Research Reflections
Gerald Dodd III, MD, Leads New Center for Imaging
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EVERY PICTURE TELLS A STORY
New research center at the School of Medicine reveals the body's hidden inner workings. Page 14
Cover photo and left by Casey Cass.

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Planning to stay strong

Throughout this past year's strategic-planning process, we have looked at ways to build on our successes and position the School of Medicine to remain healthy for years to come. I have been impressed by and grateful for our faculty and staff commitment to this process.

We start strong.

We have a practice plan, University Physicians, Inc. (UPI), that supports the clinical practice of our School of Medicine faculty and has contributed greatly to our ability to care for patients. It provides a solid foundation of funding for the school.

We have an excellent partnership with a vital and growing health care organization, the University of Colorado Health System. Along with Children's Hospital of Colorado, it provides crucial support for our efforts to expand our clinical breadth, learning opportunities for our students, and teaching and research opportunities for our faculty.

We are the guardians of an education program that ranks among the best in the country and attracts high-achieving students. This year's matriculating class of 160 students pursuing MDs brought an average GPA of 3.88 and an average MCAT score of 32.

So where do we go from here?

We will always look for ways to use the resources we have wisely. We are reviewing the departmental structure of our basic science programs to assure we are set up to achieve our highly competitive goals in the future and that we have the optimal support for the dedicated scientists working here. We also must have a governing structure for UPI that is prepared for the changes in health care reimbursement.

Everything we do must protect the school, which is an invaluable resource to our community, and we will continue to make remarkable progress even while facing unexpected challenges.

This past summer, the top two leaders of the University of Colorado Health System announced that they will be leaving. CEO Bruce Schroffel and President Rulon Stacey helped create the vibrant hospital system that is our partner in providing excellent clinical care and educational opportunity. We thank them for their enduring contribution to the health and welfare of our school and our state.

The School of Medicine has experienced uncommon growth during trying economic times. I am confident that we will continue our progress with small steps and big leaps. We hope that those of you who graduated in classes ending in years with a 4 or a 9 will celebrate our progress by joining us on campus for reunions next May. It is not too soon to plan a visit during the extended Memorial Day weekend.

With warm regards,

Richard D. Krugman, MD
Dean, School of Medicine
Vice Chancellor for Health Affairs
University of Colorado
Daniel H. Bessesen, MD, professor of medicine, told the Los Angeles Times in June that the American Medical Association’s decision to declare obesity a disease was a “double-edged sword.” While it reflects “a growing awareness that obesity is not someone’s fault,” he says, “the term disease is stigmatizing, and people who are obese don’t need more stigmatizing.”

Richard Zane, MD, chairman of emergency medicine, explained to The Denver Post that the University of Colorado Hospital’s new emergency room is designed to reduce waiting times by bringing patients directly to care providers: “What we have done may be novel in medicine, but it’s standard industry practice everywhere else.”

Iñigo San Millán, PhD, director of the Human Performance Laboratory, talked with The Denver Post in August about working with the CU football team to improve training. “Football has historically been a very old-school sport,” he says. “Not much evolved in the last decade as far as physical training. Where other sports are evolving, we take from other sports and tailor it for football.”

Stephen Daniels, MD, PhD, chairman of pediatrics, told NBC News in July that children are at risk of heart disease, strokes and other serious health problems due to their diets. “Kids eat far too much sodium,” he says. “And they aren’t adding it at the table, and their parents aren’t putting it into food; they’re getting it through processed foods.”

David Kao, MD, fellow in the Division of Cardiology, told United Press International that patients hospitalized for heart failure appear to have better odds of survival if they’re admitted on Mondays or in the morning. “The fact that patients admitted right before the weekend and in the middle of the night do worse and are in the hospital longer suggests that staffing levels may contribute to the findings,” he says. Kao presented his analysis of 1 million heart-failure admissions over a 14-year period at a May meeting of the Heart Failure Association of the European Society of Cardiology.

Catherine Lozupone, PhD, assistant professor of medicine, gained attention in The New York Times Sunday magazine in May for research she and other scientists are doing to understand the microbiome—the genes of microbial species inside the human body. “Rural people spend a lot more time outside and have much more contact with plants and with soil,” she says, explaining differences between the microbiomes of Americans and rural Africans and Amerindians.

In September, Michelle Barron, MD, associate professor in the Division of Infectious Diseases, told the Aurora Sentinel that she hoped more people would get flu shots this year: “There were more flu cases in general last year, and immunization rates were down last year.”

Marian “Emmy” Betz, MD, assistant professor of emergency medicine, discussed older drivers in a June article of The Denver Post. “We did a study that found that older drivers are open to the idea of preventive conversations, starting at age 65,” she says. “It’s not just about taking the keys. It’s about making plans. We should be planning for driving retirement, just as we plan for retirement living.”

Eric Coleman, MD, MPH, associate professor of medicine, commented in June for Reuters regarding the Care Transitions Intervention program that aims to reduce hospital readmissions. “Patients get confused,” he says. “They get home and all the pill bottles from before their hospitalization are still there. They need a system for sorting through it.”

Mark Deutchman, MD, professor of family medicine and director of the Rural Track Program, was quoted in a Cortez Journal article that was about aspiring physicians and other health care professionals from the Anschutz Medical Campus spending a week in June in rural communities: “We have an abundance of people who are interested in the program. We even now have people applying to our medical school because of the Rural Track Program.”
In August Richard Johnson, MD, professor of medicine, discussed with National Geographic the consequences of increased sugar consumption. “Why is it that one-third of adults [worldwide] have high blood pressure, when in 1900 only 5 percent had high blood pressure?” he asks. “Why did 153 million people have diabetes in 1980, and now we’re up to 347 million? Why are more and more Americans obese? Sugar, we believe, is one of the culprits, if not the major culprit.”

Lawrence Hunter, PhD, professor of pharmacology, was quoted in the Smithsonian.com blog “Paleofuture” in May. The blog excavated and quoted an article Hunter wrote for the January 1985 Whole Earth Review magazine about the future of privacy: “The ubiquity and power of the computer blur the distinction between public and private information. Our revolution will not be in gathering data—don’t look for TV cameras in your bedroom—but in analyzing information that is already willingly shared.”

George Wang, MD, clinical instructor in pediatrics, discussed his study of children in Colorado treated for exposure to marijuana-laced cookies, candies, brownies and beverages. “We’re in this new age of allowing marijuana and we are seeing things we haven’t seen before,” he tells Time magazine, discussing his study, which was published in the Journal of the American Medical Association Pediatrics. “We need to educate families to keep it out of the reach of kids. Treat it like a drug because it is a drug.”

On ABC News in August, Holly Wyatt, MD, clinical researcher at the Center for Human Nutrition, explained that there is no single perfect diet for everyone: “In reality there’s lots of data to show there probably isn’t one single diet that is best for weight loss or anything else. The best hope of losing weight is finding a diet you can live with and then committing to it long term.”

Christopher Hoyte, MD, assistant professor of emergency medicine, explained the effects of taking LSD, for a Boulder Daily Camera article about a man who reported taking the drug before stabbing another teen to death. “Typically it makes people hallucinate and see things that aren’t there,” he says. “Not only does it scare them, but they might also feel empowered that they can do something about that, and they think they’re doing a good deed but end up hurting someone. They have an exaggerated response to it, and it can also alter the way that you respond to an object you have seen a thousand times.”

In The New York Times in June, Amanda Dempsey, MD, PhD, MPH visiting professor of pediatrics, discussed parental resistance to giving their child the vaccine to prevent the human papillomavirus, the most common sexually transmitted infection in the United States and a principal cause of cervical cancer. “For a lot of people,” she says, “there’s still a vague sense that there’s some controversy about the vaccine.”

Angela Sauaia, MD, PhD, associate professor of public health, medicine, and surgery at the University of Colorado Schools of Public Health and Medicine, explained to CNN a study she led on gun injuries to children that found 14 percent of the cases involved children getting access to unlocked, loaded guns. “No matter what side you are on in the gun debate,” she says, “I’ve never met a person that believes kids should have easy access to guns.”
Janine Higgins, PhD, associate professor of pediatrics, runs the Nutrition Core for the Colorado Clinical Translational Sciences Institute (CCTSI) and has been a key partner in the effort to provide healthy, tasty and affordable food in the cafeteria of Children’s Hospital Colorado.

Higgins earned her PhD in biochemistry at the University of Sydney in 1995 and moved to Colorado to “broaden her horizons.” She joined the University of Colorado School of Medicine in 1999, conducting research on carbohydrates and metabolism rates.

As the nutrition director for CCTSI, Higgins oversees a team that provides support for others conducting research in the School of Medicine. Her team helps implement protocols for research experiments, dispenses metabolic diets to patients, and assesses the dietary intake and physical activity of research subjects.

Higgins and her team donate their time to an effort called the Healthy Hospital Initiative.

Q: What is the Healthy Hospital Initiative?
A: The Healthy Hospital Initiative is a program at Children’s Hospital that aims to improve the health and wellness of patients, their families, visitors and staff. We’re looking at people in terms of their physical, emotional and mental health.

Q: Where do the guidelines come from?
A: The nutrition guidelines are from the Centers for Disease Control. Some of the guidelines, like reducing or eliminating sugar-sweetened beverages, come from the national Children’s Hospital Association.

Q: Eliminating sugar-sweetened beverages seems to be a big reach. Tell me about that process.
A: The initial step was the placement of water from the back of the cafeteria to the point of sale, right near the cash registers and placing water bottles in all the vending machines at eye level. That increased water sales. Over time, we’ve increased water sales and we’ve reduced sales of sugar-sweetened beverages by putting those beverages much lower down in all the machines and having more diet options available. A lot of vending machine operators didn’t want to put diet sodas in the machines because they said it wouldn’t sell. So we insisted. In terms of eliminating sugar-sweetened beverages, some children’s hospitals around the nation have already done that.

Q: You’re serving a broad population, not just the employees of the hospital. You’re serving the patients and their families and anybody else on campus. Does that make it harder to implement the Healthy Hospitals Initiative?
A: What we did from the CCTSI Nutrition...
Core was donate use of our time. We have the most advanced software for calculating calories and the macro and micronutrients in food—much more than would be available clinically. We had an intern for 11 weeks in 2012 and she spent all 11 weeks entering every food that's offered in the cafeteria into our database and coming up with calories, fat, protein, fiber, sodium and saturated fat.

Q: What kind of food is served?
A: We used to have a pasta station in the cafeteria and it was renamed the Light Side Bistro, which is where you can get a meal every day that meets or exceeds the CDC guidelines. Before we got involved, it started off being all salads and rice and pasta dishes.

It was basically a very iterative process that looks at what sells, making sure we get a big range of proteins, of cuisines from around the world. We've got Moroccan food; we've got Middle Eastern; we've got Asian; we've got American classics, turkey sloppy Joes; and we also added a soup to our soup bar each day that is a light and healthy soup.

One of the items we have is a salmon po' boy; and getting Cajun seasoning on a piece of salmon with no sodium and having a lot of taste is hard, but you know what? One of my staff made it work. We want to give people the freedom to say I can eat all of the things that I like, modify them a little bit and have really healthy, tasty options.

In fact one of the best comments I have gotten is an email from someone saying, “I had that Thai-mango chicken from the Light Side today and it was so good that I thought I was eating something naughty.” That's what we want people to think.

Q: What if I don't see any dots?
A: It's probably red. The french fries and onion rings are red. They don't have dots.

Q: Why not just eliminate the unhealthier options?
A: At the end of the day, we’re a hospital. We are not a regular workplace. There are people here who are sick. There are children who are critically ill who have families who may need comfort food at that time. We have children here who are in recovery after surgery, who have complications, who aren’t eating very much and don’t have good appetites, and that day, they might feel like french fries.

The Healthy Hospital Initiative isn't about telling you what food you have to eat. It's about your physical, mental and spiritual well-being. And sometimes for your mental and spiritual well-being, when you're in a very emotionally tough situation in a hospital, you might need something that we wouldn't consider a green-dot food. And that's OK.

Q: You and your team volunteered for this effort. How does this all tie back to what you get paid to do for the university?
A: The CCTSI's mission is to facilitate clinical research, and speed the translation from bench to bedside. We educate and train future scientists and physicians, but we also take these ideals of health and what we learn in our clinical research out into the community. We are being good citizens to Children's Hospital. We work here. We want this to be the healthiest, best place for everybody to work.
Seventeen years after he had a liver transplant, Jon Zeschin got sick.

For 36 hours, he couldn’t keep anything down, not even water. Finally, he went to the Emergency Department (ED) at the University of Colorado Hospital early on a Saturday morning.

To Zeschin’s amazement, within one hour, Igal Kam, MD, chief of the Division of Transplant Surgery and the same physician who had performed his transplant surgery nearly two decades earlier, walked into the room.

“The first thing he said was, ‘Why didn’t you call me when you were sick?’” Zeschin says.

As a group of physicians filled the small ED room to discuss Zeschin’s case, Kam took the lead. “With his hand, he found one spot on my belly and pushed hard on it,” Zeschin says. “Then he said ‘We’re done’ and walked out of the room. The entire medical team stared after him with a look that said ‘What was that?’”

Eventually, Zeschin would need surgery to repair a hernia, but on that morning, Kam gave him immediate relief with his bare hands.

For everyone involved, the experience was a classic example of how Kam has run the Transplant Program for the past 25 years.

“Organ transplant is a commitment,” Kam says. “It’s only five or six hours in a patient’s life, but it’s a contract for life between us and the patients. Any time in your life after the transplant, if we can help you, we will try.”

For Kam, transplant surgery is “some kind of addiction. It’s hard to live with it and impossible to live without.”

His career path began in 1982 when, as a young resident in general and vascular surgery in Haifa, Israel, he found himself caring for casualties on both sides of a war between Israel and Lebanon. Some of the patients needed liver surgery.

“People were dying,” he says. “Somebody needed to go learn major liver surgery.”

So Kam went to Pittsburgh to study under Thomas Starzl, MD, who had recently left Colorado General Hospital (now University of Colorado Hospital), where he had pioneered kidney and liver transplants during his 19-year tenure.

Under Starzl in Pittsburgh, Kam was the right person in the right place at the right time. As Starzl built Pittsburgh’s transplant program (his team did 200 liver transplants in 1984), Kam found himself increasingly excited by the possibilities of the field. “It was a huge experience for me,” he says. “I couldn’t go back to general surgery.”

After brief stopovers in Brazil and back in Israel, Kam was recruited by the University of Colorado Hospital in 1988. The Transplant Program had closed down when Starzl left, and Kam would be starting over, so he hesitated before finally agreeing to resurrect the program.

“I like to take challenges,” he says.

Kam was eight years into his quarter century at the Transplant Program when Zeschin became his patient. As a 43-year-old who had lived with autoimmune hepatitis for nearly 20 years, Zeschin knew that it was not a matter of if he would need a liver transplant, but when.

As the disease progressed, Zeschin, who lived in Colorado, considered four transplant centers of excellence around the country. Then he consulted with the Chicago physician who had treated him for many years. “He said to me, ‘Assuming you make it to the transplant, you want a place that has done a lot of these,’” Zeschin says. “University (of Colorado) Hospital is right there. It has everything you need.”

Zeschin still remembers what he calls the “moment of truth” during the pre-transplant psychiatric evaluation, when the interviewer asked if he understood what would happen if he didn’t get a transplant. “I said, ‘Yes, I know I will die,’” Zeschin says. “When you have to spit that out, you know this is it. This is your shot.”

When Zeschin met Kam he knew he was in the right hands. “He is a take-charge guy, and that inspires confidence.”

In the past 25 years, Kam has reinvented the university’s Transplant Program, transplanting some 1,800 livers, 3,000 kidneys and 150 pancreases. He performed the first “adult to adult” live donor liver transplant in the western world. One-year survival rates after liver transplants stand at 85 percent nationally; at the University of Colorado they are 90 percent.

Kam wants to see the program continue to grow, and he describes himself as someone who is “still learning, trying to push the envelope.”

Sitting in his spacious Anschutz Medical Campus office, with its panoramic view of the Front Range, Kam remembers that he started at the old Ninth and Colorado campus, sharing a
desk with a secretary.

“What I learned is that no one would hand anything to us on a silver tray,” he says. “We had to push, push, push to achieve recognition and grow. We had to convince the university, the hospital and the medical school to understand the need, take the challenge and support our success.”

On a warm July morning, Kam has come straight out of the operating room, and he is still wearing surgical scrubs. He barely has time to exhale before a loud rendition of the theme from “The Good, the Bad and the Ugly” makes further conversation impossible. Kam pulls out his mobile phone, answers the call and for the next several minutes he mostly listens. Occasionally, he interrupts with a brief comment or question.

“I don’t know enough about this donor.”

“What more can you tell me?”

After the conversation ends, he offers an explanation: “I didn’t say no to the organs, because I don’t want to miss an opportunity. But we can’t accept bad organs, and we don’t.”

Asked about his ringtone, he smiles. “I like [‘The Good, the Bad and the Ugly’] as a sound,” he says. “With transplants, you need something that will wake you up at night.”

Kam is quick to point out that he is not the only person who is getting up in the middle of the night to handle the 24/7 demands of transplant surgery. As director of the Transplant Program, he heads a team that includes transplant surgeons, operating room and intensive care unit nurses, nephrologists, hepatologists, anesthesiologists, pathologists, radiologists, transplant coordinators, social workers, psychologists, financial counselors and support staff.

“I’m blessed with an excellent team, a stable team,” Kam says. “That’s why we’re so successful.”

Zeschin attributes his great transplant experience to the transplant team. “Transplants don’t just help people survive for a few more years,” he says. “There’s no reason people can’t live for another 30 to 40 years. [The university] has put together a team that supports that.”

Other surgical procedures may become less invasive in the future with the use of laparoscopic techniques, but Kam does not see the basics of liver and kidney transplant surgery changing. He does anticipate there will be technical improvements, though.

“That’s part of our job,” he says. “We don’t take for granted anything we do just because it is the way we were taught to do it. That’s how we got to where we are today with transplants.”

While he watches bioengineers research the possibilities for organs to be created by 3-D printers, Kam lobbies for more attention to organ donation so that patients won’t die on the waiting list. He floats the idea that families of donors should receive some kind of social support.

“I’m not talking about money on the table,” he says. “But if a family loses the main money-maker and donates organs, couldn’t society do something for them?”

Then, “The Good, the Bad and the Ugly” rings again, and Igal Kam is back in the world he loves—talking about a donor who made the decision to help someone in need and a patient waiting for a second chance.
Every few weeks Chris Filley, MD, trades his suit and reflex hammer for jeans and a tip jar, playing piano for the Sunday brunch crowd under a canopy of twinkling lights at a hip Denver eatery.

Playing a set that skips centuries seamlessly, bopping from Bach to the Beatles before mo- seying on to Miles Davis, few know that Filley is a practitioner of behavioral neurology.

“Music is a product of the brain just like any other behavior,” he says.

An intricate dance of sight and sound meeting motor skills, making music is a tangle of movement controlled by the brain. But, for Filley, there’s far more to know about how the brain is organized to produce those sounds.

Classical music, with its strict, predictable sequences engages the dorsolateral prefrontal cortex of the brain, which controls planning, organizing and regulating. Jazz, with its riffing and improvising, relies more on the medial frontal cortex responsible for functions such as stimulus-independent thought and spontaneity.

“In the early 1970s, while at Williams College in Massachusetts, he played in a band. Those were heady times for Filley and the nation. He considered becoming a journalist, a teacher, a musician. But his father’s influence echoed; he chose medicine, figuring he could help more people in that profession. While at Johns Hopkins School of Medicine, Filley considered internal medicine before pursuing neurology. “How does the brain allow us to be human?” he wondered.

He returned to CU for his neurology residency, and then went to Boston for a fellowship in behavioral neurology. He joined the School of Medicine faculty in 1984.

As a second-year medical student, Benzi Kluger, MD, looked to Filley as a mentor and for inspiration. He found a kindred spirit also.

Kluger, now an associate professor of neurology at the School of Medicine, describes Filley as a patient listener who encouraged a philosophical approach to the study of neurology and to life in general.

“He would tell me to think broadly and live broadly,” says Kluger, who plays rock guitar and bass.

Today Filley plays gigs as part of a duo with cellist Joe Green under the name Local Color. Filley met Green in the late 1970s through his older brother, who became a professional musician, and then again by chance when he was a neurology resident and Green was a patient with multiple sclerosis. Later, Green introduced Filley to jazz, thus opening a new musical world for him. Local Color’s sets include a blend of classical, rock, jazz and some original compositions.

Like medicine, music has logic, Filley says. And like music, medicine can encourage creativity.

“Either one is great by itself,” he says, “but together they are all the more fascinating.”
Building a Better Drug Test

Anschutz Medical Campus startup plans to keep business at home

By Vicki Hildner

The brick building on the east end of the Anschutz Medical Campus offers few clues that it houses a startup operation that could bring millions of dollars back to the university.

Inside Bioscience East, the iC42 laboratory, an extension of the Department of Anesthesiology, is churning out detailed drug-test results that make the venture “a game-changer in the field,” according to its co-director Jeffrey Galinkin, MD.

That’s a bold claim, but iC42 is doing something nobody else is: checking in a single test for the presence of more than 100 drugs, even at trace levels. Traditional screenings typically monitor five or six drugs at higher concentrations and require follow-ups to recheck inconclusive results.

The team at iC42 leapt onto a high-stakes field of drug testing in response to the needs of a colleague.

Iñigo San Millán, PhD, director of the Human Performance Laboratory at the Anschutz Health and Wellness Center, trains some of the world’s elite athletes, including Tour de France podium finishers. San Millán works to ensure athletes are not exposed to performance enhancing drugs, but testing for 120 illegal substances can mean 20 separate tests—a difficult, expensive and time-consuming proposition.

When Jose Melendez, MD, and Uwe Christians, MD, PhD, heard about San Millán’s need, they offered iC42’s mass spectrometer as a solution. It could test for more than 100 drugs at a time with complete accuracy.

“We could prove an athlete was clean with one test,” Melendez says.

Melendez, vice chair of clinical affairs for the Department of Anesthesiology, brought motivation and focus to push the project forward within the university. Christians, director of the laboratory, provided expertise and research leadership.

But an obstacle remained: money.

In the spring of 2010, Melendez mentioned the opportunity to his neighbor, Blair Whitaker, in an over-the-fence conversation.

“They had one customer already—athletes,” says Whitaker. “They had the equipment they needed and smart people to put it to use. They just needed a little bit of capital.”

Whitaker, a venture capitalist and business strategist with 30 years’ experience, brought crucial financial support.

Galinkin saw a new market for iC42’s economically priced and accurate drug tests: pain clinics, addiction centers, and any others needing to check and monitor patient drug use.

Galinkin, an anesthesiologist at Children’s Hospital Colorado and professor at the School of Medicine, and Whitaker spent the first half of 2011 studying the market potential and perfecting the test.

By June 2011, iC42 took on its first customer, who brought 89 samples, each to be tested for 112 drugs. But the big launch revealed a big problem. The detailed tests yielded 4,000-page documents for each sample, causing the software to crash. The manufacturer of the mass spectrometer had no solution.

“We had done something novel; we had pushed the machine to its limits, and now we had the unintended consequences,” Galinkin says.

So Whitaker called on connections he had in the 1980s doing research at the University of Pennsylvania and MIT and within six months, had a team that developed software offering accessible and understandable data.

“Now, we had it all,” Whitaker says. “We had a large market for our product, the machines to do the tests, the software to produce reports and the scientific and business expertise. The project had legs.”

During 2012, the project expanded from testing hundreds to thousands of samples. Based on that growth and with the support of Tom Henthorn, MD, chair of the Department of Anesthesiology, a new venture called CU Toxicology was born in December 2012.

Whitaker believes the test will find a wide market, largely because it is priced competitively, testing for 112 drugs at the same price that clients traditionally have paid to test for five to 10 drugs.

Housed at a research university, CU Toxicology has access to research, equipment and a clinical environment that is the most active of its kind in the Rocky Mountain region. In return, this tech-transfer model returns revenue to the university.

“This is a time of diminishing revenue streams on medical campuses,” Whitaker says. “[CU Toxicology] is a new revenue stream that can only get bigger.”

With the CU brand, Whitaker and Galinkin can leverage the university’s strong reputation. The next step will be to expand with professional sales and marketing. Whitaker dreams big—he imagines CU Toxicology in its own building on the Anschutz Medical Campus, a billion-dollar entity within the School of Medicine, employing thousands of people.

“This is a new model for tech-transfer success,” Whitaker says. “It combines an academically driven business with an innovative and in-demand clinical product. We believe it will also be a great model for business growth within the university.”
The best part of Brian Burne's job is when he sees a child with disabilities show some independence.

"I love it when a parent says 'He won't mind me,'" Burne, MSM, OTR, says. "We're thinking, 'Yay!'"

Helping children with disabilities gain enough independence to make choices—even if questionable ones—is the mission of therapists at two University of Colorado School of Medicine Assistive Technology Partners (ATP) programs.

Tech for Tykes, funded by the Colorado Department of Human Services, helps children up to age 3. StateWide Assistive Technology, Augmentative and Alternative Communication, funded by the Colorado Department of Education, picks up through age 17. Teams of therapists working out of clinics in Denver, Colorado Springs and Grand Junction include speech language pathologists, occupational therapists, physical therapists, special educators, psychologists and para-professionals. And ATP has trained 50 others around the state to serve as consultants.

Success stories abound: ATP's newsletters highlight several including a 3-year-old girl with cerebral palsy who went from sleeping just three hours a night to 11 hours because ATP therapists helped fit her for a specialized bed.

"She is happier during the day, she is more communicative and is showing better head control when sitting," the article notes. "Her mother feels that her attention span has improved and she is showing better cognitive endurance—being able to work on games for longer, etc. She even naps during the day, which she had never done before!"

A common referral, says Burne, ATP's Early Intervention Program coordinator, is to help kids communicate. But for children with significant physical disabilities, checking for improper alignment of wheelchairs or strollers can be the first priority.

"Imagine if you were sitting at a desk and someone came along and tipped your chair to the side 45 degrees and then said, 'OK, carry on,'" Burne says. "You can imagine that at least half of your mental energy would be used trying to keep comfortable."

That was the case when 7-year-old Hannah Metsch came to the ATP clinic near downtown Denver for her quarterly visit this summer from Kaua`i, Hawaii, where there are no assistive technology services. Diagnosed with multiple issues including cerebral palsy and intractable epilepsy, Hannah had recently been through a new neuroscience therapy called Anat Baneil Method that had worked so well she'd ‘grown’ a couple of inches and her wheelchair no longer fit quite right.

As Burne made adjustments for Hannah and talked to her mother Shana Metsch, speech therapist Shelly Elfner showed Hannah a communication device with big bright buttons that they hope will teach her to communicate such basic sentences as "I need a snack," "Let's play," and "Can I tell you something?"

"I can't say enough good stuff about them," Shana, who grew up in Boulder, says of ATP therapists. "They really use their brains. They come up with creative ideas and help me implement them. When something is failing, they tweak it and do something different. They don't give up."

Shana Metsch found ATP through a physician at Children's Hospital Colorado. She was lucky. Some pediatricians don't know about the service, so parents of children with disabilities don't learn about ATP early enough to take full advantage. Other parents resist assistive technology fearing that the devices will delay the child's development.

"There are a lot of myths out there that if we use assistive technology with a child it will interfere with normal development, and he won't be able to walk or talk. Research shows the opposite," Burne says.

"It's an issue of learned helplessness. Very quickly they learn they can't do things by themselves and that they have to rely on other people. It changes their whole social emotional makeup."
Bureaucracy can cause other delays in getting timely help.

“These kids grow in the blink of an eye. By the time [parents] convince the people that they need to convince that a device would be helpful and line up the funding and deal with all the bureaucracy and paperwork, the kid is pretty close to entering preschool. Some kids don’t get technology help until they’re close to kindergarten. That’s five years without the benefit of technology.”

That’s where ATP’s loan bank can be useful. Children receiving early intervention services are eligible to try anything in the catalogue.

“That way parents can find out if something is a good fit without buying it,” Burne says. “Buying something without trying it can be wasted money.”

Offerings vary from high-tech electronic aids, software and ergonomic equipment to lower-tech items like stuffed toys, remote control cars and bubble machines.

“It’s a cool thing when you have a child who you know has some intellectual ability but who is limited by physical or communication impairments and then you provide him with technology, and suddenly he’s able to make a decision or choice for the first time and you see the little light come on. It’s tremendous. It opens a whole new world for them.”

Shana Metsch understands. She has watched her daughter slowly improve, only to deteriorate when one of her conditions flares. But when things are going well, like they were during her appointment this summer at ATP, she sees possibilities for Hannah to gain some independence despite profound physical and intellectual challenges.

“I’ve always known there was someone in there,” she says of her daughter. “It’s just been hard to prove.”
Is Alzheimer’s disease an acquired form of Down syndrome?

That question, so provocative in 1991 when Huntington Potter, PhD, first posed it that fewer than a dozen research groups around the globe dared explore it, today is sparking renewed interest in the scientific community as evidence grows stronger that the two conditions are inextricably linked.

As the new director of Alzheimer’s disease programs on the Anschutz Medical Campus, Potter intends to lead the charge.

“There is no other place that looks at Alzheimer’s disease through the lens of Down syndrome in as specific and dedicated a way as we are going to do here,” says Potter, seated in his office at the Linda Crnic Center for Down Syndrome. “They are two sides of the same coin. By studying them together we can get better insights into both.”

Born in Beirut, Lebanon, to expat parents teaching there, Potter grew up in Washington, D.C., before heading to Harvard in 1968. He stayed for 30 years, earning a PhD in biochemistry and molecular biology before spending 13 years on the faculty.

He then headed to Tampa to spearhead the region’s first National Institute on Aging (NIA) Alzheimer’s Disease Research Center from the ground up.

In July 2012, he came to CU to help establish the new Memory and Dementia Clinic. Within three years, he hopes to put the Anschutz Medical Campus on the map as home of the first NIA-designated Alzheimer’s Center between St. Louis and San Francisco.

“Colorado has needed a center like this for decades,” he says, noting that Colorado and adjacent states host roughly 200,000 people with Alzheimer’s disease and have the fastest rate of increase in the nation.

And this center, he says, will have a research focus “unique in the world.”

Since the 1970s researchers have known that every person with Down syndrome, if they live long enough, develops the amyloid plaque and neuron-killing tangles in the brain that are the hallmark of Alzheimer’s disease.

In 1991, as a young associate professor at Harvard, Potter changed the focus and asked: Do people with Alzheimer’s develop cells in their bodies that have three copies of chromosome 21, the hallmark of Down syndrome?

“We started looking, and we found them,” he recalls. In 1999, a postdoctoral student in his lab published a seminal paper, showing that in people with typical age-related Alzheimer’s disease, 6 percent to 8 percent of skin cells contained three copies of chromosome 21. Subsequent studies have found similar results in brain cells.

“What we hypothesized and proved was that people with Alzheimer’s disease, for some reason at some point, begin to make mistakes and generate cells with three copies of chromosome 21,” he says. In a nutshell: “Alzheimer’s disease is a form of Down syndrome.”

Since then, Potter and other researchers in the Alzheimer’s and Down syndrome communities have delved in with more questions: Why would a person without the syndrome begin to generate Down syndrome-like cells? And how might an extra copy of chromosome 21 boost Alzheimer’s risk?

While more research needs to be done, some intriguing answers have emerged.

As it turns out, the gene that codes for the precursor to amyloid-beta peptide—the protein that accumulates in the brain in a gummy plaque, strangling neurons in Alzheimer’s patients—resides on chromosome 21.

With three copies of chromosome 21, and thus, an extra dose of that gene in every cell of their body, people with Down syndrome start making more amyloid earlier.

While people with Down syndrome are almost certain to develop the pathological brain changes associated with Alzheimer’s disease, those with rheumatoid arthritis tend to avoid the disease.

Scientists long assumed their reduced risk was somehow linked to the non-steroidal anti-inflammatory drugs (NSAIDs) they took for pain, but recent clinical trials have cast doubt on that theory. Meanwhile, Huntington Potter, PhD, director of Alzheimer’s disease programs for the University of Colorado, has been pursuing a different explanation with hopeful results.

“I always preferred to believe that they had an inherent protection—that maybe they were making an anti-inflammatory molecule that failed to protect them from rheumatoid arthritis, but in the end protected them from Alzheimer’s,” says Potter.

In recent years, Potter and his colleagues have identified that molecule—granulocyte macrophage colony-stimulating factor, or GM-CSF—and, through animal and laboratory studies, gotten a better sense of what it can do in the brain. “It can stimulate the bone marrow to make cells that get into the brain, eat up amyloid deposits, promote nerve cell survival and promote connections,” Potter says.
“We know that amyloid accumulates very early in the brains of infants with Down syndrome. It has even been described in the fetal brain,” says Ira Lott, MD, who directs the Down syndrome program at University of California, Irvine. He has been exploring the link between dementia and Down syndrome for 30 years. “By age 40, their brains begin to look like the brains of Alzheimer’s disease patients in the general population.”

Animal studies also have shown that the presence of amyloid-beta, or A beta, peptide can coax normal cells, when dividing to generate daughter cells, to make more mistakes in chromosome segregation.

“You have a vicious cycle where, if you make more A beta peptide you end up getting more cells with the wrong number of chromosomes,” explains Potter. “We need to know how those cells make those mistakes and develop drugs to prevent it.”

But there are other reasons to study the two diseases in concert.

Lott notes that even though 100 percent of people with Down syndrome develop Alzheimer’s-like plaques and tangles in their brains, only about 50 percent ultimately develop true signs of dementia. Why?

“It is one of the big unsolved mysteries. The answer would be of benefit to us all,” says Lott, who credits the Linda Crnic Center for being “instrumental” in forging collaboration between the two fields.

Potter hopes to learn more by conducting longitudinal trials of people with Down syndrome to explore whether differences in diet, lifestyle or environment contribute to this distinction. He also hopes to use blood tests and brain scans of volunteers with Down syndrome over time to get a better picture of the early hallmarks of Alzheimer’s disease pathology and how it progresses.

“We can study the course of the disease in a human population that is guaranteed to get it,” he says.

By joining forces with Alzheimer’s disease researchers with far deeper pockets, those studying Down syndrome will also have more resources to help improve the lives of their patients.

“It is unfair, but the reality is that there is a lot more money to study Alzheimer’s disease than to study Down syndrome,” says Potter.

Already, the Linda Crnic Center has teamed up with the Alzheimer’s Association to call for research proposals from scientists wanting to study the Alzheimer’s-Down syndrome link. The two will share the cost to fund them. And the new Memory and Dementia Clinic, headed by Jonathan Woodcock, MD, has begun seeing patients and reaching out to physicians of Down syndrome patients to let them know of the center’s unique expertise.

The ultimate goal: to prevent or stop the progression of memory loss in anyone with dementia.

“People are beginning to realize that this is important,” Potter says. “I expect there will be more and more researchers looking at Alzheimer’s disease and Down syndrome together.”

Researchers at the School of Medicine are exploring links between Alzheimer’s disease and Down syndrome. Photos by Patrick Campbell.

When his team of researchers injected the GM-CSF into the brains of mice with Alzheimer’s, it cut the amyloid plaque in half. When the compound was injected under their skin, the mice improved their scores navigating a water maze immensely.

GM-CSF has been FDA-approved and in use since 1991 as the prescription drug Leukine, which stimulates growth of white blood cells in transplant patients and in cancer patients undergoing chemotherapy. In 2009, Potter and co-researchers looked back at how chemotherapy patients fared cognitively after treatment; those who had taken GM-CSF fared far better than those who did not.

Its long-standing safety record made the next step easier.

In 2011, Potter and his colleagues at the University of South Florida Health Byrd Alzheimer’s Institute launched a Phase II clinical trial to look at the safety and efficacy of the drug in Alzheimer’s disease patients.

This fall, a similar trial will get underway at CU.
A new research center at the School of Medicine will help scientists and physicians see some of the body’s inner workings, a crucial step toward better understanding and treatment of conditions that stubbornly resist sharing their secrets.

With updated body-scanning equipment and state-of-the-art laboratory techniques, the Colorado Translational Research Imaging Center (CTRIC) will capture images that yield some of those mysteries.

Gerald Dodd III, MD, chair of the Department of Radiology, describes the center’s reach as “almost limitless” because its techniques can monitor so many different kinds of cellular activities inside the body.

Proving that point, CTRIC’s first round of pilot projects, launched last summer, will test theories that monitor activity in the brain, lungs, fat tissue, connective tissue and prostate. Huntington Potter, PhD, will be able to document the path of a protein as it courses through the brain of a person with Alzheimer’s disease. Another researcher, Ed Melanson, PhD, will look at how brown fat is affected by the loss of estrogen.

The creation of an imaging center was a priority of the 2009 School of Medicine Research Retreat.

“There was a very strong and diverse interest in expanding our research imaging capabilities, particularly in PET imaging,” Dodd says. “However, we had next to no existing PET researchers on campus. It was a chicken or the egg problem: No facility meant no researchers. We had to build the facility before we could create the program.”

And there was a lot that had to happen: purchasing a scanner that would be used only for research purposes, building a space to house it, establishing a laboratory where radiopharmaceuticals could be made, hiring the talent to run that lab, working to gain the federal government approvals necessary to use those specially created radiopharmaceuticals and establishing the protocols to prioritize the research requests.

The two key pieces of equipment are a PET/CT scanner and a cyclotron. PET (positron emission tomography) and CT (computerized tomography) have been tools of the trade for many years. But the use of PET/CT for original research on the Anschutz Medical Campus had been nonexistent, even as it expanded at other academic medical centers.

The PET scan is particularly useful because it provides a peek at the body’s inner workings.

“It is an inside-out imaging technique, rather than outside-in,” Dodd says. “CT uses X-rays that originate outside the body and are passed through the body to create an image. With PET, you inject a radiopharmaceutical into the body and detect its ‘rays’ as they come out of the body.”

The person typically is injected with a radiopharmaceutical compound that includes a radioactive element, which shows up in the PET scan image. Glucose is a common base compound because it is fuel for cells. Active cells consume glucose and the radioactive element paired with the glucose emits rays that are measured by the PET scanner.

Making such compounds is a highly technical skill that also requires specialized equipment.

Peter Smith-Jones, PhD, director of the radiopharmaceutical science program and professor of radiology, came to the School of Medicine three years ago from Memorial Sloan-Kettering in New York to help start...
"It's always nice to build something from the ground up," Smith-Jones says. "It's a chance to leave a legacy."

Smith-Jones works on the second piece of equipment, the cyclotron. It is located in a concrete bunker on the first floor of the Anschutz Inpatient Pavilion, behind doors with radiation warning signs. He uses the cyclotron to produce essential parts of the compounds used in research tests. "We change one element into another," Smith-Jones says. "It's kind of like alchemy, like changing lead into gold, only we're changing nitrogen into carbon."

Though he quickly notes it's not magic, but something better: "It's science."

For example, by converting the element nitrogen-14 into carbon-11 in the cyclotron, Smith-Jones creates a radioisotope that can replace natural carbon-12 in any organic compound. This radiopharmaceutical is then injected into patients for measuring the body's activity at a molecular level.

"Most pharmaceutical compounds are intentionally made in amounts that will have an impact on biological function and treatment of the targeted disease," Smith-Jones says. "In contrast, our compounds are made in very small amounts so that they don't have any effect on the body, but can still be imaged by the PET scanner."

For Huntington Potter's study, for example, a specially designed compound attaches to brain cells and allows researchers to monitor which cells are affected by Alzheimer's disease and which might be responding to a drug intended to stop or reverse the disease's progression.

While such tools have been available for many years, they have not been available solely for research purposes at the School of Medicine. Instead, PET/CT scans have been used more often in clinical settings for purposes of diagnosis. And while those clinical settings depend on commercially available compounds, CTRIC is set up to develop custom compounds designed specifically for research projects.

In fact, the cyclotron purchased had been operated for nearly a decade by a pharmaceutical company making compounds for commercial sale. One step in establishing CTRIC was acquiring the cyclotron so that it could be used for dedicated research projects.

As the only imaging research center of its kind in the Rocky Mountain region, Dodd says scientists and physicians at the School of Medicine will now have the ability to conduct their research closer to home. And the school can nurture relationships with other institutions; researchers from CU-Boulder are conducting one of the pilot projects at CTRIC.

The price tag for such investments is significant: For CTRIC, the investment totals about $6 million.

Dodd said the center's broad support led to funding from 14 medical school departments, centers and hospitals as well as the dean's office and federal grant dollars coordinated by the Colorado Clinical and Translational Sciences Institute.

The funding does more than purchase equipment. It establishes a center with staff to make radiopharmaceuticals and manage the process of ensuring compliance with federal regulations. It creates a learning hub that sponsors a lecture series on advances in imaging. And it provides the startup funding for pilot projects that seek to investigate new research questions and generate pilot data for future grant funding.

"CTRIC provides significant new research opportunities for translational researchers on our campus from basic science through clinical trials," Dodd says. "It provides a new view of the inner workings of health and disease and will lead to earlier and better treatments for our patients."
With the launch of the Colorado Translational Research Imaging Center (CTRIC), a wide range of original, exciting research projects is possible on the Anschutz Medical Campus.

The new center uses the latest scanning technology to take images of cells after a patient is injected with a specially formulated compound—a radiopharmaceutical—so that researchers can see what’s going on inside on a molecular level.

With its startup funding, CTRIC has been approved to sponsor an initial round of pilot projects designed to advance the understanding of a variety of ailments. Based on discoveries in the pilot rounds, researchers could seek grants to conduct larger studies. Following are some of the approved pilots.

Testing a Treatment for Alzheimer’s Disease

Huntington Potter, PhD, professor of neurology and director of Alzheimer’s disease programs, plans to study whether or not an experimental treatment can reverse brain damage and mental impairment caused by Alzheimer’s disease.

There are currently several drugs approved by the U.S. Food and Drug Administration to treat the symptoms of Alzheimer’s, but none stop the progression of the disease or reverse its effects. Potter hopes the drug Leukine will be effective for that purpose.

To find out, Peter Smith-Jones, PhD, will be synthesizing a compound that binds to Alzheimer’s proteins in the brain to make them detectable through a PET/CT scan. Study subjects with mild to moderate Alzheimer’s will be injected with the compound and then scanned to determine the amount of Alzheimer’s-related protein in the brain before treatment with the drug.

After three weeks of treatment, the patients will be scanned again to determine whether or not Leukine has decreased the amount of Alzheimer’s protein.

Patients’ mental function will also be assessed for improvement. If the treatment results in improved mental status for the patients, it could lead to one of the first successful treatments that reverses the effects of Alzheimer’s disease.

Identifying the Role of GABA in Primary Focal Dystonia

Primary focal dystonia (PFD) is a chronic and often disabling neurological disorder that causes excessive muscle movements. There is no cure, and current treatments are only partially effective.

Gamma-aminobutyric acid (GABA) is the chief neurotransmitter that is responsible for inhibiting activity in the brain. While the cause of PFD is not known, it is believed that GABA dysfunction plays a key role.

Brian Berman, MD, MS, assistant professor of neurology, will investigate whether reduced brain receptors for GABA is the cause of PFD. A better understanding of the cause of PFD is needed so that new treatment options can be developed.

Scientists in the CTRIC laboratory will synthesize a compound that binds to GABA receptors and has a radioactive element that can be measured by the PET/CT scanner. How many GABA receptors throughout the brain are bound by the new compound can then be measured and compared between PFD patients and study subjects who do not have the disease.

Berman expects that there will be fewer GABA receptors in certain brain regions of people with PFD and that this reduction of receptors will correspond to the severity of excessive muscle movement symptoms.

Preventing Joint Disease in Rheumatoid Arthritis Patients

Rheumatoid arthritis is a chronic autoimmune disease that primarily affects the joints, causing joint pain, swelling and significant disability.

While the exact cause of rheumatoid arthritis is unknown, immune system abnormalities in the blood—proteins called autoantibodies—can be detected years before the onset of joint symptoms.

By testing for these autoantibodies, physicians can screen individuals who are at risk for developing rheumatoid arthritis in the future. These autoantibodies suggest that the condition starts in the body outside of
the joints. If that site can be identified, it could be possible to develop new strategies for preventing joint disease in rheumatoid arthritis patients.

This pilot study will investigate whether or not the lungs are the first site of inflammation and autoantibody production in rheumatoid arthritis.

Study subjects who have the rheumatoid arthritis autoantibodies in their blood, but do not have symptoms in their joints, will receive an injection of a compound that binds to inflamed tissue. This compound has a radioactive element attached to it so that it appears as a bright area on a PET/CT scan.

M. Kristen Demoruelle, MD, will compare the intensity of the brightness in the lungs and joints of subjects with the rheumatoid arthritis autoantibodies to that of control subjects without the autoantibodies. If the lungs are inflamed before the joints are inflamed in rheumatoid arthritis, the findings may lead to strategies that focus on the lungs in order to prevent future joint disability.

**Improving Prostate Cancer Imaging**

Prostate cancer is the second most common cancer in American men and the second leading cause of death. Diagnosing prostate cancer as slow-growing or aggressive, and finding its exact locations, is very important for effective treatment.

One method of finding cancers other than prostate involves injecting radioactive glucose that is readily taken up by cancer cells. It is then possible to measure the amount of glucose trapped in the cancer tumors with a PET/CT scanner. However, prostate cancer cells do not take up the radioactive glucose well and, as a result, images in early-stage, small or recurrent prostate cancers may not be clear.

This study, conducted by Isabel Schlaepfer, PhD, instructor of pharmacology, with Phillip Koo, MD, Department of Radiology, and Elaine Lam, MD, Department of Medicine, includes administering a drug to prostate cancer patients that safely reduces the amount of fat uptake in their cells. By reducing the fat in those cells, it is more likely that injected radioactive glucose will be absorbed more effectively by the prostate cancer cells.

The result should be brighter PET/CT scan signals in areas with prostate cancer and clearer images. If so, the drug that enhances the uptake of radioactive glucose could become an important tool for physicians who diagnose and treat prostate cancer.
Max Watson lies on his back, rolling his head on a pillow to produce notes on the electric keyboard beneath him while a music therapist plays guitar blues. Max is 10 and needs considerable care. He is unable to control his movements well enough to play with his hands. His mom, Deana Watson, watches with love and a bit of wonder, knowing there are two versions of her son.

“There’s Every-Day-At-Home Max,” Deana says, “and there’s Research Max.”

Thanks to Research Max, an international team of scientists that includes University of Colorado School of Medicine and Children’s Hospital Colorado researchers announced recently that they discovered a new disease called cobalimin X, or cblX.

Cobalamin is more commonly known as vitamin B-12. The disorder, which is related to an inability to process vitamin B-12, can be devastating.

“Some people with rare genetic disorders cannot process vitamin B-12 properly,” says CU School of Medicine’s Tamim Shaikh, PhD, a geneticist and senior author of a paper about the new disease that was published in September in The American Journal of Human Genetics. “These individuals can end up having serious health problems including developmental delay, epilepsy, anemia, stroke, psychosis and dementia.”

The discovery, which could help doctors diagnose the disease and lead to prevention or treatment, is made possible by the relatively new ability of researchers to peer into a patient’s genetic makeup at a low cost to discern what is going wrong that might cause a disease.

Obtained from foods such as milk, eggs, fish and meat, B-12 is essential to human health because it helps the body convert food into fuel. It’s vital to the nervous system and for making red blood cells.

Max was born with symptoms that resembled those of the disease cobalamin C deficiency, or cblC. But Max’s doctor, Johan Van Hove, MD, a professor in the CU medical school’s Department of Pediatrics, had doubts.

“We knew from early on that something was unusual about this patient,” Van Hove says.

Meanwhile other researchers began looking into the genomes of patients diagnosed with cblC. Most shared a genetic glitch that caused the B-12 problems. But a few, like Max, didn’t; whatever they had, it wasn’t cblC.

So Shaikh, a pediatrics associate professor, and CU colleagues used what is called next-generation genetic sequencing to delve into all of Max’s DNA. What they found was a new mutation in the gene HCFC1. They then examined that same gene in other patients, obtained from partners at the National Institutes of Health and in Canada and Switzerland, who didn’t fit the cobalamin C genetic model.

Thirteen of them carried mutations in HCFC1, which controls an enzyme that helps the body metabolize B-12. When that system malfunctions, food can’t be broken down properly and harmful substances accumulate in the body. Shaikh finally could explain to Max’s parents what had happened.

Max’s disease is called cblX because the gene is on the X chromosome; it affects only boys. While only 14 people on earth are known to have it, further testing likely will find more.

The research is encouraging, Van Hove says, because “if you have some idea how the system works, that is the beginning of providing more logical treatment.”

Shaikh says more work, which the CU pediatrics department hopes to lead, may lead to discovering other diseases and even the ability to head them off.

For Shaikh, the discovery has meant more than solving a genetic puzzle. Unlike many researchers, he had the opportunity to get to know Max and his family as he was trying to help them. Max’s sister Abbey, 15, volunteered in his lab, and Deana and Steve, Max’s father, met often with the research team.

“They are,” Shaikh says, “an amazing family.”

So while the music plays beneath her son’s head, Deana Watson caresses Every-Day-At-Home Max, knowing that while this discovery doesn’t immediately improve his life, Research Max might help others in the near future.

“Parents want their kids to make a contribution to the world,” she says. “This is Max’s contribution. We are very proud of him.”
Opening doors and improving education

Blind student finds a home in Physical Therapy Program

By Mark Couch

Lugging 30 pounds of Braille paper around the Anschutz Medical Campus is not the ideal way to learn physical therapy.

That’s the amount of paper it would take to convert just one of the texts that Emily Townsend-Cobb needs for her second-year classes in the University of Colorado School of Medicine’s Physical Therapy Program. With a rare eye condition that causes blindness, Townsend-Cobb already faces a challenge unlike any of her classmates; there’s no need to add cross-campus weightlifting to the curriculum, so the school is making a digital version that Townsend-Cobb’s computer can read.

“My disability is forcing the education system to do what’s nicer for everybody,” Townsend-Cobb says. “Thank you ADA.”

The Americans with Disabilities Act (ADA), a landmark federal law originally passed in 1990, opens doors for those with physical impairments. At the School of Medicine, that means providing a learning environment that makes a reasonable effort to meet the needs of students.

For Townsend-Cobb, that means converting reading and classroom materials into formats that she can hear with technology that reads the documents to her. Some images are converted into a tactile format.

Selim Özi, assistive technology specialist for the University of Colorado Anschutz Medical Campus, says converting a 20-page PowerPoint presentation—text and pictures—into a format that Townsend-Cobb can use can take eight to nine days.

“The nature of the content can make it difficult,” Özi says, “because it includes 3-D images.”

Reading documents in a nontraditional format is nothing new for Townsend-Cobb. Florida State University, where she graduated in 2012 as an exercise science major, developed a method of printing a Braille EKG.

Townsend-Cobb, 23, was diagnosed with retinitis pigmentosa when she was 3 years old. By the time she was in high school her vision loss became “what I would call a disability,” she says. The disease, an inherited eye disorder, leads to blindness as photoreceptor cells in the eyes die. The loss of sight is gradual and narrows the person’s field of vision.

“For some people it’s like tunnel vision,” Townsend-Cobb says. “Mine is more like Swiss cheese.”

Townsend-Cobb grew up in Ormond Beach, Fla., where her father runs a seafood restaurant and her mother is a nurse. She has three siblings, including a younger sister who also has retinitis pigmentosa.

“My mom went to battle for us,” Townsend-Cobb says. “She saw too well what we were going to need in school and she had to fight hard to convince people. She started a statewide program to help parents of children with visual impairments.”

Townsend-Cobb credits her family for giving her a positive approach that transcends studies and classroom materials and focuses on pursuing dreams, whatever they may be.

“It’s easy to get to a dark place,” Townsend-Cobb says. “My mom never let us have that attitude.”

Growing up, Townsend-Cobb played soccer. She has rafted through the Grand Canyon where she saw “pink stripes” on the canyon walls. Last summer, she set off to Telluride for a few days to participate in a “No Barriers Summit” where participants engage in hiking, climbing, painting and other activities.

“I joke with her, ‘I don’t think you realize you are blind,’” Özi says. “She is tremendously independent. She is getting everywhere and finding everything on her own.”

There are challenges to overcome. When treating a patient, Townsend-Cobb can touch and listen, but she acknowledges that sometimes seeing is necessary.

“I’ve become better at listening,” she says. “I can feel the inflammation or texture change. And if it’s something I need to see, I’ll step outside the door and ask for a tech. While some of my classmates might use a tech or aide to get a towel, I’ll grab their eyes for a second.”

In class, Townsend-Cobb also jumps at chances to serve as the patient. It allows her to feel the process as a skilled professional goes through the steps of diagnosing a condition.

“I didn’t want to go somewhere because they had to accept me because of the ADA,” she says. “I wanted to go somewhere because they wanted me to go there, and that’s how they made me feel here. An impairment is a condition of the body, like a tight hamstring. A disability is what a society makes of an impairment. I don’t feel disabled in school.”

Emily Townsend-Cobb practices a stretch on a volunteer patient. Photo by Casey Cass.
The Personal Touch
A mother’s example put into practice
By Gaea Moore, MD

One of the things I love about my work in obstetrics is that I see my mom through my everyday life.

My mom was a teacher before she decided to pursue medicine. In my role as an obstetric fellow, I get to teach residents and medical students everything from basic knowledge, such as how to identify risk factors for premature rupture of membranes, to more complicated skills, such as performing cesarean sections.

Most importantly, I get to practice good medicine and, in doing so, teach by example.

I’m not in every room for every encounter with the patients in our care, but I hope through creating a space where my residents and students feel respected and valued, that our interactions will translate into a pattern of respect and professionalism with every patient.

When I walk into a patient’s room on the labor and delivery floor with residents and students, the room often is full of worried people. We always refer to the patient by name and ask her to introduce us to her family and friends. That gesture is one of the first ways we show patients that we are on the same team, that we care about who they are and what happens to their pregnancy.

It reminds me of the way my mom would greet people. I remember once ordering fast food with her; my mom recognized the cashier’s accent and asked if she was Russian. The cashier’s glazed-over eyes suddenly came to life. She smiled and told us, in Russian, to have a nice day.

In obstetrics we often share the happiest moments in families’ lives. Sometimes, we share the most tragic.

It has become my habit to tell patients—whether before I perform a routine anatomy ultrasound or place a transducer on the abdomen of a woman who has not felt fetal movement for days—that whatever happens, I will be there for them.

When my first pregnancy resulted in a miscarriage, those were words I needed to hear, and they ring true for others. I couldn’t know at the time that having a miscarriage would help my medical practice. I now can look a patient in the eyes and say, “I’ve been there. It takes time, but you will get through this.”

I love taking care of patients. I really try to practice in a way that my mom would be proud of. That means taking time to use the translator phone with non-English speaking patients when I’m really rushed for time. It means asking, “What questions do you have?” rather than “Do you have any questions?” It means validating patients’ concerns and saying “I know you know your body better than any of us.”

It means spending extra time at a patient’s bedside asking about the gender of her baby, or whether she has special wishes for her delivery.

It means respecting the wishes of my patient with a lethal fetal anomaly, however she decides to manage her pregnancy. It means considering the life circumstances that make my patients who they are and making an effort to understand their medical beliefs.

My mom’s time was cut short. She didn’t have the opportunity to practice medicine before she became sick herself, so I take every opportunity to practice medicine in a way that I imagine she would have—with compassion, inquiry, kindness and empathy.

I hope that I can teach these values to my residents and students as well.

Moore is a fellow in the Department of Obstetrics and Gynecology Division of Maternal Fetal Medicine. This essay was written as part of Moore’s application to be a member of the School of Medicine’s resident chapter of the Gold Humanism Honor Society; residents and fellows were asked to write an essay about what humanism means to them. This year, 47 residents and fellows at the University of Colorado School of Medicine were inducted into the chapter. Right, Gaea Moore and her mother, Connie Swanson, in 1990 when Gaea was 12 and Swanson was 39.
CU Doctors Seek Cure for Zimbabwe’s Health Care Ailments

Rebuilding a medical education system

By Dan Meyers

The cardiology trainees visiting from Zimbabwe observed with wonder as a University of Colorado Hospital patient with a heart condition was saved last summer by a small pump implanted in his aorta.

“Back home, he would have died. What is considered basic here is not available back home. Here, people don’t have to die,” Tsungai Chipamaunga says.

That’s just a glimpse at a developing and wide-ranging partnership between the University of Zimbabwe and CU to restore the southern African country’s health care system, which has been devastated by a decade of political and economic unrest.

The trainees are the second cardiology group from Zimbabwe to visit University of Colorado Hospital (UCH) and Denver Health Medical Center since 2012. At the same time, faculty members from the CU School of Medicine have been heading to Zimbabwe to review teaching methods and curriculum at University of Zimbabwe College of Health Sciences, that country’s only medical school.

“I did interviews with doctors and students,” says Steven Johnson, MD, professor of medicine and AIDS expert at UCH, who recently traveled to Zimbabwe to explore ways to improve training in rural hospitals. “They were very positive about working to make things better.”

CU a natural partner

Tom Campbell, a professor of medicine specializing in infectious diseases, and other physicians have been working on AIDS prevention and treatment in Zimbabwe for years. So when the National Institutes of Health (NIH) launched a broad initiative to address AIDS in Africa, medical leaders in Zimbabwe turned to Campbell and others at CU.

“It was an extension of what I had been doing,” says Campbell, who practices at UCH. “But also it was a great opportunity for us to enter a partnership that opens up research possibilities and gives us a chance to make an impact and to learn.”

CU is providing principal investigators for two NIH grants that are designed to improve medical education and research in Zimbabwe specifically in cardiology.

Difficult years for Zimbabwe

The first decade of the new millennium was a difficult time for many African countries. Zimbabwe’s health care system was hit hard. Some two-thirds of the medical school faculty had left, and enrollment declined. Doctors trained in Zimbabwe and wealthy patients departed for other countries.

“Some of the topics might seem basic,” says Brandenburg, director of the residency program for the Department of Medicine, “but those are skills and content that we teach here too.”

Brandenburg sees hope that improving the medical education system in Zimbabwe will improve the quality of care.

“It’s hard to go on the wards and see people dying of things they would never die of here,” she says.

Documenting progress

“They are trying to rebuild,” says cardiologist Ed Harranek, MD, a CU professor of medicine who practices at Denver Health. “We see it as a place with tremendous strength.”

The Evaluation Center of CU’s School of Education and Human Development is tracking the progress of these efforts and there are signs of improvement. Enrollment is increasing and more undergraduate students say they plan to remain in the country.

This spring, Johnson made his first foray to rural Zimbabwe, where medical students must train. Living conditions for trainees are “meager,” he says. The living quarters are in “relative disrepair,” sometimes with pieces of the ceiling missing, Johnson says, and students say the plumbing and kitchen appliances often are broken.

Ryan Webb, MD, a third-year resident in internal medicine and chief medical resident at the Veterans Affairs Medical Center in Denver, spent three weeks at the medical school in Harare last summer to explore an exchange program with internal medicine residents there.

Webb says the learning goes both ways. “I did not want to swoop in and be the American who dictates how things go. I did a lot of listening.”

Webb says he learned how doctors and students there, lacking the advanced medical equipment common in the United States, were extraordinarily skilled at physical exams.

And what do the Zimbabweans make of these Coloradans?

“Maybe,” Chipamaunga says, “there are people driven to be part of something bigger than themselves.”
Learning Outside the Classroom

Medical students perform community service

By Tonia Twichell

During their required rural and community care block, CU medical students complete a community service learning project to help them understand how providers can influence the health of their communities outside a medical office.

Projects can be as basic as giving a health care talk to the public. But many students pursue creative options like getting involved in family planning, palliative care, healthy kids camps and science fairs. Some students continue projects started by others who came before them.

“They all do something I’m impressed with,” says Amy Carpenter, MD, a preceptor in San Luis, whose students have often concentrated on exercise and diet.

Following are the stories of two student projects.

Lindsey Schaffer

The patient’s case was common enough in San Luis, a town of 650 in southern Colorado’s Costilla County. Like a large percentage of people there, he had diabetes.

Unlike most people, though, he could identify a reason for the problem.

The patient told Lindsey Schaffer, who was on a month rotation last spring as part of the Family Medicine Rural & Community Care Clerkship, that the town’s three local restaurants offered poor diet choices—mainly high-calorie, high-carbohydrate Mexican food and pizza.

Schaffer already knew that the town was a food desert, with the closest large grocery store a 45-minute drive. Healthy options like fresh produce were difficult to find, so many residents relied on local eateries.

The daughter of a nutritionist, Schaffer checked out the restaurant menus and decided to take action. She asked each owner to offer a few lighter dishes.

The proprietor of the town’s busiest restaurant was amenable.

“She was enthused, and she had some ideas of her own,” Schaffer says.

Together they came up with new menu options. Schaffer wasn’t suggesting anything radical, just grilling or boiling instead of frying, and substituting vegetables for rice and beans.

Convincing the second owner was a little more challenging. She had trained at a diet cooking school in California, had already tried to offer healthier food and found that customers weren’t interested. She also had hired a chef to serve Thai cuisine as well as Mexican. Her own family ate the healthier options, the owner told Schaffer.

But these were unfamiliar food choices to townspeople, Schaffer says. “Most people who’d grown up there don’t eat Thai.”

However, the owner appreciated Schaffer’s attempt to educate customers and agreed to give healthy food another shot.

The third restaurant, serving sandwiches and pizza, agreed to options like thinner crusts, less cheese, veggie toppings and side salads.

Schaffer was willing to support the restaurants in return. She created a flyer that she posted at her clinic, the San Luis Health Center, and at a few other places in town to create awareness that there are choices and that choices matter.

Lindsey Schaffer helped restaurants in San Luis develop healthy menu options. Photo by Dalan Jensen.

“I realized that having these changes present on menus was not going to cause a major change in the way people eat. But in combination with counseling and making people more aware of
So Thurman, who was a month into her three-month clerkship on the damage. Other allegations included:

- Childhood diseases almost completely disappeared before vaccinations were mandated.
- It’s best to let a child develop immunity naturally, not through vaccines.

So Thurman, who was a month into her three-month clerkship on the

Patients’ reactions differed.

“Some people felt like they’d heard it before and didn’t seem excited about it. Some people were very receptive and said they didn’t realize these changes could actually make a difference.”

Schaffer’s preceptor, who happens to be Costilla County’s only full-time physician, Amy Glaser Carpenter, MD, estimates that a quarter of her patients are diabetic, and that most people don’t exercise or watch their diets. Schaffer is not the first CU medical student to tackle the entrenched problem. Others have started programs like lunchtime walks and health talks for kids.

Schaffer’s month in San Luis revealed to her the disparity in services between rural and urban health care options.

“The people were probably less educated overall about their health, but the really striking thing was that there were a lot fewer resources in a small town. Instead of sending someone out for a nutrition counseling or diabetes class, which is pretty easy to do in Denver clinics, in San Luis there would be a class every three months.”

Brooke Thurman

The pamphlet first came to the attention of Gunnison Valley Family Physicians last spring via a patient who was curious about its claims.

Titled “Vaccines: Be Informed! 18 Reasons to ‘Just Say No!’,” the brochure made allegations that Brooke Thurman, then a third-year student, and her preceptor Marie Matthews, MD, knew to be disproved: Childhood vaccines cause cancer, autism, convulsions, deafness, sudden infant death syndrome.

In a small town like Gunnison, already suffering from a lower-than-average childhood vaccination rate, a pamphlet like this could do some damage. Other allegations included:

- There is no proof the polio vaccine decreased the incidence of polio.
- Childhood diseases almost completely disappeared before vaccinations were mandated.
- It’s best to let a child develop immunity naturally, not through vaccines.

Western Slope, responded with a pamphlet of her own: “Childhood Vaccines: What Does the Evidence Say?”

Point by point Thurman addressed the anti-vaccination claims. For example, one bullet point says that the U.S. Centers for Disease Control and Prevention recommend that all children have 81 vaccinations by the time they’re 6 years old. The correct number is 34, Thurman says.

“The claims were not true or accurate, and I thought it was important to try to explain it to people,” she says.

Education about vaccinations is a big issue in Colorado, which ranked second lowest in the nation in 2011 for childhood immunization partly because exemptions are easy to obtain. The state allows a parent to opt out for medical, religious and philosophical reasons.

Thurman is now getting a master’s degree in global health at the University of California, San Francisco, and will return to CU in a year to finish her fourth year of medical school. In the meantime, her preceptor has been distributing the pamphlets in clinics around the area and the response has been positive.

“People read that vaccines are bad, but they don’t necessarily take the next step and ask ‘Is it true? Is it really validated?’” Thurman says.

You can read more about what other students are saying about their experiences on the student blog, FMStudentEd.org.
Silver & Gold Awards

The CU Medical Alumni Association awards honored three graduates this year who represent the best of our school, the community and the practice of medicine. The Silver & Gold Award was presented to Carol Rumack, MD, a pediatric radiologist and academic physician who has spent her career researching pediatric CT scans. The association also recognized Gerald Hickman, MD, a retired family physician who practiced for 36 years in Boulder, Colo., and Jeremy Lazarus, MD, a psychiatrist and the 167th president of the American Medical Association (AMA).

Silver & Gold Award

The Silver & Gold Award, the association’s highest honor, is presented annually for outstanding service to the community and contributions to the science and art of medicine. Carol Rumack, MD, was chosen for her leadership in pediatric radiology and for opening the doors for women in academic radiology.

Rumack knew she wanted to be a doctor when she was 10 years old. Despite people in her life suggesting other careers, she chose medicine when she reached college. Rumack was one of only seven women in her medical school class. After she completed her residency and fellowship in pediatric radiology at the University of Colorado, she encountered difficulty finding positions in a male-dominated field. Rumack persisted, however, and became an instructor and later a professor at the University of Colorado.

Her interest in academia and research set the tone for a successful career, in which she focuses on pediatric CT scans. She wrote the standard text on ultrasound, Diagnostic Ultrasound, now in its fourth edition.

Rumack’s dedication has earned her many honors and led to opportunities to serve in prestigious leadership positions. She was instrumental in helping women radiologists obtain recognition in medicine and academia by founding the American Association for Women Radiologists, and she was the first woman from Colorado to be a fellow of the Executive Leadership in Academic Medicine Program for Women. In 2010 she was nominated to the American Board of Radiology’s board of trustees.

Rumack is currently professor of radiology and pediatrics, and associate dean for Graduate Medical Education at the University of Colorado School of Medicine.

Distinguished Service Award

This year’s Distinguished Service Award, given to graduates who have contributed outstanding service to the Medical Alumni Association and to the School of Medicine, was given to Gerald Hickman, MD, in honor of his longtime support of the University of Colorado.

Hickman, a family physician, practiced in Boulder for 36 years before retiring in 2012. He completed his undergraduate degree at CU Boulder before attending the School of Medicine.

Distinguished Achievement Award

Jeremy Lazarus, MD, was recognized this year with the Distinguished Achievement Award, which is given to those who have made outstanding achievements benefiting their communities, the practice of medicine, the provision of health care, the Alumni Association and/or the School of Medicine.

A clinical psychiatrist, Lazarus has served the Denver community in private practice for more than 40 years. He’s seen thousands of patients whose lives have improved through mental health treatment, and he serves as a clinical faculty member at the School of Medicine.

Lazarus has been president of the Colorado Medical Society, the Colorado Psychiatric Society, the Arapahoe Medical Society and, most recently, the AMA. During his time with the AMA, Lazarus helped form a strategic plan for ensuring that changes to health care in the United States are physician-led, advance the physician-patient relationship and manage health care costs prudently.
Giving Back

Dear Alumni,

Our training as physicians required years of hard work and dedicated study, but what we received from the University of Colorado School of Medicine goes beyond scientific knowledge and clinical training. It's a priceless gift, a treasure beyond compare. What we gained is a deeper understanding of our common humanity and a commitment to improve the lives of those around us.

I believe the profession of medicine is unchallenged by any other in terms of the intellectual rewards it provides. Once we've graduated, it's important to give back to the school that has given us so much. Our predecessors bestowed their knowledge and experience on us; it is our turn now.

We can give back to the school by serving as preceptors or mentors to medical students, attending as staff at various clinics or, most importantly to me, being active alumni. As active alumni, we share pride in the school and our life experiences, but also we prepare the next generation for great achievement. It's a cycle that rewards us all.

The Medical Alumni Association Board of Directors is just one of many ways to stay active and benefit the school, to stay connected to medical education and our profession. The board meets quarterly for 90 minutes at the Anschutz Medical Campus, where alumni, house staff and especially medical students are important participants. It rejuvenates me when I hear the students’ commitments to the medical school and to carrying on our profession.

If you want to give back, joining our alumni board is a valuable and easy way to do so. It requires just eight hours a year, and I promise that the personal reward will far exceed the gift of your time. If you can participate please contact our alumni office at healthalumni@ucdenver.edu, or write me personally at williammaniatis@hotmail.com.

Best regards,

William Maniatis, MD ‘65
CU CANCER CENTER JOINS ELITE NETWORK

The University of Colorado Cancer Center last spring became a member of the National Comprehensive Cancer Network (NCCN), an elite group of 23 centers that sets the standards of care used by oncologists in the United States and abroad.

The NCCN guidelines, which are based on the most current, evidence-based understanding of the diseases, play an important role in insurance coverage, policy decisions and evaluating the quality of cancer care hospitals provide.

The NCCN guidelines are overseen by panels of 25 to 30 medical experts drawn from member institutions. CU Cancer Center will be nominating its experts to these panels and will help shape the blueprints for how to treat cancer patients.

"We have always striven to provide today’s best cancer treatments in an effective, compassionate and ethical way," says Dan Theodorescu, MD, PhD, director of the CU Cancer Center. "Now the research and treatments we develop and test at CU Cancer Center will influence how the thousands of independent cancer clinics around the country treat their patients."

David Schwartz Receives Lifetime Achievement

David Schwartz, MD, chair of the Department of Medicine, delivered the Amberson Lecture at the American Thoracic Society’s International Conference in May. The honor recognizes Schwartz for a lifetime of contributions in pulmonary research and clinical practice.

Schwartz was co-author of two articles on a common genetic variation found in people with pulmonary fibrosis, a chronic progressive lung disease. The median survival time of those diagnosed with the disease is three years. The articles were published to coincide with the conference.

One article, published in the New England Journal of Medicine, determines that the genetic variant is significantly more common in people diagnosed with pulmonary fibrosis. The other article, published online by the Journal of the American Medical Association, finds that the genetic variation help predict survival and represents the first genetic test that can be used to predict the disease.

James J. Waring, MD, who was the first full-time chair of the School of Medicine’s Department of Medicine, was the first person to receive the Amberson Lecture honor in 1956.

Eye Institute Building

The Rocky Mountain Lions Eye Institute broke ground in June on a 38,000-square-foot building expansion that will support new laboratories focused on research breakthroughs by the School of Medicine’s ophthalmologists and scientists.

The construction project and research program were made possible with support of a $6.5 million gift from The Anschutz Foundation. Construction is expected to be complete by fall 2014.

The physicians and scientists at CU were the first to research stimulation of the retina with photovoltaic nanoparticles, which have the potential to restore sight to patients with blinding retinal diseases. The Eye Center also was the first academic medical center in the United States to commercially perform femtosecond laser-assisted cataract surgery.

Naresh Mandava, MD, professor and chair of the Department of Ophthalmology, says: “The expansion allows us to do what we love to do most—take care of our patients in the very best way possible by offering them the latest in care—while at the same time discovering new approaches to that care so that we can preserve each patient’s ability to read, drive and recognize loved ones.”
Piloting a New Pediatrics Training Program

The University of Colorado School of Medicine, in collaboration with the Association of American Medical Colleges and three other medical school programs, received a $900,000 grant from the Josiah Macy Jr. Foundation to pilot a new training program for aspiring pediatricians.

The Education in Pediatrics Across the Continuum (EPAC) initiative aims to establish a new training model that is based on the trainees’ competency rather than “time in place” to evaluate their preparation.

A model that is competency-based allows earlier differentiation and more individualization of training experiences. The other schools participating in the pilot are the University of California, San Francisco, the University of Minnesota and the University of Utah.

The schools will identify a preliminary group of first-year students this fall, and students for the initial EPAC group will be chosen during their second year. These students will focus on a career in pediatrics and agree to remain at their respective institutions for residency training. Using a framework based on the routine professional activities of pediatrics, or “entrustable professional activities,” the students will advance through the program as they master each competency rather than through the traditional, “fixed-time” model.

Skipping breakfast is bad for you

Overweight women who skip breakfast increase their risk for diabetes, according to a study led by Elizabeth Thomas, MD, an instructor in the School of Medicine’s Department of Medicine.

The findings, released in June at the annual meeting of the Endocrine Society in San Francisco, gained national attention. The study found that overweight women skipping the morning meal experienced insulin resistance.

Thomas and fellow researchers studied nine nondiabetic women, with an average age of 29, who were overweight or obese. The study took place on two days about a month apart. Subjects were randomly assigned to receive either breakfast or no breakfast at the first visit and the opposite at the second visit. Four hours later, all subjects ate the same standardized lunch at each visit. They had blood samples taken every 30 minutes after lunch for three hours to test their insulin and glucose levels.

It is normal for glucose levels to rise after eating a meal, which then triggers insulin production. The researchers found, however, that the women’s insulin and glucose levels after lunch were significantly higher on the day they skipped breakfast than on the day when participants ate breakfast. The higher levels demonstrated acute insulin resistance because of skipping breakfast, according to Thomas.

“Eating a healthy breakfast is probably beneficial,” Thomas says. “It may only help you control your weight but avoid diabetes.”

Colorado Springs Branch

The Liaison Committee on Medical Education, the national accrediting authority for programs leading to the MD degree, in June notified the School of Medicine that it can proceed with plans to expand the size of its class by as many as 24 students beginning next year.

The number of students admitted to the School’s MD program will increase from 160 to 184 beginning summer 2014. Those 24 students will spend their first two years on the CU Anschutz Medical Campus in Aurora, and beginning in April 2016, they will perform their clinical training through a branch of the medical school in Colorado Springs.

The Colorado Springs branch is a cooperative effort between the School of Medicine, the University of Colorado Colorado Springs (UCCS) and the University of Colorado (UC) Health System. UCCS is providing classroom and office space and UC Health is providing $3 million a year to help pay for the program. Student tuition and philanthropy also will be necessary to support the program.

Community Gardens Open at North Middle School

In May students from the Anschutz Medical Campus joined with officials from Aurora Public Schools to open a community garden at the North Middle School in Aurora. With 22 plots reserved for community members and eight reserved for students, the gardens are part of a new curriculum for the school’s health sciences and science courses.

“The garden gets the students more in touch with nature and physically active,” Michele M. Doucette, an assistant professor in the Department of Family Medicine, tells The Denver Post.

“We’ve also found that these gardens build bridges between members of the community.”

The gardens were proposed by students from the Anschutz Medical Campus organization called BRANCH: Bridging Research and Aurora Neighborhoods for Community Health.

The garden was made possible with funding from The Piton Foundation and a partnership between Aurora Public Schools, Denver Urban Gardens and the School of Medicine Department of Family Medicine.
Plan Now for Driving Retirement

By Marian "Emmy" Betz, MD, MPH

There is no doubt that Americans love their cars.

Since the middle of the last century this country, with its coast-to-coast highways and suburban developments, has developed a world-famous car culture. For now, most Americans rely heavily on their cars to get around each day, resulting in 2.9 trillion total miles driven in 2012 in the United States.

Now imagine that a well-meaning family member or health care provider said that you had to stop driving because he or she suspected you were no longer a safe driver—not next year, not next month, but you had to stop today.

How would you get to work, to the grocery store, to family gatherings, or to the community or religious activities that are important to you? If you’re lucky, you’ve got family members who can drive you everywhere, though you’d probably worry about being a burden to them. There might be public transportation available, but do you know how to use it, and is it convenient? And think about the emotional impact of losing the ability to get around independently.

This scenario might seem unlikely if you’re a young or middle-aged adult in good health. But almost all older adults will face this decision at some point and, in general, we don’t do a very good job as health care providers, family members or a community in helping them prepare for it.

Contrary to popular stereotypes, most older drivers are actually safe to stay on the roads. Many limit their driving to small geographic areas and avoid hazardous conditions like bad weather, and they are less likely to engage in risky driving behaviors like speeding, texting while driving or driving while intoxicated.

The risk of motor vehicle crashes does rise with age, but the risk of injury is mostly to the older driver, not to the surrounding community. Put another way, a person is more likely to be hit by a young driver than an older one, so we need to stop labeling all older drivers as dangerous.

However, for most older drivers, the time will inevitably come when something—a medical condition, declining cognitive abilities, medications or a mix of those—will mean it is time to stop driving. We know from research that, on average, older drivers outlive their safe driving ability by up to 10 years. We also know that driving cessation can lead to decreased mobility and community involvement, depression, worsening health and even early death.

We know from research that, on average, older drivers outlive their safe driving ability by up to 10 years.

So what should we do?

Well, to start, we should prepare for “driving retirement” the way we prepare for other inevitable changes, like retirement from work, future health problems and death.

We should talk with our patients about the need to transition from driving to other forms of transportation long before the time comes in order to prepare. This preparation should consider transportation needs such as distance and frequency of trips for work, medical appointments, shopping and leisure, and options such as friends or family members, ride services, and public transportation. It should also address the emotional impact of driving retirement and make plans to ensure the older adult can stay involved in his or her community.

And how do we do this?

Ideally, these conversations should happen in both our homes and our clinical practices. Health care providers have a well-recognized, albeit sometimes uncomfortable, role in assessing and counseling older drivers, but too often these conversations don’t happen until a concern, like a car crash or worsening health, means it’s time to stop driving right away.

Because driving retirement is an emotional issue, it can become a “hot potato” topic that providers and family members kick back and forth, with no one wanting to tackle it.

But in a recent study with health care providers and older drivers in the Denver area, we found that both groups supported the concept of advanced preparation for driving retirement. These conversations are likely easier in the abstract: “What will you do if, a few years from now, you need to stop driving?” But, more importantly, having these conversations early allows for an older adult to prepare for the coming transition.

Ideally the conversations would be part of a multidisciplinary effort by physicians, social workers, occupational and physical therapists, and other health care providers to help older adults stay independent, healthy and happy. And, there would be accompanying changes in the community in urban design, public transportation and social services to support the needs of older adults.

In the meantime we can start by talking honestly and openly with our patients, family members and friends to help them prepare for the day when it’s time to hang up the keys.

Dr. Betz is a board-certified emergency physician who conducts research in injury epidemiology and prevention, with a specific interest in older drivers.
Take Me Out to the Medical School
Trading card game introduces new students to faculty and staff

By Mark Couch

The Richard Krugman, MD, trading card might not command the top dollar that a rookie Mickey Mantle baseball card would, but scoring a Krugman became the mission of many new CU medical students last summer.

The aspiring MDs in the School of Medicine Class of 2017 were welcomed to campus with a new game during orientation week: CU School of Medicine Trading Cards.

The physician hopefuls were given a starter pack of eight cards and an assignment: Collect as many cards as you can and get them signed by the person pictured if possible. Each card featured the picture of a faculty or staff member who will play an important role in the students’ medical education. The back of the card includes the person’s hometown, graduate school, role on campus and a random fun fact.

Students learned, for example, that Michael Carry, PhD, associate professor of cell and developmental biology, has webbed toes. At least that’s what it says on his trading card.

“We wanted to come up with a creative way for students to learn about and engage with faculty members before getting swept up in the stress of school,” says Christie Osborne, Class of 2014 MD candidate and president of the Medical Student Council. “This allowed students to put a face with a name and gave them incentive to talk to professors and deans when they otherwise may have never met them in person.”

Of the 44 people featured on the cards, Krugman and Senior Associate Dean for Education Celia Kaye, MD, PhD, were the most valuable players. There were only eight Krugmans and eight Kayes in the stacks of hundreds of cards. Most cards had an assigned value of one point, but a Krugman or a Kaye card was worth four points. Getting the card signed by the person featured on it doubled its value.

The Maureen Garrity also was a rarity among the cards, but for a different reason. With 72 cards printed, the Garrity card was one of the most widely available, but it had a higher score than other easier-to-find cards. A Garrity was worth two points whereas other common cards garnered only one point. Garrity, PhD, is associate dean of student life and definitely somebody the students need to know.

The points collected were awarded to the student’s advisory college for the yearlong College Cup competition. The advisory college program, launched in 2012, promotes student wellness and academic and career success through mentorship and community-building activities. Each of the eight colleges are named after a different fourteen mountain peak and are led by two faculty mentors and two or three student advisers who are current fourth-year medical students.

The top point earners in the trading card game were Matthew Wood from Red Cloud College, Adam Esch from Conundrum College and Mindy Nguyen from Crestone College.

The scramble to collect points spurred some creative bargaining by students during orientation week.

In one case, during a team-building exercise, one student would share straws if his straw-needy classmate would offer up a Krugman card. In another case, a student would let his Krugman card out of his sight only if the administrator asking to borrow it would get the dean to sign the card.

For all the fun of learning new faces, the rules warned students that their memories would soon be put to the test: “You will soon be introduced to more faculty and staff than you can count, and you will likely forget many of them in the wake of the realization that you will soon have to memorize all the bones and bony prominences and everything else about the anatomy.”

Class of 2017, welcome to medical school.
Join a Tradition

About 20 years ago, the School of Medicine began a program to give first-year students a stethoscope at a ceremony welcoming them to campus.

“Starting medical school is overwhelming enough and not having to worry about the money to purchase a good-quality stethoscope was such a relief,” says Christopher Kennel, a member of the Class of 2015. “And because it came from an alum, I felt like I was joining a larger family.”

For more information on giving to the Stethoscope Sponsorship Program, go to cufund.org/stethoscope.