getting a good start
researchers aiming at early life origins of disease

dance therapy 15
urban underserved 16
remarkable recovery 22
CONTENTS

1 Letter from the dean
2 In the news
4 Q&A
Helping military veterans with brain injuries
6 Clinical Care
CU physician treats new mom with pulmonary hypertension
9 Faculty Profile
Hepatitis C expert Greg Everson retires
10 Research
Building Better Babies effort aims to improve lifelong health
12 Research
Searching for healthy diet choices for pregnant moms
14 Research
Can boosting choline prevent mental illness?
15 Community
Ballerina, physical therapists healing body and soul
16 Community
Helping the homeless get back on their feet
19 Clinical Care
Telehealth programs improving access to care
20 Faculty Profile
Vikhyat Bebarta on treating victims of chemical weapons
22 Clinical Care
Clinical trial offers hope for breast cancer patient
24 Alumni Corner
Telehealth programs improving access to care
26 Education
Alumni scholarships for medical students
28 Student Voice
A call to improve access to mental health care
29 Faculty Matters
Remembering Randy Ross

Improving Lifelong Health, Page 10
Cover photo: Thomas Jansson, MD, PhD, and Theresa Powell, PhD, are organizing the Building Better Babies initiative to better understand the developmental origins of health and disease.

Photo by Trevr Merchant.

Serving the underserved, page 16

Vikhyat Bebarta, MD, page 20

CU MEDICINE TODAY is published twice a year by the University of Colorado School of Medicine. Views and opinions expressed in this publication are not necessarily those of the University of Colorado, the School of Medicine or the Medical Alumni Association. Contributions to support this effort are welcome and appreciated.

OFFICE OF ALUMNI RELATIONS
13001 E. 17th Pl, Mailstop A080
Aurora, CO 80045
E-mail: healthalumni@ucdenver.edu
303-724-2518/877-HSC-ALUM
www.ucdenver.edu/healthalumni

SCHOOL OF MEDICINE
John J. Reilly, Jr., MD, Dean;
Vice Chancellor for Health Affairs
University of Colorado

EDITOR
Mark Couch
Chief of Staff
Director of Communications

DESIGN AND PRODUCTION
Helen Macfarlane

WEB CONTENT
Tonia Twichell

WRITERS
Cathy Beuten
Mark Couch
Jamie Gilroy
Megan Lane
Devin Lynn
Katie Kerwin McCrimmon
Wendy S. Meyer
Rahwa Netsanet
Tonia Twichell

PHOTOGRAPHY
Cathy Beuten
Trevr Merchant
Supporting Our Community

This year the University of Colorado Anschutz Medical Campus has provided remarkable service to communities throughout Colorado. Our Campus-Community Partnership has become a valuable resource to the neighbors surrounding our Aurora campus and to CU faculty, staff and students. Established in 2013 with support from the Chancellor’s Office and from The Denver Foundation, the partnership (com-cam.org) has fostered collaborations to improve the health and economic well-being of our immediate neighborhood.

Through its Hire Local Program, for example, the partnership has helped local residents identify jobs at the hospitals on campus, write resumes, and prepare for interviews. The Hire Local service is provided free of charge.

The DAWN (Dedicated to Aurora’s Wellness and Needs) Clinic is a student-run interdisciplinary clinic serving uninsured patients. The goals of the clinic are to help our neighbors in need and to promote collaborative work between the health sciences students from the Anschutz Medical Campus.

With support from the Fields Foundation, Primary Care Progress, and entities on campus, medical students, physicians, pharmacists, physical therapists, nurses, social workers and mental health professionals gather together to offer care to people in need.

Each Tuesday evening is the DAWN Clinic’s free clinic night.

Volunteers from the Anschutz Medical Campus provide health screenings at the annual National Western Stock Show, a 16-day event each January that attracts 600,000 attendees. Typically more than 1,000 adults and 300 children receive screenings from faculty, staff and students.

This year, campus representatives added screenings at the Colorado State Fair in late August and early September to their service. These screenings are provided free of charge.

During the past year, the Art Gallery at the Fulginiti Pavilion has hosted two exceptional exhibitions, thanks to the generosity of Morton and Tobia Mower.

In the spring, the exhibit featured paintings by Impressionist masters Monet, Cassatt, Renoir, Morisot, Pissarro, and Sisley, as well as drawings by Degas and Matisse. Also on display were modern works by Soutine, Leger, Chagall and Picasso and bronze sculptures by Rodin.

In the fall, the Mowers shared etchings by Rembrandt. We are grateful to Morton Mower, an adjunct distinguished professor of cardiology, and Tobia Mower, a nurse and an advocate for substance abuse treatment, for generously sharing their collection.

Entry into both exhibitions was free and open to the public.

Our Center for Bioethics and the Humanities this year launched a podcast called Hard Call to connect listeners with the drama behind tough health decisions. “The Electronic Heart,” a four-part series, considered the case of a 72-year-old man dying of congestive heart failure. A five-part series, called “Derailed,” considered the case of a man with mental illness.

The podcasts are provided free to the public.

The Mini Med School, which is broadcast live from the campus for eight weeks in the fall, gives Colorado residents an introduction to medical and health issues ranging from opioids, weight loss, emergency medicine, and geriatric care.

Attendees of Mini Med School included Caitlyn Steiner, a sophomore at Durango High School, who said it’s a great way to begin to pursue her dream of a career in medicine, and Elizabeth Gallegos, who works for the Southern Ute Tribal Health Department, who said the information helps her better serve the people she works with.

The Mini Med School program is provided free to the public.

The Anschutz Medical Campus and our School of Medicine are robust contributors to the Colorado economy. A report this summer by the CU Leeds School of Business determined that economic impact of the University was $12.35 billion in 2016. Of that, the CU Anschutz Medical Campus accounted for $2.9 billion and our hospital partners on campus added $4 billion.

Through our purchases and payrolls and the care we provide, the Anschutz Medical Campus is obviously vital to our state, but we provide much more to our community.

We make connections that make our community stronger.

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
IN THE NEWS

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

**Lia Gore, MD**, professor of pediatrics and section head of pediatric hematology/oncology/bone marrow transplantation, was quoted in the Denver Post in August, explaining to Sen. Michael Bennet and FDA Commissioner Scott Gottlieb that physicians on the Anschutz Medical Campus are preparing as many as 25 new clinical trials due to the passage of a new federal law. “The pediatric oncology community is really excited,” she said.

**Jason Hoppe, DO**, associate professor of emergency medicine, was quoted in the Denver Post in August, explaining to Sen. Michael Bennet and FDA Commissioner Scott Gottlieb how physicians at University of Colorado Hospital are reducing the risk of opioid abuse by patients using a prescription monitoring program. “Our answer,” he said, “has been exposing fewer people.”

**David Kuwayama, MD**, professor of surgery, discussed his article about the lack of preparation among American surgeons for international humanitarian deployments, published in the World Journal of Surgery, with National Public Radio in August. “I see all these young trainees,” he said. “They’re altruistic. They have open minds to the world, and they really want to do the work. But the opportunities for them to actually do it are becoming fewer and fewer.”

**Mark Deutchman, MD**, professor of family medicine and associate dean for rural health, described in the August issue of 5280 magazine how four rural Colorado towns—Lamar, Trinidad, Del Norte, and Montrose—provide $30,000 to $40,000 in scholarships to CU School of Medicine students who agree to practice in their communities after graduation. “It takes at least seven years to get someone through medical school and residency,” he said. “These are towns that have the foresight to invest in their future workforces rather than wait till they have a crisis.”

**Wendy Kohrt, PhD**, professor of medicine, was included in a New York Times article in August that offered an overview of links between obesity and hormones. Her research found that giving healthy premenopausal women a drug that blocks production of estrogen and follicle-stimulating hormone puts them into a reversible state of menopause, the article reported.

**Jeff Glasheen, MD**, professor of medicine, told the Denver Post that the University of Colorado Hospital improved to No. 15 on the U.S. News and World Report list of best hospitals because the rankings now place greater emphasis on quality and safety measurements, which helped the hospital move up in the rankings, which were released in August.

**Marian “Emmy” Betz, MD, MPH**, associate professor of emergency medicine, was quoted by Reuters in an August report that few gun owners get training that includes suicide prevention. Betz, who participates in gun safety nights at Denver-area gun clubs, said: “Every firearm death is tragic, and both firearm owners and non-owners should know about safe storage, self-protection and suicide. As individuals in communities, we can work together on this and set aside the divisive national debate about firearms.”

**Saketh Guntupalli, MD**, associate professor of obstetrics and gynecology, commented to People magazine in July about his teenage patient Peyton Linafelter, who was diagnosed with ovarian cancer: “Peyton has fought her cancer with a courage of someone literally four times her age. She shows a strength and will-power that is rare in someone so young.”

**G. Sam Wang, MD**, assistant professor of pediatrics, in August told CNN that an increased number of children have been exposed to marijuana in the years after it became legal in Colorado. “Usually, kids get into things that become more available, and usually, that happens when it’s a household product, like those laundry detergent pods, which were attractive,” he said. “It’s kind of the same situation with marijuana, where we think in states with legal marijuana, probably more households have it in their home, especially the food or edible marijuana products with bright labels, that makes it easier for kids to get into them.”

**Caley Orr, PhD**, assistant professor of cell and developmental biology, was quoted in July in a Scientific American article, “Nasty, Brutish and Short: Are Humans DNA-Wired to Kill?” regarding a study suggesting a tendency toward violence has shaped human anatomy. “He’s probably right when he talks about the biomechanical consequences of some of the anatomy,” he said, “but that is different from resolving what the evolutionary selective pressures were that shaped it in the first place.”

**Scott Oliver, MD**, associate professor of ophthalmology, told the Denver Fox affiliate that staring at the solar eclipse in August would be harmful: “There is no place in the state of Colorado that is safe to look directly at this solar eclipse.”
Joseph Frank, MD, assistant professor of medicine primary care and physician at Denver’s Veterans Affairs Medical Center, in July was quoted in a Los Angeles Times article about a National Academies of Science report on pain management and the opioid epidemic. The report’s recommendations, he said, underscore that “the best physicians should not be providing pain treatment on their own.”

Kennon Heard, MD, professor of emergency medicine, appeared on the NPR and WBUR program “Here & Now” in July to discuss the increase in emergency room visits in Colorado by chronic marijuana users with nausea, vomiting and abdominal pains. “Cannabinoid hyperemesis syndrome is something that’s been recognized for probably 15 years now,” he said. “But it’s something that we’re seeing more commonly in areas where marijuana use is becoming more frequent.”

Joseph Gal, PhD, professor of pathology, offered remarks to The New York Times about scientific breakthroughs by Louis Pasteur, who was the subject of an article by Gal in Nature Chemistry. “Several famous or much more accomplished scientists, some well along their illustrious careers, studied the same molecules, the same substances,” he said. “Realistically you would think they’d have beaten him to the punch, and yet they missed it.”

Nanette Santoro, MD, chair of obstetrics and gynecology, was quoted in a May article by Reuters Health discussing a study confirming that women 35 years of age or older are more likely than younger mothers to experience pregnancy complications. “Based on this study and others, the ideal age to get pregnant is between 25 and 29 years,” she said. “Since we’ve just entered the first era in human history where the U.S. birth rate is higher for women aged 30 to 35 than for women aged 25 to 29, we will be seeing more aged-related risks to women who conceive at later ages.”

John J. Reilly, Jr., MD, dean of the CU School of Medicine, discussed federal budget proposals that would significantly cut funding supporting scientific research. “It’s a huge shift that would cripple research at 90 percent of the universities across the United States,” he told the Denver Business Journal in May. “Research laboratories are expensive. … You can’t do the kind of research that has made the U.S. a leader without the facilities.”

Michelle Barron, MD, professor of medicine, addressed claims that vaccinations are connected to autism in an article in the Colorado Springs Gazette in May. “Data published that shows a link has been discredited and retracted from the scientific journals,” she said. “It’s unfortunate that people with name recognition cause parents to have significant alarm and make choices that are not as well thought-out as they think.”

Sophia Arabadjis, MSc, research assistant with the Adult and Child Consortium for Health Outcomes Research and Delivery Science, with a co-author wrote an article, “How One California Medical Group Is Decreasing Physician Burnout” that was published in June by the Harvard Business Review. “Physician burnout is a growing problem for all health care systems in the United States,” they wrote. “Burned-out physicians deliver lower quality care, reduce their hours, or stop practicing, reducing access to care around the country.”
Neurologist James Kelly Returns to CU to Lead Program for Veterans

Marcus Institute for Brain Health to help injured veterans return to civilian life

By Mark Couch

At the announcement of the gift, Bernard Marcus, the retired co-founder of The Home Depot and founder of the Atlanta-based Marcus Foundation, said, “Our intent is to build a network of healing for those who served our country and suffer the invisible wounds of war.”

James P. Kelly, MD, professor of neurology, has been named executive director of the MIBH. Kelly led the National Intrepid Center of Excellence (NICoE) at the Walter Reed National Military Medical Center for seven years. NICoE successfully treated more than 1,300 servicemen and women suffering from traumatic brain injury (TBI) and psychological health conditions using a patient-centered model that Kelly brings with him to the MIBH.

You are not new to the CU faculty.

This is my third tour of duty. I did my residency in neurology here in the 80s and then stayed for a year of what’s known as behavioral neurology, which is pretty well-established here. I was the first fellow here with Dr. Chris Filley, professor of neurology. I joined the faculty for four years and was here as an assistant dean of graduate medical education and a junior neurology faculty member.

Is that when you began studying traumatic brain injury?

My interest in TBI started during my fellowship when a young athlete was brought here basically brain dead after concussions two weeks apart and then having brain swelling – that’s called second-impact syndrome – and then dying from that. I wanted figure that out. Several of us on the faculty published an article in JAMA in 1991. That was my first peer-reviewed article. From then on, the concussion world here little by little became mine. I helped the University and Colorado Medical Society come closer together on a sports concussion protocol for physicians to use on the sidelines.

I left in 1993 to become the director of the brain injury program at the Rehabilitation Institute of Chicago. I was there and on Northwestern’s faculty for 10 years, from ’93 until 2003 and served also as residency director of neurology.

Why did you return to Colorado in 2003?

My wife’s a Denver native, so we’d always planned on coming back. We didn’t figure we’d be in Chicago as long as we were. I reinserted into the University, but through neurosurgery as opposed to neurology because they were much more interested in trauma.

How did you get involved in providing care to members of the military?

The Defense Department recognized in about ’05 that they had a problem with guys coming back from Iraq and Afghanistan. Some of us with sports concussion backgrounds were asked to advise them. I was...
invited to a new committee as the national subject matter expert. They set up a TBI subcommittee and I chaired it. The general who was tasked with addressing TBI, PTSD, and psychiatric health problems called me into her office and said: ‘You’ve been identified by your peers as the guy. Would you like to run this thing called the National Intrepid Center?’

This was in April ‘08 and the plan at that point was to have a center of excellence for the most complex and comorbid neuropsychiatric cases coming back from the war zones, taking care of them and disseminating lessons learned in real time so that others could benefit from that care as well.

This center was intended to take care of the warriors coming back from the battle zones. The referrals came from big military centers like Fort Bragg and Camp Lejeune. We received most of our patients from those locations initially. Then the special operations community, the Navy SEALs, the Delta Force and all the others, who had shorter but many more deployments, started to be referred more and to be self-referred. My job was to make sure it wasn’t just for them. I loved that part of it, but the truth is it couldn’t just be for the elite. It had to be for everybody. Everybody’s just as deserving, so let’s figure it out.

**How did you meet the Marcus Foundation?**

The model was well known to the people at the Marcus Foundation in Atlanta. Marcus Ruzek, representing the Foundation, visited the center while I was director. He later was deployed in Iraq as a special operations guy. And when he came back he said: ‘What do you mean Kelly left? Where did he go?’

The center had opened in 2010. The generals and admirals in my reporting chain had asked me to stay after my initial two-year commitment. And I did it for five more years. At that point, things are up and running, so I moved back to Colorado. I had figured I was going to work at the center for two years, maybe four. Then it ended up being seven years because it was magnificent. I was getting to do stuff that was just unbelievable. The whole mission was like nothing else.

In any case, Marcus Ruzek contacted me and I was being recruited to Emory University at the time and so I said, ‘Listen, I’m coming down there for a recruitment visit. Let’s talk because that’s where the Foundation is based. I thought they wanted something on the East Coast.

**Or maybe in their home town.**

And the answer was, no. They said, ‘Where do you want it?’ And I said, ‘Really?’ I live in Colorado, it’s a magnificent place. I know a lot about it. It’s a healing environment. One thing led to another with discussions over the next almost two years. I left the center in August 2015. It was May this year when we made the announcement of the Marcus Institute for Brain Health. It was about a year and a half of ongoing discussions, planning and working with the leadership in the Chancellor’s office and the Dean’s office.

**What advantages are there being here rather than elsewhere?**

Colorado as a state is among the leaders in the newly retired or veteran population growth, so that just made logical sense. The idea is that we have an environment where people go to decompress, a truly healing environment. That wasn’t happening in Chicago or Washington, D.C.

And the leadership at this particular campus is particularly into this project. It’s not because they’ve been generals or admirals in the military. It’s because they’re devoted to veterans and they understand the history of this place. This place is so well-suited for this particular purpose.

You’ve got a former military medical center for the army, where President Eisenhower once received his care. We have a state veterans home right next door. We have veteran programs in dentistry and in nursing that are part of the existing landscape. We have the Buckley Air Force Base clinic. We have one of the bigger VAs in the country, with a brand new state-of-the-art building that’s going to be great when it opens. To have them on this campus is spectacular. If you just put all those things together, there isn’t any other place like that anywhere in the country.

**What are next steps?**

It’s hiring right now. Making sure we hire the right people in proper sequence. We must first administratively get this thing going and then the clinicians come. What’s happening now is getting people through the wickets of the hiring process and credentialing.

And we have this building (the Anschutz Health and Wellness Center), which was built while I was gone. I knew it was being built, but I didn’t know anything about this place. We come back to a place that has available clinic and office space that we can lease. It’s in a destigmatizing health and wellness center as opposed to clinic or hospital setting. These young veterans in their 20s and 30s want to reincorporate into places that are alive like this. It fit our mission beautifully.

My philosophy is that what we need to do is to help these veterans reincorporate and make the transition to civilian life, not create yet one more veterans-only system, but incorporate their health care into a civilian health care system.
The young mother lay in the Intensive Care Unit, color draining from her body. Her organs were failing. A team of pulmonary and heart specialists raced to save her life after a helicopter brought her to UCHealth’s University of Colorado Hospital.

Before the birth of her second child weeks earlier, Danielle Soto, then 24, had been energetic and fit. Her husband was serving in the Army at Fort Carson in Colorado Springs. Danielle worked at a dialysis center, went to school and loved working out, hiking in the mountains and taking their son, Nico, to the Garden of the Gods where he could climb on little rocks while she gazed up at a cathedral of red spires.

Now, Danielle could barely breathe. As she held her mother’s hand she asked a haunting question.

“Mom, am I going to die?”

Her mother, Destiny Marvin, did not know, but refused to submit to their worst fears.

“She was blue. I’m holding back tears. I’m panicking inside,” Destiny recalled.

Still, Destiny willed herself to be strong and to fight for both of them.

She squeezed Danielle’s hand and said, “You are still alive. Let’s stay positive. We have tons of people praying for you and you have the best doctor.”

Mystery illness

Danielle had given birth to her daughter, Haven, on May 10, 2016. After returning home, severe exhaustion overwhelmed her. She lay in bed around the clock, nursing Haven and cuddling with Nico, who was then 4.

Her husband, Sean Soto, then 23, stayed home with his wife and children as much as possible, but he had to go to work too. While Sean was away, Danielle remembers forcing herself to get out of bed every few hours to make sure she and Nico ate. But even getting up to go to the bathroom took extraordinary effort.

Something was wrong and Danielle kept checking with her obstetrician, who wondered if she had lost too much blood during the birth and was anemic. Or perhaps she was dealing with post-partum depression. Danielle tried medication for both conditions, but her health continued to decline.

Over Memorial Day weekend, Danielle went to Target with Sean. They put Haven in the cart in her baby seat and Nico skipped into the store with his dad. Danielle could barely make it from the parking lot to the front of the store. She told Sean she needed to rest and that he should go ahead.

“I was walking like a 90-year-old woman. I could see my heart beating in my chest. I was watching everyone else walking by and thinking, ‘How can they walk so easily?’ Then it hit me. I waited for my husband and told him, ‘I need to go to the hospital right now.’”

The couple returned to their Colorado Springs home and waited for Danielle’s grandmother to come watch the children. Then, Sean took his wife to the nearest hospital. She spent a miserable night struggling to breathe.

“I literally had to tell my brain to take a breath in and out. It was like someone was smothering you or an elephant was sitting on your chest or you were at the bottom of a dog pile.”

In the morning, after conducting an echocardiogram to assess Danielle’s heart function, her cardiologist quickly determined that Danielle needed to rush to UCHealth University of Colorado Hospital (UCH). He told her she had a rare illness called pulmonary hypertension.

“You’re going to be on Flight for Life. I know a doctor who specializes in this. He’s going to help you.”

In the morning, after conducting an echocardiogram to assess Danielle’s heart function, her cardiologist quickly determined that Danielle needed to rush to UCHealth University of Colorado Hospital (UCH). He told her she had a rare illness called pulmonary hypertension.

“You’re going to be on Flight for Life. I know a doctor who specializes in this. He’s going to help you.”

There was no room for Sean on the helicopter. Everything became a blur for Danielle. Sean called her mom and told Destiny to race from her
home south of Denver to Aurora so she could meet Danielle.

“It was surreal. When I got to the ICU, there were probably 15 or 20 doctors and nurses, and my mom was waiting,” Danielle said. Among them was David Badesch, MD, who would help save Danielle’s life. Badesch, professor of medicine, heads the Pulmonary Hypertension Program at the University of Colorado Hospital. It’s one of the world’s leading research centers for the disease. For decades, the center has led and participated in clinical trials for drugs that have dramatically boosted life expectancy for patients suffering from pulmonary hypertension.

Research fuels lifesaving treatments

“Back in the 1980s, when the disease was originally being described, the survival was only 2.8 years,” Badesch said. Now, thanks to extensive research, median survival has improved to seven years or more. And some patients do much better.

When Danielle arrived, she was in grave shape. “She was at considerable risk of dying. If she had come in even a few days later, it might have been too late. She was already in shock with liver and heart failure,” Badesch said. “We see many sick folks and she was among the most ill at the time of presentation. Her case necessitated a very fast evaluation and getting her immediately on to therapy. We have a fantastic team of nurses, physicians and nurse practitioners.”

Almost immediately, doctors threaded a catheter through Danielle’s jugular vein in her neck, then through the superior vena cava and the right side of her heart into the lungs. Known as a right-heart catheterization, the procedure allowed the team to directly measure blood pressure in the lungs and blood flow generated by the heart. They confirmed that Danielle was suffering from pulmonary hypertension. As with many of the most severe cases, the cause for her case is unknown and therefore called idiopathic pulmonary hypertension.

It’s possible that the hormonal changes in pregnancy aggravated her illness. Given that her heart had swollen to two times its normal size, doctors told Danielle that they were amazed she managed to give birth to a healthy baby and survive herself.

Once the diagnosis was confirmed, Badesch and his team began giving Danielle a medication that they helped develop and test at UCH more than 20 years ago called prostacyclin. They started with a small dose and increased it gradually.

While Danielle was finally receiving lifesaving treatments, she was not out of the woods. Her mom remembers keeping a close eye on her coloring and vital signs. At first, her nails were chalky from lack of oxygen. Her kidneys were failing to produce urine.

“I remember looking at that bag and saying, ‘Please God, let there be urine. Let her organs start working again,’” Destiny said.

Destiny was unrelentingly positive with Danielle, but sometimes had to take breaks in a nearby sanctuary room. “I had to walk into that room. I dropped to my knees and cried my eyes out. But somehow she pulled through. Her organs started to pull through,” Destiny said.

Danielle was beginning to recover, but was angry. She wanted to be with her baby, son and husband. She wanted to be a normal young woman again. She wanted to be able to go to the gym and do cardio and strength training like she always had. She didn’t want to face the idea that she was stuck with a scary, chronic illness.

The caregivers understood. “Dr. Badesch and his team were so gentle. They went over the top to be supportive of us as a family. Danielle really is alive because of how fast they moved,” her mother said.

Making peace with a new life

The medicine that keeps Danielle alive is also her pesky companion. Along with the accoutrements of all moms — like diaper bags, snacks and car seats — Danielle must carry a little backpack full of medication and backup doses for herself everywhere she goes. The backpack contains a pump loaded with a cassette of prostacyclin. The medication travels from the pump through tubing to a catheter in Danielle’s chest.
delivers infusions directly to Danielle's heart. While the medication keeps Danielle alive, it requires great attention to detail. Danielle has to keep everything sterile and carefully load new doses of the medication each night.

As she recovered, she had to find the will to live with permanent restrictions. For instance, doctors often warn patients with pulmonary hypertension not to spend time at high altitude, but Danielle loves the mountains. To begin to feel like herself again, the family took a brief trip to Summit County last August. Danielle had to monitor her oxygen levels, but as she breathed in the scent of pine trees and gazed out of over Lake Dillon, she began to make peace with her losses.

“I was still sad about the whole thing, but it showed me I could still go to the mountains,” she said.

The family recently celebrated Haven's first birthday. These days, Haven is saying dada, mama and baby as she carries baby dolls around. She loves dancing and adores her big brother. Danielle has learned to relish every moment with her children.

“I would hate to miss all the special things they’re doing,” Danielle said. “I’m grateful to be able to take care of them.”

She also has begun to think about the future. She’s eager to return to school someday to earn a master’s degree in education.

“I want to teach at a Christian elementary school,” Danielle said. And she’s dazzling Badesch with her fitness levels. She’s back to working out and each time she comes in for a follow-up visit, she completes a step test to prove her mettle. During a recent visit, Danielle asked if she could run during the test. Badesch gave his approval.

“I don’t care how you get there,” he said.

“OK,” Danielle joked. “Next time I’ll bring my roller skates.”

Every year, families affected by pulmonary hypertension, along with the medical experts who help them, meet at Denver’s City Park for a community celebration and fundraiser called PH in the Park. This year's event took place on Aug. 27.

“I’m just thankful to Dr. Badesch and his team. They made sure I understood all that was going on. I always have their support. They made it a little easier for me to accept (my illness),” she said.

As for Badesch, seeing a patient like Danielle thrive fuels the motivation for groundbreaking research.

“It’s a huge challenge to actually cure this disease. Right now, what we have are treatments that are successful in controlling it,” Badesch said.

The onset of pulmonary hypertension is often between age 20 and 50. While the idiopathic form is rare and Danielle’s case was especially severe, Badesch has treated other young mothers who were stricken. Decades ago, when young women received the diagnosis, they often were advised to “get their affairs in order.”

“Young women essentially were being given a fatal diagnosis. But now (with improved treatments) and continuity of care, we see many of these women back 15 or 20 years later. Their kids have grown up. That’s what excites me most about what we do,” Badesch said.

Of Danielle, Badesch said, “Hopefully, we’ll be able to see her raise her baby.”

This article originally appeared in the UCHealth Insider in June 2017. 
Curing Hepatitis C

Greg Everson retires after pioneering career

By Wendy S. Meyer

Greg Everson, MD, professor of medicine, retired this summer from the School of Medicine after making many pioneering contributions to the treatment and care of people with hepatitis C, a condition that was not even known when he was beginning his career 40 years ago.

From his office in the Hepatology and Transplant Center on the seventh floor of University of Colorado Hospital, Everson reflected on his productive career in research and medicine.

In 1979, when Everson came to the University of Colorado as a gastroenterology fellow, the viral infection called hepatitis C had not yet been identified. In the 1980s, researchers discovered the virus and in 1989 the FDA approved a test for it. And until a few years ago, doctors could treat, but could not cure, most cases and the treatments had considerable side effects.

Hepatitis C is a widespread disease. Each year in the US, nearly 20,000 people are infected and an estimated 3.2 million people have chronic hepatitis C. Yet today, 98 percent of all patients can be cured.

Everson’s role in finding a cure is significant. In the 1980s, Everson and his colleagues at CU helped discover the disease. For more than 30 years, he studied and treated hepatitis C in thousands of patients.

Through his work at the Clinical and Translational Research Center (CTRC) of the Colorado Clinical and Translational Sciences Institute (CCTSI), Everson made major contributions to the testing and evolution of the drugs that led to the cures for hepatitis C.

"Because of Greg’s insight and tireless work at the CTRC over the years, we now have a cure for hepatitis C. His leadership and contributions to the study design and testing of these drugs cannot be overstated," said CCTSI Director Ron Sokol, MD, professor of pediatrics.

Research Matters

Everson led the Hepatitis C Antiviral Long-Term Treatment Against Cirrhosis (HALT-C) study at the CTRC, which started in 1999. The CTRC was one of 11 centers that participated in this National Institutes of Health-funded study.

At that time, patients with hepatitis C were treated with interferon, which worked for only about 30 percent to 40 percent of those infected. The HALT-C study reviewed whether low-dose maintenance levels of interferon would suppress the disease from advancing. While the treatment itself wasn’t successful, the study was a wellspring of insight into the disease.

"Unfortunately, the treatment did not work," Everson said. "But 75 original publications came out of that. And those 11 centers enrolled over 1,300 patients. We followed them for 10 years. There was a very low dropout rate because the university and the CTRC were basically a beacon of light for these people.” Those 75 publications spawned research activity and findings that would continue until a cure was developed.

Turning Points

In 2011, Everson led trials of Telaprevir and Boceprevir at the CTRC. Cure rates jumped from 30 percent to 70 percent, but the drugs were quite toxic. They were used with interferon and ribavirin. "A lot of patients tolerated the treatment, but there was a lot of misery," he said. "Most of what we were doing as doctors was treating side effects of interferon.”

That same year, Everson led an annual review at a national hepatology meeting. "Between 2010 and 2011 there was a huge burst of activity. There had been about 900 papers published in that time," he said. "I reviewed what I could before the talk. I picked out some new drugs [to discuss] that looked promising.”

Everson called it his “horizon talk” because there was so much data on new promising therapeutics.

In dozens of trials over the next five years, doctors continued to refine treatments. Because the disease has six genotypes, and subtypes under that, patients originally needed treatments tailored to their unique disease type. Over the past few years, drugs have been developed that are effective against all six types. Today, 98 percent of all patients treated can be cured.

"From trial to trial, Greg’s steady pursuit of the best therapeutics to treat hepatitis C contributed repeatedly and successfully to the curative therapy we have today," said Professor Robert Eckel, MD, former CTRC director. "We’re all proud of that history and thank Greg and his team for their efforts and perseverance.”
Building Better Babies for Improved Lifelong Health

Understanding developmental origins of health and disease

By Mark Couch

More than 60 investigators from the CU School of Medicine have joined together to study ways to improve lifelong health by addressing the health conditions in pregnancy that impact the developing fetus in the womb.

Called “Building Better Babies,” the program was created when Thomas Jansson, MD, PhD, and Theresa Powell, PhD, led an effort to apply for special funding for transformational research projects on campus made available by the Dean’s Office in 2016.

Though their initiative wasn’t selected for the Dean’s Transformational Research Funding program, the faculty decided to continue working together, establishing a network of investigators based at CU working in an emerging field of study.

“When I was in medical school many, many years ago, back in Sweden, we were taught that disease originates from an interaction of two main factors: genes and lifestyle,” Jansson said. “And that was a paradigm we lived with for a long time.

“In the last 10 to 20 years, this paradigm has been revised. We are beginning to understand that in addition to genes and lifestyle, risk for disease – whether we’re children or adults – is influenced by what happens during fetal life or early in infancy.”

This concept – called developmental origins of health and disease – is central to the Building Better Babies initiative.

“We believe it has incredibly important public health consequences and will change the way we practice medicine,” said Jansson, who is chief of the Division of Reproductive Sciences and vice chair of research in the Department of Obstetrics and Gynecology.

“Diabetes, obesity and other metabolic diseases are critical areas impacted by intrauterine factors and it may be possible to prevent or at least curb the current epidemic of these diseases by intervening in early life,” Jansson said. “Mental health disorders, such as autism and schizophrenia, also have intrauterine origins and the fact is that we have researchers on this campus who are intervening in pregnancy to prevent those diseases in children.

“The development origins of health and disease paradigm suggests that we must put much more emphasis on prevention of major childhood and adult diseases not only by modification of lifestyle, but also by targeted interventions in pregnancy and in infancy. In fact, spending precious health care dollars in early life is a good business proposal and an exceptional investment.”

Expanding the map

The Building Better Babies program is based on this general idea and seeks to leverage a strength on the Anschutz Medical Campus. Jansson and Powell knew there were many individual investigators across different departments in the School of Medicine – and in other schools on the campus – with their own National Institutes of Health funding in this area. Why not bring them together?
“We strongly argue that we need to be a center or a program, to do cutting-edge research, and to inform our colleagues because many in adult medicine, have no idea about his concept,” said Powell, professor in the Section of Neonatology, Department of Pediatrics. “Some say, ‘This doesn’t really affect me.’ And we say, ‘Yes it does.’”

As a result, education of colleagues on campus became a critical mission for the team leading Building Better Babies. Last spring, they hosted a daylong conference that assembled researchers on campus, hosted experts in the field, and included poster presentations from early career investigators.

Richard Johnston, Jr., MD, professor emeritus of pediatrics who was the medical director of the March of Dimes when it began its folic acid awareness campaign in the 1990s, told the organizers that the symposium was “a major event” for the campus with the potential for significant impact on perinatal health.

For Powell and Jansson, the effort is not simply a theoretical premise or administrative exercise. They also conduct perinatal research that could lead to lifelong health improvements for the next generation.

“One of the focus areas of our research is maternal obesity,” Jansson said. “If you include being overweight as associated with risk, there’s actually two-thirds of all pregnant women starting pregnancy either obese or overweight.”

“It’s the most common complication in pregnancy,” Powell said. “Nothing else – diabetes, preeclampsia, pre-term birth – come anywhere close to 60 percent of the pregnant population.”

In particular, Powell and Jansson are interested in how to address the baby’s risk of metabolic disease later in life when the mother is obese or develops gestational diabetes.

In their studies, they are examining the effect of supplementing the obese mother with adiponectin. Adiponectin is secreted from fat tissue and modulates multiple metabolic processes. Typically, a lean person has high levels and an obese person has low levels of this hormone.

“It has been called the good hormone that everybody wants to have because it increases your insulin sensitivity and that is a good thing,” said Jansson.

“In our mouse model of maternal obesity, we see all of these problems in pregnancy: we get bigger babies, they have too high glucose, and when they're three to five months of age, they develop metabolic disease and cardiovascular disease, as have also been found in epidemiological studies in humans,” Jansson said.

“Our basic studies have suggested that adiponectin in the mother is incredibly important, the fact that it’s low in obese pregnancies impacts both the mother and her developing baby,” he said. “In our mouse studies we have supplemented the mother to increase this hormone to levels found in normal mice and basically we have completely prevented the adverse effects on placental function, fetal growth and long-term health of the offspring.”

As Powell and Jansson aim to translate their basic science results into clinical use, they are also hoping that the Building Better Babies program promotes working relationships between faculty members who might not otherwise make connections.

“In the delivery room when the baby is born, the obstetrician hands that baby off to the pediatrician,” Powell said. “The two doctors turn to their respective patients: the pediatrician goes off with the baby and the obstetrician takes care of the mother.

“And one of the things that Thomas and I are trying to do, and one advantage of having his appointment in obstetrics and mine in neonatology, is we’re trying to get them talking to each other. In particular, there are many kinds of interactions to share. We want to encourage the pediatrician to be looking back into the pregnancy data in [electronic health records] and the obstetrician to be having a better understanding of the importance of what is happening long-term with that baby.”
In the late 1990s, Teri Hernandez was a cardiovascular nurse in the land of deep-fried Thanksgiving turkeys.

Caring for patients at Baylor University Medical Center in Dallas, she saw how their health had been compromised by a lifelong habit of eating food that had clogged their arteries and caused other problems.

“I was taking care of people who were very sick with cardiovascular disease either after their surgery or at their death – through the whole trajectory – and I saw how they ate,” Hernandez said.

Hernandez set out to translate that experience into one that improves the quality of life from the start and today she’s a researcher on the University of Colorado Anschutz Medical Campus, challenging the conventional wisdom of a frequently recommended low-carbohydrate diet for pregnant women with gestational diabetes.

“These women are oftentimes broadsided when they go through the first two trimesters of pregnancy and then they get a diagnosis of gestational diabetes,” Hernandez said. “They thought everything was going OK and suddenly they have a high-risk pregnancy label.”

Hernandez, PhD, RN, associate professor of medicine and nursing, and research partner Linda Barbour, MD, professor of medicine and obstetrics, are evaluating the health consequences of diet options that may provide a better alternative for pregnant women who develop gestational diabetes.

“They’re put on a diet and they’re told not to eat carbs, or to restrict them, because they will make their baby big,” Hernandez said. “No bread, for example. And then for the first time in their lives they have to check their blood sugars four times a day.

“So you can see why they felt like prisoners to this nutrition plan, which was meant to control their sugars – and which does control sugars, at least to some degree. But instead what we noticed is that they were eating high-fat diets to replace the carbs, kind of like those of my sick cardiovascular patients.”

Well, those moms-to-be weren’t consuming the deep-fried turkeys that Hernandez noticed during her time in Texas. But, still, the diets of these pregnant women were filled with similar fatty foods.

“They were being told, ‘Don’t eat your cereal, but go ahead and eat sausage and eggs and bacon because it will not cause your sugars to go as high,’” Barbour said. “But that’s just a high-fat diet without the lower calories that is characteristic of the Atkins diet. Teri really questioned whether this diet made sense.”

It turns out that the sausage-without-the-biscuit, bacon-without-the-bun diet wasn’t all that healthy either. Instead, such a high-fat diet may have been contributing to the problem it was intended to fix.
“We have been doing research showing that obese women have higher glucose levels than normal weight women, and they also have higher triglycerides,” Barbour said. “And triglycerides – although it’s really not been appreciated very much – are a very powerful fuel for babies to put on extra fat because it’s actually easier biochemically to make fat from fat than it is to make fat from glucose.”

In several articles, Barbour and Hernandez have demonstrated that obese women have higher glucose as well as higher triglycerides and free fatty acids. Their research demonstrates that higher triglycerides and free fatty acids might be even more important in causing babies to develop excess fat. Babies born with excess fat face greater lifelong metabolic health risks.

“When born with excess fat, their risk for diagnosis of childhood diabetes is even higher,” Barbour said. “We’ve been very interested in the intrauterine environment and how that can place mothers at risk for having a baby at high risk for childhood obesity, metabolic disease, diabetes.”

So, to reduce the chances of a too-big baby and the resulting health risks, Hernandez and Barbour are studying a diet that calls for a balance of complex carbohydrates and lower fat.

“The premise of the CHOICE diet is that a carb is not a carb,” Hernandez said. “Maybe choosing healthier varieties of carbohydrate, such as whole grains, legumes, beans, and complex carbs, will allow women not to have to cut carbs to the point that they feel miserable and feel like they can’t eat any at all. When they cut carbs, they have very few safe foods at that point. And they’re hungry.”

A unique feature of their study is that all meals are provided to the mothers. An initial study using that approach provided encouraging results. Pregnant women eating complex carbohydrates had very similar glucose patterns when wearing 24-hour continuous glucose monitors that sample their glucose every five minutes.

In addition, they had “better insulin action,” Hernandez said, meaning that they were less insulin-resistant than women on the carb-restricted conventional diet. The mothers also had lower free fatty acids, which arise from breakdown products of triglycerides, and the babies born to mothers on the CHOICE diet had a lower percentage of body fat.

“That was enough provocative pilot data that we were able to get a much larger NIH-funded R01 study for five years,” Hernandez said, “and that’s what we’re doing right now.

“We hope that by providing all meals to the mothers in our study that we can finally determine the ideal diet for mothers with gestational diabetes, and perhaps for all pregnant women, to optimize both maternal and baby outcomes.”

The CHOICE Study for Gestational Diabetes

The CHOICE Study offers healthy nutrition from two different diets that are used in clinical practice. Both are healthy for pregnancy, minimize excess weight gain, are equal in total calories, and allow the mothers to select foods that they like and avoid those they dislike as long as they are consistent with the diets.

One is a carbohydrate-restricted conventional diet, and the second is a diet that includes higher, complex carbohydrates. CHOICE stands for Choosing Healthy Options In Carbohydrate Energy. Both diets control the types of fat and the amount of simple (added) sugars.

The CHOICE diet is about 60 percent carbohydrate, “but it’s complex carbs, the ones that don’t acutely raise blood sugar after a meal,” Hernandez said.

The study aims to recruit 40 more women during the next two years. All meals are planned and prepared by study dieticians and the bionutrition kitchen on the Anschutz Medical Campus.
CU Researcher Studies the Impact of Extra Choline

Nutrient offers hope for preventing mental illness later in life

By Mark Couch

Can mental illness be prevented in the womb?

That's a question M. Camille Hoffman, MD, MSCS, associate professor of obstetrics and gynecology and psychiatry, is investigating. Specifically, Hoffman is studying the impact of a nutritional supplement, choline, on maternal outcome and delivery and on the child's development up to age 4.

“Can mental illness be prevented in the womb?” Hoffman said.

One of those conditions is schizophrenia, a chronic and severe mental disorder with symptoms that are often not fully recognized until the person is between ages 16 and 30. Other mental health conditions, such as bipolar disorder, autism spectrum disorders, ADHD, may also be improved by choline consumption during pregnancy.

Choline, a vitamin-like nutrient found in eggs, meat, poultry, fish, peanuts, and dairy products, was recognized as an essential nutrient by the Institute of Medicine in 1998 and recently was endorsed by the American Medical Association to be included in prenatal vitamins.

Hoffman’s study supplements the pregnant woman’s diet with extra amounts of choline.

“In most populations, moms will encounter the recommended daily amount of choline (450mg) unless they’re vegan or allergic to eggs or avoid some of the most choline-dense foods in general,” Hoffman said.

The extra choline is not known to pose any risks to the pregnant women and their babies and in some situations, the woman’s life conditions may also affect the transfer of choline to the developing baby.

“Even if a mom is consuming adequate amounts of choline, the recommended daily amount is about half of what a pregnant woman needs for this good fetal brain development,” Hoffman said. “And other situations like stress, illness, infections, maternal mental and physical illness will lead to moms sometimes sequestering it or not adequately transferring choline to the baby.”

The potential of the extra choline (about 900mg daily in the study), though, could be significant, especially when compared with the breakthrough finding that folic acid supplementation had a beneficial impact for pregnant women and their babies.

“With folic acid we reduced in rough numbers the risk of an open neural tube defect from a baseline of 1 in 1,000 to 1 in 10,000,” Hoffman said. “So then if you consider mental illnesses, schizophrenia affects about 1 percent of the population, bipolar disorder 1 to 2 percent, autism spectrum disorders 1 to 2 percent, ADHD even a higher percentage, if choline is efficacious in remodeling fetal brain development and preventing or even reducing the prevalence of these conditions, then the population impact is potentially huge.”

Hoffman’s current study builds on work conducted by Robert Freedman, MD, former chair of the Department of Psychiatry, and her former research colleague Randy Ross, MD, professor of psychiatry, who died in December 2016. (See “Remember Randy Ross,” page 29)

In that study, researchers recruited 100 pregnant women to review whether giving choline during pregnancy would enhance brain growth in their developing fetuses. After birth, the infants were given a placebo or liquid phosphatidylcholine.

At five weeks old, the infants were exposed to a series of clicking sounds and they were monitored for reactions. In normal cases, the infant brains exhibit inhibition – recognizing the subsequent clicks as familiar and not significant. However, for some, this inhibition doesn’t occur, a finding linked with an increased risk for attention problems, social withdrawal, and perhaps schizophrenia.

Researchers concluded that study was not enough to recommend a change in practice, so the current study aims to broaden the size of the study and to track children through age four. The study is currently open and Hoffman hopes to recruit 250 pregnant participants over the next four years.

She cautions that the reactions to the clicking sounds or a concerning assessment when the child is 4 years old is not a diagnosis, just an alert.

“We’re not saying that all withdrawn four-year-olds are going to develop schizophrenia in young adulthood,” Hoffman said. “Rather, our thinking is that if you can prevent it or mitigate it with something this simple, why wouldn’t you?”

M. Camille Hoffman, MD, MSCS
Dance Therapy

Parkinson’s patients strengthen balance and creativity

By Mark Couch

Brian Hyde was floating like an astronaut, his arms aloft and his legs akimbo. With his eyes closed, he drifted gently through space.

It was just a typical Monday lunch routine for Hyde and others who gather at Colorado Ballet’s rehearsal studio near downtown Denver for a round of exercises designed to help people with Parkinson’s disease strengthen their bodies, improve their balance and steady their gait.

The program, called Rhythm and Grace: Dance for PD, is provided by the Colorado Ballet and the Parkinson Association of the Rockies with support from the University of Colorado School of Medicine Physical Therapy Program.

Taught by Sharon Wehner, principal ballerina for Colorado Ballet, and Robyn Gisbert, PT, DPT, assistant professor in the School of Medicine’s Physical Therapy Program, participants lead and follow dance movements. With live, improvised music the participants apply elements of narrative and imagery with artistry and graceful movement.

At the same time, the participants are addressing such Parkinson’s-specific concerns as balance, flexibility, coordination, isolation and depression. Whether seated in chairs, balancing at a barre or moving across the floor, participants explore elements of modern dance, ballet, tap, and other dance forms.

Best of all, there’s no pressure to perform for a partner or an audience. All participants are working together in dreaming up the moves and guiding each other through the routines.

“You have to let the music tell you when you’re ready for it,” said Hyde, who was diagnosed with Parkinson’s about 13 years ago. “I’m trying to get my head around it like an engineer would, trying to understand how this works, but what I’m trying to do at the same time is let go and let the music lead. If you’re letting go and you’re dancing, then the music is just guiding your body. I want to get to that stage because I think the music knows better than my brain does.”

For Hyde, the creativity the class nurtures is a bonus. The practical impact of improving his balance and waking his consciousness about his body’s movement has allowed for a better quality of life.

The dance movements of Rhythm & Grace put participants through many motions, whether imagining that they are dragging a ball and chain, floating like an astronaut, or catwalking down a fashion runway.

“I’ve had the experience of going hiking with my son and going around the corner on a trail and I could walk right off it if I’m not paying close attention to where my weight is, so I have to be much more conscious of where my weight is and dancing is about moving your weight back and forth and knowing where it is and good dancers do it instinctively,” Hyde said.

Deborah Clendenning, who lives in Denver, has been participating in the program for three-and-a-half years.

“When I first came I could barely sit in a chair without support and I couldn’t do any of the moves,” said Clendenning, who was diagnosed with motor-neuron disease 15 years ago. “It’s made a huge, huge difference. I love it! So now I dance better than I walk. It’s true.”

The Rhythm & Grace program is adapted from the Dance for PD model created by the Mark Morris Dance Group and the Brooklyn Parkinson Group. That model has been offered in more than 40 communities in the United States and Europe.

Wehner and Gisbert have been teaching the Rhythm and Grace class at the Colorado Ballet since it started several years ago. So far, about 50 people have participated.

“We were just fascination by how movement and dance could be healing,” said Wehner, who has been with Colorado Ballet for 22 years and will be retiring from the troupe after the current season. And Gisbert, who has been a clinician for 25 years, says she enjoys the artistry that dance conveys in physical movement.

Wehner said she plans to continue collaborating with Gisbert on other efforts to incorporate dance as a form of therapy for other patients.

“We’ll continue this class and probably even be expanding it more,” Wehner said. “Robin and I are talking about taking this kind of model and creating something for people recovering from cancer. That’s what we’d really like to do.”
Caring for the Homeless

Urban Underserved Track teaches students while helping those in need

By Cathy Beuten

As he headed out of the Denver Rescue Mission chapel, a man in a careworn bomber jacket patted Jamaluddin Moloo, MD, on the shoulder and said quietly, “Thanks, man.”

That gesture of gratitude was for all the CU students and faculty in the Urban Underserved Track (UUT), a CU Anschutz Medical Campus team committed to helping others get and stay on their feet.

On a Saturday in early 2017, Moloo, associate professor of medicine and radiology and director of the UUT, joined more than a dozen student and staff volunteers to treat the feet of the homeless at three local shelters. Jane Kass-Wolff, PhD, RN, associate professor in the College of Nursing, and Deb Seymour, PsyD, associate professor of family medicine, also led the group.

For many, standard care and treatment was enough, but the first patient of the day needed more help, Moloo said. That patient was a homeless man who had no shoes and had tried wrapping paper towels and plastic bags from 7-Eleven around his feet to protect them from that week’s icy conditions.

“It didn’t work,” Moloo said. The man appeared to have suffered frostbite and was sent to an emergency room for treatment.

The clinic, staffed by track students and faculty mentors from the School of Medicine (SOM), Nurse Practitioner (NP) and Physician’s Assistant (CHA/PA) programs, treated 75 clients that day.

“The work of the UUT is important because for much of the clinical time of our students there is little that focuses on the needs of underserved populations such as the homeless, incarcerated, LGBT, etc.” Kass-Wolff said. “Having this opportunity with the coursework that accompanies the hands-on experiences really opens their eyes to the strengths and weaknesses of our health care system as it is.”

The seven-year-old track comprises blocks that focus on specific patient populations and needs: homeless, LGBTQ, maternal-child, refugees, immigrants, prisoners, substance abuse, mental health/illness, racism and social justice, as well as hosting a clinic each year to serve those in need of foot care.

While the program has helped hundreds within these communities in Denver and Aurora, the students say they themselves are the beneficiaries.
“I come from a social-justice-organizing background in Denver, so I’d been working on issues of underserved populations for a decade before I decided to go back to school,” explained Sarah Bardwell, a medical student who received her undergraduate degree from CU Denver. “I very much wanted to focus my medical practice in the city of Denver and on populations that historically don’t have as much medical access or the quality of health care.”

Katie Raskob, a CU medical student who graduated from the University of Notre Dame, said service always has been part of her life.

“After my undergraduate degree, I lived in a Vincentian community. It was the embodiment of service all the time,” Raskob said. “That was when I really decided I wanted to work with underserved populations within medicine.”

Shayer Chowdhury earned his undergraduate degree from Johns Hopkins University, doing a lot of work in the Baltimore community.

“What inspired me to join the track is, you start medical school and it’s a drastic transition, you spend hours studying in your textbooks and going to class and, over time, you might forget what really brought you to medicine,” he said. “Through this track, I really kept the humanistic side to this. It has reminded me every day of why I came here in the first place.”

And that, Moloo said, is what inspired the track to begin with.

“We have fantastic students,” he said. “However, during medical school and residency training and nurse practitioner school and [physician assistant training], a lot of students lose that idealism that they entered with, so the main purpose of this track is really to help sustain that idealism.”

The track was founded in 2010 with primary funding from the Colorado Health Foundation, Moloo said. With that funding set to expire, the School of Medicine, the physician assistant program and the College of Nursing have committed to help support the track. Donors are also encouraged to consider supporting through the Office of Advancement at giving.cu.edu/fund/urban-underserved-track-fund.

On this day at the Denver Rescue Mission, several individuals waited on aluminum chairs for their turn to see the students and faculty for treatment. Patients sat in chairs with their feet propped on the lap of caregivers, sharing observations about their toes and their lives’ joys and woes and how the two are intertwined. Just as important as the foot care: the kindness and understanding of the volunteers.

One woman, Carolina, initially was reluctant about coming to the clinic. “Oh no, I’m no lab rat,” she said.

But, sitting back with one bare foot propped each on the lap of the caregivers, she said changed her mind. “God bless you for life. It’s what I tell everyone. God bless you for life,” she told Moloo, AimeeTechau, a psychiatric mental health nurse practitioner student, and student volunteer Dianna Puckett.

Another client, Seth, warned medical student Billy Tran that he’s ticklish, promising he’d try to relax so he wouldn’t kick out at him as the student provided foot care. “I’m nearly 40,” he said, shaking his head. “And I’m still ticklish.”

Another man had recently developed sepsis from an infection in his right foot. His only pair of boots didn’t let his feet breathe, he explained, showing the boots to the two student volunteers, each one working on a foot.

“I’ve been through a lot of bad things in life, but this was the first time I’ve had anything like that,” he said. The students assured him the infection is healing well and his foot is on the mend.

The emphasis throughout these clinics, Moloo explained, is on the person.

“In a lot of what we do, we don’t put on our stethoscope because frequently the moment we put on our stethoscope we start to treat the disease and not patients, and certainly not communities,” Moloo said.
Diverse medical specialties are important for caring for the urban underserved, and although the track focuses on primary care, all specialties are welcomed, said Moloo.

Moloo was born in Bangladesh, later emigrating to Pakistan, Canada and finally to the U.S. He completed his internal medicine training at CU before heading out of state to complete a master’s in public health with a focus on health disparities. He returned to CU in 2008 and along with being track director, he oversees the refugee health elective for clinical students and works in cardiac imaging.

“We definitely stress the importance of primary care, however our primary criterion for entry into the Urban Underserved Track is a commitment toward serving the underserved,” he said. “Anyone who has worked in any safety-net clinic knows the hardest problem we have isn’t necessarily primary care, it’s getting poorly insured or uninsured patients in to see subspecialists. So regardless of whether you go into orthopedics or dermatology or ophthalmology, all we ask is that when you’re out in practice you leave the door open for those who may be underinsured.”

Getting people to where they need to be for assistance is a common issue.

“If you’re uninsured and you have a chronic medical condition that needs treatment, you really don’t have many options for where to go,” said Arian Khorshid, a medical student interested in women’s care.

“When the DAWN clinic opened at first, there was debate on whether it would be utilized to the extent that we were envisioning, and right now we barely have enough time to see all the patients that come in.”

The DAWN Clinic (Dedicated to Aurora’s Wellness and Needs), a partnership between the CU Anschutz Medical Campus and the nonprofit Fields Foundation, opened in 2015. It is a student-staffed, free clinic that offers primary care to uninsured adults in Aurora each Tuesday, and specialty care on other days.

“My primary exposure to the community in Aurora is volunteering at the DAWN clinic,” said medical student Paul Eigenberger. “So far, the needs that I’ve seen come up there revolve around people not being able to get health insurance and relying on free services, which has a lot of pitfalls. For instance, being able to afford a medication. You can be diagnosed at a free clinic, but if you can’t afford the treatment that that diagnosis warrants, then what good is the diagnosis?”

Medical student Matt Cataldo added: “I had a patient who really needed to get a certain vaccine and they got a prescription to Walgreens to get their vaccine, but they couldn’t because they had a $9 copay. They couldn’t afford the $9 copay.”

Cataldo said he spends most of his time on the Denver Health campus and with the Mental Health Center of Denver.

“A lot of the issues I see are health education. I talk to a lot of people with serious complications of preventable diseases like diabetes, and they don’t understand why they’re having eye problems or foot problems,” Cataldo said.

Often, the students said, people can’t take a day off of work to go to the clinic.

“We see some of these patients who come a very long way to get to the clinic to receive health care and expect them to do that on a regular basis. When they’re working several jobs, when they have families to take care of, it is difficult,” Khorshid said.

The track currently has 49 medical students, 12 physician assistant students and 22 nurse practitioner students. The curriculum is heavily weighted for the first two years in part because the physician assistant and nurse practitioner students don’t have as long an educational road as those in medical school, Moloo said.

Both students and former students have maintained their investment in the track.

“When a year ago we started a process to look at our curriculum and we essentially brought in the students to help guide the process,” Moloo said. “And so we’ve had a curriculum redevelopment that has been heavily driven by the students themselves. So they, in fact, thought it would be nice to do it as blocks, and that’s how we reconfigured it.”

The students cite the investment their mentors have made in the students and the program.

“We have great faculty for the track,” Chowdhury said. “Dr. Moloo is very experienced in a variety of fields and it’s always amazing to just talk to him because of his wisdom and his experience and his commitment to underserved populations.”
As Bettina Cuneo, MD, peered intently at an ultrasound image, her patient, a pregnant mother from Grand Junction, Colo., was visibly nervous. But this was no ordinary doctor's appointment. The previous week, during her 20-week ultrasound, the woman had been told that her baby might have a heart defect, so she was referred for further evaluation to Cuneo, a renowned fetal cardiologist at the Colorado Fetal Care Center at Children's Hospital Colorado and professor of pediatrics at the CU School of Medicine.

As Cuneo viewed real-time ultrasound images in her clinic in Aurora, her patient was sitting with an ultrasound technician in Grand Junction, 250 miles away. Using video conferencing technologies, Cuneo could see live imaging of the baby.

This “virtual clinic” for fetal heart anomalies has saved expectant mothers hundreds of hours of driving time and countless moments of worry. After discussing the patient's history and concerns through the video conference line, Cuneo directed the ultrasound technician to zoom in on a specific area of the baby's heart. Cuneo adjusted the volume on her monitor, allowing her to hear the baby's heartbeat as clearly as if she were sitting right next to the patient. She closed her eyes, listened closely, and then looked directly into the video camera.

"Your baby is going to be fine," Cuneo said. Through the image on her video screen, Cuneo could see tears of relief in the mother's eyes.

Improving Access

Using digital tools and programs, caregivers can provide long-distance clinical care and health education. With telecommunications technologies, they reach patients in homes, schools, workplaces and local primary care practices. More than half of U.S. hospitals now have a telehealth program, according to the American Telemedicine Association.

“I think of telehealth as healing from a distance,” said Cuneo. “I love that I can help to reassure someone without making them drive all the way across the Continental Divide.”

The growth in telehealth comes when millions of Americans face challenges accessing health care. Many rural areas lack child and maternal health providers even as studies show that kids treated by caregivers with pediatric training and experience have better health care outcomes. Moreover, research indicates that children and pregnant mothers receiving treatment closer to home fare better than those traveling long distances.
“The Risk is Only Going to Grow”
CU professor seeks an antidote for chemical weapons exposure

By Tonia Twichell

When two bombs exploded at the Boston Marathon in 2013, bystanders jumped in to help, improvising tourniquets, bandaging wounds and driving the wounded to hospitals.

Three people were killed and 264 injured, but U.S. Air Force Col. Vikhyat Bebarta, MD, CU professor of emergency medicine, imagines an even darker scenario “if that bomb had had chemicals instead of nails and screws.”

Bystanders entering the “hot zone” could be exposed to contaminants and would be helpless to render aid in any case, he said.

“There are antidotes for a lot of these chemicals but they involve using an IV,” he said. “No taxi cab driver knows how to put in an IV. No shop owner knows how to do ventilation.”

Without immediate treatment, victims would die or suffer long-term health consequences because most chemical agents bind tissue rapidly.

As terrorism spreads around the world, governments are searching for an antidote to chemical exposure that is simple to use and cheap to manufacture, and Bebarta is on the forefront of that effort.

A Growing Danger

Bebarta, who served his residency at University of Colorado Hospital and Denver Health Medical Center, and completed a fellowship in toxicology at Rocky Mountain Poison & Drug Center, first saw chemical weapon casualties while stationed in Iraq in 2006. An explosion injured dozens of Iraqi civilians and U.S troops, and they arrived at his hospital with burns and breathing problems.

“Al Qaeda and other groups were blowing up chlorine trucks and tanks,” he said. “Some patients were very sick.”

During his deployments Bebarta also saw mustard gas injuries from munitions left over from the 1980s, though most of those chemicals were too old to ignite and generally just caused burns, often to the terrorists themselves.

Treating victims of chemical exposure became commonplace for Bebarta, who estimates he’s seen hundreds of victims in his four deployments, but the chaos and fear they inspired never became routine.

“All war injuries are very difficult to treat … but chemical weapons are psychologically challenging,” said Bebarta, an Air Force Academy graduate, who has trained doctors in chemical exposure treatment in Jordan, Afghanistan and Iraq. “Most of these folks are prepared for a gunshot wound or explosion. But they are not prepared for chemicals because they don’t know what the long-term effects are. They don’t know what the short-term effects are. They don’t know what next four hours will look like.”

Dealing with victims of chemical agents is difficult for hospital staff, partly because they don’t know if they are in danger of contamination, and also because of the large number of casualties.

“I can give a world of care to one or two patients, but when you have 40, 50 or even 80 people in the field or in a hospital room that are exposed after drinking or inhaling cyanide, you can’t treat them as quickly as you should. And you have to treat chemicals right away. You can’t wait.”

Bebarta fears that the number of attacks will continue to increase and spread to civilian populations because many deadly chemicals are readily available, and information on deploying them is easy to access.

“The risk is only going to grow now. Whether it’s in Somalia, the Philippines, Korea or some guy in South Dakota or Denver, they now have that technology and understanding because it’s being disseminated quickly by the internet. They know they can use chemicals in ways that would bring terror and media attention, cause some deaths, and scare and injure a lot of people. It’s not going to settle down. Because we haven’t solved the problem of getting rid of those folks, it’s going to spread.”

Fast-Track to a Solution

A member of the Air Force Reserve appointed to the Office of Chief Scientist of the 59th Medical Wing, the Department of Defense’s (DoD) largest ambulatory surgical care facility, and serving on several Joint DoD research steering committees, Bebarta has been working on development
of an antidote that could be administered in the field.

In an emergency, even experts like Bebarta often need to treat without the certainty of a diagnosis because the tests results needed to verify the agent can take hours.

An antidote would have to reflect that reality by counteracting multiple chemical agents.

“We treat empirically and make some guesses. Sometimes we can differentiate a little because of the type of burns, but for most part we don’t know.”

Chemical weapons fall into two categories: toxic industrial chemicals (TICs) like cyanide, chlorine and hydrogen sulfide which are common and usually found in large quantities, and manufactured warfare agents that include nerve agents like sarin and mustard gas.

“I think industrial chemicals are where it’s at, because they’re available, they’re toxic, they’re easily released and they’re cheap. Chemical warfare agents traditionally have been used in Syria, but it’s much harder to get access to them. So the average terrorist or antigovernment person will probably use TICs.”

Some chemicals like cyanide, sulfide and sarin gas are more susceptible to an antidote development than chlorine, which poses more of a challenge.

Bebarta envisions an antidote that can be ingested, inhaled or injected into muscle to simplify delivery. He would like to see it packaged alongside automated external defibrillators, which can be found in any public building or gathering place in the United States.

“Say there’s an explosion down the street at 7-Eleven. We want drugs that can be administered by the Arapahoe County sheriff deputy or Denver paramedic or Aurora fireman. Then, in the hospital, we can do follow up care.”

Using DoD and National Institutes of Health grants, Bebarta’s team at the School of Medicine is working with scientists around the country as well as in Europe and Israel to develop the drug cobinamide to treat chemical reactions. The researchers are moving “from bench to bedside to bystander,” covering the whole path from “molecule to market.”

Bebarta and his colleagues have met with the U.S. Food and Drug Administration, and he expects the approval process to begin within two years “if everything continues to go as quickly as it is now.”

He feels some self-imposed pressure to move fast.

“This is not just an academic endeavor for me. I could research anything. For me, it’s personal. When I’m on active duty, these are the guys I take care of. I do feel responsible for them. Getting these solutions into practice is very important. My buddies are the ones in Syria, Somalia and Iraq right now. I know what they are going through. I feel obligated to figure out a solution. It’s not hypothetical. These are real soldiers and airmen I want to get the antidote to. These are my friends who will be getting exposed. The same goes for my colleagues, neighbors, community members and friends in Denver and Colorado.”

Left, Vikhyat Bebarta, MD, talks with children during a deployment to Bagram, Afghanistan. Right, Dr. Bebarta (center) in Jordan training army and civilian doctors and nurses to respond to chemical weapons and bombs from Syria. Photos courtesy of Vikhyat Bebarta, MD.
A Remarkable Recovery

Immunotherapy keeps a love story going strong

By Katie Kerwin McCrimmon

Sandy and Jerry Doria glowed in their wedding pictures. Her long blond hair flew as they danced on a terrace in the magical light of sunset. That was July.

Four months later, Sandy received jolting news. She had been experiencing some unexplained numbness in her left arm and a visit to her doctor revealed she had breast cancer.

Sandy, now 61, figured she’d quickly get treatment and put cancer in her rearview mirror. But she soon learned she was dealing with a fast-growing, aggressive type of cancer. Just before Christmas 2011, she finally shared the news with Jerry, now 71. A retired engineer, Jerry researched breast cancer, methodically tracked every treatment and supported Sandy at each visit to the doctor.

She made sure they kept joy at the center of their lives. They spent time with seven children and seven grandchildren. They embraced their new home in Aurora after moving from the California coast. With friends and relatives, they went deep-sea fishing off the Florida Keys. Sandy even kept working as long as she could, giving facials to clients. She tended the flowers in her garden and kept swimming laps, finding serenity in cool, blue water.

Despite multiple surgeries and many rounds of chemo and radiation, the cancer kept spreading and recurring. All her life, Sandy had loved having long hair, but she lost it in the treatments she hoped would save her life. There were certainly times when she felt like giving up.

But the unwanted journey yielded surprises too. The challenge of facing cancer together cemented Sandy and Jerry’s love. And Sandy’s saga has left her doctors at UCHealth’s University of Colorado Hospital a bit speechless and mystified.

‘I’m in a bit of trouble’

Sandy’s ordeal began when she noticed numbness in her arm, so she visited her doctor. Even with a diagnosis of breast cancer, she wasn’t panicky.

“I thought I might have to go through some treatments. Then in six months, I’d be done,” Sandy said. But a scan soon showed a very large and aggressive tumor in Sandy’s breast.

Sandy called Jerry from California, where she was still seeing clients as she prepared to move to Colorado. “I’m in a bit of trouble,” she said.

Neither wanted to worry about treatments before Christmas, so they postponed until January. By the time doctors started chemo treatments, the tumor had tripled in size.

After chemo, a California surgeon took out the tumor along with 13 lymph nodes “just to be safe.” The doctors felt they had gotten all the cancer.

Just six months later, the cancer returned. This time in Sandy’s breast and left lung and her prognosis changed dramatically. Doctors told Sandy that the average life expectancy for people with metastatic breast cancer is 2.5 years.

Her particular kind of cancer — triple-negative — made the outlook especially grave. Typically with breast cancer, doctors target receptors that cause cancer cells to grow. But in Sandy’s case — and for about one in five people with breast cancer — the cells are not sensitive to three types of receptors: estrogen, progesterone and human epidermal growth factor. Sandy’s type of cancer had a dangerous ability to mutate, making it especially hard to fight.

Still, Sandy reacted to the ominous news in her typical upbeat attitude. “Let’s have some fun,” she told Jerry. She quit work. They decided to take some great trips. They moved full-time to Colorado, living on the 18th hole of a golf community, even though neither plays golf. They bonded with new friends at the clubhouse and took grandkids to the pool. Jerry kept fishing. Sandy kept enjoying life.

And she pursued different treatments. Based on Jerry’s research, the couple decided to seek care at University of Colorado Hospital.

“I decided I needed to go to a university because they are cutting edge,” Sandy said.

“We were searching all over the country for places that would deal with triple-negative breast cancer,” Jerry recalled.

Jerry found Anthony Elias, MD, professor of medicine at CU School of Medicine, who treated Sandy for more than a year, using every tool he could. But Sandy’s cancer kept progressing.

Late in 2014, Sandy’s cancer reemerged again. This time, in red bumps and welts on Sandy chest, making it painful even to wear clothes. She relied on morphine to get through some days. Sometimes Jerry would hear her moaning in bed and there was nothing he could do.

“I told Jerry: ‘I’m done. This is how I’m going out.’” Sandy recalled.

But instead of giving up, the couple chose to participate in clinical trials and Elias referred them to Jennifer Diamond, MD, associate professor of medicine. Petite and unassuming, Diamond doesn’t look like a superhero, but for Sandy and Jerry, Diamond might as well have a cape to go
with her white coat and stethoscope.

Diamond is a founder and co-director of the Women’s Cancer Developmental Therapeutics Program at the University of Colorado Cancer Center. The program, which Diamond and Christine Fisher, MD, MPH, associate professor of radiation oncology, launched in 2016, aims to increase access to clinical trials and promising treatments for women with breast and gynecological cancers.

Patients who sign on for experimental therapies can improve or suffer setbacks. They put their bodies on the line to help researchers learn valuable lessons about medications that might make a difference.

Sandy tried her first experimental drug in January of 2015. But the cancer progressed and she had to opt out of that trial. Sandy was deemed ineligible for a second trial. A third trial combined immunotherapy with chemotherapy. Enduring chemotherapy again, though, meant Sandy would lose her hair again. That was too high a price. Sandy just wanted to feel like herself. She said no.

But Jerry and Diamond tag-teamed Sandy and urged her to give it a try.

“I know this is tough,” Sandy recalls Diamond telling her. “You’re going to lose your hair, but we’ve had great results with this (drug) and it’s really promising. You’re a great candidate. Let’s try it.”

Sandy changed her mind and got the last space in the trial. That decision might have saved her life.

In combination with the chemo, Sandy received an immunotherapy drug that only had a number at first: MPDL-3280A. It later came to be called atezolizumab and TECENTRIQ and is now FDA-approved for bladder cancer.

Sandy started taking her experimental drugs in May 2015. On cue, her hair started falling out. But the painful tumors on her chest also began to disappear. At first, Sandy and Jerry would drive from their home in south Aurora to the Anschutz Medical Campus for infusions every Wednesday. After the four months, Sandy was able to stop the chemotherapy, while continuing the immunotherapy. She received those infusions every other week.

Aside from losing her hair, Sandy had few negative side effects for about one year. Then two scary setbacks hit her last summer. In July, a severe bout of colitis landed her in the hospital in grave condition for five days. She recovered only to suffer severe breathing problems and pneumonitis that resulted in another hospital stay of six days in August.

Both the colitis and pneumonitis can be side effects of the immunotherapy drugs. The atezolizumab was properly fighting Sandy’s cancer. But it appeared to be causing her immune system to attack Sandy’s organs as well.

Diamond told Sandy she’d have to stop her infusions. Jerry and Sandy were crestfallen. They were convinced that the drugs were necessary to keep Sandy alive, but they had no choice.

The couple kept coming in for follow-up visits with Diamond every six weeks. And a remarkable surprise threw all of them for a loop. Sandy did great.

It seemed that the immunotherapy drugs had retrained her body to find and kill the cancer cells. Even without boosts of new medicine, her body apparently was patrolling for cancer cells and knocking them out.

“The cancer has not come back,” Diamond said. “Whatever the immunotherapy did to her immune system has had a lasting impact.”

Now with cancer in remission, Sandy is again embracing everyday pleasures. She loves swimming and working in her garden. And, she’s growing her hair out again.

“It’s too early to say she’s cured of cancer, but this is as close as we’ve ever come to having a cure for metastatic breast cancer. It’s truly remarkable,” Diamond said.

A longer version of this article first appeared in UCHealth Today in August 2017.

Upper left, Jennifer Diamond, MD. Upper right, Christine Fisher, MD, MPH. Right, Sandy and Jerry Doria were married just four months before she was diagnosed with breast cancer. Photo courtesy the Doria family.
The University of Colorado School of Medicine honored four alumni—outstanding physicians for their delivery of health care, pioneering research, and service to their country and communities—at its Silver and Gold ceremony that took place on Thursday, May 25.

Bonnie W. Camp, MD ’65, PhD, highly regarded as a pioneer and leader in pediatric medicine, received the Alumni Association’s Silver and Gold Award, the School of Medicine’s highest alumni award. Dr. Camp has published more than 100 articles, abstracts, presentations, and workshops on early childhood development and language.

John R. Sharp, MD ’67, a gastroenterologist, received the Distinguished Service Award. He served in the U.S. Air Force for the first 22 years of his medical career, rising through many levels of leadership before returning to civilian medicine. He significantly contributed to advancing the understanding of gastroenterology in his research and publishing, and in educating medical students.

John E. Elliff, MD ’56, and William S. Buchanan, MD ’59, both ophthalmologists and native Coloradans, received the Distinguished Achievement Award for their work in bringing health care to northeastern Colorado, where access to health care has been limited. For a combined 50 years, Drs. Buchanan and Elliff served the community of Sterling at the Sterling Eye Center, which Dr. Elliff’s father, Edgar Elliff, MD, built. Both physicians served on the faculty of the School of Medicine for decades. In addition to continuing his father’s work in the community, Dr. Elliff organized and built a 110-bed nursing home in Sterling.
CU School of Medicine’s Alumni Association hosted its annual Alumni Weekend and Reunion celebrating class years that ended in a 2 or 7. With over 500 registered attendees, alumni traveled from across the country, including a couple from Alaska.

Throughout the weekend, alumni reconnected with former classmates at several events, including the Welcome Back Lunch with Dean John Reilly, Jr., MD, the 1883 Society Luncheon, class dinners at the Denver Country Club, and the Ailments in Opera performance in the lobby of the Brown Palace. There were opportunities for alumni to tour the campus and explore the Health Sciences Library, the Center for Human Simulation (CHS), and Center for Advancing Professional Excellence (CAPE) and to hear from current medical students with their perspectives on education, research opportunities, and activities on campus.

Save the date: The Medical Alumni Association will host the 2018 Alumni Reunion May 24-25, featuring events on and off campus for all CU School of Medicine alumni, residents, interns, fellows, and faculty. Class years ending in 3 or 8 will celebrate Class Reunion dinners.

If you are interested in helping with the reunion, please email healthalumni@ucdenver.edu.

1967 Celebrates its 50th Year Celebration

During the School of Medicine Alumni Weekend and Reunion, the Class of 1967 celebrated its 50th anniversary. Class member John Sharp, MD, received an award at the Silver and Gold banquet, recognizing his outstanding service to the Association and the University of Colorado School of Medicine. The Class of 1967 worked hard to leave a robust legacy through the School of Medicine Class of 1967 Endowment raising over $750,000 to endow a student scholarship in the name of its class. We thank everyone for their involvement and helping to advance the Medical Alumni Association and School of Medicine.

The Medical Alumni Association’s HOST (Help Our Students Travel) Program invites alumni to host fourth year medical students for a night or two during residency interviews. Alumni volunteers may offer advice to students about residency training, prospective medical centers, and the communities in which students are interviewing.

If you would like to host a medical student please contact the Office of Alumni Relations at 303-724-2518 or email healthalumni@ucdenver.edu.

The Medical Alumni Association Board

On June 5, 2017, the Medical Alumni Association elected the new slate for its board:

- Jan Kiel, MD ’82 | President
- Linda Williams, MD ’84 | Vice President
- Dennis Battock, MD ’64 | Secretary/Treasurer

The MAA wishes to extend its sincere gratitude to Immediate Past President, Wag Schorr, Jr., MD ’63 for his commitment and dedication during his service as President of the Medical Alumni Association.

Two new board members John R. Sharp, MD ’67 and Donald G. Crino, MD ’91 began their terms July 1, 2017, and will continue through the fiscal year.

Benefits

Medical Alumni Association members are eligible for discounted tickets to masterful performances presented by Opera Colorado, Colorado Symphony, and the Colorado Ballet. Members can use the code COMED online for a 20% discount on tickets for certain shows. (Some exclusions may apply.) Take advantage of these discounts and reconnect with fellow CU School of Medicine alumni.

On Friday, August 11, 184 members of the Class of 2021 received their white coats and stethoscopes at the Matriculation & White Coat Ceremony. Alumni and board members of the Medical Alumni Association were in attendance to help distribute stethoscopes to students as they started their journey to becoming physicians. Above, Timothy C. Browne, class of 2021, receives his white coat from his father, Timothy D. Browne, MD, and John Brown, MD ’62.
**“A Scholarship is an Investment”**

Program transforms lives of students and donors

By Devin Lynn

The Presidential Scholarship Initiative transforms the lives of students at the University of Colorado School of Medicine and offers benefactors a way to make a long-lasting gift that benefits students, patients and communities.

“When I heard about the Presidential Scholarship, I knew this is what we were supposed to do. To give back,” said Jo Battock, who contributed with her husband Dennis Battock, MD ’64. “This opportunity hit us hard, in a good way. There is such a great need and so many deserving people that just can’t afford to go to medical school. We are proud that we can help in some way.”

The Presidential Scholarship Initiative was formed after CU President Bruce Benson provided an initial investment of more than $10 million over five years help the School of Medicine recruit students from diverse backgrounds. Since the program was created in 2010, the Presidential Scholarship Initiative has had a significant impact, leading to the creation of 40 new named scholarships, cutting the debt load for scholarship awardees and boosting the total number of medical students from backgrounds underrepresented in medicine enrolled at CU.

During the past year, more than 5,000 benefactors gave to the University of Colorado Anschutz Medical Campus and nearly $1.5 million was raised from donor contributions to the Presidential Scholarship Initiative for scholarships in the School of Medicine. To learn how you can support the next generation of physicians, visit giving.cu.edu.

**An Everyday Hero**

Kenneth Atkinson, MD ‘77, was a primary care doctor who owned a medical practice in Centennial, Colo. His friends and family say he was a regular guy, uninterested in accolades or fame. Yet, for all his modesty, he had an outsize impact on those around him.

A former colleague, Linda Williams ’84, said: “Here’s Ken Atkinson sitting in a little private office on Holly between County Line and Dry Creek, going there day after day for over 30 years. Just changing lives, one at a time.”

In April 2016, Atkinson rushed to render medical aid to two victims of a domestic dispute in his neighborhood. It was his natural instinct to help a person in need. As he attempted to provide care, he was shot and killed.

His wife, Jeanne, said: “He went out of our house to the neighbor that night to be the best Ken Atkinson he could be. He was given the blessing of being a physician, and as part of that, it called him to go out of the house.”

Following his death, letters from patients began pouring in. Each one detailed how Atkinson had saved their lives. Jeanne remembered one patient in particular. “I got cookies and flowers delivered to my door on Easter, and there was this letter with it,” she said. “I didn’t know the person. The letter said, ‘I was a patient of Dr. Atkinson, and I’ve been sober for five years — he saved my life. Every year since then, I’ve taken him cookies on the anniversary of my sobriety, and I wanted to do the same now.’”

After a career giving to his community, Atkinson’s family, friends, patients and neighbors sought a way to commemorate him.

Williams and another colleague, Ellen Burkett, MD, joined with Jeanne Atkinson, and others to establish the Kenneth R. Atkinson, MD, Endowed Memorial Scholarship. More than 100 benefactors gave to the fund to support future generations of students.

“This scholarship makes becoming a primary care physician financially feasible,” said Burkett. “Hopefully students will now be able to follow in Ken’s footsteps — epitomizing how incredibly impactful a primary care physician can be.”

This scholarship was awarded for the first time in 2017 to Sofiya Diurba, a first-year medical student.

Sofiya’s family moved to Colorado from Ukraine when she was five years old. While her original goal was to study veterinary medicine, she ultimately pursued a career in medicine.

She chose the CU School of Medicine because of its Rural Track Program, a curriculum dedicated to fostering rural primary care physicians. “They get to do all kinds of procedures throughout their careers,” she said. “As a primary care physician, you have to be comfortable in a number of situations to help your patients that might not be able to get care close by.”

**Alumnus Legacy Gift**

Dennis Battock, MD ’64, was inspired to become a physician by his father, Benjamin Battock, MD ’29.

Dennis Battock entered medical school as an alternate and quickly found he was at home in clinical settings. “I loved relating to patients and being in the clinic. It was so rewarding,” he said.

Following a residency in Brooklyn, Battock chose to become a cardiologist, in part because of his father’s heart attack. Benjamin, a family...
practice physician and anesthesiologist, died when Dennis was 16 years old.

“I think on a subconscious level I landed as a cardiologist because of my dad’s health when I was a kid,” he said.

After completing medical training, Battock joined the U.S. Army, primarily serving at Madigan Army Medical Center in Tacoma, Wash., before returning to Denver, joining the University of Colorado as a clinical professor of cardiology and later entering private practice.

Now retired, Battock remains connected to CU through the School of Medicine’s Alumni Association.

“Being on the board opened my eyes to the many needs of the university and, in particular, the medical students,” he said. “In my time, you could work enough over the summers to cover the costs. It was pay as you go. I didn’t have any debt when I graduated. That’s just not possible now.”

Recognizing the need, he and his wife, Jo, created the Dr. Dennis and Jo Battock Scholarship Endowment in memory of Dennis’ father.

The recipient of the Battock Presidential Scholarship is first-year student Jahmel Jordon, a first-generation American whose mother emigrated from Jamaica.

Jahmel worked in hospice where he developed an interest in becoming a doctor. “There was one patient in particular who had a zest for life, despite all the odds he faced. I’ll never forget that patient.”

The Battock Presidential Scholarship lifts some of the financial burden from Jahmel. “I have always dreamed of becoming a physician and now, through this scholarship, I am poised to excel at CU Anschutz.”

**Giving Back**

Clara Winter, MD ’66, met her husband William at the CU School of Medicine, which she says offered her a high-quality medical education and set her on track for a fulfilling career. For nearly 10 years, the Winters moved around the country before settling in Denver.

Clara Winter was an anesthesiologist. She worked in academic medicine at the University of Kentucky, and entered private practice when she returned to Denver. “I have had a very satisfying career, and I always enjoyed working with patients. Toward the end of my career, I worked with laboring mothers, which was very rewarding,” she said.

To honor her husband, who died in 1998, and his career in orthopedic surgery, she established the Winter Presidential Scholarship.

“A scholarship is an investment. It is an investment in a student’s career and the people they treat,” she said. “This scholarship is so valuable to me and my family and a fitting way to honor my husband.”

The Winter Presidential Scholarship was awarded to first-year student Sara Graves, who said she would not be able to attend medical school without financial aid.

“I almost withdrew,” she said. “I got a call about the scholarship on a Thursday and the deadline for submitting paperwork to hold my spot in the class was Monday. This scholarship was the deciding factor in me going to medical school.”

Sara moved to Colorado from the San Francisco area. She hopes to specialize in family medicine so she can work with a wide range of patients and focus some of her time on health-care policy. “I want to be involved in advocating for my patients, while also being able to care for them throughout the week.”

**MISSION STATEMENT**

CU Medicine Today will keep alumni and others knowledgeable about and connected with the School of Medicine and the University of Colorado by writing truthful and relevant articles and providing a forum for news and comments from alumni.

All rights reserved. The contents of this magazine may not be reproduced without permission. We are usually able to extend such permission. Please contact the Office of Integrated University Communications at 303-315-3719 for further information.
Mental Health Care Too Often Put on Hold

By Jamie Gilroy

Imagine the frustration of trying to reach a counsellor and instead hearing “we’re sorry, the number you have dialed is no longer in service.”

Then imagine hearing it again for the second provider you try.

In our personal lives and in our work with preceptors, my fellow medical students, MariaElena Williams and Tae Chang, and I had witnessed people struggling with access behavioral health services.

Our mentor, Deb Seymour, PsyD, a primary care psychologist and associate professor of family medicine, who faces these challenges day in and day out, is aware of the significance of this problem, and wanted a way to quantify it.

Together, with these observations so vivid in our lives, we developed our Mentored Scholarly Activity (MSA) project, a requirement of our CU School of Medicine education.

The manuscript that resulted from our study was published last summer in Annals of Family Medicine. In short, we found that even for people who are well insured, finding a mental health provider is difficult and time-consuming.

Wrong number

The summer after our first year of medical school, we three medical students collectively placed nearly 2,000 calls to psychiatrists, psychologists, licensed clinical social workers, and licensed professional counselors in the Denver area.

During these calls, each of us posed as a patient with symptoms of moderate depression who was seeking an appointment covered by our commercial insurance carrier.

Those calls offered a glimpse into the uphill battle a patient faces when referred to therapy.

To start, the list of preferred providers for a specific insurance plan often provided incorrect or out-of-date information. Many phone numbers listed – we found 13 percent of them – were incorrect.

As of 2016, one year after we completed our data collection, federal guidelines require monthly directory updates. We hope that better oversight will decrease the unacceptably high number of inaccurate entries.

Other barriers

Beyond inaccurate phone numbers, we encountered providers who were no longer on the insurance company’s panel of approved providers, who worked only with select patient populations (e.g. those with eating disorders), and who simply had schedules too full to take new appointments.

The net result? Fewer than half of our calls resulted in an appointment. Psychiatry openings were particularly difficult to schedule. Based on our data, a patient needs to call seven to 10 psychiatrists to find an open appointment.

Most people with depression strain to complete the usual activities of daily life. Initiating new behavior is grueling for them. Is it really reasonable to expect those struggling with depression to complete the laborious process of accessing an online directory, calling multiple providers, waiting for return calls, and traveling – potentially great distances – to an appointment?

Insurance Does Not Guarantee Access

While Colorado’s uninsured rate fell from 14.3 percent in 2013 to 6.7 percent in 2015, our data indicates having health insurance does not guarantee access to behavioral health care. Surprised? We weren’t.

The Affordable Care Act includes mental health services as an essential health benefit for which insurance companies must provide “a network that is sufficient in numbers and types of providers... to assure that all services will be accessible without unreasonable delay.” But what is sufficient? It’s not defined. Several states have enacted additional legislation to clarify this requirement, but Colorado is not among them.

Our research focused on behavioral health care in metro Denver, but limitations in access are pervasive across regions and specialties. While conducting our research, we noted similar findings have demonstrated for psychiatric care in Maryland and New Jersey and for primary care in California.

While the future of health care reform still remains unclear, we feel strongly that network inadequacy must be addressed to ensure our patients can obtain the services they need.

Jamie Gilroy and Tae Chang are members of the medical school class of 2018. MariaElena Williams, MD, graduated in May. This project was their Mentored Scholarly Activity, a four-year requirement for all medical students.
Remembering Randy Ross

By Rahwa Netsanet

On Dec. 20, 2016, the Department of Psychiatry suffered a great loss when Randy Ross, MD, an accomplished and treasured member of the department, passed away.

Ross graduated from the University of California at Santa Barbara in 1983 and received his medical degree from Yale University School of Medicine in 1987. He came to the University of Colorado in 1993 as a young researcher, joining the Developmental Psychobiology Research Group (DPRG) training program.

Ross came to learn the methodologies of schizophrenia research and apply it to learning more about childhood onset schizophrenia. Though a rare diagnosis, Ross found more cases than were expected, said Robert Freedman, MD, retired chair of the Department of Psychiatry.

Concerned that the young researcher was finding diagnoses where he wanted to see them, the head of child psychiatry at the National Institute of Mental Health was invited to interview a few of the children that Ross had evaluated and to everyone’s surprise, she confirmed Ross’ diagnoses.

Working to understand the roots of mental illness, Ross was particularly interested in choline research, a lead that followed prior findings about the neurobiology of schizophrenia and related mental illnesses. He also invested time and energy in future researchers, eventually becoming vice chair of the DPRG program that began his own career on this campus.

“He was extremely generous with his time,” said Linda Greco-Sanders of the DPRG program. “He tried to toughen people up to criticism because he said it is just part of the whole experience and it’s nothing personal, one of the hardest but most important lessons for young scientists starting out to learn. If that meant telling his own stories of humiliating criticism from grant submissions, he shared it. The important thing to him was to impart knowledge.”

He gained the reputation of being harsh but fair. Camille Hoffman, MD, who worked with Ross for over eight years as a mentee and a partner in his research, called this “getting Randied.” This was a blessing in disguise. Anyone who received his feedback was bound to be challenged, but always grew from these interactions.

Ross’ life was also dedicated to his family. “The back of his car was covered in bumper stickers indicating where his three kids had gone to college,” said Stephanie Vetter, grant manager in the Department of Psychiatry.

While keeping focused on work, there were moments of lightheartedness that gave us a glimpse into his life’s story. He grew up in Santa Barbara, Calif., and had a Farrah Fawcett haircut at one time. He liked to listen to ‘70s rock in his office in the mornings and always had one shoe untied. He was a direct descendant of Jesse James. He also loved to travel—he even hitch-hiked across the country when he was 18.

Though I did not get the time to know him well, I did get a bit of the ‘Randy Experience’ myself. I began working in his lab less than six months before his passing. He was very generous with his time and spoke with me about graduate programs one afternoon. I anticipated speaking with him for 10 minutes, but I was surprised that after an hour he was still taking the time to answer my questions. I was very appreciative of his time and reflect often on that conversation.

Although we have to say goodbye to Randy, his work lives on. And I’m sure he would be happy to see that we will all be getting back to work.

Rahwa Netsanet is a Professional Research Assistant at the CU School of Medicine.
The University of Colorado School of Medicine is dedicated to bringing a world-class education within reach for the best and brightest students from around the country. By supporting scholarships, you are creating opportunities for future health care leaders.

Support our students with a gift to the MEDICAL STUDENT SCHOLARSHIP FUND at giving.cu.edu/medicalscholarships or contact Travis Leiker at travis.leiker@ucdenver.edu or 303-724-2754.

“Scholarships are important to me because...”

“This scholarship has changed my life and it will have a ripple effect on others. It’s exciting that I have been able to choose my passion—pediatric cardiology—and worry less about the financial burden of a medical education.”

- Kaitlyn Sweeney
CU School of Medicine Class of 2020