THE JOURNAL OF THE MINNESOTA MEDICAL ASSOCIATION

MINNESOTA MEDICINE

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MEDICAL CANNABIS in MINNESOTA

- **Use of medical cannabis was approved** by Legislature in 2014, program began in 2015.
- **12 conditions qualify**—including autism, PTSD and, as of this August, Alzheimer's disease.
- **14,481 patients are actively enrolled** for medical cannabis use.
- **1,415 health care practitioners are registered** to certify patients.

AND THE DEBATE CONTINUES over whether medical cannabis should be expanded or has gone too far already.

Tom Arneson, MD, leads research at Minnesota's Office of Medical Cannabis, which collects and analyzes data from health care practitioners and patients with a level of detail and depth unlike that of any other state.

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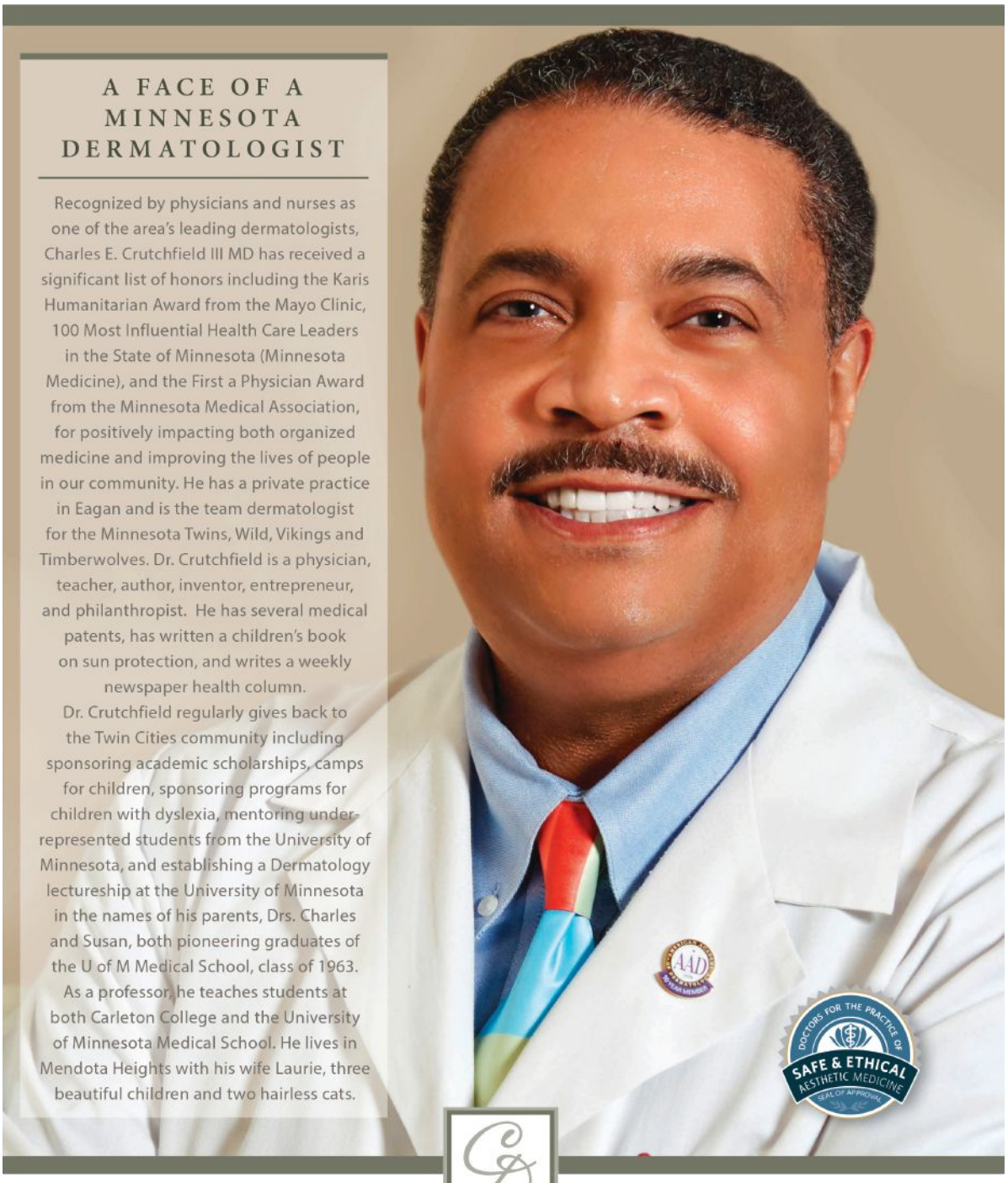

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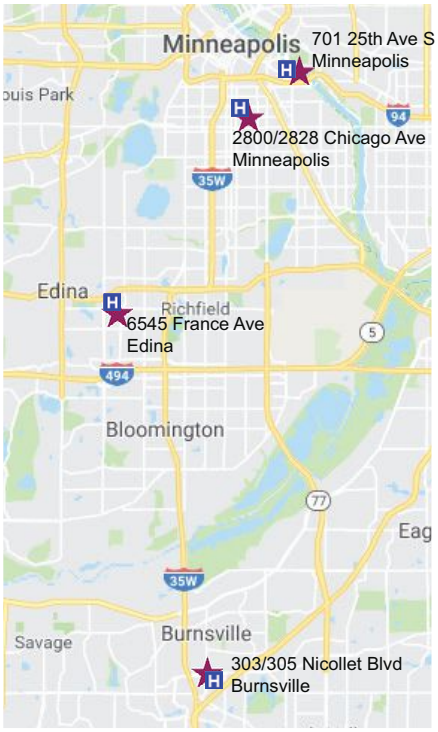

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Proceeding carefully with medical cannabis

Medical cannabis is not a perfect solution, but may provide another option for challenging conditions.

My first experience with Minnesota's medical cannabis program was with a patient with chronic pain that had not been relieved by multiple surgeries and medical treatments. As an occupational physician, I hesitate to use cannabis as a treatment option because of possible issues of work-related drug testing. My patient had not been working for several years and the pain was getting worse, making it difficult to do even simple activities at home. Could medical cannabis help?

Cannabis has been controversial in the United States for more than a century. Questions, concerns and fears about cannabis range from its alleged associations with Mexicans and blacks to competitive issues for pharmaceutical companies. Cannabis—also known as marijuana, pot, weed, ganja and dozens more street names—has been part of human history not just for centuries but for at least a couple thousand years, initially as an herbal medicine.

The first U.S. law criminalizing cannabis was the 1937 Marijuana Tax Act. In the 1960s, the use of cannabis as a recreational drug became more accepted. Nevertheless, the U.S. Drug Enforcement Agency classifies it as a Schedule I drug or a drug "with no currently accepted medical use and a high potential for abuse," along with heroin, LSD and Ecstasy.

Recently, we have seen a resurgence of cannabis as a potential medical therapy, despite federal law restricting distribution and use. Today, 33 states allow cannabis to be used for medicinal purposes with a variety of limits.

Minnesota's medical cannabis program is unusual for several reasons: it is administered by the Minnesota Department of Health (MDH), purely plant-based or smokable forms of cannabis are not offered, MDH collects patient-reported data on cannabis treatment outcomes and certification is limited to specific and objectively-defined conditions (other than chronic, intractable pain). MDH has made its program accessible to clinicians, who can certify patients online in a matter of minutes.

A potential use for cannabis is to help wean patients from opioids. Some researchers and clinicians worry about the possibility of replacing one addiction with another, but the search for a way to deal with the widespread and seemingly intractable opioid crisis appears to overshadow public health concerns about cannabis use. At least one insurer in Minnesota has paid for medical cannabis to support opioid replacement.

Medical cannabis is not a perfect solution, but may provide another option for challenging conditions. My original patient did not tolerate cannabis due to nausea, but I have since certified patients sparingly with mixed success. Given the limited clinical research into medical cannabis because of its federal illegality, empiric treatment trials such as with my patient may be one of the few ways to generate scientifically-relevant data. **MM**

Zeke J. McKinney, MD, MHI, MPH, is the chief medical editor of *Minnesota Medicine*.

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Happiness is horses

BY CARMEN PEOTA

Each morning Mary Vomacka, MD, pulls on a snowmobile suit or bib overalls and heads out to the barn.

"Good morning," she calls to the four horses inside, continuing to talk as she scoops grain into buckets. "They're always happy to see me because they know I represent food and attention," she explains. They have "a little chitchat" while the horses munch their breakfast and then it's out to the paddock for the horses and off to work for Vomacka, a psychiatrist for Carris Health in Willmar.

Vomacka loves this daily ritual, which is mirrored each evening, with the added task of stall cleaning. In fact, she loves any time she spends with horses. She has been smitten with them for as long as she can remember.

As a child in Montevideo, Minnesota, she pestered her father until he bought her a Shetland pony at age 7. Then she pestered her peers. "I think every time I'd raise my hand in show-and-tell, kids would just roll their eyes because they knew I'd be talking about a horse again," she says. Today, she pesters whomever is in earshot at the clinic. "Are you not so thankful to know all these facts about horses?" she recently asked her nurse, she admits, laughing.

Vomacka's love for horses didn't wane when she left for Concordia College in Moorhead to major in music and premedicine. Nor did it diminish during medical school and residency at the University of Minnesota. In fact, it was a factor when it came time to deciding where to practice. "That was part of my goal in coming out here," she says of her decision in the 1990s to settle on an acreage in the Willmar area. "I knew I needed to get back to horses."

PHOTOS PROVIDED BY MARY VOMACKA, MD

Since she was a child, Mary Vomacka, MD, has been drawn to horses—and they to her. She stopped to visit a horse she saw across a pasture while hiking outside of Santa Fe, New Mexico, in October 2016.

Therapy partners

Vomacka was beginning to be aware that if she was going to be good for anyone, she needed to do things she loved. In her patients, she saw what happened when people didn't tend to their own needs. "If you don't learn to undo life stressors, you are going to pay either physically or emotionally," she says. "If I didn't find some outside things, I was going to be in trouble."

At first the horses were only a personal passion. She loved to groom them. She rode as much as schedule, weather and mosquitos allowed. But soon she started thinking about using horses to help others. She became certified in equine-assisted therapy, an approach in which a horse handler and psychotherapist work together using a horse to help someone deal with a mental health challenge. She developed a seminar using the approach and for two years took groups to a ranch in Montana.

Vomacka points out that horses add to the therapeutic process because they bring issues to light. "They're social, large and incredibly honest, and have a good way of reading humans as well as mirroring what they see," she says.

Her own horses pick up on signals she's sending. "If I'm in a good mood, happy, upbeat, they're far more responsive," she says, adding that her 9-year-old Arabian is especially attuned to people. "He's not going to come for getting his neck scratched if I'm not in a place where he wants to deal with me."

Worth the work

Vomacka herself may have a bit of that kind of horse sense when it comes to her patients. Her reputation for being sensitive and empathetic is what led internist Janae Bell, MD, to begin referring her patients to Vomacka. "I could tell from feedback from patients who'd met her that she was a very involved, empathetic physician who listened to her patients very closely and cared very deeply," she says.

Vomacka does both talk therapy and medication management, believing most people with mental health problems need both. "It's labor-intensive. It isn't well-reimbursed," Bell says. "But that's the way she feels it needs to be done."

It's work that can take a toll. With the youngest of her three daughters about to leave for college, Vomacka is beginning to think about the future. She'd like to expand her skills and develop a program in equine-assisted psychotherapy. "I want to be working with horses and utilizing my psychiatry because I know I'm healthier when I am working at something that I value," she says.

For now, she's happy to spend mornings and evenings in the barn. The fresh air and physical work clear her mind, and she simply likes tending to the Morgan and three Arabians who've become part of her life. "That's part of what really brings me joy," she says. "I love just taking care of them. It keeps me very balanced."

Bell says that for Vomacka, being with horses "feeds her soul" and the doing of daily chores "is a meditation in and of itself."

PHOTOS PROVIDED BY MARY VOMACKA, MD

Mary Vomacka, MD, has introduced her own and other children to horses. Her nephew's daughter learned to brush Mystic, Vomacka's Morgan, after her first ride in September 2018.

Vomacka explains herself in simpler terms. "It's so worth it," she says of the work involved in caring for horses. "They truly make me happy." **MM**

Carmen Peota is a Twin Cities freelance writer


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Hope Grown Here.

Hiroki, of Cottage Grove, is 8 years old. Cognitively, he has progressed to approximately age 2. He enjoys spending time with his family, playing with his brother, and walking to the mailbox each day.

At the time of his diagnosis at 1 years old, Hiroki was 1 of 600 in the world known to have Phelan-McDermid Syndrome (PMS), a rare genetic condition commonly characterized by intellectual disability of varying degrees, delayed or absent speech, low muscle tone and motor delays.

Around age 3, Hiroki was diagnosed with epilepsy and autism spectrum disorder (ASD), which are both common characteristics of PMS. He also has a number of other conditions such as asthma, dysphagia, autoimmune dysfunction, and hip dysplasia.

Hiroki's parents characterize their lives as "Before" and "After" medical cannabis because of the stability this medicine has brought to the family.

Misa and Dan, Hiroki's parents, characterize their lives as "Before" and "After" medical cannabis because of the stability this medicine has brought to the family. Before, most of their family's days were stressful, repetitive and rushed. On every outing, Hiroki would get upset at seemingly small things, and cry if they took a left rather than a right. He was constantly stressed and anxious, and he would have a hard time sleeping at night.

Every 2 weeks to 2 months, Hiroki would experience grand mal seizures so critical that he would often stop breathing. His last seizure was so severe that it left him unconscious for more than 30 hours. At one point in time, Hiroki was being seen by 22 specialists and taking up to 8 different medications per day. His parents were determined to find a more holistic tool for them to help treat symptoms of his diagnoses.

Since starting medical cannabis 3 years ago he has not had a single grand mal seizure. Although he still becomes anxious with changes to his routine, his cognitive speed and functioning have increased and his ability to cope with daily changes has improved significantly.

He is more aware and present, and he's beginning to show more interest in interacting with family and peers. He can spend time comfortably at home and walk on the treadmill. "Team Hiroki" has been able to teach him how to use his iPad to communicate simple sentences. His parents are grateful for the simplest of "typical" family routines like eating a meal together at home, playing family games and dancing together in the living room.

Visits to the pharmacy and the number of prescriptions he takes have drastically declined. He now actively sees only three specialists and is taking 2 medications. Misa and Dan feel like he is making cognitive gains each day and they have been able to potty train him to some degree, which is rare for children with his condition.He can now scoot down the stairs on his own. He can also drink from his sippy cup, a new freedom for Hiroki that wasn't possible until now.

His mother believes Hiroki's, as well as the entire family's, quality of life has gone from a 1 to a 10 since he began medical cannabis. "There is nothing that has changed our lives more significantly than the availability of medical [cannabis]," she shared.

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Tracking outcomes IN Minnesota health care

BY LINDA PICONE

If you don't measure it—whatever "it" happens to be—you can't improve, or even know whether you *need* to improve.

That's where MN Community Measurement (MNCM) comes in. "Our mission is to empower decision-makers to drive improvement," says Julie Sonier, MPA, president.

In 2005, MNCM was created as a nonprofit by Minnesota health plans and the Minnesota Medical Association to collaboratively gather and report health care data. (The idea of comparing quality of care had started several years earlier and the state's major health plans worked together to combine data for some kinds of care and then report the outcomes.) MNCM's board includes stakeholders from every part of health care—hospitals, physicians, health plans, employers, professional associations and consumers.

The impetus behind MNCM was to find out how health care providers in Minnesota were doing so that they could do better for their patients. "We spend an awful lot of money in the United States and we don't get anywhere near the kinds of outcomes that we feel we should be getting," Sonier says. "There are many examples of where we lag behind the rest of the world in health care outcomes."

Gathering data

Initially, data was submitted to MNCM voluntarily by providers. After the first year, 90 medical groups were providing data. By 2008, 85 percent of the state's primary care providers chose to provide data. That year, the Minnesota Legislature passed a law that required all providers to submit data to MNCM. Today, data is collected from health plans and also submitted directly by clinics and medical groups through a secure dedicated web portal.

Sonier says that although quality measurement is important, gathering and sharing data in specific formats adds to the workload of providers.; MNCM is conscious of that and works to make sure it is not duplicating data-gathering of other entities. "Minnesota has been ahead of the nation in measuring the stuff that matters," she says. "But we align where we can."

MNCM has a multi-stage process for developing measures and collecting data. After initial research on a concept or procedure, a workgroup made up of a variety of stakeholders is put together to develop a measure, get public comments and run a pilot to test the measure. Once the data for the pilot is collected and reviewed, a decision is made about whether to include the measure in public reporting for future years.

Reviewing measurements

MNCM collects data on both processes—such as breast cancer screening, eye exams for people with diabetes or follow-up for

people with depression—and outcomes, such as controlling high blood pressure, functional status of patients after knee replacement or 12-month response to depression treatment. "For process measures, we can often see very rapid improvement," Sonier says. "All the providers have to do is get a process in place to make sure that certain steps are followed." MNCM also looks at efficiency measures, such as total cost of care and average unit price.

In a simple example, she says the difference between measuring process and measuring outcomes would be measuring whether a person with diabetes regularly gets their blood sugar tested (process) vs. measuring whether their blood sugar is under control (outcome). The former is important and might lead to better blood sugar control—that would be the expectation—but it doesn't indicate whether the person with diabetes actually has blood sugar levels under control.

The list of measures MNCM collects and reports is long. A committee reviews all of the measures every year to determine whether the measure is still doing what it's supposed to do. "It's important to keep looking at the measures we collect and make sure they're still worth it," Sonier says.

That can result in some nmeasures being dropped. For example, Sonier says, a measure on providing overweight counseling—a process measure that had "topped out"—was dropped. For any measure, she says, "if everyone is at 90 percent or higher, there's a question of whether that is still of value to the community or whether we should focus on something else."

Another measure, the percentage of births by caesarean sections, was dropped for several reasons, she says: Minnesota's rate of C-sections is lower than the national average; most of the data on C-sections comes from hospitals, rather than provider clinics, so it's harder to collect; and, more important, "there is uncertainty about what is the right level of C-sections," so measuring them can't lead directly to improvement because it's not clear what the right level of improvement would be.

How is the data used?

Sonier says one way that MNCM measures and data are being used is in contracting arrangements between health plans and providers. "It's an important source of information for contracts, which is one of the reasons it's important to employers as well."

MNCM data and the reports it generates also give physician clinics the ability to benchmark themselves against other providers, "to get that sense of 'how are we doing?'" Sonier says. Consumers also access the MNCM website to get information about the clinics they go to and to compare costs of different providers.

"One question we get a lot, because we're talking about outcome measures, is how we account for patients of different socioeconomic status and potentially different barriers to health care," she says. "How do you deal with that in the measurements? Someone in a low-income neighborhood may have difficulty finding healthy food, maybe even filling their prescriptions."

To address these differences, MNCM has developed a method that adjusts outcome data for socioeconomic status, based on economic data about the ZIP codes where a clinic's patients live.

The annual Health Care Cost & Utilization report looks at the total cost of health care, resource use and relative price, utilization and average cost per procedure.

MNCM reports spotlight data and trends so that provider clinics not only see how they are doing themselves, but also look at what others are doing. "We are trying to shine more of a light on some of the best practices," Sonier says. MNCM has issued reports on depression, quality of care for chronic conditions and, most recently, on preventive health measures—including cancer screening, infectious disease screening and vaccinations for children and adolescents.

Sonier cites Entira Family Clinics as an example of a best practice, shared after an MNCM report. In a press release announcing the 2018 depression report, MNCM included a quote from Tim Hernandez, MD, Entira CEO: "Of all the metrics that we are being measured on through MNCM, the depression remission measure has had the greatest impact on changing our care delivery. In order to be successful, one has to develop strategies to reach out to patients between visits. People who are struggling with mental health problems need between-visit care perhaps more than people with other medical conditions. Finally, as we begin to manage adolescents who suffer with depression, we have had to use different strategies, such as texting, to reach different generations. The care coordination program that we developed for the depression remission measure became the foundation for our Health Care Home."

Sonier says that, for at least the last decade, there have been a lot of conversations at all levels about value in health care. "Defining what value is, by developing measures and collecting data, is a big part of what we do—and the participation and collaboration of stakeholders across the spectrum of health care is essential." **MM**

Linda Picone is editor of *Minnesota Medicine*.

To see the latest MN Community Measurement reports, get more information about the measurement process, learn about how to submit data, see comparative health scores and more, go to mncm.org.

Tobacco companies give away branded items, everything from slippers like these from Black & Mild Cigars, to T-shirts and sweatshirts.

TOBACCO MARKETING

Promotional efforts keep smokers from quitting and lure young people to take up smoking

BY ALEXIS BYLANDER, MSPPM; BETSY BROCK, MPH; AND CALEB SCHULTZ, MD, MPH

If you don't use tobacco, you may not fully understand the breadth and depth of tobacco marketing. Compared to the era when cigarettes were widely advertised on billboards and television, it may seem today that tobacco advertising is a tactic of the past.

Cigarettes are associated with adventure and fun, as in this Camel ad, to attract the attention of young people.

It's true the days of Marlboro Man billboards, Joe Camel cartoons and Fred Flintstone peddling Winston cigarettes are long gone, but tobacco industry marketing is still alive and well in Minnesota. Each year in Minnesota, the tobacco industry spends more than $100 million promoting tobacco, not including e-cigarette ads.

Where is all that money going, if most of us aren't seeing it? The vast majority of these dollars are spent not on advertising but on promotions designed to keep the price of tobacco low, such as in-store price discounting, coupons, buy-one-get-one-free offers and giveaways from tobacco companies.

No one knows this better than current tobacco users, who are flooded with these promotions. Unfortunately, marketing like this can have a direct impact on a tobacco user's ability to successfully quit smoking, chewing or vaping. The tobacco industry's continued success depends on keeping current smokers addicted and hooking new, young users. To do that, tobacco manufacturers have created a whole world of advertising online and mailings and promotions that go directly to consumers.

For example: smokers may receive coupons directly through smartphone apps. The GPS on their phones allows tobacco company apps to know when they enter stores that sell tobacco and then to send them on-the-spot coupons to use at that store—often with a short timeframe before the coupon expires. Imagine the willpower it takes for an addicted smoker to refrain from purchasing their favorite brand of cigarettes just as they enter a store that sells them and a time-limited coupon arrives that dramatically lowers the price. These coupons are meant to undermine attempts to quit, and they are often successful.

> Even when states raise tobacco taxes to deter use of the products, the tobacco industry is able to insulate consumers from the true impact.

In addition to coupons and price promotions, the industry sends gifts and prizes to consumers through an approach called "direct marketing." Once a smoker subscribes to company mailing lists, the free items start pouring in. Sunglasses, T-shirts, bathrobes, slippers, coasters and gift cards are just a few examples. Tobacco companies are no longer allowed to put their brand name on the items, but subtle images and colors can be a constant reminder to the consumer of the company

that sent them the swag, and continual interactions keep tobacco use and brand loyalty top of mind.

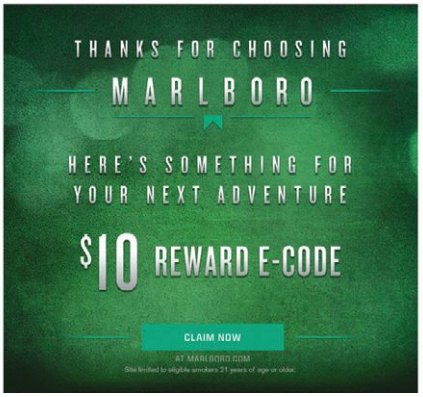
Alarmingly, the majority of these promotional efforts are targeted to young people. Common advertising campaign themes are music, nightlife, photography, travel, fun times with friends and adventure. The tobacco industry is adept at associating tobacco use with activities young people enjoy.

And it works. Forty percent of Minnesota smokers have used tobacco coupons or promotions in the past year to save money on cigarettes. A third of adult smokers use tobacco coupons or discounts every time they see one. Young smokers, women and African Americans are most likely to use tobacco coupons and promotions. In fact, Minnesota young adult nonsmokers who receive tobacco coupons are twice as likely to become smokers.

Minnesota has come a long way in the fight to reduce tobacco's harm. All workplaces, including bars and restaurants, are smoke-free; tobacco products are taxed to discourage use; many cities have raised the tobacco sale age to 21; and others have restricted the sale of fruit-, candy-, and menthol-flavored tobacco products to adult-only stores.

Tobacco companies know this; that's why they spend so much money on innovative promotions. Discounting the cost of their products is a strategy to counter the fact that keeping tobacco prices high is the most effective way to help people quit and prevent young people from starting to use tobacco. This means that even when states raise tobacco taxes to deter use of the products, the tobacco industry is able to insulate consumers from the true impact.

Tobacco use remains the number one preventable cause of death in our state and in the country. Health care providers and those looking to help smokers quit need to understand the world in which tobacco users are living to effectively help them adopt strategies to deal with the onslaught of tobacco marketing they receive.



Electronic coupons, like this one from Marlboro, may appear on a smoker's smartphone the moment they enter a store that sells cigarettes.

What do physicians need to know?

- The tobacco industry is relentless in its marketing to addicted consumers and future users.
- Tobacco companies strive to keep consumers engaged, continuing to use and brand-loyal.
- Tobacco coupons undermine smokers' attempts to quit.
- Minnesota adult smokers who redeem cigarette coupons are less likely to quit smoking than those who don't use coupons.

What can physicians do to help patients' quit attempts?

In addition to traditional advice around medication, counseling and nicotine replacement therapy (NRT), physicians should counsel patients to:

- Unsubscribe from tobacco industry direct mail and email lists.
- Un-follow tobacco-related content on social media.
- Delete tobacco apps from their phones.
- Discontinue use of tobacco product coupons and promotions.
- Stop shopping at stores that sell tobacco.
- Quit requesting giveaway items from tobacco companies.
- Stop attending any events hosted or promoted by tobacco companies.

Tobacco advertising in all its forms should be a call to action to all of us to do our part to help current tobacco users quit and protect kids from becoming addicted to deadly tobacco products. Physicians and health care providers have a critical role in helping patients quit and saving lives. **MM**

Alexis Bylander, MSPPM, is senior public affairs manager for ClearWay Minnesota. Betsy Brock, MPH, is director of research for Association for Nonsmokers-MN. Caleb Schultz, MD, MPH, is an anesthesiologist with Hennepin Healthcare.

REFERENCES

American Journal of Public Health; 104(11), 2179-2183. Campaign for Tobacco Free Kids.

Broken Promises to our Children: A State-by-State Look at the 1998 Tobacco Settlement 20 Years Later. 2018.

Choi, et al. (2013). Receipt and redemption of cigarette coupons, perceptions of cigarette companies and smoking cessation. Tobacco Control; 22(6): 418-22.

Choi & Forster (2014). Frequency and Characteristics Associated with Exposure to Tobacco Direct Mail Marketing and Its Prospective Effect on Smoking Behaviors among Young Adults from the US Midwest.

White, et al. (2006). Cigarette promotional offers: Who takes advantage? Am J Prev Med; 30(3):225–231.

Free items like wooden coasters from Copenhagen keep a tobacco's brand in a consumer's mind.

Tom Arneson, MD, of Minnesota's medical cannabis program.

PHOTO BY RICH RYAN PHOTOGRAPHY

MEDICAL CANNABIS PROGRAM is GROWING

Data collection is key—and sets Minnesota apart

BY ANDY STEINER

The world of medical cannabis is populated by passionate advocates. But Tom Arneson, MD, research manager for the Minnesota Department of Health's Office of Medical Cannabis, isn't one of them.

"Before I took this job, I had not had an interest in cannabis," Arneson says. "A lot of people organize their lives around being advocates for cannabis use. That was not me at all. I was interested in the legislation and the component about being able to collect data. When I looked into cannabis, I felt it was quite interesting."

A former researcher at the Minneapolis Department of Health, director of population health at Stratis Health and medical director for industry-sponsored research at the Chronic Disease Research Group, Arneson first heard about the Office of Medical Cannabis job from his medical residency mentor, former Minnesota Commissioner of Health Ed Ehlinger, who thought Arneson's experience, attention to detail and abiding interest in research made him a good match.

As he was considering whether he should accept the position, Arneson says he realized that it "had some very interesting parts to it. Part of that is trying to collect data, trying to know something about what happens to the participants in the program. Ed thought my background would lend itself to the research aspect of it. I decided he was right."

The job is filled with potential political landmines, but Arneson's dispassion is key to the program's success; because he holds no clear advocacy position, the information that he and his staff collects and distributes is more likely to be fair and balanced.

Arneson and his colleagues have completed two comprehensive reports using data collected from patients who enrolled in the first year of the program. The department produces annual cohort updates for all measures over time; Arneson says there will be repeated analyses annually. The reports are posted on the department's extensive, well-maintained website (http://www.health.state.mn.us/topics/cannabis/).

The extensive research and reporting puts Minnesota's medical cannabis program ahead of other states, Arneson says: "No other state collects information from the program on benefits and harms. Ours does. We figured out a way to do that, and that sets us apart."

This data collection, while exacting and time-consuming, feels important, Arneson says. There are charts and graphs detailing information about enrollees, providers and medicines, as well as multiple pages of verbatim patient comments. These are particularly interesting, Arneson says, and intended to be helpful for people who are thinking about enrolling in the medical cannabis program.

"They can look and see what the experience has been for other people. They are organized by condition, including survey comments and free-form comments where people can say how much they've been benefited or harmed and what the nature of those benefits or harms are."

The comments are also helpful for physicians and other health care providers

who are considering approving individuals for participation in the program.

"The comments make it easier for members of the clinical community to get a sense of what people think is happening to them when they participate in this program," Arneson says. "We also collect information about what products the patients are using."

Increased interest

Since its launch, Minnesota's medical cannabis program has experienced steady growth. As of January 2019, about 1,500 medical professionals have registered themselves to certify patients for medical cannabis treatment, up from 1,081 last year.

The number of patients actively enrolled in the registry is also on the rise: In January 2019, 14,481 patients were actively enrolled in the patient registry—6,352 more than were enrolled on Dec. 28, 2017. (Since the program was launched, a total of 25,000 Minnesotans have enrolled, although many haven't kept their enrollment up-to-date.)

Arneson says increasing numbers of clinicians (advance practice RNs and physician assistants can also certify patients) are registering themselves to be part of the program. This is a positive, he says; he would rather see the process become more widely accepted than to have the program consist of just a few physicians certifying hundreds of patients.

"The more that there are clinicians who are willing to register patients they think are a decent fit for the program, the more the intention of the program can be fulfilled," he says. "I'm happy to see that every week there are a few more. It is very consistent and constant over time."

Arneson chalks up early physician resistance to everything from concern over the lack of clinical science about medical cannabis to a reluctance to be connected to such a program during a politically conservative administration.

"Some physicians don't like the government getting in on things that have to do with medical care," Arneson says. "And some are nervous about doing this in case the federal government comes knocking on their door."

But those physicians who have begun to certify patients say they are largely pleased with the results, Arneson reports. They went into medicine to help others, and many believe they have been able to help ease their patients' pain.

Patient comments on the department website back this up. "Many of the patient comments focus on improved quality of life," Arneson says. "They say things like, 'I can do more. I have my life back again.' Who can argue with that?" MM

Andy Steiner is a Twin Cities freelance writer.

Current qualifying conditions for medical cannabis and number of patients certified

AS OF JANUARY 2019

9,267	Intractable pain
2,323	Post-traumatic stress disorder
1,826	Severe and persistent muscle spasms
1,300	Cancer
616	Seizures
447	Inflammatory bowel disease
441	Obstructive sleep apnea
357	Autism spectrum disorders
137	Terminal illness (life expectancy of less than a year)
122	Tourette syndrome
110	Glaucoma
98	HIV/AIDS
32	Amyotrophic lateral sclerosis
...	Alzheimer's disease (beginning August 1, 2019)

The Minnesota Department of Health accepts petitions from June 1 through July 31 each year for new qualifying conditions and delivery methods. A review panel then makes recommendations to the Commissioner of Health. In 2018, seven medical conditions were reviewed and only one—Alzheimer's disease—was added to the list of qualifying conditions.

In the nearly five years since medical cannabis became legal, five qualifying conditions (intractable pain, autism, obstructive sleep apnea, post-traumatic stress disorder and Alzheimer's disease) have been added to the original nine.

IS MEDICAL CANNABIS ANOTHER TOOL IN THE TOOLBOX?

Or has Minnesota **gone too far?**

POINT: Success against pain

Matthew Thorson, MD, an interventional pain medicine specialist at Advanced Spine and Pain Clinics of Minnesota, didn't start out as an advocate for medical cannabis, but in recent years his perspective on the medication and its impact on his patients has changed. He talked to *Minnesota Medicine* about his experience certifying intractable pain patients for medical cannabis — and his perspective on the future of cannabis in the state.

What factors convinced you to register yourself as a physician willing to certify patients for Minnesota's medical cannabis program?

Five or six years ago I would be one of the physicians who was more on the anti-marijuana side of things. It is an illicit substance that we test for on our illicit drug screens of patients who are on opiate contract with our clinic. But as the opiate crisis kept snowballing in Minnesota and the nation, many physicians are trying to find alternatives for pain control. After doing research, I found that this is a safer route for many of my patients to try medical cannabis rather than opioids. I also use medical cannabis as a tool to wean people off their opiate medications whenever possible. Eighty percent of my chronic pain patients respond positively to medical cannabis as an alternative to opiates.

What positive effects are you seeing in patients who use medical cannabis to treat chronic, intractable pain?

I think the pain relief provided by cannabis is actually probably superior in some cases to the relief provided by opiate medications. In fibromyalgia or rheumatoid arthritis patients who have chronic widespread pain, opiates only work in the central nervous system. They slow down the gut and cause constipation, whereas cannabinoid receptors are widespread and the medication is well tolerated.

I see the results of how my patients are doing and they are for the most part giving me very positive feedback on how medical cannabis has helped them. I've also seen that there are

PHOTO BY RICH RYAN PHOTOGRAPHY

Jay Westwater, MD, believes in the potential of medical cannabis. He's CEO of MInnesota Medical Solutions, one of two companies permitted to produce and distribute medical cannabis in Minnesota.

FROM THE DISPENSARY

CEO and ER physician Jay Westwater, MD, **believes in the potential of medical cannabis**

BY ANDY STEINER

Joseph (Jay) Westwater, MD, seems at ease as he moves around Minnesota Medical Solutions' clean, light-filled dispensary in downtown Minneapolis. A longtime emergency medicine physician, he's been CEO of the company since August 2018, when founder Kyle Kingsley, MD, became CEO for parent company Vireo Health. Unusual for a CEO, Westwater continues to practice medicine on a limited basis in St. Paul and western Wisconsin.

Westwater says he believes in the potential of medical cannabis to improve the lives of people struggling with a variety of ailments, and his calm, measured approach to the issues means that he doesn't come off like a huckster or an over-enthusiastic convert. He welcomes all questions and encourages debate.

There are eight medical cannabis dispensaries (or Cannabis Patient Centers) in Minnesota; four are operated by Minnesota Medical Solutions and four are operated by Leafline Labs, currently the only two companies with state approval to sell medical cannabis products in Minnesota. When a practitioner certifies a patient for medical cannabis use, the next stop is a Cannabis Patient Center, where the patient consults with a specially-trained pharmacist before deciding on cannabis varieties, dose levels and

delivery methods (products include tinctures, oils to be used in vaporizers, and capsules, with different levels of THC and CBD).

"Some physicians think about cannabis as being sold as a cure-all or a miracle drug," Westwater says. "The way I see it is, it's working in a safe, complementary way with other medications for appropriate people. It is particularly effective in the areas in which people can be certified for use in Minnesota."

After about six months as CEO, Westwater's thoughts on medical cannabis include:

- **An emergency room physician is perfectly suited for the medical cannabis business.** "I think that ER docs tend to be curious," Westwater says. "I think we're also comfortable with a certain amount of risk. Every day in the emergency department, I have to make decisions without all the facts at hand. That's a normal, everyday situation for me. You can analogize that to the cannabis field in a way." Because limited legalization means that research on cannabis is still spotty, "We're still figuring things out, and I'm okay with that."
- **Some of today's support for medical cannabis is a direct reaction to the '90s pain-med "boom."** Medical professionals still smarting from the days when they were encouraged to aggressively treat pain with opioids may be more open to alternative options for pain relief, Westwater theorizes. "I was part of that whole phase of medicine when we were being told that we were under-treating pain and that pain is the fifth vital sign," he says. "I was graded in the emergency room on my ability to rapidly treat pain—even without seeing some patients first. That was where the pendulum reached its furthest tick in the opposite direction. Now we're moving away from that. Into that void comes this new—possibly, hopefully—safer, maybe better-tolerated medicine."

PHOTO BY RICH RYAN PHOTOGRAPHY

Tom Huynh, PharmD, of MInnesota Medical Solutions, sees a place for both medical cannabis and CBD products.

- **Medical cannabis doesn't work for all pain.** Despite some advocates' argument that cannabis is a miracle cure for just about everything, Westwater says that when it comes to pain, medical cannabis "is not the answer for everybody." Some pain is too extreme for cannabis alone. "I would never claim that someone could just get by with cannabis for acute, severe pain," he says. "That's the role of opioids. But even in those cases, as an adjunct, cannabis allows people to minimize their use of other meds that may be effective for them but could have harsh side effects. That's where it is can be particularly helpful. Plus, the 2017 National Academy Report is pretty conclusive about the effectiveness of cannabis for chronic pain."
- **It's nearly impossible to access medical cannabis in rural areas of the state.** Because medical providers registered to certify patients for medical cannabis tend to be clustered in the seven-county metropolitan area, Westwater says, "In some rural areas of the state, people often have to travel far distances to find a provider willing to prescribe medical cannabis, and they may have to travel even farther to get to a dispensary." In particular, he says, Native American populations in the state are underserved. "These are the very patients who may be the most debilitated, and they have the hardest time finding a provider that's willing to certify them, let alone find a dispensary in which to get their supplies," he says. He is in favor of remote cannabis certification: "The state has mandated that here must be a face-to-face meeting with a provider to certify a person for medical cannabis. We'd like to see a move toward the use of telemedicine—at least with recertifications—which may alleviate some of this issue."

Medical cannabis in Minnesota

Medical cannabis began distribution in Minnesota on July 1, 2015, after the state Legislature passed a law during the 2014 session allowing use of medical cannabis to treat certain conditions.

AS OF DECEMBER 31, 2019

There were 14,481 patients enrolled in the program.

The majority (71 percent) from the Twin Cities metropolitan area. Twelve percent are from northern Minnesota (Duluth, Brainerd, Bemidji, Detroit Lakes and East Grand Forks).

There were 1,415 health care practitioners registered to certify patients for medical cannabis:

1,061	Physicians
250	Advanced practice RNs
104	Physician assistants

IS MEDICAL CANNABIS ANOTHER TOOL IN THE TOOLBOX?

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few people who are non-responders, and I've had no instances when anyone has been harmed or had a worsening of symptoms.

The bottom line is that 80 percent of my pain patients are responding positively to medical cannabis. That's a good thing. With a lot of medicines, if 20 percent of people respond positively, we'd think that's a good thing. If we're at 80 percent-plus, it's hard to argue that it's bad in any way. For me, as a pain physician, I need every tool in my toolbox to be able to help some of these people. Cannabis is just another tool in the toolbox.

Have you experienced backlash over your decision to certify patients?

I have not experienced backlash, although I think there is still some catching up to do overall around our attitudes about medical cannabis. About a year-and-a-half ago, I gave a talk in front of University of Minnesota pharmacy students. One of the professors asked me, "Dr. Thorson, are opiate receptors and cannabis receptors pharmacologically very different?" I said, "They are different pharmacologically but not necessarily politically."

The views of various people and policy makers when it comes to marijuana are incredibly varied. The Senate majority leader in Minnesota, when he talked about legalizing recreational marijuana, said, "How can you open the door on recreational marijuana when you are staring down an opiate crisis?" Some people think these drugs are one and the same, when opiates are actually so much more deadly than cannabis.

Do any of your patients express concerns about using medical cannabis for pain?

With some pain patients, one of the barriers for them with medical cannabis is a financial barrier. Insurance companies for the most part do not cover medical cannabis. The only insurance I have gotten to cover it is Workers' Compensation. But even then, patients usually have to get their lawyer involved.

When I talk about the personal economics of taking medical cannabis with a patient, we quickly come to understand the real economic issues of managing pain. Many patients are not just on MS Contin® or generic morphine. They may also be on an antidepressant, a muscle relaxer, a sleeping aid. They might be able to reduce or eliminate those medications through the use of medical cannabis. If I can get someone on medical cannabis and eliminate the need for them to come into my office every month, sometimes it weighs into their financial decisions.

Minnesota seems to be on a path toward legalization of recreational marijuana. What do you think about that?

FROM THE DISPENSARY

(continued from previous page)

- **Westwater and his colleagues support recreational legalization, with cautions.** Legalization of recreational marijuana might reduce medical cannabis use, so it's logical that today's medical cannabis companies would be concerned about losing business and oppose statewide legalization of recreational marijuana. Westwater says that he and his colleagues don't feel that way. "We do not want to be viewed as a crotchety old company that doesn't want to see change," he says. "There are compelling reasons to argue for legalization. We don't want to be put in a position where we look like we are holding on to our existing cookie jar and don't want to let anyone else in. At the same time there are more than 15,000 active patients in Minnesota who are benefitting from medical cannabis. If recreational is legalized, would they continue to come to us to get their medicine? Or would they go out on their own and buy it in a store?" The latter makes Westwater a little uneasy: "In this scenario, they wouldn't be talking to pharmacists anymore. Who would be there to guarantee they were getting the right dose? We just don't know what will happen and we have to be comfortable with that."

MEDICAL CANNABIS and AUTISM

Success for her son turned Victoria Grancarich into an advocate

BY ANDY STEINER

There's no doubt that Victoria Grancarich loves her son Julian with her whole heart. Ever since his autism diagnosis at age 3, the now 16-year-old has been a near-constant focus of his mother's attention and concern.

"He is an amazing, brilliant person," Grancarich says of her son. "It's not always obvious to people who don't really know him, but all of it is there on the inside."

Life with Julian hasn't always been easy—he is nonverbal and suffers from a range of co-morbid disorders, including irritable bowel syndrome, epilepsy and motor tics—Grancarich and her husband John are a well-oiled team, lovingly caring for him and his younger, neurotypical sister Sophia at their home in Chanhassen.

A few years ago, Julian's personality took a sudden downward turn.

- **Medical trends come and go. Westwater admits he's been around long enough to know that medical trends may be just that—trends.** He hopes that medical cannabis is bigger and more lasting. "You go back 120 years and everybody thought cocaine was the answer. You go back how many years after that and morphine was the answer. I'm jaded enough to realize we may go too far. What convinces me that we might be heading in the right direction is the safety profile. That's the key of cannabis for pain." **MM**

Andy Steiner is a Twin Cities freelance writer

PHOTO BY RICH RYAN PHOTOGRAPHY

Medical cannabis products include oils to be used in vaporizers, capsules and tinctures.

"He went from compliant and docile, loving and sweet to having fits of rage and attacking myself and my husband," Grancarich says. "He was very violent for several months." During his rages, Julian broke every bone in his mother's face. "I had my nose broken three times," Grancarich says now. "I had my jaw dislocated."

Julian's outbursts were also directed at himself. He would violently hit his head against a wall or any other hard surface he could reach. "He was giving himself skull fractures," Grancarich says. "His eyes were swollen shut. He'd completely lost the will to live."

Grancarich theorizes that Julian was in so much physical pain in his head that he wanted to end his life. "It was clear to me that he wanted to kill himself," she says. "He was not going to stop until he took himself out."

Physicians tried a wide range of medications and other therapies to end Julian's rages but nothing seemed to work. Several times, Grancarich recalls, hospital staff told her and her husband to prepare themselves for their son's death.

Through Grancarich's work with national autism organizations, she had learned that some young people with seizure disorder and autism were finding relief from their symptoms with the help of medical cannabis. When the medication became legal in Minnesota, she and John made the decision to try it on Julian. They felt like they had nothing to lose.

Grancarich explains that she began by giving Julian "a very low dose" of cannabis oil on January 18, 2017. Julian's response to the

PHOTO COURTESY OF VICTORIA GRANCARICH

Victoria Grancarich found that medical cannabis helped her son Julian , who is autistic and was engaging in self-harm behavior.

IS MEDICAL CANNABIS ANOTHER TOOL IN THE TOOLBOX?

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I'm okay with it. I think the majority of Americans and Minnesotans are on the side of medical cannabis. And a majority of them now support full legalization. The tides are changing on the whole issue.

The statistics show that whatever form of legislation a state has—full recreation or just medical cannabis—there has been roughly a 25 percent reduction in opiate-related deaths. We definitely need something like that in Minnesota.

—Andy Steiner

COUNTERPOINT: Reasons to be cautious

Not every Minnesota physician is enthusiastic about medical cannabis. Psychiatrists, in particular, are concerned that marijuana use has the potential to worsen psychiatric symptoms in some patients.

Patricia Dickmann, MD, a psychiatrist practicing at the Minneapolis Veteran's Administration Medical Center, pointed to a January 14, 2019 New Yorker article titled, "Is Marijuana as Safe as We Think?" She cited the article in an email, adding that she agreed "100 percent" with this quote: "As the National Academy panel declared, in one of its few unequivocal conclusions, 'Cannabis use is likely to increase the risk of developing schizophrenia and other psychoses; the higher the use, the greater the risk.'"

Dickmann points to the impact of marijuana use on her own patients: "I have . . . seen marijuana cause transition to manic episode in patients with bipolar disorder. Overall, the reported benefits of marijuana are far overrated and the potential risks are often downplayed."

Kaz Nelson, MD, a psychiatrist who practices at the University of Minnesota Medical Center, says many psychiatrists were concerned when post-traumatic stress disorder (PTSD) was added to the state's list of qualifying conditions for medical cannabis use. The larger concern that marijuana is a bad match for psychiatric conditions like PTSD made members of the state's psychiatric community feel "disappointed and worried."

"We see people who come in and tell us they smoke pot recreationally," she says. "There seems to be an indication of psychosis developing among some patients. In some cases, the psychosis does not go away. It's hard to tease apart. I'm not for criminalization of marijuana, but I do have concerns about the widespread acceptance of it being something that's healthy for everyone. We have seen people who are profoundly impaired."

Charles Reznikoff, MD, an addiction medicine physician at Hennepin Healthcare, says the medical cannabis issue is more complicated than most people realize.

"This is a huge, complex deal," he says. "There are some elements of our state's medical cannabis program that have been

MEDICAL CANNABIS AND AUTISM

(continued from previous page)

therapy wasn't immediate but after the family adjusted his dosing over several weeks, he slowly began to show signs of improvement. He was able to get out of bed. His periods of agitation were less frequent and he stopped injuring himself and others.

PHOTO COURTESY OF VICTORIA GRANCARICH

Julian Grancarich was hurting himself and others because of pain he could not communicate.

Best of all, Grancarich was able to teach Julian how to communicate using an iPad. Once Julian learned how to use technology to "speak" with others, he explained to Grancarich that he had been in severe pain. The violent outbursts had been his only way of communicating his distress.

"He was crying out for help," Grancarich says. "No one deserves to feel like he did. My child is remorseful about his actions. Whenever we type and talk about that time, he never talks about what he did to himself. He always says he is sorry for what he did to me."

Grancarich credits medical cannabis with her son's recovery, not only from the self-injuring behavior but from other disorders.

Cannabis manufacturers

There are two manufacturers registered to cultivate, produce and distribute medical cannabis products in Minnesota.

Minnesota Medical Solutions—with Cannabis Patient Centers in Minneapolis, Rochester, Moorhead and Bloomington.

Leafline Labs—with Cannabis Patient Centers in Eagan, St. Cloud, Hibbing and St. Paul.

"It helped his IBS," she says. "He had constipation and cannabis reduces systemic inflammation. He has no more constipation and he hasn't required an enema in two years. His gut pain has improved." Julian's epilepsy and motor tics are better controlled, she says: "We're not seeing grand mal seizures on a regular basis. We're also seeing the motor tics are well managed. The agitation is well managed. His appetite has improved. His communication has improved. He is very rarely aggressive."

Helping others get access

Grancarich was able to get access to medical cannabis for Julian in early 2017 because he had been diagnosed with a seizure disorder, a condition that was already on the state's list of qualifying conditions. Because Julian's response was so positive, Grancarich decided she needed to help other Minnesota families facing autism get access to this medication.

She accelerated her disability rights activism, becoming a vocal advocate for autism to be added to the state's list of qualifying medical conditions for medical cannabis. She filed a petition with the Department of Health in August 2017 asking that autism be added.

Thanks to the work of individuals like Grancarich, autism (along with obstructive sleep apnea) was added to the list of qualifying conditions on July 1, 2018. It felt like a significant achievement, a high-water mark in her ongoing disability rights activism.

Today, Julian takes a dose of cannabis oil orally three times a day. His general health is stable and his communication keeps improving. His mother is grateful. "He calls himself a 'free-thinking genius,'" Grancarich says, with a fond chuckle. Despite all his struggles, Julian is still a kid, and the sense of freedom that his mother says cannabis has given him makes him feel like world is his oyster: "He tells me he wants to save his allowance, buy himself an RV and drive to the Grand Canyon."

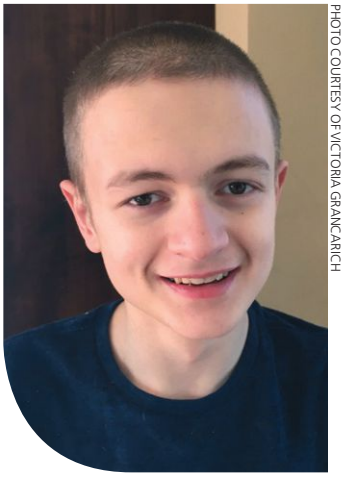

PHOTO COURTESY OF VICTORIA GRANCARICH

His mother his thrilled that he's dreaming about the future: "Not so long ago," she says, "he would have never done that. He felt like he had nothing to look forward to." **MM**

Andy Steiner is a Twin Cities freelance writer

To be certified to use medical cannabis, an individual must:

Have a qualifying condition

Be certified by a physician, physician assistant or advanced practice registered nurse.

Register online, using a link from the Office of Medical Cannabis.

Pay an annual registration fee of $200 ($50 for those on SSI, SSD, Medicaid, MNCare, HIS or CHAMPVA).

Complete a patient self-evaluation report on the online registry.

Go to a Cannabis Patient Center (there are eight in the state) in person (or a parent, legal guardian or caregiver can make the in-person visit).

Be reviewed by a pharmacist at the CPC, who will recommend the dose and type of medical cannabis.

Most insurers do not pay for medical cannabis at this time and the products can be expensive, running to over $200 for some capsules (although there are some discounts for those who receive some kind of medical assistance, active military and veterans and their families). Price depends on the kind of product and the amount of THC and CBD.

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really helpful for people, really life changing. It's hard not to call the program a success when you talk about those situations—but there are also some components that are really concerning."

The components that feel particularly concerning to Reznikoff are with conditions that commonly manifest with psychiatric symptoms. Alzheimer's disease, the latest condition to be added to the state's qualifying condition list (patients with Alzheimer's can be certified by a registered medical provider to receive medical cannabis beginning July 1, 2019), gives Reznikoff pause.

"If you talk to 10 geriatricians, how many are confident that Alzheimer's is a condition that is appropriate for medical cannabis?" he asks. "Where is that support for Alzheimer's being certified coming from? Where is it coming from for PTSD? Most providers I talk to about this are at best wary of the role cannabis will have for PTSD and many feel that other treatments are undermined by its use."

Reznikoff questions how certain conditions made it to the qualifying list. "There likely is pressure on the state," he says. "I say that as a backdrop to discussing how we are choosing to add conditions and which conditions get added. I think the Number 1 point of concern for me is that I fail to see the logic behind some of these conditions' selection. It's been a political process, not a medical one."

But Reznikoff doesn't completely write off medical cannabis or the state's goal of making it available to the people who will best benefit from its use. In his own practice, he's seen patients with some specific conditions respond well to cannabis. He's just not certain it's advisable for everyone.

"A lot of the approved conditions on the state's list are excellent conditions for treatment with medical cannabis," Reznikoff says. "Take HIV with symptoms, cancer with symptoms, multiple sclerosis, seizure disorder … People have clearly benefitted from these medications, including some folks with pain. I don't want to discount that. It's been significant. But some of the qualifying conditions are just confusing. Why did they get added to the list?"

—Andy Steiner

PHOTO BY RICH RYAN PHOTOGRAPHY

Dave Rye and Jim Zimmerman of C4Life believe it's the right time for CBD products.

Ready for **prime time?**

WILL MEDICAL CANNABIS PUSH CBD INTO THE MAINSTREAM?

BY ANDY STEINER

Not so long ago, it would've been hard to believe that Jim Zimmerman would be in the business of selling cannabis. A nationally respected marketing professional with decades of experience as president of the Zimmerman Group, director of new products and business development for Pillsbury and new products manager for General Foods, his expertise was creating and promoting mainstream consumer products for a national audience.

The fact that Zimmerman and his business partner Dave Rye, who earned his chops working in strategic sales, product and business development at Cargill, would get behind a line of high-end products made from CBD oil distilled from hemp is an indicator of mainstream acceptance of the health benefits of cannabis-based products. Their company, C4Life, sells a full range of CBD products online.

About a year ago, intrigued by growing consumer interest in the health benefits of cannabis, Zimmerman and Rye began studying the market.

WILL MEDICAL CANNABIS PUSH CBD INTO THE MAINSTREAM?

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"We always focused on developing new business and new brands," Zimmerman explains. They saw a growing market for products made from CBD, the component of cannabis made from industrial hemp that does not produce any psychoactive effects.

CBD is cannabidiol. Like tetrahydrocannabinol, or THC, it is a natural compound found in plants of the Cannabis genus. But the CBD products on the over-the-counter market in Minnesota are made from extractions from hemp, not marijuana. Although both hemp and marijuana produce CBD and THC, hemp has a relatively low level of THC—which is the main psychoactive component of cannabis and an illegal drug in most countries. Medical cannabis products approved in Minnesota generally have a higher concentration of THC.

"CBD has no psychoactive component to it whatsoever," Zimmerman says. "You will not get a buzz from CBD. What it does have is a tremendous number of health and wellness benefits. They are discovering more every day."

This winter, the 2018 Farm Bill was signed into law and hemp cultivation became legal nationwide, effectively opening the door for a well-funded and promoted national brand. There are already a large number of CBD products available, but the pair felt that there was space in the marketplace for a strong, safety-tested hemp product that mainstream consumers and retailers could trust.

CBD products can include tinctures, roll-on gels and even facial cleansers and serums.

"We started doing a little bit of research on the category," Zimmerman says. "What we learned was that it is pretty much the Wild West, with a lot of small, unsophisticated companies. The major players are sitting on the sidelines until the dust settles."

C4Life is banking on the belief that widespread consumer familiarity with medical cannabis will help push CBD even further into the mainstream. Today, C4Life products are only available online, but Zimmerman says the company is now focusing on making inroads into large retailers like Target, Costco and Kroger.

Tom Huynh, PharmD, the pharmacy manager for Minnesota Medical Solutions, one of the two distributors for medical cannabis in Minnesota, says CBD products sold over-the-counter don't get the same rigorous testing that medical cannabis does, but he thinks they have value.

"Hemp has very little to no concentration of THC in it, but CBD from hemp itself does have some beneficial properties," Huynh says. "It has been known to help with anxiety for many patients. It also has some anti-inflammatory properties. I wouldn't credit those benefits to just a placebo effect."

Huynh says some patients who are certified for medical cannabis are attracted to it because they've already tried CBD products and found them useful. "They say they've been using CBD from a company on the internet or from Colorado and they like the effect it's having on their condition, but now they want to try CBD made from medical cannabis," he says.

"If you do anecdotal research you'll find that almost everybody knows someone that is using medical marijuana for pain, Parkinson's, seizures and getting tremendous results," Zimmerman says. "In Minnesota, it can be prescribed for a number of things. That absolutely paves the way for us. It positions marijuana as something that's not just for stoners. All the negative imagery it had for so many years is fading. This attitude is different from just a year a half ago."

Changing attitudes about cannabis can translate into serious sales. At C4Life, Zimmerman celebrates every time he hears anyone say anything positive about CBD or hemp. This, he believes, can only mean increased profit potential for his company.

"CBD has been getting a lot of very positive press lately," he says. *Nation's Restaurant News* magazine, for instance, named CBD a top food trend for 2019: "Then Whole Foods came out and said they believe hemp-derived products will be one of the top 10 trends for food and body care for 2019," Zimmerman adds. "That sounds like good news to me. It's really catching on." **MM**

Andy Steiner is a Twin Cities freelance writer

CME opportunity

MMA members can earn CME credit online. Go to http://ebiz.mnmed.org/DNN/Default.aspx?TabID=251&productId=8912072 for "Cannabliss or Cannabust?" featuring Tom Arneson, MD, of the Minnesota Department of Health.

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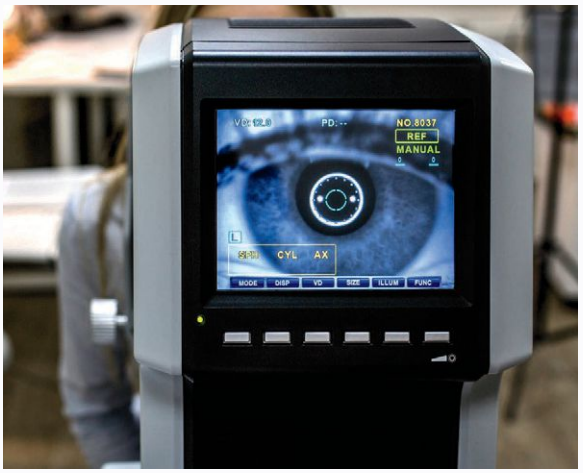

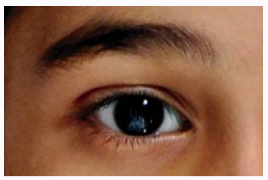

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A wave of white coats at the Capitol

More than 160 physicians and physicians-in-training gathered for MMA's annual Day at the Capitol on February 13 to meet with legislators and discuss MMA's top legislative priorities: preserving patient access to prescription drugs; replacing the provider tax and ensuring stable, ongoing funding for access and safety net programs; reducing the harm of opioids; modernizing the Minnesota Health Records Act; and working to prevent gun violence.

The event was the largest Day at the Capitol in more than 25 years.

Before meeting with legislators, attendees heard comments from Sen. Jim Abeler (R-Anoka), who is carrying the MMA's legislation on the claims expenditure assessment, the provider tax replacement. He said his bill's path will be difficult, noting that the Democrats appear to be intent on repealing the repeal and Republicans are determined to make sure the provider tax sunsets. While the alternative proposal faces a challenging path, he noted that the MMA's proposal may become an important part of end-of-session negotiations as the Legislature approaches the constitutionally mandated end of session on May 21.

Like the MMA, Abeler said he and other legislators support the programs funded by the provider tax, although many disagree with the existing funding mechanism.

He thanked the MMA for developing an alternative plan.

Following Abeler's remarks, physicians and medical trainees met with their individual legislators and then finished the day with a reception at the Commodore Bar & Restaurant in St. Paul. **MM**

Lots of smiles on attendee's faces, including that of Verna Thornton, MD.

ALL PHOTOS BY KATHRYN FORSS

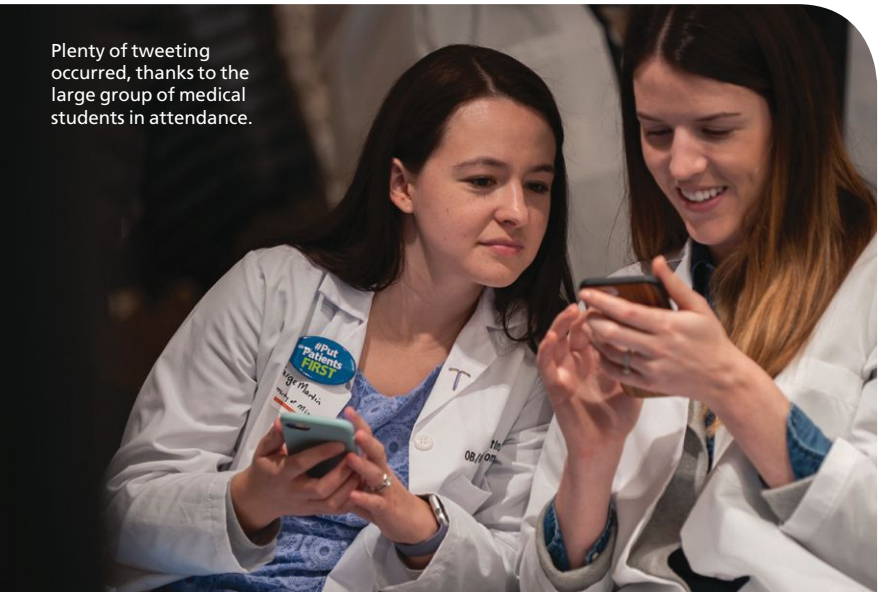
Sen. Jim Abeler discusses his and the MMA's plan to replace the provider tax.

Sen. Carla Nelson meets with Dan Maddox, MD, (left); Courtney Harris, MD; Doug Wood, MD; and Ashok Patel, MD.

Bridget Keller, MD, (left) and Kristin Lyerly, MD, enjoy a spirited conversation.

Joel Greenwald, MD, (left); Caleb Schultz, MD; Jennifer Kuyava, MD; and Jeremy Springer, MD, meet with Sen. Steve Cwodzinski.

Sen. Julie Rosen greets her constituent, Amrit Singh, MBBS.



Plenty of tweeting occurred, thanks to the large group of medical students in attendance.

News Briefs

Sen. Matt Klein, MD, discusses firearm safety legislation.

Engaged crowd gathers to learn about gun violence prevention

Nearly 100 physicians and physicians-in-training gathered in St. Paul in late January to discuss how doctors might better address the gun violence public health crisis.

Panelists—including a University of Minnesota professor and epidemiologist, an emergency department physician and a senator/hospitalist—discussed the lack of gun research that is currently available, how technology could make firearm ownership much safer and the stigma about seeking mental health, among other topics.

In March 2018, the MMA released a statement calling on lawmakers to pass more common-sense laws to address this public health crisis. The discussion on gun violence prevention continued throughout the year, including several policies presented at the 2018 MMA Annual Conference. Each was adopted, eventually, by the MMA Board of Trustees.

In November 2018, the National Rifle Association reacted to a new gun violence study in Annals of Internal Medicine, tweeting that physicians pushing for gun control should "stay in their lane." This led to significant push-back by physicians on social media and to the creation of #ThisIsOurLane and #ThisIsMyLane.

"I've never been more proud of the doctors of the MMA than when they came out with that statement (on common-sense laws)," said panelist Sen. Matt Klein, MD. Klein told the group that he is actively supporting legislation on expanding criminal background checks to include private sales such as at gun shows or online and adopting a "red flag" law that would allow relatives and law enforcement to ask a judge to take firearms away from individuals who are deemed to be a serious threat to others or themselves.

The workshop grew out of this heightened passion for preventing gun violence.

Panelist Marizen Ramirez, MPH, PhD, associate professor, Division of Environmental Health Sciences, School of Public Health, University of Minnesota, made the case that more studies are needed to help with preventive solutions. Until it was altered in 2018, the Dickey Amendment made it difficult for the Centers for Disease Control and Prevention to secure funding to study firearm violence.

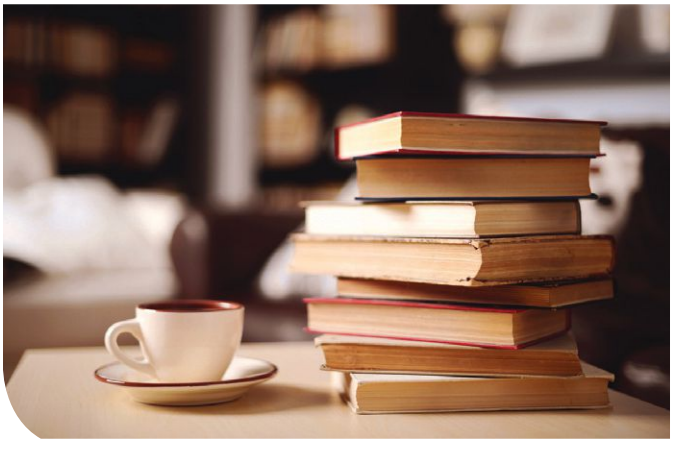
Carolyn McClain, MD, another panelist and MMA board member, echoed Ramirez's call for more research. She also shared gut-wrenching stories she heard at a physician conference in Florida, a state that has been greatly affected by gun violence in recent years.

Attendees at the workshop participated in table discussions on a variety of topics, including: how to discuss gun violence prevention with patients; how to talk to legislators about gun violence prevention; how physicians can prevent gun violence; and myths about gun violence and mental health.

Partners in the workshop included: American College of Obstetricians and Gynecologists; HealthPartners; Minnesota Academy of Family Physicians; Minnesota Chapter, American College of Physicians; Minnesota Medical Association Foundation; Minnesota Psychiatry Society; Twin Cities Medical Society; and Zumbro Valley Medical Society.

On the calendar

Event	Date	Location
Doctor's Lounge	April 25	St. Cloud
Doctor's Lounge	May 9	Rochester
Doctor's Lounge	May 21	Twin Cities
Doctor's Lounge	September 18	Duluth
2019 Annual Conference	September 20-21	Duluth
Doctor's Lounge	October 1	Mankato



MMA forming book club with several author events this year

To celebrate the arts and humanity of medicine, the MMA is organizing a book club for the state's physicians and physicians-in-training.

MMA staff is currently organizing up to four events with authors this year. The events will be held from 7 to 8:30 p.m. on a weeknight in a metro-area location, with podcast-style recordings of the events to be available to those unable to attend.

"We are continually looking for ways to engage current and future members," says Janet Silversmith, MMA CEO. "Recent research has found that reading for pleasure reduces physician burnout by improving empathy and combating depersonalization."

Stay tuned to *MMA News Now*, the MMA's weekly e-newsletter, for future details.

Nominations for MMA officers now open

The MMA is now accepting nominations for 2019-2020 leadership positions for president-elect, trustees and the AMA delegation. A copy of the job descriptions and preferred skills/attributes can be found at: www.mnmed.org/MMA/media/Hidden-Documents/MMA-Leadership-Job-Descriptions-2019.pdf.

Please send any nominations you have to Shari Nelson (snelson@mnmed.org) by May 31.

The MMA Nominating Committee will review nominations and propose a slate of candidates for the member-wide election, which will begin in August and close 30 days later.

Past President Dave Thorson, MD, presents an MMA award to Sally Trippel, MD.

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Nominate a peer for one of MMA's awards

Members are encouraged to nominate their peers, medical students and advocacy champions for one of MMA's four annual awards. Visit the MMA website (www.mnmed.org/about-us/MMA-Awards) to make a nomination by June 28.

Award categories include:

Distinguished Service Award. Given to a physician who has made outstanding contributions in service to the MMA and on behalf of medicine and the physicians of Minnesota during his or her career.

President's Award. Designated for individuals who have made outstanding contributions in service to the goals of the MMA.

Medical Student Leadership Award. Presented to a member of the MMA Medical Student Section who demonstrates outstanding commitment to the medical profession.

James H. Sova Memorial Award for Advocacy. Given to a person who has made a significant contribution to the advancement of public policy, medical sciences, medical education, medical care or the socio-economics of medical practice. Sova was the chief lobbyist for the MMA from 1968 until the time of his death at the AMA meeting in December 1981.

Awards will be given out at this year's Annual Conference, September 20-21 in Duluth.

MN Community Measurement releases study on preventive health services

In early February, MN Community Measurement (MNCM) released a report highlighting quality measures for preventive health services in Minnesota, including information on cancer screening, infectious disease screening and vaccinations for children and adolescents.

The report, "2018 Preventive Health Measures," presents data collected by MNCM in 2018, including an online appendix with comparisons by medical group and clinic.

The report's key findings include:

- *Childhood and Adolescent Immunizations.* Both immunization measures are improving and show statistically significant increases in statewide rates compared to last year. The statewide rate for the Childhood Immunization Status (Combo 10) measure is 60 percent, a 6-percentage-point increase compared to 2017. The statewide rate for the new version of the adolescent immunization measure, now including the HPV vaccine, is 26 percent. The statewide rate improved by 11 percentage points compared to 2017.
- *Colorectal Cancer Screening.* Although there was a decrease in the statewide colorectal cancer screening rate, this was due, at least in part, to changes to the denominator that were made to align with the national measure. The changes removed relevant preventive service codes, reducing the size of the total population included in the measure. The screening measure uses data from clinics, which enables reporting of results by geography, age, gender, race, Hispanic ethnicity, language and country of origin. Screening rates are significantly higher for patients who live in metro areas, are age 60 and older and/or are female. Notably, colorectal cancer screening rates for all populations of color are significantly below the statewide average.
- *Variation in Medical Group Performance.* There is significant variation in medical group performance for all preventive health screening measures analyzed, but several medical groups and clinics are achieving noteworthy results for many of the measures. There were eight primary care or multi-specialty medical groups with rates significantly above the statewide average on at least 50 percent of the preventive health measures for which they were eligible. Seventeen primary care clinics received a top rating on the Colorectal Cancer Screening measure, after adjustment for different patient risk factors.

For more information, visit the MNCM website at www.MNCM.org.

Twin Cities Medical Society and its foundation hands out three awards

Three local physicians were recognized for their outstanding work by the Twin Cities Medical Society (TCMS) and its foundation.

Macaran Baird, MD, received the 2018 Shotwell Award in January. Chris Johnson, MD, chair of the TCMS Foundation, presented the award to Baird at the annual meeting of the Abbott Northwestern Medical Staff. Before he retired in December 2017, Baird served as professor and head of the Department of Family Medicine and Community Health at the University of Minnesota Medical School.

The Shotwell Award is presented annually to a person within the state of Minnesota who has made significant contributions in the field of health care. It was established by Metropolitan Medical Center in 1971 in recognition of the support and dedication of the Shotwell Family. Upon the closing of Metropolitan-Mount Sinai Medical Center in 1991, the West Metro Medical Society/Foundation assumed responsibility for selecting the recipient of the Shotwell Award. Abbott Northwestern Hospital and Medical Staff has generously provided funding for the award since 2003.

Nancy Guttormson, MD, was awarded the 2018 TCMS's First a Physician Award.

The award was established in 2007 by TCMS to recognize a member who selflessly gives of his/her time and energy to improve the health of their patients, has made a positive impact on organized medicine and the medical community's ability to practice medicine and/or has been instrumental in improving the lives of others in the community.

Guttormsom is recognized by her colleagues at Fairview Ridges Hospital as a highly skilled head and neck endocrine surgeon, as well as a breast surgeon. She is also a respected leader and teacher. She is credited with pioneering the thyroid cancer program and helping establish the Breast Center at Fairview Ridges Hospital, as well as a multidisciplinary tumor board.

In mid-January, the Twin Cities Medical Society Foundation (TCMSF) awarded Ann Lowry, MD, a colon and rectal surgeon, and partner at Colon and Rectal Surgery Associates, Ltd., its Charles Bolles Bolles-Rogers Award.

The award is given to a physician who, in the opinion of the members of the TCMSF selection committee, is the outstanding physician of this and other years for his/her contribution to medical research, achievement or leadership.

The award is named after Charles Bolles Bolles-Rogers, who lived in the Minneapolis area for 37 years and was especially interested in the health and hospital needs of the city. He served on the (former) St. Barnabas Hospital Board of Trustees and was president of that board for many years.

Lowry is known for her leadership and surgical excellence within the local, national, and global medical communities. In 1987, she became a partner of Colon and Rectal Surgery Associates, and was named its chief executive officer and president in 2008. Lowry also holds leadership roles at the University of Minnesota, Minnesota Endoscopy Center and Fairview Health System. In 1997, she was named director of the Colon and Rectal Surgery Residency and Fellowship program. She attained the rank of full clinical professor in 2002. Lowry was elected as the first female physician president of the American Society of Colon and Rectal Surgeons in 2005.

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The Doctors' Lounges provide a relaxed setting for networking.

MMA to host six social gatherings for physicians, physicians-in-training in 2019

The MMA will host six Doctors' Lounges throughout the state this year. The free, social gatherings will take place:

- April 25: St. Cloud
- May 9: Rochester
- May 21: Twin Cities
- Sept. 18: Duluth
- Oct. 1: Mankato
- Oct. 24: Edina

Since 2015, the MMA has hosted these free events that feature food and beverages. It's a great opportunity for physicians, residents and medical students to get together casually and network. Significant others and children are welcome, too. It's a celebration of medicine, a thank you to members, and a welcome to new and prospective members. Each Doctors' Lounge will also include an informal discussion on timely topics for the practice of medicine in Minnesota.

Stay tuned to *MMA News Now*, the MMA's weekly e-newsletter, for details as each Doctors' Lounge approaches.

City and county support of T-21 continues to increase

The Duluth City Council voted in late January to raise the minimum age for tobacco sales to 21. The MMA sent a letter to the Council supporting the ordinance, which makes Duluth the 20th city in Minnesota to pass T-21. The other municipalities with T-21 ordinances are: Bloomington, Brooklyn Center, Eden Prairie, Edina, Excelsior, Falcon Heights, Hermantown, Lauderdale, Mendota Heights, Minneapolis, Minnetonka, North Mankato, Plymouth, Richfield, Roseville, Shoreview, St. Louis Park, St. Peter and Waseca. Counties include Beltrami, Pope and Otter Tail.

Minnesota descends in country's health rankings

Minnesotans were less healthy in 2018, according to America's Health Rankings Annual Report, from the United Health Foundation. Minnesota now ranks seventh overall in terms of the healthiest states in the nation. Last year, Minnesota ranked sixth, and fourth in 2016. The report noted Minnesota's strengths as:

- Low cardiovascular death rate.
- Low percentage of uninsured population.
- Low prevalence of frequent mental distress.

The state's challenges included:

- Low immunization coverage among children.
- High prevalence of excessive drinking.
- High incidence of pertussis.

For nearly 30 years, America's Health Rankings has provided an analysis of national health on a state-by-state basis by evaluating a historical and comprehensive set of health, environmental and socioeconomic data to determine national health benchmarks and state rankings. Hawaii received the top ranking for 2018. Massachusetts was second and Connecticut third. Louisiana ranked last.


Janet Silversmith


Dave Renner


Eric Dick


Becca Branum


Doug Wood, MD


Dan Hauser

MMA in Action

In December, MMA CEO **Janet Silversmith**, **Dave Renner**, director of advocacy, **Eric Dick**, manager of state legislative affairs, and **Becca Branum**, policy counsel, met with Minnesota Department of Health (MDH) Commissioner Jan Malcolm and other MDH leadership to discuss MMA's provider tax alternative proposal. They also meet with staff from the Department of Human Services and the Department of Revenue in January to discuss the provider tax alternative proposal.

Silversmith also presented the alternative to the MMGMA Governance Affairs Committee. Renner, Dick and Silversmith discussed the proposal with the MN Council of Health Plans. Renner and Silversmith met with members of Doctors for Health Equity to discuss the provider tax alternative proposal.

MMA President **Doug Wood**, MD, Silversmith, Renner and **Dan Hauser**, director of communications, education and events, met with members of the *Minneapolis Star Tribune* editorial panel to discuss the provider tax alternative proposal in December.

Dick joined the Minnesota Epilepsy Foundation's Professional Advisory Board for its February meeting, where he spoke with the group about the MMA's legislative agenda, including its efforts to protect patients from mid-year formulary changes that risk a patient's health.

Wood served as host at the MMA's Gun Violence Prevention Workshop in January and Day at the Capitol in February.

Scott Wilson, manager of member outreach, made presentations to the Physician Advocacy Network at HealthPartners in Arden Hills and the St. Joseph's Family Medicine Residency Program. He also took part in a Resident/Fellows Section meeting at the Mayo Clinic in Rochester.

The MMA's **George Lohmer, Jon Stensland**, director of Finance & IT and CFO, and Silversmith met in January with leadership from COPIC to kick off its new partnership.

Members of the MMA Executive Committee and Silversmith met in late January with leadership from ICSI (Institute for Clinical Systems Improvement) including recently named president and CEO Claire Neely, MD, to discuss current activities and opportunities for partnership.

Silversmith participated in the MN Alliance for Patient Safety (MAPS) board meeting in January. Silversmith is serving as the MAPS treasurer for 2019.

Silversmith met with MN Community Measurement Leadership in early February to discuss upcoming MNCM projects and legislative issues.

Renner and Silversmith met with Randy Kelly (former St. Paul mayor) and Brian O'Shea from Synergetic Endeavors in early February; they have been retained by "Partnership for America's Health Care Future" to generate public awareness/discussion about "Medicare for All" proposals. The Partnership is a collation that includes AMA, PhRMA, AHIP, BCBS, and others.

Doctors' Lounge

COME JOIN US AT THE

Doctors' Lounge!

6 networking events

Join us for several!

Enjoy networking with your colleagues at a free, casual event for physicians, residents and medical students.
The Doctors' Lounge is designed to thank MMA members, and welcome new and potential members.

These networking events, now in their fifth year, include free food and beverages.

In 2019, the Doctors' Lounge is open from 5 to 7pm on the following dates:

ST. CLOUD
Thursday, April 25

TWIN CITIES
Tuesday, May 21

MANKATO
Tuesday, October 1

ROCHESTER
Thursday, May 9

DULUTH
Wednesday, Sept. 18

EDINA - *NEW!*
Thursday, October 24

VISIT WWW.MNMED.ORG/SOCIALS for more details.

Minnesota Medical Association

VIEWPOINT

Hot topic on a cold night

Douglas Wood, MD
MMA President

Despite extremely cold weather, a large group of passionate physicians and medical students gathered on January 31 to hear Sen. Matt Klein, MD; Carolyn McClain, MD, an emergency physician; and Marizen Ramirez, MPH, PhD, from the School of Public Health at the University of Minnesota, discuss gun violence and how those in medicine can work to prevent it.

We learned about gun violence as a public health crisis and its impact on families and the physicians who care for its victims.

Klein provided helpful insights on how to engage legislators and others in discussing a topic that has many dimensions—emotional, medical, scientific, legal and societal. He encouraged the MMA and other medical organizations, and, indeed, all physicians, to provide energetic leadership in addressing this crisis in Minnesota.

Ramirez's review of current data made it immediately clear that "red flag" laws designed to allow concerned family members to remove guns from a home where someone is at risk of suicide or gun violence would likely have a significant positive impact in reducing deaths related to gunshot wounds. She also helped us understand that further research is needed to better understand causes and facilitating factors of gun violence.

Meeting participants engaged in a robust discussion with the three experts before breaking up into small groups to discuss specific areas of action.

This was a remarkable meeting and reinforced for me some important lessons. First, appropriate research funding, as well as consistent data collection, is essential as we strive to understand the epidemiology of gun violence and the potential impact of specific policy interventions on reducing injuries and deaths related to firearm use. Second, although as physicians we are always data driven, stories of individual patients and experiences can have a more significant and lasting impact on people and legislators. This is truly where one person can make a big difference. Third, when physicians are willing to lead the community in addressing difficult situations, our ability to combine our knowledge, our empathy and our idealism is appreciated by others. It was gratifying to see the *Minneapolis Star Tribune*, in a February 3 editorial, recognize the MMA for its efforts with this meeting.

The MMA staff is distilling the results from this meeting to assist physicians in their communications with patients, legislators and the public. The meeting format is one that has potential for other topics in the future, and plans are underway for a similar meeting in June on a similarly controversial topic (to be announced—stay tuned).

It was my privilege to moderate this symposium on gun violence prevention. Thanks to the MMA and our partners (American College of Obstetricians and Gynecologists; HealthPartners; Minnesota Academy of Family Physicians; Minnesota Chapter, American College of Physicians; Minnesota Medical Association Foundation; Minnesota Psychiatric Society; Twin Cities Medical Society; and Zumbro Valley Medical Society) for hosting a discussion on such an important topic.

When physicians are willing to lead the community in addressing difficult situations, our ability to combine our knowledge, our empathy and our idealism is appreciated by others.

Challenges for younger adults with diabetes

A customized approach is called for

BY ROZALINA G. MCCOY, MD, MS; RENÉE S.M. KIDNEY, PHD, MPH; DANETTE HOLZNAGEL, RN, BSN, PHN, CDE; TINA PETERS, MPH, RN, PHN; AND VIMBAI MADZURA, MA, LGSW

Last spring, the *Star Tribune* shared the story of Alec Smith, a 26-year-old from Minnesota who died from diabetic ketoacidosis due to rationing insulin. Smith, who had just turned 26, lost the health care coverage he had through his parents' health plan and could not afford the costs associated with managing his type 1 diabetes.

Smith's story is both heartbreaking and alarming, prompting consideration of the wide range of challenges faced by young adults living with diabetes amid circumstances and systems that do not support good control. Most stories don't end in death, but the struggle to manage and control diabetes is more common among younger adults and the external factors that complicate management are distinct from those faced by older adults.

A recent study conducted by the Minnesota Department of Health and the University of Minnesota found that hospitalization rates associated with severe hypoglycemia and hyperglycemia, especially ketoacidosis, are three to five times greater for young adults with diabetes (those 18-44 years old) than for their older counterparts. Young adults also were less likely to achieve age-specific hemoglobin A1c (HbA1c) goals, whether they had type 1 or type 2 diabetes. Young adults were also more likely to have depression and to use tobacco, and less likely to see a primary care provider, than older adults. The study was published in *Preventing Chronic Disease*.

Lack of access to health care contributes to poor diabetes management and outcomes. Despite relatively high rates of insurance among young Minnesota adults with diabetes, young adults with diabetes may still experience gaps in insurance coverage that can lead to inadequate HbA1c control and contribute to acute hypoglycemic and hyperglycemic events. Minnesotans 18-34 years old are the least likely to have paid sick time available to them, which can prevent them from seeking and obtaining care needed to manage their diabetes.

These findings are consistent with earlier research in different populations demonstrating high rates of hospitalizations for severe hypoglycemia and hyperglycemia among young adults. Young adults are also more likely to be re-hospitalized for such acute diabetes complications, particularly if their treatment regimen is not evaluated, modified and adjusted to their blood glucose response. This pattern is consistent with poor and progressively worsening glycemic control among young adults with diabetes.

Management challenges for young adults

The MDH study scratches the surface of the issue. It did not study causation, but there are many factors that could be contributing to this pattern.

While 95 percent of adults with diabetes have type 2 diabetes, young adults are more likely to have type 1 diabetes. With type 1 diabetes, blood glucose levels fluctuate rapidly in response to food, physical activity, illness and stress, requiring people with type 1 diabetes to constantly measure their blood glucose levels. This can be extremely taxing, especially when paired with other life challenges.

For example, the MDH study found that hospitalization rates for mental health conditions were the second most common cause of hospitalization among young adults with diabetes. Depression and other mental health conditions may make the complicated management of diabetes more difficult. Depression, anxiety and eating disorders are more common among people with diabetes than the general population and disproportionately affect the young.

Individuals diagnosed with type 2 diabetes at younger ages often have more severe disease than their older counterparts. People diagnosed with diabetes at a younger age are more likely to develop diabetes complications earlier and have more serious or advanced complications. These complications include microvascular disease (retinopathy or vision loss, peripheral or autonomic neuropathy, lower extremity ulceration, nephropathy or kidney disease) and macrovascular disease (cardiovascular, cerebrovascular and peripheral vascular disease).

In addition to barriers such as inadequate access to health care and mental health concerns, young adults face co-occurring life-stage stressors that make

The full CDC report on Diabetes Treatment, Control, and Hospitalization Among Adults 18 to 44 in Minnesota 2013–2015 is available online at https://www.cdc.gov/pcd/issues/2018/18_0255.htm, with the opportunity to earn CME credit.

diabetes self-management increasingly challenging. While managing diet, insulin and medication schedules and monitoring blood glucose, young people with diabetes may be furthering their education, working, caring for a child and maintaining stable housing. These demands can sometimes be at odds with optimal diabetes care.

Four key strategies can help clinicians, pharmacists, clinic staff, educators and public health professionals individualize and improve diabetes care and education for young adults: accurate diagnosis of diabetes type and appropriate management, healthcare delivery that addresses patient needs, whole person approach and behavioral health approaches.

Accurate diagnosis of diabetes type and appropriate management.

Because of differences in the management of type 1 and type 2 diabetes, as well as other less common types of diabetes (such as Maturity Onset Diabetes of the Young, or MODY) it is important to start with an accurate diagnosis of diabetes type and to follow appropriate management protocols.

The American Diabetes Association Standards of Care 2019 is a good place to start. It includes information about classification and diagnosis of diabetes (including prediabetes, gestational diabetes and more). It also highlights treatment considerations and recommendations for type 1, type 2 and less prevalent types of diabetes.

Diagnosis. Classifying diabetes subjectively, based solely on age, can result in misdiagnoses. Take other factors into consideration to ensure the proper treatment plan, including family history, presence of risk factors for type 1 or type 2 diabetes and lab tests as appropriate. "New-Onset Diabetes: How to Tell the Difference Between Type 1 and Type 2 Diabetes," a case study in *Clinical Diabetes*, can be a good resource.

Management. Young adults face several unique challenges that complicate diabetes management. Use patient age as one consideration in establishing glycemic goals, with fasting, bedtime/overnight and/or HbA1c targets. Diagnostic continuous glucose monitors may help in this process. Consider referring to diabetes self-management education and support (DSMES) classes, even if the patient is not newly diagnosed.

Healthcare delivery that addresses patient needs

The Chronic Care Model (CCM) supports high-quality, patient-centered care by addressing common barriers to health care such as fragmentation of care, poor use of information technology, duplication of services and inconsistent and/or uncoordinated delivery of chronic care. CCM includes:

- Delivery system design supporting *proactive* rather than *reactive* care.
- Self-management support, including diabetes self-management education.
- Evidence-based decision support.
- Optimal use of health information technology, e.g. diabetes registries that flag patients as being a young adult or having specific needs.
- Better use and integration of community resources.
- Creation of a culture of quality and patient-centeredness within the health care system.

Since adults with diabetes often have multiple comorbidities and face social, economic and personal barriers to optimal control, patient-centered care needs to be delivered by multi-disciplinary teams. Teams can include endocrinologists, primary care providers (PCPs), nurses, mental health professionals, diabetes educators, dieticians, pharmacists, social workers, care coordinators, community health workers and others.

One way to implement and improve upon these practices is using Minnesota's model of a Patient-Centered Medical Home-Health Care Homes. The model incorporates CCM principles and uses team-based care, with the PCP serving as the primary contact and being entrusted with helping the patient find necessary resources to ensure health. Care coordinators support the PCP by improving coordination and communication between the PCP and the care team and ensuring follow-up after labs, ED visits and care transitions. (Find information about Health Care Homes at http://www.health.state.mn.us/healthreform/homes/index.html.)

Whole person approach

Diabetes care needs to be tailored to the specific and unique needs of young adults with diabetes, with attention paid to diabetes type, life stage, availability of logistical and social support and comorbidities.

Understand patient barriers

- Screen patients for social determinants of health, including food insecurity, difficulty paying for insulin (e.g. rationing, being behind on other bills to pay for insulin, using expired insulin or borrowing insulin), family demands or schedules that preclude optimal testing and/or insulin administration.
- Connect patients to resources or support to address social determinants of health *before* diabetes-related conditions become life-threatening.
- Screen for low health literacy and limited English proficiency. Focused DSMES may work well for patients with limited health literacy.
- Engage patients according to needs/preferences.
- Provide educational/clinical resources in the patient's native language if English proficiency is limited.
- Refer to DSMES that is individualized to the needs of the patient and mindful of each patient's life stage, culture, circumstance and ability. DSMES has been shown to improve diabetes management and health outcomes, both immediate and long-term. Most health plans reimburse for up to 10 hours of education in the first year of diagnosis and up to two hours every year thereafter.
- Consider how texting, telemedicine, eHealth (web) and mHealth (mobile) platforms can help communicate with and engage younger patients, especially those in rural or underserved areas. Integrate these modalities in clinical practice; for example, use a telephone-based program to initiate and titrate insulin.

Broaden your care delivery network

To facilitate engagement in DSMES and to overcome reimbursement barriers, integrate DSMES into primary care practices.

Identify and facilitate engagement of available sources of support including family, friends, colleagues, members of religious or social organizations and/or community organizations. Partnerships may help reach and engage patients who do not routinely seek care.

Behavioral health approaches

Consider the intersection of mental health and diabetes

Diabetes and mental health are interrelated, influencing one another in multiple ways. Emotional well-being is an important part of diabetes care and self-management; symptoms interfering with a person's ability to engage in self-care must be addressed.

Use routine opportunities to assess mental health symptoms and provide referral for follow-up as indicated. Opportunities to assess mental health include: at diabetes diagnosis, during regularly scheduled management visits, and during appointments addressing changes to health.

Use a care coordinator to link to resources. Mental Health Minnesota offers statewide resources; Mental Health Connect serves the Twin Cities metro area; and the Department of Human Services (DHS), in collaboration with many partners, administers mental health services across the continuum.

Consider behavioral health home services

In Minnesota, Behavioral Health Home (BHH) services is a Medical Assistance benefit for eligible individuals with mental illness. BHH services were implemented to address known barriers to health care access, high co-occurrence of chronic health conditions and early mortality more prevalent among this population. BHH services expand upon the concept of a Health Care Home to serve the whole person across primary care, behavioral health and social services components of the health care delivery system. BHH services can be particularly beneficial for supporting individuals living with mental illness and other chronic conditions, including diabetes.

BHH services providers use a multidisciplinary team to facilitate a person-centered, ecological approach to care that considers the wide range of factors that affect each person's health and well-being. This strengths-based approach engages and supports individuals and their families in creating plans that identify and address goals for physical health, mental health, substance use and wellness. Certified BHH service providers provide the following core activities: comprehensive care management, care coordination, health and wellness promotion, comprehensive transitional care, individual and family support and referral to community and social supports. At the close of 2018, there were 25 certified BHH services providers across the state. To find out more about BHH services, how to become a certified BHH services provider, or if there is a certified provider in your area you can partner with, visit the DHS website or email Behavioral.Health.Home.Services@state.mn.us.

Next steps

Each person living with diabetes is unique, facing different challenges. Some challenges are shared by the majority of people living with diabetes, while others affect people at specific stages of life. The health care system can address these challenges through a more nuanced approach to care. A clearer picture of important and potentially preventable gaps in diabetes care quality and outcomes among young adults is emerging.

Data show young people with diabetes are struggling. Taking steps to customize care can help young adults better manage their disease, reduce complications, and improve long-term quality of life. **MM**

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REFERENCES

American Diabetes Association. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes-2019. Diabetes Care 2019 Jan; 42(Supplement 1): S13-S28. https://doi.org/10.2337/dc19-S002.

American Psychologist Special Issue: Diabetes and Psychology. Journal of the American Psychological Association. October 2016, Volume 71, Number 7. http://www.americanpsychologist-digital.org/americanpsychologist/201610?pg=1#pg1.

Bullard KM, Cowie CC, Lessem SE, et al. Prevalence of Diagnosed Diabetes in Adults by Diabetes Type — United States, 2016. MMWR Morb Mortal Wkly Rep 2018;67:359–361. DOI: http://dx.doi.org/10.15585/mmwr.mm6712a2.

deGroot et al. 2016. Psychological Conditions in Adults With Diabetes. American Psychologist 71(7):552-562. http://www.americanpsychologist-digital.org/americanpsychologist/201610?pg=51#pg51.

Iannitto JM et al. Telehealth Insulin Program: Managing Insulin in Primary Care. The Journal for Nurse Practitioners, Volume 10, Issue 8, 567-574. DOI: https://doi.org/10.1016/j.nurpra.2014.07.027.

Khadori R. Type 1 Diabetes Mellitus Treatment & Management. Medscape. 2018 Oct. https://emedicine.medscape.com/article/117739-treatment.

Lipska KJ. Trends in Drug Utilization, Glycemic Control, and Rates of Severe Hypoglycemia 2006-2013. Diabetes Care. 2016 Sep. DOI: https://doi.org/10.2337/dc16-0985.

McCoy RG. Hospital Readmissions among Commercially Insured and Medicare Advantage Beneficiaries with Diabetes and the Impact of Severe Hypoglycemic and Hyperglycemic Events. J Gen Intern Med. 2017 (10): 1097–1105. doi: 10.1007/s11606-017-4095-x.

McCoy RG. Recurrent hospitalizations for severe hypoglycemia and hyperglycemia among U.S. adults with diabetes. J Diabetes Complications. 2018 Jul;32(7):693-701. doi: 10.1016/j.jdiacomp.2018.04.007.

Mental Health. Minnesota Department of Human Services. https://mn.gov/dhs/mental-health/

Mental Health Connect. https://www.mhconnect.org/

Mental Health Minnesota. https://mentalhealthmn.org/

Minnesota Department of Health, Health Economics Program. Minnesota's uninsured in 2017: Rates and Characteristics. 2018. http://www.health.state.mn.us/divs/hpsc/hep/publications/mnha2017unins.pdf.

National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. National Diabetes Statistics Report, 2017. http://diabetes.org/assets/pdfs/basics/cdc-statistics-report-2017.pdf.

Rogers MAM. Interruptions in Private Health Insurance And Outcomes In Adults With Type 1 Diabetes: A Longitudinal Study. Health Affairs. Vol. 37, No.7. 2018 Jul. https://doi.org/10.1377/hlthaff.2018.0204.

Styles E, Kidney RSM, Carlin C, Peterson K. Diabetes Treatment, Control, and Hospitalization Among Adults Aged 18 to 44 in Minnesota, 2013–2015. Prev Chronic Dis 2018;15:180255. DOI: http://dx.doi.org/10.5888/pcd15.180255.

Wagner EH, Austin BT. Improving Chronic Illness Care: Translating Evidence Into Action. Health Affairs. 2001. DOI: https://doi.org/10.1377/hlthaff.20.6.64.

Young-Hyman D. Psychosocial Care for People with Diabetes: A Position Statement of the American Diabetes Association. Diabetes Care 2016; 39:2126–2140. DOI: 10.2337/dc16-2053.

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Obstetrics and gynecology services in Minnesota

BY SABRINA C. BURN, MD; CARRIE SNEAD, MA; LAUREN STARK, MA; JAY SCHULKIN, PHD; AND ANDREA SHIELDS, MD

Delivering quality health care to individuals and maintaining public health requires a well-organized, functioning health care system and access to health care professionals, services, and infrastructure. Of particular interest to women is easy and reliable access to the services of well-educated and trained obstetricians and gynecologists. To gain further insights into current demographics, education, residency training, specialization, practice profile, and recruitment and retention practices of obstetrician-gynecologists, a survey was performed among Minnesota's ACOG members from August to October in 2016. Respondents were working in various practice settings within Minnesota, with 33.7% in suburban areas; 24.4% in urban, non-inner-city areas; 18.5% in urban, inner-city areas; 14.6% in mid-size towns, and 7.3% in rural areas. The majority of respondents were practicing in general obstetrics and gynecology (OB/GYN), were white/Caucasian females with an average age of 47, and had similar education and training, with an average of 15 years of post-residency practice experience. Demographics, education, specialization, and training received by the OB/GYN physicians did not appear to differ greatly between rural, suburban and urban locations, with the exception of maternal fetal medicine specialists, who were more likely to work in urban than suburban and rural areas. Accordingly, the lack of access to specialty care was mentioned as one of the most important barriers for the recruitment and retention of OB/GYN physicians to rural areas. Developing and implementing programs to improve access to OB/GYN specialty care in rural Minnesota may therefore be warranted.

Introduction

Well-educated and trained physicians and specialists, combined with easy access to the corresponding services and infrastructure, are the foundation for delivery of quality health care to individuals and maintainence of public health. Access to physicians, specialists, services, and infrastructure varies greatly, however, within the United States and within individual states. Perhaps the most profound differences can be found between rural and urban locations[1-9]. Understanding the demographics, education, training, specialization, and practice profile, including the hiring and retention practices of physicians, is an important first step in trying to improve on the access and services provided. A survey was conducted among members of The American College of Obstetricians and Gynecologists (ACOG) to investigate current demographics, education, residency training, specialization, and practice profile of OB/GYN physicians practicing in Minnesota. Recruitment and retention practices and advantages and barriers to recruitment and retention were addressed as well.

Design and methods

Participants and procedure

A total of 432 ACOG members practicing in Minnesota were invited to participate in this survey from August 2016 through October 2016. First, each participant received an email providing information about the study and a link providing them anonymous access to a confidential online survey. Participants were asked to submit their online survey within one week of receiving the email in order to avoid receiving reminder emails. Five email reminders were sent to non-respondents. This process resulted in completion of 143 online surveys. ACOG mailed paper versions of the survey to those individuals who had not responded to the online survey. Of the 432 ACOG members contacted initially, eight declined to participate and 12 had retired, leaving 412 potential participants. A total of 211 surveys were collected—143 online and 68 on paper—for a response rate of 51.2%. Of the 143 online surveys, six were excluded from analysis due to lack of completion (90% of the questions unanswered), resulting in a final response rate of 49%.

Measures and analysis

The survey asked questions about demographics, education, residency training, specializations, current practice, partner recruitment, and retention policies. Thirty-six questions were used: six about demographics, seven on partner recruitment, 10 on participants' practice profiles, and 13 about respondents' transition to practice. Data from the surveys was analyzed using IBM SPSS Statistics 24.0, IBM Corp©, Armonk, NY. Chi-squared tests were performed for comparative analyses and ANOVA tests and independent t-tests were used to compare the means of continuous variables. Results were considered statistically significant at $p < 0.05$. For the purpose of data analysis, some responses were combined. For questions regarding recruitment barriers and advantages, "major barrier" and "minor barrier" were combined into the response "barrier," while "major advantage" and "minor advantage" were combined and considered an "advantage." In addition, in order to analyze the continuous variable of "number of call shifts" answers that were written as ranges were recoded as averages

(i.e. "3-4" became 3.5). The final question on the survey was also recoded due to the discrepancies between the online and paper versions of the survey. The online survey asked respondents to rank the top three choices from a list, while paper respondents were simply asked to check the boxes for the top three. In order to analyze this data together, the online responses were recoded as either "checked" or "unchecked" instead of ranked responses.

Results

Demographics

Respondents were asked a series of demographic questions regarding age, gender, and race, to better define the participant population.The majority of respondents were female (75.6%), and the average age was 47.03 years, with a standard deviation of 10.59 years. Participants had been practicing for an average of 15 years post-residency, with a standard deviation of 10.53 years. Female respondents were significantly younger on average than male respondents (female mean age=44.45 ± 9.56 years; male mean age=55.04 ± 9.64 years; t=6.79, p-value=0.000) and therefore were also found to have fewer years of practice post-residency (female mean years of practice = 12.24 ± 9.1; male mean years of practice =23.38 ± 9.9; t=6.91, p-value=0.000). The majority of participants, 88.3%, identified with the racial/ethnic group labeled white/Caucasian. Only a small percentage of respondents identified themselves as Asian (5.9%), black or African American (3.9%), American Indian or Alaska Native (2.4%), or Hispanic or Latino (1.5%), while none of the participants identified as Native Hawaiian or Other Pacific Islander. The majority of respondents (82.9%) reported practicing general obstetrics and gynecology, while 17.5% had additional training in related fields. Respondents with additional training in Maternal Fetal Medicine made up 5.4% of the sample; 3.4% had additional training in gynecologic oncology; those with training in female pelvic medicine and reconstructive surgery made up 2.4%; and 2% had training in reproductive endocrinology and infertility. In addition, 3.9% reported having additional training in other specialties, including minimally invasive gynecological services, pediatric and adolescent gynecology, genetics, internal medicine, and OB/GYN ultrasound.

TABLE 1

Differences between urban, suburban, and rural practices

VARIABLE	PRACTICE LOCATION			CHI-SQUARE	P-VALUE
	URBAN (%)	SUBURBAN (%)	RURAL (%)		
Practice type				49.201	0.000
Solo	1.10	1.40	0.00		
Group	46.60	85.50	51.10		
Hospital	23.90	8.70	46.70		
Other	28.40	4.30	2.20		
Primary specialty				21.376	0.000
General Obstetrics & Gynecology	70.50	92.80	93.30		
Obstetrics only	17.00	0.00	4.40		
Gynecology only	12.50	7.20	2.20		
Maternal Fetal Medicine	15.90	0.00	3.30	11.672	0.009
Cost of living				35.445	0.000
Low	3.40	0.00	15.60		
Medium	52.30	66.70	82.20		
High	44.30	33.30	2.20		
Working with nurse midwives				18.110	0.000
Never/Rarely	30.60	44.90	70.70		
Sometimes/Always	69.40	55.10	29.30		
Working with doulas				9.718	0.008
Never/Rarely	58.30	75.00	83.30		
Sometimes/Always	41.70	25.0	16.70		
Attend OB deliveries	74.7	89.7	93.0	9.752	0.008
Actively recruiting	24.10	54.70	44.70	11.190	0.004
Barriers to recruitment					
Limited social/marital options	26.20	14.50	69.40	32.317	0.000
Lack of specialty care access	4.90	9.10	38.90	24.949	0.000
Reasons for Leaving					
Lack of specialty care access	4.60	11.10	29.70	14.522	0.001

Transition to practice

The survey asked participants about their residency training and current practice. The majority of the sample were trained in either an urban, inner-city area, (52.7%) or an urban, non-inner-city area (33.7%). Most respondents said their residency training was through an academic program (75.1%) as opposed to a community program (22%). The majority of respondents, 93.2%, said they felt prepared for practice after graduation from residency, with 44.9% considering transitioning to management of a busy clinic as the steepest learning curve after graduation. Other areas identified as the steepest learning curve included performance of procedures (27.8%), networking in the community (5.9%), and performing deliveries (1%).

Current and past practices were evaluated with questions about procedure numbers. A total of 61.3% of respondents reported performing 31 or more operative deliveries during their residencies and

62.4% performed 250 or more caesarean sections. The majority of the sample (59%) performed 50 or fewer cesarean sections each year in their current practices. For the 81.5% of physicians who attend OB deliveries in their current practices, 73.9% perform more than 80 deliveries each year. About half (45.2%) of physicians who attend OB deliveries perform less than 10 operative deliveries (VAVD/forceps) each year, while the other half (45.2%) perform between 11 and 20 each year. Data analysis showed that respondents who reported not attending OB deliveries had a higher mean age (52.06 years versus 46.47 years; F=7.79, p=0.006). Physicians were also more likely to attend OB deliveries in rural locations (χ^2=9.898, p=0.042). Physicians working in a Health Professional Shortage Area (HPSA) also reported the number of deliveries per year were less than those not working in a HPSA (χ^2=28.694, p=0.004), while the number of OB deliveries per year in suburban areas was higher than those in urban or rural areas (χ^2=56.651, p<0.001).

Respondents were also asked about situations in which they transfer pregnant patients to a larger area hospital. For those who answered this question (excluding those who reported that they either never transfer or don't work with pregnant patients), the most common response to this question was need for a higher level NICU (76.7%). Other responses seen included: transfer for management of high-risk patients (13.0%), and for management of postpartum hemorrhage or need to access a blood bank (2.7%). Physicians were less likely to transfer pregnant patients to a larger area hospital for patients that have a need for a higher level NICU when living in an urban, inner-city area than in any other practice area (χ^2=20.035, p<0.001), but more likely to transfer for this reason when their primary specialty was general obstetrics and gynecology, as opposed to working exclusively in either obstetrics or gynecology (χ^2=20.780, p<0.001).

Practice profile

Most respondents said they were currently practicing in either a multi-specialty group (36.1%), an OB/GYN partnership group (24.4%), or a hospital or clinic (23.4%). When excluding outlying responses above 100, the average number of partners within these groups was 10.2 ± 8.68. Respondents were practicing in various locations around Minnesota, with 33.7% in suburban areas; 24.4% in urban, non-inner-city areas; 18.5% in urban, inner-city areas; 14.6% in mid-size towns; and 7.3% in rural areas. Respondents also were asked whether they work in a HPSA. Most of the respondents (76.6%) stated that they did not work in an HPSA, 13.2% were unsure, and 8.8% reported working in an HPSA. Respondents were found to be more likely to work in a hospital or clinic, as opposed to having a solo private practice or working in a partnership or group setting, if they also worked in an area that was considered an HPSA (χ^2=23.595, p=0.023), or in a rural area (χ^2=77.090, p<0.001). Those who worked in a rural area were less likely to exclusively practice either obstetrics or gynecology; they worked in general obstetrics and gynecology (χ^2=23.776, p=0.002). Maternal Fetal Medicine specialists were more likely to work in urban areas than rural areas (χ^2=13.413, p=0.009), however, physicians with other subspecialties did not differ in practice location. More information about differences between urban, suburban, and rural practice locations is summarized in Table 1.

TABLE 2

Advantages and barriers to recruitment and retention

CHARACTERISTIC	ADVANTAGE (%)	NEITHER (%)	BARRIER (%)
Reimbursement	22.6	39.9	27.4
Quality Schools	67.3	19.6	4.2
Limited social/marital options	13.1	48.8	29.2
Work load	19.6	39.9	33.9
Malpractice risk	32.1	48.8	10.1
Lack of specialty care access	22.6	54.8	13.7
Living space	62.5	25.6	1.2
Patient population	53.0	32.7	6.5
Cost of living	43.5	41.7	6.0
Non-white OB/GYN recruit	8.9	66.7	14.3
Female OB/GYN recruit	32.1	55.4	2.4
Male OB/GYN recruit	6.0	63.1	20.8
Single OB/GYN recruit	6.0	72.6	10.1
Married OB/GYN recruit	12.5	72.6	2.4
OB/GYN recruit with a family	18.5	67.9	1.8
Family medicine doctor with OB training	5.4	36.9	38.1

The majority of the sample (77.1%) indicated that they work full-time, with most working between 31 and 60 hours a week in clinic. Men were less likely to work part-time than women (χ^2=9.63, p=0.002). Those who worked more than 30 hours each week were younger than those who worked less than 30 hours a week (F=4.6, p=0.001). Of the respondents taking call shifts, 35.1% take only at-home calls, while 30.7% take calls both at-home and in-house. The average number of in-house call shifts per month was 5.3 ± 5.07 (range = 1-30), and the average number of at-home call shifts per month was 6.32 ± 5.03 (range = 0.5-30). Of the 7.8% of respondents who did not take any call shifts in their practice, 81.2% were over the age of 50 (F=7.24, p<0.001). The survey also asked respondents about different providers of women's health care that respondents work with, namely nurse practitioners, midwives, and doulas. Of the respondents, 81.9% stated that they "always" or "sometimes" work with nurse practitioners, while 65.8% stated they either "never" or "rarely" work with doulas.

The amount of time physicians worked with nurse midwives, however, was split between "always" (35.1%) and "never" (33.2%). Respondents were asked to specify if they worked with any other providers of women's healthcare, and 7.8% stated that they "sometimes" or "always" work with physician's assistants in their practice. Those practicing in mid-sized towns or rural areas were less likely to work with nurse midwives than those working in urban or suburban areas (χ^2=31.628; p=0.002). When combining "mid-sized town" and "rural," these providers were less likely to work with doulas than those working in urban or suburban areas as well (χ^2=13.916, p=0.031).

Partner recruitment and retention

Some 82% of survey participants are involved in the decisions to recruit or hire new partners; 72% of them have recruited in the last five years—and 53% said that they were actively recruiting a partner when the survey was taken. The proportion of physicians who were actively recruiting was largest in suburban and rural areas (χ^2=13.114, p=0.011). When asked whether respondents would hire part-time doctors, 51.2% said they would, while 45.2% would not. A total of 75% of respondents agreed that they would hire non-MD/DO providers of women's health care, while 22% preferred not to hire such healthcare professionals. Respondents were also more likely to be willing to hire part-time employees if they worked in a HPSA (χ^2=9.52, p=0.009).

Advantages and barriers to recruitment and retention are outlined in Table 2. The three most common responses regarding recruitment advantages were quality schools (67.3%), living space (62.5%), and patient population (53%). The three most common responses regarding recruitment barriers were family medicine doctor with OB training (38.1%), work load (33.9%), and limited social and/or marital options (29.2%). The majority of the recruitment factors given on the survey were said to be neither an advantage nor a disadvantage. The only significant relationship between responses from different demographic groups and recruitment was that respondents who said malpractice risk was a major barrier to recruitment had significantly fewer years of practice (F=3.119, p=0.017). However, practice location did have a relationship with a few of the recruitment categories. For instance, a greater proportion of respondents working in a HPSA viewed reimbursement as a barrier than those who were not working in a HPSA (χ^2=16.103, p=0.003). Respondents working in a mid-sized town or rural area were more likely to see limited social/marital options (χ^2=37.473, p<0.001) and lack of specialty care access (χ^2=30.43, p<0.001), as barriers than any other group, but less likely to view malpractice risk as a barrier (χ^2=15.7, p=0.047).

When it comes to barriers to recruitment and the reasons for leaving a position, there are big differences between locations (Table 1). Lack of access to specialty care was mentioned 7.9 times more as a barrier to recruitment when rural locations were compared to urban locations. Similarly, lack of access to specialty care was mentioned 6.5 times more as a reason for leaving when rural locations were compared to urban locations.

When hiring a new colleague or partner, respondents said, they look for experience (55.4%), quality of applicant's residency program (42.3%), availability (31.5%), and specialized skills (27.2%). Additional factors included an applicant's personality or ability to fit in with the team (8.9%). The most common reasons for leaving a practice, respondents said, were workload (57%), reimbursement (37.6%), and limited social/marital options (24.4%). In rural areas, respondents were more likely to say that partners would leave the practice because of limited social and/or marital options (χ^2=20.904, p<0.001).

Discussion

The current survey was designed to investigate and gain further insights into the current demographics, education, training, practice profile, and recruitment and retention practices of obstetrician and gynecologists in Minnesota. Results demonstrate that demographics, education, and training of OB/GYN physicians did not appear to differ greatly within Minnesota. In particular, no major differences were identified between urban, suburban and rural locations. The one exception, although not unexpected, was the finding that Maternal Fetal Medicine specialists were more likely to work in urban than in rural areas. This finding is of interest since access to specialty care was mentioned as one of the most important barriers for the recruitment and retention of OB/GYN physicians in rural areas.

Obstetrician-gynecologists in rural locations, in contrast to urban and suburban locations, were more likely to work in a hospital or clinic rather than in a private practice or multi-specialty partnership group. This indicates that OB/GYN physicians in rural areas are often the sole providers and cannot rely on the support of multiple partners and specialists to provide optimal OB/GYN care. In addition, this may explain our finding that providers in rural Minnesota were more likely to transfer patients to larger suburban and urban hospitals due to obstetrical complications, such as prematurity or management of complex maternal conditions during pregnancy. Taken together, this indicates that although women in rural areas may have access to general OB/GYN services, they must often seek subspecialty OB/GYN care in more heavily populated centers or urban areas.

Suburban and rural practices and hospitals were more often involved in actively recruiting OB/GYN partners than those in urban centers. This is consistent with previous studies that have shown and discussed the difficulties of recruiting and retaining physicians to rural areas (10). Most intriguing, however, is the finding that the lack of access to specialty care is one of the most important barriers for the recruitment and retention of OB/GYN physicians to rural areas. This, together with the finding that women in rural areas must often seek specialty care in urban areas, suggests that developing and implementing programs to improve access to OB/GYN specialty care may be warranted. **MM**

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REFERENCES

1 Atherly A, Kralewski J, Johnson C, Brasure M. Developing rural primary health care service areas: an analysis of patient migration patterns. Health care management review. 2003; 28(2):189-97.

2 Lee DM, Nichols T. Physician recruitment and retention in rural and underserved areas. International journal of health care quality assurance. 2014; 27(7): 642-52.

3 Grzybowski S, Stoll K, Kornelsen J. Distance matters: a population based study examining access to maternity services for rural women. BMC health services research. 2011; 11(1):147.

4 Syed ST, Gerber BS, Sharp LK. Traveling towards disease: transportation barriers to health care access. Journal of community health. 2013; 38(5):976-93.

5 Ormond BA, Zuckerman S, Lhila A. Rural/urban differences in health care are not uniform across states. Washington, DC: Urban Institute; 2000 May 1.

6 Maron DF. Maternal Health Care Is Disappearing in Rural America. Scientific American. https://www.scientificamerican.com/article/maternal-health-care-is-disappearing-in-rural-america/. Published February 14, 2017. Accessed April 26, 2017.

7 Health disparities in rural women. Committee Opinion No. 586. American College of Obstetricians and Gynecologists. Obstet Gynecol. 2014; 123:384-8.

8 Kozhimannil KB, Hung P, Prasad S, Casey M, McClellan-Trick M, Moscovice IS. Birth Volume and the Quality of Obstetric Care in Rural Hospitals. The Journal of Rural Health (2014):335-343.

9 Hung P, Kozhimannil KB, Casey MM, Henning-Smith C, Prasad S. State Variations in the Rural Obstetric Workforce. Hospitals. 2016; 125:51.

10 Kozhimannil KB, Casey MM, Hung P, Han X, Prasad S, Moscovice IS. The rural obstetric workforce in US hospitals: challenges and opportunities. The Journal of Rural Health. 2015; 31(4):365-72.

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The prevalence of celiac disease in patients with fibromyalgia

BY TIMOTHY J. MCKENNA, MD; BRADLEY R. SALONEN, MD; CONNIE A. LUEDTKE, RN, RN-BC; MARY M. VOLCHECK, RN; SHIRLEY M. JOHNSON, RN; LORI A. MEATH, RN; LORETTA M. OLIPHANT, RN; BREE E. CLARK, RN; DAVID RASLAU, MD, MPH; STEPHANIE CLARK, CVT, PHD; AND ARYA B. MOHABBAT, MD

The prevalence of celiac disease in the general population is around 1%. However, based on our current study, the prevalence of celiac disease in the fibromyalgia population is 3%. Individuals with celiac disease frequently present with symptoms similar to fibromyalgia, suggesting a link between the two.

This study aims to better delineate the concomitant prevalence rate of celiac disease in our fibromyalgia cohort and to determine if concomitant screening should be undertaken.

Given the overlapping clinical features, differing treatment paradigms, and the previously reported potential improvement of symptoms with a gluten-free diet, patients with fibromyalgia should also be screened for celiac disease.

This study was a retrospective chart review. The prevalence of celiac disease was computed. A two-sided chi-square test was used to determine significance. All patients evaluated from November 22, 2014, through December 31, 2015, at our tertiary referral fibromyalgia clinic were considered for the study. Patients with a validated diagnosis of fibromyalgia were then assessed for celiac disease.

Of 1,133 charts reviewed, 955 met the diagnostic criteria for fibromyalgia; 542 of these patients had information regarding celiac disease. Of these, 16 patients were found to have celiac disease. Therefore, the prevalence of celiac disease in our fibromyalgia cohort was 3% (16/542) ($p < 0.001$).

In patients presenting with fibromyalgia, screening for celiac disease should be performed due to the three-fold increase in the comorbid prevalence rate of celiac disease in our fibromyalgia cohort than that reported for the general population.

Fibromyalgia is a common centralized pain-sensitivity syndrome characterized by chronic widespread musculoskeletal pain, fatigue, and sleep disturbance that affects up to 8% of the population.[1] Studies have shown that gastrointestinal (GI) symptoms are common in this population, with as many as 73% of individuals reporting GI symptoms, with food sensitivities increasing.[2,3] In one study, 30% of fibromyalgia patients reported the need to modify their diets, while 7% reported having been diagnosed with a food allergy or intolerance.[4] Fibromyalgia is associated with substantial morbidity and cost. The annual, mean health care costs are three to four times higher in individuals with fibromyalgia.[5,6] Indirect societal costs from lost wages and disability have been estimated to be a staggering 12 times higher in patients with fibromyalgia.[5]

Celiac disease is an autoimmune disease characterized by small bowel inflammation that leads to the loss of normal villous architecture due to antibody formation in response to gluten ingestion. The prevalence of celiac disease in the general population is around 1%.[7,8] Celiac disease has gained increased attention in recent years because individuals frequently present with extra-intestinal symptoms, such as myalgia, arthralgia, fatigue, and psychological symptoms, which are similar to fibromyalgia symptoms.[9] These shared symptoms suggest a possible link—specifically gluten—between fibromyalgia and celiac disease. Several studies[2,3,9,10] support this potential link. In a nationwide survey of individuals with celiac disease, 9% reported being diagnosed with fibromyalgia before being diagnosed with celiac disease.[9] In a study of 90 patients with fibromyalgia, one patient had celiac disease, which is a slightly higher prevalence than in the general population.[10] Moreover, studies[11,12] observed substantial clinical improvements in fibromyalgia symptoms when patients adhered to a gluten-free diet, which further suggests a link between fibromyalgia and gluten. Despite this potential link, the treatments for these two conditions differ significantly. The multimodal treatment approach of fibromyalgia primarily focuses on symptom management with medications and non-medication treatment strategies. In contrast, celiac disease can be effectively treated with a strict gluten-free diet.

Given the possible overlap between fibromyalgia and celiac disease and the inherent differences in treatment approaches, determining the correct diagnosis and possibly a concomitant diagnosis are imperative for patient care. In order to determine the need for concomitant screening, the

TABLE 1

Demographic characteristics of fibromyalgia patients (n = 955)

CHARACTERISTICS	VALUES
Sex (female), %	83.3
Tobacco use, %	14.8
Benzodiazepine use, %	29.9
Opioid use, %	31.4
Employed, %	49.9
Widespread Pain Index score, mean (SD)	11.90 (4.09)
Symptom Severity Scale score, mean (SD)	8.48 (2.10)
Tender point count, mean (SD)	14.06 (4.52)
PHQ-9[a] depression score, mean (SD)	11.71 (5.87)
GAD-7[b] anxiety score, mean (SD)	8.35 (6.00)

[a]PHQ-9, Patient Health Questionnaire-9; [b]Generalized Anxiety Disorder-7.

prevalence of celiac disease in patients with fibromyalgia needs to be more clearly defined.[13] In this study, the goal was to better delineate the prevalence rate of celiac disease in patients with fibromyalgia in our tertiary academic referral center.

Methods

Retrospective description and patient selection

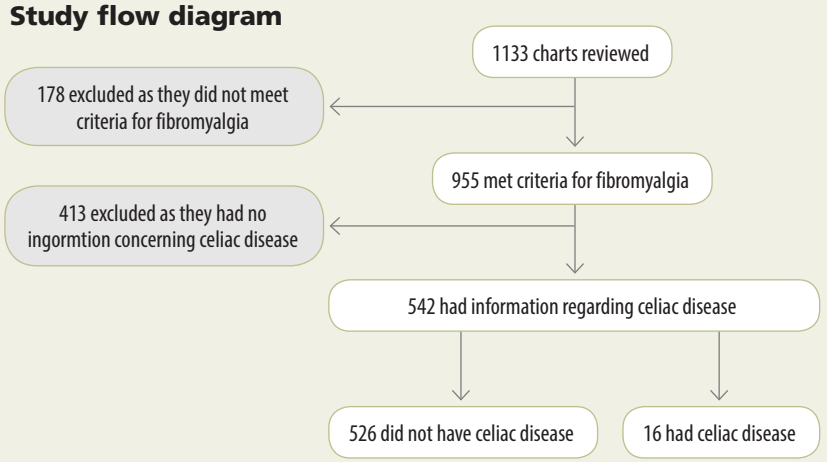
This study was designed as a retrospective chart review. The Mayo Clinic Institutional Review Board approved the study and waived the requirement for informed consent. A database was compiled from electronic health records (EHRs) of all patients who were evaluated at the Mayo Clinic Fibromyalgia and Chronic Fatigue Clinic (FCFC) from November 22, 2014, through December 31, 2015. An in-depth medical record review was performed. The patients' EHRs were first assessed for the presence of a validated diagnosis of fibromyalgia, which had to be given by a physician or nurse practitioner in the FCFC via the 1990 and/or 2010 American College of Rheumatology Fibromyalgia Classification Criteria.[14,15] Patients not meeting the formal diagnostic criteria for fibromyalgia were excluded from the study.

Patients who met the diagnostic criteria for fibromyalgia then had to have been assessed for the presence of celiac disease by a small bowel biopsy, our institution's celiac disease serology cascade, or the presence of the diagnosis provided by an outside institution. Patients were considered to have celiac disease if they had pathologic findings of small bowel biopsy that were consistent with celiac disease, if our institution's celiac disease serology cascade was positive, or if the diagnosis from an outside institution had corresponding clinical features. If there was no information concerning celiac disease in the EHR, the patient was excluded. Our institution's celiac disease serology cascade algorithm is shown in Figure 2.

Patient records were also assessed for age, sex, smoking status, employment status, current opioid use, current benzodiazepine use, fibromyalgia-specific clinical scores (Symptom Severity Score, Widespread Pain Index, and tender point count), Patient Health Questionnaire (PHQ)-9 depression score, Generalized Anxiety Disorder (GAD)-7 score, presence of GI symptoms, and various laboratory studies including, hemoglobin, erythrocyte sedimentation rate, 25-hydroxy vitamin D, thyroid stimulating hormone, cortisol, C-reactive protein, and antinuclear antibody.

FIGURE 1

Study flow diagram



Statistical analysis

The prevalence of celiac disease was computed using a ratio of the total number of fibromyalgia patients with confirmed celiac disease as the numerator and the total number of fibromyalgia patients who had been assessed for celiac disease as the denominator. A two-sided chi-square test was used to determine statistical significance.

TABLE 2

Gastrointestinal symptoms in patients with fibromyalgia

SYMPTOM	PERCENTAGE (N = 955)
Any symptom below	91.0
Pain or cramps in the lower abdomen	53.2
Heartburn	41.8
Nausea	52.7
Loss of appetite	35.9
Bowel cramps	43.4
Frequent loose stools	41.3
Constipation	51.1
Food sensitivities	52.6

Results

We reviewed EHRs for 1,133 patients (Fig. 1). Detailed results regarding demographics, fibromyalgia-specific clinical scores, depression and anxiety scores, presence of various GI symptoms, and the results of numerous laboratory studies are shown in Tables 1 to 3. Of these 1,133 patients, 955 met the diagnostic criteria for fibromyalgia. Of these, 542 had been assessed (had information available) for celiac disease from pathologic findings of a small bowel biopsy, results from our institutional celiac disease serology cascade, or an outside institution with corresponding clinical features. Of these, 16 patients were found to have celiac disease. Therefore, the calculated concomitant prevalence (16/542) of celiac disease in our fibromyalgia cohort was 3% ($p < 0.001$).

Discussion

The prevalence of celiac disease in our fibromyalgia cohort was 3%, which represents a three-fold increase in the prevalence of celiac disease compared to that seen in the general population.[7,8] To our knowledge, this is the first study to show an increased prevalence of celiac disease in individuals with concomitant fibromyalgia.

GI symptoms were very common in our study. In total, 91% of our patients reported GI symptoms; this is a substantially higher percentage than that reported in a previous study aimed at describing the prevalence of GI symptoms, specifically in relation to irritable bowel syndrome in patients with fibromyalgia.[2] In contrast, we assessed several additional GI symptoms, including food sensitivities, constipation, frequent loose stools, bowel cramps, loss

of appetite, nausea, and heartburn. In our cohort, 52.7% reported nausea, 41.3% reported frequent loose stools, and 51.1% reported constipation, which exceeded the respective 21%, 9%, and 12% reported by Triadafilopoulos et al.[2] Given these differences, GI symptoms are likely more common in the fibromyalgia population than previously documented in the medical literature.

Currently, the World Gastroenterology Organization Global Guidelines on Celiac Disease[16] recommend considering the possibility of celiac disease in individuals with a variety of symptoms, even if they appear to be asymptomatic from a GI perspective. Given the increased prevalence of celiac disease in patients with fibromyalgia, as observed in the current study, it is suggested that screening for celiac disease, specifically serological tests[17], should be done in this patient population.

Although fibromyalgia and celiac disease may coexist, the treatment of these two conditions differs greatly. Despite the differing treatment modalities, which Rodrigo et al.[11] noted, substantial extra-

TABLE 3

Laboratory results in fibromyalgia-specific patients

LABORATORY TEST	RESULT, MEAN (SD)
Hemoglobin	13.49 (1.28)
Erythrocyte sedimentation rate	10.62 (9.77)
25-hydroxy vitamin D	37.0 (15.9)
Thyroid stimulating hormone	2.53 (3.26)
Cortisol	10.47 (4.84)
C-reactive protein	5.44 (6.02)
Antinuclear antibody	0.62 (1.18)

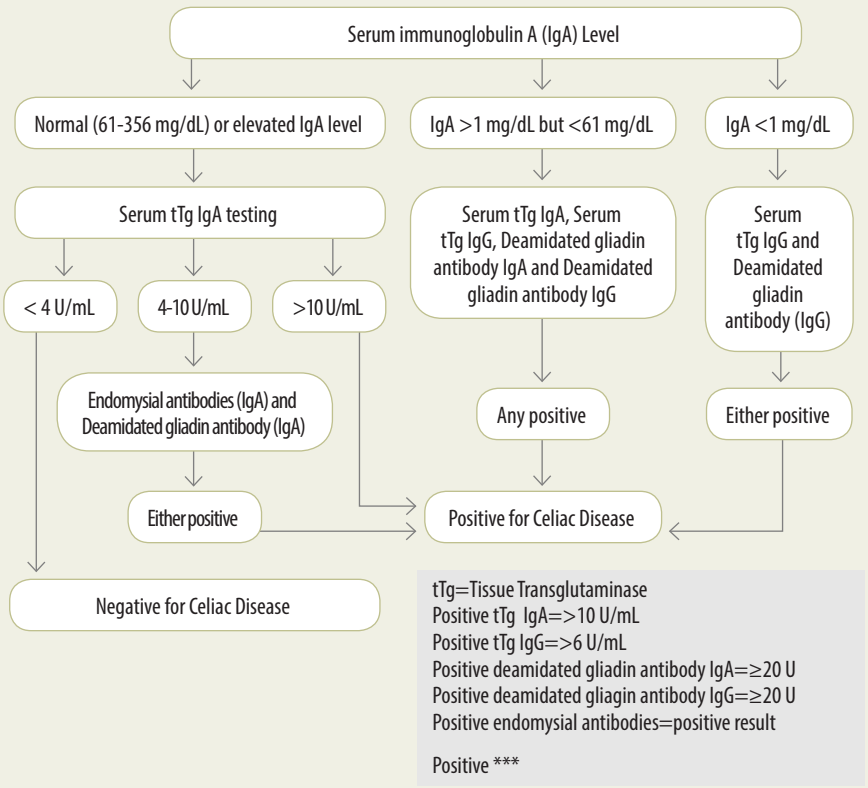
intestinal improvements were seen when seven patients with fibromyalgia adhered to a gluten-free diet. These results suggested that if the autoimmune inflammatory process is better controlled, then the underlying central sensitization associated with fibromyalgia may also improve. In addition, patients with non-celiac gluten sensitivity have similar symptoms to those with celiac disease. In contrast to celiac disease, non-celiac gluten sensitivity is thought to be mediated by the innate immune system; thus, serologic markers are normal. The prevalence of non-celiac gluten sensitivity is largely unknown, but it has been noted that 1.1% of patients without celiac disease consume a gluten-free diet.[18] In comparison, in another study, the frequency of non-celiac gluten sensitivity was shown to be about 30% in patients with irritable bowel syndrome.[19] If the prevalence of non-celiac gluten sensitivity similarly increases in the fibromyalgia population, it may be that a considerable portion of fibromyalgia patients could potentially benefit from a gluten-free diet.

Limitations of our study include the use of serologic tests primarily to diagnose celiac disease in our cohort. According to a systematic review, the sensitivity of tTg antibodies is 93% with specificity over 99%.[17] However, the reference criterion remains an upper endoscopy with biopsy of the duodenum, interpreted by a trained pathologist. Therefore, the use of serologic tests may have underestimated or overestimated the true prevalence of celiac disease in our fibromyalgia cohort. Furthermore, our patient population is unique because all were seen in a specialized fibromyalgia clinic at a tertiary care center, which likely resulted in a group of individuals with more severe fibromyalgia symptoms (Table 1). Whether the severity of symptoms in this cohort influenced the prevalence of celiac disease compared with that in the overall fibromyalgia population is unclear.

This study was retrospective and was not designed to prospectively study the relationship between fibromyalgia symptoms and celiac disease or gluten ingestion. It is unknown if patients with a dual diagnosis of fibromyalgia and celiac disease have more severe symptoms than fibromyalgia patients without celiac disease. Also unknown is the extent of improvement fibromyalgia patients with celiac disease experience with a gluten-free diet. These are all topics that warrant additional investigation.

FIGURE 2

Celiac disease serology cascade



Recommendation

The concomitant prevalence of celiac disease in our fibromyalgia cohort was 3%, representing a three-fold higher rate

than that of the general population. Given the overlapping clinical features, differing treatment paradigms, and the previously reported potential improvement of symptoms with a gluten-free diet, patients with fibromyalgia should also be screened for celiac disease. **MM**

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REFERENCES

1 Clauw DJ. Fibromyalgia: A clinical review. J Am Med Assoc. 2014;311(15):1547-55.

2 Triadafilopoulos G, Simms RW, Goldenberg DL. Bowel dysfunction in fibromyalgia syndrome. Dig Dis Sci. 1991;36(1):59-64.

3 Slim M, Calandre EP, Rico-Villademoros F. An insight into the gastrointestinal component of fibromyalgia: clinical manifestations and potential underlying mechanisms. Rheumatol Int. 2015;35(3):433-44.

4 Arranz LI, Canela MA, Rafecas M. Dietary aspects in fibromyalgia patients: results of a survey on food awareness, allergies, and nutritional supplementation. Rheumatol Int. 2012;32(9):2615-21.

5 Rivera J, Rejas-Gutierrez J, Vallejo MA, Esteve-Vives J, De Salas-Cansado M; ICAF Group. Prospective study of the use of healthcare resources and economic costs in patients with fibromyalgia after treatment in routine medical practice. Clin Exp Rheumatol. 2012;30(6) Suppl 74:31-8.

6 Berger A, Dukes E, Martin S, Edelsberg J, Oster G. Characteristics and healthcare costs of patients with fibromyalgia syndrome. Int J Clin Pract. 2007;61(9):1498-508.

7 Troncone R, Jabri B. Coeliac disease and gluten sensitivity. J Intern Med. 2011;269(6):582-90.

8 Fasano A, Berti I, Gerarduzzi T, et al. Prevalence of celiac disease in at-risk and not-at-risk groups in the United States: a large multicenter study. Arch Intern Med. 2003;163(3):286-92.

9 Zipser RD, Patel S, Yahya KZ, Baisch DW, Monarch E. Presentations of adult celiac disease in a nationwide patient support group. Dig Dis Sci. 2003;48(4):761-4.

10 Tovoli F, Giampaolo L, Caio G, et al. Fibromyalgia and coeliac disease: a media hype or an emerging clinical problem? Clin Exp Rheumatol. 2013;31(6) Suppl 79:S50-2.

11 Rodrigo L, Blanco I, Bobes J, de Serres FJ. Clinical impact of a gluten-free diet on health-related quality of life in seven fibromyalgia syndrome patients with associated celiac disease. BMC Gastroenterol. 2013;13:157.

12 Isasi C, Colmenero I, Casco F, et al. Fibromyalgia and non-celiac gluten sensitivity: a description with remission of fibromyalgia. Rheumatol Int. 2014;34(11):1607-12.

13 Ludvigsson JF, Card TR, Kaukinen K, et al. Screening for celiac disease in the general population and in high-risk groups. United European Gastroenterol J. 2015;3(2):106-20.

14 Wolfe F, Smythe HA, Yunus MB, et al. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia: report of the multicenter criteria committee. Arthr. Rheum. 1990;33(2):160-72.

15 Wolfe F, Clauw DJ, Fitzcharles MA, et al. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. Arthr. Care Res (Hoboken). 2010;62(5):600-10.

16 Bai JC, Ciacci C, Roberto Corazza G, et al. World Gastroenterology Organization Global Guidelines: celiac disease. Milwaukee (WI): World Gastroenterology Organization. 2016. http://www.worldgastroenterology.org/UserFiles/file/guidelines/celiac-disease-english-2016.pdf. Accessed 17 Jan 2017.

17 Lewis NR, Scott BB. Systematic review: the use of serology to exclude or diagnose coeliac disease (a comparison of the endomysial and tissue transglutaminase antibody tests). Aliment Pharmacol Ther. 2006;24(1):47-54.

18 Unalp-Arida A, Ruhl CE, Choung RS, Brantner TL, Murray JA. Lower prevalence of celiac disease and gluten-related disorders in persons living in southern vs northern latitudes of the United States. Gastroenterol. 2017;pii: S0016-5085(17)30176-2. [Epub ahead of print]

19 Carroccio A, Mansueto P, Iacono G, et al. Non-celiac wheat sensitivity diagnosed by double-blind placebo-controlled challenge: exploring a new clinical entity. Am J Gastroenterol. 2012;107(12):1898-906.

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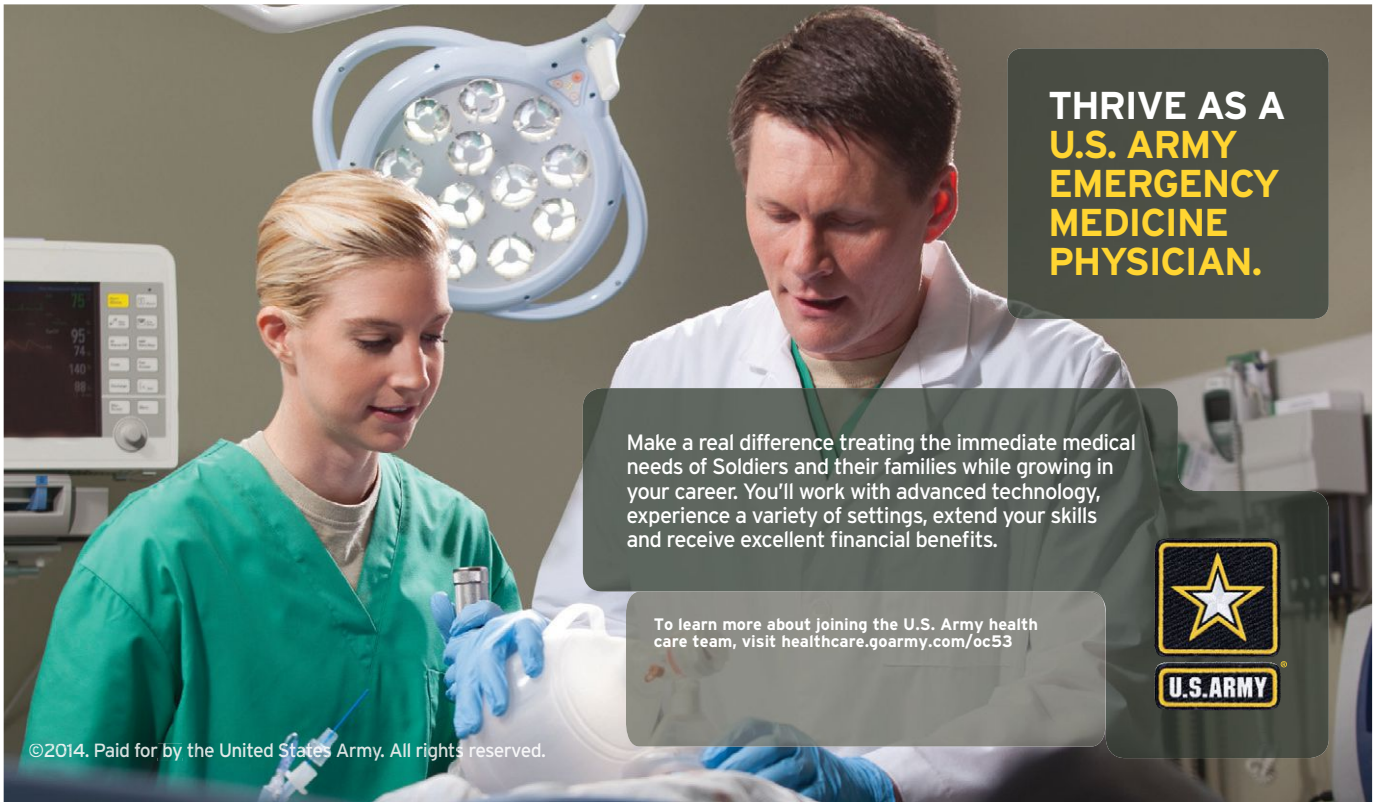


MEG KERSEY-ISAACSON, MD

- Pediatrician
- Allina Health East Lake Street Clinic, Minneapolis
- Adjunct Professor, University of Minnesota Medical School
- MMA member since 2016
- Hometown is Saint Paul. Graduated from Dartmouth College and University of Minnesota Medical School, Twin Cities. Residency in pediatrics at University of Minnesota. Fellowship in Robert Wood Johnson Clinical Scholars Program at the University of Chicago. Two years in the Department of Pediatrics at the University of Minnesota, 10 years at HCMC; Allina since 2016.
- Husband, Brian, children Marit, 15, and Sig, 13. One mellow adult dog and one wild puppy.

Became a physician because …

I became a pediatrician so that I could be an advocate for underserved kids. I also love the intersection of art and science in the practice of clinical medicine.

Greatest challenge facing medicine today …

The United States has the highest income inequality in the developed world, and the gap between the rich and poor continues to widen Meanwhile, we now know that the social determinants of health (access to education and employment, good nutrition, safe housing, etc.) account for about 80 percent of population health. Until we address and close the gaps between the haves and have-nots, an increasing number of our neighbors and fellow citizens will never have the chance to live healthy, productive lives.

Favorite fictional physician …

While not fictional, I'd say Paul Kalanithi, who wrote *When Breath Becomes Air.* He was diagnosed with Stage IV lung cancer as a neurosurgery chief resident and his memoir about medicine as both a doctor and patient, the fragility of health, and what matters in life should be required reading for all.

If I weren't a physician …

I can't imagine being anything else!

ALEX FENG, MD, MBA

- Intern/HCMC
- Physician resident in interventional and diagnostic radiology/University of Minnesota
- MMA member since 2013
- Hometown is Mendota Heights—where he still lives. Graduated from Washington University in St. Louis with a degree in anthropology.
- Worked in health care consulting—leading part of the EMR implementation at the University of Michigan—before medical school at the University of Minnesota.
- Parents and younger brother, who is a mechanical engineering student at the University of Minnesota.

Became a physician because …

When I was in middle school, my father, who often worked days and nights in his job, ate unhealthy food and was overweight, started becoming more lethargic. As a child, I felt helpless. I did not understand what was going on, and my family was not health literate (I am the first in my family to pursue a career in medicine). When he finally was diagnosed with diabetes by our family physician, everything changed. We had a label. We had hope, and we could finally develop a plan. Our family physician was phenomenal at sitting down with my father and explaining to him what he had and what he could do to overcome it. We were united as a family and learned everything we could about health and well-being. We exercised together and cooked together. My dad has run more than 10 marathons since that day.

Greatest challenge facing medicine today …

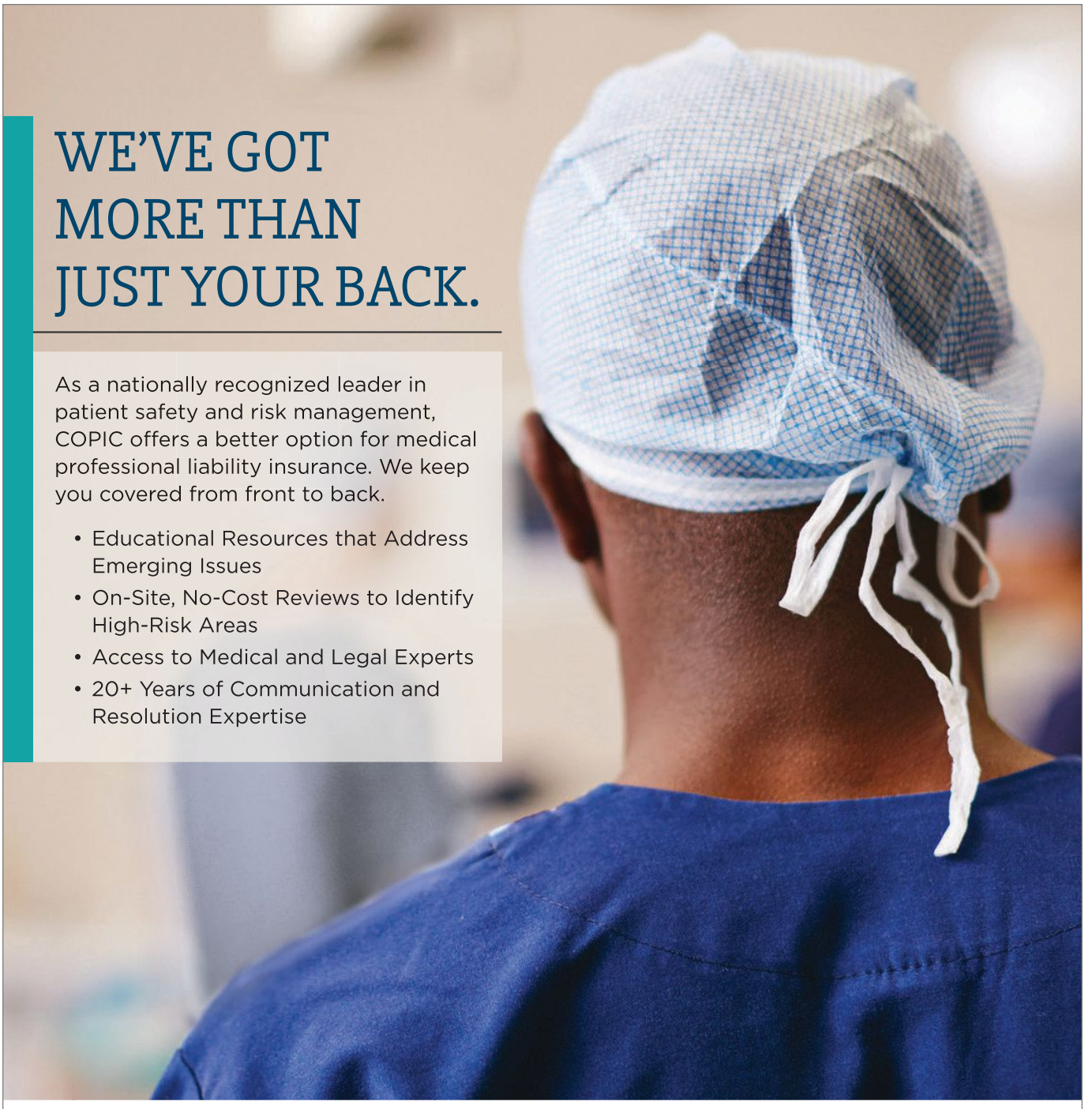
From 23 and Me to wearable devices like fitbit, companies and apps are making it easier and more accessible for people to track markers for health. However, more data does not necessarily correlate with better outcomes and may be a nidus for unnecessary and possibly harmful tests and procedures down the road.

Favorite fictional physician …

JD on Scrubs! He represents the compassion and vulnerability all of us physicians in training face in our daily lives. There are days that just click and everything works well and there are lows that can be difficult to overcome without the help of someone listening and commiserating. We can be goofy, purposeful, inspirational, lonesome, isolated, lost, unstoppable, and dignified—sometimes all in the same day!

If I weren't a physician …

I would likely have pursued teaching. In college I loved to tutor and appreciated the "aha!" moments my students had when they "got it."



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