)
- Certain vegetable groups
  - *Cruciferous* (cauliflower, broccoli and cabbage)
  - *Nightshades* (tomatoes, bell peppers, eggplant and potatoes)
- Fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAPS)

FODMAPs are mainly sources of fiber and sugars and can cause gastrointestinal (GI) symptoms from gas and other metabolite production of bacteria in the intestines. These foods can actually be good for gut bacteria, but some people may find the GI symptoms painful. Those sensations can also change over time, depending on the makeup and health of the person's intestines and microbiota.

Most people will not be sensitive to all four food groups listed above. But people may find that one or two do cause some problems, and that avoiding them may help decrease pain. Sometimes, after

the gut has healed, foods that have been eliminated may be reintroduced in smaller quantities and be tolerated.

To help discover how eating or eliminating certain foods affects pain, keeping a food diary can be very helpful. Some reactions to food intake or diet changes are immediate, but sometimes, effects are delayed for 24 to 72 hours. If someone notices a change in pain levels, they might forget what they ate two or three days ago—i.e., a possible reason for that change—without a diary to reference.

On a practical note, it is hard to get insurance to pay for a visit devoted entirely to diet discussion. I try to sprinkle conversations about nutrition in small amounts during follow-up visits regarding patients' medications. As you can imagine, the hardest part about recommending diet changes is successfully encouraging patients to stick to them. For most people, a quick fix with a narcotic is their first goal. However, more and more patients are becoming aware of the dangers of opioids and are willing to try changing their diet as a possible alternative.

In summary

A "real food" diet—i.e., one with less sugar, less gluten, fewer processed foods and a healthier mix of fats than the standard American diet typically contains—helps decrease inflammation in the body without any of the side effects that medications produce. That decreased inflammation decreases the intensity of painful signals in the nervous system. It can also augment the effects of other traditional treatments and medications being used for pain.

In addition, with a healthy diet, one is likely to sleep better and have more energy. I believe this is a plan that could benefit everyone. I try to follow it myself as much as is practical, and I encourage colleagues to do the same. Perhaps saying "no" when that inevitable box of donuts shows up in the clinic break room will help you identify with—and guide—your patients as they seek new, more effective ways to combat chronic pain. **MM**

James Anderson is an anesthesiologist and neurologist at HealthEast Pain Center in Maplewood, Minnesota.

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Medical misinformation targets vulnerable populations and threatens the nation's health

BY SHEMAL M. SHAH, DO, JONATHAN D. ALPERN, MD, ANN SETTGAST, MD, DTM&H, AND WILLIAM M. STAUFFER, MD, MSPH

Whether it's disseminated via the internet, a public meeting or the halls of Congress, misinformation erodes the imperative role that science ought to play in the development of public policy.

As health professionals, we are alarmed by the volume of misinformation being promulgated about public health, particularly regarding infectious diseases. This misrepresentation of the science behind complex health issues has, in some cases, disparaged specific groups and stoked fears about them. We believe such behavior by some media outlets is fueled by political motivations, ideology, and intolerance of those being targeted.

Although such stories make for sensational headlines, they can have real-world impacts and potentially inflict harm. In addition to being cruel, an agenda pushing policies based on these headlines is ill-advised and would harm public health priorities.

Media missteps about disease and refugees

Recent reporting by some media organizations exaggerates the threat of infectious diseases that immigrants and refugees pose to the general public. For example, in January 2017, *Breitbart News* published a story titled "1,565 refugees diagnosed with active TB since 2012, three times more than previously reported." The article reports that there has been an increase in the number of active tuberculosis (TB) cases, and it attributes that rise to refugees arriving in the U.S.[1]

Statistics cited in the story are taken out of context. TB in the refugee population is a nuanced and complicated public health issue. This article does not acknowledge distinctions in migratory status, and it fails to mention the tremendous success of U.S. programs conducting overseas TB screening of refugees prior to their arrival in this country. The story also includes overtones suggesting that the general U.S. population is at risk of contracting TB from refugees.

In truth, among the foreign-born and refugee population in the U.S., the rate of new TB cases that are active (and thus pose an infectious risk) has been declining for several years and likely will continue to do so. Case rates decreased from 15.9 per 100,000 cases in 2012 to 15.1 in 2015, and projections show a continued decrease through 2020.[2,3] So the article's accusation that "the number of refugees diagnosed with TB in the United States has increased every year since 2012" is misleading.

Furthermore, of the 38,455 cases of active TB diagnosed in the U.S. between 2012 and 2015, fewer than 5 percent were attributed to refugees, and more than half of those cases were reactivation disease diagnosed after the individual had lived in the U.S. for five or more years.[2] Additionally, the top five countries of origin of foreign-born individuals diagnosed with TB in the U.S. are Mexico, Philippines, India, Vietnam and China—nations from which few refugees originate.[3]

The recent decrease in active TB cases among refugees at time of arrival is due, in part, to stricter refugee screening criteria. In 2007, the CDC began to move from a smear-based to a culture-based method to rule out active TB in all immigrants and refugees relocating to the U.S.[4] This program screens more than a half-million immigrants and refugees annually and has dramatically decreased the number of active TB cases being imported. As a result, active TB in a refugee on arrival to the U.S. is now a rare event.[4]

By receiving such an extensive medical evaluation prior to arrival, refugees are, in fact, the most "medically vetted" individuals entering the country. This is in contrast to U.S. citizens who travel abroad, business travelers, nonimmigrant visitors such as students, and other workers who do not undergo medical screening of any type when they arrive in the U.S. From 2012 to 2015, the number of cases of active TB diagnosed among these groups increased from 498 to 597.[2,5]

Yet politically aligned media outlets repeatedly publish articles with alarming headlines implying that TB is increasing, that refugees are responsible, and that the general U.S. public is at risk. Although we acknowledge that such articles may be the result of poor reporting or a lack of understanding of the science, we believe that they more likely represent an effort to misuse statistics, spread misinformation and build upon public fears to stigmatize refugees and further a political agenda.

History repeating itself

Overstating the threat of communicable diseases to alarm the public and marginalize immigrants is not a new phenomenon. In 1832, Irish Catholic immigrants were blamed for the cholera outbreak in New York City, an indictment that further estranged an already maligned group of people.[6] The sentiments of some residents at that time are reflected in a letter written by New York Historical Society founder John Pintard stating, "Those sickened must be cured or die off, & being chiefly of the very scum of the city, the quicker [their] dispatch the sooner the malady will cease."[7,8]

Eventually, inadequate sanitation was identified as a chief contributor to the development of cholera, and the cause of the outbreak was correctly identified as poverty, not ethnicity.

Allegations arose again in San Francisco during the 1880s, this time against Chinese immigrants who were blamed for the spread of leprosy, plague, syphilis and smallpox.[9] Like New York City's cholera crisis, these outbreaks were a result of increasing urbanization leading to overcrowding, unhygienic living conditions and poverty.

Similarly, newly arriving Italian immigrants were scapegoated for the New York City polio epidemic of 1916, which led to political persecution and alienation, even though, again, this group had a higher incidence of the disease due to lower socioeconomic status and unsanitary living conditions—not because they "imported" the disease when they came to the U.S.[6-8]

Fallout from fear-driven actions

As a medical community, we strive to base decisions on evidence, so we should view the use of misinformation to target specific groups of people as a dangerous action that could have far-reaching consequences. History offers many examples.

Ignorance about the causes of infectious diseases—exacerbated by a nativist political agenda—led to the Chinese Exclusion Act of 1882, which banned all Chinese immigrants to the U.S. until the act was repealed in 1943.[6]

BY GEORGE FREDERICK KELLER (THE OHIO STATE UNIVERSITY CARTOON RESEARCH LIBRARY) [CC BY-SA 4.0 (HTTP://CREATIVECOMMONS.ORG/LICENSES/BY-SA/4.0)], VIA WIKIMEDIA COMMONS

This 1880s editorial cartoon reflects how misinformation about disease outbreaks stoked fear and scapegoating of immigrants in America at that time.

A century later, politicians latched onto unfounded reports that HIV could be spread through casual physical contact and through contact with objects such as door knobs, despite clear evidence to the contrary. This led to the 1987 enactment of a travel ban that prohibited people with HIV from entering the U.S. After more than 22 years, the ban was lifted in 2010 through joint efforts by Presidents Bush and Obama with a statement that it was "rooted in fear rather than fact."[10]

A more recent and blatant example of fear-driven policy is the response to the 2014 Ebola virus epidemic. Many politicians demanded a travel ban on people from West African countries, despite evidence refuting the effectiveness of such a measure.[11] Following those unsubstantiated public stances came several highly reported incidents. A nurse who'd volunteered in West Africa was quarantined for more than three days at a New Jersey airport, though she showed no symptoms of Ebola and had tested negative for the disease.[11] A Maine schoolteacher was placed on leave because she'd attended a conference in Dallas 10 miles from a hospital that was treating Ebola patients, even though she'd had no contact with anyone who'd been diagnosed with—or even exposed to—the disease.[12]

Diverting attention, resources from higher priorities

While falsehoods stigmatize particular groups of people, they can also distract from—and weaken our efforts to combat—true public health threats. Significant issues that currently require public attention and resources include an alarming rise in antibiotic resistance; increasing zoonotic infection spillovers resulting from contact between humans and wildlife (e.g., Ebola, Middle East Respiratory Syndrome and SARS); and the increasing role that human mobility—particularly travel—plays in the spread of infectious diseases. For example, all imported Ebola cases during the recent pandemic occurred in international travelers, not in primary immigrants or refugees.

Compounding the risks of travel-related disease is the troubling number of people refusing vaccinations, the result of another misinformation campaign. The detrimental results of such decisions are clearly found in incidence rates of preventable diseases such as measles and pertussis.[13-15]

In Minnesota, we have a prime example of how a lack of evidence-based information about this topic harms public health: the targeting of Minnesota's Somali population by groups pushing the message that "the epidemic is autism, not measles." This movement has led to

a dangerous decrease in vaccination rates among Somali children under age 2, from 92 percent in 2004 (which was above the state average) to 42 percent in 2014. This shift has contributed to a dangerous outbreak of more than 75 measles cases, along with, intentional or not, further stigmatization of the local Somali population—not to mention a high monetary cost to the public health system.[16-18]

Despite such worrisome impacts, this anti-vaccine movement has continued to gain political clout at the highest levels of government and in fringe medical groups, such as the Association of American Physicians and Surgeons (AAPS), which has questioned the safety of vaccines.[19,20]

Conclusion

Health care professionals and scientists, regardless of their political orientation and beliefs, must be active in the discourse and debate surrounding health care policy. Such involvement will help ensure that U.S. policies are rooted in facts and settled science rather than misinformation

Acknowledging our country's history helps us see how inaccurate, incomplete and inappropriate use of health information to further political objectives can have damaging downstream effects. That's why health care professionals must speak out when media outlets, politicians or others—intentionally or unintentionally—misuse health information to further a political agenda, particularly when it's done at the expense of specific groups of people. If the current course of delivering misinformation to support ideological motives continues, we risk further victimizing vulnerable populations, creating irrational public policy, and wasting resources—a course that will, ironically, increase threats to Americans' health and well-being. **MM**

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Studying how to improve medicine

Every legislative session, Minnesota lawmakers call for a number of studies and task forces in an attempt to help gather information and develop recommendations to improve the state's health care system. This past session was no different.

Here's a quick recap on work groups, studies and reports to be convened and generated over the coming months.

Work groups

Palliative Care Advisory Council

The Health and Human Services (HHS) budget bill passed during the 2017 session included language to create a new Palliative Care Advisory Council that will advise the commissioner of health on the establishment, operations and outcomes of palliative care initiatives in the state. The 18-member group includes two physicians, nurses, other providers, family members, patients, a social worker, and a spiritual counselor who has worked with people who have serious illnesses. By February 15 of each year, the council will submit to the Senate and the House of Representatives a report containing the council's:

- Assessment of the availability of palliative care in the state
- Analysis of barriers to greater access to palliative care
- Recommendations for legislative action, with draft legislation to implement the recommendations.

Select Committee on Health Care Consumer Access and Affordability

Another health care-oriented group, the Select Committee on Health Care Consumer Access and Affordability, was formed, but not via legislation. It was developed to study health care costs and access and to develop recommendations for the 2018 legislative session. Both physician senators (Sen. Scott Jensen and Sen. Matt Klein) are members of the group, as are a handful of other senators.

Alzheimer's Disease Working Group

In the HHS budget bill, the state's Board on Aging is tasked with providing administrative support for the Alzheimer's Disease Working Group. As part of its work, this group is to report to the governor and relevant legislative committees by January 15, 2019, providing findings and recommendations, including any draft legislation necessary to implement the recommendations.

Studies and reports

Children's Mental Health Report

The Department of Human Services (DHS) is to conduct a comprehensive analysis of Minnesota's continuum of intensive mental health services, and the department will develop recommendations for a sustainable and community-driven continuum of care for children who have serious mental health needs. The commissioner's analysis will include data related to access, utilization, efficacy and outcomes for Minnesota's current system of residential mental health treatment. By November 15, 2018, the commissioner will provide a report to the legislative committees that have jurisdiction over children's mental health policy and finance. The report will include specific recommendations, along with timelines for implementation.

Opioid Use and Acupuncture

The DHS is to study the use of opioids for the treatment of chronic pain conditions among Medical Assistance recipients: a) when acupuncture is also part of the treatment, and b) when acupuncture is not part of the treatment. The commissioner shall submit the findings of the study to HHS committees by February 15, 2018.

Stay tuned to future editions of *MMA News Now* and *Minnesota Medicine* to follow the progress of each of these groups, studies and reports. **MM**

News Briefs

October gubernatorial forums to focus on health care

The MMA and the Zumbro Valley Medical Society will host two gubernatorial forums focusing on health care this October in Rochester.

The DFL forum will be Tuesday, October 17; the GOP forum will be Monday, October 23. Both will take place from 7 to 8:30 p.m. at Rochester Community and Technical College, Heintz Center Commons, 1926 Collegeview Rd E.

Invited DFL candidates include St. Paul Mayor Chris Coleman, state Rep. Tina Liebling, state Rep. Erin Murphy, State Auditor Rebecca Otto, state Rep. Paul Thissen and U.S. Rep. Tim Walz.

Invited GOP candidates include state Rep. Matt Dean, former state Rep. Keith Downey, Ramsey County Commissioner Blake Huffman and Hennepin County Commissioner Jeff Johnson.

The free forums will include opening remarks from candidates, questions from a moderator, and submitted written questions from audience members.

Medical students promote importance of immunizations

Even before the 2017 measles outbreak, a group of medical students active with the Minnesota Medical Association–Medical Student Section was busy educating physicians and fellow medical students about the importance of immunizations.

The group, called Hands On Advocacy (HOA), has spent much of the year developing materials for physicians, including a list of immunization resources and a sheet of tips for working with parents who are hesitant to have their children vaccinated.

"We've engaged parents through various health fairs, medical students through lunch lectures, and legislators through one-on-one conversations," says Erica Sanders, a fourth-year medical student who is leading the effort along with third-year medical student Elizabeth Fairbairn. "As medical students," Sanders continues, "we typically influence health one patient at a time, but participating in a public health campaign gives us a bigger voice. With Hands On Advocacy, we can engage and educate a variety of stakeholders who play a role in influencing Minnesota's vaccination rates."

"The recent measles outbreak shows how much work still needs to be done," adds Fairbairn. "We hope our work and the materials we've produced provide an effective way for physicians, residents and students to learn strategies for talking with vaccine-hesitant parents."

Sanders, Fairbairn and the rest of the HOA team designed their materials to prepare physicians to have influential, effective conversations with parents who have concerns about vaccines.

To learn more about the vaccine campaign or HOA, contact minnesotahoa@gmail.com, or visit the HOA website (handsonadvocacy.wixsite.com/home/2016-2017) or the MMA's HOA webpage (mnmed.org/membership/Sections/medical-students/Hands-on-advocacy).

On the calendar

Event	Date	Location
Annual Conference	Sept. 23	Rochester – Mayo Civic Center

Reinsurance dollars well-received in Minnesota

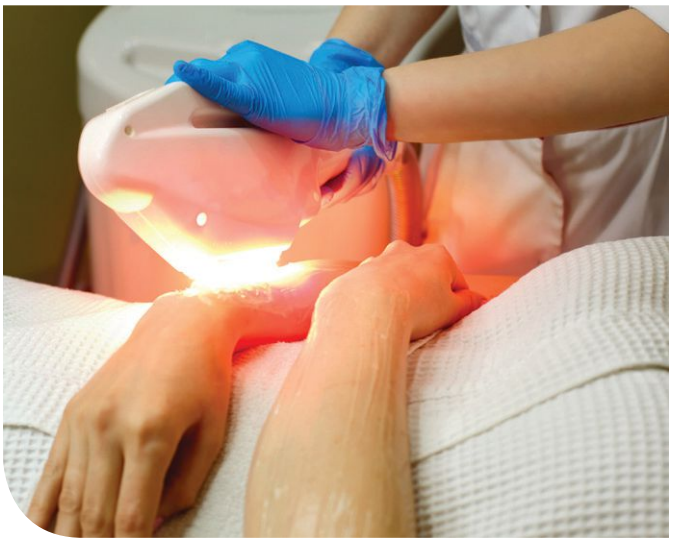
The $540 million reinsurance plan designed to minimize individual market health insurance premium rate increases in 2018 and 2019 appears to have been well-received by Minnesota insurers. The plan was passed by the 2017 Legislature and enacted without Gov. Mark Dayton's signature. The preliminary rates for 2018 released in late July range from a 14 percent reduction to an 11 percent increase.

Because the reinsurance plan still awaits federal approval, insurers were required to submit two rates—one assuming no reinsurance plan and one assuming implementation of the plan. Proposed rates in the absence of the reinsurance plan range from a 3 percent to a 32 percent increase. The proposed rates are subject to state regulatory review, and final rates will be released by October 2.

MMA weighs in on esthetician scope issue

The MMA submitted comments in early August on proposed regulations from the Minnesota Board of Cosmetologist Examiners (BCE) for advanced practice estheticians. The rules were developed in response to legislation enacted in 2015 establishing licensure for "advanced practice" estheticians.

The MMA recommended several modifications to the rules, including: a) additional definitions to ensure that advanced esthetician practice is limited to the epidermis; b) clarification that the use of light or electrical energy treatments excludes the use of lasers or laser-assisted devices (consistent with current law that limits lasers to medical practice); and c) diligent regulatory oversight of advanced esthetician practice to protect the safety



and health of Minnesotans, given the potential for some advanced esthetician services to penetrate into the dermis.

The MMA coordinated its review and response to the rules with the Minnesota Dermatological Society. The BCE will review submitted comments, and a hearing on the rules may be held this fall if a sufficient number of requests for a hearing are received. Final rules are expected to be published later this year.

Patients give high scores to MN medical clinics

In early August, MN Community Measurement released survey results indicating that patients give high marks regarding their experiences with Minnesota medical clinics. Using the CG-CAHPS survey, more than 180,000 patients shared their opinions about care provided at more than 760 medical clinics.

Eighty-one percent of patients statewide rated their provider a 9 or 10 on a 10-point scale, and 66 percent reported top-level access to care (i.e., the ability to get appointments, care and information when they needed it).

The survey measures patient experience in five categories: access to care, care coordination, provider rating, office staff and provider communication.

Variation among clinics exists in all categories. Regional variation was also found, with patients in the Twin Cities area reporting lower satisfaction with care coordination compared to the statewide average rate, while patients in northeast Minnesota rated all five categories significantly above the statewide average.

The patient experience survey, first reported in 2013 and collected biennially, is part of Minnesota's Statewide Quality Reporting and Measurement System (SQRMS) and is a required measure for all Minnesota clinics.

Legislation enacted this year prohibits SQRMS from including measures that require the use of an external vendor for data collection or reporting, as is currently required for the patient experience survey. This law change is expected to affect future patient experience survey requirements.

T21 ordinances continue to gather steam

City ordinances that prohibit the sale of tobacco products to those under the age of 21 appear to be gaining momentum in Minnesota. In July, St. Louis Park became the latest city to pass an ordinance, following Edina, which, in early May, became the first city in Minnesota to increase the age for legal tobacco sales.

Several other Minnesota cities are considering similar laws.

The day after Edina approved its T21 ordinance, four state senators introduced a bill (SF2370) that raises the minimum legal sale age for tobacco products from 18 to 21. The MMA supports this legislation, which remains alive for consideration once the 2018 session begins in February.

MMA provides feedback to health department on quality measurement

In mid-July, the MMA submitted comments to the Minnesota Department of Health (MDH) regarding recommended changes to the Statewide Quality Reporting and Measurement System (SQRMS). Under SQRMS, physician practices and hospitals are required to collect and report quality measurement data. The health department contracts with MN Community Measurement (MNCM) to manage specific SQRMS functions, including measure refinement and development, data collection and validation, and data analysis. There are currently 19 SQRMS measures that apply to physician practices.

In the letter, the MMA expressed support for recommendations from MNCM to retire two measures: cesarean section rate and pediatric overweight counseling. The MMA also supported shifting the reporting timeline from mid-year to calendar year for the optimal asthma control, asthma education and self-management, and colorectal cancer screening measures. With the change in reporting timeline, the optimal asthma control measure and colorectal cancer screening measure would be fully aligned with Medicare's Merit-Based Incentive Payment System (MIPS) measures.

In addition, the MMA shared its concerns that the MDH's current definition of the standardized measure set is overly broad. The measures defined in the standardized set are the only measures for which health plans may require providers to submit data.

The health department will issue a proposed rule, with a 30-day comment period, in the fall. A final rule for 2018 will be published by the end of this year.

Get engaged: Committee seats available for MMA members

Volunteer positions are available on each of the following MMA policy committees of the Board of Trustees: Ethics and Medical-Legal Affairs; Finance and Audit; Medical Practice & Quality; and Membership and Communications.

Policy committees have two-year terms beginning January 1. As a committee member, you influence the MMA's direction, acquire new leadership skills and network with physicians who care about the same issues you do. Positions require about eight hours a year (four evening meetings annually). If you can't make a meeting in person, you can call in or video conference.

If you are interested in serving on one of the committees or want to learn more about the appointment process, please call Shari Nelson (snelson@mnmed.org) at the MMA at 612-362-3725.

MMA adds more opioid lectures to online series

The MMA has added three more free lectures to its Pain, Opioids and Addiction Lecture Series (www.mnmed.org/painseries).

The lectures include:

- *Opioids and Women* – Pamela Shultz, MD, FASM, Addiction Medicine, Hazelden Betty Ford Foundation
- *Tapering Opioids* – Anne Pylkas, MD, Internal Medicine and Addiction Medicine, HealthPartners Pain Program
- *Opioid Guidelines* – Charles Reznikoff, MD, FACP, Division of Addiction Medicine, Hennepin County Medical Center

The series is a collaboration between the MMA, the Steve Rummler HOPE Network (SRHN) and the University of Minnesota Medical School. The goal is to bring medical education on the topic of opioids to medical students, residents and practicing physicians. The lectures are recorded live at the University of Minnesota Medical School and are made available for CME and MOC on the MMA website, with underwriting by the SRHN. The hope for the series is to create a medical curriculum on pain, opioids and addiction as it should be in a medical school setting: balanced, practical, evidence-based information free of commercial bias.


Dave Renner


Janet Silversmith


Robert Meiches, MD


Eric Dick


Juliana Milhofer

MMA in Action

MMA member **Gregory B. Snyder**, MD, has begun his yearlong term as chair of the Federation of State Medical Boards (FSMB), a national nonprofit organization representing all 70 medical boards within the U.S. and its territories that license and discipline allopathic and osteopathic physicians. Snyder, a practicing vascular and interventional radiologist with Essentia Health System in Duluth, was elected to serve by the FSMB House of Delegates last year and was officially sworn in as chair at the FSMB's Annual Meeting in Texas in April. Snyder is a former president of the Minnesota Board of Medical Practice.

In mid-July, **Dave Renner**, MMA director of state and federal legislation, and **Janet Silversmith**, MMA director of health policy, met with Minnesota Department of Health staff to discuss implementation plans for the recently passed Minnesota Statewide Quality, Reporting and Measurement System (SQRMS) legislation.

The MMA and Minnesota Hospital Association staff met in July to debrief on the 2017 legislative session and to discuss other common interests. MMA staff in attendance included CEO **Robert Meiches**, MD; Silversmith; Renner; **Eric Dick**, manager of state legislative affairs; and **Juliana Milhofer**, policy analyst.

Silversmith discussed congressional proposals to replace the Affordable Care Act and the potential impact in Minnesota as part of a July lunch forum hosted by Greater Mankato Grow, the city's chamber of commerce. Approximately 40 local businesspeople and community members attended the forum, called *Health Care: What's Going On and What It All Means*. A panel discussion followed the overview and included James Hebl, MD, regional vice president, Mayo Clinic Health System Southwest Minnesota region, and Steve Hatkin, CFO of the Mankato Clinic.

In mid-August, MMA Board Chair **Douglas Wood**, MD, Meiches and Silversmith attended the MN Community Measurement board retreat. Also, Wood, Meiches, Silversmith and **Randy Rice**, MD, a board trustee, attended the Minnesota Hospital Association board retreat.

VIEWPOINT

These are indeed interesting times

David Agerter, MD
MMA President

There's an old English expression, "May you live in interesting times," that comes to mind when I think of the last 12 months as the MMA's president. The saying has been attributed to a Chinese curse, and it was mentioned by President Kennedy in a speech. I'm not sure whether it's actually Chinese, but it sure is fitting to describe the last year, especially when it comes to health care.

This past summer, we watched closely as Congress tried to push through ACA repeal-and-replace legislation that could have left millions of Americans—including thousands of Minnesotans—without health insurance coverage. First, the effort appeared dead; then it was alive; then it was dead again. Fortunately, the poorly written legislation didn't garner the necessary votes to become law.

We do need to revise health care legislation, but it needs to be done on a bipartisan basis and truly be beneficial for as many Americans as possible.

On a local level, the MMA's state legislative priorities moved ahead, though not necessarily at the pace we'd like. We were able to maintain the repeal of the provider tax, and we made progress in the fight against the opioid epidemic. Our medication prior-authorization legislation continued to enjoy support in the Senate, and it finally received a hearing in the House at the end of the session. It's slight progress, but progress nonetheless.

Another highlight this year was the MMA's preceptor initiative. In May, we honored two Minnesota physicians for their preceptor work at the University of Minnesota Medical School's *Dean's Tribute to Excellence in Education* event. Meanwhile, we continue to promote to our members the importance of serving as a preceptor.

Speaking of education, we continued to expand our online *Pain, Opioids and Addiction Lecture Series*, which we have organized with the Steve Rummler HOPE Network and the University of Minnesota Medical School. We are taking on the opioid epidemic on several fronts, and our lecture series is educating providers around the world.

At this year's Annual Conference, I will pass the presidential reins to George Schoephoerster, MD. I'm confident he will enjoy great success next year. As I did, he will benefit from the assistance of the MMA staff. They do great work on behalf of Minnesota's physicians and physicians-in-training. I'd also like to acknowledge two long-term staff members who are moving on: CEO Robert Meiches, MD, is moving on to other pursuits, and George Lohmer, director of business development and CFO, has decided to retire after 39 years at the association.

With their departures, the MMA will have completely new leadership. We now have the opportunity to help shape health care in the state in the years to come. If you are not a member, please join and help us shape that future. If you are a member, please get engaged. We are stronger together, and you can bet our "interesting times" will surely continue.

We do need to revise health care legislation, but it needs to be done on a bipartisan basis and truly be beneficial for as many Americans as possible.

mnmed.org/ac2017 #mnmed17

THE GREAT MINNESOTA MEDICAL GET-TOGETHER

Minnesota Medical Association's

2017 Annual Conference

Saturday, September 23 Mayo Civic Center | Rochester

REGISTER NOW! mnmed.org/ac2017

General Sessions

Addressing the Opioid Epidemic

The widespread increase in opioid prescribing for all kinds of pain has led to an epidemic of serious harms, especially opioid use disorder and death. The number of annual opioid prescriptions written in the United States is now roughly equal to the number of adults in the population (CDC, July 2014). Explore the multifaceted efforts being taken across the United States to significantly reduce the risk of harms associated with prescription opioids and learn how you can help tackle this epidemic.

Featuring:
Erin Krebs, MD, MPH
Charles Reznikoff, MD FACP

The Theater of Public Policy

The Theater of Public Policy will perform an unscripted improv comedy performance inspired by and reflecting the day's sessions and discussions.

Minnesota Medical Association

This activity has been approved for *AMA PRA Category 1 Credit™*

ANNUAL CONFERENCE SCHEDULE

Friday, September 22, 2017

7–9pm	Onsite conference check-in
7–9pm	Attendee Pre-conference Reception
7:30–8:30pm	MEDPAC Reception

Saturday, September 23, 2017

6:30am–7am	Onsite conference check-in
6:45am	Breakfast buffet opens
7am–7pm	Exhibit hall open
7–8:15am	Open Issues Forum
8:30–9:15am	Welcome, Inauguration, Awards
9:15–10:15am	*Opening Keynote:* Addressing the Opioid Epidemic
10:15–10:45am	Break time with exhibitors
10:45–11:45am	*Concurrent Sessions:* • Health Care Reform • Improving Management of Chronic Pain in Practice • Resilience and Recovery in Native American Mental Health
11:45am–1:15pm	Networking lunch with exhibitors
12–1pm	Optional lunch and learn (Destination Medical Center) Optional lunch with the experts (Charles Reznikoff, MD, FACP, and Erin Krebs, MD, MPH)
1:10–2:10pm	*Concurrent Sessions* • Integrated Care Model: Increasing Access to Psychiatric Care • Patient Trust in the Health Care System • The Great Prescription Drug Market
2:10–2:30pm	Break time with exhibitors
2:30–3:30pm	*Concurrent Sessions* • HCV Infection: What You Need to Know • Opioid Use Disorder: Diagnosis and Treatment Options • The Environmental Impact on Health Care
3:30–4pm	Break time with exhibitors
4–5pm	*Closing Keynote:* The Theater of Public Policy
5–7pm	Inaugural Reception / Poster Symposium
7pm	Adjourn

THE GREAT MINNESOTA MEDICAL GET-TOGETHER

Mayo Civic Center | 30 Civic Center Drive SE | Rochester, MN 55904

Date and Time | Saturday, September 23 | 7 am to 7 pm

THE GREAT MINNESOTA MEDICAL GET-TOGETHER

Open Issues Forum

The MMA wants to know about the issues that keep physicians awake at night. This forum is your opportunity to bring issues to the attention of the MMA, to discuss concerns submitted by your fellow physicians, and to get perspective on issues from physicians across the state.

Concurrent Session Information

The Environmental Impact on Health Care

Speaker: Iqbal Mian, MSSM, Practice Greenhealth

Climate change continues to affect public health across the world. According to scientific surveys, patients are facing adverse health effects associated with climate change. Learn how you can adopt environmentally sustainable programs in your practice and further share these concepts with your patients and communities.

The Great Prescription Drug Market

Speaker: Stephen Schondelmeyer, PharmD, PhD, University of Minnesota

Join Schondelmeyer to explore the common myths and assumptions about the value and cost of drugs as well as review examples of how the market does and does not work for prescription drugs. Walk away with practical approaches to drug prescribing to help improve the value and outcomes for your patients.

HCV Infection: What You Need to Know

Speaker: Omar Abu Saleh, MD, Mayo Clinic

Hepatitis C virus (HCV) infections remains largely underdiagnosed resulting in a barrier to patients receiving appropriate treatment. Hear the latest information on HCV screening guidelines and recommendation, as well as the HCV diagnostic evaluation. Learn about the principles of HCV management resulting in optimal care for your patients.

Health Care Reform

Federal and state policymakers are contemplating big changes to health care – Medicaid, covered services, premium subsidies, out-of-pocket limits, state and federal financing. At this forum, you will understand the biggest changes, the greatest risks, the potential opportunities, and share your input on how MMA can best protect Minnesota physicians and their patients.

Improving Management of Chronic Pain in Practice

Speaker: Erin Krebs, MD, MPH Minneapolis VA Health Care System

Management of chronic pain is challenging for clinicians and health care systems, especially in the context of evolving clinical practice standards for opioid management. This session will review recently published Centers for Disease Control and Prevention (CDC) opioid prescribing guidelines, discuss how to assess benefits and harms of long-term opioid therapy, and describe strategies for shifting from over-reliance on opioids for chronic pain to more effective approaches.

Integrated Care Model: Increasing Access to Psychiatric Care

Speaker: James MacKenzie, MD, Rush University

Access to mental health services must be improved throughout the country. Rush University implemented a novel treatment model which promotes psychiatrists working in collaboration with a network of primary care physicians. MacKenzie will share the details of this program as well as the benefits and hurdles experienced with this collaborative approach to address the needs of a large volume of patients with emotional/behavioral needs.

Opioid Use Disorders: Diagnosis and Treatment Options

Speaker: Charles Reznikoff, MD, FACP Hennepin County Medical Center

The epidemic of opioid overdoses underscores how important it is for physicians to assess patients for this potential disorder. Reznikoff will discuss the latest diagnostic guidelines for opioid use disorder, review how the diagnosis can affect prognosis when prescribing opioids and explain available treatment options, including the role of naloxone.

Patient Trust in the Health Care System

Patient trust in physicians and the health system is crucial to effective health care. At this forum, you will learn how religion, culture, and ethnic customs can influence how patients interact with you and the rest of the health care system. You will also have the opportunity to share input on what role the MMA can play in helping physicians to tackle some of these barriers, and effectively care for patients from various racial and ethnic populations.

Resilience and Recovery in Native American Mental Health

Speaker: Monica Taylor-Desir, MD, Elbowoods Memorial

Mental health and many common mental disorders are shaped to a great extent by the social, economic, and physical environments in which people live. This session will dive into the mental health concerns in the Native American community and discuss the social determinants of mental health that apply to these communities.

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2016 American College of Physicians Minnesota poster competition winners

Each year, the American College of Physicians encourages its state chapters to invite medical students and internal medicine residents to take part in a scientific poster competition. At the Minnesota chapter's annual meeting in Minneapolis on October 28, 2016, residents and medical students submitted 155 posters for consideration.

Each of the internal medicine training programs (at the University of Minnesota, Abbott Northwestern Hospital, Mayo Clinic and Hennepin County Medical Center) was represented with submissions in clinical vignette and quality improvement and research categories. Abstracts were also received from medical students and residents in Illinois and Wisconsin.

Posters were judged by practicing internal medicine physicians, internists from the state's academic medical centers, chief residents and peers. Judges' criteria included clinical relevance, originality, and written and visual presentation. Special thanks to Andrew Olson, MD, for coordinating the competition.

Winners presented their posters at the 2017 American College of Physicians annual meeting in San Diego, California. We present abstracts from several of those winners below. Congratulations to all of the participants on their excellent work.

This year's American College of Physicians Minnesota poster competition will be held October 27, 2017, at the Minneapolis Convention Center. For information, contact Minnesota.ACP@gmail.com.

MEDICAL STUDENT CLINICAL VIGNETTE WINNER

FRÉDÉRIQUE ST-PIERRE, MAYO CLINIC

Psychic moans: an unusual presentation of multiple myeloma

A hallucination is defined as the perception of an object or event in the absence of an external stimulus. Although visual hallucinations are commonly associated with psychiatric disease, the differential diagnosis is in fact quite broad. It is important for physicians to maintain an adequate level of suspicion for serious and sometimes life-threatening underlying conditions.

A previously healthy 65-year-old woman presented to the hospital with a 5-day history of nausea and fatigue. She also had a recent history of visual hallucinations occurring sporadically throughout the day, each lasting for a few minutes. These hallucinations were distressing to her and consisted of cursive writing on the walls. She had no apparent delusions, agitation or disorganized speech. Past psychiatric history was negative. Her physical exam was unremarkable; she was fully alert, attentive and oriented. Laboratory investigations were significant for hypercalcemia with a total calcium of 14.1 mg/dL, acute kidney injury with a serum creatinine of 2.5 mg/dL, and normocytic anemia with a hemoglobin of 11.5 g/dL. She was treated with IV fluids and furosemide, and her visual hallucinations completely resolved within 3 days. Her calcium normalized quickly, but her creatinine remained elevated despite fluid administration. Further investigations revealed suppression of parathyroid hormone at 10 pg/mL, as well as elevated serum and urine protein with a serum IgG lambda M-spike of 1.4 g/dL. Renal biopsy showed evidence of cast nephropathy. Bone survey revealed no lytic lesions but did show scattered osteopenia. A bone marrow biopsy was performed, and it confirmed a diagnosis of an IgG lambda multiple myeloma.

Psychosomatic manifestations of multiple myeloma, unrelated to hypercalcemia, have been described in the literature on a few occasions. Some case reports have documented mood disturbances such as depression or mania, and a study has reported 4 cases presenting with delirium. Isolated visual hallucinations, however, have rarely been described. A recent case report has documented a patient presenting with visual hallucinations 3 months prior to having overt symptoms of the malignancy. Potential causes for hallucinations in multiple myeloma include hypercalcemia, renal failure and infections. It has also been hypothesized that increased cytokine levels may be contributory.

In this vignette, the clinical evolution suggests hypercalcemia as the most likely culprit. Visual hallucinations in patients with hypercalcemia have in fact been described and are best underscored in the classic "painful bones, renal stones, abdominal groans and psychic moans" of primary hyperparathyroidism. This case highlights the importance of keeping an elevated level of clinical suspicion for malignant causes of visual hallucinations, as these may be the first presenting symptom of cancer-associated hypercalcemia. Timely diagnosis and initiation of effective therapy directed at the underlying cause are essential in optimizing patient outcome and in reversing disturbing and anxiety-inducing symptoms of visual hallucinations. MM

MEDICAL STUDENT RESEARCH AND QUALITY IMPROVEMENT WINNER

LAUREN WARD, UNIVERSITY OF MINNESOTA

Analysis of the intracellular niche of a phagosomal pathogen in the context of salmonella enterica infection in mice

Salmonella enterica (Se) is an intracellular pathogen that persists within phagosomes of host antigen-presenting cells. Se infection stimulates a strong CD4+ T cell response that activates microbicidal mechanisms within the infected phagocyte. Despite robust immune pressure, Se persists in the mesenteric lymph nodes (MLNs) throughout the lifetime of the host.

We hypothesize that during Se infection, bacteria reside within mononuclear phagocytes in the MLNs that localize to areas rich in circulatory and lymphatic vessels. In order to identify infected cells, a reporter strain of Se serovar Typhimurium SL1344 was developed that expresses the red fluorescent protein dTomato in the Salmonella chromosome behind the endogenous PhoN gene (Se-dTomato). 129X1/SvJ mice were inoculated intragastrically with a solution containing 108 CFU of either Se-WT or Se-dTomato and were analyzed at D14 and D30 after infection. Single-cell suspensions from MLNs of Se-WT- and Se-dTomato-infected mice were stained with fluorescent antibodies against myeloid cell markers, including CD11b, Siglec F, Ly6G, CD64, CD11c and MHCII, and were analyzed by flow cytometry. Sections of fixed/frozen MLN from Se-WT- and Se-dTomato-infected mice were stained with antibodies against a variety of cellular and anatomical markers, including B220, CD11c, CD11c, CD169, CXCL9, CXCL10, LYVE-1, F4/80, Siglec F, Ly6G and iNOS. Images were acquired on an epifluorescent microscope.

Results

Flow cytometry analysis revealed that 77% of Se-dTomato-infected cells stained positive for the canonical monocyte/macrophage marker CD64, with the remainder found predominantly in Ly6G+ neutrophils. Further in situ experiments confirmed our flow cytometry-based findings about the identity of infected cell types. Myeloid markers frequently overlapped with Se-dTomato, further demonstrating the active infection of these cells, particularly macrophages, in vivo. We reproducibly found Se-bacteria within or near CD169+ macrophages in the subcapsular sinus and in close proximity to B-cell follicles. Se bacteria also overlapped with cells expressing inducible nitric oxide synthase (iNOS), a marker for an active Th1 response.

Conclusion

Our Se-dTomato strain was successfully used to identify and track infected cells in mice, and was predominantly found in monocytes and macrophages, localized near the subcapsular sinus of the MLN and towards the periphery of B-cell follicles, following intragastric infection of resistant mice. Se-dTomato was also seen within positive staining for an active Th1 response, consistent with infection control. **MM**

INTERNAL MEDICINE RESIDENT RESEARCH AND QUALITY IMPROVEMENT WINNER

ANTHONY PRISCO, MD, PHD, UNIVERSITY OF MINNESOTA

Impact of LVAD implantation site on ventricular blood stagnation

Treatment of end-stage heart failure includes cardiac transplantation or ventricular assist device (VAD) therapy. While increasingly prevalent, VAD therapy has many complications, including thrombosis. Studies have demonstrated that VAD implantation disrupts intra-cardiac blood flow, creating areas of stagnation that predispose thrombus formation, referred to as "hot spots." Two surgical configurations exist for VAD implantation: through the apical or diaphragmatic surfaces of the heart.

We hypothesized that diaphragmatic implantation causes more stagnation than apical implantation. We also hypothesized that intermittent opening of the aortic valve reduces stagnation of blood inside the ventricle when compared to a closed aortic valve. To test these hypotheses, a human left-ventricle geometry was re-created in silico and a VAD inflow cannula was virtually implanted in each configuration. A computational indicator-dilution study was conducted where "virtually-dyed blood" was washed out of the ventricle by injecting blood with no dye. Simulations demonstrated a substantial reduction in stagnation when the aortic valve opened intermittently vs when it was permanently closed. In addition, virtual dye was cleared slightly faster in the apical configuration vs the diaphragmatic configuration.

Our simulations demonstrate the clinical importance of configuring the VAD to allow intermittent opening of the aortic valve to prevent subvalvular stagnation, and they also suggest that apical implantation might be more hemodynamically favorable than diaphragmatic implantation. Rather than drawing direct clinical conclusions, the results from this study should be used as an impetus to help design further computational, in-vivo and clinical studies that will ultimately help further improve VAD therapy. **MM**

Pain reduction among patients who enrolled in Minnesota's medical cannabis program during its first year of operation

BY TOM ARNESON, MD, AND SUSAN P. ANDERSON, PHD

During the first operational year of Minnesota's medical cannabis program, ratings of pain, among other symptoms, were collected from enrolled patients. In a comprehensive first-year cohort report, the Office of Medical Cannabis at the Minnesota Department of Health has included analyses of symptom data indicating the proportion of patients who achieved symptom reduction within 4 months of their first medical cannabis purchase, and who generally sustained that reduction in the 4 months following their initial report of improvement. Patients' pain scores collected over time were compared to their baseline scores. Of the patients reporting moderate to severe levels of pain at baseline, 36.3% achieved ≥30% reduction in pain, and 16.3% also showed overall persistence of that improvement for at least 4 months.

Minnesota's medical cannabis program has been operating since July 2015. Unlike any other current state medical cannabis program, Minnesota's program collects data to assess the benefits and harms experienced by program participants. The Office of Medical Cannabis, the component of the Minnesota Department of Health that administers the program, has recently placed on its website a comprehensive report describing the experiences of patients who enrolled in the program during its first year of operation. The report is available at health.state.mn.us/topics/cannabis/about/firstyearreport.html.

This article focuses on a portion of that report, one that draws on symptom severity data collected routinely from all patients—including a pain rating. Interested readers are encouraged to review the full report, as it contains much more information from a broader range of data sources.

Between July 1, 2015, and June 30, 2016, a total of 1,660 patients enrolled in the program, and 577 health care practitioners registered themselves so that they could certify that patients have a medical condition that qualifies them for the program.

Qualifying conditions for patients enrolled during the first program year were: severe and persistent muscle spasms (experienced by 43% of enrollees), cancer (28%), seizures (20%), Crohn's disease (7%), terminal illness (6%), HIV/AIDS (3%), Tourette's syndrome (2%), and glaucoma and amyotrophic lateral sclerosis (1% each). The percentages add up to more than 100% because 10% of patients were certified with more than one condition.

Most enrolled patients (57%) were between the ages of 36 and 64, with 11% under age 18 and 11% age 65 and over. A little more than half (57%) of enrollees were male.

For patients in the program, medical cannabis purchases are limited to a maximum of a 30-day supply, and purchases typically occur monthly or more often. At the time of each purchase, the patient consults with a pharmacist at the retail location, which is called a cannabis patient center. The consultation includes collection of data from the patient self-evaluation, a questionnaire the patient fills out to provide updated information about benefits (symptom improvements), side effects and current medications.

All patients, at each purchase, complete a set of 8 standard symptom severity scales. Responses to condition-specific questions are also collected. The standard symptom severity questions cover pain, nausea, vomiting, lack of appetite, anxiety, depression, disturbed sleep and fatigue. For each symptom, the patient rates the severity of that symptom over the past 24 hours on a scale of zero (symptom not present) to 10 (symptom as bad as one can imagine).

The first time a patient completes the symptom ratings is considered baseline. Patients experiencing at least moderate symptoms (a score of 4 or higher) on a given measure at baseline were included in the analysis completed for our first-year report and are indicated in the third column of the table (Table 1). Patients reported a fairly high degree of symptom burden across the 8 symptoms, with 86.8% reporting a pain severity score ≥4 at baseline.

To assess change in symptom severity scores over time, we analyzed all symptom scores submitted within 4 months of a patient's first medical cannabis purchase. At the time the analysis was done, a total of 1,512 patients had completed 4 months of observation time. We set a threshold of ≥30% reduction from baseline to represent clinically meaningful improvement, and we examined the first time, if ever, the patient achieved ≥30% reduction in symptoms.

The proportion of patients that achieved ≥30% reduction during the 4 months,

TABLE 1

Symptom improvements in patients in Minnesota's medical cannabis program, July 2015-June 2016

CONDITION	STANDARD 8-SYMPTOM MEASURE	# OF PATIENTS REPORTING AT MODERATE TO SEVERE LEVELS AT BASELINE	% OF PATIENTS REPORTING AT MODERATE TO SEVERE LEVELS AT BASELINE	% OF PATIENTS ACHIEVING ≥30% SYMPTOM IMPROVEMENT WITHIN 4 MONTHS OF FIRST PURCHASE OUT OF ALL MODERATE TO SEVERE BASELINE SCORERS (N)	# OF PATIENTS WITH DATA IN 4-MONTH PERIOD FOLLOWING INITIAL ≥30% SYMPTOM IMPROVEMENT	% OF PATIENTS WHO ACHIEVED ≥30% SYMPTOM IMPROVEMENT THAT MAINTAINED IT FOR AT LEAST 4 MONTHS (N)	% OF PATIENTS THAT BOTH ACHIEVED ≥30% SYMPTOM IMPROVEMENT AND RETAINED THAT DEGREE OF IMPROVEMENT FOR AT LEAST 4 MONTHS
All patients collapsed across conditions (n = 1512)	Anxiety	1,185	78.4	53.8 (638)	460	53.1 (339)	28.6
	Appetite lack	963	63.7	53.7 (517)	383	57.1 (295)	30.6
	Depression	1,000	66.1	56.8 (568)	419	56.7 (322)	32.2
	Disturbed sleep	1,323	87.5	50.3 (665)	519	52.0 (346)	26.2
	Fatigue	1,381	91.3	40.2 (555)	415	48.6 (270)	19.6
	Nausea	864	57.1	55.6 (480)	362	59.2 (284)	32.9
	Pain	1,312	86.8	36.3 (476)	329	45.0 (214)	16.3
	Vomiting	480	31.7	60.2 (289)	213	57.8 (167)	34.8

for each symptom, is shown in the fifth column of the table. Among patients with a pain rating ≥4 at baseline, 36.3% achieved ≥30% reduction at some point during their first 4 months. Patients who didn't make a second purchase, and as a result did not have a second rating of the symptoms, were retained in the analysis; this allows for a conservative estimate of symptom benefit.

To assess the degree to which benefit persisted after ≥30% reduction was attained, we studied all the symptom ratings submitted during the 4 months after the ≥30% threshold was first attained. The ratings during the 4-month follow-up period were averaged. When this average was at least 30% less than the baseline rating, the patient was determined to show persistence in their benefit for that symptom. The seventh column of the table displays the proportion of patients who showed persistence of benefit after first achieving ≥30% symptom reduction. For pain, that proportion is 45.0%.

Column 8 in the table combines both achieving and maintaining ≥30% symptom reduction. Among patients with a pain rating ≥4 at baseline, 16.3% achieved ≥30% pain reduction within the first 4 months and also retained, on average, at least that degree of benefit during the 4 months following achievement of the ≥30% threshold.

The pain reduction results presented here are generally similar to results of clinical trials of cannabis and cannabinoid for treating pain: While some patients indicate little or no benefit, others report substantial benefit. The Office of Medical Cannabis produced and updates a summary of clinical trials of cannabis and cannabinoid products for the program's qualifying conditions, which now include pain. The report is at health.state.mn.us/topics/cannabis/practitioners/dosagesandcompositions2017.pdf.

Comments on surveys completed by patients and certifying health care practitioners provide additional information on benefits. Volunteered comments indicate many patients have been able to decrease other pain medications, including opioids and benzodiazepines, due to their use of medical cannabis. Some patients provide several sentences of narrative describing how their quality of life has improved—sometimes in striking ways. Verbatim comments of patients and clinicians, with identifying information removed, are included in the first-year cohort report's appendices. (See appendices A-C from the report, found at health.state.mn.us/topics/cannabis/about/firstyearreport.html.)

Intractable pain became a qualifying condition for Minnesota's medical cannabis program in August 2016, so data for patients enrolled for that reason is not included in the first-year cohort report. Some additional data is collected for patients certified for intractable pain. At time of certification, the clinician indicates primary cause of pain, pain scale used to assess pain at time of certification, and the assessment result. Surveys at 6-month intervals ask the certifying clinician to describe reductions in opioid and benzodiazepine medications due to medical cannabis use and to update pain assessment scores.

A report on the experiences of patients enrolled for intractable pain will be prepared this fall. Look for it in late 2017 at health.state.mn.us/topics/cannabis/about/stats.html. **MM**

Tom Arneson is the research manager and Susan P. Anderson is a research scientist with the Office of Medical Cannabis at the Minnesota Department of Health.

An unusual cause of respiratory distress in a neonate with Down syndrome (trisomy 21)

BY PALLAVI KAMRA, MBBS, AND ASHAJYOTHI M SIDDAPPA, MD

Case

An infant was transferred to the newborn intensive care unit (NICU) at 48 hours of age for poor feeding and jaundice.

The mother had regular prenatal care starting at 11 weeks of gestation. Her prenatal laboratory findings were unremarkable and were as follows: O-positive blood group with antibody screen negative; hepatitis B antigen negative; chlamydia and gonococcal screen negative; rubella immune; group B streptococcus (GBS) screen negative. The infant was born via spontaneous vaginal delivery at 40 weeks, 4 days gestation with a birth weight of 2,870 g. Apgar scores were 6 at 1 minute of age and 8 at 5 minutes of age. Clinical exam was significant for features of Down syndrome (trisomy 21), which was not known prenatally and was confirmed by karyotype sent after birth as 47, XY, +21.

On day 1 of life, the infant was noted to have poor feeding. Speech therapy was consulted to help. Due to persistent feeding difficulty, the infant was transferred to the NICU.

On admission to the NICU, the infant was noted to have respiratory distress. Pulse oximeter readings showed low oxygenation in the 80s. The infant was placed on oxygen by high-flow nasal cannula (HFNC), and a sepsis work-up was initiated. Laboratory results were significant for thrombocytopenia (low platelet count, 53,000/cubic mm) and elevated bilirubin (13.8mg/dL). A chest X-ray showed mild pulmonary edema. An echocardiogram revealed a ventricular septal defect (VSD), a small patent foramen ovale (PFO), a large patent ductus arteriosus (PDA), and elevated pulmonary pressures.

To investigate the thrombocytopenia, a peripheral smear was obtained and was remarkable for mild thrombocytopenia with normal platelet morphology. An anti-human plasma antigen-1 antibody test was negative for neonatal alloimmune thrombocytopenia. Maternal infectious disease labs, including HIV and syphilis screens, were negative.

Over the next 2 to 3 days, the infant's respiratory distress worsened, which required an increase in respiratory support. By day 4 of life, significant hepatomegaly was noted on exam. Platelet count remained low and required a one-time transfusion. Sepsis work-up done at admission to the NICU was negative. At this time, a laboratory work-up was ordered to rule out a congenital infection that might have been responsible for the thrombocytopenia and hepatomegaly. Viral studies including urine cytomegalovirus (CMV) polymerase chain reaction (PCR), toxoplasma antibody, herpes simplex virus culture, and parvovirus PCR were negative. Head ultrasound was normal.

An abdominal ultrasound revealed a lesion in the left lobe of the liver (Figure 1). MRI of the abdomen confirmed the mass in the left lobe of the liver was consistent with a focal hepatic hemangioma (Figure 2).

Findings were reviewed with a pediatric surgeon, a pediatric hematologist, a pediatric cardiologist, and a pediatric radiologist. The noted high-output cardiac failure and thrombocytopenia were thought to be secondary to the hemangioma, and a decision was made to treat with propranolol. The respiratory distress was thought to be secondary mainly to the increased circulatory demands from the hemangioma, complicated to a lesser extent by the large PDA and the PFO.

The infant was initially started on propranolol at a low dose of 0.5mg/kg/day divided in 3 doses and was increased slowly to the recommended therapeutic dose of 2 mg/kg/day. An echocardiogram, a 12-lead electrocardiogram, thyroid function tests, and glucose levels were obtained prior to starting propranolol.

On propranolol there was slow improvement in respiratory status, an increase in platelet count, and a decrease in liver size. A repeat ultrasound showed a reduction in the size of the hemangioma. We were able to wean the infant off all respiratory support. The infant was initially transitioned to gavage feeds from intravenous feeds and was able to feed orally by the time of discharge.

The infant was discharged to home at 4 weeks of age, on propranolol with a plan for follow-up with hematology-oncology.

Discussion

Infantile hemangiomas are the most common benign tumors of infancy, with an incidence of 5%to 10%.[1] They are composed of proliferating endothelial-like cells with characteristic growth phases of rapid proliferation for the first 2 to 3 weeks followed by an arrest of growth at 5 to 9 months and an involution phase when they regress, which occurs from 1 to 10 years of age.[1] The majority of hemangiomas involve the skin and subcutaneous tissue, have an uncomplicated presentation, and resolve spontaneously. Noncutaneous hemangiomas are often present in the liver, and it is recommended that children with multiple cutaneous hemangiomas (>5) be screened with an abdominal ultrasound.[1,2]

Hepatic hemangiomas are among the most common liver tumors of infancy.[2] Most remain asymptomatic and hence are undetected. Some are picked up during routine prenatal ultrasounds or postnatally by an ultrasound obtained for a different cause. Another subset may become symptomatic and present with various clinical features, which may include cardiac failure secondary to increased arteriovenous shunting; consumptive hypothyroidism

due to increased activity of type 3 iodothyronine deiodinase in the hemangioma; thrombocytopenia secondary to consumptive coagulopathy; or liver failure, which is rare compared to the other possible clinical features.[3]

Based on their radiographic appearance, pathology, and physiologic manifestations, hemangiomas are classified into focal lesions, multifocal lesions, and diffuse lesions. Multifocal and diffuse lesions are more commonly associated with cutaneous hemanigomas and more likely to be symptomatic when compared to focal lesions.[3] This classification helps in planning the management strategy for hemangiomas.

The infant presented with a focal hemangioma with high-output cardiac failure leading to respiratory distress and thrombocytopenia secondary to consumptive coagulopathy. There were no skin lesions and the focal hepatic hemangioma was picked up on abdominal ultrasonography obtained to evaluate the hepatomegaly. MRI further characterized the lesion.

Patients with Down syndrome due to trisomy 21 are thought to have a lower incidence of hemangiomas compared to the general population, secondary to the protective effect of elevated antiangiogenic proteins—vascular endothelial growth factor (VEGF) inhibitors COL18A1, DSCR1, or DYRK1A—from the extra copy of chromosome 21.[4] However, our case report highlights the importance of considering hepatic hemangioma in the differential for a child with Down syndrome (trisomy 21) presenting with respiratory distress, high output heart failure, and thrombocytopenia.

Hepatic hemangiomas have been treated with systemic corticosteroids, vincristine, cyclophosphamide, embolization, ligation, resection, and—rarely—liver transplant. Many of the above treatments are associated with potential side effects.[5] Recently, there have been several case reports of treating cutaneous, airway, and hepatic hemangiomas with propranolol, resulting in excellent response.[6,7]

Propranolol is a nonselective beta blocker that induces vasoconstriction, decreases expression of angiogenic factors, stimulates apoptosis, and may have direct effects on the differentiation of undifferentiated mesenchymal stem cells. Propranolol therapy has been effective in decreasing and ceasing growth of hemangiomas, prompting more rapid involution. Propranolol use is associated with side effects, including bradycardia, hypotension, hypoglycemia, restlessness, lethargy, and poor feeding.[7] Before the initiation of treatment with propranolol, potential risk of adverse effects should be carefully considered and weighed against the benefits of therapy.[7]

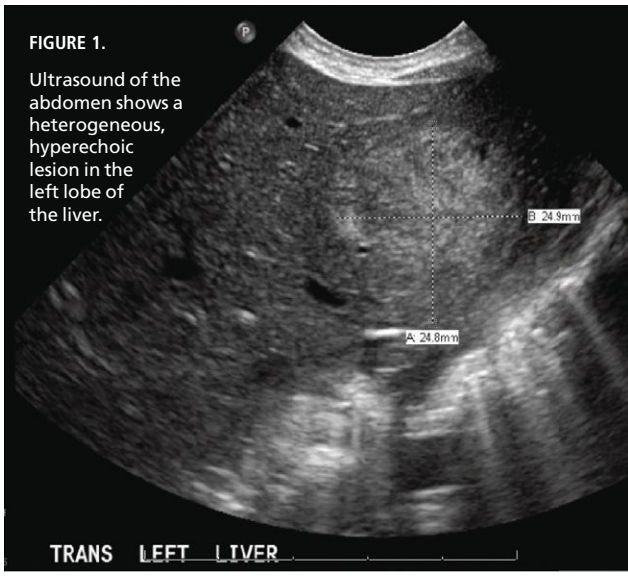
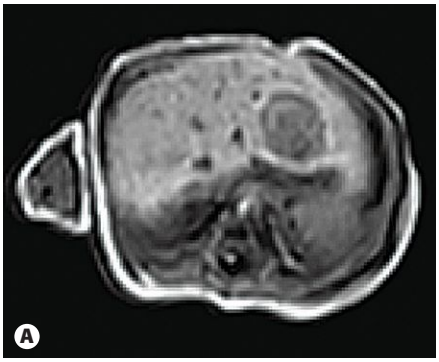


FIGURE 1.

Ultrasound of the abdomen shows a heterogeneous, hyperechoic lesion in the left lobe of the liver.



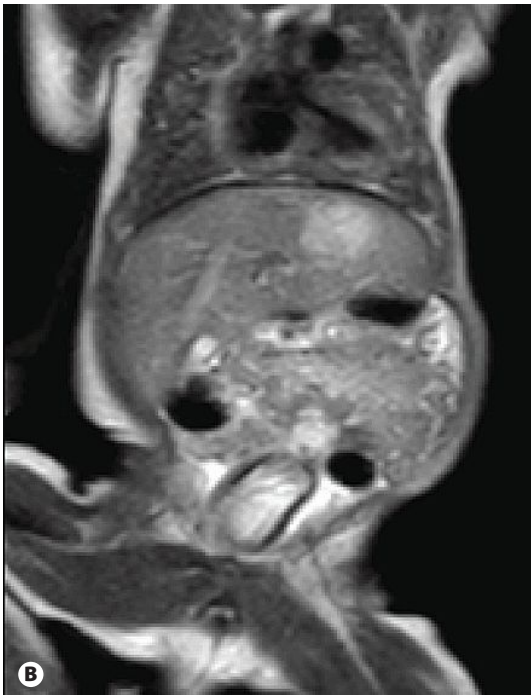


FIGURE 2.

MRI shows a hyperintense lesion on T2-weighted images (A) and a hypointense lesion on T1-weighted images (B), well circumscribed, measuring approximately 2.5 x 2.3 x 2.7 cm.

Our study demonstrates the successful use of propranolol therapy in the management of hepatic hemangioma in an infant with Down syndrome. **MM**

Pallavi Kamra, a general pediatrician at Clinicas del Camino Real in Ventura, California, was previously a pediatric chief resident at Hennepin County Medical Center in Minneapolis. Ashajyothi M. Siddappa is a neonatologist in the Department of Pediatrics at Hennepin County Medical Center.

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HOW TO BE HEARD

It's easy to bring your issues to the MMA

STEP 1

Share your idea *through one of these nine channels:*

- ☑ LETTER TO THE MMA
- ☑ EMAIL
- ☑ CALL THE MMA
- ☑ MMA WEBSITE
- ☑ LISTENING SESSION AT YOUR CLINIC
- ☑ POLICY COUNCIL OPEN-ISSUE FORUM
- ☑ CLINIC VISITS
- ☑ SPECIALTY SOCIETIES
- ☑ COMPONENT MEDICAL SOCIETIES

UPON RECEIPT, YOUR ISSUE PROCEEDS TO STEP 2

STEP 2

Issues are triaged.

- ☑ BROAD IMPACT ON MINNESOTA PHYSICIANS?
- ☑ WITHIN MMA'S ABILITIES/ EXPERTISE?
- ☑ LEGALLY PERMISSIBLE?
- ☑ FURTHER INFORMATION NEEDED?
- ☑ ALIGNED WITH MMA'S MISSION?

ISSUES WITH THE HIGHEST IMPACT MOVE TO STEP 3

STEP 3

Issues are considered through one of these three forums:

- ☑ POLICY COUNCIL
- ☑ STANDING COMMITTEES
- ☑ TASK FORCES

IF ONE OF THESE GROUPS ACTS ON YOUR ISSUE, IT PROCEEDS TO STEP 4

STEP 4

Last step! Issues are acted upon by the Board of Trustees.

- ☑ BOARD OF TRUSTEES

ADOPTED IDEAS BECOME MMA POLICY

NEW POLICY!

SHARING YOUR ISSUE MADE A DIFFERENCE!

The nitty gritty about code status discussions

BY KIMBERLY L. SCHOONOVER, MD

Discussing code status can be difficult. However, exploring resuscitation preferences within the context of the patient's goals of care can help the discussion become less of a challenge and more of a meaningful conversation between the health care professional and the patient. This article discusses the misinformation that patients may have about the limitations of attempted resuscitation, and it provides suggestions for how health care professionals can have an informed, thoughtful discussion with patients about their code status preferences.

Talking with a patient about code status can be a difficult conversation. It's important to know how to best approach such discussions. Before launching into specifics, health care professionals should take steps to ensure that the conversation is an informed discussion respecting the patient's own values and taking into account the patient's overall medical condition.[1]

As seen on TV

To have a meaningful conversation about resuscitation, the patient and/or patient's family benefit from understanding the *reality* of resuscitation—which includes its limitations. Often, people overestimate[2] or are unsure[3] of the likelihood of survival to hospital discharge after a cardiac arrest. In one study, the majority (81%) of surveyed people age 70 or older believed they had a 50% or greater chance of surviving a cardiac arrest and leaving the hospital.[2] While studies can vary, survival to discharge after in-hospital cardiac arrest is about 1 in 8—far from 50%.[4]

Misinformation about resuscitation can come from various sources, including the media. In a study that reviewed episodes of television's *ER, Chicago Hope,* and *Rescue 911,* about two-thirds of depicted patients who had a cardiac arrest survived to hospital discharge. These events occurred in settings where the majority of cardiac arrest patients were younger and the arrests were usually secondary to trauma—which, in reality, is a less common cause of cardiac arrest than are primary cardiac etiologies, such as primary arrhythmia and myocardial infarction.[5]

Code status choices: Clear as mud?

Health care professionals must also be clear about how full code, do-not-resuscitate (DNR), and do-not-resuscitate and do-not-intubate (DNR/DNI) statuses differ from one another. These distinctions are important, as health care professionals often use a single conversation to discuss interventions that occur during a cardiac arrest and those that occur during a prearrest respiratory failure[6,7]—even though the outcome statistics are generally worse in the setting of a cardiac arrest. It's also important to clarify that intubation is much more common in settings of worsening pneumonia or acute pulmonary edema from congestive heart failure (among other conditions that lead to respiratory failure) than it is in cardiac arrest.[7]

Full code reflects the wish to have cardiopulmonary arrest (CPR) and intubation, if required, in a medical situation. If a patient wants to not be resuscitated *only* in the event of a cardiac arrest—meaning no CPR or intubation in a cardiac arrest, but intubation in a prearrest respiratory failure setting—that is consistent with a DNR status. If a patient does not want resuscitation in a cardiac arrest *and* does not want intubation in a prearrest respiratory failure setting, that is consistent with a DNR/DNI status.[7]

Survival: What are the chances?

Health care professionals should help patients understand how various factors influence the chances of survival after a cardiac arrest. For example, outcomes are affected by the underlying reason for the cardiac arrest and by whether the event was witnessed.

In patients with out-of-hospital cardiac arrests, outcomes are very poor if the initial rhythm is nonshockable.[8,9] In a retrospective multistate study focused on out-of-hospital cardiac arrests due to a cardiac etiology, 9.7% survived to hospital discharge, with 7.9% surviving to hospital discharge with a good neurological outcome. When the cardiac etiology was due to a nonshockable rhythm, only 2.9% of patients survived to hospital discharge with a good neurological outcome.[9] In hospital cardiopulmonary arrests, rate of survival to hospital discharge was greater after primary respiratory arrests than it was after initial shockable rhythms—pulseless ventricular tachycardia (VT) or ventricular fibrillation (VF). Survival-to-discharge rate was lowest after initial nonshockable rhythms—pulseless electrical activity (PEA) or asystole.[10]

In addition, patients having witnessed arrests had a greater chance of survival to hospital discharge than did those having unwitnessed arrests, with respiratory arrests witnessed more often than PEA or asystole arrests. In one study, those with a witnessed PEA or asystole arrest had a 7.2% chance of survival to hospital discharge compared with a 0% chance among patients who had an unwitnessed PEA or asystole arrest.[10]

While the etiology of a cardiac arrest is an important factor to consider in predicting outcomes, it's a difficult factor to anticipate. Age, on the other hand, is a more obvious element that is often included in code status considerations. In one study focused on out-of-hospital cardiac arrests, among those under 20 years of age, 34.1% had a return of spontaneous circulation (ROSC), 16.7% survived to hospital discharge, and 14.8% had a good neurological outcome. Among 95- to 99-year old patients, 23.5% had a ROSC, 1.7% survived to hospital discharge, and 1.2% had a good neurological outcome.

However, in that study, the authors found age was not always predictive of a good or bad outcome—rather, it was a nonlinear variable. The survival analysis was best when combining age and other variables (including other characteristics of patients and specifics of the cardiac arrest).[9] In other studies, age was weakly[11] or not associated with survival to hospital discharge after a cardiac arrest[4,10]; rather, outcomes were more significantly influenced by other variables, including the type of arrhythmia that caused the cardiac arrest. For example, PEA arrests, which have a lower rate of survival to hospital discharge than do pulseless VT/VF cardiac arrests, were more common in older patients.[11,12]

In addition to the concern about age, whether a person does or does not have cancer may influence code status discussions. In some studies, patients with metastatic cancer had a lower rate of survival to hospital discharge after resuscitation efforts in a cardiac arrest than did those of an unselected population[4,13] and those with non-metastatic cancer.[13] Furthermore, resuscitation was more successful in patients who had diagnoses of solid tumors rather than hematological malignancies.[13]

TABLE 1

Tips for having a code status discussion

1. Explore what the patient understands about their medical condition.
2. Ask what worries and hopes the patient has for their future.
3. Explain what is involved in a resuscitation effort.
4. Educate the patient about the limitations of resuscitation.
5. Offer a recommendation about code status that reflects the patient's goals of care.

Discussion points

Ideally, before starting a conversation about code status, the health care professional should sit with the patient in a private setting. It's important to clarify if the patient would like other people, such as family members, present for the discussion. Also, keeping in mind that certain decisions can be difficult for patients, health care professionals should strive to recognize and respond to emotions appropriately.[1]

Patient-centric code status discussions occur when patients understand their prognoses and health care professionals understand their patients' goals of care. A good starting point is asking what the patient understands about their illness. Depending on what perspective the patient has, it may be imperative to engage in further discussions exploring the prognosis of their medical condition—such as the likely outcome of terminal cancer or end-stage chronic obstructive pulmonary disease. Before specifically exploring resuscitation preferences, it's also important to understand the hopes and worries the patient has about the future.[14] The choice of whether to pursue certain medical treatments, including ones that are life-sustaining, can be affected by the probability of mortality and the probability of significant functional and cognitive impairment.[15,16]

Once the health care professional has a solid grasp of what the patient thinks about their medical condition and what their general goals are for the future, it's appropriate to introduce the concept of resuscitation in an informed manner and within the context of the patient's particular situation.[14] To help the patient make an informed decision about their code status preferences, it's important to avoid medical jargon. That will help ensure the patient fully understands the options under discussion.[17]

As the conversation proceeds, the health care professional should explain what resuscitation is and describe the potential outcomes if the patient would require CPR.[1,18] It is unwise to present what is involved in CPR as a list of interventions, as this may lead some patients to think of the components of resuscitation as separate options (for example, defibrillation if necessary but no chest compressions). In reality, the interventions

(CPR, defibrillation, etc.) work together for the best chance at ROSC.[14] In addition, clarifying the limitations of resuscitation is especially important, as patients often overestimate survival statistics.[14]

Furthermore, health care providers may find it helpful to speak of CPR as an *attempt* at resuscitation and to specifically use the phrase "do not attempt resuscitation" rather than "do not resuscitate" in code status discussions. Using such phrasing can remind patients—along with health care professionals—that CPR is indeed an attempt at resuscitation and that it has an uncertain outcome.[19]

After an informed discussion, the health care professional should offer a recommendation about code status that is consistent with the values and overall medical condition of the patient (Table 1).[1,18,20] If the patient does not choose resuscitation, it's important to reassure them that other aspects of medical care would be continued.[14]

Conclusion

When important details about resuscitation are presented within the context of the patient's goals of care, code status discussions are elevated from an encounter comprised of filling out checkboxes to a meaningful conversation between a health care professional and a patient. **MM**

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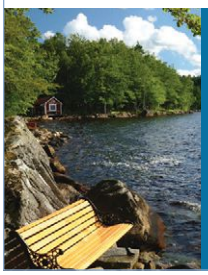

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Off script

BY HOPE N. UKATU

If it weren't for his legs, tucked under his chair and twitching rhythmically, one might have thought he was sleeping. With his eyes closed and his hands clasped around the knob of that weathered black cane, my first patient of the afternoon looked almost serene.

He wasn't though. Neil (not his real name) was in immense pain, the byproduct of a childhood spent picking cotton, followed by 20 years as a demolisher back when there were no cranes or bulldozers. They tore buildings down with their hands, he explained, ripping up the floor, level by level, until nothing remained but the foundation they stood on. The hard labor had ripped up Neil's body as well, leaving him with crippling pain in his back, hips and shoulders.

I jumped right into history-taking, expecting his symptoms to neatly fit "OPQRSTAA." After many repetitions with various patients, the mnemonic came easily. *Onset*, I reminded myself mentally. He'd been dealing with this pain for 27 years. *Palliative/Provocative*. Worse with walking and lying down, better with sitting. Takes gabapentin. Hates gabapentin. *Quality*…

The remainder of the history was brief, which came as no great surprise. What I didn't anticipate was for Neil to pipe up with what he was already certain would be today's action plan. "They're gonna send me home talking about physical therapy and gabapentin. I already know." My stomach sank as I realized, based on the nature of his symptoms, that this was likely to be exactly the case.

The room felt small then, filled with his pain and my inability to do anything about it. I had reached a technical dead end. I thought about closing the encounter, employing any one of several familiar devices to tactfully take my leave. Med student recites line about consulting with preceptor, exits stage left. Instead, I blurted out, "Neil, what keeps you going on days like today?" I wasn't sure where the question had come from. His eyes cracked open ever so slightly, and I could see him regarding me curiously. It was the first time we had met each other's gaze. "I just take it one day at a time," he sighed, with what I hardly dared believe was the hint of a smile. "And let God do the rest. That's all."

Suddenly we were talking, not about hip pain and physical therapy, but about places we'd both traveled and of Neil's childhood growing up with 21 siblings and selling cotton for "a penny a pound, a penny a pound." We laughed over his grandkids' antics. He confided to me his dreams and worries regarding his son, whom he'd convinced to go back to school. He imparted his personal wisdom on helping others, using your potential to the fullest, and exactly how long to microwave a honey bun. He shared stories of doctors he'd seen in the past, the conviction he'd found to stop both smoking and drinking, and why he would never accept a kidney transplant.

We conversed for an hour and a half before my preceptor popped in to gently suggest that we move on. Exchanging farewells took another several minutes, and finally Neil waved me off with a wide grin, bidding me to continue helping others by making the most of my education. "Sometimes, the best medicine we can give a patient is to distract them from their pain," my preceptor observed, as we watched Neil and his cane disappear into the lobby.

While I may never again spend an hour with any one patient, I learned that going beyond the history of present illness is far from a waste of time. The rich details of each individual's story never seem fully unearthed by the preset list of questions that comprise a medical history. Following the formula to the letter may yield plenty of pertinent clinical information, yet it still leaves much to the imagination as we try to gain an understanding of each patient as a person. Although I cannot presume to have made Neil forget his pain, I learned that sometimes, when there is nothing left to offer, there remains value in simply being able to distract. I hope, for Neil's sake, that I succeeded in doing just that—no gabapentin included. **MM**

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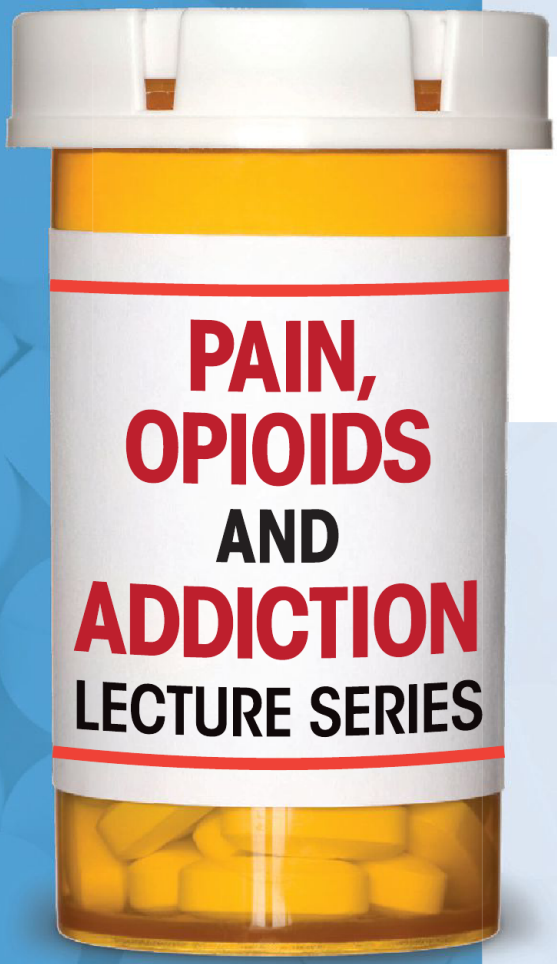

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