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# MINNESOTA MEDICINE

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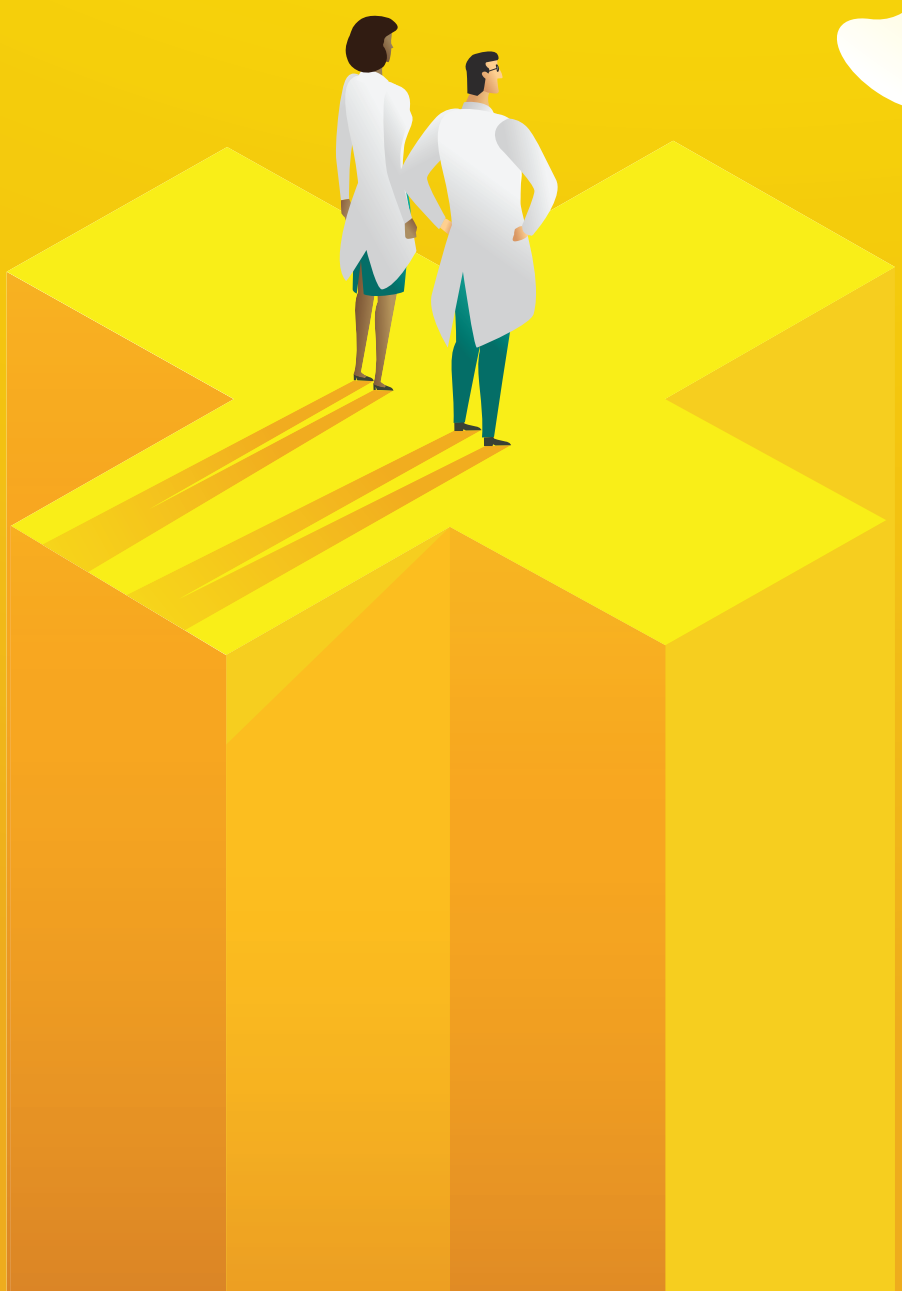

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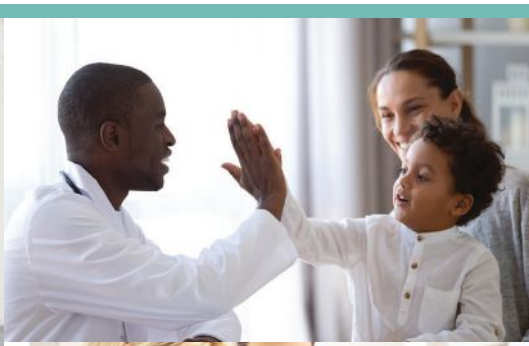

Minnesota
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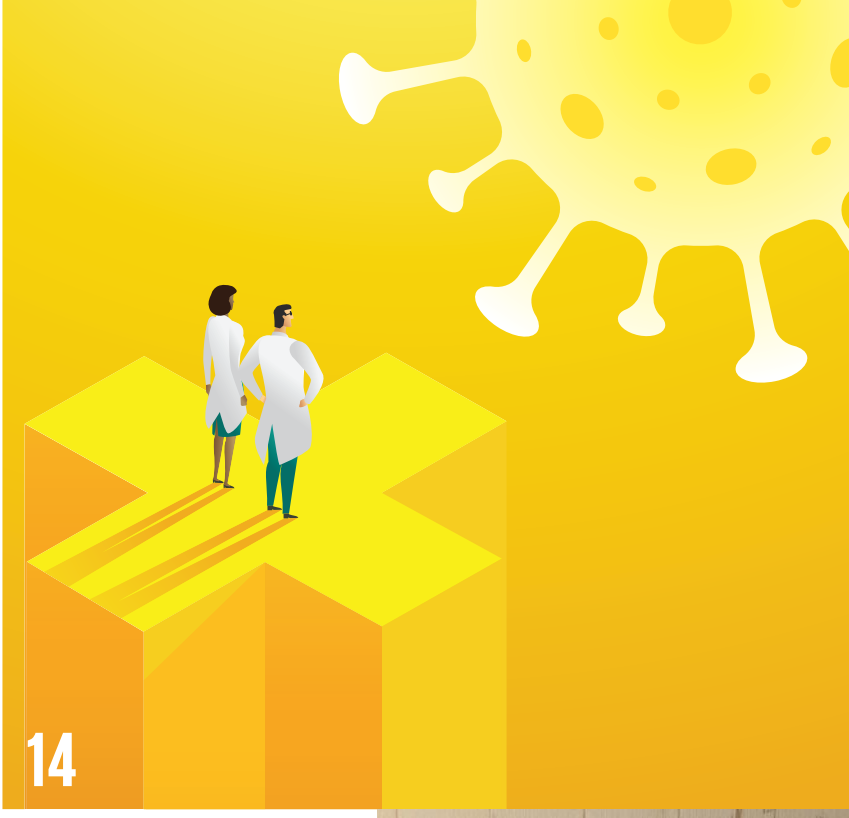



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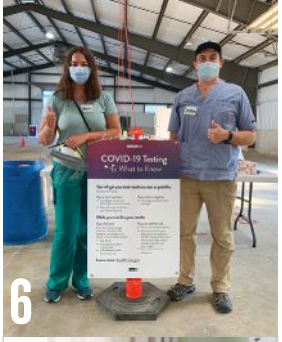




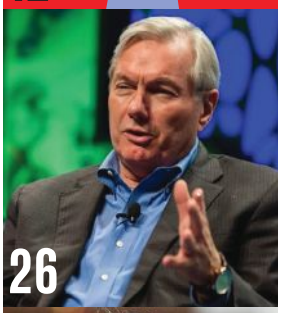





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Zeke J. McKinney, MD, MHI, MPH

# Engaging the community, one physician at a time

In June, before our statewide mask mandate and while our COVID-19 case rate was falling, I got a haircut. My normal neighborhood stylist was unavailable due to changes in salon/barbershop occupancy in the world of COVID-19. A friend gave me a recommendation for a Black-owned barbershop and I was happy to be able to support them.

I walked into the barbershop wearing a mask and was shocked that no one else was wearing one and the shop seemed to have more people in it than current regulations allow. There was a thick air of awkwardness when I entered the shop, the only one wearing a mask.

For a moment, I thought about leaving—my exposures as a clinician are high enough. But something stopped me. Health equity and education have always been a passion of mine and have rocketed to the forefront of my work following George Floyd's death. Here I was, with the opportunity to engage the very community whose interests I hope and purport to represent. It seemed unwise to miss the chance to talk about COVID-19 and the importance of wearing masks.

So I stayed. The barber cutting my hair was respectful and put on a disposable mask without me asking. I asked him why they were not wearing masks and briefly explained my work as a doctor and a public health professional. He started by sharing an internet story about how COVID-19 disease actually is caused by a bacteria and not a virus and how the best treatment for it is aspirin. This led to an engaged conversation between me and the barbers in the shop about what is happening with the pandemic in various parts of the world, and they were open to hear what I knew.

My experience concluded with the shop's owner saying in passing, "I guess we should be wearing masks." I'm not sure how much my input had to do with his statement, but I felt better knowing that maybe I helped them think about this issue more. Others encouraged me to share this story because it demonstrates the challenges of good public health communication in communities that may need it the most.

We must not only be brave in terms of being exposed in clinical settings, but also in the community.

This particular situation was high-risk for COVID-19 because of the occupational exposures (close proximity to others) and the race of the employees and patrons (all Black). The Black community is generally at higher risk of severe COVID-19 disease due to co-morbid conditions secondary to social determinants of health impacted by systemic racism. In addition, mistrust and distrust of health care entities are appropriately widespread in the Black community because of historical and contemporary "peripheral trauma" amongst community members (see Hardeman et al., *Journal of General Internal Medicine*, 2020).

What this experience revealed most is that we must not only be brave in terms of being exposed in clinical settings, but also in the community. Our voices are needed to elaborate on the principles of public health and justice. We must lead by example, which means not only doing the right things to minimize the spread of this pandemic, but also being fixtures in our local communities to address concerns and alleviate fears. **MM**

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

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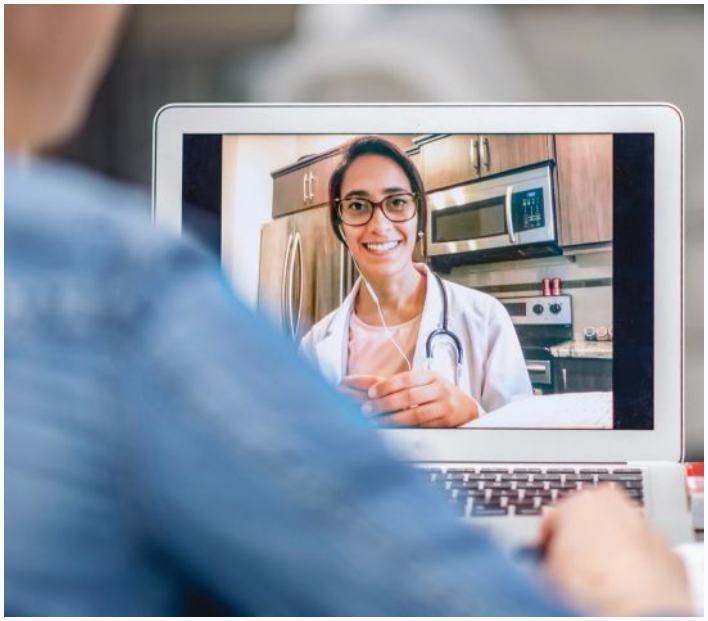

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COVID HIGHLIGHTS INEQUITIES

# We have to work with communities

BY JONATHAN KIRSCH, MD

As an internal medicine hospitalist working at the Bethesda-COV Hospital and the University of Minnesota Medical Center, I have seen how COVID-19 affects all ages and communities, both directly and indirectly.

As a UMN faculty member, I have proudly cared for patients devastated by this disease, from previously healthy athletes to elderly patients with a history of an organ transplant.

While we have made great strides in applying the latest advancements and intensive treatment to help treat COVID patients, it has become quite clear we cannot combat this disease simply by reactive measures, but must also focus on prevention and proactive measures. We know that some people are at higher risk due to age, comorbidities and social determinants of health such as occupation, housing density, poverty and access to protective measures like masks. The murder of George Floyd highlighted the pervasive and devastating effects of racial intolerance and inequities on the health of Black, Brown and Indigenous communities and opened the eyes of many Minnesotans to the fact that racism is a disease with health consequences. As we see the disproportionate impacts on these populations, COVID-19 has demonstrated how pervasive these inequities are.


University of Minnesota medical student Hayley Sharma and Jonathan Kirsch, MD, have done COVID screenings in the Twin Cities and in rural Minnesota. They say community engagement is crucial to success.

When we think about which communities are hurt most by this disease, I think of the people who counter the phrase "Black lives matter" with "all lives matter." While all lives do matter, the message is shortsighted and ignorant: firefighters need to respond to the house that's on fire, not to the neighbors' houses that aren't burning. Right now, we have multiple fires burning, one of them being how COVID-19 is affecting communities of color. The virus doesn't care about politics but will spread by the mechanisms we now know well—indoor spaces, respiratory droplets, some surfaces, etc., and will hit essential workers and people living in dense housing.

We need to move upstream to help prevent future infections, while offering the best care to those who are sick. I believe that is best done through community-engaged outreach in collaboration with those who have built trust in communities.

Community engagement and partnership is critical for outreach success. The goal of mass testing is to test as many people as possible, targeted at a high-risk community. Mass testing efforts of the Minnesota State Emergency Operations Center have been successful in accessing thousands of people with several testing outreaches, including in the hard-hit meatpacking city of Austin in Mower County, which I was able to help organize and participate in. For this mass testing, outreach efforts included social media posts, website ads and word-of-mouth. However, those who presented for COVID tests were not always the highest-risk individuals, which in this case were essential or factory workers living in high-density housing and lacking PPE.

I believe one reason behind this was that many have a deep-seated mistrust in our medical system. Structural racism is pervasive and has led to mistrust of health care institutions. Ongoing work by the state and health care partners to identify barriers and strategies to build trust has borne results in subsequent community testing events. However, mitigation efforts need to include people from communities most affected to improve rates of testing, contact tracing, mitigation and vaccination when it is available, ideally coupled with trust-building activities that improve community health, such as work with community health workers and Federally Qualified Health Centers (FQHC), to help address disparities of those people most marginalized.

Aside from providing optimal patient care for hospitalized and clinic patients, the University of Minnesota is currently making great strides towards improving community health through community engaged work, testing advancements and development of best practices for testing

VOLUNTEER OPPORTUNITY MEANT ESSENTIAL LEARNING:

# Health care is a two-way street

BY HAYLEY SHARMA

On May 20, I got an email about a volunteer opportunity to help with COVID screenings among farm workers in rural Minnesota. I signed up and sent an email to the organizer, Jonathan Kirsch, MD, asking if I could help.

The answer was "yes" and I was immediately thrown into the world of administrative work, Zoom calls with the UMN Medical Reserve Corps leadership and emails with the State Emergency Operations Center. During the day, I completed my med school telehealth elective; in the evening, I learned how to plan big-scale outreaches, effectively organize groups of volunteers and advocate for the work of trainees within mobile outreach.

By August, we had successfully helped organize and participate in COVID outreaches to the hard-hit areas of Austin, Morton and St. Paul. I have many takeaways from this experience, but the most important learning point has been this: Effective community engagement is crucial.

In medicine, we often underestimate the importance of community involvement. We take on the role of Ray Kinsella in the movie Field of Dreams: "If we build it, he [the patient] will come." That could not be further from the truth. We can organize an outreach, choose the site, have all the volunteers and supplies ready, but if we don't effectively engage the communities we hope to serve, success may be limited.

In Austin, for example, our community focus was on factory workers, so we used various interpreters on site to encourage better communication. Unfortunately, the multilingual video we had filmed was posted too late on the city's Facebook page, so only a few people knew what resources

> "In medicine, we often underestimate the importance of community involvement. We take on the role of Ray Kinsella in the movie Field of Dreams: 'If we build it, he [the patient] will come.' That could not be further from the truth."
>
> – Hayley Sharma

## We have to work with communities

*(continued from previous page)*

and contact tracing for vulnerable populations. With support of the Centers for Disease Control (CDC), we are developing a National Resource Center for COVID-19 contact tracing, prevention and mitigation for vulnerable populations.

The Office of Academic and Clinical Affairs, with support from the Bremer Trust, is developing a mobile medical unit to collaborate with trusted community centers, FQHCs and community health workers. While not focused entirely on COVID-19, this mobile care van will help improve community health and earn trust for future acute and chronic crises by supporting existing community health efforts with our expertise in prevention and care. We are designing the unit to be interprofessional, utilizing faculty and trainees in all of the areas of the University, including but not limited to medicine, nursing, pharmacy, veterinary medicine and dentistry. Outstanding medical students and residents have encouraged the University to take health disparities seriously and to use our skills and resources in the most effective ways possible. The mobile unit, still being planned while I write this, will be called UMN HELPS—University of Minnesota Health Engagement with Local Partnerships in Service. We believe that engagement with the most vulnerable populations will be a step towards mitigating some of the health inequities that have been exacerbated by systemic racism and COVID-19. **MM**

Jonathan Kirsch, MD, is assistant professor of Medicine in the Division of General Internal Medicine at the University of Minnesota. He works at the University of Minnesota Medical Center as a hospitalist and with the University of Minnesota Medical School in outreach with vulnerable populations.

## Health care is a two-way street

*(continued from previous page)*

we had available. We were able to test 2,000 people, but we knew that moving forward we would need to focus on more effective outreach.

Engaging the community also means demonstrating that we as medical professionals are deserving of trust. We encountered this issue after the George Floyd protests; many protesters were looking to get tested but were concerned that their personal information would be used against them. Unfortunately, medicine has a long history of involvement in structural racism and classism, which has led to pervasive distrust of the medical system among communities of color, blue-collar workers and immigrants—the three hardest-hit populations in Minnesota. When we plan outreach, we have to think about how we can show that we truly mean no harm and that when getting tested, these communities will have timely results and safer plans moving forward.

I am grateful to have had this opportunity to organize COVID outreach and to be able to see even more clearly that health care is a two-way street between medical professionals and the community. As I prepare to start residency in 2021 and encouraged by Jonathan Kirsch's guidance, I hope to continue to work with emergency response and mobile health care and to continue not only to reflect on how health care professionals can better engage the community we work in, but also to act to make that a reality in partnership with local community members themselves. **MM**

Hayley Sharma is a fourth-year medical student at the University of Minnesota.

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WANT TO BE HAPPIER WITH YOUR LIFE?

# Change the way you think about it

BY LINDA PICONE

David Frenz, MD, medical director for Addiction Medicine at Allina Health, has worked with a lot of unhappy people—including many physicians. So, he's pretty much heard it all: the electronic medical record, the insurance paperwork, the miserable hours and ungrateful patients and increasing expectations placed on physicians. No wonder so many are burned out, right?

Maybe not.

"The fantasy that frontline providers have is that if they could just fix the environment, everything would be better," says Frenz. "But if you're an emergency medicine physician, guess what, you're going to work crummy hours into the middle of the night, people are going to die despite your best efforts, you may even get sued every so often. We can't change those things; the only thing we can change is you.

"That's a difficult message to deliver, but, in my experience, it's the right message to deliver."

Frenz points to the work of the spiritual teacher and author Eckhart Tolle in his 1997 book, *The Power of Now*:

*"Wherever you are, be there totally. If you find your here and now intolerable and it makes you unhappy, you have three options: remove yourself from the situation, change it or accept it totally. If you want to take responsibility for your life, you must choose one of those three options, and you must choose now. Then accept the consequences. No excuses. No negativity. No psychic pollution. Keep your inner space clear."*

When counseling patients, Frenz asks them which of the choices—leave, change things or accept—they like. "Patients often say they don't like any of the choices, so I ask them for a sane fourth choice," he says. "In over a decade, I've never gotten one. They've got choices—they just don't like them."

Physicians will rarely take the option of removing themselves from a situation they find stressful, Frenz says. Sometimes they may look at ways to change their situation: "Can you improve your EHR skills and workflows? Hire a scribe? Work less than full-time?"

But, he says, "you will be less distressed if, in fact, you accept the situation totally."

Frenz compares practicing medicine as being, in some important ways, similar to being in the military. "The military sends people into dangerous places to do dangerous jobs and they realize that you can't really modify the environment," he says. "The only thing you can modify is the individual."

It's easy, in a way, to point to health system administration, or "evil" insurance companies, Frenz says, to complain about the very real barriers and frustrations in the work a physician does. But those complaints don't help you feel better—they just make you feel worse.

> "The feet walk, the mind wanders; change what you're telling yourself or bring yourself back to the present. A lot of it is just skill-building. Once you have the insight that you're causing a lot of your own misery, it just comes down to consistent practice."
>
> – David Frenz, MD

"What are you telling yourself about your work that disturbs you?" he asks. "If you're sitting in front of Epic all frustrated, it's that non-acceptance of your situation that creates the negative emotions. This goes all the way back to the Stoic philosophers and is the core of modern cognitive behavioral therapy [CBT]. It's also the message of 'Acceptance Was the Answer,'

arguably the most famous chapter in the 'Big Book' of Alcoholics Anonymous—which, not coincidentally, was written by a physician who had some major struggles."

Frenz remembers being "kind of depressed" as a resident, when he'd hear mid-career physicians talk about how much they hated what they were doing—and checking the stock market every day to see if they could retire early. "Physicians acquire a lot of really bad beliefs over the course of the training cycle and during their careers. Those beliefs will continue to produce disturbed emotions."

Modifying the individual—yourself—requires personal responsibility, Frenz says. "You have to examine your beliefs. Your beliefs about your job produce your associated emotions and behaviors—this is straight-up CBT. Ninety percent of the time, your feelings and actions are the result of your beliefs. The other 10 percent is just instinct."

He sometimes goes through what he calls "silly examples" with patients: "Let's imagine a Vikings-Packers game. Aaron Rogers throws a touchdown pass. Why is half the stadium happy and half upset? The only explanation is that people come with very different beliefs about the same event."

If you're not ready to leave the practice of medicine, or to change jobs, and you've done what you can to change some of the things that frustrate you but still spend more time than you'd like in your EHR or calling insurance companies, how can you get to the point of accepting your situation?

"The feet walk, the mind wanders; change what you're telling yourself or bring yourself back to the present," Frenz says. "A lot of it is just skill-building. Once you have the insight that you're causing a lot of your own misery, it just comes down to consistent practice."

Two things are important to this practice:

- *Change what you are telling yourself about your work and its frustrations*. Remind yourself, deliberately, of why you do what you do. Do you love helping your patients? Enjoy solving the complex mystery of an illness? Enjoy the freedom to do things your salary may allow you?
- *Be present in what you are doing now, right this moment, not in issues of the past or worries about the future*. For many people, this means deliberately focusing on breathing in and out or learning mindfulness. "The psychologist Dan Gilbert has spent his career studying happiness," Frenz says. "He found that if you're present now, you're likely to be happy." In *Stumbling on Happiness*, Gilbert says—as does Frenz—that happiness comes from within, not from what happens to us, so you can be happy, or at least content, with almost any situation if you decide to be. **MM**

Linda Picone is editor of *Minnesota Medicine*.


# What is your responsibility when a colleague's behavior changes?

*Nancy Smith, MD, practices family medicine in a small clinic. One of her colleagues, Richard Anderson, MD, has been working with Smith for many years. They have enjoyed a good professional relationship and have often turned to each other for advice and support. Over the past several months, Smith has noticed that Anderson has been increasingly erratic in his behavior. He has been coming in late once or twice a week, is quite behind in his charting and has seemed disengaged with his work. He seems to avoid making eye contact with colleagues with whom he has typically been friendly. Smith has never seen Anderson drinking at work, nor has she observed him treat patients while obviously impaired, but she has her suspicions and is concerned about him and the patients he is treating. She has no concrete evidence and knows that if she reports him, she may jeopardize his medical license and his professional reputation. She feels stuck between a rock and a hard place. She and Anderson have a long professional history and the clinic needs him to continue treating the volume of patients at the clinic. Does Smith have an ethical or legal obligation to report her concerns about Anderson to the Board of Medical Practice (BMP)?*

## YES

### *BMP's investigation will determine the facts*

Several years ago, our clinic hired a physician to join our practice. After this person had been in practice for a couple of months, some personal issues started to surface. Within nine months, the employment of this physician had to be terminated because of personal reasons that jeopardized the health of the patients. Later on, we found out that this physician's previous clinic knew of the situation and released them without a report to the board. In the long run, this did not help us, it did not help our patients and it definitely did not help the physician.

## NO

### *The first step is to talk to your colleague*

Smith has "suspicions" and has serious concern for Anderson and the patients he has been treating, but she is not able to say that Anderson is incompetent, has engaged in unprofessional conduct or may be unable to safely practice medicine.

The level of certainty that requires a report to the BMP depends upon the definition of the word "may." Given this situation, I do not believe that a report is required as an initial action.

**YES** *(continued)*

Here we have one physician who is concerned about dramatic changes in the personality of a well-known colleague. While there is no hard evidence of alcohol or drug abuse, this is definitely the pattern of a physician who is struggling. It is hard to do initially, but in the long run, it would be best to report your concerns to the BMP. Minnesota statute simply states that you have to reasonably believe that there is an impairment that hinders the ability to practice medicine. It is not up to you to have all of the facts; that is what the BMP will determine through its investigation. The statute also states that if you do not report your suspicions, you can be liable for civil penalties.

Mental health disorders and drug abuse are medical conditions that need proper treatment in order for the person to heal and improve their life. As physicians, we often focus much of our effort on curing others while neglecting ourselves. It is our duty under the Hippocratic oath and ethically correct to report this physician to the BMP so that, if needed, they can be removed from practicing medicine while seeking treatment to help their disease. This helps protect the lives of their patients while they are undergoing needed treatment. BMP also acts as a governing body to ensure treatment is carried out so that the physician can safely return back to work. You could certainly talk to your colleague to express your concerns, but are you willing to do the full investigation and monitoring of your colleague while making sure patient care isn't suffering? Whether you talk with your colleague or not, filing a report to the board is still an ethical responsibility that should not be avoided. MM

Daron Gersch, MD, is a family medicine specialist with CentraCare in Albany.

**NO** *(continued)*

I believe that Smith should first talk with her colleague and share her observations and her genuine concern for Anderson and for his patients.

The behavior/performance issue could be a manifestation of a personal, marital, legal or family problem rather than a substance abuse problem or other medical or psychiatric illness.

Perhaps something could be called out as a result of this intervention that would enable Anderson to recognize the problem Smith sees and take steps to deal with it.

If there is no near-immediate behavior/practice change by Anderson, then I believe that Smith is obligated to report her concerns to the BMP. MM

Benjamin H. Whitten, MD, FACP, is an internal medicine specialist with Abbott Northwestern General Medical Associates.

# YESTERDAY, TODAY and TOMORROW

## The pandemic changed health care operations — perhaps permanently

BY SUZY FRISCH

As physicians, clinics and health care systems saw that the novel coronavirus wasn't a drill, they completely transformed their operations. They share with *Minnesota Medicine* how they handled the early days of COVID-19, their current situation—and the unknown future.

# ROBERT ANDERSON, MD

Orthopedic surgeon and president of Summit Orthopedics

## Early days

With the ban on elective surgery, we had to go to critical services only. For the first two months we were really aggressive about closing down; 85 percent of our employees were furloughed. We knew that if this was going to happen, it would be for an extended period of time. We needed to control expenses to make sure the company was going to survive.

It was the best thing we ever did. Most PPP loans were for companies under 500 employees, and we didn't qualify for that federal assistance program. We took call at the hospital and provided acute orthopedic care, but we mostly shut the doors and turned out the lights. We normally have 26 clinics and we got down to four. There were two doctors on every site and essential staff, with one working operating room. Normally we have 20 working ORs/procedure rooms.

We started doing telemedicine. Patients still had questions and needed management of their problems. We couldn't do physical therapy or injections or imaging, but we could explain some things patients could do to buy time.

## Current care

When we resumed surgical services, we started COVID testing everyone to protect the staff and other patients from exposure when patients are going to sleep and being awakened.

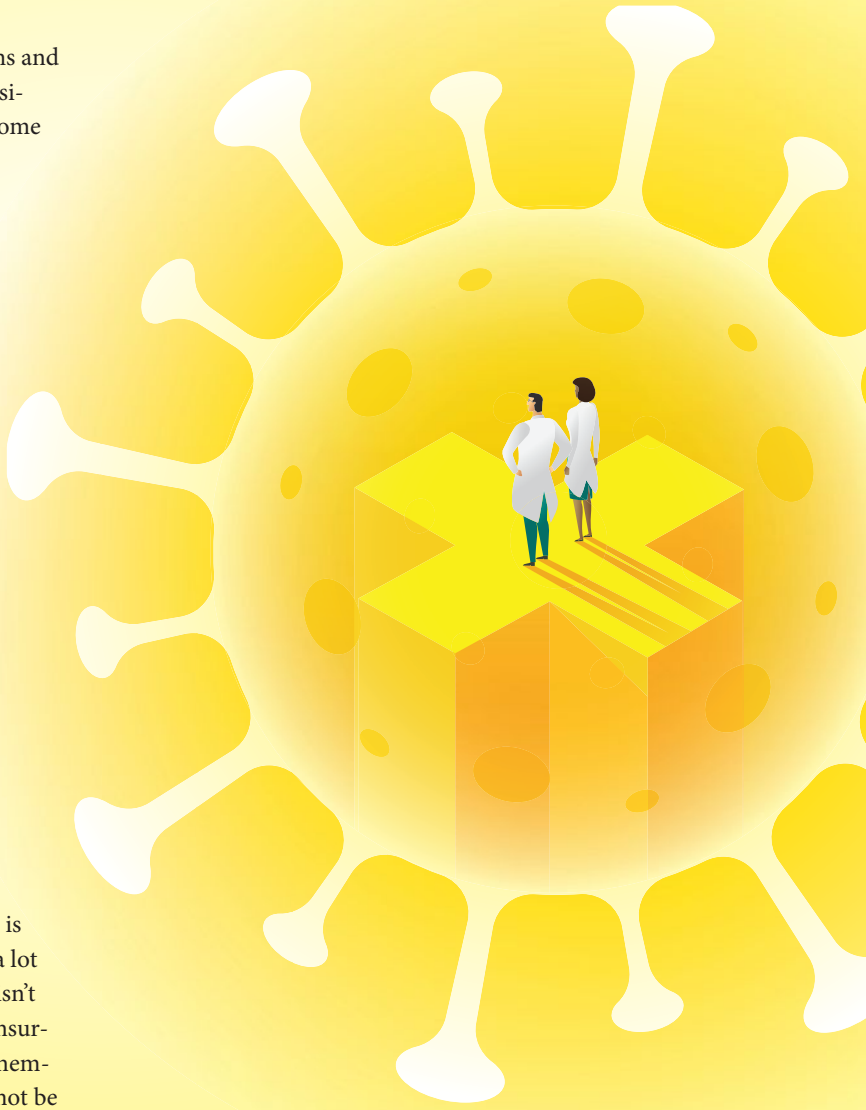
We now have six clinics open. We moved from two to three shifts with the extra shift starting at 4pm and running until 8pm. Without it, we were operating at 50 percent of capacity to provide proper physical distancing and with it we added another third of capacity with more physical distancing. Now that people are back at work, they don't want to take the day off to come see us. So we're giving patients more options.

We're fully back to doing all elective surgeries with a normal schedule. All of our ORs are back up and running. We had a big catch-up period and we're nearly caught up now.

## Facing the future

We're going to take a massive financial hit. Our biggest cost is our employees. It's a high-touchpoint business and it takes a lot of people to render care. We're also being realistic that this isn't going away, not even though 2021. I'm really worried that insurability is a big problem if we have 10 to 20 million people unemployed. We do a lot of elective care and those patients may not be seeking our services. Even if the virus isn't a problem, we'll see a 20 to 30 percent volume decline year over year. We will probably have a 10 percent reduction in our workforce. It's unfortunate, but we can't run with 100 percent staff at 70 percent of the volume.

It's the hardest thing that any of us have had to go through. We're working twice as many hours. We took 90 days where none of us physicians got paid. That's what you do when you own your own business. I can't stand not seeing my employees at work and being furloughed or laid off. And then when employees come back, we're asking them to do their jobs differently and we're asking them to do more. We're asking them to be more streamlined while providing better service to patients.



# STEPHANIE LOW, MD

Family medicine physician and medical director of Community Health Service, Inc., a federally qualified health care center with locations in Moorhead, Rochester, Crookston and Willmar, Minnesota, and Grafton, North Dakota

## Early days

We serve a vulnerable population. About 50 to 60 percent of our patients are seasonal and migrant farm workers. The rest are uninsured, underinsured, in transition after losing jobs or seeking us out as their primary care medical home.

We quickly went to a telehealth platform for about 90 percent of services. We had been working on that the month before because we were given a grant to do telehealth related to diabetes care. We already had Zoom licenses and workflows established, so transitioning worked really well.

Telehealth became an amazing advantage for some of our patients for decreasing barriers and access to care. Some of our patients live close to our sites, but some live two hours away. Telehealth will continue to be a big part of our work from here on out. Instead of taking a whole day off, patients can just call us from the parking lot during their lunch break.

## Current care

In early May, we began slowly reopening to in-person visits. Getting PPE and supplies was one of the biggest barriers to being able to do that. It continues to be a struggle, but recently we were able to secure some PPE from the state.

Our Rochester site is unique because we see patients at the Rochester Community and Technical College, and that was closed. We had to see patients from our mobile unit, which was challenging. It's hard to do a pap smear in an RV. We're next to the world-famous Mayo Clinic and you're trying to provide services inside a small, cramped space. To me, it's such a statement about who is valued sometimes in our society.

As of July 1, we could get into our clinic. We developed guidelines to prioritize patients who need to be seen in person. We're trying to reach people struggling with chronic diseases, especially if they are uncontrolled. Now we've started re-incorporating preventive screenings and immunizations because we don't want an epidemic on top of a pandemic. We're probably back at 60 percent capacity to allow extra time to clean in between patients. And patients are still figuring out that we're open again.

## Facing the future

It's critical for us as a community health center to continuously assess the social determinants of health and health disparities during COVID. Many of our patients work in food-processing plants. Early on, there were no regulations and people were right next to each other not wearing masks. There were a lot of infections. A lot of our patients had COVID and most of them live in small, crowded apartments or trailers. They are unable to isolate and whole families get taken down. As cases continue to soar, I think we might be at a balance of 50 percent telehealth and 50 percent in-person for quite some time.

# MARK SANNES, MD

Infectious disease physician at Park Nicollet, senior medical director for medical specialties at HealthPartners

## Early days

We started meeting back in January, when it looked like this might be coming. We formed an incident command structure and that ramped up meeting in the first part of March. Two big things out of the gate were testing and PPE and, ironically, they are still the two biggest things we're dealing with four months later. Our biggest evolution was going from no testing ability to being able to do upwards of 2,000 tests a day.

When the order came to stop elective surgeries and procedures, we created four clinics. We would see patients who were presenting with respiratory symptoms and evaluated them there to preserve PPE and keep patients safe. If someone didn't warrant an in-person visit, we started doing those by video. We went from no video visits to over 300,000 video visits in this short period of time.

## Current care

Since late June, we have been reopening with elective procedures and surgeries and bringing staff back. We're back up to the 75 to 85 percent range of normal volumes in many areas.

[In July, HealthPartners announced that it was closing nine clinics or treatment programs in Minnesota and Wisconsin.] Some of the locations that we temporarily closed were some that were permanently closed in response to financial pressure that COVID brought. We've made some

# BRADLEY BENSON, MD

Chief academic officer and internal medicine and pediatrics physician at M Health Fairview, professor of medicine and pediatrics at the University of Minnesota Medical School

### Early days

We started our command center at the end of February and by the first week of March we had our first case of COVID. It's mind-boggling to me that Mark Welton [chief medical officer of M Health Fairview] had the idea to create a specialty COVID hospital and eight days later we admitted our first patient. We opened Bethesda Hospital on March 20 and that's been a game-changer. When we work as a cohort of specialists, we can save PPE and really standardize our care. It's also been this amazing proof of the value of academic medicine.

### Current care

There are 10 clinical trials going on at Bethesda. More than 4,136 patients were participating in trials at the University at the end of the June, and 3,133 were in COVID trials. At the beginning of the year, we set a goal to have 3,750 patients participate in trials all year. University Medical School Dean Jakub Tolar initiated these rapid-cycle COVID grants. I have at least 30 stories that show the power of partnership when creative people are confronted with challenges.

### Facing the future

COVID really deepened the partnership between the University, University of Minnesota Physicians and Fairview—the group that together forms M Health Fairview. The pressures tough decisions in the last few weeks. We are continuing to connect with patients about transferring to nearby clinics. Our commitment to providing high-quality care and health equity to the communities we serve remains strong.

### Facing the future

We have been creating tabletop exercises in the incident command center. We're trying to anticipate where we might see stress in the future. How would we do this without any testing reagents, or if we couldn't get additional PPE and had a fourfold increase in patient volumes? We're trying to play out scenarios so that we aren't thinking about them for the first time if they happen.

helped us move at a faster pace than I ever dreamed. I've really seen our teams come together and do things that would have had barriers before. When we're all worried about when we'll get to see our parents again, or what if our child gets this, we're growing together to do anything we can to find that treatment or vaccine.

# AMY W. WILLIAMS, MD

Nephrologist and executive dean for practice at Mayo Clinic, professor of Medicine at Mayo Clinic Alix School of Medicine

### Early days

As COVID was first hitting the United States, we were helped at Mayo by incredibly robust modeling. In just a few days, our teams were able to assess over a dozen modeling schemes and develop our own modeling for our three sites in Minnesota, Arizona and Florida. It allowed us to understand in advance when we would be impacted by surges of patients and how COVID would impact our region. Then we could determine where our resources were needed. We use that modeling to date.

We have been able to avoid having our hospital filled with COVID patients. We have had robust testing since March. Once patients test positive, if they are acutely ill and need to be hospitalized, they are. If not, we monitor them at home with a large army of providers. That way we can detect if their oxygen saturation starts to go down suddenly. Or if they are asymptomatic but their cognitive function is not quite right, we can zip in quickly to prevent hospitalization or get them to the hospital early to prevent the need for ventilator or ICU care. In Rochester, we have always had less than 30 percent of our total ICUs filled with COVID patients.

### Current care

We were able to pivot in May and open our practices in outpatient and inpatient settings. We implemented testing prior

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## AMY W. WILLIAMS, MD

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to surgery so that we could safely ramp up our practice over three weeks. By week four we were able to cover over 80 percent of our volume in a very safe environment. Part of this was training staff and communicating with patients about our safety measures before they would come on campus.

### Facing the future

Our modeling is a big compass that helps us see what we need to do proactively. We're also encouraging people to seek medical care early and not wait until they are in dire straits. During COVID, we saw people with other problems like severe infections or people who had an MI or stroke two days ago. They waited too long.

# DAVID BOULWARE, MD, MPH

Infectious disease physician for University of Minnesota Physicians, professor of Medicine in the University of Minnesota Medical School Division of Infectious Diseases and International Medicine

### Early days

My work over the last 15 years has been related to meningitis. COVID cases were on an exponential climb and it was obvious there was going to be community spread. On March 8, I emailed my contact at the NIH and asked if anyone was doing anything about prevention or early treatment.

We wanted to look at post-exposure prophylactics. I focused on hydroxychloroquine because I do tropical medicine and I'm familiar with malaria. Because the medicine was already avail-

# CHARLES CRUTCHFIELD, MD, MS

Dermatologist at Crutchfield Dermatology, adjunct professor of dermatology at the University of Minnesota Medical School

### Early days

I was supposed to fly to Florida for vacation right as the NBA shut down and everything exploded. Being on vacation that week gave the clinic a chance to retool. We shut down all elective procedures and kept the medical side of the practice going. If it's a medical problem and we're not open, people will go to urgent care or the ER and take up the spots needed for people who are really sick.

We had been talking about doing teledermatology for years and all of a sudden it was reality. There's nothing like learning by being pushed in the pool. I did my first televisit that Monday and by mid-July I crossed the threshold of seeing 3,000 telemedicine patients. I love running half that way and half in person—it's really changed the way we practice. Patients love it too. I had one patient who was golfing and one lady who was shopping at Lowe's, calling me from the toilet aisle.

People still come in when they need a full-body skin exam or if they have a mole or lesion that needs treatment because it's changing or bleeding. If they have a dermatological disease like psoriasis or eczema that's not well controlled, then they can come in.

### Current care

We reopened our cosmetic skin care practice in late June. That practice is safe and it's going by the guidelines, but it's slow. When we first opened, it was operating at 30 percent, and now it's 60 to 70 percent. Our medical demand has stayed the same.

Some patients prefer teledermatology. For me, it's nice to see patients in their own environment. You see their kids running around or their cat or a painting on their wall and it's another way of connecting. Medicine is about understanding your patient, and it makes a big difference in how you can treat them.

### Facing the future

I think we'll be doing the same darn thing. There were a lot of growing pains with teledermatology but we're so glad we did it. Honestly, I can't imagine practicing medicine another way right now.

able, we knew the dose and safety profile. The first question was whether we could get the medicine. We thought there might be a run on it, so I ordered some with my own money. We wrote the protocol and submitted it to the University's IRB and the FDA. In six days from our start, we got approval.

We had said the target was three days after exposure, but we realized the turnaround time for testing was slow. By the time we FedExed the medicine overnight, they were already getting sick. We expanded the study to include early treatment for symptomatic people.

At the time, there were very few Minnesota cases. We enrolled people all over the United States via the internet, word-of-mouth, social media, some media appearances. People went to the website and did a screening to see if they qualified. If they did, they filled out a consent form online and got the medicine sent overnight. Most people had some of the known side effects, but it was pretty well tolerated.

Our goal was to answer whether post-exposure prophylactic medication would decrease illness or hospitalization. The studies showed that there was no difference between hydroxychloroquine and placebo. For people who took all of the medicine, there was a 1-percent difference in who got sick and who didn't. You'd have to treat 100 people with hydroxychloroquine to prevent one case, even if that was the true difference.

### Current care

Our total budget was $250,000, which was mostly FedEx bills and pharmacy bills for 2,300 people enrolled all over the United States. All of our labor was paid from NIH grants. An internet-based drug study was a new way of doing research. For most physicians, it was positive for how rapidly we got an answer with randomized, double-blind, placebo trials.

### Facing the future

I'm going back to doing meningitis research. The NIH didn't fund us for more [COVID] research. But I'm pretty happy that we were able to make a difference with three high-quality studies that got an answer. It wasn't the answer we wanted, but we got an answer.

# FARHA IKRAMUDDIN, MD, MHA

Physical medicine and rehabilitation physician and executive medical director of rehabilitation shared services at M Health Fairview, assistant professor in the Department of Rehabilitation Medicine at the University of Minnesota

### Early days

In anticipation of COVID-19, M Health Fairview's specialized facility Bethesda was opened. One of the most prominent observations for those admitted to the hospital was profound weakness. Those patients who needed to be intubated added another level of complexity. M Health Fairview formed a multi-disciplinary group of experts to evaluate the needs of each COVID-19 patient as they leave the hospital. This group of doctors, nurses, therapists and specialists—called the Post-Acute Centralized Referral Group—convenes for 30 minutes every day to discuss cases and create a rehabilitation program specific to each patient's needs.

What really stands out is the prolonged sedation and ventilator care that some of the COVID-19 patients require. In the pre-COVID-19 times, a week of intubation in the ICU was considered long enough for deconditioning of the larger core muscles to be affected to impact function. COIVD-19 patients are intubated for as long as eight weeks, and the impact on their muscles and cognition is dramatic. It's the first time I'm seeing patients with facial muscle atrophy following prolonged periods of intubation. Additionally, some patients suffer from peripheral neuropathy, hypophonia and persistent oxygen de-saturation on minimal activity. Many also face anxiety, PTSD, agitation and prolonged cognitive impairment.

### Current care

We now have in place several protocols to ensure best patient outcomes. We have been granted additional beds in our acute rehabilitation unit by the Minnesota Department of Health. Given some of the premorbid illnesses that increase the risk of hospitalization as well as complications specific to COIVD-19, many patients who do not qualify for the acute rehabilitation unit will require transfer to a transitional care unit or long-term care or will need home services.

The majority of patients will go home with some kind of therapy. But unlike established conditions such as traumatic brain injury or stroke, there are no evidence-based recommendations to guide rehabilitation for COVID-19 survivors. This disease is without walls—the literature is not there.

### Facing the future

In the event of a second or third surge, we need to prepare by analyzing the data from the first surge to predict risk factors for these difficult-to-manage sequelae of COVID-19. Our system is better prepared.

# KACEY JUSTESEN, MD

Program director for the North Memorial Family Medicine residency program and a family medicine physician at Broadway Family Medicine Clinic in Minneapolis, assistant professor in the Department of Family Medicine and Community Health at the University of Minnesota Medical School

## Early days

We were 100 percent in-person office visits and we changed to doing primarily phone visits over the course of two days. Then in two weeks, in mid-April, we transitioned to video visits as well. As a residency clinic, we have 24 residents and nine faculty. Residents were still coming to the clinic and seeing patients. There were faculty here who were precepting and teaching and guiding them during those visits.

## Current care

As we were starting see more people in-person in May, the clinic got vandalized during the riots and we had to shut down. Then we were all virtual. Because of the pandemic, we already had implemented telehealth, so we provided uninterrupted patient care and could move to 100 percent virtual visits.

Early on during the pandemic, our numbers of patient visits dropped quite a bit. People were scared and didn't want to come in person. Then we did some outreach and let people know that we have phone and video visits. By early May we were at about half to two-thirds of the volume we saw before. Now we've moved to giving patients choice of what kind of visits they want. [In mid-July] about 60 percent are in person and 40 percent prefer a phone or video visit.

## Facing the future

If we have a surge in the fall and winter, we will probably go back to doing the majority of our work by phone and video visits. But it will be easier to transition because we've done this before.

One thing we're thinking about and working on a lot is how these different ways of providing care are going to affect our populations that already suffer from health disparities. Telehealth improves access for a lot of people. We've seen people who haven't come into the clinic for a long period of time who are embracing the phone and video because they don't like coming to the clinic.

But some don't have the necessary equipment, or they live in a crowded place, or there isn't an interpreter. We want to make sure we're paying attention to some of these barriers for underserved, marginalized people and work on ways the health care system can break down barriers.

# JOSHUA CRABTREE, MD, MBA

Senior vice president of Sanford Health clinic operations, served as a family medicine physician for 16 years in Luverne, Minnesota

## Early days

We anticipated that we may have come to the party too late in in order to secure PPE and other supplies. There were some tenuous moments, like the time we were made aware that a boatload of masks from China were somewhere in the Pacific Ocean, but we could not track where. We didn't know if it actually had what we thought it had and whether it would get here on time.

We didn't feel really truly comfortable until May. We had enough PPE to keep staff safe. We weren't seeing huge spikes in our more population-dense communities like Fargo-Moorhead and Sioux Falls. In South Dakota and North Dakota, there never was a governor's mandate to shut down elective procedures. We did stop doing non-emergent and semi-urgent procedures for about six weeks. We were easily 60 percent down from typical. Clinic volumes were down 50 percent.

## Current care

We started opening up in late May and early June. We weren't seeing much COVID. We were comfortable with PPE and our processes and we had our testing procedures in place with increased lab capacity. We started ramping up our operating room capacity and getting procedures and screenings back, working through the backlog of people. We didn't do staff furloughs or layoffs. We worked hard to redistribute people's hours and flex individuals into departments they may not typically work in, as long as it did not adversely affect patient care. I give our staff a lot of kudos for saying, "Point me in the right direction and I'll do what you need me to do."

## Facing the future

We continue to talk strategically about how to use our network facilities if we see a surge of COVID folks in hospitals again. We don't feel like we've got this licked yet and we need to continue to prepare for the unknown. We're watching metrics like ICU bed utilization and ventilator utilization, monitoring individual counties and rates to see if we need to ratchet back procedures. We hope it doesn't happen, but we are prepared. **MM**

Suzy Frisch is a Twin Cities freelance writer.

# MMA SURVEYS

## COVID-19 IMPACTS ON PHYSICIANS AND HEALTH CARE ORGANIZATIONS

The coronavirus pandemic forced Minnesota physicians to adjust to often dramatic changes in their income, the way they practice medicine and their ideas about the future—virtually overnight. The impacts of the continuing pandemic affect everyone.

To assess those impacts, the Minnesota Medical Association commissioned surveys this summer for physicians and organization administrators. Responses came from 641 physicians and 92 organization administrators.

## Highlights from the surveys

**PATIENT CARE.** More than half of physicians said their patients had adverse outcomes—other than COVID-19—due to delays in care and more than a third said their patients' health became worse.

**PATIENT VOLUME.** Every kind of organization saw decreased numbers of patients, with a median decrease of nearly half. Non-primary care single-specialty practices saw the largest decrease.

**PATIENT REVENUE.** Revenue was down in line with patient volume decreases. Againk, non-primary care single-specialty practices were hardest hit.

**PHYSICIAN PAY AND BENEFITS.** Nearly all physicians said their pay and/or benefits were cut and nearly half said they experienced reduced hours, furloughs or even termination.

**NON-PHYSICIAN STAFF.** Nearly all administrators reported having reduced non-physician staff costs with everything from reduced hours to layoffs. Almost half said they reduced pay and/or benefits for non-physician staff.

**TELEHEALTH.** Use of e-visits, phone visits and video visits increased more than eightfold from 2019 to the end of May 2020. Physicians, by a large margin, said that telehealth was meeting their patients' care needs—and that patients were satisfied with it.

**GOVERNMENT RESPONSE TO COVID-19.** Most physicians, by a large margin, saw the state's response to COVID-19 as either good or very good. A significant majority saw the federal response as either poor or very poor.

**CHALLENGES GOING FORWARD.** Although all organizations are optimistic about the next six months, they don't expect to see cash flow at the same level as 2019. Physicians are concerned about barriers to broader telehealth use—especially uncertain payer reimbursement—and nearly all administrators and physicians are worried about a second wave of COVID-19.

See details from the survey at

**WWW.MNMED.ORG/COVIDIMPACT**

# PSYCHIATRIC BEDS FOR YOUTH

# Experts look for other treatment options

BY ANDY STEINER

A child and adolescent psychiatrist, Shalene Kennedy, MD, is intimately aware of the shortage of hospital psychiatric treatment beds for young Minnesotans. Too many times, she says, she's seen the great lengths parents have had go to in order to find inpatient care for their struggling children.

"It has been my personal experience to have a 7-year-old placed in inpatient treatment as far as Winnipeg without his parents. I also witnessed a case where a young man in psychological distress had fractured his mother's sternum. She didn't want to abandon her child, but it took three days for him to get a mental health bed. So this mother stayed by his side—and waited three long, painful days to get her sternum fixed."

While Kennedy believes that less-drastic treatment options, including intensive outpatient and partial hospitalization programs, can work to help young people stabilize their mental health, she understands that there are situations when inpatient psychiatric treatment is the best and only option.

"There are some families that truly do need hospital care for their children," she says. "When those beds aren't available, the situation can be heartbreaking. We have to make sure that Minnesota has enough beds for the kids who truly need this kind of care. "

Sue Abderholden, executive director of NAMI Minnesota, says that while there has been a lot of talk at the Minnesota Legislature about the importance of increasing access to children's mental health services, the state still has a long way to go.

"We have waiting lists at all of our hospital and residential facilities," Abderholden says. "Our system has not been built yet, that's for sure."

Abderholden says that NAMI staff often field calls from parents who've struggled to find hospital beds for children struggling with acute mental illness. "I have heard many stories about families from the Twin Cities having to go drive all the way to North Dakota because there were no beds available here. We've had desperate families bring their child to a hospital emergency room and say, 'This child is not safe at home,' and then they've left. These children then get taken to a youth shelter. When you hear stories like that, you can't say we have enough beds."

"Children's Crisis Residential Services Study," a review of Minnesota's residential psychiatric care options for young people produced by NAMI Minnesota in collaboration with Aspire MN, reported that a dramatic rise in mental health emergency department hospital visits indicated a need for expanded options for families with children in mental health crisis.

Another care option highlighted in the report is short-term residential crisis sta-

bilization services, a facility where a person in mental health crisis can stay for as little as 24 hours under the care of mental health providers. These shorter residential stays can help a person find a way out of crisis at lower cost. Minnesota has created more crisis stabilization programs for adults, but only one exists for youth.

The report advocated that the state invest in creating more of these programs for young people: "Crisis stabilization beds are a critical component to divert youth from higher levels of care, deliver essential screening and treatment, and provide timely intervention. Short-term crisis residential models are uniquely designed to meet these needs." Crisis stabilization services save money, the report concluded, reporting that "resources invested in mental health crisis-stabilization services provide a significant benefit, with a return of $2.16 dollars for every dollar invested."

Abderholden believes that lawmakers understand the benefits of bolstering residential options for youth, but haven't yet been able to realize their goals. "We've found the things that work, but we haven't fully funded them," she says. The Legislature can provide funds to increase beds for residential treatment, but can't do anything about the number of hospital beds available for children with mental health issues.

Josh Stein, MD, a child and adolescent psychiatrist and clinical director of PrairieCare Medical Office Building, said that while he is confident that the Twin Cities have an adequate supply of inpatient mental health beds for children, the true shortage is in rural Minnesota.

"The further you get out of the Twin Cities, the fewer beds exist," Stein says, adding that in the state's northern communities, the shortage is particularly acute. "Kids from up north have to come down to the Twin Cities or even further south for care. They could be from International Falls and end up in Rochester at Mayo Clinic because there are no beds available in Duluth. That's a real hardship for a family."

Psychiatric hospital treatment for kids ebbs and flows with the season, Stein says. While programs may have plenty of space in the summer, when school starts in the fall, they begin to fill up and beds become harder to find. Another way Stein measures hospital bed shortages is in the number of stories he hears about young people in crisis waiting in emergency departments until psychiatric treatment beds open up.

"We see kids stuck in EDs across the state just sitting there waiting for a hospital bed," Stein says. "We hear about kids spending the night at HCMC, at Ridgeview and Alexandria hospitals. These kids are spending one, two, three nights in the ED. They are being held for their safety without getting the services they need. It's a sad situation."

## When hospitalization is the best choice

Most mental health experts now say that finding alternatives to hospital mental health treatment for young people is needed. Having a treatment option that provides mental health care during the day while a child spends their nights at home is less disruptive and often as effective as inpatient hospitalization.

But there are situations when the best—and only—option for a kid in acute psychological distress is hospitalization treatment. Sometimes a young person's mental illness manifests in violent outbursts that are directed at themselves or at other family members. And when a young person exhibits clear signs of suicidality, parents often feel that hospital-based treatment is the only option.

Abderholden understands those needs. "There are times when families are very worried about keeping their child safe," she says. "Sure, they could be treated in an outpatient program, but if the parent doesn't feel like they can keep themselves, the other children or the child in distress safe at home, then hospitalization is the clearly best option."

Kennedy explains that that there are certain situations that call for hospitalization. "Inpatient is for crisis, for large behaviors, for being a danger to yourself or others or very gross impairment in your functioning, like if you are walking around responding to auditory hallucinations or haven't showered for six weeks."

An inpatient stay, even if it lasts for just a week, can be an option for a child and their family to find an all-important "re-set," Stein says. During these stays, a health care team can safely find medications that stabilize the child, and families can work, through group therapy sessions, to see larger issues and reshape their interactions.

Despite having a lot of other care options, like day treatments, partial hospital treatment and intensive outpatient treatment, Stein says, "we strongly need inpatient facilities because they are a place a child can go to when they are so vulnerable that they need a locked facility that has four walls where they can get the support they need. It's also important for some children to have their environment changed so they can heal."

## Middle ground

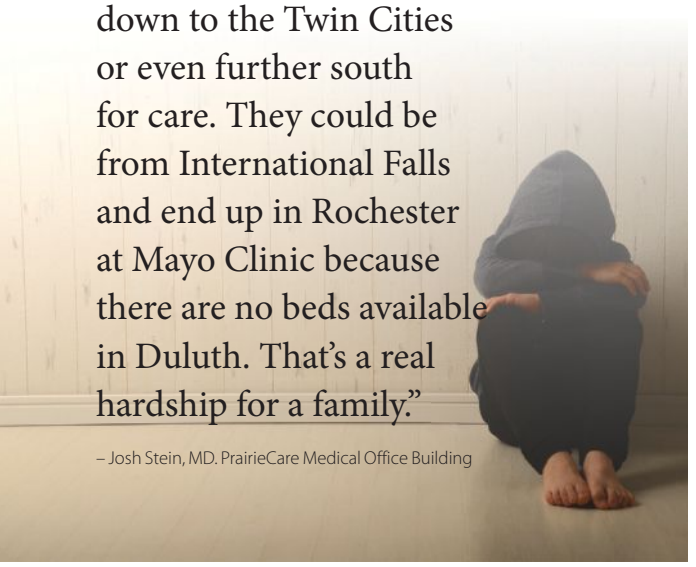
While inpatient and residential treatment are needed options, mental health providers like Kennedy are working to present ways for young people and their families to find healing without the severe disruption brought about by out-of-home placement. A few decades ago, Kennedy ran her own outpatient pediatric mental health clinic. Too often, she ran into situations when a young patient's mental health had reached a point that twice-monthly visits and medication management weren't enough to help them regain equilibrium.

"There were times when I was like, 'Oh my gosh. My only option is to pull this child from their home take them to an emergency room and then remove them from their family and have them stay overnight with strangers,'" Kennedy says. "How scary is that? You might have a really depressed or a really anxious kid. Two doors down is the psychotic 16-year-old throwing chairs around. It was really hard for the in-between kids who had a breakup or whose parents are in a nasty divorce."

Outpatient programs like hers were helpful for children who could keep their mental health stable with limited "tune-

"The further you get out of the Twin Cities, the fewer beds exist," Stein says, adding that in the state's northern communities, the shortage is particularly acute. "Kids from up north have to come down to the Twin Cities or even further south for care. They could be from International Falls and end up in Rochester at Mayo Clinic because there are no beds available in Duluth. That's a real hardship for a family."

– Josh Stein, MD. PrairieCare Medical Office Building



up" visits, but Kennedy decided that there were many other young people who needed a program that was a step up from what she was providing, an option that provided more intensive services without completely removing them from their known worlds.

Kennedy founded Aris Clinic, a Woodbury-based intensive outpatient (IOP) treatment center, where young people ages 5-18 spend an average of six weeks in a combination of full-time psychiatric treatment and grade-appropriate school each day before heading home to their families at night.

"This is an approach that works for many families," Kennedy says of IOP. "Maybe this is a kid that doesn't really need to go all the way to inpatient, but his family and he need more service, more intensity. There wasn't anything that existed. It was either go back to your outpatient providers or are we going to put you in the hospital?" In an IOP, Kennedy says, children learn to manage school and family stressors while staying embedded in the family system: "This option works as a healthy middle ground."

## "Upstream" advocate

Janna Gewirtz O'Brien, MD, would like to find a way for more kids to get help before they get to the point of needing hospitalization. An adolescent medicine fellow at the University of Minnesota and a board-certified pediatrician, she cares for teens in private practice at Hennepin Healthcare and at Edison High School's school-based health clinic and the Bridge for Youth, a shelter for runaway and homeless youth.

She advocates an "upstream" approach to care, identifying and treating mental health concerns early, before they spiral out of control and become a problem that requires hospitalization.

"Mental illness doesn't occur in a vacuum," Gewirtz O'Brien says. "There are a lot of factors at play. If we could tackle those factors upstream, we could reduce the burden of serious mental illness."

Often, physical and mental health are linked, Gewirtz O'Brien says. Keeping an eye out and making connections can help patients now and into the future. Take the young woman who came to see her at the Edison High clinic, complaining that her asthma symptoms had been getting worse.

"I said, 'Do you notice anything that is impacting your asthma? What makes it worse or better?'" Gewirtz O'Brien recalls. "She said, 'When I get stressed out it makes my asthma worse. That's one of my biggest triggers.' That comment opened the door for a conversation about how she was doing from a mental health perspective."

The student told Gewirtz O'Brien about how troubles at home had been raising her anxiety. "This opened the door to a conversation where we could talk about ways she could find both mental and physical health support right in the school."

This holistic approach to health is supported by a team of care providers.

"There is a school-based mental health provider," she says. "I can reach out to her about how we can work with this young person on her asthma as her pediatrician and the mental health provider can work with her on her mental health. We can help this young person get to a place where her mental and physical health is thriving. This approach helps us early, before we get to a point where she would require hospitalization."

Gewirtz O'Brien believes that school-based health centers like Edison's can help prevent mental health emergencies by identifying and treating potential problems before they grow out of control. Minnesota was one of the first states to implement school-based centers. While there are clinics like Edison's in schools in St. Paul, Minneapolis, Bloomington, Brooklyn Park and Rochester, their growth has been limited to the state's urban centers. Minnesota also has an innovative program of school-linked providers in about half of the school buildings in the state, many of them outside the Twin Cities. These are providers who are not school employees but who provide mental health services for students at a school.

"Programs like these work to offset the burden downstream," Gewirtz O'Brien says. "Unfortunately, though, those systems are not widely available in Minnesota, particularly in rural communities, where the need for mental health care is greatest."

"I think it's a both/and thing," Gewirtz O'Brien says. "It is not one or the other. We need dramatically improved mental health infrastructure that is prepared to meet the acute mental health needs of young people and has sufficient beds to do so. We also need to do what we can to reduce the burden on these systems. We do what we can to support young people's mental health and well-being so they can thrive in the community and not end up in the hospital." **MM**

Andy Steiner is a Twin Cities freelance writer.

***Michael T. Osterholm***, PhD, MPH

***Jan Malcolm***

# SPECIAL PREVIEW

## 2020 Annual Conference goes virtual with packed group of expert faculty

What this year's Annual Conference will lack in camaraderie will be made up for by great faculty.

***Michael T. Osterholm***, PhD, MPH, Minnesota Health Commissioner ***Jan Malcolm*** and health equity experts ***Uché Blackstock***, MD; ***Esther Choo***, MD, MPH; and ***Jane van Dis***, MD, will highlight the list of prominent faculty scheduled for this year's conference, which will be held online September 25 and 26.

The conference will include many of the activities seen at past annual conferences, including education sessions, policy discussions, MMA awards, MMA business update, the president's inauguration and the medical student/resident/fellow poster symposium.

Conference sessions will help mobilize physicians and physicians-in-training to create change on a variety of health care issues, including assessing what role they can play in addressing issues of equity in health care. Attendees also will have the opportunity to evaluate the current state of the COVID-19 pandemic, assess opportunities for growth in our health care systems and discuss tools needed to address future public health emergencies.

**Confirmed faculty for Friday's sessions (noon to 5pm) include:**

- ***Michael T. Osterholm***, director, Center for Infectious Disease Research and Policy, University of Minnesota
- ***Jan Malcolm***, commissioner, Minnesota Department of Health
- ***Edward P. Ehlinger***, MD, MSPH, public health metaphysician and former Minnesota Health Commissioner
- ***Mark Rosenberg***, MD, vice dean for Education, University of Minnesota Medical School
- ***Kou Thao***, director, Center for Health Equity, Minnesota Department of Health,

***Uché Blackstock,*** MD

***Esther Choo***, MD, MPH

**Confirmed faculty for Saturday's sessions (9 to 11:30am) include:**

- ***Uché Blackstock***, MD, founder and CEO, Advancing Health Equity
- ***Esther Choo***, MD, MPH, professor, Emergency Medicine OHSU, co-founder Equity Quotient
- ***Jane van Dis***, MD, co-founder and CEO, Equity Quotient

***Jane van Dis***, MD

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Cost: $75 for members; $125 for non-members; $65 for retirees; $25 for residents/fellows/students.

COPIC, the MMA's endorsed medical professional liability insurance provider, is the premier sponsor of the 2020 MMA Annual Conference.

# News Briefs


### Minnesota Supreme Court increases liability exposure for hospitals

In late July, the Minnesota Supreme Court handed down a ruling that could significantly increase the liability exposure for Minnesota hospitals.

The case, *Popovich v. Allina Health System*, et al., involves a medical malpractice suit brought by the wife of a man who suffered a stroke after receiving what the plaintiff says was negligent medical care in the emergency rooms of two Twin Cities hospitals owned and operated by Allina Health.

The case centers on whether a hospital could be held liable for the medical negligence of non-employees, in this case emergency physicians. Allina contended that a hospital shouldn't be liable for the work of non-employees. A district court agreed with Allina. The Minnesota Court of Appeals upheld the lower court's decision. However, at the end of July, the Minnesota Supreme Court reversed the decision.

"A plaintiff may assert a claim against a hospital to hold the hospital vicariously liable for the negligence of a non-employee based on a theory of apparent authority," the Court ruled.

The Court said that the hospital had advertised itself as a provider of emergency care and that this care was provided by the hospital's board-certified emergency medicine physicians.

In addition, the Court concluded that patients rely on the hospital to determine the "appropriate health care provider" to treat them.

One question that arises through this case is whether the decision in Popovich is limited to emergency departments or whether it extends broadly to any care provided in a hospital.

The Court remanded the case to the trial court, which means it still needs to go through a trial, if it is not settled beforehand. There could be extenuating circumstances or facts that the Court did not address that would come out in a trial.

The MMA will provide further guidance on this in collaboration with its partners, including COPIC. Stay tuned to *MMA News Now* as we follow the case.

*(continued on next page)*

## News Briefs *(continued from previous page)*

MINNESOTA HEALTH AND HUMAN SERVICES BLUE RIBBON COMMISSION

### MMA submits comments to Blue Ribbon Commission

In a July 31 letter to the Blue Ribbon Commission (BRC) on Health and Human Services, the MMA applauded the inclusion of several significant reforms, in particular noting its strong support of the commission's call to align Minnesota's health privacy law with HIPAA.

Minnesota is one of very few states that has a different privacy standard than federal law, and the MMA and dozens of other advocates have long sought alignment to improve care coordination for patients, reduce administrative burdens for clinics and reduce or eliminate duplicative tests.

The BRC, created in 2019 by the Minnesota Legislature, was tasked with exploring ways to find $100 million in savings in the state's Health and Human Services budget.

In mid-July, the BRC released its draft report, inviting public comment on the group's work.

Discussion about equity and health disparities was particularly impacted by the timing of the pandemic, given the dramatically changed means of meeting. Since the start of the BRC meetings, health disparities and inequities have been at the center of the group's discussion, and several provisions intended to reduce disparities are included. The report notes the BRC feels additional work is needed in this area, as the timing of the shutdown impacted those meetings where equity was to be the focus of the agenda.

In its response to the BRC, the MMA noted its support for the commission's call to enhance the encounter reporting system to improve care coordination. Improving the system by which primary care physicians are notified when public program enrollees use the emergency room or are admitted to the hospital will improve care coordination and reduce costs. The MMA further noted its support for reducing low-value health care services, pointing to the organization's long-standing support and promotion of Choosing Wisely, a broad, multi-specialty effort to identify and reduce the use of low-value services.

The MMA also suggested several strategies to reduce health care costs and improve health that the commission neglected to include. The MMA urged the commission to include public health investments and policy changes such as strengthening the state's vaccine requirement, prohibiting flavored tobacco and e-cigarette flavors and protecting patients against disruption in their access to pharmaceuticals.

Another cost-saving measure the state should pursue, the MMA argued, is the creation of a Provider Orders for Life-Sustaining Treatment (POLST) registry. Promoting advance care planning, while ensuring that physicians, EMTs, paramedics and other providers have access to a patient's advance planning documents, will not only reduce costs but also will help ensure that the care provided to a patient matches the patient's wishes. The MMA further urged the commission to redouble efforts to address Minnesota's glaring racial and ethnic health disparities.

The BRC was scheduled to review public comments on the draft report at its August 18 meeting. The final report is to be submitted to the Legislature and Gov. Tim Walz no later than October 1, whereupon the BRC will be dissolved.

### MMA thanks Walz for statewide mask mandate

The MMA publicly thanked Gov. Tim Walz in late July for requiring all Minnesotans to wear face masks in indoor public places and businesses. The month before, the MMA had urged public and private leaders across Minnesota to require the wearing of face masks or face coverings to help control the spread of COVID-19.

### Minnesota physicians urge back-to-school vaccinations

The MMA, the Minnesota Chapter of the American Academy of Pediatrics (MNAAP) and the Minnesota Academy of Family Physicians (MAFP) partnered in July to promote increasing immunization rates throughout the state to achieve community immunity.

On July 22, the groups distributed a press release to media across the state encouraging parents and caregivers to practice good health by maintaining routine and back-to-school vaccinations for children and adolescents.

Minnesota physicians are concerned about the decrease in vaccinations among children during the COVID-19 pandemic. A recent membership survey conducted by MNAAP found an estimated 30 to 40 percent decrease in childhood vaccinations and 40 to 50 percent decrease in adolescent vaccinations since the beginning of the pandemic.

Vaccinations in Minnesota and across the country have decreased due to fears associated with seeking health care at a physician's office or other medical clinics. Seventy percent of physicians said the parental fear surrounding COVID-19 has prevented or delayed routine care or vaccinations in children.

The MMA, the MAFP, the MNAAP and their members believe all children and adolescents should be vaccinated, except for those who cannot be due to medical reasons.

### Opioid report shows declining prescriptions, increasing illicit use

According to the AMA's Opioid Task Force report released in July, there has been a dramatic increase in fatalities involving illicit opioids and a dramatic drop in the use of prescription opioids.

Positive news from the 2020 report includes:

- *Opioid prescribing decreased for a sixth year in a row.* Between 2013 and 2019, the number of opioid prescriptions decreased by more than 90 million—a 37.1 percent decrease nationally.
- *Prescription Drug Monitoring Program (PDMP) registrations and use continue to increase.* In 2019, health care professionals nationwide accessed state PDMPs more than 739 million times—a 64.4 percent increase from 2018 and more than a 1,100 percent increase from 2014. More than 1.8 million physicians and other health care professionals are registered to use state PDMPs.
- *More physicians are certified to treat opioid use disorder.* More than 85,000 physicians (as well as a growing number of nurse practitioners and physician assistants) now are certified to treat patients in-office with buprenorphine—an increase of more than 50,000 from 2017.
- *Access to naloxone is increasing.* More than 1 million naloxone prescriptions were dispensed in 2019—nearly double the amount in 2018, and a 649 percent increase from 2017.

However, other statistics are grim. According to the U.S. Centers of Disease Control and Prevention (CDC), from the beginning of 2015 to the end of 2019:

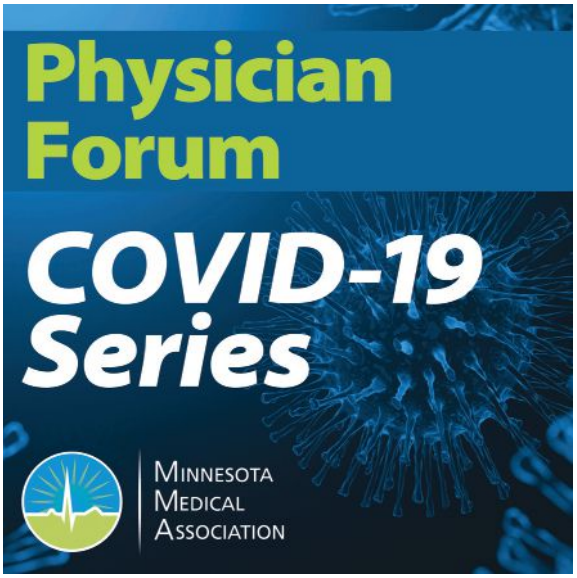
- Deaths involving illicitly manufactured fentanyl and fentanyl analogs increased from 5,766 to 36,509.
- Deaths involving stimulants (e.g. methamphetamine) increased from 4,402 to 16,279.
- Deaths involving cocaine increased from 5,496 to 15,974.
- Deaths involving heroin increased from 10,788 to 14,079.
- At the same time, deaths involving prescription opioids decreased from 12,269 to 11,904. (Deaths involving prescription opioids reached their high in July 2017 with 15,003.)

The report highlighted that despite medical society and patient advocacy, only 21 states and the District of Columbia have enacted laws limiting public and private insurers from imposing prior authorization requirements on substance use disorder services or medications, according to the Legal Action Center. Even fewer states have taken meaningful action to enforce mental health and substance use disorder parity laws.

While access to legitimate opioid analgesics has decreased in every state, no state has taken meaningful action to require health insurers to increase access to non-opioid pain care or to remove arbitrary restrictions on access to opioid therapy. A recent survey from The American Board of Pain Medicine found 92 percent of pain medicine physicians said they have been required to submit a prior authorization for non-opioid pain care.

### Course on structural racism now available online

The MMA has added a course (https://ebiz.mnmed.org/DNN/Store/Product-Details/productId/73689445) on "Structural Racism and Other Barriers to Health Equity" to its online offerings. Co-hosted by the MMA, the Minnesota Academy of Family Physicians (MAFP) and the Minnesota Chapter of the American Academy of Pediatrics (MNAAP), this activity focuses on structural racism, historical trauma and other barriers that stand between Minnesota's minority communities and their ability to achieve equitable health. Learn about the role that policies, systems and structures have played in disadvantaging racial minorities, as well as what you can do to address racism within clinical encounters.




### COVID-19 webinar presentations now online

If you have been unable to attend the free lunch-time webinars on COVID-19, you can find copies of the presenters' presentations online at www.mnmed.org/education-and-events/Virtual-Physician-Forums. The series includes experts on a variety of topics from how to effectively implement telehealth in your practice to why racial and ethnic data on COVID-19's impact is needed.

# FROM THE CEO

**COVID-19 and health equity are the focus of MMA Annual Conference.** Two of the most serious public health crises confronting the nation will take center stage at the 2020 virtual MMA Annual Conference, September 25-26. An incredible lineup of local and national experts and opportunities for physician feedback are planned. Join us as we examine the epidemiology and current state of the COVID-19 pandemic; the status of current therapies and vaccine development; the ways in which COVID has transformed medical education, health care delivery and payment; the role of race in medicine; and the path toward equity in health care. I look forward to "seeing" you there!

**An inspiring convening on health equity.** More than 60 physicians and physicians-in-training met twice in August to develop ideas for how organized medicine can accelerate and advance health equity. The MMA was pleased to partner in those discussions with several state specialty societies, as well as the Minnesota Somali Medical Association and the Minnesota Association of African American Physicians.

**Practice Good Health.** The MMA's Practice Good Health public health campaign and statewide call-to-action, which launched in late May, has helped elevate the voice of medicine on steps all Minnesotans can take to reduce the spread of COVID-19 and to ensure that their other health care needs are not ignored. The campaign includes a new public service announcement that was recently distributed to television stations across the state. The South Dakota State Medical Association has partnered with MMA to expand the campaign into South Dakota. More information is available on the MMA website (www.mnmed.org).

**Get out and vote November 3.** An analysis of physician voting between 1996 and 2002 found that physician voter turnout was approximately 10 percentage points lower than the general population. Whether that rate has changed since then is not entirely clear; nevertheless, the MMA has partnered with VotER (vot-er.org), a nonpartisan national organization made up of more than 50 state and national health care organizations, to promote civic engagement and voting. The initiative includes tools and resources to support voter registration—of colleagues, friends, family, patients—and to promote civic engagement.

**The impact of COVID-19 on Minnesota physicians** The MMA commissioned a study to examine the financial, care delivery, staffing and personal impacts of COVID-19 on Minnesota physicians and medical practices. See page 21 for a snapshot of the results. This data will inform ongoing MMA advocacy, particularly with respect to the importance of science-based decisions by government, ongoing financial protections for practices, physician well-being and preservation of telehealth policies.

**Help shape MMA policy with The Pulse.** The Pulse is MMA's new online tool that allows members to raise their voices to influence the direction of their association. Member-defined policy has been a cornerstone of the MMA since its inception—from resolutions to open issues. With The Pulse, members can submit policy proposals for MMA consideration at any time. Members will also be able to vote on policy proposals prior to MMA Board action and to provide feedback on decisions made by the MMA Board. Raise your voice and use The Pulse.

**2021 membership cycle launches soon.** Membership is the fuel that drives our advocacy on your behalf and on behalf of the health of Minnesotans. The MMA dues rate will remain flat for 2021. In recognition of the serious financial impact that COVID-19 has had on many physicians and practices, the MMA will offer a variety of discounts to meet your needs. Please contact our membership team at 612-362-3728 or email membership@mnmed.org with questions or for more information.

**Did you know?** The MMA has a mentorship program and, new this year, is a program for pre-med students. We welcome mentors and mentees from across MMA membership—medical students, residents/fellows, practicing physicians, retired physicians. If you are curious, a good listener, and open to learning—this is for you! You can find more information online at www.mnmed.org or contact the MMA at 612-378-1875.

Please share your thoughts and comments at any time. Stay safe,

Janet Silversmith
JSilversmith@mnmed.org

VIEWPOINT

# The path forward

PHOTO BY KATHRYN FORSS

Keith Stelter, MD
MMA President

I don't need to tell you that we are living in times of great change. When I began my term as MMA president, I wanted to focus on climate change and how we, as physicians, can lead and amplify the efforts to protect our planet and save human lives. This is still crucial work and we urgently need to address this crisis, but those efforts took a back seat when the first COVID-19 cases appeared in Washington state on January 21. Since that time, we have had a laser focus on what the MMA can do to improve the health of Minnesotans and assist physicians.

Just when we were getting familiar with that work, George Floyd was killed on May 25 and we pivoted to address the long overdue problem of structural racism. Now we are trying to simultaneously manage what experts have described as two pandemics.

These earthshaking events have affected so many parts of our lives. Millions of people have suffered greatly or died because of these two pandemics. As physicians, we are called to relieve suffering and prevent death when possible. So how to continue our path forward?

First, we must take care of ourselves. We cannot alleviate suffering when we are ill or incapable. The MMA has created resources to assist us in our rejuvenation and healing efforts as we do this difficult work. Most importantly, the MMA serves as a forum and meeting ground for physicians to get together, support each other and make changes that help ourselves and our patients.

Second, we need to educate the public. The MMA has launched an ambitious project called Practice Good Health, to educate the public about the importance of routine care and having a relationship with a physician who can guide that care. We also are working hard to educate the public on the relatively simple measures they can take to prevent the spread of COVID-19, like wearing a mask and social distancing.

Third, we need to support each other and do so with more intentionality than we have done in the past. A simple "how are you doing?" may not be enough. We need to slow down and take time to listen to our colleague's concerns and worries. I also believe that, as leaders and healers in our communities, we need to model collective genuine concern for all.

Finally, we need to set aside time to think about what we desire in the future and how we can work together to create a more inclusive and accepting culture. We cannot get to the desired future if we cannot visualize it—this is a saying I teach "my" medical students and resident physicians at the University of Minnesota and Mayo. Polarization is something we must root out so that inclusion and acceptance can grow in its place.

For whatever comes next, these principles will help us stay focused and healthy and capable of doing our individual and teamwork for patients and our common collective work to improve our communities.

I want to thank each of you for the work you do each day and the tremendous efforts you put forward to address the needs of patients and the needs of our communities in these most difficult times.

We are trying to simultaneously manage what experts have described as two pandemics.

Minnesota Medical Association

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COVID-19 IN MINNESOTA

# Epidemiology of hospitalized patients April through June 2020

BY ERICA BYE, MPH; KATHRYN COMO-SABETTI, MPH; RICHARD DANILA, PHD, MPH; CARMEN BERNU, MPH; AND RUTH LYNFIELD, MD

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was first identified in December 2019 in China. Subsequently, millions of coronavirus disease 2019 (COVID-19) cases have been identified worldwide. The Minnesota Department of Health (MDH) implemented statewide surveillance for laboratory-confirmed, hospitalized COVID-19 cases as a part of the Centers for Disease Control and Prevention Emerging Infections Program Network. A total of 3,817 laboratory-confirmed cases of COVID-19 were hospitalized between April 1 and June 30, 2020. Ten percent of COVID-19 cases in Minnesota were hospitalized, with an incidence of 63 hospitalized cases per 100,000 population. Among 3,751 cases (94%) with medical record review, median age was 59 years, 78% had >1 comorbidity, 63% had >2 comorbidities, 30% required admission to an intensive care unit, and 13% died. Racial and ethnic minorities were over-represented and more than 80% of cases were from the Minneapolis-St. Paul metropolitan area. COVID-19 hospitalizations in Minnesota were similar to reports from other parts of the United States in spring 2020, with disparate populations affected and high rates of ICU admission and in-hospital death.

## Introduction

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was initially identified in Wuhan, China, in December 2019. From the initial identification through August 1, 2020, 17 million cases of COVID-19 and 675,000 deaths were reported globally[1]; the United States was the largest contributor, with more than 4.5 million cases and 152,000 deaths.

The first laboratory-confirmed case of COVID-19 in a Minnesota resident was identified on March 6, 2020. The patient was male, in his 70s, and had recently returned from a cruise. Initial cases in Minnesota were associated with international travel; however, testing at the time was restricted to certain international travelers as per the U.S. Centers for Disease Control

FIGURE 1

**Case Counts and Rate of Hospitalized COVID-19 Cases by Week of Admission and Region, April 1 - June 30, 2020**

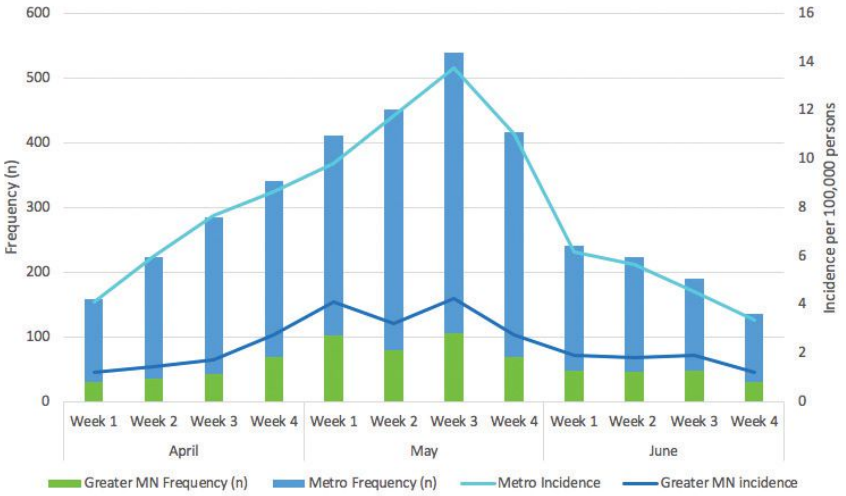


FIGURE 2

**Non-Hospitalized COVID-19 Cases by Week of Specimen Collection and Region, April 1 – June 30, 2020**

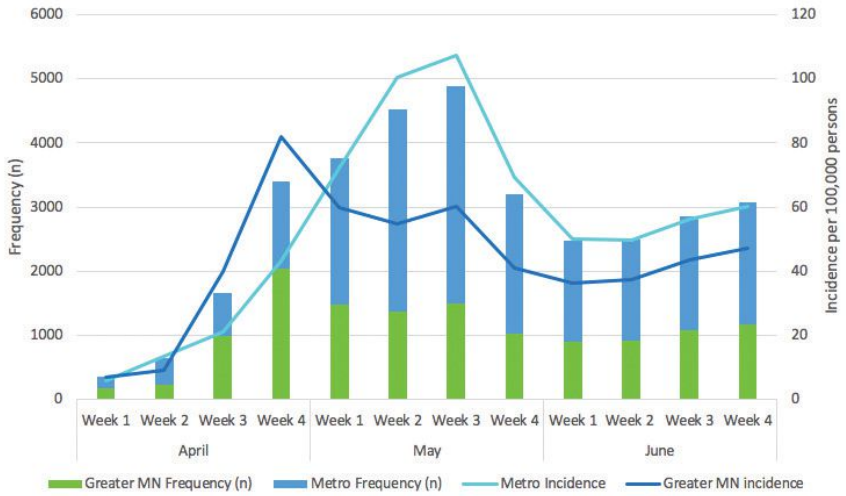

TABLE 1

**Demographic and clinical characteristics of cases hospitalized with COVID-19, April 1–June 30, 2020**

| | METROPOLITAN AREA* N (%) | GREATER MINNESOTA N (%) | P-VALUE | TOTAL N (%) |
|---|---|---|---|---|
| **TOTAL** | n = 2,877 | n = 694 | | n = 3,571 |
| Age in years (median, IQR) | 60, 45 – 74 | 57, 42 - 69 | <0.001 | 59, 44 - 73 |
| **AGE CATEGORY:** <18 years | 54 (2) | 19 (3) | NS | 73 (2) |
| **AGE CATEGORY:** 18 - 49 years | 812 (28) | 216 (31) | NS | 1,028 (29) |
| **AGE CATEGORY:** 50 - 64 years | 815 (28) | 236 (34) | <0.001 | 1,051 (29) |
| **AGE CATEGORY:** 65 - 75 years | 678 (24) | 142 (20) | NS | 820 (23) |
| **AGE CATEGORY:** ≥75 years | 518 (18) | 81 (12) | <0.001 | 599 (17) |
| Male | 1,398 (49) | 373 (54) | 0.011 | 1,771 (50) |
| **RACE/ETHNICITY:** Non-Hispanic White | 1,221 (42) | 308 (44) | NS | 1,529 (43) |
| **RACE/ETHNICITY:** Non-Hispanic Black | 786 (27) | 115 (17) | <0.001 | 901 (25) |
| **RACE/ETHNICITY:** Asian/Pacific Islander | 350 (12) | 46 (7) | <0.001 | 396 (11) |
| **RACE/ETHNICITY:** American Indian/Alaskan Native | 64 (2) | 19 (3) | NS | 83 (2) |
| **RACE/ETHNICITY:** Hispanic Ethnicity | 403 (14) | 160 (23) | <0.001 | 563 (16) |
| **RESIDENCE AT ADMISSION:** Private residence | 1,933 (67) | 568 (82) | <0.001 | 2,501 (70) |
| **RESIDENCE AT ADMISSION:** Facility** | 869 (30) | 109 (16) | <0.001 | 978 (27) |
| **RESIDENCE AT ADMISSION:** Homeless/Shelter | 54 (2) | 7 (1) | NS | 61 (2) |
| **RESIDENCE AT ADMISSION:** Home with services | 17 (1) | 4 (1) | NS | 21 (1) |
| **RESIDENCE AT ADMISSION:** Corrections | 1 (<1) | 5 (1) | NS | 6 (<1) |
| **RESIDENCE AT ADMISSION:** Hospice | 2 (<1) | 0 (0) | NS | 2 (<1) |
| Pregnant at admission (n = 567) | 166 (6) | 36 (5) | NS | 202 (6) |
| Current/former smoker | 986 (34) | 242 (35) | NS | 1,228 (34) |
| No smoking history | 1,891 (66) | 452 (65) | NS | 2,343 (66) |
| **UNDERLYING CHRONIC CONDITION (N=2,779)****: Presence of ≥ 1 underlying condition | 2,252 (78) | 527 (76) | NS | 2,779 (78) |
| **UNDERLYING CHRONIC CONDITION:** Hypertension | 1,498 (52) | 315 (45) | <0.001 | 1,813 (51) |
| **UNDERLYING CHRONIC CONDITION:** Obesity | 981 (34) | 273 (39) | 0.011 | 1,254 (35) |
| **UNDERLYING CHRONIC CONDITION:** Chronic lung disease | 756 (26) | 190 (27) | NS | 946 (26) |
| *Asthma* | 330 (11) | 69 (10) | NS | 399 (11) |
| *COPD/Emphysema* | 255 (9) | 54 (8) | NS | 309 (9) |
| *Obstructive sleep apnea* | 300 (10) | 90 (13) | NS | 390 (11) |
| **UNDERLYING CHRONIC CONDITION:** Metabolic diseases | 1,124 (39) | 275 (40) | NS | 1,399 (39) |
| *Diabetes* | 926 (32) | 224 (32) | NS | 1,150 (32) |
| *Thyroid dysfunction* | 281 (10) | 57 (8) | NS | 338 (9) |
| **UNDERLYING CHRONIC CONDITION:** Cardiovascular disease | 908 (32) | 196 (28) | NS | 1,104 (31) |
| *Atrial fibrillation* | 266 (9) | 53 (8) | NS | 319 (9) |
| *History of stroke/CVA* | 242 (8) | 36 (5) | 0.005 | 278 (8) |
| *Coronary artery disease* | 274 (10) | 70 (10) | NS | 344 (10) |
| *Congestive heart failure/Heart failure* | 274 (10) | 55 (8) | NS | 329 (9) |
| **UNDERLYING CHRONIC CONDITION:** Neurologic conditions | 772 (27) | 122 (18) | <0.001 | 894 (25) |
| *Dementia* | 386 (13) | 32 (5) | <0.001 | 418 (12) |

and Prevention (CDC) criteria. As testing became more widely available in Minnesota and testing criteria broadened, cases associated with community transmission and outbreaks in congregate and other settings were detected. Minnesota COVID-19 cases increased to over 55,000 cases and 1,600 deaths through August 1, 2020.[2] Disease severity has been associated with comorbidities and certain demographic characteristics.[3-5] We reviewed data on hospitalized cases of COVID-19 in Minnesota to describe the characteristics and outcomes of these cases, including critical and fatal illnesses.

## Methods

The Minnesota Department of Health (MDH) conducts surveillance for patients hospitalized with SARS-CoV-2 as part of the CDC Emerging Infections Program (CDC EIP) COVID-19-Associated Hospitalization Surveillance Network (COVID-NET). COVID-NET methods have been defined elsewhere.[3] Briefly, cases are defined as patients admitted to a hospital with SARS-CoV-2 infection, confirmed by laboratory testing, within 14 days prior to or during hospitalization. Laboratory testing was ordered at the discretion of the health care provider. COVID-NET includes residents of all ages, of the seven-county Minneapolis-St. Paul metropolitan area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties). However, MDH expanded surveillance to

NS = not significant

IQR=Interquartile range

* Metropolitan area includes residents of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington Counties

** Facility includes nursing/skilled nursing, assisted living, group home, rehabilitation, alcohol/drug facilities, and psychiatric care

*** Obesity defined as body mass index ≥ 30

**** The following underlying conditions were reported among ≤ 5% of cases: blood disorders, gastrointestinal/liver disease, neuropathy, rheumatologic/autoimmune conditions, and seizure disorders/epilepsy.

include Minnesota residents throughout the state using COVID-NET methods.

Medical record reviews were conducted by trained surveillance officers using a standardized case report form and protocol. Data collected included demographic (age, sex, race, and ethnicity) and clinical variables (symptoms at time of admission, presence of underlying medical conditions, admission to an intensive care unit [ICU], laboratory testing, treatment, imaging, and discharge diagnoses and disposition).

Cases with an admission date from April 1 through June 30, 2020 were included in this analysis. Analysis included a descriptive review of demographics, underlying conditions, and outcome (e.g., ICU admission, in-patient mortality). Multivariate models included age groups (<18 years, 18–49 years, 50–64 years, 65–74 years, ≥75 years), sex, race, and ethnicity. Variables were included in multivariate analysis when the p-value was < 0.05. Multivariate analysis was conducted using PROC LOGISTIC and PROC GENMOD controlling for age and presence of an underlying condition. Case data were analyzed using SAS version 9.4 software (SAS Institute Inc., Cary, NC, USA).

Data were collected as part of routine public health surveillance and not subject to Institutional Review Board approval.

## Results

A total of 37,192 laboratory-confirmed cases were identified with a specimen collection date from April 1 through June 30, 2020. Overall, case incidence for laboratory-confirmed cases was 677 per 100,000 persons. Ninety percent (33,375) of cases were not hospitalized. A total of 3,817 hospitalized COVID-19 patients were identified with an admission date from April 1 through June 30, 2020. After excluding 246 patients where chart abstractions had not yet been completed, 3,571 (94%) were included in this analysis (97% chart review completion for seven-county metropolitan area residents, and 83% completion for charts of greater Minnesota residents). Two thousand eight hundred seventy-seven (81%) cases resided in the metropolitan area, and 694 (19%) were greater Minnesota residents. Overall incidence for hospitalizations was 63 cases per 100,000 persons. Admissions peaked in the middle of May and had a steady downward trend into June for both residents of the metropolitan area and greater Minnesota (Figure 1), while non-hospitalized cases saw a steady increase throughout June (Figure 2).

Among 3,571 cases, the median age was 59 years (IQR (interquartile range): 44–73 years) with 69% >50 years (Table 1). The median age for hospitalized cases was significantly older than the median age of 38 years (IQR 25-55 years) for overall cases (p<0.001). Statewide, males (1,771) and females (1,800) were equally represented among cases. However, the proportion of males significantly differed among those living in greater Minnesota compared to those in the metropolitan area (49% vs 54%, p=0.011). Forty-three percent (1,529) of cases were non-Hispanic white, 25% (901) were non-Hispanic Black, 11% (396) were Asian/Pacific Islander, and 2% (83) were American Indian/Alaskan Native. The proportion of cases that were non-Hispanic Black and Asian/Pacific Islanders was greater among cases from the metropolitan area compared to greater Minnesota (27% vs 17%, p<0.001 and 12% vs 7%, p<0.001 respectively). Sixteen percent of all cases (563) were Hispanic, and the proportion of cases that were Hispanic was higher among greater Minnesota residents than among the metropolitan residents (23% vs 14%, p<0.001). Most patients resided in a private residence prior to admission (70%) with 27% residing at a facility (including nursing/skilled nursing, assisted living, group home, rehabilitation, alcohol/drug facilities, and psychiatric care). The

TABLE 2

**Clinical characteristics of cases hospitalized with COVID-19, April 1–June 30, 2020**

| | METROPOLITAN AREA* N (%) | GREATER MINNESOTA N (%) | P-VALUE | TOTAL |
|---|---|---|---|---|
| **TOTAL** | n = 2,877 | n = 694 | | N = 3571 |
| Days length of stay, median (IQR) | | | | 5 (3-11) |
| Days from symptom onset to admission, median (IQR) | | | | 6 (3-9) |
| Days of ICU stay, median (IQR) | | | | 29 (18-44) |
| **ANY SYMPTOMS AT ADMISSION** | 2,528 (88) | 647 (93) | <0.001 | 3,175 (89) |
| *Cough* | 1,552 (54) | 442 (64) | <0.001 | 1,994 (56) |
| *Shortness of breath/Respiratory distress* | 1,553 (54) | 458 (66) | <0.001 | 2,011 (56) |
| *Fever* | 1,549 (54) | 444 (64) | <0.001 | 1,993 (56) |
| *Diarrhea* | 502 (17) | 160 (23) | <0.001 | 662 (19) |
| *Nausea/vomiting* | 522 (18) | 157 (23) | <0.001 | 679 (19) |
| *Myalgia* | 536 (19) | 204 (29) | <0.001 | 740 (21) |
| *No symptoms at admission* | 349 (12) | 47 (7) | <0.001 | 396 (11) |
| High-flow nasal cannula | 604 (21) | 181 (26) | 0.004 | 785 (22) |
| BiPAP/CPAP | 441 (15) | 108 (16) | NS | 549 (15) |
| Mechanical ventilation | 508 (18) | 121 (17) | NS | 629 (18) |
| ECMO | 20 (1) | 3 (<1) | NS | 23 (1) |
| ICU admission | 856 (30) | 222 (32) | NS | 1,078 (30) |
| Died during hospitalization | 384 (13) | 70 (10) | 0.023 | 454 (13) |

NS = not significant

IQR=Interquartile range

* Metropolitan area includes residents of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington Counties

proportion of cases admitted from a facility was greater among metropolitan cases compared to greater Minnesota cases (30% vs 16%, p<0.001). Only 6% (153) of cases worked in a health care setting and this did not differ by the residence of the case. Of cases identified among 567 females of child-bearing age (15–49 years), 202 (6%) were pregnant at hospital admission (Table 1).

Seventy-eight percent (2,779) of all cases had at least one underlying medical condition at the time of admission with 2,244 of those patients having two or more underlying conditions. Hypertension (51%), obesity defined as having a body mass index (BMI) ≥ 30 (35%), and diabetes mellitus (32%) were the most commonly recorded underlying conditions. Specific underlying conditions differed by residence in the metropolitan area compared to greater Minnesota (Table 1).

The median length of hospital stay was 5 days (IQR: 3–11 days), and the median length of time between symptom onset for those with respiratory symptoms and admission was 6 days (IQR: 3–9 days). Cough (56%), shortness of breath/respiratory distress (56%), and fever (56%) were the most frequently documented symptoms at admission. Eleven percent (396) of cases had no documented symptoms at admission, 202 of which were pregnant women tested at delivery.

Fifty-five percent (1,963) of patients required respiratory support, with 22% requiring high-flow nasal cannula (HFNC), 15% requiring bi-level positive airway pressure (BiPAP) or continuous positive airway pressure (CPAP), and 18% requiring mechanical ventilation. Twenty-three patients required extracorporeal membrane oxygenation (ECMO) (Table 2). Patients that required respiratory support of any form had a higher median age than

TABLE 3

**Risk Factors for ICU Admission and In-hospital Death among Hospitalized COVID-19 cases, April 1–June 30, 2020**

| | ICU ADMISSION | | | IN-HOSPITAL DEATH | | |
|---|---|---|---|---|---|---|
| | ICU ADMISSION N (%) | NO ICU ADMISSION N (%) | OR (CI) | DIED N (%) | SURVIVED N (%) | OR (CI) |
| **TOTAL** | 1,078 | 2,493 | | 454 | 3,116 | |
| Female | 446 (41) | 1,354 (54) | REF | 195 (43) | 1,605 (52) | REF |
| Male | 632 (59) | 1,138 (46) | 1.66 (1.44, 1.93) | 259 (57) | 1,511 (48) | 1.69 (1.36, 2.09) |
| **AGE CATEGORY:** <18 years | 18 (2) | 55 (2) | -- | 0 | 73 (2) | -- |
| **AGE CATEGORY:** 18-49 years | 254 (24) | 773 (31) | REF | 18 (4) | 1,009 (32) | REF |
| **AGE CATEGORY:** 50-64 years | 375 (35) | 676 (27) | 1.59 (1.28, 1.90) | 101 (22) | 950 (30) | 5.03 (3.00, 8.45) |
| **AGE CATEGORY:** 65-75 years | 297 (28) | 523 (21) | 1.55 (1.24, 1.92) | 172 (38) | 648 (21) | 11.82 (7.08, 19.73) |
| **AGE CATEGORY:** >75 years | 134 (12) | 465 (19) | NS | 163 (36) | 436 (14) | 16.46 (9.81, 27.63) |
| **RACE/ETHNICITY:** Non-Hispanic White | 404 (37) | 1125 (45) | REF | 257 (57) | 1,254 (40) | REF |
| **RACE/ETHNICITY:** Non-Hispanic Black | 263 (24) | 638 (26) | NS | 83 (18) | 813 (26) | NS |
| **RACE/ETHNICITY:** Asian/Pacific Islander | 170 (16) | 226 (9) | 2.17 (1.73, 2.73) | 49 (11) | 342 (11) | NS |
| **RACE/ETHNICITY:** American Indian/Alaskan Native | 28 (3) | 55 (2) | NS | 19 (4) | 63 (2) | 3.578 (2.062, 6.289) |
| **RACE/ETHNICITY:** Hispanic Ethnicity | 181 (17) | 381 (15) | 1.247 (1.01, 1.53) | 32 (7) | 530 (17) | NS |
| No underlying conditions | 197 (18) | 595 (24) | REF | 26 (6) | 766 (25) | REF |
| One underlying condition | 173 (16) | 361 (14) | 1.479 (1.155, 1.894) | 41 (9) | 493 (16) | NS |
| Two or more underlying conditions | 708 (66) | 1536 (62) | 1.434 (1.159, 1.774) | 387 (85) | 1857 (60) | 2.257 (1.452, 3.510) |
| **UNDERLYING CHRONIC CONDITION:** Chronic lung | 319 (30) | 627 (25) | NS | 153 (34) | 793 (25) | NS |
| **UNDERLYING CHRONIC CONDITION:** Diabetes | 434 (40) | 716 (29) | 1.682 (1.443, 1.959) | 208 (46) | 942 (30) | 1.784 (1.445, 2.201) |
| **UNDERLYING CHRONIC CONDITION:** Cardiovascular | 350 (32) | 754 (30) | NS | 248 (55) | 856 (27) | 1.298 (1.026, 1.643) |
| **UNDERLYING CHRONIC CONDITION:** Neurologic | 253 (23) | 641 (26) | NS | 187 (41) | 707 (23) | NS |
| **UNDERLYING CHRONIC CONDITION:** Immmunocompromised | 76 (7) | 178 (7) | NS | 45 (10) | 209 (7) | NS |
| **UNDERLYING CHRONIC CONDITION:** Renal disease | 216 (20) | 369 (15) | 1.452 (1.183, 1.783) | 156 (34) | 429 (14) | 1.679 (1.322, 2.133) |
| **UNDERLYING CHRONIC CONDITION:** Gastrointestinal/Liver | 73 (7) | 113 (5) | 1.406 (1.031, 1.916) | 36 (8) | 150 (5) | 1.566 (1.050, 2.335) |
| **UNDERLYING CHRONIC CONDITION:** Obesity | 443 (41) | 811 (33) | 1.319 (1.115, 1.562) | 166 (37) | 1088 (35) | NS |
| **UNDERLYING CHRONIC CONDITION:** Hypertension | 582 (54) | 1,231 (49) | NS | 309 (68) | 1504 (48) | NS |

ICU=Intensive care unit; OR = odd ratio, CI=confidence interval, REF= reference for comparison, NS= not significant

those that did not need respiratory support (median age: 62 years, IQR: 51–73 years vs median age: 59 years, IQR: 43–75 years, respectively; p < 0.001).

Overall, 30% (1,078) of cases were admitted to the ICU. The median length of stay in the ICU was 29 days (IQR: 18–44 days). Length of stay in the ICU was associated with sex (p=0.004), race (p<0.001), and the number of underlying medical conditions present (p=0.002). When controlling for age and presence of an underlying condition, males were more likely to be admitted to the ICU (OR: 1.66, 95% CI: 1.44–1.93, p<0.001) compared to females. Patients aged 50–74 years were also more likely to be admitted to the ICU (p<0.001) compared to those aged 18–49 years. After controlling for sex and age, Asian/Pacific Islanders (OR: 2.17, 95% CI: 1.73–2.73, p=0.003) and Hispanics overall (OR: 1.25, 95% CI: 1.01, 1.53, p=0.034) were more likely to be admitted to the ICU when compared to non-Hispanic whites (Table 3). After controlling for age and sex, underlying conditions that were associated with ICU admission were diabetes (OR: 1.68, 95% CI: 1.44–1.96), renal disease (OR: 1.45, 95% CI: 1.18–1.78), gastrointestinal/liver disease (OR: 1.41, 95% CI: 1.03–1.92), and obesity (OR: 1.32, 95% CI: 1.12–1.56).

From April 1 through June 30, 454 COVID patients died while hospitalized (13%). The risk of dying in the hospital significantly increased as age increased (p<0.001). Being male compared to female was associated with in-hospital mortality (OR: 1.69, 95% CI: 1.36–2.09). Median age of those that died was 74 years (IQR: 64–83 years), and was higher than those that survived (median age: 57 years, IQR: 42–71 years, p < 0.001). Although a greater proportion of metropolitan area residents died during hospitalization compared to residents of greater Minnesota (13% vs 10%, p=0.016) these differences were no longer observed when controlling for age and sex. While Asian/Pacific Islanders and Hispanics were more likely to be admitted to the ICU compared to white cases, only American Indians/Alaskan Natives were at an increased risk of in-hospital mortality after controlling for age and sex (OR: 3.58, 95% CI: 2.06–6.29, p<0.001) (Table 3). Underlying conditions that were associated with an increased risk of dying in the hospital included diabetes (OR: 1.78, 95% CI: 1.45–2.20, p<0.001), renal disease (OR: 1.68, 95% CI: 1.32–2.13, p<0.001), gastrointestinal/liver disease (OR: 1.57, 95% CI: 1.05–2.34) and cardiovascular disease (OR: 1.30, 95% CI: 1.03–1.64), after controlling for age and sex.

There were 73 pediatric (<18 years) cases, with a median age of 9 years (IQR: 2–15 years) compared to 11 years (IQR: 5–15 years) in non-hospitalized pediatric cases. The median length of stay was 3 days (IQR: 2–5 days), less than adult cases when controlling for underlying comorbidities (p < 0.001). One quarter of pediatric cases (18) were admitted to the ICU overall with eight needing respiratory support, and four requiring intubation. Twenty-two (30%) pediatric cases hospitalized had at least one underlying condition, significantly less than the proportion of adult cases with underlying conditions (p < 0.001). The most common comorbidities among pediatric hospitalizations were neurologic conditions (8), immunocompromised conditions (6), metabolic and blood disorders (3). The presence of an underlying condition among pediatric cases was not significantly associated with ICU admission, and there were no deaths among pediatric hospitalized cases.

## Discussion

Over 80% of hospitalized cases lived in the Minneapolis-St. Paul metropolitan area, with a higher proportion of non-Hispanic Blacks, Asian/Pacific Islanders, and facility residents being admitted compared to cases among greater Minnesota residents. Males and Hispanics contributed to higher admissions in greater Minnesota. The greater proportion of Hispanic cases in greater Minnesota may be related to outbreaks in meat processing plants.

Approximately 70% of cases who were hospitalized were people over the age of 50 years. ICU admission was significantly associated with older age, up until age 75 years. However, those older than 75 years may have patient directives in place regarding critical care. In-hospital mortality risk steadily increased as age increased. Additional variables have been added since this time period to the medical record review, to collect patient directives.

Similar to other reports, [6-9] we found that older adults, male sex, and the presence of diabetes, renal disease, gastrointestinal/liver disease, and cardiovascular disease were significantly associated with a higher risk of ICU admission and in-hospital death in Minnesota. The proportion of hospitalized COVID-19 cases requiring intubation, ICU admission or in-patient death was greater for COVID-19 than for influenza (using the 2017–2018 influenza season and same CDC EIP methodology), highlighting the severity of COVID-19 (18% vs 10%, 30% vs 12%, 13% vs 3%; unpublished data). Future analyses are planned that include the prevalence of these conditions by geographic and racial and ethnic populations.

Children accounted for a much lower proportion of hospitalized cases, and a lower proportion of those hospitalized had an underlying condition compared with adults. Notably, underlying conditions were not a significant risk factor for ICU admission despite a high proportion that required intensive care.

We observed a peak of admissions in May with a weekly decline toward June. We also observed a peak of overall case counts in the third week of May with a sharp decline, but began to rise as June progressed.

Some patients may have been hospitalized for non-COVID-19 reasons we could not distinguish. In June, CDC expanded the case report form to include questions regarding reason for admission and chief complaint in order to distinguish patients admitted for treatment of COVID-19, versus patients tested for pre-surgical and infection control purposes.

Our analysis is limited by a number of factors. Testing practices changed over time as tests became available and knowledge about SARS-CoV-2 transmission evolved. Initially, asymptomatic transmis-

sion was not widely recognized and testing was targeted at patients with recognized COVID-19 symptoms. Retrospective ascertainment of this information is ongoing but not included in this analysis. Cases residing in the metropolitan area were more likely to have a medical record review completed than cases in greater Minnesota. Therefore, data presented may not represent characteristics of all hospitalized cases in greater Minnesota for this time period.

We observed certain characteristics that were associated with poorer outcome among patients hospitalized with COVID-19, including older age and presence of comorbidities. Specific racial and ethnic groups were also at higher risk for ICU admission and in-patient death even after controlling for sex and age. These finding highlight the need for preventive measures, especially to protect those populations most vulnerable to COVID-19. Ongoing surveillance of hospitalized COVID-19 cases is needed monitor trends in rates and case demographic, clinical and outcome characteristics. These data can help inform targeted education and prevention measures. **MM**

All authors are with the Minnesota Department of Health: Erica Bye, MPH, epidemiologist; Kathryn Como-Sabetti, MPH, supervisor of the Emerging Infections Unit; Richard Danila, PhD, MPH, epidemiology program manager; Carmen Bernu, MPH, epidemiologist; and Ruth Lynfield, MD, state epidemiologist.

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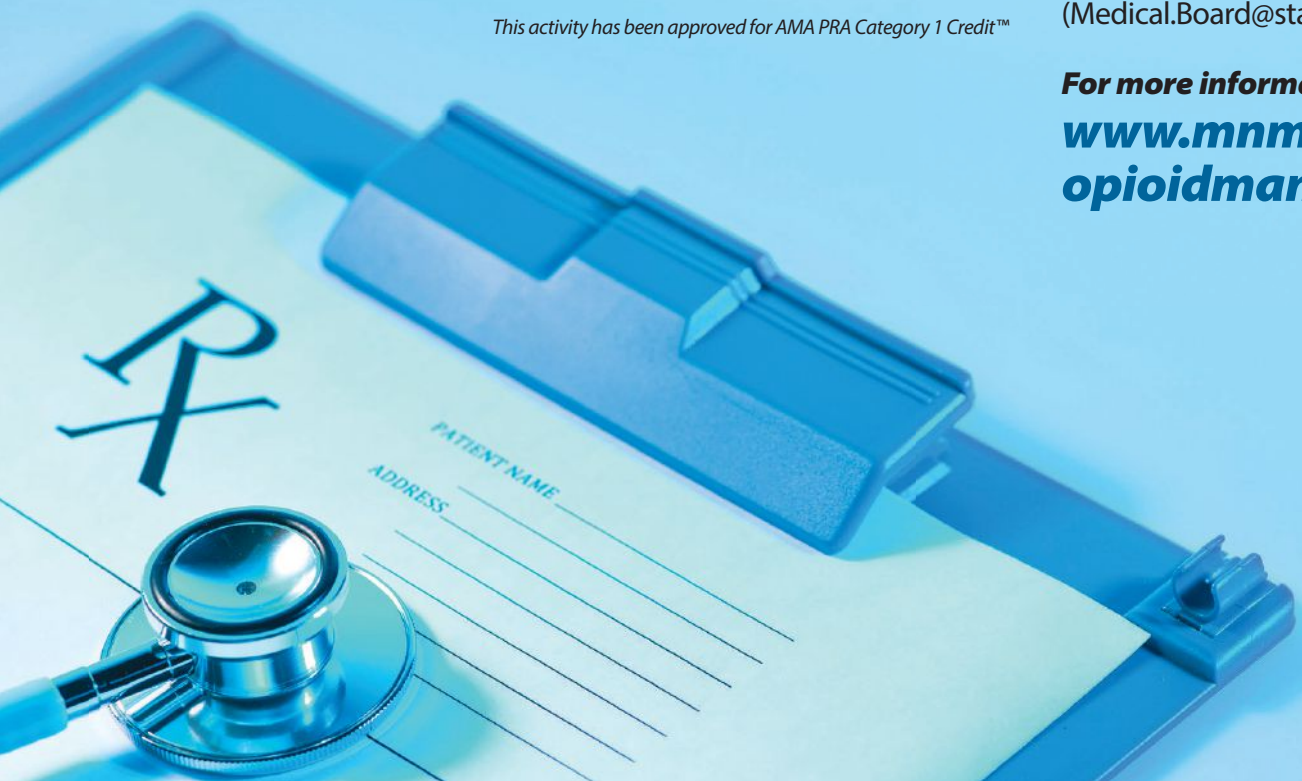

## 2020 submissions show quality research and analysis

More than 30 students, residents and fellows submitted abstracts and case studies to *Minnesota Medicine*, for possible publication.

Submission deadlines were moved slightly, as a result of the COVID-19 pandemic—medical students, residents and the physicians they worked with all had many demands on their time in a dramatically changed medical education landscape.

The quality of the submissions was, overall, high, according to reviewers, and a number of them touched on issues relevant to today's health care. *Minnesota Medicine* will publish 18 of the submissions. Eight are in this issue of the magazine; the remaining abstracts will be published in subsequent issues.

The reviewers looked at each manuscript to determine whether the research or case description was clear and complete, whether the methodology was sound, whether the scientific literature review was sufficient and whether the findings had implications for future research. Reviewer's comments were sent to all those who submitted so they could revise abstracts for publication or simply learn from the comments.

We thank our reviewers: Devon Callahan, MD; Renee Crichlow, MD; Milton Datta, MD; Ann McIntosh, MD; Zeke McKinney, MD, MHI, MPH; Abby Metzler, MD, and Siu-Hin Wan, MD. Callahan and Wan are members of the *Minnesota Medicine* Advisory Board; McKinney is chief medical editor of *Minnesota Medicine*.

# Dedifferentiated liposarcoma with osteosarcomatous component

BY COLLIN GRADIN AND NOELLE HOVEN, MD

A 53-year-old male presented with right-sided flank and upper back pain progressing over the last six months. Initial workup showed elevated liver enzymes and hepatic steatosis on ultrasound. Further evaluation with contrast enhanced MRI demonstrated an incidental right-sided retroperitoneal mass.

### Discussion

Soft-tissue sarcomas in the abdomen and pelvis can grow insidiously and eventually present as large masses infiltrating and/or compressing vital organs. The mortality rate has been reported to be around 40%.[1] Although rare, soft-tissue sarcomas in the abdomen are important to recognize to ensure proper characterization and appropriate treatment.[1] The anatomic location and imaging features help narrow the differential diagnosis.[1-3] Liposarcomas are the most common retroperitoneal soft tissue sarcoma and are suspected when a fat-containing tumor contains non-fatty elements like irregular, thick septa and soft-tissue on imaging.[1,4-5] Retroperitoneal liposarcomas are further classified as well-differentiated liposarcomas (WDLPS) and de-differentiated liposarcomas (DDLPS) based on the pathologic findings.[4] WDLPS are the majority and are known to contain mature fatty elements on imaging.[3] WDLPS tend to be indolent and do not typically metastasize. DDLPS can occur within WDLPS or can arise de novo and tend to metastasize.[4] Histologic heterogeneity occurs with sarcomas and influences overall prognosis. DDLPS should be suspected if a retroperitoneal fat containing tumor contains soft-tissue elements with necrosis, calcifications, fluid-attenuation/T2 hyperintense foci (on MRI) or differential enhancement.[2,4]

Percutaneous CT biopsy for histological diagnosis can have variable accuracy in detecting DDLPS and depends largely on precise nodule sampling.[4,6] When possible, surgical excision with en bloc resection of involved organs may offer cure. Neoadjuvant chemotherapy and radiation have been used to treat aggressive DDLPS.[3-4] Prognosis of retroperitoneal liposarcomas depends on the success of surgical resection, histologic grade, extent of multifocal disease, and invasion of adjacent structures.[4]

In this case the MRI demonstrates a 14.1x8.1x14.8cm lobulated fat containing retroperitoneal mass with scalloped mass effect on the right hepatic lobe and displacement of the right kidney. Contrast enhanced computed tomography (CT) did

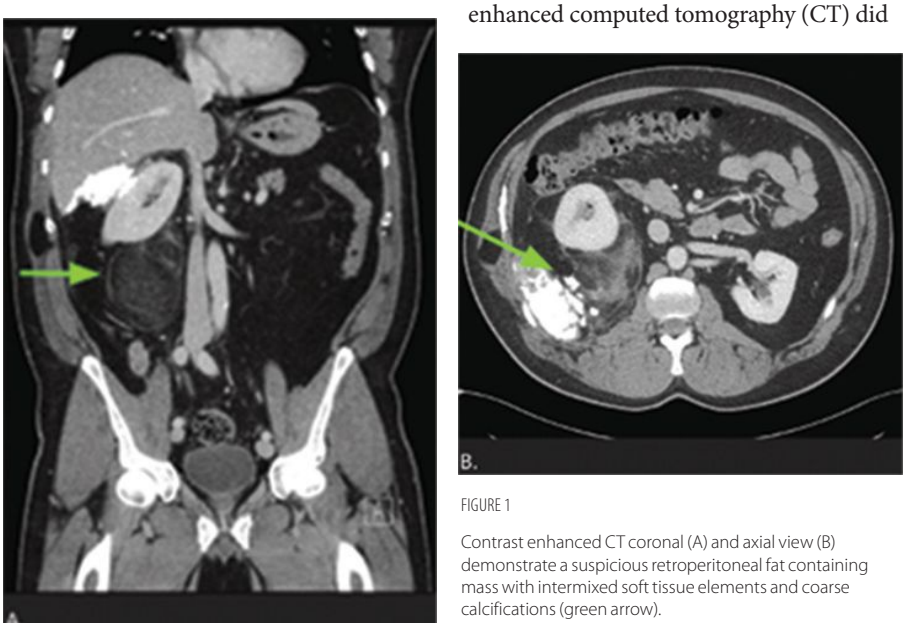


FIGURE 1

Contrast enhanced CT coronal (A) and axial view (B) demonstrate a suspicious retroperitoneal fat containing mass with intermixed soft tissue elements and coarse calcifications (green arrow).

not demonstrate any evidence of metastasis. Diagnosis was established with CT-guided percutaneous core needle biopsy.

The patient completed neoadjuvant chemotherapy and subsequently an open resection of this right retroperitoneal sarcoma. Final surgical pathology confirmed a DDLPS, specifically de-differentiated liposarcoma with osteosarcomatous components measuring up to 29cm.

### Learning Points

Early recognition and diagnosis are important in the setting of malignant retroperitoneal tumors because it influences prognosis.

Contrast-enhanced computed tomography (CT) is used to characterize the location, imaging features of the tumor, and extent of disease. CT can help to identify the appropriate area to biopsy to prevent sampling error.

The most common retroperitoneal liposarcomas are well-differentiated liposarcomas (WDLPS) and de-differentiated liposarcomas (DDLPS). DDLPS tend to be more aggressive and metastasize. **MM**

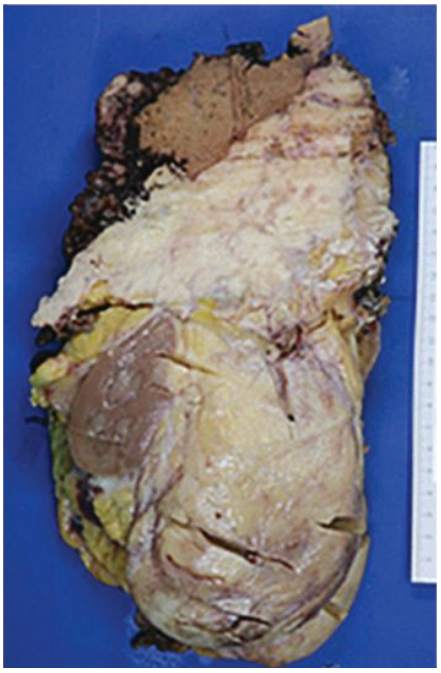

FIGURE 2

Gross surgical specimen

Collin Gradin is a fourth-year medical student, University of Minnesota, and Noelle Hoven, MD, is an assistant professor in the Department of Diagnostic Radiology, University of Minnesota.

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# TB or not TB? A cautionary tale of night sweats due to endocarditis with a delayed diagnosis.

BY TAMARA DAMJANAC AND SAMUEL IVES, MD

Subacute bacterial endocarditis is most often due to streptococci from the viridans group. With prolonged infection, patients may develop immunologic phenomena including glomerulonephritis.

### Case presentation

A 54-year-old Mexican-American man presented to clinic with fever and night sweats of two months duration. He denied any foreign travel since moving to the United States from Mexico 20 years prior and had no history of IV drug abuse. He also endorsed headache, dizziness, and nocturia. Physical exam showed no lymphadenopathy but did document a holosystolic murmur in the tricuspid area—patient had history of "heart murmur" noted in his chart. While work-up with TTE would have been appropriate, patient did not have health insurance, so this was postponed in an effort to minimize cost. Urinalysis showed RBCs and blood. CBC showed mild leukocytosis, normal glucose, and PPD was negative.

The patient returned for three subsequent clinic visits, each time with night sweats, fatigue, and eventually a 20-pound weight loss. In some of the visits, the murmur was documented. The patient was treated for a complicated UTI during this time.

About one month later, the patient presented to the Emergency Department with persistent sweats and progressive weight loss. Exam again documented the murmur. Labs showed anemia and thrombocytopenia and a creatinine of 1.5. He had ongoing hematuria. The patient reported at that time that he had never been tested for TB. The differential diagnosis included TB or renal malignancy with possible infection. CT abdomen was negative, but a CT chest showed a small scarred area in the lung, possibly consistent with healed cavitary lung disease. CT chest also showed scattered pulmonary nodules. He was sent home with treatment just for UTI and follow-up with urology. PPD was negative.

The patient's symptoms progressed and he was admitted for the weight loss and sweats. On admission, murmur was noted and exam showed petechiae. While being evaluated for new renal failure, the patient's blood cultures grew Streptococcus mitis, a member of the viridans group. He was started on ceftriaxone. TTE revealed a tricuspid valve lesion and tricuspid regurgitation. Repeat chest CT did show septic pulmonary emboli. Nephrology consultation and extensive lab testing confirmed

immune complex-mediated glomerulonephritis due to endocarditis.

## Discussion

This case demonstrates a late presentation of infective endocarditis with glomerulonephritis. A comprehensive initial work-up was delayed because of patient's insurance status. Although the tricuspid regurgitation murmur was noted at multiple visits, it did not raise suspicion for IE in part because the patient had an ill-defined history of a murmur. Right-sided endocarditis is much less common in native valve endocarditis and associated with history of IV drug abuse in the vast majority of cases. Additionally, in right sided endocarditis, peripheral embolization is rare, so some classic findings of endocarditis may be absent. Providers should think broadly about causes of night sweats and consider early evaluation for bacteremia in patients with sweats in the absence of a clear focus of infection. **MM**

Tamara Damjanac is a medical student, University of Minnesota. Samuel Ives, MD, is an internist, Hennepin Healthcare.

# Preventing intimate partner violence in rural Minnesota through adolescent healthy relationship programming

BY CHRISTY ATKINSON AND SYLVIA BLOMSTRAND

Intimate partner violence (IPV), defined as physical and sexual violence, stalking, or psychological harm by a current or former partner, has long been recognized as a serious, preventable public health concern that has a detrimental impact on survivor physical and mental health.[1-3] Although data on IPV is often difficult to obtain, rural populations are shown to have disproportionately higher rates of IPV and less access to IPV preventative resources in comparison to urban populations.[4-7]

IPV most often begins in adolescence or young adulthood, thus prevention efforts are targeted to this demographic to address identified risk factors.[8-10] While interventions such as community and parent-focused programs and therapy with high-risk couples have shown some benefit in IPV prevention, studies have found the most efficacious method is healthy relationship programs (HRPs) targeting adolescents, which have been shown to decrease IPV incidence by 56 to 92 percent even four years after the initial program.[11-12] These studies have been in an urban context, and to the authors' knowledge there has been no research evaluating adolescent HRPs in rural areas. In light of this, it was hypothesized that an adolescent HRP within a rural community would instill positive change in adolescents' behavior, knowledge, and attitudes surrounding IPV.

Using evidence-based strategies, a three-day HRP was developed and administered to four different classes in a rural Minnesota middle school. The curriculum covered topics related to healthy and unhealthy relationships, emotional intelligence, gender roles and stereotypes, and taking action, all of which have been shown to impact the risk for IPV.[13-14] Curriculum efficacy was measured with a pre- and post-program survey. Data analysis demonstrated marked score improvement in adolescent behaviors and attitudes pertaining to IPV following completion of the program ($p<0.05$).

This project suggests that adolescent HRPs are efficacious in the short-term and feasible in rural communities. Future directions include assessing the long-term effects of this program on factors related to IPV in the rural community and measuring its impact on IPV incidence. Overall, this project provides a foundation for rural healthy relationship curriculum development and lends evidence for the support of widespread program implementation across Minnesota. **MM**

Christy Atkinson and Sylvia Blomstrand are medical students, University of Minnesota.

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# Mobilizing personal protective equipment during the COVID-19 pandemic

BY JAMES T. PATHOULAS, ALEXANDRA N. FUHER, NATHAN RUBIN, MS, AND RONDA S. FARAH, MD

The novel coronavirus 2019 (COVID-19) pandemic has led to a demand for personal protective equipment (PPE) that outpaces supply, resulting in a global PPE shortage. The virus, SARS-CoV-2, is highly contagious and front-line health care workers have voiced consistent concern about inadequate PPE. In Minnesota, health care systems have asked the public for donations of PPE and set up community drop-off sites. The scale and urgency of efforts to route privately-held PPE to health systems is unprecedented and research regarding donation is limited. We aim to profile community PPE donors at one large academic medical center, including evaluation of donor industry, public messaging, and psychosocial aspects of donation.

## Methods

This study was deemed exempt by the University of Minnesota Institutional Review Board. A 29-question survey was created and distributed to donors at the PPE drop-off site. The survey asked respondents to characterize items for donation, method by which they heard of donation, opinion on severity of COVID-19 in Minnesota, feelings of community and contribution at time of donation, and barriers to donation. Incomplete responses were omitted. Mean scores and standard error for survey responses by intended use were completed. Linear regression was used to analyze responses against time. Pearson correlation test was used to compare psychosocial aspects of donation. An alpha of 0.05 was used to determine statistical significance.

## Results

A total of 511 surveys was completed, representing an 85.7% survey completion rate at donation drop-off sites. The most common intended use of PPE was personal (47.3%) and the least was educational (0.7%). The most commonly reported method of communication for donors to hear about PPE collection efforts was word of mouth (23.2%), followed by social media. The greatest reported barriers to donation were drop-off distance/location and confusion with drop-off directions.

Most donors agreed that the PPE shortage was severe. Donors who perceived the pandemic as severe did not feel a greater sense of contribution through donation ($p=0.27$). However, perception of pandemic severity and sense of shared community through donation had a significant positive correlation ($r=0.21$, $p=0.005$). Sense of shared community through donation and sense of contribution to pandemic efforts through donation had a significant strong positive correlation ($r=0.68$, $p < 2.2e-16$).

## Conclusion

Examining PPE donation efforts during the COVID-19 pandemic is critical to inform future strategies of mobilizing community resources during pandemics and other disasters. Despite a "shelter-in-place" order, word of mouth was the most common way by which donors heard of collection efforts. Public messaging for future community resource mobilization campaigns should lead with clear initial messaging easily spread via word of mouth. Donors felt their contribution led to a greater sense of shared community, irrespective of how serious they rated pandemic severity. Future messaging should focus on narratives that evoke donation as a means of building community. In learning from donors' self-reported barriers to donation, future drop-off sites should be widespread with clear instructions describing the donation process. **MM**

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# Understanding playground-related injuries in the Twin Cities

BY JESSICA C. FLAKNE; ZACHARY B. NOVACZYK; TONY S. LARSON; DEX TUTTLE, MED; AND JAMIE ENGELS, MD


## Objective

To better understand and classify playground-related injuries in the Minneapolis and St. Paul area in order to direct future efforts to reduce these injuries and improve playground safety.

## Methods

This was a cross-sectional retrospective review of a de-identified patient database. All pediatric patients who presented to Minnesota Children's Hospital Emergency Department and were admitted following falls from playground equipment were identified by ICD-10 codes and included in the study. Data was collected from January 2016 to July 2018. Patients with alternative mechanisms of injury were excluded. Data collected included patient demographics, playground location, time of year, and type of playground equipment associated with the injury. Descriptive statistics were used to analyze the collected variables.

## Results

A total of 381 patient cases were evaluated. Mean patient age was 6.1 years (standard deviation 2.2; range 1–14 years) and 183 (48%) patients were male. Playground-related injury occurred most commonly in the summer months, May through July. Playground equipment most commonly associated with injury was the monkey bars (38%) followed by the jungle gym (20%). Almost half (44%) of injuries occurred at public parks while 25% took place at school playgrounds. Over half of patients (53%) were admitted for management of a supracondylar humerus fracture while fracture of any etiology was the case for admission in 96% of cases.

## Discussion

Playgrounds are hallmarks of schools, parks, and neighborhoods as they offer children in the community an opportunity to exercise and socialize with other children. However, playgrounds are a common site of injury. On average, there are 146,489 visits to emergency departments per year in the United States, and 5,222 annual hospital stays secondary to falls from playground equipment in individuals 17 years and younger. Our results demonstrate that playground-related injuries in Minneapolis and St. Paul correspond with national trends. Monkey bars have previously been found to be the equipment with the greatest incidence of injury. The fact that injuries occur more commonly in public parks may be due to the relative lack of supervision in public parks as compared to school playgrounds, where there are professionals monitoring most recess activities. Injury was most commonly fracture, however other admitting diagnoses included closed-head injuries, strains, and lacerations.

## Conclusion

Playground-related injuries continue to be a significant concern in the pediatric population. Public health officials and playground developers should be conscious of the impact of playground-related injuries. While efforts to reduce the number of injuries are being made, it is difficult to quantify the effectiveness of these efforts. In partnership with Children's Minnesota, our goal is to work locally on educating children, parents, and supervisors on safe play and proper playground equipment use. Continued efforts need to be made to ensure that playgrounds are a safe environment for recreation for children in Minneapolis and St. Paul and other communities across the country. **MM**


Jessica C. Flakne, Zachary B. Novaczyk and Tony S. Larson are medical students, University of Minnesota Medical School. Dex Tuttle, MEd, is injury prevention program coordinator, and Jamie Engels, MD, is an orthopedic surgeon, Children's Minnesota.

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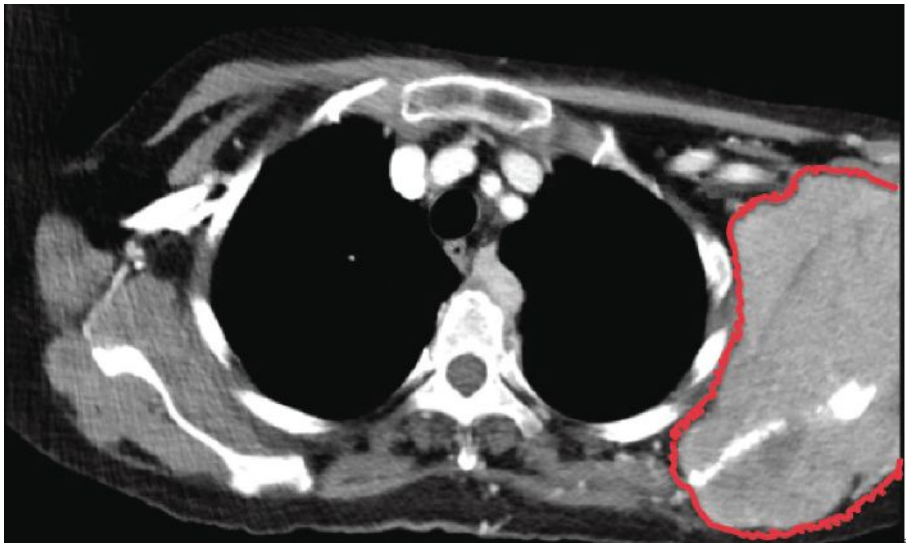
# An unexpected case of refractory shoulder pain in polymyalgia rheumatica

BY JESSICA JOANNE PADNIEWSKI, DO, AND TOY ELAINE HESS, MD, MHS

A 71-year-old female known to have hypertension, and polymyalgia rheumatica (PMR) presented to Rheumatology clinic for evaluation of sudden-onset, atraumatic left shoulder pain and stiffness. She had been diagnosed with PMR nearly two years prior and had intermittent episodes of shoulder pain related to her PMR. She required chronic prednisone therapy (up to 20mg daily) to manage her PMR symptoms of bilateral shoulder and pelvic girdle stiffness and pain.

On initial presentation, her acute left shoulder pain was thought to be a PMR relapse, which proved refractory to Naproxen, Tylenol, and Tramadol. Upon re-evaluation, her symptoms were thought to be from adhesive capsulitis, as right shoulder ROM was limited to 30 degrees of flexion and she was unable to don her shirt independently. A subacromial intrabursal steroid injection was performed at that time and she was instructed to escalate oral prednisone. Despite this, her symptoms persisted and she was seen by a new provider, who prescribed a methylprednisolone dose pack to treat a presumed PMR relapse. The methylprednisolone dose pack provided her minimal relief. On review of systems, she denied hip pain or difficulty walking and it was eventually noted that her progression of symptoms was not completely congruent with her usual PMR flares.

Given the severity and persistence of her symptoms, an MRI of the left shoulder was obtained to evaluate for rotator cuff pathology. The MRI scan revealed a large mass surrounding the scapula and left humeral head with extension into the left axillary and supraclavicular regions with erosive changes to various vertebral bodies, a lytic right scapular lesion, and a mandibular mass involving both bone and muscle tissue.



To better characterize the mass, a CT scan was obtained. CT imaging showed a large, heterogeneous, and hypervascular soft-tissue mass measuring ~15 cm with erosion of the left scapula, left clavicle, left humerus, and adjacent right rotator cuff musculature. Findings were suspicious for primary bone vs. soft-tissue malignancy with bony metastasis.

Differential diagnosis based on imaging findings include soft-tissue sarcoma, bony tumors, lymphoma, melanoma, neuroendocrine tumor, and bronchogenic carcinoma. Biopsy of the shoulder mass was performed and revealed a plasma cell neoplasm. Bone marrow biopsy showed >30% kappa-restricted plasma cells and gain of 1q on FISH analysis. She was ultimately diagnosed with IgA-kappa multiple myeloma with numerous extramedullary plasmacytomas and was started on IV steroid therapy with dexamethasone and chemotherapy with bortezomib.

This case exemplifies the possibility of PMR presenting as a paraneoplastic syndrome. This phenomenon is more commonly associated with dermatomyositis and polymyositis, but there are case reports in the literature suggesting that PMR may also represent a paraneoplastic syndrome in a similar manner. This relationship does remain widely debated but it is an important consideration as exemplified by our case. Additionally, this case illustrates the importance of maintaining a broad differential, especially in patients with chronic diseases. This patient's symptoms were initially thought to be related to her underlying diagnosis of PMR and anchoring bias may have played a role in providers not pursuing other explanations. Physicians fall subject to anchoring bias by relying too heavily on a diagnosis from a previous provider or by using a prior diagnosis, such as PMR, to explain symptoms that may not entirely fit the clinical picture. Anchoring bias may have resulted in a delayed diagnosis and treatment of this patient's malignancy. It is important to re-evaluate patients meticulously, particularly patients with a history of chronic disease and especially if the clinical pattern and response to common therapies is not commensurate with the underlying diagnosis. **MM**

Jessica Joanne Padniewski, DO, and Toy Elaine Hess, MD, MHS, are internal medicine residents, Hennepin Healthcare.

# Stiff-person syndrome

BY SOWDA AHMED AND SAMUEL IVES, MD

Stiff-person syndrome (SPS) is a very rare immune-mediated disorder characteristically resulting in rigidity of axial and proximal limb muscles. With a prevalence of one to two cases per million, this neurologic disorder is associated with anti-glutamic acid decarboxylase-65 (anti-GAD65) antibodies, the antibodies also commonly found in patients with type 1 diabetes.[1,2] SPS has a range of severity and lack of diagnosis and treatment can be disabling.[3,4] We report a case of stiff-person syndrome in a patient with recently diagnosed diabetes mellitus (DM).

## Case report

A 49-year-old man with a history of hypertension and a recent diagnosis of diabetes mellitus presented with bilateral lower extremity weakness and low-back spasms. He also had intermittent urinary incontinence and difficulty ambulating. He had gone to both an urgent care and Emergency Department in the past two weeks and had taken cyclobenzaprine without improvement in symptoms. On physical exam, patient had a wide base gait with no focal neurologic deficits. MRI and labs were sent including B12, RPR, SPEP, UPEP, and anti-GAD65 antibody panel.

Three months prior to this admission, patient presented to the ED in diabetic ketoacidosis and new diagnosis diabetes mellitus. Hemoglobin A1c was greater than 14%. He was started on insulin therapy and discharged with endocrinology follow-up. GAD antibodies and c-peptide were not drawn at that time.

During his hospitalization, neurology was consulted. MRI of the cervical and thoracic spine showed mild canal narrowing in the cervical spine. The patient was treated symptomatically with cyclobenzaprine and diazepam and he was able to resume ambulating without difficulty after several days. The patient later followed up in neurology clinic after anti-GAD65 antibody was found to be greater than 250 (IU/mL). RPR, vitamin B12, SPEP, and UPEP were all within normal limits. CT did not show any evidence of paraneoplastic syndrome, and MRI brain with MRA was unrevealing. Lumbar puncture showed positive anti-GAD65 antibodies and oligoclonal bands in the CSF. EMG was positive for continuous motor unit activity in paraspinal muscles and vastus lateralis in lower extremity. Based on the combination of EMG and CSF findings along with positive anti-GAD antibodies, he was diagnosed with SPS. Long-term treatment for the patient has included lorazepam and diazepam for symptomatic relief and one course of intravenous immunoglobulin (IVIG).

## Discussion

Stiff-person syndrome (SPS) is a very rare neurologic disease associated with a variety of autoimmune conditions including type 1 DM.[5] Patients typically present with truncal stiffness, rigidity, and muscle spasms. Although there are no formal diagnostic criteria, diagnosis of SPS is based on symptoms, anti-GAD65 antibodies, EMG showing continuous activity in skeletal muscles, and absence of evidence that would suggest an alternative diagnosis.[4,6] There is a high level of anti-GAD65 antibodies in the serum as well as in CSF.[4] Treatment includes benzodiazepines for symptomatic relief and IVIG.

There have been several previous case reports that suggests a connection between type 1 DM and SPS. In one review, researchers found 37.7% of the patients had documented DM.5 Anti-GAD65 antibodies are thought to inhibit the conversion of glutamate to GABA, an inhibitory neuron, resulting in motor dysfunction.[2] Anti-GAD65 antibodies are positive in both SPS and type 1 DM, however serum titers are usually 50-fold less in DM than in SPS.[7] Titers in SPS can range from 44 to 65,000(IU/mL) while titers in DM range from 14 to 40 (IU/mL).[8] It is thought that this difference in level, along with differences in recognition of epitopes may account for the low incidence of SPS in patients with DM.[8]

Misdiagnosis and delayed treatment can result in decreased quality of life due to inability to control pain. Although SPS is a rare disorder, there have been advances in symptomatic treatment.[4,6]

## Conclusion

While SPS is quite uncommon, the diagnosis should be considered in patients with either type 1 DM or undefined DM type presenting with weakness or muscle spasms. Anti-GAD65 antibodies can help confirm the diagnosis along with additional neurologic testing (LP and EMG). Delays in diagnosis are common with SPS so early consideration of the diagnosis can lead to appropriate treatment. **MM**

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# Prognostic significance of regression in head and neck melanoma

BY ELIZABETH KIM; ISAAC OBERMEYER, MD; NATHAN RUBIN, MS; AND SAMIR S. KHARIWALA, MD, MS

Regression is used to describe spontaneous tumor fading and is thought to represent a partial host immune mediated response directed against tumor antigens.[1] While regression is a commonly reported microscopic feature of melanoma, its prognostic significance is unclear. Some authors report regression leads to an underestimation of tumor thickness and stage, resulting in a greater risk of developing nodal recurrence.[2] Others predict histologic regression is a favorable prognostic factor indicating an antitumor response and results in lower rates of sentinel lymph node metastasis.[3] While the mechanism and role of tumor regression is not fully understood, further clarification may impact future guidelines and management recommendations. The objective of this study was to examine the impact of regression on sentinel node status and the likelihood of recurrence in primary cutaneous melanoma of the head and neck.

## Methods

Retrospective analysis was done of adults who underwent surgical management for primary cutaneous melanoma of the head and neck between May 2002 and March 2019. Patients appropriate for the study were identified by the University of Minnesota Academic Health Center Information Exchange, using a list of current procedural terminology codes. There were 191 cases of invasive melanoma of the head and neck included, from 830 patients identified. Clinical features assessed for each patient included age, sex, location of primary lesion, date of diagnosis, current disease status (alive w/ or w/o disease). Histologic features assessed were histological melanoma subtype (nodular vs non-nodular), Breslow thickness, Clark level, presence/absence of ulceration, mitotic rate per square millimeter, and regression. If applicable, SLNB status, date of recurrence, interval treatments, and date of death related to melanoma were recorded. Exclusion criteria included melanoma outside the anatomic parameters of head and neck, ocular or choroidal melanoma, mucosal melanoma, metastatic melanoma to the head or neck with no known primary tumor, melanoma of the head or neck with no surgical intervention, and non-melanoma skin cancers of the head and neck.

## Results

Of the 191 patients identified, 30.9% were female and 69.1% were male, with a mean age at diagnosis of 62.6 (range 20-97) years. Mean Breslow thickness was 1.2mm in those with regression and 2.0mm in those without regression. In patients with regression, 17.6% had a positive sentinel node, and 13.0% experienced a recurrence. In patients without regression, 26.5% had a positive sentinel node, and 31.4% experienced a recurrence. When adjusted for other factors above, regression was not associated with positive sentinel node [OR 0.59, CI (0.13, 2.00)] or recurrence [OR 0.33, CI (0.07, 1.01)]. Mitotic rate >2 was associated with recurrence [OR 2.71, CI (1.11, 6.75), p=0.030].

## Conclusions

Patients with presence of regression had thinner melanomas and trended toward decreased rates of sentinel node positivity and recurrence. This study demonstrates no clear evidence that regression is a negative prognostic indicator. Indeed, regression may be a favorable finding. **MM**

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## DONALD B. HUGHES, MD

- Family medicine physician, Riverwood Healthcare, Aitkin, where he wears many hats, including preceptor for RPAP.
- MMA member since 1992.
- Grew up in Lime Springs, Iowa, a town of 500. Graduated from Cornell College, medical school and residency at the University of Iowa.
- Has practiced medicine with Riverwood for 28 years. Also serves as adjunct professor with the University of Minnesota and is precept for the Duluth family medicine residency once a month.
- Married to Cathy with three adult children: Son Chris is a second-year family medicine resident in Duluth, David is a mechanical engineer and Abbie works in a lab at Mayo Clinic.

***Became a physician because …***

I became a physician because at about eighth grade I felt it was a calling for me. I liked science and liked to care for people. We as a family had cared for my grandfather and grandmother in their home when each of them developed cancer, allowing them to die at home. There were no hospice programs or home care available at that time, so we did it. I think that solidified my desire to help people with their health

***Greatest challenge facing medicine today …***

There are many great challenges in medicine now, highlighted recently by COVID-19 and George Floyd's death, but in my world of rural practice, it is access to care for our rural and and elderly populations. It is a huge challenge to recruit and retain new physicians to fill the gaps that are going to be left by the large number of primary care physicians who are reaching senior citizen status themselves and hoping to retire, but who don't want to abandon the patients whose lives they have become an integral part of.

***Favorite fictional physician …***

The one who most inspired me was Marcus Welby when I was still very young. I admired how he could provide all the care his patients needed, and how he looked at the entire person and not just the disease, to see how other aspects of their life and personality affected their health. This was similar to the elderly GP in the community I grew up in, who had been on a Navy ship as doctor in World War II in the Pacific. He made house calls, held office hours as late as patients showed up, worked alone without a nurse—and was my Sunday school teacher.

***If I weren't a physician …***

If I were not a physician I would have been a teacher of some sort. I have several teachers in my family and love teaching in my practice, passing on knowledge and developing skills and knowledge in young learners.

## ANTOINE SALIBA, MD

- Hematology and oncology fellow, Mayo Clinic.
- MMA member since 2019
- Grew up in Nahr-Ibrahim, a small Lebanese village on the eastern Mediterranean coast. Went to college and medical school at the American University of Beirut in Lebanon. Residency in internal medicine and chief medical resident at Indiana University.
- Family includes his parents, four sisters and 1-year-old niece Mila.

***Became a physician because …***

Growing up, I liked science, and I equally liked stories. Almost every day, medicine offers me both: the science to understand, generate and apply and the stories to share, listen to and tell.

***Greatest challenge facing medicine today …***

Inequities in access to health care constitute the greatest challenge facing medicine today. Most of us in medicine are left with an unsettling feeling when we think about and face the striking disparities in the availability of health care services to different groups of patients we care for within the same institution and across institutions. As physicians, we must think and work together to tackle those disparities in a systematic way—the only way historically systematic injustice can be rectified. The mammoth task in front of us here in Minnesota and the United States is creating more inclusive environments within our health care institutions and ending systematic barriers based on race, gender, sexual orientation and immigrant status.

***Favorite fictional physician …***

Dr. John Watson. Although Dr. Watson is often overshadowed by the personality of the great Sherlock Holmes, he is not only a smart doctor but also a resourceful, practical and loyal friend.

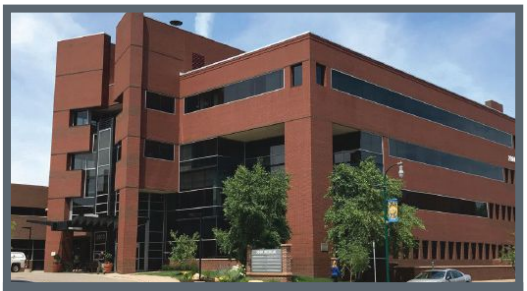
***If I weren't a physician …***

Probably a traveling marine biologist—another seemingly cool job with science and stories. Or a physics teacher (which I have previously done for a year and thoroughly enjoyed).

1,000 TO 28,000 Square Feet

# MEDICAL SPACE FOR LEASE

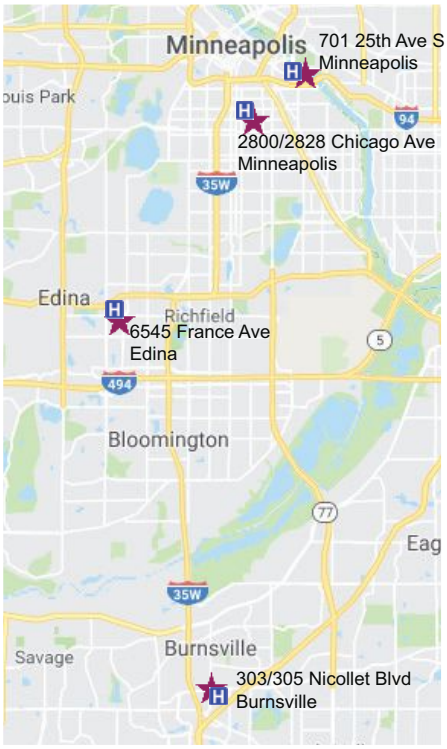
SOUTHDALE MEDICAL CAMPUS
Edina, MN



2800/2828 MEDICAL BUILDINGS
Minneapolis, MN

RIVERSIDE MEDICAL BUILDING
Minneapolis, MN

RIDGEVIEW MEDICAL BUILDINGS
Burnsville, MN

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