Empowering Clinical Scientists, page 17
Cover photo: Lilia Cervantes, MD, Melanie Cree Green, MD, PhD, and Kristin Jensen, MD, MSc, have each received support through a grant received from the Doris Duke Charitable Foundation’s Fund to Retain Clinical Scientists.

Photo by Patrick Campbell
Listening and Learning

At the 2016 matriculation ceremony this summer for new MD students at the University of Colorado School of Medicine, Shanta Zimmer, MD, associate dean for diversity and inclusion, delivered a thoughtful keynote address to the class of 184 students.

“We all go into professions for many reasons: money, status, security,” Shanta quoted from an essay by New York Times columnist David Brooks. “But some people have experiences that turn a career into a calling. These experiences quiet the self. All that matters is living up the standard of excellence inherent to their craft.”

She urged the class of 2020 to find the “call within the calling” and reminded them to put people first. “Know your patients as people,” Shanta said. “The rewards will be great.”

Along with everything else we learn to become physicians, physician assistants, physical therapists and medical scientists, one of the most critical skills we need is the ability to listen. Listening to patients’ stories and learning about their values helps us help them. When patients are making difficult decisions about their health, when colleagues are struggling with career choices, when friends need help, listening is an essential first step.

Often we physicians are not very good at letting patients talk. Based on some studies, on average, we interrupt a patient somewhere between 12 to 18 seconds into the medical history. We need to be better than average. The most important organ we have is our ears. One of the richest joys of practicing medicine is interacting with people and hearing their stories.

This issue of CU Medicine Today features some examples of how important it is to know the person, not just the patient.

Sarah Cauley is a young woman with cerebral palsy with a lifelong dream of dancing competitively. Scientists on our faculty have been working with Sarah and others like her to get a better understanding of the transition to adulthood for people with cerebral palsy.

Jim Cohen is an accomplished chef and restaurateur who suffered a paralyzing stroke and has been battling to regain his mobility in order to walk his daughter down the aisle on her wedding day. Physicians on our faculty have offered him excellent care and friendship.

William Elder, Jr., was eight years old when he was diagnosed with cystic fibrosis, facing a life-limiting diagnosis. After enrolling in a clinical trial led by one of our faculty members, William’s quality of life improved dramatically and he has recently completed medical school, inspired by the care he received from Frank Accurso, MD, professor of pediatrics, who retired this year from our faculty after 42 years of service.

In Shanta’s address at the matriculation ceremony, she told the students that there would be challenges ahead. There always are. She urged them to distinguish themselves by finding ways to address the concerns and keep moving on. For Shanta, inspiration comes from her patients.

“My answer was that when I think the setbacks I’m facing might be challenging or insurmountable, I do what we doctors do,” she said. “I lean into the greatest driving force we can imagine. I flee to the bedside of my patients and listen to the stories they tell me about their lives, their accomplishments, their hopes and their legacies.”

They are all the inspiration we need.

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
Stephan Daniels, MD, PhD, chair of pediatrics, told the Caledonian Record of St. Johnsbury, Vt., in August that physical activity for schoolchildren is important. “Effective physical education programs positively impact kids’ physical, mental, and emotional health. Beyond reducing obesity risk, adequate physical activity during the day improves judgment, reduces stress, and can increase self-esteem.”

Maria Nagel, MD, associate professor of neurology, in August paid tribute to Donald Gilden, MD, former chair of neurology in his obituary in the Denver Post. “Don was a wonderful mentor. He had an ability to identify projects that would ultimately improve human health, bring collaborators together and successfully drive the science forward.”

Katie Dorris, MD, assistant professor of pediatrics and a neuro-oncologist at Children’s Hospital Colorado described families seeking to treat children with medical marijuana in an August article in the Tampa Bay Times: “A lot of the families are frustrated because they don’t have the time to wait. When they’re faced with a terminal diagnosis, they feel like they have to consider everything.”

Karen Wilson, MD, associate professor of pediatrics, commented to Colorado Public Radio in May about a study that found one in six children hospitalized in Colorado for inflammation of the lungs tested positive for exposure to marijuana. “I think that we need to pay more attention to the impact of that second-hand smoke, not only on children, but also on people who are living in adjacent apartments to somebody who may be smoking marijuana.”

John J. Reilly, Jr., MD, dean of the School of Medicine, explained the importance of the “white coat ceremony,” which welcomes new medical students to campus in an August report on Denver’s NBC affiliate, 9News, “It is a symbol of the special status you have as a physician, and therefore the special responsibility you have as a physician, to listen to your patients, to advocate for them, to help them make tough decisions.”

John Rumsfeld, MD, PhD, professor of medicine and the chief innovation officer for the American College of Cardiology, was interviewed by Colorado Public Radio in August about the shortfall in treating patients for depression after heart surgery. “First of all, it’s the way we’re trained in medicine,” he said. “There are highly skilled psychiatrists and psychologists in Colorado and in the United States of course, but they go through a different pathway of training right out of medical school than do surgeons and cardiologists and primary care physicians.”

Ken Tyler, MD, chair of neurology, discussed the risk of the Zika virus spreading in the United States in a report that aired in May on the Denver NBC affiliate, 9News. “The more people you have going to and coming back from areas where there’s infection,” he said “the more likelihood you have of establishing disease in the United States.”

Andrea Hoopes, MD, MPH, assistant professor of pediatrics was quoted in the Los Angeles Times in June about birth control: “IUDs and implants are superior at preventing pregnancy across all age groups. So it’s paramount that we become creative in offering all forms of birth control though many outlets.”

In a report aired in August on the NBC affiliate, NBC26, in Green Bay, Wis., Amy Brooks-Kayal, MD, professor of pediatrics and chief of pediatric neurology at Children’s Hospital Colorado, said: “It’s really important for the entire medical community to establish if marijuana products are effective. If so, for whom are they effective? How are they best utilized and at what dose?”

Ross Camidge, MD, PhD, professor of medicine, told 9News, the NBC affiliate in Denver, in May that personalized medical treatments are tailored to the patient. “In our clinical trials, we’re not trying to find a ‘one size fits all. We’re trying to find something like Cinderella’s shoe that will fit perfectly on that one person. You have to personalize the treatment.”

Angela Sauaia, MD, PhD, professor of medicine and surgery, and Ernest Moore, MD, vice chair of trauma and crucial care research in the Department of Surgery, were each quoted in a June report on CNN about their study on wounds caused by firearms. “The handguns people use now have more of an ability to create severe tissue injury than the typical .38 Special injuries we used to see 15 or 20 years ago,” Moore said. “And if you have weapons that deliver a multitude of bullets, allowing the shooter to continue shooting, (that) is far more damaging than the amount of energy delivered by a single bullet.”
Stacy Fischer, MD, associate professor of medicine who specializes in geriatrics, explained to the Washington Post in June the findings from a study she and Dan Matlock, MD, associate professor of medicine, conducted on medical treatment received by physicians at their time of death: “We went into this with the hypothesis we were going to see very large differences. What we found was very little difference to no difference.”

Benjamin Miller, PsyD, director of the Eugene S. Farley, Jr., Health Policy Center at the CU School of Medicine, talked in June with NBA.com about mental health. “The NBA, in my mind, is just like any other employer,” he said. “If we think about how employers are responsible for their employees, employers buy benefits packages for their employees.”

David Olds, PhD, professor of pediatrics and founder of the Nurse-Family Partnership, told Bloomberg News in June that intervening to help mothers in poverty can improve the lives of children. “If the mother is living in a household where she is essentially homeless, and she’s there couch-surfing with a newborn baby, her ability to protect that child is really limited.”

“For performance, low-carb diets do not work,” Inigo San Millán, PhD, director of the exercise physiology lab at the CU Sports Medicine and Performance Center and assistant professor of physical medicine and rehabilitation, said in a report in July in Men’s Journal magazine. “We have more and more people coming in eating low-carb, and their performance is horrible. Restore their diets to normal and things improve.”

Genie E. Roosevelt, MD, MPH/MSPH, an associate professor of emergency medicine at the CU School of Medicine, discussed with The New York Times a study she and G. Sam Wang, MD, wrote for JAMA Pediatrics. When voters decided in 2012 to legalize marijuana for recreational use, researchers anticipated that rates of accidental exposure in children would rise. “But we were not prepared for the dramatic increase,” she said in the July article.

Sarah Rowan, MD, instructor of medicine and associate director of HIV and viral hepatitis prevention at Denver Public Health, commented in July in the Denver Post on the lack of coverage of breakthrough treatment for hepatitis C for some Medicaid patients: “It’s very difficult to see patients week after week who are seeking treatment… have it be denied. We’d really like to be able to treat everyone and to make a dent in this public health problem.”

Kelly Bookman, MD, associate professor of emergency medicine and medical director of the emergency department at the University of Colorado Hospital, described the transformation of the emergency department at the University of Colorado Hospital in The Wall Street Journal in August: “We’ve reimagined the way that patients are triaged.”

Andrew Monte, MD, associate professor of emergency medicine, in July explained to KLAS-TV of Las Vegas the most common types of complaints related to marijuana from patients. “The edible agents are actually a little bit more unpredictable in the clinical effects that they have, and so people have more psychiatric complaints, more anxiety, actually have hallucinations and things like that.”

Elizabeth Pomfret, MD, PhD, professor of surgery and chief of the division of transplant surgery, in September discussed the decision of a Steamboat Springs Middle School teacher to donate a kidney to a former student. “The self-sacrifice and gift of living donation from heroes like Tracy benefit all patients waiting for a kidney transplant,” she said in Steamboat Today, a publication in Steamboat Springs, Colo. “Her gift to Henry allows another patient on the waiting list who does not have a living donor to be transplanted, in addition to saving Henry’s life. Living donation represents the very best of mankind.”
“We Have a Current Mania for Outcomes and Metrics”

Abraham Nussbaum’s memoir calls for putting the patient first

Abraham Nussbaum, MD, MTS, practices at Denver Health and currently serves as its Chief Education Officer, providing strategic vision, daily direction and administrative oversight for the safety-net hospital’s clinical education programs.

He has been a faculty member at the University of Colorado School of Medicine since 2009. As an associate professor of psychiatry, he developed an award-winning curriculum for interviewing patients, which evolved into The Pocket Guide to the DSM-5 Diagnostic Exam. He believes a diagnostic exam begins with forming a therapeutic alliance in shared pursuit of health. With Robert J. Hilt, he recently published The DSM-5 Pocket Guide to Child and Adolescent Mental Health.

Earlier this year, his book, The Finest Traditions of My Calling: One Physician’s Search for the Renewal of Medicine, was published to acclaim, including a review in The New York Times, which said: “He writes beautifully, in a lucid prose as notable for its process as its conclusions: The reader can actually watch him think…. Many medical memoirs are one-shot deals, offered to the public purely to unburden the author. From these books, readers and writer all move on with some relief. In Dr. Nussbaum’s case, we will eagerly await the next volume in the set.”

Where did you grow up?

I grew up in Colorado Springs, went to public schools there. I’m the oldest of five kids and I wanted to get out of Colorado when I finished high school. It was the 90s and the culture wars were at their peak in Colorado. I wanted to get away, so I went to a college I’d never heard of and I had visited just one time. I went to Swarthmore. I thought I was going to be an engineer. I took a course on the literature of the grotesque—reading Rabelais was a lot more interesting than engineering, so I switched and I decided to become an English Lit major.

What did you do after college?

My first job was making pasta for $7 an hour with my degree from Swarthmore. My ability to read French literary theory held me in good stead with my coworkers! I did that for about a month and a half and then I switched and took a job Colorado College repairing computers. That was depressing, so I signed up for AmeriCorps. I did AmeriCorps for a year in Chicago and I worked with medically indigent homeless people who discharged from the hospital. Again, my ability to do literary theory was not particularly helpful. And so I started looking for something that was helpful and as engaging as literature.

What did you find?

While in AmeriCorps, I went to a used bookstore and I bought two books there. One was a book called The Birth of the Clinic by Michel Foucault. And the other was a book by a theologian named Stanley Hauerwas called Suffering Presence. Foucault was dead, but Stanley was alive and so I wrote him a letter. And I just said, I’ve been reading your book and I’m kind of curious about some stuff about it. He told me to move out to North Carolina and come work for him. So he hired me for a summer, he found a place for me to stay since I was a broke twenty-something.

While working for Stanley, I told him I’m thinking about becoming a bioethicist because it seems like I could address these difficult, intractable problems I saw in the life of patients in Chicago and use my ability to read books as a literary theory guy. Stanley told me I shouldn’t do that. He said bioethicists tell people what to do, but they don’t do it themselves. He said I should go and be a physician.

So how did you prepare?

I had not taken the pre-med requirements, so I had to do that. I did that at a tiny little liberal arts school called Bryn Mawr, which is a women’s college. They have like 1,400 women and 20 men getting their pre-med requirements done. I did that for a year. It was a pretty miserable year. Not much to do. Mostly just studied all the time and took tests. I think I had a green mohawk during that year—that’s back when I had hair! I had no car, no money—those were the Ramen years. I moved back to North Carolina to work while waiting for my admission ticket to med school. By that point, I was a resident of North Carolina and when the University of North Carolina offered me admission, I stayed.

How was medical school?

I hated the first two years. I was lonely, I was broke, I didn’t know why
I was doing what I was doing. The classes seemed very different than any kind of school I’d been in before. The body seemed abstracted into a series of parts, cartoon systems that didn’t really map on to anything that I knew. There was an assumption of clinical privilege that I found kind of astounding.

I probably would have left med school if weren’t for three things. One is that I’m stubborn. I always tell med students that once you’re in med school, you don’t have to be smart, you just have to have a trucker’s ass. You just have to endure. The second thing was that I started volunteering at a free clinic, which really reminded me why I had gone to med school in the first place and that was helpful. And the third thing was there was this girl [now my wife] and I didn’t think there was a chance she would be interested in me if I wasn’t a med student, so I stayed in med school. And it got better.

I decided that I’d become a psychiatrist, but I had already applied to grad school, so I took a year off and got a master’s degree. **What is your master’s in?**

Theological studies. It’s like a M.Div. It’s for people who want to be a pastor, which I did not. It’s the first step for people who want to get a PhD in religious studies or theology, but theology was where people studied the historical care of the indigent ill, which was my interest. So my master’s degree was in the theology of medicine and I was reading a lot of Foucault and a lot about the history of medicine.

**What did you do after medical school?**

We stayed in Chapel Hill for residency. My wife trained in family medicine. We had our second kid during residency. During residency, I did a lot of schizophrenia research. I’m most interested in persons with mental illness who are experiencing psychotic and manic episodes and extreme varieties of mental illness.

We finished residency in 2009 in the midst of a worldwide recession. My wife’s from New Hampshire, so we looked pretty seriously at jobs in the northeast. The University of Colorado had an ad out for an inpatient psychiatrist. I applied and they never wrote me back. Then there was an ad that popped up for Denver Health and it had a faculty appointment at the University of Colorado, so I applied. I scheduled it over Christmas because I figured I’d just come home and see my family and do a day of interviews. I didn’t think I would take the job. I came and I met Bob House (director of behavioral health services at Denver Health) and he was terrific. He said: ‘You want to work with the underserved, you should be at Denver Health. You should come here.’ So I took the job.

**Why did you write The Finest Traditions of My Calling?**

I had kind of gotten burnt out and I made a list of things I wanted to do and I thought one of them might happen and all three of them happened and they all happened at the same time. My wife gave birth to our youngest child in April 2012. In May 2012, I signed a contract to write my first psychiatry textbook and then June 2012, I moved to Chicago for five weeks to start a grant-funded program at the University there.

During the week, I worked at the University of Chicago and participated in their faculty scholars program and read a lot. It was great. At night I worked on a textbook version of a class I was teaching interns at the University of Colorado on how to do the psychiatric interview. That textbook wound up doing well, enabling me to get a literary agent. My literary agent told me, “You write like an academic,” which was fair. So I hired Bridget Rector, a local editor, to help me and I started writing. I tried to build each chapter of the book around three things: one, an experience of the people I’ve met as patients, two is a metaphor for what it means to be a physician, and three is the philosophy-in-medicine questions that have always interested me.

It’s about how the training and practice of physicians is being transformed. Many of the books that address those questions are written as policy books. This book is meant to address the experience, what it’s like to be training and practicing in this environment and how different kinds of ways that we imagine that physicians are and structure their lives affects the way they experience themselves and how they work with patients.

**You challenge the emphasis on measurement of outcomes in medicine. Why?**

There are all sorts of ways to account for betterment that don’t involve measuring things. It’s actually just a symptom of our contemporary age that we think the only way to seek improvement is to measure something. Historically, there were plenty of ways to think about making things better. There are lots of ways of accounting for human experience and getting better at something beyond measuring it. We have a current mania for outcomes and metrics, but it does not mean that those are the outcomes or the way that patients experience our care or wish to see them measured.

Much of the literature that has led to outcomes measurement in medicine derives from industrial engineering, in which there is a straightforward sense that the product being managed is under the control of the manager. I do not wish my body or the bodies of the people I meet as patients to be under that level of control of a physician or a health care system. The body is not an inanimate object.

Another problem is the outcomes that we measure tend to be designed for the benefits of the insurers and regulators and the systems that do the billing, not actually for the benefits of our patients.
Dancing to Better Health
Sarah Cauley helps researchers understand cerebral palsy

By Steven Barcus

Sarah Cauley cancelled her first dance lesson.

Her lifelong dream of dancing and even performing on television’s “Dancing with the Stars” just seemed unattainable. She feared no one would want to waltz with her if she was unable to open her hand enough for someone to hold it.

“The words ‘graceful’ and ‘cerebral palsy’ are not words typically used in the same sentence,” says Sarah, who has spastic cerebral palsy.

Watching Sarah today, her gracefulness shines on the dance floor and she also is helping researchers at the University of Colorado Anschutz Medical Campus explore how cerebral palsy impacts health and mobility in adults.

Learning from Sarah

James Carollo, PhD, PE, director of the Center for Gait and Movement Analysis (CGMA), says researchers can learn from Sarah’s active lifestyle, which is why he invited her to participate in the Cerebral Palsy Adult Transition (CPAT) study. CGMA was developed in 1999 as a collaborative effort between Children’s Hospital Colorado and the University of Colorado School of Medicine’s Departments of Physical Medicine & Rehabilitation and Orthopedics.

“Some people with cerebral palsy assume that their disease will force them to stop walking at some point in their lives,” says Carollo, an associate professor in the School of Medicine’s Departments of Physical Medicine and Rehabilitation and Orthopedics and the University of Colorado Denver | Anschutz Medical Campus’s Department of Bioengineering. “They often think it is a natural consequence of the disorder,” Carollo says. “However there’s no evidence to suggest that.”

Carollo theorizes that maintaining an active lifestyle can help maintain gait and walking ability—ultimately allowing individuals to stave off secondary conditions that accompany a sedentary lifestyle.

The many hours Sarah spends practicing and performing her dance routines could also be helping her to maintain her overall health.

Sarah was eager to participate in the CPAT study because she knew there is little research on adults with cerebral palsy.

“I was excited to learn they were doing research to help people over 18 with cerebral palsy,” says Sarah. “There aren’t a lot of resources for that, and the condition doesn’t go away just because you’ve turned 18.”

The CPAT study is designed to understand how the walking abilities of people with cerebral palsy change during the transition from childhood to adulthood. Carollo, with coinvestigators Patricia Heyn, PhD, FACRM, and Amy Bodkin, PT, PhD, PCS, both associate professors of physical medicine and rehabilitation, are analyzing more than 70 former CGMA patients to see how their gait and other variables compare to data collected when they were children.

“Patients with CP tend to get lost between 18 to 21 years old,” says Bodkin. “This happens to many adults with pediatric conditions. It is a combination of a lack of specialists and lack of insurance, as well as limited access to the healthcare system.”

Passport to health

Seeking to provide an additional resource for CPAT study participants, Carollo, Heyn and Bodkin have created an individualized “health passport” for every participant. The health passport incorporates data collected from the gait analysis as well as lipid and insulin panels, quality of life assessments and other tests to give guidance on how they can live a healthy lifestyle. The passport is presented at a conference with the participant and their family.

“The health passport has been a strong motivator for patients to participate,” says Carollo. “The passport is valuable to them since it provides information on how they might maintain or improve movement and overall health status going forward.”

Carollo and the CPAT research team just completed the data collection phase of the study in August. They hope that once analyzed, the data
will shed light on adults with cerebral palsy and offer new ideas on how to improve overall health and avoid secondary conditions often reported in this vulnerable population.

“As a person who values measurement, I feel very privileged to test our previous patients not as an evaluation of the past, but as a roadmap for the future,” says Carollo.

**Following a dream**

Sarah was initially inspired to follow her dream of learning to dance after seeing a news report about a blind person who learned ballroom dancing. She knew her challenges were different. She called Colorado Dancesport, a dance studio, and explained her situation. She scheduled a lesson that she ultimately cancelled.

Six months later, on the eve of her 29th birthday, Sarah rescheduled. This time, she kept the appointment.

“I stood across from my instructor, held out my hand, and I said, ‘Hello my name is Sarah, I’m 29 years old, and I would like to learn how to waltz.’”

Even though learning to dance proved more difficult than she first thought, Sarah eventually had the dance down. Five months later, she and her instructor were performing a tango routine in front of a live audience. After that, she entered her first ballroom dance competition.

“I dance because I love it,” says Sarah. “I hope when I dance people see that.”

Left, James Carollo, PhD, chats with Sarah Cauley about the Cerebral Palsy Adult Transition study. Below, Sarah Cauley, a former patient of the Gait Lab, is helping researchers at CU Anschutz Medical Campus understand how adults with cerebral palsy transition to adulthood. A series of sensors track Sarah Cauley’s movements in the Gait Lab. Photos by Matthew Kaskavitch.
Stroke Patient Battles Back From the Brink

With spirit, support and care, Jim Cohen drives himself on a long road to recovery

By Tyler Smith

Jim Cohen lay motionless in bed, aware that something was terribly wrong. He couldn't move. His brother Howard was close by, but Cohen couldn't cry out for help. His mind was active, but his body was locked in paralysis.

What began as a Labor Day weekend visit to Howard's home in Basalt and a planned trip to Telluride to watch films had taken a terrible turn. A clot had choked the flow of blood to his brain stem, the outlet for electrical signals to the rest of his body. In essence, Cohen, 60, had suffered a devastating spinal cord injury while lying in bed.

Time became a stream that flowed through a landscape without references. In his mind, Cohen called out to Howard. At some point he wondered if he'd died. He saw himself visiting with his grandmother and a cleaning lady from his past as a young man in Buffalo, N.Y. In a dream, he suggested to his wife Connie that they go out for lunch. Then they were in a restaurant, but Cohen couldn't breathe.

He hadn't felt well the previous couple of days, including the drive to Howard's house. He'd had intermittent vision problems and thrown up the evening he arrived. Howard figured he'd let him sleep. When he finally discovered Cohen in a desperate state, Howard summoned an ambulance that rushed his brother to Valley View Hospital in Glenwood Springs. The deadly blood clot remained lodged in the brain.

Fighting for a friend

The weekend was also to take a turn for Ben Honigman, MD, an emergency medicine physician at University of Colorado Hospital and associate dean of clinical outreach at the University of Colorado School of Medicine. Honigman and his wife had flown to Denver International Airport the Friday before Labor Day, returning from vacation. When he checked his cell phone, he saw a series of texts from Howard with the shocking news of the stroke. Jim couldn't communicate, his brother told Honigman. What can we do?

The question called for the dispassionate clinical analysis needed to save a life, but Honigman felt a far greater sense of urgency. The man lying motionless in Valley View's emergency unit had been Honigman's close friend for more than 30 years. They had met when Cohen and his wife Connie began making their mark together in the restaurant business in Denver. At an art exhibit opening Honigman attended, he was introduced to Cohen and the two began talking. They went out with a group for sushi afterward. When another artist began talking about cooking as a craft, not an art, Cohen engaged him in "an enormous fight," Honigman recalled.

It didn't come to blows, but it was close. The sparks that night ignited a long conversation and an enduring friendship between Honigman and Cohen. They learned they shared similar Rust Belt upbringings – Honigman's in Youngstown, Ohio, aligning with Cohen's in Buffalo. Now,
Honigman knew, the stroke threatened to end Cohen’s life or leave him profoundly disabled. Honigman ultimately arranged for Cohen to be flown to UCH for treatment and what he considered a “slim chance” of survival.

Shades of gray

In a procedural suite at UCH, neurosurgeon Joshua Seinfeld, MD, looked at images that showed a complete blockage of Cohen’s left vertebral artery, which supplies blood to the brain stem and left occipital lobe. It had been 14 hours since the clot shut down the artery—a dangerously long period of time. Seinfeld used a stent retriever to pull the blood clot out of the artery, but his work wasn’t finished. The vessel was badly diseased and still couldn’t accommodate much blood flow. Seinfeld performed a balloon angioplasty to widen it.

The stroke damage was extensive, said Seinfeld, assistant professor of neurosurgery. Describing Cohen’s case later, he pointed to bright areas on an image of Cohen’s brain—signs of a “completed stroke” that left dead tissue. Had there been more of it, the clot-removal and angioplasty procedures wouldn’t have happened, Seinfeld said.

“The problem with a brain stem stroke is that it occurs in an expensive piece of real estate,” she said. It also has less plasticity, or ability to respond to change, than other areas of the brain, she said.

Cohen, meanwhile, was alive and cognizant, but he was “locked in,” able to communicate at first only by blinking—once for “yes,” twice for “no,” and then with very slight head nods. His sister, Nancy Carlson, MD, a pediatrician in the Denver area, explained what was happening to him as he lay in a Neuro ICU bed at UCH. She felt Nancy was encouraging him, but in fact she was in emotional turmoil.

“It felt hopeless,” she said. “I was concerned we were saving him for nothing.” It was hard to imagine her brother consigned to life on a gastric tube. Cohen was no ordinary chef. In 1983, Julia Child had selected him as one of the top 11 chefs in the country and flown him and the others to Santa Barbara, Calif., for a week of filming for her PBS show “Dining with Julia.” He went on to a career that established him as one of the nation’s top chefs and culinary innovators.

Now Nancy pondered the cruel irony of Cohen living life as a chef who couldn’t swallow.

Poisson reconvened the family at his bedside. She told Cohen that he would need a tracheotomy and a gastric tube to survive, at least in the short term, and underscored again the uncertainty of what lay ahead for him.

Cohen’s response was to agree to the practical things necessary to keep him alive. He blinked once for a tracheotomy and one more time for a feeding tube.

“I was very pessimistic,” said Honigman, who was there when Cohen made the decision to move forward. “I felt that anything positive that came out of it would be miraculous.”

Honigman wasn’t alone in reaching that conclusion. Fearing there wasn’t much time left, the boyfriend of Cohen’s daughter came into the ICU to ask Cohen for his blessing before proposing marriage.

Cohen blinked once.

Choosing yes

Sharon Poisson, MD, co-medical director of the Stroke Program at UCH and associate professor of neurology, had the difficult job of explaining to Cohen and his family what had happened and what to expect. She told them that Seinfeld’s work had prevented the stroke from getting worse and that Cohen might show some improvement over time. But she couldn’t be certain because of the site of the stroke, a relatively small area of the brain with an outsized measure of control over the rest of the body. Ultimately, Cohen might not be able speak, swallow or regain his independence, Poisson said.

Signs of life

William Niehaus, MD, a physical and rehabilitation medicine specialist with UCH and instructor of physical medicine and rehabilitation, came by the Neuro ICU to see Cohen four days after the surgery. Cohen was far from in the clear, said Neuro ICU Medical Director Robert Neumann, MD, PhD, associate professor of neurosurgery. He was on blood thinners to protect against another clot forming and vasopressors to keep his
blood pressure stable and perfuse his brain stem. The blood thinners and vasopressors, however, also increased Cohen’s risk for a bleeding stroke, Neumann said. He characterized Cohen’s condition as providing only “a flicker of hope.”

Against this solemn backdrop, Niehaus dug into Cohen’s medical chart and emerged with an optimistic view.

“Not many people appreciate how good the quality of life can be for people who are locked in,” Niehaus said. He met with Cohen’s family in the solarium of the ICU, pointing to the possible. Cohen had strong family support. There were assistive technologies and equipment to help him communicate, move, and perform daily activities, even if he never was able to do more than move his eyes.

Niehaus spoke of focusing on “the next five minutes” rather than the enormity of the injury. The recovery, wherever it led, would come in stages: from the ICU to a med/surg floor, and on to rehabilitation. Cohen had an opportunity to progress as far as his injury and his own determination would allow.

“Dr. Niehaus told us not to make decisions about Jim’s care too quickly,” Connie said. “He was cheerful, optimistic and inspirational. I give him credit for keeping our family going when things were bleak.”

Niehaus was not offering false optimism. “Jim was as impaired as it gets,” he said. “His stroke hit an area of his brain where everything plugs in and interfaces with the rest of the body.” But Cohen was “cognitively intact,” Niehaus added, and made progress moving and communicating in small but important increments—from eye blinks to eyebrow raises and slight head nods.

To help Cohen express his thoughts, Niehaus and speech therapists brought in a clear plastic sheet with letters and simple words. Cohen fixed his eyes on a letter, while a partner holding the sheet—often Nancy or Honigman—moved their eyes until they locked with Cohen’s. In this way, he slowly and silently formed words and sentences.

“The eye movement with the board became our form of communication for several weeks,” Honigman said. He and Nancy had a friendly competition to see who could decipher Cohen’s thoughts the quickest.

While he was in the Neuro ICU, Cohen also drew inspiration from a visit by a hospital volunteer, himself a stroke survivor. Cohen can’t remember who it was, and he couldn’t speak at the time, but he vividly recalls the message.

“He spoke with me and my family,” Cohen recalled. “He said, ‘That was me 18 months ago.’ It gave me a lot of encouragement. I thought, ‘If he can do it, I can do it.’”

A new chapter

With time and practice, Cohen was able to move his left arm and leg, crucial advancements toward his goal of getting to Craig Hospital to continue his recovery. It wasn’t a slam dunk. Cohen had to show a liaison from Craig who came out to UCH that he could tolerate three hours of intense physical, occupational, and speech therapy every day while sitting in a wheelchair.

After nearly three weeks at UCH, including a stint on the Neurosciences Unit, Cohen was discharged, becoming one of the rare patients locked in by a stroke that Craig accepted for rehabilitation. He slowly regained his ability to speak and left Craig feeling “pretty good” on his left side and with new computer skills that make use of optical technology, just as Niehaus had said. He followed that with a 100-day stint at Quality Living, Inc. (QLI) in Omaha, a comprehensive center that focuses on helping patients with severe brain and spinal cord injuries regain as much independence as possible.

It was a lonely time, Cohen said, but he felt he had to do it. “The hardest part of this is asking people to help you,” he said. “I wanted my family and my friends to get back to their lives and not feel obligated. It’s hard on people.”

He persevered with the help of FaceTime, a commitment to his rehab regimen and a determination to improve QLI’s cuisine.

“The food there was so bad,” said Cohen, a not surprising observation from a guy with high culinary standards. On a 15-day visit, Connie took him to Whole Foods to get the ingredients he wanted for a revamped menu.

The effort gave Cohen another source of motivation. His contribution
also paid off for QLI and Cohen’s fellow patients. “They loved having a chef there to teach cooking,” Connie said.

Cohen left QLI in April moving with the help of a walker, talking more freely, eating and “mentally with it,” as Honigman put it. He’s now walking short distances with a cane and doing some cooking with the help of Connie and his occupational therapist. His daughter Lexi runs the Empire Lounge and Pizzeria da Lupo, which he opened in Louisville and Boulder in 2008 and 2010, respectively, but his commitment to cooking remains.

“They have to do the minute tasks over and over to get that pathway working, affirm it and progress to the next level,” he said.

The next level for Cohen will be June 25, when his daughter gets married. In September, he could offer only that affirmative blink. Now he stands from his wheelchair, showing he is ready to take the next step in a journey he has a hand in charting.

“I’m going to walk down that aisle,” Cohen said. “But I’m going to need to practice walking and crying.”

Between the darkness and the light
The reasons for Cohen’s journey back from the edge of death aren’t easy to explain. Honigman readily admits that Cohen’s story, inspirational as it may be, offers no blueprint for others who suffer the same kind of stroke and receive the same expert care.

“For Poisson, Cohen’s is “a standout case,” but not simply because of the positive outcome. She saw him while he lay in a netherworld, his body nearly inert, his mind active.

“Every part of my brain works,” he said. “I teach people.”

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“Everyone is different,” Seinfeld said.

For Poisson, Cohen’s is “a standout case,” but not simply because of the positive outcome. She saw him while he lay in a netherworld, his body nearly inert, his mind active.

“He was a motivated patient with a motivated family,” Poisson said.

Cohen continues his recovery with that support and by tapping into his competitiveness and his will to succeed.

He illustrates this point with a telling story. Just out of the ICU, he said, he overheard a visiting childhood friend say that Cohen would be better off dead.

“We did everything when we were young together,” Cohen said. “We went to school, walked neighborhoods, and ran paper routes. We were competitive. I credit him with my drive.” After he heard his friend’s words, Cohen had a simple response: “Screw you.”

It’s a combativeness that led to professional success. “When I would meet other chefs, my attitude was, ‘You’re no better than I am. I just need to work harder.’ I have a willingness now to work hard. You have to believe in yourself. That’s what’s most important. I’ve never doubted myself.”

“Jim is optimistic and stubborn. He has an incredible work ethic,” Connie said.

“He’s shown amazing determination. I’m completely overwhelmed with how he has turned around,” Honigman added.

The next step
In conversation, Cohen sprinkles references to “grit,” a combination of perseverance and practice much discussed in psychological and other professional circles today. Niehaus speaks of that quality in Cohen without using the word. Neurological rehabilitation depends on establishing new pathways to get information out of the brain, he said. Success depends on the patient’s willingness to put in the reps to blaze these new trails.

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Left, Neurosurgeon Joshua Seinfeld, MD, reviews images of Jim Cohen’s brain. Right, Jim Cohen, at home, strikes a fighting pose. Photos by Tyler Smith.

This article originally appeared in the UCHealth Insider in June 2016.
A New Team for Former CU Football Player

Albus Brooks receives cancer treatment at CU Anschutz

By Chris Casey

Denver City Councilman and former CU Buffaloes linebacker Albus Brooks was literally running full-tilt into summer when a diagnosis stopped him in his tracks. His busy life of work and study – he’d been working on an MBA degree – suddenly swirled with a new layer of stress. Cancer? At age 37?

‘I knew something was wrong’

Brooks, who played linebacker and safety for the CU Buffaloes from 1997 to 2000, was being his usual active self last spring when he felt a nagging pain in his lower back. He ran in the Colfax and Bolder Boulder 10Ks, and “in both races it was horrible,” he recalled. “I felt like I was expending a lot of extra energy. I just knew something was wrong.”

At CU Anschutz, Brooks first met Victor Villalobos, MD, PhD, assistant professor in the Division of Medical Oncology and a specialist in sarcomas, a set of more than 50 different types of rare tumors that arise from soft tissues and bone. Villalobos introduced Brooks to the Cancer Center’s interdisciplinary sarcoma team, including Ana Gleisner, MD, PhD, assistant professor of surgery, and Evalina Burger, MD, professor of orthopedics.

The tumor sat on Brooks’ pelvis, lodged between vertebrae in his lower back. He went in for an eight-hour surgery on July 5 at the University of Colorado Hospital (UCH), where the 15-pound tumor was removed by Gleisner, who Brooks described as a “rock star.” He remained in the hospital for a couple days then went home to his wife, Debi, and three children – Makai, 9; Kenya, 7; and Kaya, 4.

‘Second to none’

Work remained to fuse vertebrae from where the cancer had lodged, so Brooks returned to UCH for another lengthy surgery on July 18, this time with orthopedics specialist Burger. But this time Brooks entered the operating room with a heavy heart. His 71-year-old father, Perry, had died just five hours earlier from cardiac complications.

“This speaks, again, to the compassion of CU Anschutz doctors,” Brooks said. “Dr. Burger came in and saw that I had tears in my eyes and – not knowing about my father – she said, ‘I just want to hug you.’”

Her moment of prayer and silence in pre-op meant the world to Brooks and his family. “It was one of the most incredible experiences I’ve had,” Brooks said. “It’s just amazing. The relational aspect and the expertise at CU Anschutz – it’s all second to none.”

Brooks was bedridden for 36 hours after the second surgery, but, with the help of UCH nurses, he got back to his feet and walked the hospital floor each day to regain strength. He returned home on July 22.

Above, Evalina Burger, MD, professor of orthopedics, fused vertebrae after a cancerous tumor was removed from Albus Brooks’ back. Photo courtesy of Albus Brooks.

‘I went home with tears in my eyes,’ he said. The emotion was a mix of hope and gratitude.
‘Cancer chose me’

Brooks wore a back brace for six weeks. He then began rehabilitation exercises for his back and will return to the CU Cancer Center every three months for checkups.

In addition to everything else that happened on July 18, that was the day Brooks was named president of the Denver City Council. At a recent council meeting, he recounted his experience to fellow council members. “I told them, ‘I was a Division I athlete, and I’ve never been sick. I take pride in working out. And cancer chose me. If it chose me, it could choose anyone. Get checked out.’”

“It’s just amazing: The relational aspect and the expertise at CU Anschutz – it’s all second to none.”

While having an active, healthy lifestyle certainly helped Brooks, so did his optimistic outlook. He recognizes that sudden illness is just part of life.

“Things do happen, and you’ve got a decision to make,” he said. “One, are you going to let it take you to a place where you don’t see joy, hope or optimism? Or, two, are you going to look at this as another day where I can see opportunity and hope? I chose the latter.”

As a public servant, Brooks has focused on human-centered policy decisions and initiatives. After his experience with cancer, he’s now also a strong advocate for quality health care and everyone’s right to access it. “I sent all my surgeons and doctors at CU Anschutz the articles (in the local media) about my cancer. Those people are all so amazing,” Brooks said. “I’m back at work now, and I’m so grateful.”
DREAM Program Aims to Inspire Physician Scientists

Introducing medical students to research early in their careers

By Lindsay Lennox

As an undergraduate, Bryan Nycz heard a guest lecture about the human microbiome by Daniel Frank, PhD, an infectious diseases researcher at the CU School of Medicine.

Now, Nycz, a second-year medical student, is doing original research in Frank’s lab, aimed at uncovering connections between the microbiome and the infections often experienced by young leukemia patients during chemotherapy.

“What we’re doing now is all exploratory,” says Nycz. “We’re not really sure what we’re looking for yet, which I kind of enjoy: waiting to see what the data tells us. It’s actually kind of cool to wonder, in the future will our findings turn out to matter?”

Nycz is one of twelve students who, after completing the first year of medical school, spent the summer conducting original research at the University of Colorado.

As participants in the Department of Medicine’s Research and Equity in Academic Medicine (DREAM) program, these emerging second-year medical students are working with CU mentors to generate research results and present – and in some cases even publish – their findings.

In addition to Frank, an assistant professor in the Department’s Division of Infectious Diseases, Nycz’s summer project also allowed him to work with Samuel Dominguez, MD, PhD, associate professor of pediatrics, studying young leukemia patients who get gut infections during chemotherapy, to identify risk factors and preventive approaches.

“Medical school is very cut-and-dried,” says Nycz. “It’s very structured compared to this research work, where we’re using new tools, we’re improving them as we go, and no one knows how it’s going to turn out.”

“The DREAM program is meant to give aspiring medical professionals the opportunity to see how research is done, and to understand the potential impact of research,” says David Schwartz, chair of the Department of Medicine, who launched the program in 2011. “Not only does the program allow them to participate in research, it also helps them understand the research enterprise, and how that enterprise is intimately connected with the way we take care of patients.”

The program’s goals are to increase the pipeline of physician-scientists and to increase the number of students in the pipeline who are from backgrounds underrepresented in medicine. Even if participating students do not pursue research-related careers, they stand to become better physicians after their experience in the DREAM program.

DREAM participants select mentors and develop research projects, which they conduct in their mentor’s laboratory for 10 weeks over the summer. Students each receive a $3,000 stipend from the Department of Medicine. At the end of the summer, they present their work to their fellow DREAM program participants and at the Department of Medicine’s annual Research Day. About a quarter of the participants will eventually publish their results.

Bryan Nycz, a second-year medical student, conducted original research in the lab of Daniel Frank, PhD, an infectious disease research at the School of Medicine. Photo by Diana Ir.
The DREAM program was developed in part because of data showing a large decrease in the number of physician-scientists. Physician-scientists facilitate a team approach to medical research, in which clinical insight from caregivers at all levels is combined with basic science research from multiple disciplines.

“Someone who’s spent ten years studying clinical medicine and disease processes has something to offer the research effort, and that’s the interface where progress will be made,” says John Repine, MD, Waring Professor of Medicine, who has led the program since 2013. Many medical students see the advantages of combining research with the practice of medicine.

“I really like the idea of being able to attack a clinical issue from both sides, working to improve the treatments at the same time as working to help individual patients,” says Tessa Harland, who worked last summer with Aviva Abosch, MD, PhD, professor of neurosurgery, on a project focused on recording signals in parts of the brain associated with movement, to help target electrode therapy for Parkinson’s disease.

A June 2014 report from the National Institutes of Health (NIH) Physician-Scientist Workforce Working Group indicated that only 1.5 percent of American physicians consider research to be a primary focus area, and less than 1 percent are principal investigators on NIH grants. During the past 20 years, the percentage of NIH awardees who are physicians has declined to 30 percent. Additionally, the report found that the average age of the physician-scientist workforce is rising, as younger researchers have not emerged in significant numbers, presaging a demographic crisis as this workforce eventually ages out of active research and clinical practice.

One reason for the decline is that new MDs typically have substantial student loan debt. Establishing a career as a research scientist takes time. According to the NIH, the average age at which physician-scientist investigators receive their first independent federal grant is 45.

“That’s all the more reason we want to start students in research earlier," says Repine. “Getting early experience, publishing early papers, they can develop a real interest in research that will help take them through that long process, and maybe even accelerate it a little. Starting late is very difficult.”

Brooke Bredbeck, MD, who participated in the DREAM program in 2013 and graduated from the CU School of Medicine in 2016, worked in the laboratory of Neda Rasouli, MD, associate professor of medicine, exploring the connection between angiogenesis and insulin sensitivity in an obese population, and later presented her results at the Western Student Medical Research Forum.

“I think research in an academic environment has the potential to be either a vicious cycle or a virtuous one,” says Bredbeck. “If you’ve never had any research experience, it’s much harder to ever get started working in a lab, since you need quite a bit of training before you can really contribute to the group. But if you do have any sort of research training, it makes it much easier to get a research job even if the focus area is completely different – they know you understand the different way things work in a research environment.”

A more diverse workforce of physician-scientists

Racial and ethnic minorities comprise over a quarter of the U.S. population, but only 6 percent of practicing physicians are Latino, African-American and Native American. The NIH Physician-Scientist Workforce Working Group found similar numbers among physician-scientists, reporting that approximately 75 percent of physicians who receive independent NIH funding were white, another 20 percent were Asian, and the remaining 5 percent were Latino, African-American or Native American.

Increasing the diversity of researchers, especially those who also see patients clinically, is an important step in addressing health disparities, and asking research questions about medical issues that disproportionately impact minorities. To address this gap, the DREAM program recruits medical students from underrepresented backgrounds.

Not all DREAM participants will ultimately go on to careers in research medicine, Repine notes, but this first-hand exposure enables participants to read, interpret and critically evaluate research findings on their own, which in turn, makes them better physicians.

In addition, the program also helps prepare participants for competitive residency programs, and connects them with mentors.

“The mentorship is probably the most important thing I gained from the DREAM experience,” says Quan Bui, MD ’16, who worked in the laboratory of Mark Geraci, MD, on a pulmonary hypertension project that extended into his third and fourth years of medical school. Geraci is the former head of the Division of Pulmonary Sciences and Critical Care Medicine in the Department of Medicine and now chair of the Department of Medicine at Indiana University.

“In addition to Dr. Geraci, who was and continues to be a great mentor to me, I also met fellows and other pulmonary researchers, which is important because in ten or fifteen years, I see myself in academia. I know I want to teach, and in terms of research, it might not be basic science research but I will certainly continue some kind of research activities, probably on the clinical or outcomes side.”
Better Learning through Technology and Teamwork

Radiology’s BAR Lab flips the classroom and improves test scores

By Mark Couch

The CU School of Medicine’s Department of Radiology has created a teaching space to replace lecture halls and improve student learning through technology.

The Beginning to Advanced Radiology Lab, which looks more like a Genius Bar at an Apple store than a typical 300-seat lecture hall on an academic campus, was completed in August 2015 and has attracted national attention for its innovative teaching methodologies.

“The methods that we use in the BAR Lab are predominately ‘flipped classroom,’” says Nicole Restauri, MD, assistant professor of radiology and BAR Lab director.

“Flipped-classroom methods imply that the students will complete a module or some kind of exercise outside of the classroom where they gain knowledge and they do this on their own time,” Restauri says, “and then they come into the BAR Lab and they apply it. We do problem-solving with an instructor facilitating the process in the lab.”

Medical students are presented real-life problems that correspond with issues they will face in clinical rounds. On iPad screens, students can interact and present cases that are displayed on large video monitors built into the wall of the lab.

“So what does that look like for our students?” asks Restauri during a presentation last summer to U.S. Sen. Cory Gardner when he visited the Anschutz Medical Campus. “During our surgery rotation, for example, students will complete a module on biliary disease. For students in internal medicine, we focus on a different content. We are giving them skills they can take into the clerkships and immediately apply to be successful clinically and in that clerkship.”

Flashed onto the screen was an ultrasound of the right upper quadrant of a patient. Restauri and Gerald Dodd, III, MD, chair of the Department of Radiology, then explained to Gardner how to identify gall stones from the image. In a different case, Restauri showed how a chest radiograph leaves blind spots that physicians need to understand when they are reviewing such images.

Dodd calls it “just-in-time” learning because the cases are presented to correspond to the clerkships in which students are participating. Rather than sit for a month reviewing images disassociated from real-life cases, medical students now weave their experiences in internal medicine, orthopedics, surgery and other rotations into the BAR Lab.

As a result, students are improving their understanding of cases and their test scores.

“I think a key feature is that it allows the students to ask a question in here,” Restauri says. “One of our students commented that on the wards, there’s very little time to look at imaging and even less for someone to teach them. Here they have a dedicated instructor and they can improve by asking questions.”

One of the challenges of creating a new teaching space that is decked out with the latest equipment is that it isn’t cheap. With support from UCHealth, the new lab was equipped with Philips virtual simulation teaching PACS identical to the clinical application currently used throughout the University of Colorado Health System. The BAR Lab also utilizes iPads to deliver curriculum through the use of iTunes University.

Lecture halls may have served previous generations, but students now are seeking ways of learning that are in tune with their lives.

“Today’s learners are digital natives,” says Restauri. “They are millennials. They were born between the years 1982 to 2005 and they grew up with new technology, with iPads, with rapid access to information. They’re also very vocal about educational preferences and they typically shun didactic lectures.”

What they said was that they aren’t interested in sitting in a big crowd, learning alone, staring at a screen controlled by the lecturer standing in front of the room.

“They value an interactive educational experience and they embrace technology as a social tool and as an information resource,” says Restauri. “So as our learner population is changing, it prompts us to rethink not only how we educate our students, but the physical space in which we do so.”

The BAR Lab’s narrow classroom encourages team-based learning and its state-of-the-art equipment taps into the students’ experience of using technology to learn and get answers on their own.

“The BAR Lab was designed with both intentions,” says Restauri, “to facilitate an interactive learning environment and also to reengage millennials through the use of digital technology.”
When Kristin Jensen was a girl, she watched her busy biochemist mother balance her home and work life and wondered why she couldn’t take a break from her job.

“She always told me that she couldn’t do that because she would never be able to get back in,” Jensen says.

Now as a mother of two and a clinical researcher at Children’s Hospital Colorado studying medical care inequalities for patients with Down syndrome, Jensen understands.

“Now I say the same thing,” she says. “If I want to be successful in research, I can’t go less than fulltime.”

But for Jensen and other young clinical researchers who are balancing personal and professional challenges, relief has come in the form of a grant from the Doris Duke Charitable Foundation.

The foundation’s Fund to Retain Clinical Scientists seeks to reverse a national decline in both male and female research clinicians. The Association of American Medical Colleges has reported that 40 percent of physicians with fulltime faculty appointments at medical schools leave academics within 10 years. Women and minorities are hit hardest, according to the AAMC.

Declining research dollars are one reason for the drop. But the stress young professionals endure just as their careers are just taking off and many are starting families also takes a toll, says Judith Regensteiner, PhD, professor of medicine, founder and director for the University of Colorado Center for Women’s Health Research, and the Judith and Joseph Wagner Chair in Women’s Health Research.

“Although physicians know they can go into clinical medicine and stop doing research, that is not a good choice for those who love research,” says Regensteiner, who mentors young faculty and is principal investigator of the grant. “Clinicians can bring a special perspective to research since they are seeing patients.”

The five-year $540,000 grant provides annual funding for early-career faculty.

“I thought there would be only a few medical schools applying for the grant,” Regensteiner says. “It turns out almost every school in the
Ten schools including CU were awarded funds, and School of Medicine Dean John J. Reilly Jr., MD, matched CU’s award. The first three grants went out in January, the next group of three in July.

“This grant shows these young researchers that someone cares,” she says. “It shows them that it’s not a heartless world.

“It is an innovative idea to support the personal needs of a scientist, and I hope the idea spreads to other granting agencies.”

Three of the awardees describe the effect the grant has on their career.

**Melanie Cree Green, MD, PhD**

Green started her research career in high school by studying the effect of roller coasters on blood pressure and heart rates at Six Flags Magic Mountain in southern California. The daughter and granddaughter of physicians, Green wondered if roller coasters caused a bump in blood pressure and heart rate or if the bump occurred in anticipation of the ride.

“It turns out that blood pressure and heart rate were much higher if you’d never been on a ride before. But every ride made them go up.”

But mainly what she learned is “research is complicated” and she was hooked.

A mother of children ages 10 and 6, Green is an assistant professor in pediatrics and endocrinology. She is the founder and director of the Polycystic Ovarian Syndrome (PCOS) Clinic at Children’s Hospital Colorado and collaborates on studies examining insulin resistance in children with diabetes, the effect of exercise in adults with type 2 diabetes and the effect of gestational diabetes on glucose metabolism in older adolescents. In 2016 she was awarded a Boettcher Foundation grant in the Webb-Waring Biomedical Research Awards program for her work in fatty liver in adolescents with PCOS.

Two years ago, a rheumatoid arthritis flare-up put her career and her family’s stability in jeopardy.

“I’m a very active and involved person and to have to throttle back meant that the first thing I did was cut back on my family life to keep up on all the research,” she says. “It was super hard on my children and now they need additional care.

“This grant allows for better balance. I am backing away from being hands-on for all the research time but not having any falloff in productivity. The grant gives you enough money to hire another research assistant so you can take time away from lab to deal with personal caregiving.”

She’d already proved her commitment to research through two pregnancies that required bed rest. So she was reluctant to allow the family disruptions from two rheumatoid arthritis-related hip reconstructions end her research career and push her entirely into clinical care.

“Oh no, no, no, no, no,” she says. “I’m a total science nerd to the core. I love the whole process of discovery.”

Green has since founded Facebook groups for mothers balancing research and clinical careers and for physician mothers with rheumatoid arthritis. She finds the support fortifying.

“I’ve had all this training and it drives me nuts seeing how many of my MD/PhD classmates are doing just clinical now. In my class of six, just three of us are still doing research.”

**Kristin Jensen, MD, MSc**

Jensen entered medical school knowing that she wanted to help people with intellectual disabilities as they transition into adulthood and beyond.

She’d witnessed inadequate medical care for disabled adults first hand when she was a young medical student acting as guardian to her uncle who had Down syndrome.

“He developed severe gastroparesis. As the medical team was working him up they kept saying ‘it’s just his Down syndrome. It’s a behavioral thing. He eats too quickly.’ I said ‘Well, I don’t think so. He’s been eating quickly for 60 years, but has only been throwing up and losing weight for the past several months. Something changed and you need to figure it out.’ They just didn’t know how to treat him.

“Maybe I was naïve but I thought I’d try to dive in and fix the problem.”

Jensen, a mother of two girls ages 5 and 3, is an assistant professor in the Adult and Child
Lilia Cervantes, MD

Cervantes spent the first six years of her medical career happily focusing on clinical and educational goals. But when a young patient, a homeless woman with two young sons, died because her immigration status wouldn’t allow for dialysis treatments until she was critically ill, her career suddenly changed focus.

Cervantes began by imploring state lawmakers to make changes to the law, but quickly realized that research findings would make her arguments more persuasive. And so, two years ago, her research career was born.

Cervantes, an associate professor in the Division of General Internal Medicine, is a hospitalist at Denver Health Medical Center, associate director of Denver Health’s new Center for Population Health and founder and director of both the Healthcare Interest Program and the Health Equity Lecture Series. In 2015, she was awarded the four-year Harold Amos Medical Faculty Development Award from the Robert Wood Johnson Foundation for her research discerning the palliative care needs of Latinos with end-stage renal disease.

“I applied for the award thinking I’d never get it because 99 percent of people accepted have an MPH (master’s of public health) or some kind of research fellowship. But I think I got it because I walked into the room and was passionate about changing palliative care outcomes among Latinos in dialysis.”

She has since interviewed dozens of Latinos suffering from end stage renal disease to understand their palliative care preferences. Next, she plans to develop a program using navigators to improve those patients’ quality of life.

But her research began to suffer when her grandmother fell ill in 2015, and Cervantes and her mother became caregivers. She also is working on her master’s degree in clinical science and has two daughters ages 8 and 6.

“I was waking up at 5 a.m. and working late at night after the girls went to bed while still taking care of my grandmother and mom.”

With the grant money, Cervantes hired a part-time research coordinator, who within two weeks had organized her institutional review board material.

“No way would I have completed this in two weeks,” she says. “It would have taken me six months.”

“Physicians are trained to be self-reliant and not ask for help. I really struggled with whether or not it was appropriate for me to apply. I wondered if there was someone who needed it more.”

She needed little convincing when, for the 10 days prior to submitting her application, both her children were home with high fevers.

Cervantes uses the Doris Duke funding to pay for analytical and biostatistical research support.

“I had been considering reducing my research time to improve my balance, so it’s really been a blessing,” she says. “I feel like a lot of young women have to make that decision. I’ve seen brilliant young women who have training in research and have really great ideas, but they reached enough barriers and gave up on research.”

She also employed a social worker for her pilot intervention to provide mental health therapy for Latino patients. Next, Cervantes would like to hire a statistician to support her research analysis and a writing coach because English is not her first language.

“It’s been hard. There are days when I’m in tears, and there are days when I love what I’m doing.”
When Frank Accurso, MD, accepted a pediatric residency at the University of Colorado Health Sciences Center in 1974 and later chose the subspecialty of pediatric pulmonary medicine, he focused on patients with the recessive genetic disorder cystic fibrosis (CF).

“When I got into it, CF was really not understood and I felt intrigued by that,” says Accurso, a CU School of Medicine professor of pediatrics who retired in June. “Then I met the families and they showed such incredible courage in the face of a devastating condition that I wanted to help. I wanted to talk to them. I wanted to explain things as far as we understood them.”

Not only did Accurso explain CF to his patients and their families, he helped improve their lives, as a pioneer and advocate for CF newborn screenings, as an innovator of new precision medicine treatments and as a role model for how to provide care.

“I am so incredibly lucky and grateful to have had Dr. Frank in my life to take care of me,” says William Elder, Jr., MD. “Without him and his deep caring concern, I wouldn’t be able to be healthy enough to be a doctor. He has literally made my dreams come true.”

Elder was eight years old when he was diagnosed with CF and became Accurso’s patient. Elder remained in his care until Elder went to Stanford University as an undergraduate to study human biology and ethics in society. While in high school, Elder participated in a research project led by Accurso. Elder took part in a clinical trial for Kalydeco, a drug developed through efforts of the Cystic Fibrosis Foundation and Vertex Pharmaceuticals, Inc.

Accurso led a clinical trial that showed the new treatment helps about 4 percent of CF patients by targeting a genetic mutation and improving lung function. The New England Journal of Medicine published the results and Kalydeco was approved for use in January 2012.

Elder was one of those in the 4 percent. When Elder was sitting in class one day at Stanford, he received a call from Accurso, who was extremely excited about the potential of the new clinical trial. Elder enrolled and “it dramatically changed my life,” he says.

The Kalydeco was delivered to Elder’s house in a little brown box. He describes having a meal, taking the drug, going to bed and then waking up at 3 a.m. thinking that something felt different. “I realized that I couldn’t remember ever being able to breathe in and out of my nose—and I could then. So I go running down the hall and wake my parents up yelling, ‘Kalydeco is working! Kalydeco is working!’”

Elder’s sense of smell returned, he gained weight and he was able to run farther than ever before. He says he started coughing a lot less. Since taking the drug, his lung function has stayed around 100 percent.

Elder graduated this year from Wright State University Boonshoft School of Medicine in Dayton, Ohio, and has since moved back to California where he has started his family medicine internship at Sutter Health, affiliated with the University of California, San Francisco. “He inspired me to be a doctor and empowered me by teaching me all about the disease and my care,” Elder says.

Over his 42-year career, research by Accurso and his colleagues have led to multiple discoveries about the workings of the
disease, including the discovery of the CF gene. He helped develop precision medicine treatments that target defective proteins caused by specific mutations.

Accurso's profound list of accomplishments — with patients and in the laboratory — has played a major role in the dramatic growth in life expectancy for people with CF: from 18 years in 1980 to between 37 years to 40 years today.

The Importance of Research

"Seeing how outcomes have improved for people with CF goes a long way toward demonstrating the importance of research," Accurso says.

Clinical research with patients takes place at Children's Hospital Colorado in the Pediatric Clinical and Translational Research Center (CTRC), which is part of the Colorado Clinical and Translational Sciences Institute (CCTSI), which was created in 2008 with funding from the Clinical and Translational Science Award initiative of the National Institutes of Health. Accurso says the CTRC and its predecessor, the Pediatric Clinical Research Center, have been absolutely critical to the development of CF research at the University, the School of Medicine, Children's Hospital and beyond.

Treatment breakthroughs depend on research, and clinical research opportunities are fostered at the University of Colorado Anschutz Medical Campus by the CCTSI. Accurso estimates that about half of all CF patients treated at Children's were also involved in clinical trials at the CTRC. Such investigations have improved lives for people with CF.

As a result of that research, there are now treatments targeting the underlying protein defect that causes CF rather than simply addressing complications of the disease. In addition to Kalydeco, which targets the mutation and improves lung function, another drug, Orkambi, was approved by the U.S. Food and Drug Administration in 2015, targeting yet another specific mutation in order to improve lung function. Accurso hopes that eventually as many as 90 percent of those with CF will benefit from similar therapeutics.

Elder is living proof of the benefits of research and clinical care and he is carrying that message forward. During Elder's third year of medical school, for example, he was invited to be a guest of the First Lady at the 2015 State of the Union Address. He later served as a guest at the President's Precision Medicine Initiative.

While Elder has been an eloquent voice on the importance of research in medicine, he also notes that the personal touch matters and that Accurso is a role model.

"I'd also tell him he's my hero," Elder says, "but I've said that to him a few times already."

Left, Frank Accurso, MD, with a patient. Photo by Tia Brayman. Below, Frank Accurso, MD, and William Elder, Jr., MD. Photo courtesy William Elder, Jr., MD.
"There’s Love in That Room"

Launch Programs offer training, jobs and hope

By Tonia Twichell

Chisom Agbim knew as a student at Aurora’s Hinkley High School that she wanted to become a doctor. Now a graduate of CU School of Medicine and a resident at Stanford University’s Lucile Packard Children’s Hospital, she says she often thinks about the people who helped her succeed.

In a cubicle covered with photos of family and friends at Children’s Hospital Colorado, Genesis Sanchez Ortega files and sorts for a Special Care Clinic. She’s pleased to work at a hospital where physicians who once provided her pediatric care can see her succeed professionally.

One floor down, Daniel Hitchcock works in a room crowded with medical professionals who count on him to keep faxes moving, answer phones and enter computer data.

All three are graduates of Children’s Hospital Colorado Launch Programs, which identify, train and employ community members from under-represented groups.

“We see these programs as an opportunity to mine for great talent right in our own back yard,” says Programs Manager Stacey Whiteside, MSW.

Medical Career Collaborative (MC²) Program

Agbim had already been volunteering at Denver area hospitals but entering the MC² in her junior year of high school gave her the patient contact and clinical experience she wanted.

“I think it was one of the most crucial experiences I had prior to starting my career,” she says.

MC² began recruiting high school students interested in careers in health care in 1999, when it partnered with Manual High School. Now accepting students from around the metro area, the two-year program offers hands-on experience, including paid internships, field trips, workshops, mentorship, career guidance and other services for students from under-represented and socio-economically disadvantaged backgrounds.

About 600 students have gone through the program. Three hundred students apply annually, and the 30 who are accepted are high-achieving: 100 percent graduate high school and 75 percent enter pre-health programs. This year the program expanded to Denver Health, which accepted 20 interns.

“A more diverse workforce is a stronger workforce,” Whiteside says, citing the Sullivan Commission Report on Diversity in the Healthcare Workforce and other studies. “Research shows that there are better outcomes all around when patients and families have providers that come from their own community.”

She has seen non-English-speaking patients warm up to high school interns who speak their language.

“It happens with 80 percent of the students. They can say, ‘I live in your neighborhood,’ or ‘I go to your church’ or ‘My mom is from Vietnam, too.’ It’s so powerful to watch it happen.”

Continuing to hone the program, MC² has added specific tracks for alumni pursuing health care careers, starting with nursing, respiratory therapy, radiology technology, laboratory science and medical interpret-
As many as a dozen tracks are expected eventually. “These tracks represent large areas of our workforce,” Whiteside says. “By pipelining students into these areas we have the chance to create teams that better represent the demographics of the communities we serve.”

Agbim says the program is important to students who are underrepresented in health care. While in high school, some mentors encouraged her to pursue a medical career, but others cautioned against it, saying the training took too many years to complete.

She remembers a day during her MC² internship when she watched emergency department providers try to save the life of a drowning victim.

“I had been taking the idea of what doctors do from TV, but this was a teaching point. With that job comes a lot of responsibility, but also an incredible amount of support from the rest of the staff. Seeing that firsthand really taught me what being a doctor would be like.”

She has already noticed the effect an African-American doctor can have on patients and families.

“Some of them have told me that they want to go into medicine because they see someone like me and they know it’s possible.”

**Project SEARCH**

An unexpected benefit to employing people with disabilities at Children’s Hospital Colorado is the hope it inspires in others, Launch Programs Coordinator Haley Couch says.

“Our internal colleagues value these workers, but so do the families who come to our hospital,” she says. “Some of them are struggling with a diagnosis for their child, and then they see someone with a similar disability working and contributing in a meaningful and constructive way. I think it gives them renewed hope.”

Founded by Cincinnati Children’s Hospital Medical Center, Project SEARCH is a school-to-work transition program for high school students with significant physical and/or intellectual disabilities. During the internship, which lasts an academic year, students are immersed in the hospital, and receive both workplace and life skills training. Many find work in clinical settings, but some have found employment in food service, hospitality, child care and other areas.

Of the 49 graduates since 2009, 80 percent found jobs immediately following the program. About 35 percent have earned positions at Children’s Hospital Colorado.

“We learned how to keep a job, how to budget our salary, how to dress casually,” Hitchcock says. He was surprised that training included fun activities. “We went to a Rockies game, alumni parties, a day at Dave and Busters.”

Ortega says the training “taught me how to interview, how to ride a bus. I had never been on a bus before. I feel confident now.”

Both say their favorite part of the experience has been meeting new people and making friends.

“She’s a great member of the team,” Andrea Loasby, operations supervisor, says of Ortega. “We have given her more responsibility because she always wants to learn new things.”

Senior Medical Assistant Care Coordinator Cecelia Ross says Hitchcock is a fast worker who soon will be trained in Epic, the software program the hospital uses to track patient care.

“He came in and just worked hard,” Ross says. “He’s a perfect fit and a real go-getter.”

Hitchcock loves his job, though he notes that the clinic office is crowded. Ross argues that makes the office better.

“There’s love in that room,” she says.
Medical Alumni Association Honors Contributions to Medicine and Community

The Medical Alumni Association presented its 2016 awards to physician alumni who have served as leaders in research and clinical care and whose commitment has helped transform the medical profession.

Distinguished Achievement

Christopher Goss, MD ’92, has improved the lives of patients with cystic fibrosis (CF). Using data from the national CF Registry, Goss has helped educate patients about their disease. One of his early research projects demonstrated that pregnancy did not harm women with CF, contradicting years of advice that CF patients avoid pregnancy. He chairs the committee of the CF Foundations that oversees the CF Registry database and is co-executive director of the Cystic Fibrosis Therapeutics Development Network, the largest CF clinical trials network in the world. Goss has brought together researchers from academia and industry to design trials of therapeutic interventions. His research has recently focused on helping those with CF recognize when they are entering an exacerbation of the disease and aiding clinicians in providing early treatment. Goss has mentored many young physicians and lectures around the world to help clinicians keep up with CF developments.

Distinguished Service

Clara Winter, MD ’66, a retired anesthesiologist specializing in obstetrics and gynecology, served on the alumni association board for eight years, was vice president from 2003-09, then served as president from 2009-11. Winter was president of the Arapahoe County Medical Society from 2001-02, and for three years served on the Colorado Medical Society Board as a delegate from Arapahoe County. She remains an advocate for the Medical Alumni Association and continues to support students through the Stethoscope Fund and other scholarship programs.

Randall Prust, MD ’82, founder of Rincon Pain Management in Tucson and Oro Valley, Ariz., in 1991, has worked to improve pain management options throughout his career. Having published several articles in medical and scientific journals, Prust, an anesthesiologist, and his wife wrote the book Conquering Pain, a guide for non-medical professionals dealing with debilitating pain. At El Dorado Hospital in Tucson, Dr. Prust has chaired numerous committees and was chief of staff. Since 2011, Prust has been medical director of the Tucson Surgery Center & Center for Pain Management.

Humanitarian

Warren Johnson, MD ’79, began his career by providing care to migrant workers and other low-income families in the Salud Family Health Centers system. He has since served patients in the U.S. and abroad and is co-director of physicians for Cape CARES, which provides medical and dental services to people in Honduras. He serves on the board of trustees for The Colorado Trust, and has helped to establish a scholarship for under-represented students at the CU School of Medicine. At his practice, Owl Creek Medical in Brighton, he participates in Reach Out and Read, which donates books to children. He has mentored students from multiple health care professions. Johnson provides sports physicals at no charge to local high school athletes, and teaches safety and reproductive development to adolescents.

Randall Rottman, MD ’85, balances his ophthalmology practice in Grand Junction with trips to Central and South America and the Dominican Republic, where he provides vision care for children and adults. Rottman served as president of the nonprofit organization Vision Health International (VHI) from 2005-15, delivering medical, surgical and educational vision health care services in Latin America. Through VHI, Rottman has traveled to about 37 field programs and performed roughly
1,400 surgeries. Since 1992 Rottman has served as a preceptor and lecturer for the Family Medicine residency program at St. Mary’s Hospital and Regional Medical Center in Grand Junction.

Alumni Weekend: Honoring the class of 1966

The CU School of Medicine Alumni Association hosted hundreds of alumni and friends on the Anschutz Medical Campus for the 2016 Alumni Weekend. The Class of 1966 celebrated its 50th Class Reunion, and the association honored alumni and scholarship recipients at the 2016 Silver & Gold Alumni Banquet. Alumni engagement is an essential part of the school’s legacy, and we thank everyone for their support and participation.

All Alumni Weekend

Save The Date: The CU School of Medicine will host its first All Alumni Weekend on May 25-28, 2017. Class Reunion dinners will be scheduled for those classes ending in a 2 or 7, but all CU School of Medicine alumni including past residents, interns, fellows and faculty will be invited to attend other events. We hope to CU then!

For more information, visit medschool.ucdenver.edu/reunion or call 303.724.2518.
Evenings were the hardest time.

At his orthopedic practice in Truckee, Calif., Bill Krissoff, MD, could immerse himself in his patients’ injuries. But thoughts of his son, Nate, were never far away.

Nate Krissoff, a musician and athlete with a love of poetry, enlisted in the Marine Corps after the attacks of Sept. 11, 2001. In December 2006, three months after arriving in Fallujah, Iraq, he was killed by a roadside bomb.

“I didn't have problems operating or seeing patients, as I thought I might,” Bill Krissoff says. “But time in the evening was tough for both my wife and me. Things quiet down and you have the chance to feel the loss.”

The disconnect crystalized one day when a patient came in with a common complaint: a knee injury that was hindering his enjoyment of running.

“He said he couldn't run a full marathon – only 22 miles … We talked quite a while, but when I finished seeing him I thought ‘This just really isn't that important in the great spectrum of things.'”

At that moment, the path to a late-life Navy career began.

Krissoff, a 1972 graduate of CU School of Medicine who was recognized in May by the CU School of Medicine Alumni Office with the Silver & Gold Award, considered other options like international aid work and public health, but his career change became clear on a hike near Tahoe with Lt. Col. William Seely, Nate’s commanding officer in Iraq, who was touring the country visiting families of those killed under his command.

Krissoff asked about medical care for Marines on deployment, and Seely told him about the Navy battalion surgeons who are always with the troops.

“I thought that was what I wanted to do – a Navy doc caring for Marines in combat,” Krissoff says.

A second visit, this one from then President George W. Bush in August 2007, got the wheels moving. Krissoff had already talked to a Navy recruiter, who told him that he would need an age waiver to enlist and that would be unlikely at his age – 60.

So when Krissoff, his wife, Christine, and younger son and Marine officer, Austin, were invited to meet with the president, who was visiting families of the fallen, he decided to make his move.

“At the end of the meeting he asked if he could do anything for the families. I was the last to speak and I told him I wanted to join the Navy Medical Corps, but I had been told I was too old.

“He looked right at my wife and asked what she thought. He clearly did not want to get into the middle of this. He also asked Austin, who was visiting from Camp Pendleton. Austin was a little skeptical but he thought his dad would probably do fine.”

Bush said he would see what he could do. Two days later the Navy recruiter called.

“He was kind of laughing and said he had my age waiver.”

Interviews and background checks flew by and on Nov. 17, 2007, a little less than a year after his son was killed, Krissoff was commissioned a lieutenant commander in the Navy Medical Corps.

To Iraq, Afghanistan

What would compel a 61-year-old civilian physician to walk away from a thriving orthopedic practice in a beautiful part of the country to join the Navy?

“I think in most families Dad inspires sons,” Krissoff says. “In our case, sons have inspired Dad. I was ready to put on a uniform and serve.”

Put simply, he says, he wanted to take care of injured Marines, sailors and soldiers.

“My son Austin and I decided we were going to complete Nate’s unfinished work,” he says.

His family understood, as did a couple of close friends. A fellow physician and Navy veteran cautioned against it. (“He told me I was crazy. Absolutely nuts.”)

But an interesting thing happened during his training and deployments. He kept running into Nate - by way of those who knew him.

The trend started in Okinawa. Nate had trained at Camp Schwab. Krissoff was stationed nearby, so he stopped in, hoping to find people who
knew his son.

He did. And, bonus, others knew Austin.

“It was very ironic that my training took me there. How unlikely was that? The chances of that happening are virtually nil.”

It kept happening. Krissoff was deployed near in Fallujah in February 2009 at the same time as Austin, who put his dad in touch with Marines who’d known Nate.

A deployment to Afghanistan in February 2010 repeated the pattern.

“I wouldn’t go a week in the chow hall without someone seeing my name tag and telling me he was deployed with Nate or Austin. They always wanted to share something about one of them that stuck with them. What they remembered about training, what music they liked. Nate had a good secret life he didn’t tell Mom and Dad about – his nights out on the town with other Marines. I heard a small portion of that.”

Krissoff knew Marines were tight, but now he was part of their family.

“I didn’t have to explain myself to Navy doctors or the Marines I worked with. They were just happy to have me on board. I was never marginalized.”

He felt closer to Nate, knowing that he was sharing many similar deployment experiences. The seven-month tour in Afghanistan was intense – Krissoff was primary surgeon or assistant on 225 trauma surgeries.

“We just did not stop. We worked. Then we ate and slept and worked some more. We were totally focused on taking care of Marines and Afghans. We took whoever came.

“It was the most rewarding time in my orthopedic career.”

Krissoff was 67 when his age waiver ran out. Promoted to commander, he was offered another deployment, but six years seemed like enough.

“I certainly did not expect to be that active in orthopedic surgery well into my 60s. But I wouldn’t trade it for anything. It was an honor and privilege to serve.”

Now 70 years old and retired, he is doing the things he has always enjoyed – reading, skiing, traveling and kayaking. But he spends time with Marines, too. The day after an interview for this story in late July he planned to go on a rafting trip down the Grand Canyon with injured Marines.

He has fielded several calls from older physicians who want to join the military. He is encouraging but makes sure they understand what they’re getting into.

“If you deploy, the physical challenges are significant. You’re not just doing medicine. You are living in an austere environment. I slept for months on a cot in a tent with nine other surgeons. It’s not for everyone. There’s nothing normal about deployment.

“I think that’s what my Navy colleague was thinking when he discouraged me. He wanted to make sure I really understood deployment medicine. You might like the outdoors but this is entirely different.”

In an interview for a civilian publication, a reporter asked Krissoff if he was seeking closure through enlisting.

“Actually, closure is really for those who have never lost a son or a daughter. That’s a cliché. It doesn’t have anything to do with reality. Losing a child means your family is changed forever.”
Before I was a medical student, I was a student of public health. In some ways, I believe this is how all medical students should start their careers—learning what happens before our patients show up at the hospital.

For four years, I studied epidemiology during the day and knocked on doors in public housing units during the evening. I spent hours interviewing residents about their home environments and how that environment affected their health.

Each participant shared a unique story filled with family, diverse languages, and all too often trials of having a chronic disease. The everyday obstacles that my participants had to overcome just to get to work, feed their children, or take care of their chronic disease were immense and taught me how important patients’ resources outside of the hospital were to their health.

When I started medical school, I knew I was interested in oncology but was determined to never forget the lessons I learned in public health. Last fall, when I met Adam Green, MD, a pediatric oncologist with Children’s Hospital Colorado, he described how disease disparities driven by social factors such as race/ethnicity, insurance status, and language are a major concern in oncology, and I knew I wanted to understand more.

To date, researchers have documented numerous disparities in cancer. African-American women have a higher incidence of a highly aggressive form of breast cancer, and African-American men have a higher incidence and risk of mortality from prostate cancer. Both Latina and African-American women are more likely to contract and die from cervical cancer. Because cancer is the second leading cause of death in the United States and is expected to surpass cardiovascular mortality in the near future, I feel that we have a moral imperative to understand what is driving these disparities.

Adolescents and young adults are particularly vulnerable to socioeconomic-driven disparities. Dr. Green and I were curious whether the disparities seen in older adults with cancer were persistent in this population. Using the Surveillance, Epidemiologic, and End Result (SEER) database, we explored differences in survival between different racial/ethnic groups and types of insurance coverage.

We found racial/ethnic disparities in survival among adolescents and young adults in many cancer types. These disparities were partially, but not fully, explained by differences in insurance status and stage of cancer at presentation, suggesting influences of both socioeconomic status and tumor biology on the diagnostic and treatment processes. Insurance status was independently associated with increased risk of death in many cancer types, further suggesting the influence of socioeconomics on poor survival outcomes.

It is difficult to address disparities in cancer because a multitude of factors, including access to care, environmental exposures, health behaviors, trust in the medical system, social support networks, and biology, drive the observed variability in cancer survival. What we do know, however, is that the cumulative effect of these stressors lead to lower survival rates among certain populations.

This June, I presented our findings to the 2016 American Society of Clinical Oncology (ASCO) conference in Chicago. There are advances being made in targeted molecular therapies, immunotherapy, and cell therapies. But throughout the conference, I kept thinking we have a duty to ensure that these advances in oncology technology are met with advances in support for vulnerable patients.

I have a lot to learn about oncology and a lot to learn about patient care, but it is my hope to combine my interests in the fascinating field of oncology with my desire to promote health equity.

Meryl Colton, MS, is an MD candidate in the Class of 2019.
How Doctors Die

By Dan Matlock, MD, MPH, and Stacy Fischer, MD

In 2012, family physician Ken Murray, MD, published a moving essay describing a physician friend’s decision to forgo chemotherapy for his cancer and enroll immediately into hospice care. Murray said his friend’s story showed that doctors generally choose such paths in the face of their own mortality.

As physicians, we found his essay powerful and compelling. As researchers, however, we realized this was a testable hypothesis and we started thinking about how to answer the question: Do doctors die differently than non-doctors?

In the months that followed Murray’s essay, the narrative that doctors “die differently” seemed to solidify as reputable news outlets including National Public Radio, Radiolab, and The New York Times proclaimed it as truth. Such reports fueled our passion to find a way to determine if it was actually true.

The most difficult part of our study was finding a large dataset linking occupation to health care utilization. We spent nearly two years exploring potential datasets from Kaiser, Group Health, and the Health and Retirement Study. All included occupation, but each one had too few physicians to perform the type of analysis we needed.

The American Medical Association (AMA) keeps a dataset of physicians’ addresses for marketing purposes. We learned that the group also keeps a dataset of deceased physicians, so we bought it and worked with the vendors of Medicare data to create a de-identified dataset connecting physicians with their health care use.

From that information, comparing outcomes specifically related to care at the end of life between the physicians and a random sample of non-physicians was relatively straightforward. We examined data from 9,947 deceased physicians and a random sample of 192,006 non-physicians between 2008 and 2010.

We were interested in utilization outcomes related to quality of death. Specifically, we looked at hospital, ICU, and hospice admissions and lengths of stay.

For the last six months of life and also in the final month of life, the proportion of physicians and non-physicians admitted the hospital and the ICU was essentially equivalent. The mean number of days spent in the hospital was the same for physicians and non-physicians, but the length of stay in the ICU was slightly longer for doctors. The big differences we hypothesized finding were not there.

We did find small differences in hospice care. Our data showed that 46.4 percent of physicians compared to 43.2 percent of non-physicians had enrolled in hospice care for the last six months of life. Doctors used hospice an average of 2.4 days longer than others.

These results surprised us. We were left wondering why our findings conflicted with the prior evidence demonstrating that physicians prefer less-aggressive care.

First, we considered whether it was generational; many of the physicians in our sample trained and practiced medicine at a time before hospice, palliative care, or the technological revolution of medicine.

Second, fear and avoidance of dying are strong motivators of much of human behavior, and physicians, being human, obviously are not immune to those motivations.

Third, and perhaps most troubling, is that the health care system, and not patients or providers, may be driving much of the low-value care at the end of life.

The recent Institute of Medicine report on “Dying in America” highlights the limitations of the fee-for-service Medicare reimbursement structure that provides incentives for procedures while providing minimal coverage for the high-value supportive services patients and families commonly need. Thus, the system has evolved to favor hospital-based interventions.

While we like to think of ourselves as autonomous masters of our own destiny, our results make us wonder if forces beyond our control drive much of what we see in medical care in the last months of life.

The Ruth Fuller, MD, Fund in Psychiatry, organized through the vision of Bonnie Camp, MD, celebrates the pioneering spirit and accomplished career of Dr. Ruth Fuller, who inspired African American women by challenging the status quo and advocating for diversity in health care. The fund will support lectures focusing on cultural competency, inclusivity and diversity in medicine.

Learn more about Dr. Fuller and the Ruth Fuller Fund in Psychiatry:

supportcuanschutz.ucdenver.edu/fuller

“It is important to demonstrate the accomplishments of culturally diverse researchers and practitioners in health care.”

— Bonnie Camp, MD ('65)