

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

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Kweku Hazel, MD, a clinical faculty/fellow in surgery, has been working with his wife, Cynthia Hazel, DrPH, to get COVID-19 vaccines to Black residents in metro Denver. Article on page 6.

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PERSISTING THROUGH THE PANDEMIC'S CHALLENGES

In pursuing academic medicine, we have made a commitment to apply knowledge and to provide evidence-based care to all in need. Throughout the COVID-19 pandemic, members of the CU School of Medicine community have shown leadership and compassion in the most trying of times.

When hospital wards filled, everyone stepped up in support. When vaccines became available, teams led clinics in our neighborhoods. With innovative methods, we continued to educate the next generation of physicians, physician assistants, and physical therapists.

Still, 2021 continues to test us.

We face serious challenges. The Delta variant has spread widely this summer and caused a steep increase in hospitalizations for COVID in many parts of the country. Vaccine hesitancy has in some cases turned into hostility toward leaders who advocate safe steps to stop its spread. Weariness with the ongoing pandemic is turning into fatigue.

To get through these challenges, we must go through them. Such problems do not simply disappear, and we cannot shy away from them. We must work to address each matter, to do our best to surmount the obstacles to our efforts to make life better for our patients, colleagues, and community.

The members of the CU School of Medicine community have persisted in our efforts to improve the quality of life for others. Our classrooms, laboratories, clinics, and administrative offices have actively confronted the difficulties of pandemic life.

The University of Colorado instituted a vaccination mandate for all who work and study on campus. We endorse this sensible and safe approach. The vaccines have been highly effective in protecting against the deadly consequences of COVID-19.

Those vaccines have allowed us to begin a limited return to a more active campus life this summer. Our new medical school curriculum launched with this year's matriculating class, and we have been able to fulfill the more intensive nature of the classroom requirements because of vaccinations and masking. Our laboratories can welcome more researchers to the bench to work on their experiments.

We have been able to recruit candidates for important leadership positions with in-person visits and interviews. This summer, we announced that Myra Muramoto, MD, MPH, from the University of Arizona College of Medicine will be joining us as chair of the Department of Family Medicine, and Vineet Chopra, MD, MSc, from the University of Michigan School of Medicine will be joining us as chair of the Department of Medicine. We are excited to have these impressive leaders joining CU. You can read more about them on page 26 of this issue of CU Medicine Today.

As we continue to work toward a full return to campus life, we hope that you are staying safe and well and we look forward to a time when we can welcome you for visits.

With warm regards,



John J. Reilly, Jr., MD
Richard D. Krugman Endowed Chair
Dean, School of Medicine
Vice Chancellor for Health Affairs
University of Colorado



Reporters locally and nationally turn to the School of Medicine for expertise and research news. Here are some examples from near and far.

Matthew Wynia, MD, MPH, director of the CU Center for Bioethics and Humanities and professor of medicine, explained on the Denver Fox affiliate that medical professionals have an obligation to get vaccinated. “The professional ethics around here are quite clear: If you are a health professional and you’ve taken an oath not to harm your patients, and if you catch COVID — even if you’re asymptomatic, and you end up giving it to a patient, that is the very definition of unethical for a healthcare professional,” he said in July.



Lisa Dannemiller, DSC, PT

Sean O’Leary, MD, professor of pediatrics, told Reuters in August that the Delta variant poses a risk for children as they return to school. “That is absolutely a concern as we move into this coming school year that we have this more contagious variant, and this is a group of individuals who won’t be eligible for vaccination yet,” he said.

Fernando Holguin, MD, professor of medicine and director of the Latino Research and Policy Center at the Colorado School of Public Health, told National Public Radio in July that hospitalizations and deaths will continue to flare in less-vaccinated communities. “They’re at risk, especially moving into the fall of seeing increasing waves of infections,” he said. “I think it is really critical that people really become vaccinated.”

Sonja O’Leary, MD, assistant professor of pediatrics and medical director of Denver Health’s School-based Health Centers, told the Denver Fox affiliate in July that children who are old enough to get COVID-19 vaccinations should get their shots. “Get the kids in,” she said. “In order for your student to have a more normal school year, I think it’s going to be really important to get them vaccinated if they are eligible.”

Lisa Dannemiller, DSC, PT, associate professor of physical medicine and rehabilitation, told the Washington Post in July that childhood clumsiness is associated with longer-term issues such as social isolation and anxiety. “Repeated frustration with motor tasks can lead to poor academic performance, low self-esteem, behavior problems and depression,” she said.

Lilia Cervantes, MD, associate professor of medicine, was interviewed in June by Colorado Public Radio for a report about how life expectancy in 2020 decreased by four years for Hispanic and Black residents in Colorado, compared with a decrease of 1.4 years for white residents. Cervantes explained that Black and Hispanic residents were at greater risk of exposure to coronavirus due to their living and working conditions. “How long you live depends on where you live in this country, your zip code, and is a measure of how healthy we are as a nation,” she said.

Richard Zane, MD, chair of emergency medicine, expressed concern about people refusing to get vaccinated. “Not getting vaccinated if you have the opportunity to do so, is going to be one of the most selfish acts that history will view,” he said in June to the Denver Fox affiliate. “If you are not getting a vaccine, you are not participating in the solution to this pandemic. You are not doing your societal duty. You are not doing your act of patriotism. You are behaving in the most un-American way ever imaginable after a pandemic. You are the problem if you are not vaccinated.”



David Bentley, PhD

David Bentley, PhD, professor of biochemistry and molecular genetics, was featured in a June report about mRNA technology and vaccine development on the Denver NBC affiliate. “The thing about messenger RNA technology, it’s very nimble,” he said. “It’s very flexible. It’s a technology that can respond to a new challenge rapidly. If and when another pandemic strikes, the first approach we’re going to take is to use mRNA technology to develop a vaccine against it. It’s a technology you can ramp up rapidly. We now know from the experience from Pfizer and Moderna vaccines this is a safe and very effective strategy.”

Emmy Betz, MD, MPH, professor of emergency medicine, was quoted in June by Axios in a report about federal funding for gun injury research. “It’s opening up whole new areas of junior researchers into the field,” she said. “When I started [12 years ago], I definitely got advice from well-meaning mentors who said don’t go after gun violence. You can’t get it funded.”

Vik Bebart, MD, professor of emergency medicine, was asked by the Denver Fox affiliate for advice for people facing hot weather in June. “They should try and limit their time outside,” he said. “They should try and make sure they’re staying cool. The moment they develop symptoms, they should get inside, drink liquid, stay hydrated.”



Melissa Haendel, PhD



Jenna Glover, PhD



Carlos Franco-Paredes, MD

Melissa Haendel, PhD, chief research informatics officer and visiting professor of biochemistry and molecular genetics, in June explained the importance of the National COVID Cohort Collaborative, which collects medical records from millions of patients across the country. “It’s just shocking that we had no harmonized, aggregate health data for research in the face of a pandemic,” she said to MIT Technology Review. “We never would have gotten everyone to give us this degree of data outside the context of a pandemic, but now that we’ve done it, it’s a demonstration that clinical data can be harmonized and shared broadly in a secure way, and a transparent way.”

Jessica Cataldi, MD, assistant professor of pediatrics, in an August report on Colorado Public Radio about COVID and the beginning of the school year, urged parents to advise their children to wear masks in crowded indoor spaces, like schools, even if their school district doesn’t require it. “We will see school outbreaks, that will certainly happen. And the question is just how many and how big,” she said.

Ross Kedl, PhD, professor of immunology and microbiology, was interviewed in August by the Denver Fox affiliate about the effect of a COVID vaccine booster shot. “What an additional booster does do is: It increases not only your immunity against the original strain, but sort of interestingly, it broadens your immunity to give you enhanced immunity against these various different strains that are out there,” he said.

Saketh Guntupalli, MD, associate professor of obstetrics and gynecology, was quoted in the Denver Post in May, describing efforts to gather supplies to send to India to aid in a COVID outbreak there. “India provided medicines and much-needed supplies to the U.S. last March,” he said. “We are returning the favor. We are all in this together.”

Jenna Glover, PhD, associate professor of psychiatry, discussed the pandemic’s effect on children’s mental health in a July report on CNN. “We really have never seen anything like this rapid growth in kids presenting with mental health problems and the severity of those problems. I’ve never seen this in my entire career,” she said. “Kids’ mental health, truly, has been under assault for over a year. It” probably actually worse than people think it is.”

Jay Lemery, MD, associate professor of emergency medicine, was one of the experts quoted in an August article in the Washington Post describing the physiological response to hot weather. “It’s very different when you’re on oxygen or you’re on a diuretic or heart medicine or, you know, you’re a smoker or have existing heart disease,” he said. “At that point, you know, that physiological stressor is just enough to put you over into crisis.”

Katherine Green, MD, assistant professor of otolaryngology, recommended no screen time before bed in a report on the Denver ABC affiliate in August. “Melatonin is the hormone that helps you to fall asleep and stay asleep. When your eyes see blue light within a couple of hours of bedtime, basically that hormone production gets suppressed,” she said.

Heather De Keyser, MD, assistant professor of pediatrics, was asked by the Washington Post in August about hazy skies in Denver due to smoke from major forest fire in the western United States. “It was a really, really rough weekend for anyone with lungs,” she said.

Natasha Altman, MD, assistant professor of medicine in the Division of Cardiology, told NBC News in July that it is too soon to determine whether breakthrough cases among a vaccinated persons will reduce the chances of long-haul COVID-19 symptoms. “I think the trends are only going to start bearing out in the next six months,” she said.

Carlos Franco-Paredes, MD, associate professor of medicine, was quoted in The New York Times in a report in July about surging COVID cases at immigration detention centers. He cited several factors, including transfers of detainees between facilities, insufficient testing, and lax safety measures. At an inspection of the center in Aurora, he saw many staff members not wearing masks properly. “There is minimal to no accountability regarding their protocols,” he said.

Michelle Barron, MD, professor of medicine in the Division of Infectious Diseases, was asked by the Denver NBC affiliate about social distancing due to the rise of the delta variant of COVID-19. “You can still enjoy time with your friends and family,” she said. “But knowing the status of vaccination is a big deal, and I think that’s something I would include in the equation.”

Suzanne Brandenburg, MD, professor of medicine and associate dean of the Fort Collins branch, was interviewed in July by the Fort Collins Coloradoan about CU’s partnership with Colorado State University as the branch welcomed its first students. “These are both really strong institutions,” she said. “CSU is excited about having a medical school on its campus and CU is excited about the collaboration. ... It’s great for our students to get to see such a high functioning medical community and see how medicine is practiced.”

Marc Moss, MD, chief of the Division of Pulmonary Sciences and Critical Care Medicine, described the exhaustion that health care workers feel as they care for mostly unvaccinated patients with the Delta variant of COVID-19. “I’m afraid that this wave, because of the reason it’s happening... is going to break the souls of health care workers,” he told the Denver Post in August. “I’m concerned people are just going to say, ‘I can’t do it anymore.’”

CU AT THE TOKYO OLYMPICS

Former judo Olympian Christina Yannetsos selected as team physician

Interviewed by Greg Glasgow



After a year of waiting, Christina Yannetsos, MD, finally made it to the Summer Olympics in Tokyo.

Yannetsos, an assistant professor of emergency medicine at the University of Colorado School of Medicine, was selected in fall 2019 as a physician for Team USA, but the 2020 Summer Olympics were postponed for a year due to the COVID-19 pandemic. The games took place July 23 to August 8, 2021, in Tokyo.

A former member of the USA Judo National team, Yannetsos worked as a physician with the current USA Judo team at the U.S. Olympic and Paralympic Training Center in Colorado Springs before being selected as a physician for the summer games. This was her second trip to the Olympics — she traveled to the Summer Olympics in Athens in 2004 with Team USA Judo, but attended as an alternate and training partner due to a shoulder injury she suffered during Olympic trials.

In this interview, Yannetsos talks about her journey to the Olympics and how her experiences in athletics influenced her career in medicine.

Q: What is the process like to be selected as a physician for Team USA?

A: You start off by working with a national governing body like USA Judo, USA Wrestling, or USA Boxing. You build rapport with the team, and then at that point you can be invited to volunteer at an

Olympic training center. I got to volunteer in Colorado Springs, where I had lived as an athlete. I did a rotation there. I volunteered in the sports medicine training room and worked with all the Team USA athletes who live there. I worked with different camps and helped run events. It's like an on-the-job interview where they see how you work with the teams, how you interact with different specialties, whether it's trainers, therapists, chiropractors, sport therapists, nutritionists, or psychologists. They see how you form and become part of that team. From there, it's a selection process. They only take 10 physicians for these Olympics, and they choose from the pool of people who have volunteered and put in their time.



Q: How was the Olympic experience?

A: It went great. It was an amazing experience. It was obviously different than a typical Olympics. We had COVID protocols, we were tested daily, we maintained masking and social distancing, and we stayed within the Olympic bubble. We could only travel within Olympic destinations, whether it was a hotel or venue or hospital or clinic. Those were the places we were preapproved to go, to help keep our athletes safe.

Q: What were your days like in Tokyo?

A: My days were getting up, going to clinic, working with a great group of physical therapists, athletic trainers, mental health professionals, exercise physiologists, chiropractors, and massage therapists for athlete health and recovery. We brought our chefs, and we had all of our nutritionists there so athletes could have nutritional support. They were long days, but really rewarding.



We got to watch events from the clinic, and I was able to cover Team USA Judo's events. It was very rewarding to go and watch our team compete. On my day off, I got to go support our athletes. If you watched the Olympics, you saw that the stands were empty because they didn't allow spectators. Our support staff, when they had time off, tried to go to support and cheer on our athletes. I went to support volleyball and wrestling, and I watched them win gold and bronze medals. It was really rewarding for them to see the fruits of their labor.

Q: How long has judo been a part of your life?

A: I started judo when I was 5. My best friend at the time was Argentinian. Her dad had participated in judo in Argentina, and my dad did it in college. I was terrible when I started. I got thrown around by the bigger kids, but I was one of those kids where if you put me down, it just made me want to work harder to be better. So I kept going, and I landed on my first international team at 12 or 13. I started traveling internationally with Team USA as a junior athlete, and after high school I moved to Colorado Springs and trained at the Olympic training center out here, then I qualified for the Olympics. I received a scholarship to go to the University of Colorado Colorado Springs, so my education was supported, and they supported me in other things outside athletics as well. They encourage athletes to volunteer and work so they have well-rounded athletes.

Q: What do you like most about judo?

A: It's an individual sport, so you're always pushing yourself to be better and you're always reevaluating yourself to see how you can improve. The thing I like about individual sports is that you really can be introspective and evaluate yourself to see the things you need improvement on and the things you're doing really well on. I think it's crossed over to other things in my life. I'm always looking to see how I can do better, how I can improve, and I think a lot of that has to do with judo. Especially the discipline and working hard toward something. A lot of that I owe to judo.

Q: What made you decide to go to medical school?

A: As an athlete, going through injuries and recovery, it was something I really wanted to help others get through as well. I went to the Medical College of Wisconsin for medical school, and I was drawn to emergency medicine because I really enjoy working with patients from all walks of life, different cultures, different backgrounds, different ages, and the ability to connect with people on one of their very worst days and be that supportive advocate. Emergency medicine is another thing that is very challenging. It's kind of like a puzzle, and you have to put things together pretty quickly.

ADDRESSING COVID-19 DISPARITIES

CU tackles pandemic's challenges to underserved communities

By Valerie Gleaton and Greg Glasgow

From the earliest days of the COVID-19 pandemic, communities of color have been hit hardest by the worst public health crisis in the past 100 years.

Black and Hispanic community members were more likely to contract the disease, more likely to be hospitalized because of it, and more likely to die due to its effects.

These grim statistics were driven by several factors: essential worker status, crowded housing and working conditions, reliance on public transportation, significant structural barriers to care, and a lack of accurate information about how to prevent exposure and protect against the virus, among others.

Seeing these challenges, University of Colorado School of Medicine faculty sprang to action to help those most in need.

UNDERSTANDING THE IMBALANCE

Lilia Cervantes, MD, an associate professor in the Division of Hospital Medicine, quickly saw the impact of COVID-19.

While she was on the front lines, Cervantes began conducting research to understand the disproportionate burden Hispanic communities were facing and what interventions might help.

"They are often our essential workforce, and many of them don't have the option to not work," Cervantes says, "so they have to place themselves and their families at risk by taking public transportation and sometimes having to work despite being ill."

HELPING THE MOST VULNERABLE POPULATION

The COVID-19 pandemic has been especially disastrous for people experiencing homelessness. Lack of secure housing has been identified as a risk factor for contracting COVID-19, and higher rates of underlying medical conditions and restricted access to medical care have resulted in more hospitalization and mortality for the homeless population.

The unhoused population also includes a larger share of some communities of color. In metro Denver, Black individuals make up 23.5% of the homeless community, despite being only 5.3% of the general population. Native Americans make up 4.9% of the homeless population, despite accounting for less than 1% of the area's population.

Sarah Rowan, MD, and Sarah Stella, MD, have been working to mitigate the pandemic's impact on Denver metro's more than 5,500 individuals experiencing homelessness. They are members of the Denver Joint Task Force, a group of clinical, public health, shelter, and other community partners that is coordinating the multifaceted response to COVID-19 in Denver's unhoused community.

At the start of the pandemic, the group focused on education, support, and testing in major shelters and encampments, as well as creating strategies for safely isolating and protecting vulnerable individuals.



Sarah Rowan, MD, and Sarah Stella, MD, have been working to care for Denver's unhoused population during the pandemic.

Early in the pandemic, Cervantes interviewed 30 Hispanic patients who had been hospitalized for COVID-19 to understand the challenges these patients faced before going to the hospital, as well as their experiences in the hospital and after being discharged. Colleagues at the University of California, San Francisco, interviewed an additional 30 patients at their locations.

The research, published in JAMA Network Open, found that disease misinformation, financial pressures, and immigration concerns caused members of the Hispanic community to be at greater risk of exposure to COVID-19 and made them more likely to delay medical care. The study has led to local and national interventions to address these issues, including training staff at community-based organizations and offering pop-up vaccine clinics in medically underserved areas.



Cynthia Hazel, DrPH, and Kweku Hazel, MD, (third and fourth from the left) were joined by other volunteers at a vaccination clinic.

“It’s an important way to conduct research and effect change, which is to center the people who are marginalized and ask them to take the lead in creating strategies and solutions to mitigate the problem,” Cervantes says.

COMMUNITY OUTREACH AND EDUCATION

Long before the pandemic, husband-and-wife duo Kweku Hazel, MD, and Cynthia Hazel, DrPH, had already been conducting health-focused educational outreach, particularly within local Black communities.

“We were talking about hypertension, diabetes, obesity, cancer — all of these diseases that were ravaging our communities,” says Kweku, a clinical faculty/fellow in the CU Department of Surgery. “Once the pandemic hit, we had people reaching out and asking us to explain what was going on and help them navigate all the information they were receiving.”

Because of the pandemic, in-person town halls moved to remote Zoom meetings and phone calls, but the format remained

As vaccines became available, the group worked quickly to get vaccinations for staff at shelters so that they were protected and able to keep shelters open. The goal was also to build credibility for vaccination among the homeless population.

“It gave people in the shelters some confidence that the staff that they know and trust got the vaccine, sort of in the same way that having health care providers get the vaccine early demonstrated our confidence in the vaccine and may have helped others to have confidence in it,” says Rowan, an associate professor in the Division of Infectious Diseases.

After vaccinating the shelter workers, the task force turned its attention to vaccinating Denver’s homeless population, taking with them the lessons they learned during the testing phase.

“We knew from our earlier testing work that if we were going to vaccinate people, we needed to have a very low-barrier approach,” says Stella, an associate professor in the Division of Hospital Medicine. “We needed to go where the people were, both literally and figuratively.”

Although Rowan and Stella say that the vaccination efforts have overall been successful, Stella says it’s still “full court press,” as they work to ensure that everyone receives their second dose, while also caring for others who have newly arrived at Denver shelters.

The Centers for Disease Control and Prevention has provided funding to the City and County of Denver so that the joint task force’s work can continue for at least the next two years. Rowan and Stella hope to use the grant to continue to tackle the pandemic needs and other health issues affecting Denver’s homeless community.

“We’re excited to continue this collaboration with a focus on improving the health and well-being of people experiencing homelessness in Denver and apply some of the lessons we’ve learned over the course of the pandemic,” Stella says.

the same: panels and forums moderated by community leaders. The Hazels say their success relied on relationships they had already established with community leaders.

“We don’t know every community that’s interested in hearing from us, so the model we have used is to create community ambassadors and leave the organization to them,” says Cynthia, a public health research manager at the nonprofit OMNI Institute who graduated from the Colorado School of Public Health. “That’s part of how we’ve been able to build trust and relationships.”

“A lot of these groups already had established ways of keeping in touch, even during the pandemic, so that’s what we tapped into,” Kweku adds.

SHIFTING FOCUS TO VACCINE SHOTS

When the first vaccines started rolling out in the U.S. at the end of 2020, the Hazels’ emphasis shifted to how to best deliver them to underserved communities.

“When the vaccines started becoming available, it was assumed that the communities with the biggest share of COVID burden would be the most interested in getting vaccinated,” Cynthia says. “When that didn’t happen, it became clear that many of the same reasons these communities had a disproportionate burden of COVID also created barriers for them to get vaccinated.”

Although she and Kweku were available to address concerns about the science of the vaccine or religious issues, it wasn’t only a question of vaccine hesitancy. It was also a question of whether people were able to get access to the vaccine. Many people were considered essential workers, so they couldn’t easily take time off to get vaccinated. Other socio-economic factors, such as language barriers and the need for childcare, also contributed to lower vaccination rates.

“When we started our work, we didn’t want to just preach about vaccines,” Cynthia says, “We also wanted to address some of the social issues that made it difficult for people to access them.”

After receiving numerous questions about how and where to get the vaccine, the Hazels decided to partner with the Colorado Department of Public Health and Environment to host a vaccine clinic at Solid Rock Baptist Church in Aurora in February 2021. They did this with the help of volunteers through their grassroots community group called The Gyedi Project.



Fernando Holguin, MD, administers a COVID-19 vaccine shot at a clinic earlier this year.

What started as a one-time clinic for around 50 people ended up vaccinating more than 200. They hosted three more clinics over the next three months, administering more than 2,500 vaccines in total, primarily to people of color. By June, they switched to a referral service that helped community members find vaccines at government-sponsored clinics, freeing the Hazels to shift their focus back to education.

“With the new Delta variant, we are having to step up education again, because there’s new data coming out every day and new ways of tackling the Delta variant compared to the original virus,” Kweku says.

FEARS OVER SIDE EFFECTS, IMMIGRATION STATUS

Fernando Holguin, MD, a professor in the Division of Pulmonary Sciences and Critical Care Medicine, is working on similar efforts to raise vaccination rates and combat misinformation in urban and rural Hispanic communities in Colorado.

“This pandemic has highlighted the tremendous social and health disparities that exist in society,” he says.

Working through the Latino Research & Policy Center (LRPC) at the Colorado School of Public Health, Holguin has been involved in weekend and holiday vaccination clinics in Hispanic communities. He also helps organize educational webinars to provide information and reassurance in a culturally sensitive, Spanish-language setting.

“It’s been a great opportunity serving the community and working with them,” Holguin says. “I’m from Mexico, so it’s a natural place for me to be.”

From his discussions with Hispanic Coloradans, Holguin says he has learned that many are concerned about vaccine side effects and taking time off from work to get the shot. There is also fear that health care workers may be collecting information on their residency status.

“From my research, the community has been fearful for various reasons, including discrimination and the fear of deportation,” Cervantes agrees. “That’s why creating safe spaces for vaccinations has been key.”

THE SNOWBALL EFFECT AND BUILDING TRUST

Like other providers, Holguin and his colleagues at the LRPC are finding they can increase vaccination rates most effectively by engaging trusted community officials, church leaders, and local doctors.

Another key factor in getting more people in the Hispanic community vaccinated is the snowball effect that happens when community members see friends and family members getting the shot and remaining healthy, Holguin says.

“It’s my way of continuing to respond to the pandemic by preventing it and future pandemics from disproportionately burdening our communities.”

“By far the most important factor when I talk to people about why they become vaccinated is because ‘People in my house are getting vaccinated, and I see they’re doing fine,’” says Holguin.

The Hazels are taking a similar approach with their new target demographic for vaccine information: young people.

“Now that people ages 12 and up can get vaccinated, getting the youth on board is key,” Kweku says. In addition to reaching out to parents, they’ve also been training peer-to-peer youth ambassadors to connect with other young people at sporting events, music festivals, and other gathering places.



Lilia Cervantes, MD, (center in black mask) talks with patient at a vaccination clinic organized by Cynthia and Kweku Hazel.

STAYING AHEAD OF THE NEXT CRISIS

As the pandemic continues to lurk in many communities, providers are already looking ahead to the next potential health crisis and the lessons this pandemic can teach.

The Hazels are using the increased interest to address other health issues that are prevalent within the Black community and educate people about the social determinants of health.

“When we did seminars in the past, it was difficult to get people’s attention,” Kweku says. “When COVID happened, that changed. People were now very interested in hearing about health care. So why not include information about diabetes, nutrition, exercise, hypertension, and cancer while we’re talking to them about COVID? Let’s use this opportunity to start that work right now.”

“Our communities are in this position not just because of COVID, but also because of social determinants that make us more vulnerable to a pandemic,” Cynthia says. “If there’s one positive thing that has come out of this pandemic, it’s that it shone a bright light on the fact that BIPOC [Black, Indigenous, and people of color] communities and health care providers have a lot of work to do together around community protection.”

Cervantes echoes the need to address preexisting conditions in communities of color. Recently she’s advocated for a statewide chronic kidney disease task force. Due to a higher prevalence of diabetes and kidney disease, Latinos are at increased risk for worse outcomes from COVID-19.

Cervantes is also working with Hispanic physicians to launch the Latino Health Collaborative, a nonprofit organization that will focus on improving the health of Hispanics in the state by investing in policy development, building solidarity among Hispanic clinicians, and cultivating Hispanic clinician advocacy and health policy leadership.

“It’s my way of continuing to respond to the pandemic,” she says, “by preventing it and future pandemics from disproportionately burdening our communities.”

INCREASING ACCESS TO CLINICAL TRIALS

Donald Nease, MD, a professor in the Department of Family Medicine, is the principal investigator on a \$1.4 million National Institutes of Health-funded project to combat vaccine misinformation and increase participation in COVID-related clinical trials among communities of color.

As part of a \$29 million nationwide NIH initiative called the Community Engagement Alliance (CEAL) Against COVID-19 Disparities program, Nease and his team are working with Servicios de la Raza, the Trailhead Institute, Salud Family Health Center, Immunize Colorado, and other organizations to educate communities of color about the safety and efficacy of COVID-19 vaccines.

“We have established relationships with five different communities around the state, and we have hired community connectors to bring people to the table,” says Nease, who is working with the School of Medicine’s Colorado Clinical and Translational Sciences Institute on the initiative.

“We bring in a medical expert to give them all the science about COVID and the vaccines, and over a period of about eight weeks we will work with each of those groups of community members to figure out, ‘What are the factoids or bits of knowledge that are most important for your community to hear that are going to help move the dial on vaccination rates? Who needs to hear that information? Who are the folks that might be influencers or trusted channels of communication in your community, and what are the best ways to get it out?’”

In addition to acting on those suggestions, the CU CEAL team will administer surveys in each community to uncover additional questions, concerns, and reasons behind vaccine hesitancy.

IMPROVING TRAUMA CARE IN SOUTH AFRICA

CU researchers studying better ways to provide emergency treatment

By Mark Couch

A research-based training program for South African paramedics led by the University of Colorado School of Medicine is improving South African trauma care while also identifying innovations that U.S. military combat medics could use to treat battlefield wounds.

Nee-Kofi Mould-Millman, MD, associate professor of emergency medicine at the University of Colorado School of Medicine, this summer described how a South African paramedic – a participant in his innovative educational and research program in the Western Cape of South Africa – helped save a life.

“I remember one day when I was doing a site visit, I had one of the paramedics say, ‘Hey doc, you know the scenario we discussed in the module yesterday in the back of the ambulance? The same scenario we were taught happened the next morning in rush hour traffic.’”

“The patient was mangled,” the paramedic continued, adding that he had applied what he had learned the previous day. “The things I usually did before the training program, I instantly didn’t do them anymore. I started doing all the things that we trained on the day before. I was able to apply all that knowledge and those skills right there at the patient’s side.”

That novel back-of-the-ambulance training was provided through the C3 (Cape-Colorado-Combat) Global Trauma Network, a research initiative at the CU School of Medicine that is evaluating and developing the best ways to treat grievous injuries in dire, resource-limited, prolonged care conditions.

Using 15-minute trainings once a week in the back of ambulances, Mould-Millman and his fellow researchers are generating data that also can be useful for medics in other resource-constrained settings globally, and by the U.S. military when they are treating combatants with battlefield injuries.

AWARD TO STUDY TRAUMA CARE

Earlier this year, Mould-Millman’s research program announced that it received a \$7 million award from the U.S. Department of Defense to study prehospital trauma care and military-relevant clinical outcomes.

The study was developed with support of the Center for COMBAT (Combat Medicine and Battlefield) Research, which was founded and is led by Vik Bebart, MD, professor of emergency medicine at CU School of Medicine. The five-year, multi-center study builds on his prior NIH funding and Mould-Millman’s 10-year research relationship with community leaders in South Africa.

The study aims to answer high-priority civilian- and military-relevant questions related to early resuscitative interventions and the influence of time on clinical outcomes for critically injured trauma patients where time to definitive care is delayed.

So, how does it happen that an emergency medicine physician in Colorado who studies traumatic injuries in South Africa helps the U.S. military improve care in the battlefield?

It starts with the interests and expertise of Mould-Millman, who joined the CU School of Medicine faculty in 2013 after completing global health and prehospital care fellowships at Emory University in Atlanta.

“I am a clinical scientist with a primary focus on pre-hospital care and resuscitation, specifically of the critically injured patient,” Mould-Millman says. “I am most interested in resource-limited and austere settings. Geographically, my passion is really in sub-Saharan Africa, but I also maintain a portfolio of research here in the U.S.”

Then there are the obvious needs of military personnel to provide emergency care to those wounded in combat, particularly on the battlefield or in transit to a hospital. As many as 25% of combat deaths are potentially preventable with rapid interventions in those prehospital settings.

CONNECTING WITH THE COMBAT CENTER

The COMBAT Center was established to provide expert consultation to physicians, basic scientists, and academic and military leaders, and to foster relationships that produce successful innovations, material solutions, and knowledge that has high impact for war fighters.

“The way it works is we identify the DOD [U.S. Department of Defense] needs,” says Bebart, who is also Colonel in the U.S. Air Force Reserve. “We ask, ‘What are the capability gaps for the future battlefield?’ And then we look at investigators in the department or on campus who could potentially address them.”

Mould-Millman’s personal experience, his connections in South Africa, and the medical needs of the population were a good match for needs identified by the COMBAT Center.

“South Africa unfortunately has one of the world’s highest morbidity and mortality rates from trauma,” Mould-Millman says, noting that socio-economic issues continue in the country decades after the end of apartheid.





Nee-Kofi Mould-Millman, MD, (in lavender shirt) with colleagues in South Africa.

“There’s a lot of interpersonal violence and severe injuries from gunshot wounds, from stabbings, from accidental injury, from head trauma due to assaults, from severe motor vehicle crashes, from building fires, for example,” he says. “And a lot of these come from the very destitute and impoverished townships. These are high-density urban areas, informal settlements that are rampant with gang warfare and violence. And this is, sadly, the source of a ton of the burden of trauma.”

Another factor that makes the Western Cape of South Africa an applicable study location is the structure of its health system, Mould-Millman says.

“South Africa has a tiered system of care,” he says. “You start out at a community health clinic or district hospital, and if you need a higher level of care, they’ll move you to the next level up, which is the regional hospital. And then if that doesn’t work out, then you get moved up to the highest level, which is the tertiary care center.”

Transferring up the tiers can delay necessary care up to 24 to 48 hours.

“That mirrors some challenges that the military has, which is the prolonged care of patients during transport from the battlefield to the next level of care, all the way up to when a patient arrives at a huge facility either in Europe or in the U.S.,” Mould-Millman says.

Timely care and improving patient outcomes are more than an intellectual pursuit for Mould-Millman, who grew up in the west African nation of Ghana. It’s personal too.

“To be honest, growing up, I saw my fair share of both strangers and people I knew and loved die from trauma, or have grave morbidity, as a result of trauma and a lot of things that now I’ve come to realize were actually quite preventable,” he says. “I’ve had three friends, close friends, and two relatives die. And myself, as a child, I had a bad injury and I received some very suboptimal care, to be honest, that left me with a lifelong scar and a protracted treatment course. I had an open fracture of my forearm.”

Rushed to a nearby hospital, he was treated, but the standard of care was not ideal.

“I remember the doc and the nurse had my family step out,” he says, “and not a drop of anesthesia, not a Tylenol or a Motrin, nothing. As the fracture was reduced, my wound was washed out, no antibiotics, plaster cast put on, and I was shipped home. Four or five months later, it’s still healing and my arm was severely atrophied. That sort of thing makes an indelible scar, and impression on your mind, to say what can I do to make sure that others get better care and not suffer the way that I suffered.”

BUILDING A NETWORK OF COLLABORATORS

Over the past decade, Mould-Millman has developed a network of collaborators in South Africa and in other sub-Saharan African countries, including Kenya, Ethiopia, Ghana, and Zimbabwe.

Working with Bebart, Mould-Millman created C3 Global Trauma Network. Together, with Adit Ginde, MD, professor of emergency medicine, and vice chair of research, they matched their skills and passions to the needs of the military.

For this project, Mould-Millman has assembled a research team and 10 participating hospitals, EMS sites, and pathology laboratories in the Western Cape of South Africa. He also has an advisory team of uniformed officers and military surgeons in the United States, and emergency physicians, nurses, and surgeons in both countries.

The team builds off a previous study with ambulance services in South Africa resuscitating patients who were bleeding to death. That study was a proving ground for the team and for military officials.

“I think we sort of blew them away when we were able to recruit 700 patients in hemorrhagic shock in about a year and a half, which would take one hospital in the U.S. about 10 years to do,” Mould-Millman says.

The team recently completed the initial phase for the current study. This phase was designed to outline questions researchers want to answer and set up ways to measure the work: What are the most impactful interventions in prolonged care situations? When should those interventions be delivered? When do organs fail as a result of delayed resuscitation? Now their plan is to recruit 30,000 patients by 2024.

BUILDING CAPACITY

“As a global health scientist, I think I’m well attuned to the ethical sensitivities and the moral dilemma of doing research in lower-income countries,” he says. “First and foremost, the research population, the South African population, are the primary beneficiaries of the work. We must make sure that their voices and their perspectives comes through loudly.”

While investigating outcomes that could be beneficial to the military, it’s a paramount concern to improve the lives of South Africans.

“You also have to make sure you build capacity,” Mould-Millman says. “You should leave the system better than when you started. We are teaching and training research team members so that they can do this work after we leave. We’re building their capacity to write grants, do research, analyze data, and think about how you would implement a data collection system that can improve care.”

CARING FOR CHILD WITH CROUZON SYNDROME

Colorado family depends on “superstar” team of CU doctors and surgeons

By Valerie Gleaton

“Basketball, playing with sheep, playing with goats, playing with dogs, horse camp, friends ...”

Nine-year-old Danner Plumhoff is rattling off a list of her summer plans. Many of these activities wouldn't have been possible for her last summer, when she was fresh off an intensive craniofacial surgery. It was her biggest surgery to date, but as a child with a rare variant of Crouzon syndrome, it was hardly her first.

FROM LABOR TO FLIGHT FOR LIFE

Danner was born in June 2012 at Montrose Memorial Hospital, about five hours southwest of Denver.

“No one had detected anything unusual before I went into labor, so it was a bit of an emergency when the doctors saw the shape of her head and she couldn't breathe through her nose,” says Danner's mother, Sara Plumhoff. “They hadn't seen anything like this in our small town, so the Flight For Life team was called.” Danner was intubated, driven to Grand Junction, and then flown to Children's Hospital Colorado (Children's Colorado) in Aurora. Sara was still healing from her cesarean section, and there wasn't room for Danner's father, Jim, on the flight, so he drove to Grand Junction and then flew to Denver, arriving late that night.

At Children's Colorado, Danner was cared for by a team of pediatric specialists who explained that she had multiple-suture craniosynostosis, a condition where some of the bones of the skull prematurely fuse together. Because she was having trouble breathing, Danner received a tracheostomy at just two days old to give her a stable airway.

“Twenty-one days and a lot of trach training, joy, and fear later, we took Danner home, with a suction machine and a suitcase full of supplies,” Sara says.

What they didn't take home with them was a diagnosis explaining Danner's condition, which, in addition to the craniosynostosis, included mild Chiari malformations (structural defects in the base of the skull and brain), midface hypoplasia (undeveloped upper jaw, cheekbones, and eye sockets), narrow sinus passages, hydrocephalus, strabismus (an eye muscle disorder), a severe underbite, and a floppy soft palate.

“The geneticist at Children's Colorado told us that, due to the symptoms she had, he was about 97% sure Danner had either Crouzon or Pfeiffer syndrome,” Sara says. “But all the genetic testing came back negative.”

RELYING ON A “SUPERSTAR” TEAM

Undeterred, Danner's doctors continued treating her symptoms while still searching for an official diagnosis.

“We have a superstar team at Children's Hospital,” Sara says. “It's been pretty special, because they've been with Danner since she was about a day old.”

Two key members of Danner's team are Brooke French, MD, an associate professor in the Division of Plastic and Reconstructive Surgery, and Corbett Wilkinson, MD, an associate professor in the Department of Neurosurgery. Before she was even 14 months old, Danner had two major surgeries with French and Wilkinson to open the front and back of her skull to allow room for her growing brain and to move her forehead and orbital bone forward to protect her eyes. Wilkinson also gave Danner a ventriculoperitoneal shunt to combat her hydrocephalus.

“So many of her early surgeries were to prevent harm and actually save her life,” French says. “Then, as she got a little bit older, we started to do things to try to improve her facial balance and function.”

Despite all the procedures, Sara says Danner was a healthy and happy infant, achieving the regular childhood milestones and even learning some sign language, since she couldn't speak with the trach. At a little over a year, Danner's breathing stabilized enough to remove the trach.

“That was the best day ever,” Sara says.

More procedures continued as Danner grew. Between the ages of 4 and 6, she had surgery to correct the strabismus in her eyes, another surgery to remove her adenoids and tonsils, and multiple sleep studies.

“Danner has always had horrible sleep apnea,” Sara explains. “Her airway was severely constricted, and her palate was soft and floppy, which made it difficult for her to breathe during sleep. Many nights, I laid in bed willing her to take her next breath. She always did, but it was scary.”



Danner Plumhoff with two of her family's goats. Photos courtesy of Plumhoff family.

DIAGNOSIS AT LAST

Although Danner's treatment was going well, Sara still longed for a diagnosis to better understand what her daughter was going through. When Danner was around 6 years old, she visited Children's Colorado to meet with an endocrinologist and a dermatologist.

"She was still small," Sara says. "We had a hard time getting her over 30 pounds. And she also had some darkening of the skin that was unusual."

The endocrinologist diagnosed Danner with a skin condition called acanthosis nigricans, adding that it was sometimes associated with Crouzon syndrome. When Sara explained that Danner had already been tested for the syndrome, the endocrinologist told her that this variant of Crouzon syndrome was extremely rare and located on a different gene, making it impossible to detect in the standard genetic test for Crouzon.

"Instantly, I knew we had found her diagnosis," Sara says. "We had another round of genetic testing performed and sure enough, it was positive."

Sara describes finally getting a diagnosis for Danner as "the moment that everything changed, and nothing changed."

"I joined a Facebook group for parents of children with Crouzon and was able to reach out to them for support and advice. But in Danner's world, nothing changed."

THE "BIG SURGERY"

Throughout their medical journey, Danner and her parents knew she would eventually need to have what they call her "big surgery" to fix her airway, align her jaw, and move the bones of her midface forward (called a distraction). In 2019, the Plumhoffs and their team at Children's Colorado decided it was time.

"It's a surgery you have to save for at least a few years of age, because if you do it too young, there's a higher chance you'll have to re-do it," Wilkinson explains.

The nine-hour surgery — called a monobloc — took place at Children's Colorado on Jan. 9, 2020. But a lot of planning and preparation went into it before that day.



Danner Plumhoff spends time with her older brother Willem while wearing her halo device.

"Dr. Wilkinson and I did what's called a virtual surgical planning session, where we used her CAT scan to practice her surgery online ahead of time to identify any potential issues," French says. The team also had 3D printed mockups of Danner's skull to help them decide where to make the surgical cuts and to plan how far to distract her midface and forehead.

**"Trust in your team of doctors
and in your child. For us,
when Danner's doing great,
we're doing great."**

Danner was intubated in the ICU for close to five days, then spent another five days in the hospital recovering after her procedure. She left with a purple halo device (called a rigid external distraction device) that was attached to her skull and connected to her jaw and forehead with wires. The Plumhoffs were taught how to twist the screws on the halo to slowly move her face forward over the next couple of weeks. After that, she wore the halo for another four months while her skull and face healed.

"These must have been the worst months of Danner's life," Sara says. "She couldn't eat anything except liquids for a while, she had the halo attached to her face, and she was in a lot of pain. She also lost her personality for a while. I'd say it took about six months for Danner's personality to really come back."

Luckily, Danner doesn't seem to remember too much from this time, aside from the frustration of not being able to play with her many animals and the endless parade of liquid meals — blended pancakes were her favorite, while she describes liquified macaroni and cheese as “bleh.”

ROAD TO RECOVERY

After they returned to Montrose, the Plumhoffs relied on their doctors to help them through the recovery period.

“Any time we had issues, we would contact the doctors and all of a sudden, we'd be talking to Dr. French on a Saturday morning over Zoom,” Sara says. “They've been able to do so much with us remotely, which is huge since we live in such a rural area.”

In fact, when one of the wires on Danner's halo snapped, Dr. French was able to send the Plumhoffs a new set and then walk them through replacing it over a video call.

“With any other family, I probably would have urged them to come in so that I could take care of it, but Jim said, ‘Doc, I can do this.’ And he did.” French says. “I'm so impressed with all of them. And I know they put a great amount of trust in us, for which we're extremely thankful.”

Aside from the cosmetic changes, Sara says the biggest change since the surgery is that Danner finally began to grow. Her height shot up by four inches in just a few months, and she began to put on weight.

“We finally broke 40 pounds, right?” Sara says to Danner, celebrating with a high five.

Going forward, Wilkinson and the neurosurgery team will continue to monitor Danner's shunt every year, but French hopes she won't need more craniofacial surgery. Instead, Danner's treatment will focus primarily on orthodontics and overcoming her persistent sleep apnea.

“She's been through a lot, especially for someone her age,” Wilkinson says. “But she's a spunky kid, and she used that spunkiness to get through it.”

When asked what advice they'd give to families facing a similar situation to theirs, Jim and Sara say, “trust is important.”

“Trust in your team of doctors and in your child,” they say. “For us, when Danner's doing great, we're doing great.”

And Danner's advice?

“Stay strong. You're going to be OK.”



CHALLENGING OUTDATED FDA POLICY

CU physician Michael A. Puente works to end ban on cornea donations

By Chanthy Na

The death of a 16-year-old boy who was bullied for being gay inspired Michael A. Puente, MD, assistant professor of ophthalmology at the University of Colorado School of Medicine, to campaign to change a 27-year-old federal regulation restricting the ability of gay and bisexual men to donate their corneas in the United States.

Many causes of blindness or visual impairment can be cured through corneal transplant surgery. However, since 1994, federal policy has banned men from becoming cornea donors if they have had sex with another man in the past five years, even if they are found to be HIV-negative.

Puente's study, published last fall in *JAMA Ophthalmology*, reported that the five-year deferral policy had eliminated as many as 3,217 corneal donations in 2018. The policy has not changed since 1994 and does not reflect more reliable and faster HIV testing available today. Puente also mentions that there has never been a case of HIV transmission through a corneal transplant anywhere in the world, even in cases where the corneal donor was HIV-positive.

"This issue came to my attention a couple of years ago when I heard the story of a teenage boy who couldn't donate his corneas just because he was gay," Puente says. "His name was AJ Betts from Des Moines, Iowa, and he was the only openly LGBT student in his entire high school. He was bullied mercilessly by his classmates and even two of his teachers, and the bullying ultimately led him to commit suicide."

Betts's family donated his heart, lungs, liver, and kidneys to save the lives of six people, but the federal policy prohibited donating his corneas.

FROM STUDY TO ADVOCACY

While corneal donations in the United States meet local demand, the need worldwide is much higher. Wait lists for corneal transplant surgery in some countries extend several years. Eliminating the ban could increase the availability of vision-restoring surgery worldwide.

Last year's study was just the starting point for Puente. Working with the Eye Bank Association of America and the American Academy of Ophthalmology, he has set a meeting in September with the U.S. Food and Drug Administration (FDA).

Puente, who is the first ophthalmologist to bring attention to this issue, hopes the meeting will put this policy officially on the agenda for the FDA to review.

"I'm confident that if the FDA does their research, looking into current evidence, that they will substantially shorten the five-year deferral period for gay and bisexual corneal donors, or even eliminate it altogether," Puente says.



Michael A. Puente, MD, is challenging a federal ban on cornea donations by some gay and bisexual men as outdated and discriminatory.

Puente plans to contact members of Congress to ask them to raise this issue with the FDA. He also plans to rally a group of doctors and medical students on the steps of the Colorado State Capitol.

THE COVID EFFECT AND GROWING NEED

The need for donated corneas continues to grow, while the COVID-19 pandemic has hampered donations worldwide.

"An estimated 12.7 million people around the world need a corneal transplant, and that number was calculated before the pandemic," Puente says. "The numbers are even worse now. Many eye banks were shut down completely during the pandemic. A lot of people had difficulty seeing an ophthalmologist, so now there's even more of a backlog than ever before."

Puente considers the policy a human rights issue, and that saving the discarded corneas from gay and bisexual men could address the worldwide cornea shortage and restore vision to thousands of patients.

"There's absolutely no reason from a medical standpoint that gay and bisexual men can't be corneal donors," Puente says. "The current federal policy is not based on current evidence and is treating an entire demographic differently from other people. It's discriminatory. And any time there is a discriminatory policy in health care, I believe the entire medical community should strongly advocate for that to change."

BASECAMP OFFERS TRAINING

New program prepares future physicians for difficult conversations

By Debra Melani



Medical student Bryn Launer (left center) practices in anatomy lab as instructor Danielle Royer, PhD, (right center) observes.

Bryn Launer took a deep breath as she picked up the phone. She was calling the brother of a woman with a severe head injury from a motorcycle accident. Still unconscious in the hospital after three days, the woman's outlook appeared grave.

Nervous about her first time delivering serious news, Launer jumped into the conversation she had gone over in her mind, describing the severity of the brain injury and the doctors' belief that the woman would never wake up again.

But the brother cut her short, peppering her with panic-driven questions: "What is this about? Who are you? Why are you calling me from the hospital?"

That's when Launer called a timeout.

POISED TO BECOME NATIONAL MODEL

One of this May's graduates from the MD program, Launer was taking part in a new training curriculum at the University of Colorado School of Medicine required of all fourth-year students before they embark on careers as doctors.

The incident of the patient with an injury was contrived, and the "brother" was a trained actor. Relying on case reviews, role play, and simulation, the course covers topics from radiology and resuscitation to delivering serious news and addressing opioid addiction.

"Our whole course is designed around one question: What can we do to make them better Day 1 doctors?" said Matthew Rustici, MD, co-director of the Transition to Residency (TTR) Basecamp that kicked off in March and is positioned to become a national model for TTR programs.

The School of Medicine's Jason Brainard, MD, associate professor of anesthesiology, and Anna Neumeier, MD, assistant professor of medicine, also co-direct the program that involves partners across the CU Anschutz Medical Campus and the state. With about 40% of the school's graduates staying in Colorado for their internships, the state stands to benefit from the new training, Rustici said.

DELIVER SERIOUS NEWS

"We did a lot of interesting and innovative things that have high value to students and patients," Rustici said. That includes creating 56 versions of standardized patient cases. "Half of those were devoted to delivering serious news. These are things like telling someone they have cancer or that their child has been abused."

Students prepare by reading and hearing patient and physician perspectives about receiving or delivering serious news. Volunteer faculty and residents coach the students ahead of time and share their professional experiences.

"It's really targeting what are some of the most pressing concerns for us as students," participant Nicholas Bianchina said of the overall curriculum. "What are the things that I'm really worried about and that I haven't a game plan for ahead of time?"

Telling bad news in a compassionate way to patients and their loved ones ranks high on that list of concerns, Bianchina and Launer said.

"I think we're all really scared of giving serious news wrong to a real patient," Launer said. "So having the safe and supportive environment to practice in was nice. If we felt like we said something wrong, or we didn't like how we said something, we could pause or rewind."

TECHNIQUES FOR HANDLING CHALLENGES

After preparation comes the real test: role play or simulation, aided by the Center for Advancing Professional Excellence (CAPE). "They have a huge cohort of standardized patients, which are like actors, but better trained," Rustici said of CAPE, an advanced teaching facility within the School of Medicine and a key player in the program.

Students receive a case prompt – a short description on what they are going to talk to the patient about. Then the role play with a live "patient" begins, whether via phone, video conferencing, or in-person.

"Some of them get angry," Rustici said of the standardized patients. "Some of them get defensive. Some of them get very, very sad."

“I think we’re all really scared of giving serious news wrong to a real patient. So having the safe and supportive environment to practice in was nice.”

Emotional and intense, students reported the scenarios felt real. Some said their hands started sweating or shaking. Others became flustered or broke down.

But all participants came out saying they appreciated the training, which allows for learning from mistakes, Rustici said.

In her scenario with the phone call to the brother, Launer said she learned never to assume.

“It was really good for me, because when I first went into the phone call, I just assumed that the brother knew that his sister was in the hospital and that he had already been updated. If I had done that in real life, I would have just gone about it completely the wrong way.”

While most topics of the curriculum were addressed at some point in medical school, the program offers intensive, real-world training, Rustici said. “These are probably the most-advanced communications sessions students have ever had and probably will have.”

TACKLING THE OPIOID CRISIS

For the opioid and pain management segments, the Basecamp program partnered with the Colorado Consortium for Prescription Drug Abuse Prevention, which is based at CU Anschutz, hoping to make a difference in the opioid addiction crisis, Rustici said.

“There are lots of components to the opioid crisis, but providers certainly have a role in causing it and perpetuating it and not always supporting the people who are experiencing it,” Rustici said.

The Basecamp program includes challenging, interactive case-based sessions tailored to the students’ specialties. The curriculum teaches students when opioids are needed and when not to jump straight to narcotics for pain management, Rustici said.

“What are the other pain modalities that you could use in the hospital so that you are less likely to push people down the substance-abuse road?”

The segment also culminates in role play. Launer, who plans on specializing in urology, faced a woman who was unable to wean off opioids after gallbladder surgery. It is a situation Launer knows she will see in practice.

“When I read the scenario and was practicing in my head, I sort of envisioned her as this very argumentative, combative woman who was going to just give me a really hard time,” Launer said, adding that she thought she would have to bargain with the patient and that it would be a stressful encounter.

Again, Launer assumed wrong.

“She was open and understanding,” Launer said of the standardized patient. “She just felt like she needed the opioids to get through her day.” The woman was worried about switching to over-the-counter pain relievers because of serious side effects she had read about, Launer said.

EXTENDING BASECAMP’S REACH

Both Bianchina and Launer said they feel better prepared for the next chapter in their careers because of the Basecamp program. “It’s just really nice to have dedicated time within our training that focuses on the realities of what we’re going to be doing during intern year,” Launer said.

Rustici attributed the success of the program’s first year to a “huge team effort,” which included the dedication of his fellow course directors and the Colorado Consortium team, led by Robert Valuck, PhD, RPh, professor of clinical pharmacy at the CU Skaggs School of Pharmacy and Pharmaceutical Sciences. The directors plan to extend the curriculum to all Transition to Residency programs in the country, where it can really make a difference in quality of health care.

“Interns or first-year residents are doing a large amount of patient care and patient interaction,” he said. “There is a huge ability to impact people right away by putting these interns into the system who are setting the right example and doing the right thing.”



Medical student Bryn Launer said Basecamp offered a safe and supportive environment to practice communicating difficult information.

CREATING A SURGICAL TRAINING TOOL

GlobalSurgBox meets local and global needs

By Valerie Gleaton

Last May, more than 20 medical students from the University of Colorado School of Medicine, along with several residents, fellows, and faculty members from the Department of Surgery, gathered in the home of Yihan Lin, MD, MPH, a cardiothoracic surgery fellow.

The group watched a video tutorial about how to tie square knots, then broke into smaller teams to practice the skill, looping shoelaces around nails hammered into wooden boards. The activity was reminiscent of an arts and crafts night, but these were no friendship bracelets or macramé wall hangings. Instead, the students were learning essential surgical skills to better prepare them for the operating room and the wards.

PRACTICE MAKES PERFECT

The event was hosted by the CU chapter of the Global Surgery Student Alliance (GSSA), a national student-run global surgery working group committed to educating and uniting medical students through engagement and mentorship in global surgery.

A group of cardiothoracic surgery residents and fellows from CU, University of Virginia, and University of Pennsylvania originally designed

the GlobalSurgBox as an affordable, reusable, and portable toolkit to train learners at all stages, from medical students to cardiothoracic fellows.

“Surgical simulation is an effective way to train surgical skills that will translate to the operating room,” said Melissa Smith, a first-year medical student and co-president of the CU GSSA chapter. “You can buy commercial kits online, but each kit usually only teaches one or two modules and are also quite expensive. Medical students are often living on student loans and accumulating debt, which can make them unaffordable.”

So the CU students spent a few months innovating and refining the toolkit. The meeting in May was the first in-person event to demonstrate the kits and use them to learn a basic suturing technique.

The kits are made of affordable and readily available materials. Instead of high-tech (and expensive) synthetic “skin,” the students use cut-up yoga mats and baking sheets. There are expired sutures donated by industry partners, along with sterilized needle drivers, suture scissors, and surgical pickups from the operating room — items that would have otherwise been thrown out.

Students practice knot-tying on the wooden board and simulate vascular anastomosis (joining of blood vessels) with balloons. A simple cardboard tube from a paper towel roll and a modified cupcake baking sheet stands in for the aortic valve.

The entire kit fits inside a portable 12-inch toolbox and costs only \$20 to make in bulk. The modular design allows for multiple training modules to be created. The kits also include a QR code to the group’s website, globalsurgbox.com, where users can access video training modules for different skills.

“The students came up with so many new and improved innovations for the GlobalSurgBox, and they keep coming up with ideas for new materials and instructional videos,” said Lin, one of the group’s faculty advisors.

Although most of the attendees were first-year medical students, Lin said one of the best things about the kits is that it grows with students as they advance through their surgical education.

“I’ve been using them to teach many of my surgical residents,” she said. “We practice whenever we have a few minutes of downtime.”

Some of those same residents were at the event, along with a few fellows. Lauren Taylor, MD, a cardiothoracic fellow, spent the evening teaching a group of three students both the basic two-handed square knot, as well as the more advanced one-handed square knot.



Lauren Taylor, MD, teaches CU medical students Rabbia Imran and Brian Carter surgical skills using the GlobalSurgBox.



Members of the CU chapter of the Global Surgery Student Alliance gathered in May to practice skills using the GlobalSurgBox.

“I think the kits are great,” Taylor said. “Everyone I worked with made considerable progress. It’s really helpful to have that hands-on experience instead of just trying to learn from diagrams in a book.”

“It’s 3D thinking!” chimed in Rabbia Imran, one of the medical students and the CU GSSA’s clinical/research liaison, as she practiced her knots.

“MAKE ONE LOCALLY, GIVE ONE GLOBALLY”

Derrick Murcia, a third-year medical student, said he came to the event because he wants to learn how to suture before he starts his surgical rotation and because he’s interested in GSSA’s work around addressing global surgical disparities.

For each surgical kit made for a surgical trainee here in the U.S., another one will be donated to partners in other countries.

“Unfortunately, in low- and middle-income countries, access and affordability often prevent students and residents from getting other commercial surgical simulators,” Smith explained. “We are planning to make the GlobalSurgBox available to them by implementing a ‘make one locally, give one globally’ approach.”

Lin pointed out that the kits won’t just benefit surgical trainees. “In rural areas of many low- and middle-income countries, specialized surgeons are often lacking, and general practitioners are often the people performing surgeries for lacerations, hernias, even C-sections,” she said.

The first set of 50 kits were donated by Jay Pal, MD, PhD, an associate professor of cardiothoracic surgery and another of the CU GSSA’s

faculty advisors. But Smith says the group has already secured funding to make more kits this fall for both CU medical students and donations abroad. The general surgery residency program at CU has also provided eight kits for all research residents returning to their clinical rotations and donated another eight kits for trainees in low-resource settings.

“Surgical simulation is an effective way to train surgical skills that will translate to the operating room.”

Lin delivered and demonstrated the first batch of kits for donation last May during a trip to Kenya to work on other medical projects. Another group of CU medical students with Team HEART, a nonprofit medical organization focused on bringing sustainable cardiac care to Rwanda, delivered a second batch there in July. Both groups solicited feedback from trainees on how the kits might be modified to better serve doctors and patients in those areas.

“A lot of public and global health focuses on infectious disease and primary care,” said Brian Carter, a first-year medical student and the co-president of the CU GSSA chapter. “So, surgical aid often falls short. We’re hoping low-cost, portable options like this kit can help meet some of those rudimentary needs.”

To learn more about the project or to donate a box, visit the group’s website, globalsurgbox.com.

CU RESEARCH TO MAP THE GENES OF BONES

Cheryl Ackert-Bicknell searches for the secrets to healthy bones

By Mark Couch

Cheryl Ackert-Bicknell, PhD, seems perplexed when asked why she is so dedicated to understanding how bones work the way they do because the answer is so obvious.

“Because bone is the coolest organ system in the body” Ackert-Bicknell says. “Bone gets so underappreciated. Bone is an endocrine organ. It makes hormones. Bones make hormones that control whole body energetics.”

After years of study and many collaborations with scientists and surgeons, there is still so much more to learn.

This summer, Ackert-Bicknell, associate professor of orthopedics, was awarded another grant by the National Institutes of Health to expand the understanding of how bones work and to find even more evidence about how bone is the coolest organ system in the body.

With this \$3.4 million grant, Ackert-Bicknell, associate professor of orthopedics at CU School of Medicine, plans to map the key genes and pathways involved with bone cell activity. Using that information, researchers hope to find targets for more effective treatments to counter bone loss.

Bone is in a constant state of remodeling, Ackert-Bicknell said, and her study is designed to look at cells known as osteoblasts, which work in teams to build bones. When a healthy body is functioning properly, osteoblasts work in balance with other cells called osteoclasts to maintain sufficient bone mineral density.

“In the process of walking from your car to here, you did microcrack damage to your bone,” Ackert-Bicknell explains. “The osteoclasts’ job is to home to that site of the microcrack, eat a hole out all the way around that microcrack and the osteoblast comes and fills that in. That’s called normal bone turnover. That’s most of your life. If the osteoclasts go haywire and there is insufficient building of new bone, that’s osteoporosis.”

Current therapies to cause the body to build the right amount of new bone are limited. These therapies can only be used for a limited time – one to two years – and none can be used in children. There is a need for better therapies, Ackert-Bicknell said, but they cannot be developed without improved understanding of how a healthy body gets bone density just right.

That’s where Ackert-Bicknell’s study comes in. She plans a comprehensive analysis of how the genes influence the process.

She will conduct a genome-wide association study that seeks to identify genetic variations that are associated with osteoblast function and bone mineral density.

“Osteoblasts build bone. Osteoclasts chew up bone. And that’s how I always teach it: Blasts build and clasts chew,” Ackert-Bicknell says. “Osteoblasts do two things when they build bone. They make a protein matrix and then they mineralize that matrix. For that to be accomplished, the osteoblast has to get to the right place, and it has to proliferate. So, it is migrating, it is proliferating, it is making matrix, and it is mineralizing that matrix.”

Previous studies of osteoblasts have shown that its characteristics are highly heritable, or transmissible from parents to children. But how osteoblasts, which are complex and highly regulated cells, form and do their work is not well understood. What might appear to be a small change can have significant developmental consequences. Ackert-Bicknell cites an example of how knocking out a single gene in one type of bone cell can result in an obese mouse.

“You can actually knock out a gene, just in these osteoblast bone cells, and get an obese mouse,” she says. “In that cell only. It is the only cell in the whole body that makes that gene, and you end up with an obese mouse. This just shows how bone is tied into all of physiology.”

To get a better understanding of those connections, Ackert-Bicknell’s new study will look at the network of all the genes expressed in the osteoblast and their relative expression in different contexts of genetics.

“To do this, we must compare bone image after bone image to identify variations that could be meaningful in relation to the genetics,” says Douglas Adams, PhD, associate professor of orthopedics, who has worked with Ackert-Bicknell on previous studies that underpin the work in this new award.

Adams is also working with Ackert-Bicknell on another NIH grant studying how the leading treatment for osteoporosis might have variable efficacy because of genetic differences between patients. To conduct such studies, researchers grind through thousands of data points to discover links that have yet to be uncovered. By identifying those unknown connections, the team hopes to discover new ways to treat disorders of bone mineralization.

**“Bone gets so underappreciated.
Bone is an endocrine organ.
It makes hormones. Bones
make hormones that control
whole body energetics.”**

“It’s sort of along the lines of looking under the streetlamp for your keys,” Ackert-Bicknell says. “As long as your keys fell down where the



Cheryl Ackert-Bicknell, PhD

lamp is shining light, you've got a good chance of finding them. In our work, we are looking outside of the streetlight for the things we haven't studied before.

"Let's face it, what we know now isn't giving us enough drug targets, enough information. It isn't helping us. The most unique pathways and the ones that are going to get us drugs are not the ones we have already studied."

This latest study builds on a series of projects in Ackert-Bicknell's group.

With Adams, Laura Saba, PhD, associate professor at the CU Skaggs School of Pharmacy and Pharmaceutical Sciences, and others, Ackert-Bicknell is evaluating bone quality and exploring the genetics of quality because the tools used to look at patients' bones have limits in what they let clinicians see.

The DEXA scan, an imaging test that measures bone density, is useful in showing the thickness of bone, but the scans don't show the composition of the matrix within the bone. Understanding the matrix is critical to understanding the strength of the bone. That's why researchers are focusing on the genetic factors that contribute to building that matrix.

While multiple factors contribute to overall patient health, preventing and healing fractures is critical for improving patients' quality of life and, in many cases, saving their lives. Current therapies for fractures fail too frequently, Ackert-Bicknell says, so continuing to rely on them instead of looking for new treatments is insufficient to meet the needs of patients.

"We know that two out of every 10 women who suffer a fracture over the age of 50 will be dead within one year," Ackert-Bicknell says. "Three out of every 10 men who have a hip fracture will be dead within one year."

"Let's face it, what we know now isn't giving us enough drug targets, enough information. It isn't helping us. The most unique pathways and the ones that are going to get us drugs are not the ones we have already studied."

ORTHOPEDICS RESEARCH PROGRAM GROWS

Cheryl Ackert-Bicknell, PhD's research activity and grant success is part of expanded basic research in orthopedics on the Anschutz Medical Campus and the emergence of the Colorado Program for Musculoskeletal Research (CPMR).

Evalina Burger, MD, and Robert D'Ambrosia, MD, current and former chairs of orthopedics, committed to expanding the research program in 2018 and recruited Michael Zuscik, PhD, as research vice chair and director of the CPMR to lead the effort.

Earlier this year, Zuscik received a \$3.175 million grant from the National Institutes of Health to analyze the link between the gut microbiome and osteoarthritis — specifically in obese people — and investigate whether strategies that shape the gut microbiome can halt or reverse the progression of the disease.

Since Zuscik's arrival, the Department of Orthopedics has recruited four additional seasoned and early-stage investigators, increasing the number of research-focused faculty to 10. The department's research base has also grown by nurturing collaborations with 32 faculty in eight basic science and clinical departments across the four CU campuses. This group of 42 multidisciplinary and collaborative faculty now make up the CPMR.

Even more impressive, with Ackert-Bicknell's new grant, the department's total research portfolio has increased more than 10-fold, from \$2.4 million in 2018 to more than \$27 million today.

BARIATRIC SURGERY AS A PUBLIC HEALTH BENEFIT

Denver Health program reduces long-term care costs

By Valerie Gleaton

Fredric Pieracci, MD, MPH, associate professor of surgery, is senior author of a paper that details how providing affordable bariatric surgery to uninsured Denver County residents has offered a significant public health benefit.

The paper, published in the journal *Surgery for Obesity and Related Diseases*, describes the benefits of the program.

Pieracci, director of the Denver Health Bariatric Surgery Center, and his team have performed more than 500 bariatric surgeries over the past decade. As a public safety-net hospital, many patients at Denver Health depend on Medicare or Medicaid.

"We were getting four or five — sometimes even 10 referrals a month — for bariatric surgery that we had to turn away because they didn't have insurance," Pieracci says. "That's when we started meeting as a team to try to come up with a solution."

MAKING THEIR CASE

First, Pieracci and his team created a petition stating that bariatric surgery should be offered to all, regardless of ability to pay. More than 100 Denver Health providers signed.

"It was kind of a grassroots movement," he says. "The bariatric surgery program is very collaborative and multidisciplinary. We used that to our advantage when we were discussing with our administration the notion of funding surgery for uninsured patients."

Then, Pieracci and his team met with Denver Health's Medical Necessity Committee, which decides the procedures that are approved for patients without insurance. Life-saving treatments, such as cancer surgeries, are automatically approved, while procedures like cosmetic surgery are usually denied. Bariatric surgery existed in a gray area.

"It had never really been considered by that committee," Pieracci says. "So we made a presentation explaining why we thought bariatric surgery should be covered, using the logic that the committee already covers surgeries that increase patients' lifespans or help with other serious health problems. We said that bariatric surgery should be in that same category because we know that it increases longevity and cures things like high blood pressure and diabetes."

The committee agreed. The next step was getting approval from the hospital administration. For that meeting, the group collected existing studies on the cost-effectiveness of bariatric surgery, along with its own data.



Fredric Pieracci, MD, MPH

"We collected about six months of data on our current bariatric patients and were able to show that they were less likely to show up in the emergency room for issues related to diabetes and high blood pressure after surgery," Pieracci says. "Since most of those ER costs are passed on to the hospital, the financial argument is a very sound one: we can do one surgery upfront and prevent a lifetime of complications."

They received approval to perform one or two bariatric surgeries for non-insured patients a month. So far, 30 uninsured patients have benefitted, and the results have been impressive.

POSITIVE OUTCOMES FOR PATIENTS

"Overall, the outcomes we've seen in our uninsured patients are the same as we've seen in our insured patients," Pieracci says. "Which is that by the one-year mark they've lost about 70% of their excess weight. About 80% of patients who had diabetes are cured of their diabetes, and about 70% who had high blood pressure are cured of that. It's a huge quality-of-life change for our patients who can stop taking those injections or medications."

"They're a group of people who are often forgotten by the system, so it's really special to get these patients into our program and know that we've helped people who otherwise didn't have a lot of options."

Pieracci hopes to serve more uninsured patients, but he adds that we need to reshape how we think about both poverty and obesity.

"Patients of lower socioeconomic status are more likely to be obese, and they're also less likely to have access to affordable bariatric surgery," he says. "And there's still a stigma where some people think bariatric surgery is the easy way out and that patients just need to deal with their weight themselves. I couldn't disagree with that more."

The team's publication provides evidence to challenge those stereotypes.

"They're a group of people who are often forgotten by the system, so it's really special to get these patients into our program and know that we've helped people who otherwise didn't have a lot of options," Pieracci says.

ON THE JOB TRAINING

CU Climate Fellowship expands its reach

By Valerie Gleaton

When Jay Lemery, MD, an associate professor of emergency medicine, launched the Climate & Health Science Policy Fellowship in 2017, he started with a recently graduated emergency medicine fellow working in the CU Department of Emergency Medicine.

This year, the fellowship expanded to five fellows from across the country who are working in multiple specialties. Through their fellowship, they are embedded in major federal policy organizations, including the Centers for Disease Control and Prevention (CDC), the U.S. Environmental Protection Agency (EPA), and the National Oceanic and Atmospheric Administration (NOAA).

INTERSECTION OF CLIMATE CHANGE AND HEALTH

The one-year fellowship was the first of its kind in the country, with a mission to empower health care professionals to address medical issues related to climate change.

Lemery and experts from around the world call this emerging field climate medicine, and it addresses a spectrum of climate-related health concerns, from hyperthermia brought on by extreme heat events and diseases caused by degraded water quality due to flooding.

As the world's average temperature rises, disease-carrying insects will have longer breeding seasons, leading to an increase in vector-borne illnesses like malaria, Lyme disease, and dengue fever. Poor air quality caused by wildfires, food insecurity due to droughts, even longer and more intense allergy seasons caused by climate change. Lemery says all these issues can be linked to climate change.

"We looked at these issues and asked, 'Who's going to lead?'" Lemery says. "That's why we created this fellowship — to mobilize clinicians."

EXPANDING WITH A NEW ADMINISTRATION

Although the fellowship was started as a traditional graduate medical education fellowship within the Department of Emergency Medicine, the demand convinced Lemery to scale up the number of fellows and broaden the approach to include more specialties.

"As we grew, we realized we couldn't stop at just one fellow a year," Lemery says. "There was no need for them to be working at the Anschutz Medical Campus — they could be anywhere. And they should come from all disciplines."



Jay Lemery, MD

In addition to the increased number of fellows and the expansion beyond emergency medicine, this year's program includes fellows who work in governmental policy organizations rather than clinical settings.

"These fellows have a very rich ecosystem to learn in," Lemery says. "The new administration is leaning into big projects and multifaceted, governmental approaches to address climate issues, and the health angle is an important part of that."

IN THE ROOM WHERE IT HAPPENS

The new class of fellows started on July 1. They are:

- Eric Balaban, MD, an internal medicine physician, completed his residency at UCHest University of Colorado Hospital (UCH) and is at NOAA.
- Bhargavi Chekuri, MD, a family medicine physician, completed her residency at Dartmouth-Hitchcock and is at the U.S. Global Change Research Program.
- Beth Gillespie, MD, an assistant professor at the CU School of Medicine and hospital medicine physician at Denver Health, is at the CDC.
- Emily Sbiroli, MD, an emergency physician, completed her residency at University of San Diego and is at the EPA.
- Stefan Wheat, MD, an emergency medicine physician, completed his residency at University of Arizona and is at the U.S. Department of Health and Human Services.

Traditional education and scholarship with CU faculty members will continue to be an important part of the program, but Lemery says the fellows will also be learning "on the job."

"We want our fellows to be in the room where it happens, to be part of those meetings and know the people and the decision makers," he says. "We want to give them a broad experience so they can go do all sorts of different things related to climate health, whether it's diving into health care system resiliency, becoming a climate and health advisor for a big NGO, or running their own academic programs."

The fellowship is currently only open to physicians, but Lemery wants to extend the fellowship and create other professional education opportunities open to all who work with patients.

"We want to impart to them the knowledge — the big knowledge — of climate and health care, so they can become agents for change," Lemery says.

ALUMNI CORNER

A LETTER FROM THE PRESIDENT



Taylor Triolo, MD

Dear CU School of Medicine Alumni,

My name is Dr. Taylor Triolo, and I am a graduate of the CU School of Medicine class of 2013, pediatric residency class of 2016, and pediatric endocrinology fellowship class of 2019. Currently, I am on the CU School of Medicine faculty as an Assistant Professor of Pediatrics at the Barbara Davis Center for Diabetes on the Anschutz Medical Campus. I am honored to have been elected as the president of the CU Medical Alumni Association and excited to get to work!

Congratulations to the graduating Class of 2021. Your resilience in completing medical school during a global pandemic is exemplary. We are excited for all you'll go on to accomplish in residency. Please keep in touch! I want to thank our outgoing student board representatives for their service: Drs. Mackenzie Garcia, Timothy Browne, and Ryan Friedman, and wish them the very best as they embark on the next chapter of their medical education.

Thank you to our alumni who attended an Evening of Music with Ethan Lazarus, MD '96 and our CU School of Medicine Alumni Reunion this fall. I look forward to meeting many more of you at future alumni events over the next two years of my term. I also encourage everyone to connect with us on social media by following us on Instagram (@cuanschutzalumni) and joining our CU Anschutz Alumni LinkedIn group.

Sincerely,

Taylor Triolo, MD '13

President

CU Medical Alumni Association

WHITE COAT AND MATRICULATION CEREMONY

The White Coat and Matriculation Ceremony had fewer family and friends attending in person, but the CU Medical Alumni Association was excited to welcome the CU Medical School Class of 2025 on July 30, 2021. Thanks to all benefactors who helped provide 184 stethoscopes to the incoming class!

CLASS OF 1967 ENDOWMENT

Congratulations to the Class of 1967, which recently celebrated a huge milestone for their class fund by raising more than \$1 million for the endowment it has established. This fall, the first Class of 1967 Scholar will be named in honor of this remarkable support. The class also will be recognized with a Dean's Distinguished Scholarship recipient. Thank you to the leadership committee and all the members of the Class of 1967 for making a profound impact on our medical students and future physicians. A special thank you to the committee members Drs. David Gordon, John Sharp, Robert Stofac, Allan Willett, and James Mallow.

CU MEDICAL ALUMNI ASSOCIATION AWARDS

Congratulations to the following alumni on being selected for the 2021 CU Medical Alumni Association Awards:

- **Silver & Gold Award:** Barbara Arnold, MD '68
- **Distinguished Achievement Award:** Deb Parsons, MD '84
- **Richard Krugman Distinguished Service Award:** Donald Crino, MD '91
- **Humanitarian Award:** Mark Sheehan, Residency '81 and Daniel Smith, MD '66
- **Recent Graduate Humanitarian Award:** Tamaan Osbourne-Roberts, MD '07
- **Recent Graduate Achievement Award:** Matthew Rustici, MD '08

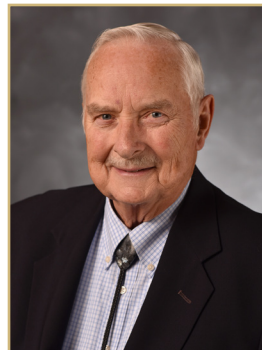
These awardees will be recognized at the Silver & Gold Alumni Banquet in October.

CU MEDICAL ALUMNI ASSOCIATION UPDATES

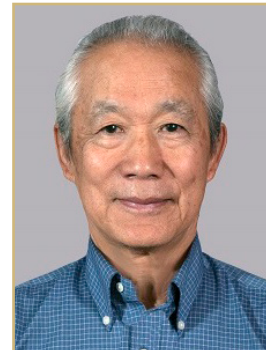
The CU Medical Alumni Association warmly welcomes two new board members: Diana Lujan, MD '85, and Theodore Ning, MD (Resident '75). We also want to thank David Claassen, MD '65, for his service, leadership, dedication and philanthropy. Claassen joined the board of directors after his 50th reunion and has served diligently for six years.



Diana Lujan, MD



David Claassen, MD



Theodore Ning, MD

ALUMNI SUPPORT MEDICAL STUDENT INNOVATION PROJECTS

The Medical Alumni Association and Medical Student Council (MSC) have formed a new partnership to support medical student projects.

In recent years, the MSC allocated \$6,000 of its budget to award grants for students to carry out community-service projects, but the number of worthy proposals exceeds the available funding. In 2018, 16 projects were submitted and seven of them received funding.

As the number of projects increased, the CU Medical Alumni Association was asked to help. Matt Rustici, MD '08, associate professor of pediatrics and member of the CU Medical Alumni Association Board, recognized the opportunity to collaborate on Medical Student Innovation Projects.

The CU Medical Alumni Association aims to inspire philanthropy so that every project can be fully funded. The School of Medicine is offering a 1:1 match, up to \$50,000, for every dollar raised for the Innovation Fund.

The partnership also builds mentoring relationships. In fall 2020, alumni donated time as mentors. These mentors met via Zoom, helping students turn their idea into a feasible proposal. The grant selection committee was Rustici; Madeline Huey, MD '21; Mackenzie Garcia, MD '21; and Helene Kuffel, MS3.

Projects that have been supported include establishing a White Coats for Black Lives chapter focused on advocating for social justice; conducting after-school science programs at Crawford and Paris elementary schools; working at the student-run DAWN clinic for uninsured and undocumented residents of Aurora; and a community garden at Warren Village.

Other students have led the "What Worries You Most?" project. Patients at UCHest University of Colorado Hospital were asked that question, and the answers covered a wide range, from the acute health need that brought them to the hospital to broader concerns about society or family-wellbeing, which offered insight into the social determinants of health. Their responses were noted on cards that were displayed in the Fulginiti Pavilion at CU Anschutz Medical Campus.

Other projects focused on homelessness, refugee and Native American health, and prescription-drug recycling.

These service projects have significant impact for community members, while reconnecting medical students with social concerns that often motivate their decisions to become physicians. Students also develop practical skills, such as drafting project proposals and creating budgets.

The MSC and MAA are looking for future mentors, particularly those with grant writing experience, and those willing to help track the long-term outcomes from these projects. If you would like to support the innovation fund and receive a dollar-for-dollar match, or to get involved with these projects, please contact Vanessa Duran at vanessa.duran@cuanschutz.edu or Matt Rustici at matthew.rustici@cuanschutz.edu.



Medical students participate in community projects.

VINEET CHOPRA NAMED CHAIR OF MEDICINE

Vineet Chopra, MD, MSc, has been named chair of the Department of Medicine at the University of Colorado School of Medicine, effective Oct. 18, 2021.

Chopra comes to CU from the University of Michigan School of Medicine, where he joined the faculty in 2008. He became Michigan's inaugural Chief of Hospital Medicine four and a half years ago, leading and building the first new division created in the department in more than 50 years.



Vineet Chopra, MD, MSc

In that role, he was responsible for overseeing a division that includes more than 130 full-time faculty and provides clinical care services in academic and community settings. He also helped launch and refine innovative care delivery programs, including a direct care hospitalist service at the VA Ann Arbor Health Care System, a 40-bed adult short-stay observation unit at University Hospital, and two offsite inpatient programs located in community hospitals.

Chopra is a successful and productive researcher who has been continuously funded since 2012. He has published more than 250 peer-reviewed articles in top-tier journals, including JAMA, Annals of Internal Medicine, British Medical Journal, and the Lancet. Chopra recently was selected to serve as Deputy Editor for the Annals of Internal Medicine, becoming the first to serve in the role.

In a study published this spring in the journal BMJ Quality and Safety, he and his colleagues reported on how the Michigan Appropriateness Guide for Intravenous Catheters (MAGIC), a tool he created, led to reduced complications and improved outcomes for patients in over 50 Michigan hospitals. MAGIC is currently in use in hundreds of U.S. hospitals.

"As a leader, I focus on service, collaboration, accessibility, and transparency," Chopra says. "I believe the best leaders are enablers and achieve success by helping those they lead reach their full potential. As an immigrant, I uniquely understand the value that diversity of views, people, ideas, and culture bring to guiding decisions and strategy."

"I also recognize that ideal leaders must not be 'top down' but, rather, must lead from within – which is why I am proud to still serve as a rank-and-file hospitalist. I look forward to bringing my unique blend of clinical, scholarly, and mentoring expertise to CU and the Department of Medicine. I am thrilled about the possibilities that are ahead and hope to take the research, programmatic, and clinical standing of the department to new heights."

MYRA MURAMOTO NAMED CHAIR OF FAMILY MEDICINE

Myra Muramoto, MD, MPH, has been named Chair of the Department of Family Medicine at the University of Colorado School of Medicine, effective Oct. 1, 2021.



Myra Muramoto, MD, MPH

Muramoto had been chair of the Department of Family and Community Medicine at the University of Arizona College of Medicine, where she had been a faculty member since 1990. She joined the Arizona faculty after serving as chief resident and as a research fellow in the college's Department of Family and Community Medicine.

Muramoto has dedicated most of her career as an educator and researcher to substance-abuse education and treatment, with a particular focus on alcohol and tobacco use. As an educator, she has helped to develop national and international educational projects to train health care and human service providers in prevention, screening, and treatment of alcohol and tobacco use disorders.

Muramoto has been principal investigator or co-investigator on 48 translational research studies, 30 involving testing of novel pharmacologic, behavioral, and system interventions for tobacco cessation. The majority of her community-engaged tobacco cessation translational research has focused on ethnic/racial minority groups (Spanish-speaking, American Indian, rural African American), low-income populations, and other special populations (rural, adolescents, pregnant women, military, behavioral health disorders, complementary and alternative medicine patients and practitioners, global health).

She is the author of 69 peer-reviewed journal articles, five book chapters, five peer-reviewed published abstracts, and co-author of "Geriatric Nutrition Handbook." She also has made more than 150 scholarly presentations. She has extensive teaching and mentoring experience, including medical student career-development counseling, research mentoring with post-doctoral fellows and junior faculty.

Under her leadership, the Department of Family and Community Medicine is one of the top-ranked programs in the country, with a reputation for outstanding clinical education and innovative research. The department's residency training program focuses on underserved and rural populations and offers an integrative medicine track, as well as a global health track for residents who aim to reduce health disparities world wide.

"Our clinical practice is the foundation for academic excellence in education, research, and community engagement," Muramoto says. "I believe that an inclusive, transparent, and team-oriented approach to leadership is essential for an organization to grow, thrive, and excel in its mission."

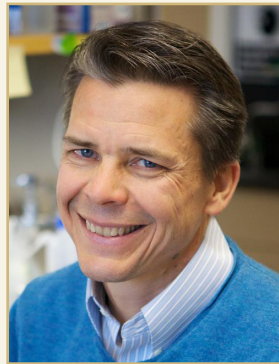
BRUCE APPEL RECEIVES OUTSTANDING INVESTIGATOR AWARD

The National Institute of Neurological Disorders and Stroke has awarded an eight-year, \$6.9 million Outstanding Investigator Award to Bruce Appel, PhD, for his project titled, “Mechanisms of Developmental Myelination.”

Appel is professor of pediatrics and head of the Department of Pediatrics Section of Developmental Biology.

The long-term goal of Appel’s project is to understand how oligodendrocytes, which are glial cells of the central nervous system, form specific amounts of myelin on select axons during development. Completion of this research will substantially extend understanding of the cellular and molecular mechanisms by which myelin membrane is produced and modified by brain activity.

This research will provide important new insights to the developmental basis of learning, memory, and psychiatric disease and to provide a foundation for designing therapeutic strategies to promote myelination of brains damaged by disease or injury.



Bruce Appel, PhD

CU PEDIATRICIAN NAMED MACY FACULTY SCHOLAR

Matthew Rustici, MD, associate professor of pediatrics, has been named a Macy Faculty Scholar for 2021.

The Macy Faculty Scholars Program is a highly selective program for educational innovators in medicine and nursing. Scholars receive salary support up to \$100,000 per year for two years to implement an educational change project at their institutions and to participate in a program of career-development activities.

Rustici works clinically at Denver Health Medical Center in the Pediatric Emergency Department and Urgent Care, and he is co-director of a Transition To Residency (TTR) course at the CU School of Medicine. He works to foster collaboration between TTR course directors and coordinators nationwide with an annual TTR symposium and a bimonthly TTR Grand Rounds.

As a Macy Faculty Scholar, Rustici will create a curricular materials compendium for TTR courses, providing free and open access to TTR teaching materials. These resources will be curated and edited from existing TTR courses and provide a complete set of materials to run a new or existing TTR course.



Matthew Rustici, MD

SURGERY RESIDENT BECOMES TWITTER SENSATION

Matthew Bartley, MD, a resident in the Department of Surgery, was a viral sensation on Twitter after he tweeted a photo of himself visiting his 5-year-old son’s classroom in June.

The photo he posted spread first among his friends and coworkers, and then even further. It eventually garnered more than 35,000 likes.

“I was getting so many notifications, I had to turn off all the Twitter notifications on my phone,” Bartley says with a laugh.

Bartley previously had visited his son’s classroom and he also makes regular visits to local high schools. He says his goal is to inspire an interest in medicine as a career among young people, especially Black males.

“It’s hard to become something you’ve never seen, which is what I wrote on my Twitter post,” says Bartley, a general surgery resident who attended the University of Missouri-Columbia School of Medicine.

“I think it gives them that spark they need to say, ‘Yes, you can do this.’ Here’s somebody who’s done it who’s not very different from you,” he says. “It’s more important to do it when they’re younger, so they really have the idea and mindset that it’s something they want to do. It’s easy once you get into high school, and even college, to have people discourage you and choose something else. If you get it in your head when you’re really young — young people are driven, and they do what they want to do no matter what people say.”



BOOK AMPLIFIES CHILDREN'S VOICES

Warren Binford compiled stories of children detained at the border

By Mark Couch



Warren Binford, JD, EdM

When children's rights expert Warren Binford, JD, EdM, reported in 2019 that children in migration were held by the U.S. government in squalid conditions at the southern border, her description – based on interviews with the children and site inspections of the facilities – was denounced by White House officials and its allies as untrue.

Seven children had died the year before Binford's disclosure of the nightmare conditions. Working on behalf of the children, Binford shared her eyewitness account and the children's descriptions of their mistreatment. A ten-day media storm erupted with Binford and her colleagues attacked by top governmental officials, partisan media, and other critics.

At that point, Binford, who joined the University of Colorado School of Medicine faculty last year, realized that the children and their needs were lost in the uproar, so she began referring reporters to the sworn testimonies of the children, which had been filed in federal court.

MAKING THEIR VOICES HEARD

The powerful words of those children have now been collected in "Hear My Voice / Escucha Mi Voz," an illustrated children's book published earlier this month. The book compiles testimonies of more than 60 children, ages five to 17. "Hear My Voice / Escucha Mi Voz" was published in English and Spanish in April.

During a June 2019 visit at a Border Patrol facility outside of El Paso, Binford and her colleagues discovered that hundreds of children were being held in a warehouse, a sally port, tents in the desert, and overcrowded cells. In most cases, children were sleeping on concrete floors.

As the children described their mistreatment to Binford and her colleagues, many of the children broke into tears

as they reported being cold and hungry. In one cell where a lice infestation had broken out, children reported that a guard gave them two combs and ordered them to share.

Binford learned that many older children were forced to take care of younger ones they did not know. In some cases, the older ones did not know the younger children's names because they were too young to speak. Some children were so traumatized they developed mutism. Many children said they had no access to soap or hot water or working toilets. Some had been held there for weeks.

ADVOCATING FOR CHILDREN IN NEED

With permission from the children's attorneys, Binford told the public about the unsanitary, overcrowded conditions. Rather than address the concerns and improve the conditions, leaders in the federal government denied that there was anything wrong and tried to discredit Binford and her colleagues.

"I realized that there literally was a coordinated effort to whitewash the entire situation, to create a false history, and to deny these children's experiences at the hands of the U.S. government, paid for with taxpayer dollars purportedly on our behalf, for our safety and security," Binford says.

At that point, Binford began referring reporters to the sworn testimonies of the children, which had been filed in federal court.

"I got the idea that we really needed to center the public dialogue on the children themselves and not on the politics," says Binford. "We needed to stop politicizing the children. We needed to separate their mistreatment from a dialogue about immigration, and instead recognize that there are a couple of things that unite us as a country, and caring for children is one of them."

Journalists said the public records were difficult to access – buried behind the court's firewalls and paywalls.

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"So we got volunteers to go into the court website, download all of the children's declarations from 2016 to the present, and put them all up in their entirety for people to read," Binford says. "We were able to say here are the children's own accounts,



Warren Binford worked with Latinx artists to illustrate the narratives of children detained at the southern border of the United States.

unfiltered, in their entirety. And then people started to talk about how it was so hard to read the children's accounts in their entirety. It just left them devastated."

From these testimonies, the children speak in "Hear My Voice / Escucha Mi Voz." Seventeen Latinx artists contributed illustrations for the book. All royalties from the book sales will go to Project Amplify, a nonprofit formed by Binford and others to establish legal protections for children in government care so that the brutality discovered on the border, including what physicians and human rights experts call abusive conditions, never happens again.

CONNECTING JUSTICE, MEDICINE, AND HUMANITY

When Binford shared with the public the harrowing conditions she discovered in June 2019, she was a finalist for a position at the CU School of Medicine – the W.H. Lea Endowed Chair for Justice in Pediatric Law, Policy and Ethics – which she accepted.

Binford says she is excited about joining the University of Colorado, where she will be professor of pediatrics, director for pediatric law, ethics and policy for the Kempe Center for the Prevention and Treatment of Child Abuse and Neglect, a member of the core faculty of the CU Center for Bioethics and Humanities, and professor of law at the University of Colorado Law School. As of July 1, she is full time with the University of Colorado.

Binford earned her law degree from Harvard Law School and a master of education in early childhood from Boston University. She was professor of law and director of the clinical law program at Willamette University since 2005. At Willamette, she taught children's rights and founded the Child and Family Advocacy Clinic, which has provided pro bono legal support to children and families in crisis, as well as guidance on legislation and public policy.

Binford was selected as both a Fulbright Scholar in 2012 in South Africa and the inaugural Fulbright Canada-Palix Foundation Distinguished Visiting Chair in Brain Science and Child and Family Health and Wellness in 2015 at the University of Calgary in Alberta, Canada, where she researched the multidisciplinary effects of child sex abuse trauma on survivors.

She has provided her expertise to support Save the Children, the International Red Cross, the International Criminal Court, the Japan Red Cross, the Croatia Red Cross, and the Dutch National Rapporteur on Human Trafficking and Sexual Violence against Children, among many others. Binford has served as a licensed foster parent, Court Appointed Special Advocate for abused and neglected children, and inner-city teacher in South Central Los Angeles, Boston, and London.

Binford said creating "Hear My Voice / Escucha Mi Voz," was made possible by the work of more than 100 volunteers and she expects to continue that collaborative, multidisciplinary approach at CU.

"It shows you the power of what we're really trying to do at the University of Colorado because we're trying to break down these silos and bring together law and medicine and the humanities and public policy to create a better world for children," Binford says.

"[W]hat brought me to the University of Colorado is the opportunity to work in a 21st century way, where we are multidisciplinary, where we're project-focused, we're problem solvers, we think creatively, we work in collaborative teams [and]...learn from one another in the process, and I think that this book really represents the power of not going it alone and not staying within our lanes."

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