

Kansas City MEDICINE

JOURNAL OF THE NEW KANSAS CITY MEDICAL SOCIETY

KCMS Virtual Annual Meeting October 21



ANNUAL MEETING PREVIEW

Chiefs' Lineman to Be Honorary Member
Profiles of 2020 Award Honorees

FEATURES

Q&A with Candidates for Senate, Congress, Governor
Non-Competes: Understand Before You Sign
Ketamine for Treatment of Depression
ACE Inhibitor Therapy and COVID-19



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On the cover: Join KCMS on October 21 for the Virtual Annual Meeting featuring presentation of 2020 KCMS awards, along with a panel of area mayors. Pictured, top row from left, David Alvey, Peggy Dunn, Quinton Lucas; middle row, Eileen Weir, moderator Bridget McCandless, MD, MBA; co-host Daphne Bascom, MD, PhD; bottom row, co-host and KCMS President Betty Drees, MD.

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PRESENTATION OF ANNUAL KCMS AWARDS

Lifetime Achievement Award - Donald Potts, MD

Friend of Medicine Award

Public Health Departments of Metropolitan Kansas City

MEMBER AWARDS

Community Service Award - Edward (Ted) Higgins, MD

Innovation Award - Michelle Haines, MD

Patient & Community Advocate Award - Lee Norman, MD

Rising Star Award - Brian Mieczkowski, DO, MSc

Exemplary Leadership Award - Mark Austenfeld, MD

REGISTER NOW!*

<https://bit.ly/Annual2020KCMS>

No charge to KCMS members. Active Members who register by October 7th will receive a KCMS Annual Meeting gift bag delivered to their door for the event.



Love of Medicine

By Michael O'Dell, MD, MSHA, FAAFP

Nearly all of us love our medical profession. Curing remains a profound joy, and Caring offers a depth of human intimacy rarely enjoyed by others. The ancient Hippocrates got it right by saying, "Wherever the art of Medicine is loved, there is also a love of Humanity."

Medical Art and Love of Humanity are in the full display just now. We are spending countless hours treating COVID-19 victims and preventing spread. Soul searching is occurring as our country continues to grow in understanding of the ill effects of inequities in our midst. And one of us, Dr. Fauci, is one of the most respected persons in the nation.

Years ago, the Love of Medicine overcame one of my colleagues. It was late at night, another call day. Upon leaving a patient's room, my colleague saw me down the hall. He couldn't repress his excitement and joy at his current patient findings. He began fist-pumping and exclaimed to me, "Great Case!" The nursing staff viewed this

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for as long as we can
during the pandemic.**

display as inappropriate. I suppose it was, but I understand the Love of Medicine my colleague was feeling and experiencing.

Excitement and energy, love of profession and Humanity, all culminate in doing what we can for as long as we can during the pandemic. One of the dismaying comments I often see and hear is colleagues pointing at their waistlines, and commenting on the COVID-19 pounds gained. We are in this for a long haul. We must

remember to take good care of ourselves. Unfortunately, caring for the profession in this way is not a subject taught in the past to medical students and residents. We must get better at this caring for each other.

This issue of *Kansas City Medicine* will arrive for reading shortly ahead of our October 21 Annual Meeting. The Annual Meeting is a time we celebrate our profession and recognize the extraordinary contributions of some. Our Annual Meeting will occur, of course, remotely—an unfortunate but necessary limit. I hope many will join in this event. Until then, be safe, be healthy, and care for each other. ☺

Michael O'Dell, MD, MSHA, FAAFP, is chair of the Department of Community and Family Medicine at the University of Missouri-Kansas City School of Medicine, and associate chief medical officer for the Truman Medical Centers Lakewood campus. He can be reached at michael.odell@tmcmed.org.

KCMS Journal Honored for Publication Excellence



The Kansas City Medical Society's quarterly journal, *Kansas City Medicine*, has received its second consecutive APEX Award for Publication Excellence. The award is presented by Communication Concepts, a consulting firm and newsletter publisher serving the communications and publications industry. The award recognizes excellence in editorial content, graphic design and the success of the entry in achieving overall communications effectiveness and quality.

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KCMS Responds to Member Concerns During COVID-19

By Betty M. Drees, MD, FACP, FACE

This issue of *Kansas City Medicine* arrives as we are half a year into the SARS-CoV-2 pandemic—with all the impact on our regional health, medical care and economy that comes with the pandemic. It is also now nearly three years into the merger of the two area medical societies, the Wyandotte and Johnson County Medical Society and the Kansas City Medical Society to form one Kansas City Medical Society (KCMS) serving our region with over 3,000 physician members.

Our goal is to continue our mission to serve the health of the community and the physicians in this region throughout the crisis, and thus we have adapted our communications to reach out with more digital and social media. We have maintained our commitment to advocacy for physician leadership, Medicaid expansion and working to reduce vaping. In July, we held the first two of a planned series of webinars. One was on the leadership KCMS member physicians are providing in the response to the coronavirus crisis; the other was on the impact of Medicaid expansion.

The coronavirus continues as an ongoing health challenge, but Missouri Medicaid expansion passed by ballot initiative in August. The Society will continue to advocate for Medicaid expansion in Kansas. The Society and the KCMS Foundation continue to work on reducing vaping in the region through the joint Wellness Committee.

COVID-19 RESOURCES DEVELOPED

In response to feedback and issues raised by members, we have also devel-

Our goal is to continue to serve the health of the community and the physicians in this region throughout the crisis.

oped tools, communications and advocacy around COVID-19 resources. These include support for wearing masks to prevent transmission of the coronavirus, a “Get Care” campaign to encourage patients to get the care they need, and a policy statement on mask wearing. These items are available on the KCMS website, <https://kcmedicine.org>. Additional webinars on legislative affairs, physician wellness and other topics raised by members are in the planning for the remainder of the year.

The ability of KCMS to continue its advocacy agenda while responding to current issues raised by physician members is a testimony to the physicians who commit their time to participate in the governance of the Society as members of the Board of Directors and as thought leaders as members of the Leadership Council.

LEADERSHIP COUNCIL

The 40-member Leadership Council represents physicians from diverse practices across the region, the state medical societies, residents and medical students. It provides the structure to not only continually hear the voice of the physician community to impact the activities of the Society, but also to nurture the future leaders for the Board. It is a governing

and advocacy structure that is proving its merit during this time of crisis to respond quickly to meet the needs of our physician membership. Many of the activities over the past few months responding to the pandemic are a direct result of discussions at the Leadership Council.

I encourage KCMS members to engage with your peers. Consider volunteering to represent your constituency as a member of the Leadership Council. Communicate your practice issues through your current Leadership Council representatives. Participate in upcoming webinars or suggest topics for future webinars. You can follow KCMS on social media, or read and contribute to *Kansas City Medicine*. Attend the Annual Meeting on October 21. Finally, with any question, concern or suggestion, contact any member of the KCMS Board or staff. The current members of the Board and the Leadership Council may be found on the KCMS website, <https://bit.ly/Ldsp-Coun>. We want to hear from members and serve your needs. ☺

Betty M. Drees, MD, FACP, FACE, is dean emerita of the School of Medicine at the University of Missouri-Kansas City and president of the Graduate School of the Stowers Institute for Medical Research. She can be reached at bdrees@kcmedicine.org.



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Free Speech

By Charles W. Van Way, III, MD, Editor Emeritus, *Kansas City Medicine*

"If liberty means anything, it means the right to tell people what they do not want to hear."

~ George Orwell, 1930s

"The American People, I am convinced, really detest free speech. At the slightest alarm, they are ready and eager to put it down.."

~ H.L. Mencken, ca 1930

Lately, there has been great public agonizing over threats to free speech. Both major political parties, it is said, are attacking the First Amendment. The republic is in Danger!!! If that's true, we should all worry. As physicians, we are particularly dependent on freedom of communication between us and our patients, among ourselves and within the scientific and academic communities. Are these at risk?

It's certainly true that many people feel that free speech can be a Really Bad Idea. Start with the observation that speech can hurt people, which is a truism. Because of that, then speech can be considered a form of violence. And therefore I, as the victim, have the right to silence you, with whom I disagree, as being a violent oppressor. This is hardly a new doctrine, but it's newly popular. And it has a lot of public support. But the impulse to restrict the speech of one's political or ideological opponents goes back to antiquity.

A little historical perspective can help. Things have been much worse. Consider: A controversial president appoints a political activist to lead his public information agency. The activist makes no secret of his

bias. To quote him, "an open mind is no part of my inheritance. I took to prejudices with my mother's milk and was weaned on partisanship."¹ The president was Woodrow Wilson, the activist was George Creel, and the time was April 1917, during World War I. Wilson and Creel went on to control newspapers so closely that news of the 1918 influenza pandemic was suppressed until after the end of the war. Public figures were thrown in jail for speaking out against the war. The First Amendment was thrown to the street. That was 100 years ago. Yet, the republic still survives.

Perhaps the line between speech and action has blurred. Or more accurately, perhaps we have begun to define certain kinds of expression as harmful. Again, this isn't exactly new. Justice Oliver Wendell Holmes famously wrote in 1919 that free speech does not extend to "falsely shouting 'fire' in a theater and causing a panic."² Justice Holmes was simply continuing a debate that started far earlier and continues to this day. What is the balance between free expression and unacceptable speech and action? The First Amendment protects actions such as public displays, flag-burning and protest marches. At what point does acceptable public expression become unacceptable violence?

Drawing the line between acceptable and unacceptable is tricky. As we have seen recently, the line between peaceful and violent protests can depend upon how much one agrees with the protests. Or whether one's business and/or home is being burned to the ground. On a more everyday level, the use of language changes over

time and circumstance. Personal epithets that were once acceptable are now rightfully condemned. Yet, words that cannot be used in public speech are used in the routines of popular comedians.

In sum, there will always be efforts to suppress unpopular opinions and actions. Again, this is nothing new. The two quotes above, from the very serious George Orwell and the rarely-serious H. L. Mencken, both date to the 1930s. Both writers, in their separate and very distinct ways, were champions of free expression. The difference was that Orwell saw a contest between freedom and totalitarianism, while Mencken simply felt that most people were fools. We live today, as they did, in an age of ideologies and strongly felt opinions. It's hard to maintain balance in our current time, much as it was in the 1930s. And so, the calls to suppress unpopular ideas become louder and harsher.

Should we resist these calls? Of course we should. Recall that there have been efforts to suppress some questions that physicians can ask to patients. I believe it was Florida that passed a law barring pediatricians from asking parents whether there were firearms in the home. The law was overturned after physicians protested. And sued. We must protect our freedom to talk with our patients and with each other. If we need to become activists for free speech, then we should do so.

But what about scientific communications and clinical studies? There are few, if any, subjects that are "off limits" to investigation. Certainly, there are examples of studies producing conclusions that

nobody wants to hear. A paper a few years ago from the CDC concluded that overweight patients were at lower risk of death than “normal” patients.³ It was met with great opposition. Even in medical science, people can become very attached to their favorite narratives.

There is a concern for free speech at universities. Too often, even major universities seem to be victims of mob psychology. Yale, my own alma mater, has had several bad examples. In one awful case, a professor was fired for talking about Halloween masks. Children’s masks? Really? By any standard, there are a lot of extreme ideas floating around in academia today. But then, that’s what universities are for. As H. L. Mencken once said, “There is no idea so stupid that you can’t find a professor who will believe it.”

Perhaps fortunately, nearly all medical schools are somewhat apart from the rest of the university. Science in general has generally stayed clear of ideological unrest. Even though medicine is a part of the general academic culture, we’ve pretty much kept our objectivity. Society in general seems to be happy to give medical scientists the freedom to conduct our inquiries

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freely. Still, it takes vigilance to maintain objectivity. And as we all know, we all must work to maintain our own objective viewpoints. This isn’t just a collective issue. It’s an individual responsibility.

And, really, that’s the general solution to the problem of free speech. Both the left and the right each wish to suppress the other. Both want to tell the rest of us what to think, say and do. But all of us depend on free expression in many ways. When the debate is whether a sports team has an insulting name, we’re simply trying to strike that balance. When the debate

extends to subjects that we are not allowed to study or even talk about, we have moved beyond balance and should all be concerned. That’s true both for physicians and for all citizens. We aren’t there yet. Are we getting close? Historical example says we have a way to go. Americans will no doubt still be debating this issue in another 100 years. ☺

Charles W. Van Way, III, MD, is editor emeritus of Kansas City Medicine and is emeritus professor of surgery at the University of Missouri-Kansas City. He can be reached at cvanway@kc.rr.com.

REFERENCES

1. John Dos Passos, *Mr. Wilson’s War*. Doubleday, 1962, 2013. p. 301.
2. *Schenck v United States*, 1919. The defendant was arrested for passing out anti-draft leaflets and convicted under the Espionage Act of 1917. The Court unanimously supported the conviction. Justice Holmes wrote the decision. This unfortunate precedent was eventually overturned, 50 years later.
3. Flegal KM, Kit BK, Orpana H, Granbard BI. Association of All-Cause Mortality with Overweight and Obesity Using Standard Body Mass Index Categories: A Systematic Review and Meta-analysis. *JAMA* 2013, 309:71-82.

Flu Shot Campaign Materials Available



You can help Kansas City avoid the “twindemics” of COVID-19 and seasonal influenza. Please encourage patients to get their annual flu shots, preferably early.

A coalition of community groups led by Comeback KC and including KCMS, is rolling out a community flu shot campaign. The campaign includes a PSA featuring Kansas City Royals players along with five graphics for websites and social media (sample pictured). This and other graphics can be downloaded from the www.kcmedicine.org, or you can visit the KCMS Facebook and Twitter pages and share the graphics as they are posted.

KCMS Committees: Where the In-Depth Work Is Done

In KCMS, like other organizations, the board of directors relies on committees to study pertinent issues and report back to the board.

Your Medical Society has five committees that provide this essential support.

“We value the time and effort put in by our committee members. It is a sign of a healthy organization to have a strong, functioning committee structure,” said Betty M. Drees, MD, KCMS president. “Thank you to our committee members.”

She continued, “Committee work also provides members a great way to get a taste of being involved in the Medical Society and can be a path to greater leadership roles,” she added.

Following are descriptions of the five KCMS committees and lists of their members.

Thank You to our committee members

GOVERNANCE COMMITTEE

Recommends policies and processes designed to provide for effective and efficient governance; monitors bylaws and policies regarding needed updates and adherence; oversees board evaluation, orientation and education.

Betty Drees, MD, FACP, FACE – Chair

Scott Kujath, MD, FACS

Stephen Salanski, MD

FINANCE COMMITTEE

Monitors budget and finances of KCMS; oversees fiscal policies.

Greg Unruh, MD, FASA – Chair

Brian Mieczkowski, DO, MSc

Jim Wetzel, MD

STRATEGIC PLANNING COMMITTEE

Provides programmatic guidance and direction; reviews program initiatives and organization budget to assure they align with strategic priorities.

Jim Wetzel, MD – Chair

Mark Brady, MD, FASA

Carole Freiburger-O’Keefe, DO

NOMINATIONS COMMITTEE

Recommends nominees to fill open positions on the board of directors; recommends selections for KCMS annual awards.

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Carole Freiburger-O’Keefe, DO

Josh Mammen, MD, PhD, FACS

Sheila McGreevy, MD, FACP

Stephen Salanski, MD

Greg Unruh, MD, FASA

WELLNESS & PREVENTION COMMITTEE

(JOINT SOCIETY & FOUNDATION COMMITTEE)

Convenes around issues of community health to leverage the aligned resources of both Society and Foundation.

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Q&A with Betty Drees, MD, KCMS 2020 President

BRINGS DISTINGUISHED CAREER IN MEDICAL EDUCATION LEADERSHIP

One of Kansas City's most distinguished medical educators is leading the Kansas City Medical Society as 2020 president.

Betty M. Drees, MD, FACP, FACE, is best known for her 13 years as dean of the University of Missouri-Kansas City School of Medicine, from 2001 to 2014. She also continues as dean emerita and as an endocrinologist and professor in the UMKC Department of Internal Medicine and the Department of Biomedical and Health Informatics. Since 2018, she has taken on additional duties as president of the Graduate School of the Stowers Institute for Medical Research where she oversees a PhD program for medical research scientists.

Dr. Drees is the program director for the UMKC Fellowship in Endocrinology, Diabetes, and Metabolism and is site principal investigator for a \$6-million Enhanced Lifestyles for Metabolic Syndrome (ELM) study. She has carried her concern for diabetes into volunteer work where she has been president of the regional American Diabetes Association Community Leadership Board.

A native of south central Kansas, Dr. Drees obtained her medical degree from the University of Kansas and continued her training at the University of Kansas Medical Center with a residency in internal medicine and a fellowship in endocrinology, diabetes and metabolism.

Her husband Bill Drees is a mechanical engineer. All three of their children live in Seattle—two sons, who are also engineers, along with a daughter who is a data scientist. They have two grandchildren, ages 10 and 12.



Dr. Drees outside the Endocrine Clinic at Truman Medical Center, where she has practiced for 20 years.

What is your goal for KCMS for the year?

My goal is to increase our engagement with members in order to meet their needs and support physicians networking with each other. The Leadership Council is the formal structure where physicians can provide input to the KCMS board and influence Society activities. Due to the coronavirus pandemic, we have not been able to hold in-person social gatherings to network, and thus have been reaching out through social media, the newsletter, the new webinars, etc. The face mask campaign is one example of the Society responding to issues raised by members.

What do you see as the strengths of KCMS?

One notable strength is having one regional medical society representing physicians now that the Wy Jo and KCMS merged into one society. This allows the Society to develop one set of priorities to

support physicians and public health in the region and focus activities on the top priorities. An example is the region-wide effort to support Medicaid expansion. Nearly 400 physicians from both sides of the state line signed the KCMS ad in support of Amendment 2.

Of what accomplishments are you most proud during your time as UMKC School of Medicine dean?

I watched over a thousand medical students graduate during my time as dean and begin their careers as physicians, knowing that they are highly qualified and I would trust them to care for me and my own family.

What challenges and trends are you seeing in medical education?

There are two very positive trends: One is the shift toward competency-based

education rather than time-based. Students and residents learn and master critical skills and competencies at different paces. It makes sense to emphasize learning and assessing the competencies we want in physicians. There are certainly challenges to moving away from strictly time-based learning, but having some flexibility for students and residents to spend the amount of time needed on critical skills will ultimately result in physicians who are better prepared for practice. The second positive trend is incorporation of clinical experience from the start of medical school. This is the model that UMKC has used in its nearly 50-year history, and it is a proven model. It is good to see that almost all schools are moving toward early and continuous clinical experience in their curricula.

The trend that is very worrisome is how expensive medical school has become. There has been a decline in public funding of medical education in the past few decades while costs have shifted to the students. High tuition has caused many students who would be good physicians to not choose medicine, or having to incur large amounts of debt to attend medical school. It may affect students' choices of specialty and discourage primary care as a career choice.

How would you rate the progress of type 2 diabetes prevention in Kansas City? What should be the priority steps in addressing type 2 diabetes?

Diabetes prevention is hard to quantify, but there is an increased awareness of the importance of diabetes prevention in the community. People who have high blood sugar, but don't yet have diabetes, have a marked increased risk of heart disease. It's easy to take a risk test for diabetes through the American Diabetes Association or the Centers for Disease Control and Prevention. Lifestyle modification with exercise and



Dr. Drees and her husband, Bill, on a trip to Powell Gardens. They enjoy walking and hiking outdoors whenever they can.

modest weight loss have a proven impact on preventing diabetes and heart disease. Other public health actions that reduce risk are improved access to exercise (e.g., bike trails, walkable streets), access to healthy food, adequate sleep and reduced stress.

What was it like advancing in medical education and becoming one of the first female deans in the nation during a time when women were less prominent in medicine? Do women still face challenges in medicine today, particularly in specialties where women are less represented?

When you are one of a few in highly visible positions, you feel more scrutiny of the job you do. I feel very fortunate that Dr. Marjorie Sirridge came before me at UMKC, so I was not the first female dean at UMKC. I felt as though I had good support from my dean colleagues across the nations, as well as from the administration, faculty and students at UMKC. There are still challenges across medicine in equal pay and opportunity, but it is less overt than in the past. We all have to keep working on unconscious bias and building work and learning environments that support the success of all.

Why is it important for physicians to be involved in organized medicine at the local, state and national levels today?

It is important to be part of professional networks. For physicians, this includes their specialty societies that are very important. But organized medicine is also important because it addresses issues that affect all physicians. The networks of physicians link physicians together to address health policy at local and national levels, but also build camaraderie that comes from social networks of shared experiences. Maintaining these connections to other physicians is important in building and maintaining professional identity and combatting burnout.

Is there anything else you would like to add?

It's been a privilege to serve as the 2020 president of KCMS. ☺

Retired Physicians Organization Celebrates 30 Years

By Barbara Buchanan, MD

This year marks 30 years since KCMS members joined to establish what today is the Retired Physicians Organization. The RPO engages in service activities including a speakers bureau for community groups and mentoring of medical students in Kansas City. It also holds social events.

The RPO began in 1990 when several members of the former Jackson County Medical Society (now part of KCMS) were talking after a society meeting about their upcoming retirements. Wanting to continue to meet after they retired, they discussed starting an organization and a plan to make that happen. The four physicians were Drs. Christopher Y. Thomas, R. Don Blim, Tom Holder, and Wallace McKee.

Dr. Thomas suggested naming the group the John Locke Society after the English physician and philosopher. Thus, the local John Locke Society took shape, and the group started looking for tasks to continue to help others.

SCHOOL PRESENTATIONS

In 1995, Drs. Thomas, Blim and McKee along with Dr. Keith Ashcraft started teaching health topics to fifth graders in four different inner city schools in Kansas City, Mo. Within the next few years, they were joined by Drs. Ron Youmens, Andy McCanse, Tom Holder, Charles Clough, Tom McGuire, Bill Schafer, Merle Stiles, Al Biggs and Barbara Buchanan. The teams then expanded to eight KCMO schools and a Belton, Mo., middle school. In summer 2004, the group met every week to develop a uniform curriculum which consisted of 15 different health topics so one could be taught each week. The course was called the Caduceus Club.

However, teaching in the public schools gradually phased out over the next eight



Members of the Retired Physicians Organization board of directors at their meeting in February: From left Al Biggs, MD; Donald Potts, MD; Keith Jantz, MD; Barbara Buchanan, MD; Karl Becker, MD; Dan Schlozman, MD; Dennis Pyszczynski, MD.

years, so the group focused attention mentoring medical students at the University of Kansas and University of Missouri-Kansas City in conjunction with the Osler Society at each school. Drs. Sherman Steinzeig, Don Potts, Jennifer Ashby, Jerry Burton and Alan Forker became very active in these rewarding activities.

Also about 2012, Rusty Ryan, PharmD, organized a speakers bureau for our education committee through which interested physicians could give talks to community organizations on various health topics. This has been a popular endeavor. In 2019, the speakers bureau gave nearly 50 presentations to over 1,400 attendees.

The group continued to be known as the John Locke Society until 2019, when it was renamed the Retired Physicians Organization.

COMMEMORATIVE EVENT

On June 26, 2019, the RPO hosted a special luncheon to honor those founders

who had the foresight and impetus to start the John Locke Society. About 32 physicians and guests attended this recognition event, held at Tallgrass Creek in Overland Park.

Of the four founding John Locke Society members, Dr. Thomas and Dr. Blim were able to attend the luncheon. Dr. Ashcraft, an early member, was ill and unable to be there, but sent a note to the group. He passed away less than two months later. Dr. Blim passed away in May 2020.

Over the years, hundreds of young people and many others have been privileged to hear about the art and practice of medicine from the revered members of the founding group. They will always appreciate the efforts of these early RPO and John Locke Society leaders. ☺

Barbara Buchanan, MD, is a retired psychiatrist. For more information about the Retired Physicians Organization, contact Amina Barnes at the KCMS Foundation, abarnes@kcmedicine.org.

Chiefs' Lineman to Receive KCMS Honorary Membership

NFL'S FIRST MEDICAL SCHOOL GRADUATE SHARES THOUGHTS ON FOOTBALL, COVID-19 AND HIS NEXT STEPS.



The Medical Society looks forward to welcoming offensive lineman Laurent

Duvernay-Tardif

from the Super Bowl champion Chiefs as a KCMS Honorary Member at the October 21 Annual Meeting.

Duvernay-Tardif earned his medical degree from McGill University in Montreal in May 2018, completing his medical studies while playing for the Chiefs since 2014. He is the first medical school graduate to play in the National Football League. He will join the Annual Meeting via Zoom to accept the membership.

But what is even more remarkable about Duvernay-Tardif is what he has done since the Chiefs' victorious Super Bowl game. After serving on the football front line to protect his quarterback, he volunteered to serve on the front lines treating patients at a nursing home near Montreal in his native Quebec.

During his nine weeks at the nursing home, he administered medications and carried out other nursing duties. Duvernay-Tardif holds a doctorate in medicine but right now cannot practice as a doctor because he still has to go through residency. Working in the nursing home was a life-changing experience. It drove his decision to opt out of the 2020 NFL season.

"In this particular year, did playing follow my larger convictions?" he wrote in *Sports Illustrated* in September. "I have a

responsibility toward my community from a public health perspective."

This fall, he has begun online studies in public health with Harvard University. And he plans to return to the long-term care facility in Quebec for another tour of duty.

Why did you decide to get involved when the COVID-19 pandemic started?

I was part of a movement of health care professionals who went into the system to help. I consider myself a privileged individual, and it was important for me to give back and contribute to be part of the solution.

Why did you decide to help on the front line?

At some point, I needed to do more than Zoom calls promoting social distancing measures. I had to do some concrete work.

What lessons should we learn that might help with future pandemics?

We have to go where the science leads us and try to minimize the political influence in our decision making.

What was the most important lesson you learned from the pandemic?

Working in long-term care facilities made me realize that this pandemic has an impact on everybody. It's not just the amount of new cases and mortality that matter. It's all the patients who were unable to see their families for three months, all the nurses and orderlies who had to work overtime. When you add that to the im-

pacts we saw on our economy, we can say that everyone was affected by this infectious disease crisis.

You serve on the NFL Players Association task force that helped design COVID-19 protocols. What do you think football will look like this year?

So far the number of positive cases in the NFL is extremely low. I think it's a tribute to the protocols in place and the efforts of the players and coaches to respect to social distancing measures.

Can you tell us a little bit about your LDT Foundation?

The LDT Foundation thinks that physical activity and creativity are fundamental factors in the fulfillment of kids and their educational success. We organize turnkey events that encourage the balance between sports, arts and studies with a particular commitment to elementary students in grades 5-6. This commitment I have toward promoting health is one of the reasons why I decided to study public health at Harvard this year. I think this field of study will allow me to combine my medical background, my public role and my philanthropic goals.

Are the Chiefs going to win the Super Bowl again this year?

Of course! 😊

Where They Stand: The Candidates on Health Care Issues

CANDIDATES FOR U.S. SENATE, CONGRESS AND MISSOURI GOVERNOR OFFER THEIR THOUGHTS ON ISSUES OF CONCERN TO KANSAS CITY-AREA PHYSICIANS

Voters' choices in the November 3 general election will help shape the future of health care. Kansas City Medicine sought responses on several major health care questions from candidates for the contested Kansas U.S. Senate, 3rd District U.S. House and Missouri governor races. Thanks to all the candidates who took time in their busy schedules to respond to our questions.

U.S. SENATE, KANSAS



Roger Marshall, MD
Republican

www.kansansformarshall.com



Barbara Bollier, MD
Democrat

www.bollierforkansas.com



Jason Buckley
Libertarian

www.jasonbuckley2020.com

What lessons have we learned from COVID-19, and how can we be better prepared for future pandemics?

Dr. Marshall: Thanks to the leaders at the Department of Health and Human Services, health care providers have had unprecedented flexibilities in delivering

care by waiving antiquated regulatory policies and providing increased access through telehealth. HHS has the regulatory authority to make some Section 1135 waivers permanent, but others will require legislative action. I also think it's important to ensure we have a more diverse and established pathway for emergency manufacturing to meet future public health emergency response.

Dr. Bollier: We've learned something I've always known—that we need to listen to science and follow the public health guidelines of experts. We'll only stop the virus from spreading and rebuild our economy, when we wear masks, socially distance, and follow guidance to keep our communities safe. We've also learned how necessary it is for our government to work together. I've been disappointed to see partisan bickering instead of finding solutions. We need more money for schools, funding for small businesses, unemployment benefits for workers who don't have jobs to return to, and we need more resources for faster testing.

Buckley: The FDA blocked testing at the beginning of this pandemic. The government should get out of the health care industry. Governments should never have told what businesses were "essential." Destroying the economy will have long-lasting effects.

The benchmark median rate and arbitration are two approaches that have been presented in Congress to end the practice of surprise medical billing. Which of these

approaches do you support for handling out-of-network charges?

Dr. Marshall: I strongly favor a process that would provide an arbitration model that provides health care providers and insurers with an independent dispute resolution process—holding patients completely harmless. As a member of the GOP Doctors Caucus, I have played a key role in negotiations with the committees of jurisdiction to move the Energy and Commerce Committee bill more towards legislation that mirrors what we've been working on in the Committee on Ways and Means. We have successfully added 13 provisions to their bill last month, but we are still working on benchmark thresholds.

Dr. Bollier: As a doctor, I know how catastrophic surprise medical bills can be for families across Kansas, even those with good insurance. In the Kansas State Legislature, I introduced a bill, the End Surprise Medical Bills Act (SB 357), which would require the insurer and the person billing the patient—like the doctor or the hospital—to negotiate between themselves, without involving the person who just had potentially life-saving medical treatment. We need a hybrid of benchmarking and arbitration to ensure there is a balancing act between providers and insurers that protects patients.

Buckley: The rising health care costs are due to the government. Get the government out of health care and let the free market work.

What actions would you take to control the rise in drug prices and end shortages of needed drugs? Do you support removing the “safe harbor” provision of the 1987 Medicare Act that exempts hospital group purchasing organizations (GPOs) and pharmacy benefit managers (PBMs) from anti-kickback provisions?

Dr. Marshall: PBMs and other middlemen have only recently come into light in how they are distorting drug pricing, and the evidence continues to pile at the state and national levels. Repealing the safe harbor provisions and other anti-competitive carve-outs for middlemen is one of my top legislative priorities. My team and I have been drafting legislation that would help put an end to anticompetitive practices and ensure that savings, or rebates, are passed directly on to patients ... not kept in the pockets of PBMs.

Dr. Bollier: I support allowing Medicare to negotiate with pharmaceutical companies to bring down pricing. We all know health care is too expensive and often difficult to access, and this would be a good step forward in driving down the cost of prescription drugs.

Buckley: The rising health care costs are due to the government. Get the government out of health care and let the free market work.

U.S. CONGRESS, KANSAS THIRD DISTRICT



Amanda Adkins
Republican

www.amandaadkins2020.com



Sharice Davids
Democrat (incumbent)

www.shariceforcongress.com



Steve Hohe, Libertarian

www.stevehoheforcongress.com

(Steve Hohe did not respond to our candidate questionnaire.)

What lessons have we learned from COVID-19, and how can we be better prepared for future pandemics?

Adkins: The coronavirus pandemic has taught us the American people don't want politics; they want leadership and clear direction. Congress lacks enough leaders with business and health care experience. As a leader in health care for more than a decade, my mission is to make the system better. In the midst of the crisis, I shared a coronavirus response plan focused on: 1) Disease detection; 2) Risk mitigation; and 3) Supply chain management. Providers in KS-03 have done a solid job of detection and managing risk, but the federal government has more work to do on supply chain management.

Davids: The coronavirus pandemic revealed that our economy and health care system need to change. I'm committed to making sure those changes ben-

efit hard-working Kansans, not just the well-connected. That's why I'm fighting to lower prescription drug costs and to expand Medicaid in Kansas so that more people have access to affordable health care that will cover medical emergencies like COVID-19. I also wrote legislation to help small businesses manufacture medical equipment that is made in America, so doctors and nurses have the supplies they need to keep themselves and their patients safe as they work to save lives.

The benchmark median rate and arbitration are two approaches that have been presented in Congress to end the practice of surprise medical billing. Which of these approaches do you support for handling out-of-network charges?

Adkins: I am committed to making health care smarter, more transparent and affordable. Benchmark median rates are an ok, but not ideal solution as rates are often varied and high. I do not support arbitration as I believe it contributes to higher insurance premiums without adding value to the consumer. The best answer aligns consumers and providers. We need transparency on total cost of care and local decision-making on how money is spent. Decisions must center on the individual and the family, not be dictated by the government. These decisions should assume that health care dollars are directly managed by the individual, based on their health care risks and needs. I support incentivizing improved quality at a market-driven price.

Davids: The last thing that Kansans need after receiving medical care is a bill they never saw coming. The reality is there is merit to both approaches, but at the end of the day, what is most important is that consumers are not responsible for these frequently absurd bills. I'm willing to work

with both parties and take the approach most likely to become law. I've even introduced my own legislation to help combat surprise medical billing by requiring insurance companies to keep up-to-date provider directories, so patients don't unintentionally receive out-of-network care.

What actions would you take to control the rise in drug prices and end shortages of needed drugs? Do you support removing the "safe harbor" provision of the 1987 Medicare Act that exempts hospital group purchasing organizations (GPOs) and pharmacy benefit managers (PBMs) from anti-kickback provisions?

Adkins: I am concerned by both shortage of needed drugs and overall transparency on price. The "safe harbor" provision in this case has led to monopoly and added unnecessary expense. The federal government needs to take more aggressive steps in oversight, planning and security of the U.S. medical supply chain—particularly as it pertains to programs paid for by the federal government. U.S. health care providers—our communities' first line of defense—should not have to depend on limited suppliers in any given region and/or a national medical supply chain that is coming from a single country, often China where many medical and drug products are manufactured. I strongly support international business, but the role of the federal government is first and foremost the safety and security of our citizens.

Dauids: PBMs have become an important part of the story when it comes to higher drug prices for the government and consumers. Their special role must be examined, and any exemptions that are causing higher prices should be removed. I have also been excited by those seeking to work around PBMs in this space.

MISSOURI GOVERNOR



Mike Parson
Republican (incumbent)

www.mikeparson.com



Nicole Galloway
Democrat

www.nicolegalloway.com



Rik Combs
Libertarian

www.combsformissouri.org



Jerome Howard Bauer,
Green Party

www.facebook.com/Jerome-Bauer-Green-for-Missouri-Governor-354827564704728

(Jerome Howard Bauer did not respond to our questionnaire.)

What lessons have we learned from COVID-19, and how can we be better prepared for future pandemics?

Parson: There have been a lot of lessons, but one of the most important is the effectiveness of our "box-in" strategy to protect the most vulnerable. "Box-in" mobilizes facility-wide testing in senior centers and veterans homes to test all residents and staff the moment we know anyone in the facility is positive. This is why Missouri has been able to avoid the terrible outcomes for seniors that we saw in early breakout states like New Jersey and New York. The

other important lesson is that the state must communicate frequently and clearly. That is why I continue to have frequent press briefings on COVID-19.

Galloway: The most important thing the governor can do in a public health emergency is to convene public health experts and follow their consensus advice. I do not believe the current governor has been willing to do that. For instance, Gov. Parson's continued resistance to a statewide mask rule, which public health experts in Missouri and the White House have advised Missouri to adopt. Coordinating response, resource distribution and scaling capabilities are all important elements of responding to a pandemic. But, every decision must be guided by science and data, not politics.

Combs: Biggest lesson learned is to ensure accountability in lockdowns by having the decision-making process in the hands of elected officials rather than appointed officials. Too much power in the DHSS and local health departments. That said, we must ensure the proper PPE is stocked and stored for future use. Lockdowns are ineffective (e.g., Sweden versus the rest of Europe) and must not occur. Hygiene is important and personal space a must.

Now that Medicaid expansion has passed in Missouri, what steps need to be taken to implement expansion per the Affordable Care Act?

Parson: A few years ago, Missouri would have been unprepared for Medicaid expansion. But I appointed Todd Richardson as the Director of Missouri HealthNet (Medicaid) to meet exactly this kind of challenge. Right now, Todd is convening experts to make sure expansion in Missouri is as smooth and cost effective as possible.

Galloway: Voters have spoken, and eligi-

bility for Medicaid will be expanded. The question is whether opponents interfere with its implementation through the appropriations process or other attempts to hinder Missourians from receiving health care. I supported expansion and campaigned in favor of it. Governor Parson publicly opposed it and campaigned against it. Missouri should follow the lead of so many other states that have realized public health and fiscal benefits from expansion. Those benefits of expansion will be a key part of our coronavirus recovery. We can do it without raising taxes or cutting other programs as many other states have done.

Combs: The biggest issue looming for Medicaid expansion is the amount of money Missourians must pay out in the coming years. The budget will have to be adjusted to fund this new requirement, and where does that funding come from? What state funding needs reduction and/or elimination? Medicaid is a large part of the state's budget, and growing exponen-

tially; so where will Medicaid be in 5 or 10 years? Another looming question is that of continued federal funding share ... with the national debt nearing \$30 trillion, how long can Missourians expect the federal government to continue their levels of funding?

Though physicians (MD and DO) undergo many more years of education and training, other specialties such as nurse practitioners are lobbying for legislation to grant them similar scope of practice authority without physician supervision. What is your position on granting greater scope of practice authority to nurse practitioners and other health care professionals?

Parson: I believe it is important to acknowledge the value and distinctions of specialized medical training. Missouri needs to maintain and expand our trained workforce of highly skilled health care professionals to meet the needs of our citizens today and in the future. Any discussions of statutory changes regarding

expanded scope of practices should be focused on areas of our state where acute shortages of highly trained health care professionals exist, with the goal of providing all regions of Missouri with the highest quality health care possible.

Galloway: When government considers regulatory changes in the field of health care, safety must be given the strongest possible consideration against economic benefits of a proposed rule change. Many of our rural areas lack physicians, and access to even primary care is a significant issue. If patient safety can be preserved or enhanced, and regulatory changes generate clear economic benefits to patients, providers, or insurers, it should be open for consideration.

Combs: I fully concur with health professionals being granted more scope of responsibility and greater freedom to practice unsupervised. Moreover, I would favor the state no longer license health practitioners, but have the individual disciplines regulate themselves. 🗳️

Statement Adopted on School Reopening

The Medical Society Board has approved a statement providing guidance to schools and school districts on making decisions about in-person education during the COVID-19 pandemic. The statement addresses preventive strategies, personal protective equipment for students and staff, responding to infections, and maintaining mental health. In summary, decisions on school openings should be guided by science and health care professionals, take into consideration current trends in community spread of COVID-19, and include financial support to provide supplies and increase services for schools.

The full statement is posted on the KCMS website in the blog section at <https://kcmedicine.org/kcms-offers-covid-19-school-safety-recommendations/>



Be Sure to Vote

Exercise your right to vote on November 3. Besides voting in person on election day, Kansas and Missouri offer you the chance to vote in person in advance at your local election office, or request a mail-in ballot. Missouri has some limitations on early voting. For more information and links to local county election authorities, visit <https://kcmedicine.org/vote/>.

Extreme Journey Inspires Service to Others

PAUL CHAN, MD, LEADS A GROUP OF HIKERS ON A 50-MILE ROUND TRIP ACROSS THE GRAND CANYON EACH YEAR TO RAISE MONEY FOR CHARITY; IT'S PART OF HIS LIFETIME COMMITMENT TO SERVICE

By Sonia Coleman

It all started on a leisurely walk one summer morning. Paul Chan, MD, a KCMS member and cardiologist at Saint Luke's Hospital, was outside with his young son when they saw a homeless man sleeping on the street.

"Jesse, my then 6-year-old son, asked me about the homeless man throughout the day," said Dr. Chan. "It was a wake-up call for me. I realized that, although my wife and I have been involved in service throughout our lives, we needed to do a better job communicating those principles to our kids."

So Dr. Chan decided to take action. Why not do a walk for hunger to raise awareness and tackle one of nature's most challenging hikes at the same time?

Dr. Chan had always wanted to do a rim-to-rim-to-rim hike ever since he and his wife, Katie, worked at the Navajo reservation near the Grand Canyon years before. It was an extreme challenge—a one-day, 50-mile round-trip trek across the Grand Canyon and back—traveling the steep terrain for a total elevation gain of 11,000 feet.

Katie thought he was crazy. He'd never even been in a gym before.

After extensive training, Dr. Chan completed the grueling hike. That year, 2010, he raised tens of thousands of dollars to fund the Kansas City-Heart of America CROP (Communities Responding to Overcome Poverty) Hunger Walk.

He never thought he'd do it again. Yet, six months later, people started asking if he was going back to the canyon.

"I'd sent out email updates during the

hike. People wanted to hear about the journey and join me because they thought it was important. That's when I started thinking, 'Maybe there is more.'"

"NEVER GO BY YOURSELF ON A JOURNEY"

Over a decade later, Dr. Chan has completed the 50-mile Grand Canyon hike every year. Katie leads a shorter hike 20 miles out and back. Both his children, now teenagers, have participated in the hike multiple times.

"The first two years I went alone on the hike," said Dr. Chan. "I learned a lot of lessons through the years, and number one was never go by yourself on a journey."

The Chans now lead a group of people every year. The hikers are from all walks of life and all political persuasions, and their backgrounds include medicine, education, food industry leaders and more. A recent Saint Luke's heart transplant patient, 33 years old, was able to participate last year. Kansas City-area physicians who have participated include hospitalist David Wooldridge, MD, and cardiologist Taiyeb Khumri, MD, both KCMS members from Saint Luke's.

Hundreds more people participate in the Grand Canyon Hunger Walk hike via donations, helping to raise more than \$839,456 since the effort began.

Many of the hikers and donors are repeat participants.

"The hike is seen as this crazy challenge," said Dr. Chan. "The Grand Canyon is such a spectacular place. The difficulty of the hike is symbolic of the great challeng-

es that we're facing in our communities, whether overseas or in the Kansas City area. We've become a community as we work to bring awareness to the issue of hunger."

SUSTAINABLE CHANGE

A quarter of the funds raised are designated to Kansas City-based programs that build communities and fight hunger and poverty, which include Harvesters Community Food Network, Cherith Brook House, Sheffield Place and Reconciliation Services.

The rest of the funds are used overseas to impact water issues, which are the root causes of childhood deaths from diarrhea, pneumonia and malaria.

"What has been shown to save lives and improve conditions is very simple. It's water, water, water ... and latrines to dispose of waste. We want our efforts to translate into sustainable change," Dr. Chan commented.

For example, he explains that water projects are owned and maintained by the community. The villagers devote their time and sweat equity to lay the pipes for a water tank and learn how to fix the pump. This improves living conditions while also empowering communities to start talking about what else they can do to have more food and prevent kids from dying.

LIFE MISSION

Dr. Chan's journey with community service started his freshman year at Harvard. He studied Christian writers like Dorothy Day, the founder of the Catholic



Across the Grand Canyon on the North Rim in 2018, from left, Paul Chan, MD; Jesse Chan; David Wooldridge, MD, from Saint Luke's; and Matt Ungashick of Kansas City.

“The difficulty of the hike is symbolic of the great challenges that we’re facing in our communities, whether overseas or in the Kansas City area.”

Worker movement in the United States.

“A quote by Dorothy Day is a guiding light in my life: ‘Our generosity is not measured by how much we give, but how much we have left over after we’ve given.’ It’s easy to give out of the excess of our wealth. But when we give until it hurts, we rethink our priorities. Whether it’s material or time, we gain insights as to who we really are,” explained Dr. Chan.

Service has been part of Dr. Chan’s life mission. He has lived at a homeless shelter and battered women’s home, taught high school dropouts in Appalachia, and lobbied for hunger legislation in Washington, D.C.

Dr. Chan obtained his medical degree at Johns Hopkins University School of Medicine and was jointly trained as an internist and pediatrician at the Harvard Medical School hospitals (Brigham and Women’s and Boston Children’s).

After completing his residency, he practiced at the Navajo Nation reservation in northeastern Arizona for four years as

a primary care physician before resuming his training at the University of Michigan, where he completed a master’s in biostatistics and an adult cardiovascular medicine fellowship.

AN ACCLAIMED RESEARCHER

In his work at Saint Luke’s, Dr. Chan spends two-thirds of his time conducting clinical research and one-third seeing patients as a general cardiologist. He has over 250 peer-reviewed publications, including articles in *JAMA* and the *New England Journal of Medicine*. He is also internationally renowned for his work on cardiac arrest, quality and appropriateness of care, and disparities in care.

“Our research is looking at opportunities to improve the care of cardiac arrest patients throughout the country, especially in hospitals which aren’t doing as well and have lower survival rates. Since a lot of these hospitals tend to take care of more indigent or non-white patients, we hope that elevating the survival rates of patients

with cardiac arrest in lower performing hospitals will also narrow some of the disparities among black, Hispanic and poor patients,” said Dr. Chan.

Dr. Chan’s work has also been pivotal in shaping policy and guidelines for cardiac arrest care, especially in the hospital setting.

MANY SERVICE ACTIVITIES

Although the Grand Canyon hike has taken on a life of its own, it’s only part of the picture. The Chan family is also involved in a couple of the local Kansas City community programs that are funded by the hike. The entire family volunteers each week. Both his children, Dylan and Jesse, have spent their summers serving meals and beekeeping at Cherith Brook House.

“We find that we have to make the time and commitment to do it. We started small, going every Thursday night, no matter what is happening in our lives. We all showed up, served meals and spent time with folks that we cared about,” said

SUPPORT THE HIKE FOR HUNGER

THE 2020 GRAND CANYON HIKE FOR HUNGER WILL BE HELD ON NOVEMBER 7 IN PERSON WITH COVID-19 PROTECTIONS.

TO DONATE:

- Online:
[www.crophungerwalk.org/kansascitymo/Paul Chan](http://www.crophungerwalk.org/kansascitymo/Paul%20Chan)
- Donors will receive email updates from Dr. Chan.

Dr. Chan. “We have found that this has enriched and energized our family life together.”

Dr. Chan has also led several week-long work trips with high school students to places like Guatemala and Vietnam to build latrines or water tanks. He wants to educate the youth about sustainable ways to address hunger.

“The most important thing is to get involved. The challenge is always going to be inertia. Whether it’s physicians or non-physicians, it’s so much easier to do what you always do,” said Dr. Chan. “But I’ve never found an instance where I have

given more than I’ve gotten back. The relationships that we build become part of the fabric of our lives.” ☺

“Wear a Mask” Video Gains Wide Viewership



Nine KCMS physicians joined to provide creative messages promoting mask wearing in a two-minute video created in July. The video gained KCMS’ widest-ever Facebook viewership, having reached over 22,000 viewers, been shared 120 times and received 553 likes.

The video was produced at the suggestion of KCMS members during the July 11 KCMS webinar on COVID-19 leadership. Physicians recorded messages on their cell phones and forwarded them to KCMS’ video producer, Mike Curtis, who assem-

bled the finished video. As this magazine is published, the video will be reposted on Facebook and Twitter. It also is available for viewing on YouTube.

KCMS STATEMENT ON MASK WEARING

The Medical Society has adopted the following statement in favor of mask wearing. It also is posted on the KCMS website.

The Kansas City Medical Society strongly supports governments, businesses and community organizations to create policies to require the wearing of face

masks to prevent the spread of COVID-19. The Centers for Disease Control and Prevention recommends that people wear cloth face coverings in public settings when social distancing cannot be achieved. Experts believe that face masks are effective in reducing the spread of COVID-19 by containing the saliva of individuals who carry the virus. The carrier may or may not show COVID-19 symptoms; this is why it is important to wear a mask whether one has symptoms or not.

The Medical Society strongly encourages individuals to wear face masks in public, as well as practice social distancing, maintain frequent hand washing and take other recommended protective steps. The more everyone joins in reducing the spread of COVID-19, the sooner our society can overcome the COVID threat and return to normal.

“Uninsured or underinsured patients who face a life-threatening diagnosis regularly fall through the cracks. Metro Care connects physicians with patients who can’t afford care and may not seek the care they need. I’ve experienced firsthand how this organization helps save lives.”



Andrea K. Anthony, MD

North Kansas City Hospital
Meritas Health Pulmonary Medicine
Supporter, Wy Jo Care and Metro Care

The Kansas City Medical Society Foundation recognizes Andrea K. Anthony, MD, for her service as a volunteer physician with Metro Care. Dr. Anthony practices pulmonary medicine with Meritas Health Pulmonary Medicine. She earned her medical degree from the University of Kansas School of Medicine, where she also completed her residency in internal medicine/pediatrics and fellowship in pulmonary and critical care. She is a member of the American College of Chest Physicians, American Medical Association, American Thoracic Society and the Society of Critical Care Medicine. For the last 11 years, she has given back to the community through Metro Care, providing much-needed health care for uninsured or underinsured people.

Join the KCMS Foundation in our mission to provide care to the uninsured.

METRO CARE + WYJOCARE
VOLUNTEER DOCTORS FROM KCMS

CONTACT NATALIE LYNCH, METRO CARE AND WY JO CARE DIRECTOR OF PROVIDER RELATIONS
913-526-8231 | NLYNCH@KCMEDICINE.ORG

Non-Compete Provisions: Understand Before You Sign

HOW PHYSICIANS CAN PROTECT THEMSELVES FROM BURDENSOME RESTRICTIONS

With more than half of physicians today employed by health systems or other practices, an important concern is the employment contract the physician enters into. These contracts typically contain non-compete provisions—also known as restrictive covenants or covenants-not-to-compete—that limit where and how the physician can practice for a period of time after leaving the employment arrangement.

“The worst thing we see is a physician who signs an employment contract without looking at it carefully, and then later realizes the conditions that would be imposed if he or she wants to leave the position,” said Charles W. Van Way, III, MD, professor emeritus of surgery at the University of Missouri-Kansas City and a Missouri delegate to the American Medical Association. The AMA has a policy on covenants-not-to-compete and a resource center on employment contracts.

“We tell all our residents, don’t sign anything without getting legal advice,” Dr. Van Way added.

Non-compete provisions were created to protect the business interests of the employer, explained Randy Schultz, part-



Charles W. Van Way, III, MD; Randy Schultz, LathropGPM, LLP; Jacy Hurst, Kutak Rock LLP.

ner with the law firm LathropGPM, LLP. “Covenants-not-to-compete are pervasive in every industry today. If a business has made an investment in people, they don’t want them to immediately go away and take all the goodwill and intellectual capital the employee has developed, and use it to hurt the business,” he said.

Jacy Hurst, partner with Kutak Rock LLP, described how it applies to medicine. “I see hospitals and physician groups working hard to find physicians they think are a good fit for their organizations and who will provide excellent care to their patients. If you lose the physician to a competitor, depending on the specialty, it could take a long time to replace them. Patient care could be disrupted.”

Schultz and Hurst serve clients who include employed physicians as well as the practices and systems that employ them.

ELEMENTS OF NON-COMPETES

In evaluating a non-compete provision, what should the physician look for?

“Scope and duration are the major items covered in non-compete arrangements,” Schultz said. “What is the nature of the medicine you’re prohibited from practicing? For how long? For how big of an area?”

A typical non-compete provision in Kansas City is for two years and within a 10-mile radius of the practice where the physician is employed, he added.

Elements of the contract should be reasonable and enforceable, both attorneys said.

Explained Hurst: “If you are considering entering into a restrictive covenant, you should identify whether the employer is just trying to prevent competition, or protecting something that’s actually protectable. The time and geographic restrictions should be reasonable in that the contract should not restrict the physician’s right to earn a living.”

Large health systems often use standard “template” contracts that seemingly afford less flexibility for negotiation.

“You should start by investing a few

~ AMERICAN MEDICAL ASSOCIATION POLICY ON RESTRICTIVE COVENANTS ~

The American Medical Association has a policy on restrictive covenants. An excerpt: Covenants-not-to-compete restrict competition, can disrupt continuity of care, and may limit access to care. Physicians should not enter into covenants that:

1. Unreasonably restrict the right of a physician to practice medicine for a specified period of time or in a specified geographic area on termination of a contractual relationship; and
2. Do not make reasonable accommodation for patients’ choice of physician.

For more information: <https://www.ama-assn.org/delivering-care/ethics/restrictive-covenants>

hours with an attorney to review the contract and help you understand the provisions in it,” Hurst said. “The contract may have a number of specific clauses that were put in with intended reasons.”

Even with a template contract, there often is room for negotiation, both attorneys noted.

Schultz added, “Often there are ways you can maneuver to accomplish everyone’s objectives, as long as you do it in a constructive way. This is another reason you want to utilize an attorney experienced in employment contracts.”

ADDITIONAL ADVICE

For an existing employment contract, Hurst suggested, “Every time your contract comes due for renewal, it offers an opportunity to review and renegotiate any provisions of concern.”

“Scope and duration are the major items covered in non-compete arrangements. ... What is the nature of the medicine you’re prohibited from practicing? For how long? For how big of an area?”

Missouri and Kansas have different legal approaches to restrictive covenants. Missouri has statutes imposing rules on non-compete provisions, while Kansas relies strictly on case law.

The situation can become tricky for practices based in one state when they want to establish satellite offices in the other. While Missouri accepts Kansas corporations, those from Missouri seeking to do business in Kansas must set up a spe-

cific corporate structure in Kansas, Schultz cautioned. Otherwise, their non-compete clauses could be non-enforceable.

All emphasized the importance of careful review of contracts before signing. “I don’t want to minimize the pain, money and time it takes to fight a non-compete that you have entered into,” Hurst said.

The above is a summary of a panel discussion presented by KCMS in November 2018. ☺

Reassure Patients With #GetCareKC Materials



Six months into the COVID-19 pandemic, some patients are still fearful to visit the physician’s office out of concern for contracting the virus.

KCMS has created a set of #GetCareKC materials including social media graphics as well as posters around the message, “Don’t delay your health care ... Your KC physician is ready to help.” The campaign also includes graphics reminding parents about the importance of keeping immunizations current. Supporting the graphics is a section of the KCMS website with information about safety precautions implemented at clinics and hospitals, along with further details on the value of early intervention and preventive care.

The #GetCareKC graphics and campaign information are available at kcmedicine.org/getcare.

INTRODUCING OUR KANSAS CITY MEDICAL SOCIETY

2020 Award Recipients

Congratulations to our 2020 KCMS Award winners!

The awards will be presented at the Virtual Annual Meeting on
Wednesday, October 21, at 7 p.m. over Zoom.

Donald A. Potts, MD

LIFETIME ACHIEVEMENT AWARD

*Recognizes a KCMS member physician for leadership,
lifelong commitment to health and dedication
to the health of the greater Kansas City community.*

*Kansas City-Area Public Health
Departments*

FRIEND OF MEDICINE AWARD

*Recognizes a non-physician for
outstanding service to medicine.*



MEMBER AWARDS:

Edward (Ted) Higgins, MD

COMMUNITY SERVICE AWARD

*Recognizes a KCMS member physician, practice or facility that has
served in community leadership made a significant contribution to the
community.*

Mark S. Austenfeld, MD

EXEMPLARY LEADERSHIP AWARD

Recognizes a KCMS member for outstanding leadership and service.

Michelle M. Haines, MD

INNOVATION AWARD

*Recognizes a KCMS member physician or physician group practice that
has led innovation in their practice or in the delivery of health care.*

Lee A. Norman, MD

PATIENT AND COMMUNITY ADVOCATE AWARD

*Recognizes a KCMS member physician who has made significant con-
tributions to helping patients with access to care or improved quality of
care.*

Brian Mieczkowski, DO, MSC

RISING STAR AWARD

*Recognizes a KCMS member physician who has made significant contri-
butions to medicine, their practice or the Medical Society early in their
career.*

LIFETIME ACHIEVEMENT AWARD: *Donald A. Potts, MD*

Leadership in Family Medicine, Advocate for Community Health



Over his nearly 60 years serving the Kansas City community, Donald A. Potts, MD, has made a positive difference in the lives of

the thousands of family medicine patients for whom he has cared, as well as the hundreds of medical students and residents he trained, and people throughout Kansas City who enjoy cleaner air thanks to his efforts.

For his accomplishments, Dr. Potts has been named the recipient of the 2020 KCMS Lifetime Achievement Award.

“Dr. Potts is one of the most admired physicians in Kansas City,” said Betty M. Drees, MD, KCMS 2020 president. “He is known as an excellent academic physician for his care of patients and his teaching in the Family Medicine Residency program at Truman Medical Center-Lakewood and the University of Missouri-Kansas City School of Medicine.”

She continued, “He has tirelessly worked to stop tobacco use in the region to improve the health of the community. He is one of the most committed members of organized medicine at both the local level with KCMS and at the state level with the Missouri State Medical Association. He is one of my personal role models for making everything he touches better.”

Dr. Potts earned his medical degree from the University of Kansas in 1962 and completed internship at the former Kansas City General Hospital.

For the first 20-plus years of his career, he was in private practice in Independence. In 1986, he joined the full-time

“Dr. Potts has tirelessly worked to stop tobacco use in the region to improve the health of the community. He is one of the most committed members of organized medicine.”

faculty of the University of Missouri-Kansas City. He moved his practice to Truman Medical Center-Lakewood, where he continued until retiring from full-time practice in 2003.

In organized medicine, he has been a KCMS delegate to the Missouri State Medical Association for over 30 years and served for 13 years on the board of directors of the Missouri Medical Political Action Committee. He was a board member of the KCMS Foundation from 1997-2006. Today, now at age 90, he remains an active member of the KCMS Retired Physicians Organization.

A charter Fellow of the American Academy of Family Physicians, Dr. Potts was 1976 president of the Kansas City Academy of Family Physicians and currently serves on the local board of directors.

Dr. Potts and his wife, Barbara, have four children, six grandchildren and nine great-grandchildren. Active in the community, Mrs. Potts served as mayor of Independence from 1982-1990 and was the executive director of the Jackson County Historical Society.

Besides his work in organized medicine, Dr. Potts has focused much attention on health at the community level. Among his proudest accomplishments was being a member of the Kansas City Health

Commission from 2000-2009, where he co-chaired its tobacco use reduction committee from 2003-2016.

“With the commission and another coalition I co-founded, we were successful in getting ordinances passed in 11 metropolitan communities, protecting over one million people from the harmful effects of second-hand smoke,” Dr. Potts wrote. More recently, he has been a member of the Tobacco 21 committee of the Kansas City Chamber of Commerce that has worked to secure local ordinances setting 21 as the legal age to purchase tobacco products.

Fellow Independence resident Bridget McCandless, MD, MBA, summarized Dr. Potts’ efforts in community health advocacy. “Don Potts is an energetic, enthusiastic champion of public health. He worked on projects from water fluoridation to clean indoor air to age restrictions on vaping and tobacco purchases. He came with a spirit of hard work, authentic caring and graciousness that made people willing to work with him on important public health issues.”

She continued, “Every physician can look back on patients who were healthier because of him or her. Dr. Potts also gets to look back on entire communities that are healthier because of him.” ☺

FRIEND OF MEDICINE AWARD: *Kansas City-Area Public Health Departments* Protecting Community Health During COVID-19



The COVID-19 pandemic thrust public health into the forefront nationally and locally as residents sought hope and direction

on how to respond. Metro Kansas City's public health departments have risen to the occasion. Their epidemiologists and data analysts are compiling and sharing data and information to advise elected officials and other community leaders. Other department staff are conducting testing of residents to respond to and mitigate disease outbreaks, performing disease investigation through contact tracing, and educating the public through ongoing communications.

For their efforts on behalf of metro residents, the Kansas City-area public health departments have been chosen to receive the 2020 KCMS Friend of Medicine Award, which is presented to a non-physician for service to medicine.

The area's public health directors already had strong working relationships in place prior to COVID-19. They have been sharing information and collaborating on joint projects for years—often with limited resources—through the Metropolitan Official Health Agencies of the Kansas City Area (MOHAKCA). Representing 9 counties and 11 jurisdictions, the public health director group is facilitated through the Mid-America Regional Council (MARC).

As the pandemic began to unfold, MOHAKCA shifted from meetings every other month to weekly Zoom meetings. At the sessions, the public health directors review regional data on the presence of COVID-19 and its spread, along with updates and concerns on everything from testing and contact tracing to school re-openings and mask mandates.

“Local elected officials and senior staff look to local public health to share the science behind policy recommendations.”

“These meetings have been very important to our shared understanding and to our individual decision making,” said Juliann Van Liew, MPH, director of public health for the Wyandotte County Unified Government. “They help me find out how each jurisdiction is handling a particular issue and almost always provide me with some additional insight to consider on any given topic.”

Besides information sharing, MOHAKCA has provided a forum for the public health directors to develop various joint projects responding to COVID-19, according to Marlene Nagel, director of community development for MARC:

- Guiding MARC to establish a regional data dashboard on COVID-19 which is posted on its website. The collaboration also has helped the public health departments strengthen their data analysis and reporting by gaining a regional picture and adding hospital and other information to inform their local analysis.
- Developing regional gating criteria providing guidance for local elected officials on community reopening and to area school districts.
- Evaluating the level of testing available in the region and identifying goals and approaches to increase opportunities for testing.
- Reviewing supply chain and laboratory capacities to meet the region's needs, and

to collaborate on steps to obtain state and other resources.

- Sharing information on how to address the demand for disease investigation (contact tracing) to encourage proper isolation and quarantine measures.
- Working together on common messaging and issuing joint press releases to offer consistent messages to the public.
- Providing guidance to private businesses through the Greater Kansas City Chamber of Commerce, the Kansas City Area Development Council and the Civic Council of Greater Kansas City. The group developed a Safe Opening Guide for businesses.

“Local elected officials and senior staff look to local public health to share the science behind policy recommendations. In turn, the public health directors rely on data for their jurisdiction, best practices in other parts of the region and the nation, CDC and other national health guidance, and scientific studies and research to help guide safe community practices.”

Van Liew praised the partnership in Wyandotte County. “When you have a mayor who routinely says, ‘We must follow the science,’ then you know you have the ability to do your job as the director of a health department. That is invaluable.”

This partnership of public health and government has without doubt helped save lives in Kansas City in this pandemic. 🙏

COMMUNITY SERVICE AWARD: *Edward (Ted) Higgins, MD*

Surgical Center Highlights 40 Years of Mission Work



Thousands of adults and children in Haiti are living healthier lives today thanks to the work of Edward (Ted) Higgins,

MD, a vascular surgeon

and KCMS member. He has served on medical missions to that impoverished nation since 1982; these efforts inspired him to build and direct a major surgical center there in 2016. This work has earned Dr. Higgins' selection to receive the KCMS 2020 Community Service Award.

The Higgins Brothers Surgicenter for Hope, located in southeastern Haiti, provides elective general and vascular surgeries along with gynecological and obstetric procedures. There also is 24-hour emergency treatment available. The center is a teaching and training hub for future Haitian surgeons, educating surgical residents from nearby Port-au-Prince General Hospital. It is named for his father and uncle, both surgeons and role models, who practiced together in his native upstate New York.

Patients are referred to the Surgicenter from all over Haiti. Few can afford to pay anything; fees are charged on a "pay-what-you-can" basis, and no one who needs surgery is turned away.

In 2019, the Higgins Brothers Surgicenter performed 674 operations and 46 Cesarean sections, along with completing 542 deliveries. The Surgicenter has a team of 24 Haitian providers including surgeons, anesthesiologists, emergency physicians, a urologist, a dentist and nurses who staff the center the year round.

Along with the Haitian staff, Dr. Higgins has led four annual missions to

"If my story could impact even one physician to volunteer their time to help serve the indigent of the world, or even in our city, it would please me greatly."

the Surgicenter, bringing to Haiti some 25 Kansas City surgeons, physicians and others. However, the missions were suspended in 2019 after the U.S. State Department issued a travel advisory due to civil unrest in the country. COVID-19 has only made the situation more complicated. Fortunately, the Haitian team has sustained the center. Dr. Higgins still has made solo visits.

The Surgicenter's scope of responsibility has grown this year. It took over management of the adjoining Christ for All Hospital, which lost its mission teams in 2019 because of the civil unrest.

"To prevent the loss of our referral base from the hospital, our staff is now managing its emergency room, pharmacy, general medical, pediatric and maternity clinics," Dr. Higgins said. There were 14,230 patient visits to these clinics in 2019.

"This also has greatly increased our fundraising responsibility since we are supporting both the hospital and Surgicenter," he added.

To accommodate the patient need, the Surgicenter is constructing a new medical building to provide more clinical space along with more inpatient medical beds. The additional beds will enable the center to separate COVID-19 patients from surgical and maternity patients.

This October, Dr. Higgins is returning

to Haiti to start a dialysis access center. There are no vascular surgeons in the entire nation of 11 million people. "Our dialysis access center will train Haitian surgeons to remove all the temporary catheters presently used for dialysis there, and replace them with fistulas and grafts," Dr. Higgins noted.

Earlier this year, Dr. Higgins announced his retirement from his vascular surgery practice in Kansas City so he can devote himself full time to the Surgicenter. On being chosen for the Community Service Award, he said, "I am honored to receive the award, but quite frankly, if my story could impact even one physician to volunteer their time to help serve the indigent of the world, or even in our city, it would please me greatly."

He continued, "Physicians have gifts and skillsets that are so valuable. Helping others is what we all enjoy. This is the reason why we chose medicine initially. For those patients who have no options for health care, when they look at you to say thank you, your skills can not be measured in dollars and cents." 🙏

For more information and to make a financial gift, visit <https://higginsbrotherssurgicenter.org>.

EXEMPLARY LEADERSHIP AWARD: *Mark S. Austenfeld, MD, FACS*

Recognized for Urology Leadership Locally and Nationally



Mark S. Austenfeld, MD, FACS, has dedicated his career to helping patients and advocating for the field of urology.

Dr. Austenfeld is a

founder partner of Kansas City Urology Care and practiced at its Saint Luke's Hospital location until his retirement from full-time practice in July 2019. Established in 1999, Kansas City Urology Care now has 35 physicians and 20 locations across the Kansas City area.

"Dr. Austenfeld is a fixture in the urological and medical world, both in Kansas City and nationally. He helped establish Kansas City Urology Care, which has grown exponentially. His exemplary career is unmatched," said Sam Kuykendall, MD, a colleague at Kansas City Urology Care.

Dr. Austenfeld has helped influence health care policy at the national level through leadership in several specialty societies. As a member of the Health Policy Council of the American Urology Association (AUA) from 2010-2016, he traveled to Capitol Hill each year to meet with congressional legislators on urology agenda items. He also has served as president of the South Central Section of the AUA and president of the American Association of Clinical Urologists.

As a trustee on the American Board of Urology for six years, he was part of the board that eliminated the high-risk exam for recertification and developed a more physician-friendly and useful lifelong learning process.

"I have really enjoyed being a part of a highly ethical and professional medical community, and the patients have made practicing medicine rewarding and fun every day."

Dr. Austenfeld practiced general urology with focused professional interests in urological cancers and reconstructive surgery. He performed minimally invasive laparoscopic surgery including robotic assisted laparoscopic prostatectomy. He has been a primary investigator for ongoing clinical research trials and a reviewer for several major peer-reviewed journals.

Dr. Austenfeld received his medical degree from the University of Kansas in 1983. He completed residencies in general surgery and urology at the University of Utah in Salt Lake City, where he was chief resident in 1987. He then completed an oncology fellowship at the Mayo Clinic.

After being away for residency, Dr. Austenfeld explains that he and his wife, Jennifer Austenfeld, MD, PhD, were drawn back by their Midwest roots.

"We knew that Kansas City was the environment in which we wished to practice and raise our family," he said.

After fellowship, he joined the faculty at the University of Kansas as assistant professor and director of urologic oncology. He went into private practice in 1996, but remained on the faculty as a clinical associate professor. He then was a clinical associate professor at the University of Missouri-Kansas City from 2006 to 2019.

Dr. Austenfeld's entire family is

involved in post-graduate medical work. He and Jennifer met in medical school. She is a retired pathologist and now practices clinical psychology in Kansas City. Their son, Marcus, is also a urologist at Kansas City Urology Care. Their daughter, Emma, is a pediatrician pursuing fellowship training in Milwaukee. Her twin sister Anna has a master's degree in forensic psychology and works in New York City.

"While developing health care policy in urology was very gratifying to me, what I enjoyed most in my career were the long-term relationships with my patients and my Kansas City medical colleagues," Dr. Austenfeld said. "Jennifer and I have really enjoyed being a part of a highly ethical and professional medical community, and the patients have made practicing medicine rewarding and fun every day."

Currently, Dr. Austenfeld is performing clinical outreach in urology for underserved areas in Butler, Mo., and Emporia, Kan.

"As I progressed through my years as a urologist, I realized how fortunate I was to be in a meaningful profession that allowed me a chance to apply my learned skills and to—hopefully—improve the lives of others. It's very humbling," he said. ☺

INNOVATION AWARD: *Michelle M. Haines, MD*

Improving Critical Care for Cardiovascular Patients



Michelle M. Haines, MD, has provided innovative leadership to help advance critical care medicine at Saint

Luke's Hospital. She

has been on staff since 2008 and became medical director of the cardiovascular intensive care unit (CVICU) in 2013. She is the recipient of the 2020 KCMS Innovation Award.

Among her accomplishments has been development of the adult extracorporeal membrane oxygenation (ECMO) program at Saint Luke's. Although ECMO had been used on a limited scale elsewhere since the 1970s, primarily with infants, it was not until 2009 that improvements in circuit technology and the H1N1 influenza pandemic enabled ECMO to emerge as a successful treatment.

"A team of us at Saint Luke's decided to bring this mechanical support modality back with the innovations that made it safer," recalled Dr. Haines, who also is medical director of the ECMO program. "We had our first case in June of 2009, a young college male that developed a form of acute heart failure. ECMO saved his life. Since then we have put hundreds of the sickest patients on ECMO and saved the majority of these lives."

ECMO today is used for patients suffering from severe heart and/or lung failure as a bridge to recovery, device implant or transplant.

"There is nothing more gratifying to see patients that would have otherwise died who go on to live full lives because we could offer ECMO support," Dr. Haines added.

"I am constantly thinking how we can make things better for patients and families, be more efficient as a team and figure out new workflows that add value to the hospital."

Dr. Haines also developed a 24/7 ICU intensivist model involving a cohesive team of physicians, advanced practice providers, bedside nurses, respiratory therapists and pharmacists with a very structured and clearly defined chain of command.

"The most talented and qualified providers are available 24/7 to patients with no delays in care. Patients get expert care, exactly when they need it. This vision could not have been realized without the help of my nursing partner Beth Lee," Dr. Haines said.

Dr. Haines also is an assistant professor and director of anesthesia critical care medicine for the University of Missouri-Kansas City. She has published articles and presented at national and international medical meetings on the topic of ECMO. She obtained her medical degree from the University of Kansas in 2003, finishing first in her class. She completed residency at UMKC and Saint Luke's, then a fellowship in critical care medicine at Washington University and Barnes-Jewish Hospital in St. Louis. She served on the KCMS Board of Directors from 2011-2018, including several years as secretary.

On receiving KCMS Innovation Award, Dr. Haines said, "I am very humbled and grateful to be seen as an innovator, some-

thing quite frankly I've always tried to be. I am constantly thinking how we can make things better for patients and families, be more efficient as a team and figure out new workflows that add value to the hospital. As I look back I'm proud of how far we have come but there is always more to do. I love that challenge." ☺

PATIENT & COMMUNITY ADVOCATE AWARD: *Lee A. Norman, MD*

Steady Leadership During COVID-19



Lee A. Norman, MD, has been a steady source of fact-based information throughout the COVID-19 crisis as

Kansas' secretary of the

Department of Health and Environment.

He has earned wide respect for his response to the crisis, despite frequent public hostility to mask-wearing and shutdown orders. For his efforts, he has been chosen to receive the 2020 KCMS Patient and Community Advocate Award.

He has strived to deliver consistent messaging about protective measures such as mask wearing. "My goal has been to provide data and science in a transparent and understandable way. The level of misinformation and anti-science sentiment has been challenging," Dr. Norman said.

One example occurred in August. To illustrate the impact of mask wearing, he presented data showing how the seven-day rolling average of COVID-19 cases per capita had declined sharply from mid-July through early August in counties with mask orders, compared to remaining flat in those counties without. Dr. Norman's chart with the data received wide media coverage.

Dr. Norman also has used creative ways to inform the public beyond the numbers. For several months, he hosted a children's Q&A session about COVID-19 on Facebook. He continues to host a "Faces of COVID-19" Facebook series featuring people who have had COVID-19 or are working on the front lines.

"It's easy to criticize or be skeptical of government officials. It's hard to be critical of someone giving their first-hand experience of what they've gone through," Dr.

"With COVID-19, it's going to be a long haul. I don't like sports analogies, but right now we are only at about the end of the first quarter. Once we have a vaccine, it will be a big game changer."

Norman explained. "The stories provide an emotional attachment that translates to, 'How can I protect my family and loved ones?'"

Pandemic planning and response is nothing new to Dr. Norman. In his 27 years as a senior health system official, including service as vice president and chief medical officer of the University of Kansas Medical Center from 2007 to 2017, he has been involved with previous pandemics and has lectured on the topic.

As a colonel in the Kansas Army National Guard, he served an eight-month deployment to the Middle East in 2018, and was involved with the MERS-CoV outbreak there that began in 2013. "The virus didn't peak until its fourth year, 2017, and they are still dealing with it now, eight years later."

Dr. Norman advises physicians, "With COVID-19, it's going to be a long haul. I don't like sports analogies, but right now we are only at about the end of the first quarter. Once we have a vaccine, it will be a big game changer."

He emphasizes to physicians the importance of taking care of themselves. "What can we do that provides resiliency to us as individuals? Everyone works hard and is in a risky environment. It's important

to maintain healthy habits for ourselves, such as taking time out. Also, watch out for our colleagues. Don't turn a blind eye to someone in distress."

He added, "I thank everyone in medicine for their creativity and hard work during this time. It is nice to be recognized by my colleagues and peers with this award." 🙏

RISEING STAR AWARD: *Brian Mieczkowski, DO, MSC*

Committed to Patients and Medicine



Brian Mieczkowski, DO, MSC, is highly committed to his patients and to medicine. A pulmonologist with

HCA Midwest based

at Research Medical Center, Dr. Mieczkowski specializes in critical care and sleep medicine. For the past six months, he has served on the front lines treating COVID-19 patients. But he earned high marks from his patients and peers long before COVID-19. And, despite a heavy patient workload during the COVID-19 crisis, he has maintained his participation as a member of the KCMS Board of Directors and Leadership Council.

Earlier this year, Dr. Mieczkowski was recognized by Research Medical Center with the HCA Frist Humanitarian Award for “demonstrating a level of commitment and caring that goes beyond everyday acts of kindness and for inspiring colleagues with compassion and dedication.”

KCMS is pleased to honor Dr. Mieczkowski with its 2020 Rising Star Award.

Dr. Mieczkowski earned his medical degree from the New York College of Osteopathic Medicine in 2006 and completed an internal medicine residency at the University of Connecticut. He obtained his master’s of medical science from The Ohio State University, where he also held pulmonary and critical care medicine fellowships from 2010 to 2014. His professional research on critical care and sleep medicine has been published in national medical journals, and he has given numerous presentations and lectures.

He relocated to Kansas City in 2014 to join HCA Midwest. He was appointed to

“The current pandemic has shown us that modern medicine is ever evolving, sometimes rapidly, and complex. Organized medicine lets you see your situation from other perspectives and share ideas.”

the KCMS Leadership Council in 2019 and elected to the Board of Directors in 2020. In these roles, he has been an outspoken advocate for patient needs.

Dr. Mieczkowski and his wife, Brooklyn, have completed medical missions to rural Honduras and the nation of Malawi in Africa over the past few years. They and other providers traveled the countryside and delivered general medical care to patients of all ages from newborn to elderly. The communities they served are among the poorest in the world.


“We usually worked from the early morning through the evening. We used a church or other partial shelter, and one time, just under a tree. We saw 60-plus patients per day and worked alongside local providers, nurses and translators,” Dr. Mieczkowski said.

He described the value of mission work: “It gives perspective to your life. I learn about the culture and the basics of humanity. In the end, I hope to show these patients the dignity and respect they deserve but that they might not always feel. These mission trips make me a better, more well-rounded physician and human.”

Dr. Mieczkowski is proud to be chosen for the Rising Star Award. “I have been blessed to be part of so many great teams and organizations within medicine since

moving to Kansas City and I owe this to them. I am only am to accomplish what I do as part of a team.”

He added, “The current pandemic has shown us that modern medicine is ever evolving, sometimes rapidly, and complex. Organized medicine lets you see your situation from other perspectives and share ideas. It broadens your field for help. It also allows you to know challenges or triumphs in your own community that you may not be aware of.”

See Dr. Mieczkowski’s first-person account of serving on the front lines of treating COVID-19 patients in the second quarter edition of Kansas City Medicine. 



Ketamine for Treatment of Depression: A First-Hand Account

INSIGHTS FROM FOUR YEARS OF ADMINISTERING IV KETAMINE INFUSIONS

By Cassie Dietrich, MD

Depression is a common and debilitating mental disorder, with over 8% of Americans aged 20 and over suffering from the disease.¹ There are significant burdens on patients, family members and society as a whole. Suicide rates have steadily increased since 1999, from 10.5 per 100,000 to 14.2 (a 35% increase).² Treatment has been challenging, often consisting of multiple medications and modalities such as antidepressants, psychotherapy, transcranial magnetic stimulation (TMS) and electroconvulsive therapy (ECT).

The search for a new and novel treatment for depression was underway in the 1990s as many patients were resistant to common antidepressant medications. Researchers began investigating the use of ketamine, an anesthetic that was introduced into clinical use in the 1960s. Ketamine is a useful anesthetic because it affords cardiovascular and respiratory stability while allowing effective sedation and analgesia. It can be given through multiple routes, including intravenous (IV), intramuscular (IM), oral, nasal, rectal, subcutaneous and epidural. While its mechanisms of action are multifactorial, it primarily acts as an NMDA-receptor antagonist. Ketamine is considered a “dissociative” anesthetic, potentially causing an out-of-body experience. Other side effects include nausea, vomiting, hypertension, hallucinations and a feeling of “grogginess” or drowsiness. Some patients describe feeling numb.

HISTORY OF KETAMINE FOR TREATMENT RESISTANT DEPRESSION

In 2006, researchers at the National Institute of Mental Health found that ketamine produced rapid and relatively sustained antidepressant effects in patients with treatment-resistant depression. Since then, ketamine has shown benefits in treating bipolar depression and reducing sui-

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cidal thoughts.³ Newer studies have shown a ketamine metabolite (HNK) activates AMPA receptors essential to ketamine’s antidepressant effects.^{4,5}

While not yet FDA-approved for the treatment of depression, IV ketamine has been utilized widely across the U.S. over the past decade. Protocols vary, but generally a sub-anesthetic dose of 0.5 mg/kg infused over 40 minutes is administered to patients in a controlled setting such as a doctor’s office or hospital. Six to eight total doses are typically given over the course

of several weeks, with additional infusions administered as needed for return of depression symptoms.

As IV ketamine use started to become more widespread and many articles appeared in the medical literature about its use for treatment-resistant depression, my anesthesia group decided to open a ketamine clinic in Kansas City in 2016. We formed a partnership with a psychiatry group to provide dual subspecialty expertise in the administration of this still relatively new treatment. We believed our patients would best be served by a physician anesthesiologist, an RN specializing in anesthesia care and their own psychiatrists. Our team administers the IV ketamine infusions in a monitored, yet comfortable and private, setting.

PATIENT FEEDBACK ON SYMPTOMATIC RELIEF

Right from the outset, we could see that this treatment produced very impressive symptomatic relief in certain patients. The Patient Health Questionnaire-9 (PHQ-9) was utilized to quantify depression symptoms before and after treatments. Scores range from minimal/none (0-4) to severe (20-27); we started seeing patients go from over 20 prior to starting therapy, to 5 and below after treatment. While ketamine is not effective in all patients (approximately 25-30% have not responded), the responders showed remarkable improvement in affect, daily functioning skills and interpersonal relationships. One anecdote that remains in mind from our beginning days

came from a female patient in her 50s. She was a mother who loved to cook meals for her family, something depression rendered her unable to do. She came to our clinic after a series of treatments and told me, with tears in her eyes, that she went to the grocery store and cooked dinner for the first time in years.

LESSONS LEARNED

We have administered over 1,000 IV ketamine infusions since we opened our clinic. We have learned a great deal over the past few years, and here are some important pearls:

- Patients often come in expecting a “miracle drug.” It doesn’t work that way. Most patients will show slow, gradual improvement. Many patients describe it as keeping the depression symptoms at bay, helping them control the symptoms so they can maintain better daily function. It is often a significant other who is the first to notice small changes before the patient recognizes them in him/herself.
- Don’t get discouraged if improvement is not experienced right away. We have had a number of patients claim the ketamine simply wasn’t working, yet during follow-up several weeks after treatment completion, they started noticing positive changes. There are likely some “slow responders.” Other patients will figure out a pattern of recurrence of their symptoms and schedule maintenance infusions accordingly.
- Nausea and, to a lesser extent, vomiting are common. We now treat everyone prophylactically with an antiemetic.
- A detailed medical history and physical exam are absolutely necessary to screen for exclusion criteria. While ketamine has an excellent safety protocol, there

We have been encouraged by our results over the past four years, and look with anticipation for future uses of ketamine.

are certain conditions that preclude its use. Additionally, not everyone is a candidate for office-based ketamine administration and would be better served in a hospital setting.

Presently, the cost of ketamine treatment can be prohibitive for many patients. Until it is approved by the FDA, all costs are out-of-pocket. In March 2019, the FDA approved esketamine (Spravato), a ketamine nasal spray, for use for depression. Absorption is not as predictable in the nasal route compared to IV, and it still requires administration in a clinical, monitored setting.

We still have much to learn about the long-term outcomes and potential side effects of ketamine therapy. There may be other conditions besides major depressive disorder that respond to ketamine, such as bipolar disorder and post-traumatic stress disorder (PTSD). Often, patients with mental health diseases have underlying substance abuse disorders, and this must be kept in mind as ketamine has the potential for abuse. We have been encouraged by our results over the past four years, and look with anticipation for future uses of ketamine. For example, could it be utilized in patients at risk for suicide in an urgent setting? We also look forward to the possible development of similar drugs that are clinically effective yet produce fewer of the unwanted side effects of ketamine. ☺

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The Truth About Vitamins and Supplements

MOST PEOPLE DON'T NEED THEM; THEY CAN EVEN CAUSE HARM

By Donald A. Potts, MD

The headline in a Medscape online article read *Trash the Vitamins: Convince Your Patients*.¹ This is a rather startling suggestion, considering that almost half of Americans over age 60 take some sort of vitamin pill or other supplement(s) every day. The dollar amount is also staggering: \$11.8 billion on vitamins and minerals alone. If one includes the thousands of other different supplements that are purchased every year, the amount is probably double that!

The study that spawned the above headline was one by a Finnish PhD, Dr. Jaakko Mursu and other researchers based on the Iowa Women's Health Study and published in 2011 in the prestigious, peer-reviewed journal, *Archives of Internal Medicine* (now *JAMA Internal Medicine*). This study, unlike some short-term studies, spanned 19 years and involved, initially, 38,772 women, mostly Caucasian, with an average age of 61.6 years. As of a 2008 follow-up, 23,178 of the women were still living. The study found that in older women, several commonly used dietary vitamin and mineral supplements may be associated with increased total mortality risk.²

After my years in medical school and the study of nutrition, my opinion has always been that most patients, if on a reasonably healthy diet, need no more vitamins and minerals than what they get in the food they eat. Some of my patients may remember my telling them all the unneeded supplements they take go right through their systems and are responsible for the healthy rats in our sewers.

Neither the authors of the study nor

I am saying no one should ever take any vitamins, minerals or supplements. I am saying: Tell your doctor what supplements and vitamins as well as over-the-counter medications you are taking, and ask his or her opinion as to whether to continue any or all of them. If your doctor says, "Go ahead and take them. It won't hurt you," it's your cue to ask if the doctor happened to see the report of the Iowa Women's Health Study showing that women who took vitamins and minerals did not live as long as those who took none. Also, if you are taking any of these to treat a medical condition as recommended by your doctor, certainly continue them.

Most vitamins can cause problems if taken in excess. This is called hypervitaminosis. Unfortunately, most all mineral supplements, with the exception of calcium, are also associated with a risk of early death. These include magnesium, zinc, selenium and iron. (A lot of people take iron for anemia, but dietary iron deficiency is not a common cause of anemia.) The worst offender in the mineral category is copper, having an absolute risk increase (ARI) of 18%— meaning if you take copper supplements regularly, you have an 18% risk of dying earlier than if you didn't.

This is the statistic which is the most frightening: Multivitamins have an ARI of 2.4%. Translated, this means the study found for every 1,000 women taking multivitamins, 24 died earlier than those not taking them!

We all know about the placebo effect. We all also know people who will say, "I feel so much better and have more energy since I started taking (fill in the blank

here)." It may be something on late-night TV, it might be something recommended by a health-food store clerk, or it may be something seen in print, hyped by some self-proclaimed "expert." Or it may be touted under the headline: "What your doctor doesn't want you to know." Think about that a second. Doctors are members of one of the few professions that are eager to share health information with each other, manifest by the myriad of publications which do just that.

Remember: Clear it with your doctor first, but the bottom line is, if you add up how much you spend on vitamins, minerals and supplements every year and don't have a desire to spend those dollars on something really special for yourself or someone else, then go right ahead and continue feeding those sewer rats. Otherwise, spend those dollars you saved on an extra nice vacation this year. ☺

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Increased Incidence, Morbidity and Mortality in Human Coronavirus NL63 Associated with ACE Inhibitor Therapy and Implication in SARS-CoV-2 (COVID-19)



By Armin Krvavac, MD; Tarang P. Patel, MD; Ethan M. Karle, DO; Nicholas B. Epstein, MD; Elizabeth A. Reznikov, DO, PhD; Lancer G. Gates, DO; and Zachary M. Holliday, MD

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Clinical trials on methylene blue as a therapeutic and anti-viral agent in SARS-CoV-2 would be well supported by the literature and offer a promising mechanism by which to block the inflammatory response seen in SARS-CoV-2.

ABSTRACT BACKGROUND

The endemic human coronavirus NL63 strain (HCoV-NL63) employs angiotensin-converting enzyme 2 (ACE-2) receptors on cell surfaces to infect hosts in the same manner as SARS-CoV and the novel SARS-CoV-2. It has been proposed that patients on angiotensin-converting enzyme inhibitor (ACE-I) and angiotensin receptor blockers (ARB) therapy infected with SARS-CoV-2 have a higher mortality rate due to over-expression of ACE-2 receptors.

AIM

We sought to evaluate the impact of ACE-I/ARB on infectivity of various endemic coronavirus strains, hypothesizing that rates of ACE-I use among patients with HCoV-NL63 would be higher compared to other endemic coronavirus strains that do not utilize the ACE-2 receptor.

DESIGN/METHODS

A retrospective cohort study was designed to evaluate a total 466 subjects with a positive respiratory pathogens panel for one of the endemic coronavirus strains. Rate of ACE-I/ARB use among each coronavirus

strain and clinical outcomes from the 88 HCoV-NL63 positive subjects was collected.

RESULTS

Analysis revealed a higher rate of ACE-I ($p=0.006$) use among the HCoV-NL63 positives compared to the other three endemic coronavirus strains. The rate of invasive mechanical ventilation ($p=0.007$) and 90-day mortality ($p=0.045$) among HCoV-NL63 positives on ACE-I therapy was higher compared to those HCoV-NL63 positives not on ACE-I therapy.

CONCLUSION

Concurrent therapy with an ACE-I was associated with an increased rate and severity of infection with the HCoV-NL63. This association was not found in infected patients on concurrent ARB therapy. These findings support the importance of further evaluation in patients on these therapies who are infected with the novel coronavirus SARS-CoV-2.

INTRODUCTION

Coronaviruses were first identified in the mid-1960s and named for the crown-like spikes that protrude from their envelope (corona – in Latin means crown). Four endemic human coronavirus strains (HCoV-229E, HCoV-HKU1, HCoV-NL63, and HCoV-OC43) represent the majority of disease and are frequently referred to as “common cold” viruses.^{1,2} Emerging epidemiologic evidence reveals a broad range of clinical outcomes including severe lower respiratory tract infections

among immunocompromised patients.²⁻⁴ Additionally, the last two decades have brought on the emergence of three new human coronaviruses (SARS-CoV, MERS-CoV, and SARS-CoV-2) that have resulted in severe disease with high morbidity and mortality.^{1,5}

The protruding spikes on the viral envelope contain the receptor binding domain (RBD), which plays a vital role in the binding interaction between the virus and its host receptor.⁶ Furthermore, the coronavirus RBD contains neutralizing epitopes that induce most of the immune response.⁷⁻⁹ This makes the differences and similarities between RBDs on different coronavirus strains an important area of study in future treatment and vaccine development. More importantly, the novel coronavirus (SARS-CoV-2, also referred to as COVID-19) which is responsible for the current pandemic, shares the same host receptors as one of the endemic coronaviruses (HCoV-NL63) and SARS-CoV.^{10,11}

HCoV-NL63 utilizes angiotensin-converting enzyme 2 (ACE-2) receptors on cell surfaces as a binding domain to enter and infect the cells.¹¹⁻¹³ The SARS-coronavirus (SARS-CoV) and novel coronavirus (SARS-CoV-2) also utilize the same ACE-2 receptor for binding.^{10,14-17} Conversely, the other three endemic coronaviruses (HCoV-229E, HCoV-HKU1, and HCoV-OC43) do not share this binding domain. HCoV-229E binds

Table 1. Baseline Characteristics

Baseline Characteristics				
	229E n=66	HKU1 n=96	NL63 n=88	OC43 n=221
Age (avg)	55.8	52.9	58.5	61.2
BMI (avg)	31.3	32.1	31.7	31.6
Gender	% Male	45%	41%	42%
	% Female	55%	59%	58%
HTN	n (%)	34 (51.5%)	49 (51%)	51 (58%)
CKD	n (%)	9 (13.6%)	10 (10.4%)	10 (19.3%)
CAD	n (%)	12 (18.2%)	16 (16.7%)	17 (19.3%)
CHF	n (%)	16 (23.2%)	20 (20.8%)	16 (18.2%)
DM	n (%)	18 (27.3%)	29 (30.2%)	47 (53.4%)
COPD	n (%)	24 (36.4%)	34 (35.4%)	27 (30.7%)
Asthma	n (%)	6 (9.1%)	18 (18.8%)	10 (11.4%)
Cystic Fibrosis	n (%)	1 (1.5%)	2 (2.1%)	3 (3.4%)

Abbreviations: 229E (Human coronavirus 229E), NL63 (Human coronavirus NL63), HKU1 (Human coronavirus HKU1), OC43 (Human coronavirus OC43), BMI (Body Mass Index), HTN (Hypertension), CKD (Chronic Kidney Disease), CAD (Coronary Artery Disease), CHF (Congestive Heart Failure), DM (Diabetes Mellitus), COPD (Chronic Obstructive Lung Disease).

to aminopeptidase-N (APN),^{18,19} while HCoV-HKU1 and HCoV-OC43 bind to sialic acid (N-acetyl-9-0-acetylneuraminic acid) to gain cellular entry.²⁰⁻²³

Current epidemiological data suggests that patients with heart disease, chronic kidney disease, hypertension, and diabetes are at the highest risk for poor outcomes and infection with the novel coronavirus.^{24,25} Several editorials have suggested that this increased morbidity and mortality in patients infected with SARS-CoV-2 is related to angiotensin-converting enzyme inhibitors (ACE-I). Postulating that these poor outcomes may be related to over-expression of

ACE-2 receptors on cell membranes as a result of chronic therapy with ACE-I and angiotensin receptor blockers (ARB).²⁶⁻²⁹

We sought to evaluate the role of ACE-I and ARB to the infectivity of coronaviruses that utilize the ACE-2 receptor to gain cellular entry. As the prevalence of SARS-CoV and SARS-CoV-2 in our study population is low, we opted to use the surrogate HCoV-NL63 as it uses the same ACE-2 receptor. We hypothesized that rates of ACE-I use among patients with HCoV-NL63 would be higher compared to other endemic coronavirus strains that do not utilize ACE-2 receptor.

METHODS

We designed a retrospective cohort study to evaluate patients with a positive respiratory pathogens panel (multiplex polymerase chain reaction) for one of the four endemic coronavirus strains between the years 2015 and 2020. Approval was obtained from the Institutional Review Board (IRB approval #2021063) and a database was aggregated using electronic medical record query. De-identified patient information was collected via chart review.

Baseline demographic data was collected for each patient including age, gender, BMI, and chronic medical comorbidities at the time of the positive respiratory pathogens panel (RPP). Medical comorbidities of interest that were collected included a history of hypertension (HTN), chronic kidney disease (CKD), coronary artery disease (CAD), congestive heart failure (CHF), diabetes mellitus (DM), and chronic lung disease (COPD, asthma, and cystic fibrosis). Additional chart review was performed to identify the endemic strain of coronavirus that was positive on RPP along with history of ACE-I or ARB use and dose within 30 days of the positive RPP. Furthermore, subjects who tested positive for the HCoV-NL63 strain had clinical outcome data collected. These data points included need for hospitalization within 30 days of the positive test, hospital length of stay, admission to the intensive care unit (ICU), need for invasive mechanical ventilation, and 90-day mortality.

The study was performed at a single academic tertiary care center and included both inpatient and outpatient visits. Inclusion criteria included all adults over the age of 18 with a respiratory pathogen panel test positive for one of the four endemic coronavirus strains (HCoV-

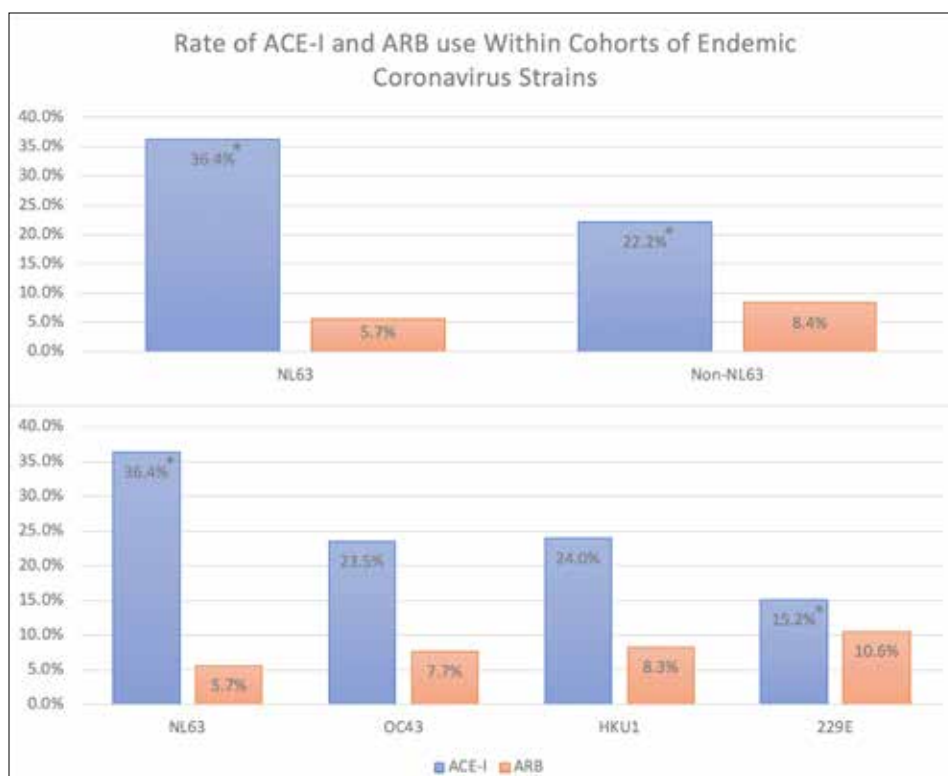


Figure 1. Rate of ACE-I and ARB use Within Cohorts of Endemic Coronavirus Strains.

Top Panel: Comparing rate of ACE-I and ARB use among NL63 positive patients versus pooled data of non-NL63 endemic coronavirus strains. P-values comparing human coronavirus NL63 on ACE-I versus combination of other three human coronavirus strains (p-value = 0.006).

Bottom Panel: Comparing rate of ACE-I and ARB use among NL63 positives versus other endemic coronavirus strains. P-values comparing human coronavirus NL63 on ACE-I to other endemic coronavirus strains (p-value = 0.014 comparing to human coronavirus 229E; p-value = 0.267 comparing to human coronavirus HKU1; and p-value = 0.085 comparing to human coronavirus OC43).

(* denotes significant p-value)

Abbreviations: ACE-I (Angiotensin-Converting Enzyme Inhibitor), ARB (Angiotensin Receptor Blocker), 229E (Human coronavirus 229E), NL63 (Human coronavirus NL63), HKU1 (Human coronavirus HKU1), OC43 (Human coronavirus OC43).

229E, HCoV-HKU1, HCoV-NL63, and HCoV-OC43). Exclusion criteria included adolescents below 18 years of age. The primary outcome of this retrospective analysis was to assess the rate of ACE-I and ARB use amongst each endemic coronavirus strain. Secondary outcome measures focused on clinical outcomes among those with HCoV-NL63 positive subjects. Collected data was analyzed using GraphPad Prism 8; Chi-square and p-values calculated with two tails.

RESULTS

A total of 470 positive results for one of the four endemic coronavirus strains was queried in our electronic medical system between the years of 2015 and 2020. Among these, four duplicate results were excluded from the final analysis. The remaining 466 underwent complete chart review as detailed in the methods. There were 66 positive for HCoV-229E, 96 positive for HCoV-HKU1, 88 positive for HCoV-NL63, and 221 positive for HCoV-OC43.

A total of five subjects were identified to be double positive (positive for two strains of endemic coronavirus on the same RPP). Of those who were, double positive, two subjects were positive for both HCoV-NL63 and HCoV-229E, one subject was positive for HCoV-NL63 and HCoV-OC43, and one subject was positive for HCoV-HKU1 and HCoV-OC43. Basic patient demographics and comparison of the cohort groups are included in Table 1.

The rate of ACE-I and ARB use among each cohort is reported in Figure 1. There was a higher rate of ACE-I use among HCoV-NL63 positive subjects (36.4%) compared to HCoV-229E (15.2%), p-value = 0.014. Furthermore, the rate of ACE-I use among HCoV-NL63 positives was higher compared to the combined rate amongst the three other endemic strains, p-value = 0.006. The use of ARBs was not different among the four endemic coronavirus strains.

The clinical outcomes among HCoV-NL63 positive subjects on ACE-I versus HCoV-NL63 positive subjects not on ACE-I is reported in Figure 2. There was a higher rate of (28.1% versus 7.1%, p-value = 0.007) invasive mechanical ventilation and (21.9% versus 7.1%, p-value = 0.045) mortality respectively among HCoV-NL63 positive patients that were on ACE-I therapy. Clinical outcomes with HCoV-NL63 positive patients who use ARBs versus those who do not use ARBs did not demonstrate statistically significant differences. Nevertheless, of those who were HCoV-NL63 positive and on an ARB required ICU admission less often compared to HCoV-NL63 positives not on ARB therapy. Furthermore, none of the five HCoV-NL63 positives subjects on ARB required invasive mechanical ventilation or contributed to 90-day mortality rate. P-values for clinical outcomes are reported in Table 2.

Table 2: Clinical Outcomes of HCoV-NL63 Positive Cohort

Clinical Outcomes of HCoV-NL63 Positive Cohort				
	Hospital Admission	ICU Admission	Invasive Mechanical Ventilation	90-day Mortality
All HCoV-NL63 Positive (n=88)	78 (88.6%)	24 (27.3%)	13 (14.8%)	11 (12.5%)
On ACE-I (n=32)	32 (100%)	11 (34.4%)	9 (28.1%)	7 (21.9%)
	p = 0.011	p = 0.258	p = 0.007	p = 0.045
Not on ACE-I (n=56)	46 (82.1%)	13 (23.2%)	4 (7.1%)	4 (7.1%)
On ARB (n=5)	5 (100%)	1 (20%)	0 (0%)	0 (0%)
	p = 0.410	p = 0.707	p = 0.338	p = 0.334
Not on ARB (n=83)	73 (88%)	23 (27.7%)	13 (15.7%)	11 (13.3%)

Abbreviations: HCoV-NL63 (Human Coronavirus NL63), ICU (Intensive Care Unit), ACE-I (Angiotensin-Converting Enzyme Inhibitor), ARB (Angiotensin Receptor Blocker)

DISCUSSION

The renin-angiotensin system (RAS) represents one of the most crucial systems in the regulation of various vasoactive components within the neural, pulmonary, renal, and cardiovascular systems. As such, multiple pharmacologic interventions target various steps of the RAS to effect cardiovascular and renal function. In the case of ACE-I and ARB, this is via blockage of angiotensin converting enzyme-1 (ACE-1) and angiotensin II type-1 receptors (AT1R), respectively.³⁰ ACE-1 is involved in the formation of angiotensin II and is responsible for degradation of bradykinin (BK). On the other side of the pathway, ACE-2 acts to counter RAS activation through degradation of angiotensin II, the final product of this pathway known for its vasoconstrictive, proliferative, and

pro-inflammatory effects via the AT1R.³¹ RAS becomes a topic of discussion in the midst of the SARS-CoV-2 pandemic as studies have demonstrated that both SARS-CoV and SARS-CoV-2 use host ACE-2 receptors to gain cellular entry.^{10,14-17} It is postulated that this leads to downregulation of ACE-2 expression resulting in overstimulation of RAS due to increase angiotensin II production. The use of the ACE-2 receptor is not unique to SARS-CoV or SARS-CoV-2, as it is also used by the endemic strain HCoV-NL63.¹¹⁻¹³

Within our cohort there was a higher rate of ACE-I use among HCoV-NL63 positive subjects compared to other endemic coronavirus strains (36.4% vs 22.2%, p-value = 0.006). These findings suggest that patients on ACE-I therapy

may be at higher risk of infection with coronavirus strains that utilize the ACE-2 receptor. The severity of illness seen in our study among those infected with HCoV-NL63 and on ACE-I therapy may be explained by several mechanisms. Inhibition of ACE-1 by ACE-I and angiotensin receptors by ARBs have been shown in animal models to significantly upregulate the expression of ACE-2 and ACE-2 receptors.³²⁻³⁵ This upregulation of ACE-2 receptors on host cells could theoretically increase the chance of binding with the viral RBD and ultimately lead to infection. However, if that were the case, we would expect similar up-regulation of ACE-2 and ACE-2 receptors by ACE-I and ARBs; that in turn should lead to similar infection rates and severity of illness among those patients. However, it should be noted that the HCoV-NL63 positive subjects in our study had a lower rate of ARB use. Furthermore, the few HCoV-NL63 positive subjects on ARB therapy had much better clinical outcomes than the remainder of the HCoV-NL63 cohort. This suggests a possible protective and opposite effect from ACE-2 utilizing coronavirus strains with ARB therapy compared with ACE-I.

Almost all mention of the role of ACE-I and ARB in regard to coronavirus strains that use the ACE-2 receptor have been speculation and conjecture with a lack of scientific evidence and clinical data to support discontinuing ACE-I and ARB therapy in SARS-CoV-2 patients.^{26-29,36-38} Two retrospective studies from China showed an association with hypertension and increased morbidity and mortality from SARS-CoV-2. In these studies, HTN had a hazard ratio of 1.70 for death in 201 SARS-CoV-2 positive patients, and 3.05 for in-hospital mortality in 191 SARS-CoV-2 positive patients.^{24,25} Neither study specifically evaluated the role of ACE-I

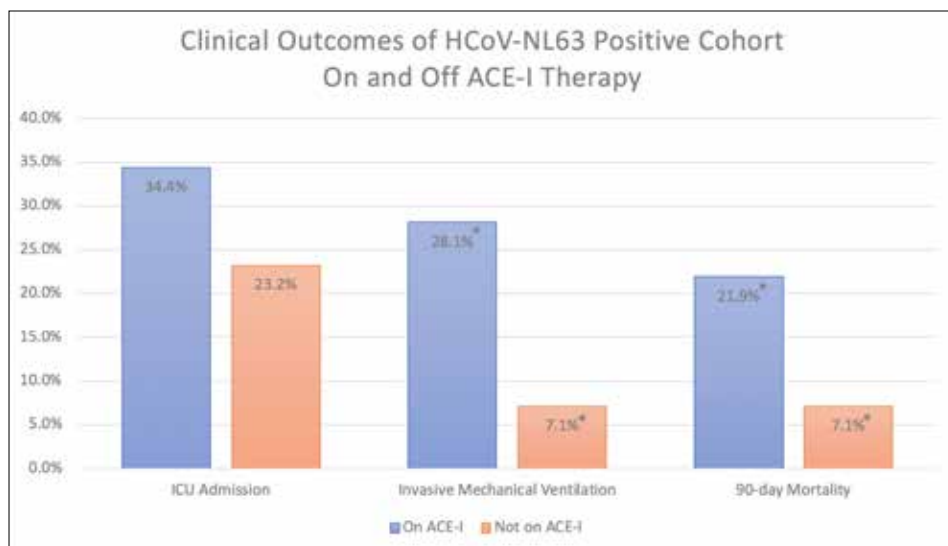


Figure 2. Clinical Outcomes of HCoV-nl63 Positive Cohorts on ACE-I Therapy versus Those not on ACE-I Therapy.

P-values comparing clinical outcomes among nl63 positive patients on ACE-I therapy versus those not on ACE-I therapy. (* denotes significant p-value)

Abbreviations: HCoV-nl63 (Human Coronavirus nl63), ICU (Intensive Care Unit), ACE-I (Angiotensin-Converting enzyme Inhibitor).

or ARB in outcomes and was unable to derive if a separate confounding factor contributed to the observed hazard ratios. However, it should be noted that the described conditions with higher hazard ratios for poor outcomes (HTN, DM, CAD) are all routinely treated with ACE-I or ARB, and use of these medications may be a confounding factor contributing to the observed hazard ratios.

In our study, we saw a significant difference in ACE-I use among HCoV-NL63 positive subjects, and those subjects had a higher need for invasive mechanical ventilation (p-value = 0.007) and higher 90-day mortality rate (p-value = 0.045). While the association between ACE-I use and increased morbidity with SARS-CoV-2 infection has not been fully elicited, current data suggests the interface of the RBD on the protruding spikes of the viral envelope with ACE-2 receptors plays a pivotal role. The beneficial role of ACE-I inhibitors in the context of

HTN, CKD, CAD, CHF, and DM is well established. Whereas the role of ACE-2 has yet to be fully understood, and is still under investigation. In humans, ACE-2 is primarily produced by type II alveolar epithelial cells and Clara cells in the lungs.³⁹ Interestingly, the destruction of alveolar epithelial cells represents a crucial step in the proposed mechanism for acute respiratory distress syndrome (ARDS) due to ACE-2 utilizing coronavirus strains (SARS-CoV and SARS-CoV-2).⁴⁰ The combination of upregulation of ACE-2 in animal models by ACE-I/ARB and the knowledge that SARS-CoV, SARS-CoV-2, and HCoV-NL63 utilizes the ACE-2 receptor to propagate host infectivity has led to the premise that use of ACE-I in the setting of these infections may result in worse clinical outcomes. Although it should be noted that this remains merely an association with many possible confounding factors; a cause-effect relationship cannot be established without

a randomized control trial.

One possible mechanism to explain the differences seen in our study related to ACE-I versus ARB is related to the kinin-kallikrein-bradykinin system (KKBS) pathway (Figure 3). As mentioned earlier, SARS-CoV, SARS-CoV-2, and endemic strain HCoV-NL63 utilize the same ACE-2 receptor to gain cellular entry. This results in the attenuation of the ACE-2-angiotensin II-mas receptor axis, with amplification of the ACE-1-angiotensin II-AT1R axis.⁴¹ In summation, this leads to decreased ACE-2 and increased angiotensin II due to its decreased breakdown by ACE-2. Further, ACE-2 within the KKBS pathway is able to hydrolyze the active bradykinin metabolite desArg⁹-bradykinin (DABK). When ACE-2 is depleted, there is increased signaling of DABK through Bradykinin B1 receptors (BKB1R). Receptors that are present in inflamed states, and lead to tissue inflammation and ARDS, a concerning sequela of SARS-CoV-2 leading to morbidity and mortality.⁴¹⁻⁴³

We expect a negative feedback loop to be initiated by the SARS-CoV-2 when binding with ACE-2 receptors on type II pneumocytes.⁴⁴⁻⁴⁵ Elevated levels of angiotensin II, due to impaired degradation from a decrease in ACE-2 as described above, result in increased binding with AT1R that leads to activation of inflammatory pathways.⁴⁶ We anticipate patients on ACE-I therapy to have elevated angiotensin II and ACE receptor expression at baseline from chronic ACE-I suppression. This results in increased activation of inflammatory pathways in patients infected with HCoV-NL63 on ACE-I therapy; that may partly explain the worse outcomes seen among those patients in our study. Conversely, we speculate the trend towards improved outcomes in those infected by HCoV-NL63 on ARB therapy

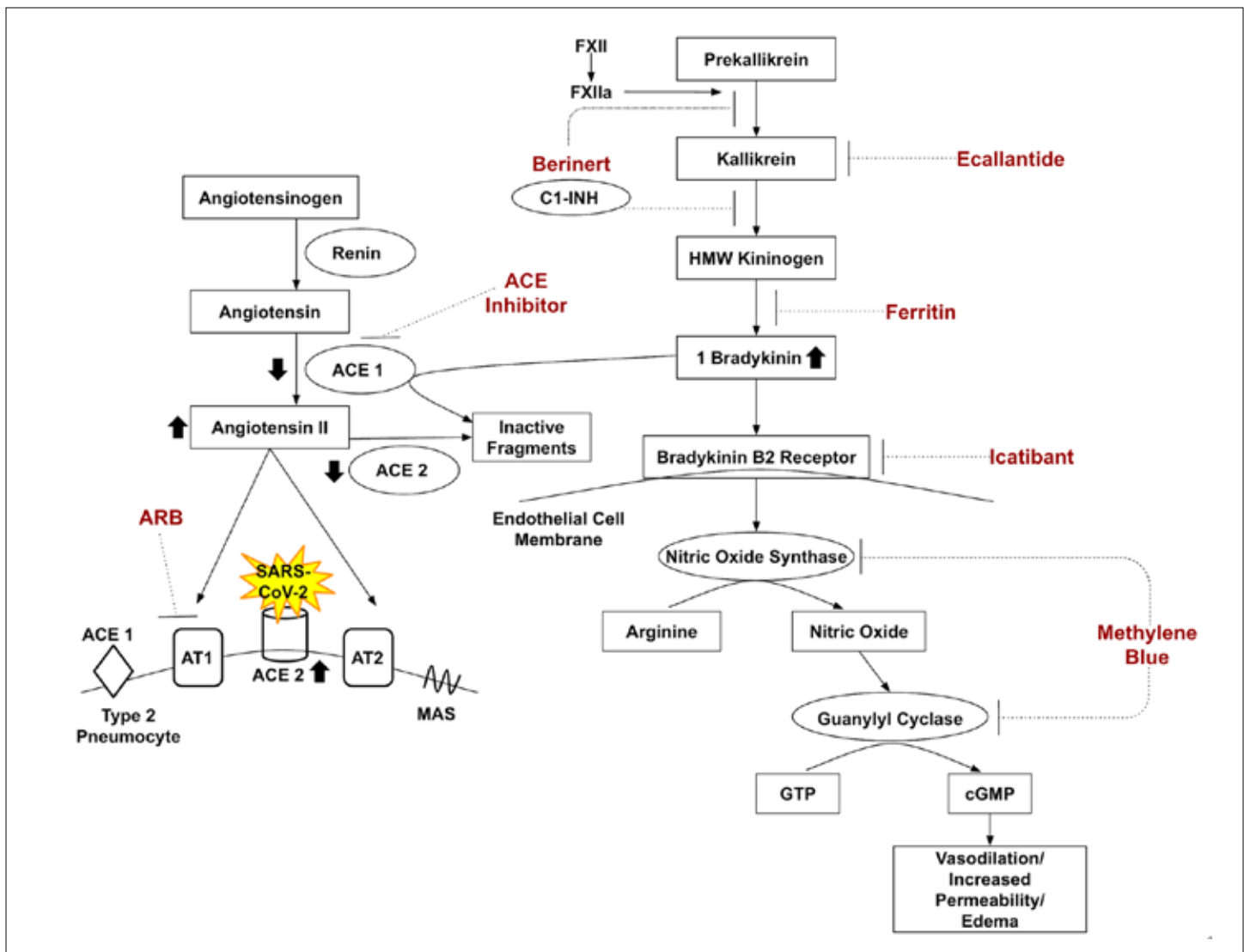


Figure 3: The Kinin-Kallikrein-Bradykinin Pathway and Potential Therapeutics That would Inhibit the Detrimental effects of Bradykinin in Patients on ACE-I Infected with SARS-CoV-2. Abbreviations: HCoV-NL63 (Human Coronavirus NL63), ICU (Intensive Care Unit), ACE-I (Angiotensin-Converting Enzyme Inhibitor).

are likely related to receptor blockade. In vitro studies show ATR1 blockade has an anti-inflammatory effect.⁴⁷ Of note, SARS-CoV-2 infected patients from China had markedly elevated angiotensin II serum levels which were associated linearly with viral load and lung injury.⁴⁸ In rat models, high angiotensin II levels were shown to decrease the production of ACE mRNA in the lung and decrease pulmonary ACE activity.⁴⁹ The decreased degradation of BK in the context of decreased ACE facilitates downstream release of tumor necrosis factor alpha (TNF-alpha) and interleukin

1 (IL-1), which leads to the characteristic fatal cytokine storm and vasodilatory shock seen in SARS-CoV-2.⁵⁰⁻⁵⁴

Given the physiological set-up in patient's on ACE-I, we postulate that BK antagonism could at least in part reduce morbidity and mortality in patients specifically on ACE-I therapy with SARS-CoV-2. This potential mechanism has been suggested by others with no study to date in SARS-CoV-2 patients. Dr. Gulistan Bahat in a letter dated March 18, 2020, to the editor of the British Medical Journal recommended that BK antagonism be

considered as a future therapeutic option for COVID-19 infection.⁵⁵ While the negative effects of BK can potentially be antagonized by several medications along the KKBS pathway (Figure 3), most promising and feasible would be the use of methylene blue (MB).

MB is both a strong inhibitor of nitric oxide synthase and a weak inhibitor of guanylate cyclase, which together decrease the production of cyclic guanosine monophosphate (cGMP); blocking BK's ability to cause vasodilation, increased permeability, and edema.⁵⁶ MB has shown

efficacy in an animal study, in vasoplegic syndrome, and in two previous case reports which demonstrated improved oxygenation and liberation from mechanical ventilation.⁵⁷⁻⁶⁰ Currently there is only one active clinical trial evaluating the role of MB in the treatment of COVID-19 (NCT04370288 - "Clinical Application of Methylene Blue for Treatment of COVID-19 Patients").

MB also has the potential to prevent SARS-CoV-2 infection, and has been shown to clear the virus from blood products. An observational study from France reported that a cohort of 2,500 cancer patients who had already been on treatment with MB prior to emergence of SARS-CoV-2 pandemic did not develop flu-like illness.⁶¹ This is thought to be related to antiviral and anti-inflammatory properties of MB. Another study evaluating safety of convalescent plasma transfusion, utilized MB to treat blood products from SARS-CoV-2 patients, and found that MB successfully eliminated the virus, further supporting its role as an anti-viral agent.⁶²

Aside from our retrospective analysis, at this time there has been no formal study of the role of ACE-I or ARB in outcomes associated with ACE-2 receptor utilizing coronavirus strains. Further, there have been contradictory hypotheses suggesting in some cases ACE-I or ARB may be beneficial or harmful in SARS-CoV-2 patients and there is currently a lack of scientific evidence to support the discontinuation of these medications. Conditions with higher hazard ratios for poor outcomes in SARS-CoV-2, such as HTN, DM, and CAD, are all routinely treated with ACE-I or ARB and use of these medications may be a confounding factor. With everything taken together, our study suggests that ACE-I therapy may be detrimental while ARB therapy may be beneficial. As of the writing

of this manuscript, there are over a dozen clinical trials in the process of initiating enrollment to examine the role of ARB therapy in hospitalized and non-hospitalized patients diagnosed with SARS-CoV-2. We propose the deleterious inflammatory effects related to SARS-CoV-2 infection is related to upregulation of ACE-2 receptor leading to downregulation of ACE-2 enzyme production and increased Angiotensin II levels which then act on the AT1R. The potential difference seen between ACE-I and ARB is most likely related to a baseline deficient of ACE-1 in patients on ACE-I therapy which sets them up for an over-activation of the KKBS pathway in addition to an ACE-2 deficiency which also contributes to activation of the KKBS pathway. On the other side, ARB therapy would block AT1R, and thus improve upon the deleterious effects seen from an overabundance of angiotensin II leading to an inflammatory response. The potential use of MB as both an anti-viral and anti-inflammatory agent in the treatment of SARS-CoV-2 patients offers a promising new therapeutic and preventative therapy in SARS-CoV-2. Meanwhile, continuation of ARB therapy or transitioning those patients from ACEI to ARB therapy may in fact be beneficial via AT1R blockade.

LIMITATIONS

This retrospective study focused on the association between ACE-I and ARB therapy with endemic coronavirus strains. Though the results show higher rates of ACE-I therapy among the HCoV-NL63 positive cohort and worse clinical outcomes, it should be emphasized that these are merely associations that do not account for potential confounding factors. The results may also have limited external validity as all of the data is collected

from a single academic center. Future multicenter randomized control trials are needed to evaluate the true impact of both ACE-I and ARB on endemic human coronavirus strains and the novel SARS-CoV-2. Lastly, we did not aggregate the data of the duration that patients were on ACE-I or ARB therapy prior to infection with HCoV-NL63.

CONCLUSIONS

In conclusion, concurrent therapy with an ACE-I was associated with an increased rate, as well as, increased severity of infection with the HCoV-NL63 strain. This association was not found in patients on ARB therapy and in fact, there is decreased incidence and severity of HCoV-NL63 infection in those on ARB therapy in our study population. This paradox may suggest an effect by ACE-I on the KKBS pathway which is independent of the expected up regulation of ACE-2 receptors secondary to virus binding and consequent ACE-2 depletion. Furthermore, ARB therapy would block AT1R which we suspect is protective via amelioration of the inflammatory response. These findings support the importance of further evaluation in patients on these therapies who are infected with the novel coronavirus SARS-CoV-2. Clinical trials on MB as a therapeutic and anti-viral agent in SARS-CoV-2 would be well supported by the literature and offers a promising mechanism by which to block the inflammatory response seen in SARS-CoV-2. (S)

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