The Covid-19 pandemic shined a bright light on inequitable access to health care in America. At UConn’s medical and dental schools, future providers are opening doors that were previously closed. p.8
This diet protects fruit fly brains from concussions

A high-fat diet reduces male fruit fly aggression after concussions, UConn researchers reported in *Frontiers in Neuroscience*. The findings hint at potential treatments to prevent brain damage after head impacts in humans.

Concussions became big news when National Football League players successfully sued the league over claims that repeated head impacts from playing professional football had permanently damaged their brains. And despite all we now know about the dangers of concussion, there is no good treatment for it other than to rest and hope the effects are temporary.

In the experiment, fruit flies who ate a high-ketone diet since birth behaved less aggressively after traumatic brain injuries were induced than those fed a normal, high-carbohydrate diet. When the researchers altered the experiment so that the flies started eating the high-ketone diet on day five (the day the injury was induced), the diet still dampened aggression, suggesting it might work as a treatment, protecting injured brain cells and helping them recover.

Find us online: [healthjournal.uconn.edu](http://healthjournal.uconn.edu)

**Disclaimer:** Some images depicted in this publication were captured prior to when Covid-19 safety precautions were put in place to keep our community safe.


---

The Covid-19 pandemic shined a bright light on inequitable access to health care in America. At UConn’s medical and dental schools, future providers are addressing disparities from the ground up through public health capstone projects that help people in the local community and raise awareness of how social factors impact health.

---

The future of health care advancement is already here.

---

New Precision Tumor Board

UConn, JAX-GM Launch Competitive Genomics Training Program

Earlier Detection With Low-Dose Mammograms

New Esophageal Care Center Opens

UConn Health First in State to Offer Innovative Emphysema Treatment

Improving Immune Health to Reduce Covid-19 Impact

Lab Notes: The future of health care advancement is already here.
UConn, JAX-GM Launch Competitive Genomics Training Program

Funded by a $2.1 million grant from the National Human Genome Research Institute, UConn Health and the Jackson Laboratory for Genomic Medicine (JAX-GM) are now among 10 institutions in the U.S. providing specialized training in genomic sciences to some of the nation’s most highly qualified students.

Through the new, two-year training program, three students per year will be admitted to work alongside internationally recognized research faculty at UConn and JAX-GM to prepare for careers in the burgeoning field.

“One of the most exciting things for me is that this is a program that would only be possible through the collaboration between UConn Health and JAX-GM,” says Brenton Graevle, Ph.D., UConn School of Medicine professor, chair of UConn Health’s Department of Genetics and Genome Sciences, and one of the program’s heads. “Genomics is one of the most rapidly growing aspects of biological sciences. The students that participate in this program will be very well trained for the market going forward.”

Genomic sciences provide information that can be used for personalized medicine, studying genetic mechanisms behind evolution and increasing our understanding of genomic functioning. The field relies on genomic sequencing, which is accomplished by determining the order of DNA or RNA base pairs.

In recent years, the cost of genomic sequencing has decreased significantly, thus increasing the demand for these services. However, there are not enough trained scientists who can transform genomic data into actionable information with the capacity to improve human health outcomes.

“In many ways, I envy the students going through these programs now,” says Charles Lee, Ph.D., FACMG, director and professor at JAX-GM and co-leader of the program. “They’re entering into a field that is really revolutionizing medicine.”

This program will work to fill the genomics gap by training predoctoral students, equipping them with the tools they need to perform genomic analyses. Students will have opportunities to participate in hands-on technical workshops, didactic courses, seminars, international genomics conferences, and mentorship experiences within UConn and JAX-GM.

“The goal is to make this training program one of the most prestigious training programs in the country and beyond,” Lee says.

Co-leader of the new training program Brenton Graevle, Ph.D., says the students admitted to the competitive new program will be those “that want to learn everything about — this particular field and ones that are very creative and will come up, on their own, with completely novel ways of approaching this particular type of science.”

Earlier Detection With Low-Dose Mammograms

While mammograms have been proven necessary screening for early signs of breast cancer, women typically don’t look forward to the uncomfortable annual visit. But now, new low-dose mammography technology available at UConn Health captures clearer images with less time in compression and half the dose of radiation.

In the past year, the Beekley Imaging Center at UConn Health has converted standard digital mammography to low-dose mammography.

“UConn Health is proud to be on the forefront of innovation in women’s imaging, offering the latest FDA-approved technology with low-dose mammography to diagnose breast cancer earlier,” says Dr. Alex Merkulov, section head for Women’s Imaging at UConn Health.

Breast cancer is the second most common cancer among women in the United States, and early detection reduces the risk of death by at least 25 to 30%, according to the American Cancer Society. Based on current guidelines, UConn Health recommends that women should begin having mammograms yearly at age 40, or earlier if they’re at high risk.

Early detection is the best defense against breast cancer, and the 3D breast images from this technology help doctors detect breast cancer earlier than previously possible. Merkulov says since 2007, breast cancer death rates have been steady in women younger than 50 but have continued to decrease in older women. From 2013 to 2017, the death rate decreased by 1.3% per year, according to data from the American Cancer Society. These decreases are believed to be the result of breast cancer being found earlier through screening and increased awareness, as well as better treatments.

“Low-dose mammography is a huge leap forward in detecting breast cancer early,” says Merkulov. The technology used for this implementation, made by Hologic and called Low-Dose 3D Mammography with C-View Software, instantly generates a 2D image directly from the tomosynthesis data. Each breast is compressed once, and a machine takes many low-dose X-ray images as it moves in an 11-degree arc over the breast. A computer then puts the images together into a series of thin slices, allowing doctors to see breast tissues more clearly in three dimensions.

The technology lowers the patient’s dose of radiation and reduces compression and exam time compared to traditional mammograms. The safety and efficacy of the C-View screening exam have been validated through multiple clinical evaluations.

Many studies have found that 3D mammography appears to lower the chance of being called back for follow-up testing. It also appears to find more breast cancers, and several studies have shown it can be helpful in women with dense breast tissue. The technology provides peace of mind, detecting abnormalities that are missed by traditional mammograms and delivering more detail and accuracy.

Patients can now schedule a screening mammogram without a physician referral online through their MyChart account or by calling 860-679-3634. Learn about the Women’s Center at health.uconn.edu/women.
New Esophageal Care Center Opens

While most people take for granted their ability to swallow, for some, food going down slowly or not at all can be much more than a nuisance; it can be life-threatening. UConn Health has built a specialty practice dedicated to diagnosing and treating problems with the esophagus. Led by Dr. Houman Rezaizadeh in the Division of Gastroenterology and Hepatology, the UConn Health Esophageal Disease Center is an alliance of specialists equipped to focus on problems with the gateway to the digestive system.

“We have comprehensive diagnostic options in terms of being able to offer nearly every modality to diagnose these disorders,” Rezaizadeh says. “And then we have a full team of specialists committed to and interested in these disorders. It’s hard to find somewhere where they have a team in these disorders. It’s hard to find specialists committed to and interested in these disorders.”

Rezaizadeh says, “Part of my passion is doing preventive medicine, screening patients with reflux for Barrett’s esophagus, which is a precursor to cancer,” he says. “We try to catch them in early stages so that we can prevent progression and ablate them as needed. Esophageal cancer is dramatically rising in incidence.”

One of Rezaizadeh’s objectives is to raise awareness that trouble swallowing is not a normal problem to have. “There are people who have had some intermittent trouble swallowing here and there, and they don’t really pay close attention to it until they hit a tipping point where they can’t even eat,” he says. “We’re trying to catch those types of patients earlier to establish a diagnosis and begin treatment.”

Esophageal disorders can involve frequent throat clearing, noncardiac chest pain, or cancer. Reflux and dysphagia, or difficulty swallowing, are among the more common symptoms. “The therapy and management for esophageal diseases... have evolved significantly in the past decade,” says Dr. John Birk, chief of UConn Health’s Division of Gastroenterology and Hepatology. “Having a focused program dedicated to treating these conditions will provide for better patient care.”

For more information, visit health.uconn.edu/esophageal-disease or call 860-679-3040.

UConn Health First in State to Offer Innovative Emphysema Treatment

On August 10, 73-year-old Stephen Petty was the first patient in Connecticut to receive the FDA-approved Zephyr Valves to make his breathing easier.

UConn John Dempsey Hospital is first in the state to offer patients with severe emphysema — the severest form of chronic obstructive pulmonary disease, or COPD — the innovative valve implant.

Dr. Omar Ibrahim, director of interventional pulmonary medicine in the Department of Medicine, performed the minimally invasive procedure and says UConn Health is partnering with other local hospitals and health care facilities to get patients with severe emphysema who have exhausted all other traditional medical therapies this new treatment.

Petty, who lives in Colchester, Connecticut, first began experiencing shortness of breath and seeing a pulmonologist in his 30s and was diagnosed at 59 with a genetic condition, Alpha-1 antitrypsin deficiency, that can lead to lung disease including emphysema. Reliant on inhalers and an oxygen tank before the surgery, Petty said that after surgery he was looking forward to riding his bike again, a goal Ibrahim and his team said they were determined to help Petty achieve.

“This procedure is giving severe emphysema patients a new lease on life, making it easier for them to breathe again by blocking off the most diseased section of their lung and allowing the healthy parts of the lung to function better,” says Ibrahim. “This technology is going to help improve not only my emphysema patients’ breathing but their quality of life, lifting the current restrictions on their daily activities. They will now be able to enjoy life again, play with their grandkids, and go on walks.”

The tiny valve device will improve patients’ results on pulmonary lung function tests, decrease shortness of breath, and reduce daily reliance on supplemental oxygen, according to Ibrahim.

“This technology is a true game-changer for patients with severe emphysema,” he says. “The disease has not had a significant treatment breakthrough in a very long time.”
Improving Immune Health to Reduce Covid-19 Impact

During the Covid-19 pandemic, older adults have been among the most impacted groups. People over the age of 65 are particularly vulnerable, developing more severe disease, worse outcomes, and a nearly 100-fold increased risk of dying when compared to younger individuals.

A UConn Center on Aging-led study will take a novel approach to fighting Covid-19, using medications designed to overcome aging-related declines in immune responses. UConn Health is collaborating with the Marcus Institute for Aging Research at Harvard Medical School and biopharmaceutical company resTORbio on the National Institutes of Health-funded clinical trial.

The study will test whether an investigational drug called RTB101 has the potential to prevent or reduce the effects of Covid-19 symptoms in people age 65 and older. “The mission of the UConn Center on Aging is to help improve the health and independence of older adults through research, education, and clinical care,” says Dr. George Kuchel, director of the Center. “The current challenges confronting all of us demand that everything be done to help improve the ability of our older population to confront Covid-19.”

“Interventions designed to boost immune responses by targeting biological aging represent a powerful and highly innovative new approach for dealing with this and any potential future pandemics.”

In 2009, scientists at the Jackson Laboratory were part of a group that discovered that the inhibition of a protein called mTOR extends life span and health span — the length of time someone is healthy — in mice. Inhibiting mTOR has since been shown to improve immune function in older individuals.

RTB101 is an mTOR inhibitor that has been well-tolerated in clinical studies of more than 1,000 older adults and that has been shown to upregulate genes that help the body fight viral respiratory tract infections, giving it the potential to help older adults fight Covid-19.

Participants will take the study drug for two weeks and be monitored for one additional week afterward. Those who are age 65 or older and who have either had a positive Covid-19 test result in the last four days but currently have no Covid-19 symptoms or who have recently been exposed to someone living in their household who has a positive Covid-19 test may qualify.

The trial will be randomized, and participants will receive either RTB101 or a placebo to take once a day for two weeks. The study team will call participants twice a week over the two weeks and for one additional week after completing the medication.

CALL FOR PARTICIPANTS

Those who may be eligible and interested can contact study coordinator Lisa Kenyon-Pesce at kenyon-pesce@uchc.edu or 860-679-2305.

Improving Immune Health to Reduce Covid-19 Impact

A promising Sickle Cell treatment

The experimental drug IMR-687 has shown promise for treating sickle cell disease and has been demonstrated to be safe and well tolerated in an ongoing clinical trial, according to interim results presented by Dr. Biree Andemariam, director of the New England Sickle Cell Institute at UConn Health, at the 25th European Hematology Association Annual Congress in June. The data show the small molecule inhibitor increases fetal hemoglobin (HbF) and F-cells (red blood cells containing HbF). Increased levels of HbF in red blood cells have been demonstrated to improve symptoms and substantially lower disease burden in patients with sickle cell disease and correlates with improved clinical outcomes and the reduction of pain crises.
The Covid-19 pandemic shined a bright light on inequitable access to health care in America. At UConn’s medical and dental schools, future providers are addressing disparities from the ground up.

BY KIM KRIEGER

PHOTOGRAPHY BY TINA ENCARNACION AND PETER MORENUS

ILLUSTRATIONS BY YESENIA CARRERO

UConn Health’s schools of Medicine and Dental Medicine were the first in the nation to require students to complete a certificate curriculum in social determinants of health, and the program is being emulated by other medical schools.

So many common ills in our society are caused not by microorganisms but by social constriction—poor education, poor housing, poor food. Even when a virus is the primary cause of illness, social conditions can exacerbate the disease. The Covid-19 pandemic shined a bright light on the unhappy truth that structural inequities limit access to health care in America. Doctors who are unaware of these systemic barriers to health cannot truly help their patients who face them, and doctors who are aware of them can feel powerless to do something about it.

But they aren’t.

The students at UConn Health’s schools of medicine and dentistry know that. Beginning with the 2021 graduating class, every medical and dental student at UConn Health must complete a capstone project in public health before graduating with their MD or DMD.

Health disparities and health equity “are a fundamental thread that runs throughout the curriculum from the first days and weeks that students arrive until they graduate,” says Zita Lazzarini, JD, MPH, director of the Division of Public Health Law and Bioethics in the Department of Public Health Sciences at UConn Health and an associate professor in the School of Medicine.

UConn Health’s schools of Medicine and Dental Medicine were the first in the nation to require students to complete a certificate curriculum in social determinants of health, and the
program is being emulated by other medical schools, according to School of Medicine dean Dr. Bruce Liang. “Health disparities among racial and ethnic minorities and between the most affluent and least well-off remain unacceptably high in the U.S. We want our graduates to be fully equipped to recognize and reduce health disparities in their communities through direct patient care, research, and advocacy,” Lazzarini says.

**Jump (For Your Health)**

“Growing up, I was aware of disparities,” says Srinath Ramanan, who immigrated to New Haven, Connecticut, from India with his family at age 6. His own family never suffered from food insecurity, but Ramanan wasn’t oblivious to the struggles of others in his diverse apartment building. And now, the second-year medical student is doing something about it, helping families get fresh food and educating kids about sugar and health.

“I want to get as many people involved as possible! The magnitude of the effect will be greater,” Ramanan says of the next UConn Just Us Moving Program (JUMP) event, which is scheduled for the week after we talk. JUMP’s mission is to get people moving more and eating more healthy food.

The focus of the program, which is sponsored by the Aetna Foundation and run by the Urban League of Greater Hartford and the Connecticut Convergence Institute for Translation in Regenerative Engineering at UConn Health, is on feeling good and avoiding or controlling diabetes, a big problem in the neighborhoods of North Hartford that lack grocery stores. Ramanan will be manning the sugar table, a display and short presentation he designed along with fellow student Vishruthi Palanivel. They use piles of sugar packets to illustrate to kids just how much sugar you should consume in a day versus how much sugar is in common convenience foods. (Spoiler: a single Gatorade’s mountain of sugar dwarfs the daily limit.)

Ramanan learned of JUMP through associate professor Zhao Helen Wu, Ph.D. during his first year. He and a buddy from engineering school in undergrad had already started working on health disparity issues, and JUMP’s mission fit right in. He began working on the presentations, and then this summer he started work on aeroponic food towers in the Urban League’s building in the Asylum Hill neighborhood. The food towers can grow greens, herbs, and small vegetables year-round using water, nutrients, and light provided by the Urban League. Essentially, it’s an indoor community garden – the plan is to have each one adopted by a local family, who can plant what they want and harvest whenever they like, just by visiting the Urban League location where their food tower lives.

For Ramanan, empowering people with the knowledge to make good choices is a key piece of addressing disparities. “If we have education, we have more control over what we do,” he says.

**Getting to the Root**

The north side of Hartford where Ramanan tends the food towers is only a 10-minute drive east of UConn Health’s Farmington campus, but a person’s life expectancy at birth drops a year for every minute you travel. That is to say, someone born in West Hartford or Farmington can expect to live 86 years. Someone born in North Hartford, on average, won’t live past 75. The disparities between these two areas echo disparities in the U.S. as a whole.

Teaching about their effects on people’s health, and how physicians can help, is an integral part of JUMP’s mission. “Studies show that if Z codes are actually coded into the record, people are more likely to get referred to services. You can get more to the root of their health problem,” Ramanan says.

**Second-year medical student Srinath Ramanan, pictured in the indoor community garden at the Urban League of Greater Hartford, helps get people moving more and eating more healthy food through the Just Us Moving Program (JUMP).**

Sponsored by the Aetna Foundation, JUMP is a program of the Urban League of Greater Hartford and the Connecticut Convergence Institute at UConn Health. It is led by Dr. Cato Laurencin and Zhao Helen Wu, Ph.D., principal investigators of the Connecticut Community Health Science Initiative grant.
part of the curriculum in the medical and dental schools.

In 2015, North Hartford, which includes the Northeast, Upper Albany, and Clay Arsenal neighborhoods, was designated a federal “Promise Zone” under an Obama-era program that partnered with neighborhoods around the country to combat staggering rates of poverty, unemployment, food insecurity, and violent crime.

“I will always fight for their rights and continue to work on behalf of these young men.”

JESSICA WEEKS

During the health equity module in the students’ first year, hospitalist Dr. Kirsten Ek takes the students on a tour of the North End neighborhood. They visit the Parker Memorial Community Center and a local church, chat with kids and community leaders, survey local parks and housing, and try to figure out where the pharmacy is, and the grocery store (there isn’t one).

“You’re going to practice in Hartford, why not know it?” says Ek, an assistant professor of medicine who directs the course “Patient Advocacy in Communities, Teams & Health Systems.”

There is actually one grocery store on the edge of the area, but it is not accessible via public transit and it’s not well stocked. Ek says she bought restocked oranges. and cleaned out the whole supply.

Two days later she stopped in again, and they still hadn’t restocked oranges.

“We want the students to see how structural inequities lead to health effects.” Ek says.

Many of the students’ public health capstone projects are inspired by their visit to the neighborhood. Some of these projects, like Ramanan’s, involve direct activism in the community. Others take place more behind the scenes.

For instance, third-year medical student Jessica Bertenshaw is focusing on electronic health records. Doctors use them as electronic files to organize patients’ information. Everything that relates to a patient’s health has a place in the record. Electronic health records even have special codes, called Z codes, that indicate social factors such as food insecurity or unsuitable housing. The problem is that most doctors don’t use them.

“Studies show that if Z codes are actually coded into the record, people are more likely to get referred to services. You can get more to the root of their health problem” if you address the social limits they’re facing, Bertenshaw says. UConn Health, for example, has social workers on staff who can connect patients with food, transportation, or other resources they might need. But if the doctor interviewing the patient merely notes the need in the written record, it can get buried. Z codes make it easy for that need to be addressed. To raise awareness of Z codes, Bertenshaw plans on working locally, meeting with resident doctors as they rotate through St. Francis and Hartford hospitals to remind them of the codes and urge them to act on them. She also plans to analyze whether the residents who received extra training on Z codes use them more.

“We want our graduates to be fully equipped to recognize and reduce health disparities in their communities through direct patient care, research, and advocacy.”

ZITA LAZZARINI, JD, MPH
Director, Division of Public Health Law and Bioethics

Other student projects focus on more concrete aspects of physician education. Fourth-year medical student Savannah Alvarado has been working with UConn Health dermatologist Dr. Hao Feng to get better visual imagery of skin diseases on darker-complexioned people, for example.

“It is no secret that pathology appears very different on dark skin and that trainees do not have much exposure to training on dark skin, for a long list of reasons. Unlike the lungs, liver, or kidneys, which look roughly the same regardless of race or ethnicity, the skin and hair obviously don’t, so there is a huge need for specific training in this area,” Alvarado says.

Alvarado and Feng are currently working on a paper that provides a clinical guide for photography of dark skin.

Sometimes a student brings her passion for a particular community into her project. Jessica Weeks had worked with youth in juvenile detention when she was an undergraduate. When she came to UConn Health, she decided to start a similar program here. It wasn’t easy — there was no relationship between the institutions, and it took a lot of phone calls, emails, and persistence — but eventually she got a weekly program up and running called Better Futures.

Every Wednesday night, a group of medical and dental students went to a Connecticut juvenile detention center to mentor the boys and young men, some as young as 12, in life skills they’d need when they got out. How to write resumes and interview for a job. How to get a driver’s license. Coping strategies like meditation.

“A lot of these children come from the worst of the worst situations,” says Weeks. Some of them still cannot read easily and lack other basic skills. Despite the neglect they’ve suffered up to this point, Weeks believes that most of these boys can improve their lives. They just need the resources. She plans on becoming a child psychiatrist and continuing to work with incarcerated youth throughout her career.

“I will always fight for their rights and continue to work on behalf of these young men,” Weeks says. As a fourth-year medical student, she’s currently working to make sure the mentoring program continues after she graduates.

A Salutary School

Before we go on, we should note the elephant in the room. Most of the student projects we’ve mentioned that take place in North Hartford work primarily with people of color. That’s because most of the residents of North Hartford are people of color, and the area in which they live puts them at significant structural disadvantage. But as Dr. Kenneth Alleyne, an orthopedic surgeon and a member of the UConn Health Board of Directors, likes to point out, we have to resist the temptation to racialize health.

Residents of North Hartford are more at risk of diabetes not because they are Black or Latino but because they don’t have easy access to decent food in their neighborhood. If they lived in a poor section of Appalachia they would more likely be white and suffer from the same troubles. Constant stress due to the tenuousness of a low income and its accompanying worries takes a physical and mental toll, depressing people’s resilience and immune systems. This is one of the many
UConn’s Health Disparities Institute (HDI) studies and combats the staggering differences in health outcomes between racial and ethnic groups in the state.

Connecticut on average is one of the healthiest states; yet the disparities between racial groups are pronounced and shocking. According to a 2018 HDI report, young men of color are far more likely to die of cancer or heart disease than Connecticut men of the same age overall, for example. Boys of color make up 36 percent of Connecticut boys at age five, but only 15 percent of Connecticut men by age 55. Those in between perish at much higher rates than their white counterparts.

These disparities are not inevitable; they’re largely attributable to social determinants of health that include whether people have a good income, health insurance, a relationship with a primary health care provider, and access to decent food and housing. At UConn Health, future doctors and dentists are being trained to recognize and reduce health disparities through direct patient care, research, and advocacy.

Using the most recent data for various factors, this map illustrates some of the symptoms of inequity between Connecticut cities and their neighboring suburbs and how those inequities affect the health of Connecticut citizens.

Visit bit.ly/ct_towns_many to explore the data for all 169 cities and towns on an interactive map created by statistician Emil Coman, Ph.D., of the UConn Health Disparities Institute.
reasons why pregnancy, cancer, and now Covid-19 all take a higher toll on people of color who live in disadvantaged neighborhoods in our state.

Although many of these things are out of doctors’ control, physicians often have access to resources that can help people change their structural determinants of health for the better.

“Disparity is pervasive, and it needs to be eliminated,” says Liang. As dean of the medical school, he is acutely aware that having a diverse student body — UConn Health ranks among the top 10 medical schools in the nation for diversity — is not enough. Neither is simply describing UConn Health’s commitment to health equity in a public statement.

The institution is taking action. The first action is in the education of the students. In addition to the health equity module, students are required to take four courses in public health, with a focus on epidemiology, biostatistics, and health disparities. The medical and dental schools have also started training students in cultural competency, recognizing that people from different backgrounds may express symptoms and pain differently. The capstone project in public health is the culmination of this coursework.

In addition to raising students’ awareness of these issues and training them to respond, the capstone project and community efforts in different underserved areas also serve to give students a more personal connection to the communities they serve. The more of a connection the students have with the area, the more likely they are to return and practice there in the future.

UConn Health has also begun implicit-bias training for students, faculty, and clinical staff. This training tries to help people recognize unconscious bias they might have against certain groups of people. The hope is that they will self-correct to prevent bias from coloring their treatment decisions.

Eliminating bias and disparities “requires a cultural change, reflection, awareness, and self-monitoring. And everyone has to be rowing in the same direction,” Liang says.

“A CLASS OF ACTIVISTS

Being the daughter of two immigrants and having attended an all-girls high school, fourth-year UConn medical student Savannah Alvarado says she has long been interested in inequities based on race, ethnicity, or gender and has felt emboldened to help fix them.

“Health disparities have been very evident to me since I had the privilege of traveling to South Africa while I was an undergraduate student,” Alvarado says.

On that global health trip, Alvarado was stunned by how care differed among communities. She noticed similar disparities while working in hospitals in Hartford and New York City as her schooling progressed.

“I realized that interventions to target these disparities need to come from every level of the health care team,” she says. “One of my mentors in my first year of medical school knew about my passion for addressing health disparities, and she helped me to find ways to be involved in academic work in this area. I am confident that I will continue to integrate this passion into my care and academic work as I continue to progress in my career.”

Alvarado, who hopes to enact change through her research and care as a dermatologist, believes her fellow UConn medical and dental school grads are prepared to make a difference in this area, too.

“UConn did a fantastic job educating students on health-related disparities and demonstrating the role of training physicians in changing them. I believe that my classmates have a pretty exceptional understanding of the impact of health disparities in this country, and I hope that our graduating class will bring many activists into the field.”
There is no easy fix for psoriasis. For the more than 3 million people in the U.S. with the common autoimmune disorder, finding the right treatment can take a lot of trial and error.

There are many different options to consider to treat the symptoms—red patches and dry, cracked skin; itching; pitted or thickened nails—and one size doesn’t fit all. Once the proper treatment is identified, it may involve many hours spent at the dermatologist’s office for injectable treatments, hand or foot soaks, or phototherapy.

Within the next few months, however, psoriasis patients at UConn Health can expect a much more pleasant experience with the opening of the new UConn Health Dermatology Psoriasis Center.

Because of the prevalence, the seriousness of the disease, and the varied treatment options, the dermatology department at UConn Health recognized the need for a center dedicated solely to psoriasis.

“We try to treat psoriasis from a few different angles with different modalities” including topical medicines, ultraviolet light therapy (also known as phototherapy), or injectables, biologics, and pills, says Dr. Philip Kerr, chair of the Department of Dermatology. “It’s a disease that has a profound effect on people’s quality of life and is associated with metabolic syndrome, so it’s necessary to have a multifactorial approach to treating psoriasis and giving our patients the best possible outcome.”

All of those treatment options will be available at the Psoriasis Center, administered by an experienced staff.

“We have a team of nurses who are experts in phototherapy and administering injectable medications, and the doctors all have a special interest in psoriasis,” says Kerr.

Anne Horhatack, RN, UConn Health vice president of ambulatory services, adds, “The staff has been working in this area for quite a while. They’re cross-trained in all of these psoriasis treatments. It’s a great team that works together really well, and we’re thrilled to have them.”

The team is looking forward to relocating to the new Psoriasis Center, where all of the services will be available in one accessible location that is easy to navigate, according to Kerr.

“The space is brand new, newly renovated, and it has a really nice high-quality, elegant feel to it. There is plenty of room, and all of the services are located right there,” he says. “We started from scratch and designed it specifically for the Psoriasis Center and our patients and staff.”

The new center includes a phototherapy room, exam rooms, and procedure rooms. It is also centrally located within the main hospital, giving patients easy access to the food court, gift shop, and laboratory services.

The dermatology clinical research team also will be conducting research and clinical trials to advance the field and find new and innovative treatments for psoriasis, the exact cause of which remains unknown. Patients of the Psoriasis Center will have the opportunity to participate in these clinical trials if they are interested and meet certain criteria.

For home therapies, UConn Health recently opened its own specialty pharmacy, and one of the first specialties serviced was dermatology.

“All of these elements combine to create a comprehensive, convenient, patient-focused psoriasis center that will offer an unparalleled experience for patients, according to Kerr.

“Our mission is to advance the field and offer cutting-edge treatments, and we hope that by providing a new, fresh space with all of our services under one roof that we can do just that,” he says.
Vascular Surgeon Leverages Latest Innovation and Least Invasive Approach

Dr. Mina Boutrous, an innovative vascular surgeon who specializes in the latest minimally invasive endovascular techniques and treatments, recently joined UConn Health's Division of Vascular and Endovascular Surgery, bringing with him his unique dual training in both cardiothoracic and vascular surgery.

“After becoming a cardiothoracic surgeon, I became very interested in endovascular surgery since you can do successful minimally invasive procedures without using any big, open incisions,” Boutrous says.

“I love being a vascular surgeon because it’s a very innovative field of medicine with new technology being developed every day to enhance patient care. It also allows me to apply my surgical skills across the body, from the head and neck for carotid artery and cerebrovascular disease, to the chest for aneurysm care, to the legs for peripheral arterial blockages.”

At UConn Health Boutrous cares for patients with vascular blockages related to carotid artery disease, cerebrovascular disease affecting optimal brain blood flow, peripheral arterial disease (PAD), and complex aortic aneurysms. In addition, he has special interests in visceral arterial disease, which impacts blood supply to the intestines, spleen, liver, and kidneys; and thoracic outlet syndrome, which causes compression of blood vessels or nerves between the collarbone and the first rib.

“Thanks to Boutrous’ arrival in July, UConn Health now offers minimally invasive endovascular transcarotid artery revascularization (TCAR) to high-risk carotid artery disease patients. This innovative approach allows for the redirection of blood flow during carotid artery stenting to minimize a high-risk surgery patient’s risk of a stroke. Boutrous is currently working toward making UConn Health a designated center of excellence for TCAR. He believes TCAR will soon become the standard of care for the most fragile, older adults in need of an intervention who are not candidates for a traditional surgery. In addition to being potentially life-saving, TCAR has been shown to help reduce stroke risk and improve quality of life.”

Boutrous received his medical degree and completed residency training in cardiothoracic surgery at Cairo University Faculty of Medicine. He completed his vascular surgery residency at St. Louis University and a fellowship in advanced aortic surgery at the University of Texas Health Science Center.

“I really enjoy what I do, and I strive to take care of each vascular surgery patient personally, like I would treat my own family member — especially my older patients. I always enjoy talking to and caring for them,” Boutrous says.

Women’s Center APRNs Increase Access to Care

The providers at UConn Health Women’s Center continually look for ways to serve an increasing number of patients who need care, and the addition of two new Advanced Practice Registered Nurses (APRNs) to the OB/GYN team improves patient access. APRNs play a major role in the OB/GYN offices. In addition to diagnosing, treating, and managing acute chronic illness, they focus on health promotion, disease prevention, and health education and counseling, guiding patients to make smarter health and lifestyle choices.

Heather Kovac

With a mother who was a labor and delivery nurse and now directs a nursing program, Heather Kovac, APRN, says it’s no surprise she chose women’s health as a career. Unlike her mother, who taught at the university level, Kovac decided to stick with clinical care. Kovac started her career as an OB scrub tech in labor and delivery 22 years ago and spent 10 years as a labor and delivery nurse before obtaining her advanced practice degree in 2013.

Kovac, who joined UConn Health’s OB/GYN department in February and practices in the Farmington and Southington locations, sees patients for routine obstetric and gynecological visits, prenatal care, birth control, and emergent visits. Kovac began her new position at UConn Health at the beginning of the Covid-19 pandemic and shifted to telehealth visits, but is happily seeing patients in person again.

“While I enjoy all areas of my role, my favorite part of the job is working with young patients to educate them on preventing pregnancy and illnesses and to help them stay healthy,” Kovac says.

Christine Biolo

Christine Biolo, APRN, was a labor and delivery nurse at UConn Health before obtaining her master’s degree in 2018. She says she loves that UConn Health has all the resources of a large hospital, such as genetics services, its Neonatal Intensive Care Unit (NICU), anesthesiology, and residents, while providing personal care that makes the hospital feel small.

Biolo sees patients in both the Farmington and Canton offices for a variety of OB/GYN needs. Her favorite is prenatal care.

“As a labor and delivery nurse I was with patients on one of the most important days of their life,” says Biolo. “Now I get to be with them throughout the pregnancy, from the beginning until birth.”

A large part of an APRN’s role is to spend time educating patients during their visits. During the family history screening, Biolo can learn more information about a patient’s family and, if necessary, refer the patient to the Division of Medical Genetics to identify issues early. This may change the trajectory of their life, she says.

Biolo says her co-workers were supportive, approachable, and “amazing” mentors as she transitioned into her new role as an APRN.

“It’s great to work in an academic setting where continuous learning and growth is encouraged,” says Biolo. “It motivates you to increase your skill set and stay up to date on current practices. I am very fortunate to be employed by UConn Health,” she says. “Not only is it a great place to work, it’s an amazing place to receive care.”
A Primary Care Doc With a Passion for Social Justice

Listen to Dr. Julian Nieves III talk about his thoughts on health care, and it will become obvious he has a connection with underserved populations.

Nieves, who arrived last year, splits his time between UConn Health’s primary care practice and its residency practice, where he serves as a preceptor, or supervising physician.

“It’s a nice ecosystem of learning and continual education, not only for the residents and medical students but for myself as well,” Nieves says.

When conditions permit — meaning when we’re not in a pandemic — he also is involved in carrying on UConn Health’s longstanding tradition of providing free care to migrant workers at local farms.

“That’s dear to me,” says Nieves, whose father was a migrant farm worker. “I have a special place for that. You’re able to give care to folks that really are just outside of the system of traditional health care. It’s great to be able to provide a bit of a bridge for those workers that may need it. My own interest in economic and social justice is what originally sparked my own interest in economic and social health care to migrant workers at local farms.

In the meantime, he’s looking forward to getting back to the migrant farm clinics and bringing students with him, like he was able to do in 2019.

“It’s a great way to expose and allow students to be a part of a program that allows them to provide some basic services,” Nieves says. “I think it provides inspiration to students and it’s a great learning opportunity. The patients and the students both appreciate it. It’s a win-win situation.”

A Connecticut native, Nieves grew up in Meriden. He earned his MD at Cornell University and returned to Connecticut to complete an internal medicine residency at Yale University. He sees patients in UConn Health’s Outpatient Pavilion.


even made my thoughts on health care, and it will become obvious he has a connection with underserved populations.

Nieves, who arrived last year, splits his time between UConn Health’s primary care practice and its residency practice, where he serves as a preceptor, or supervising physician.

“It’s a nice ecosystem of learning and continual education, not only for the residents and medical students but for myself as well,” Nieves says.

When conditions permit — meaning when we’re not in a pandemic — he also is involved in carrying on UConn Health’s longstanding tradition of providing free care to migrant workers at local farms.

“That’s dear to me,” says Nieves, whose father was a migrant farm worker. “I have a special place for that. You’re able to give care to folks that really are just outside of the system of traditional health care. It’s great to be able to provide a bit of a bridge for those workers that may need it. My own interest in economic and social justice is what originally sparked my own interest in economic and social.

In the meantime, he’s looking forward to getting back to the migrant farm clinics and bringing students with him, like he was able to do in 2019.

“It’s a great way to expose and allow students to be a part of a program that allows them to provide some basic services,” Nieves says. “I think it provides inspiration to students and it’s a great learning opportunity. The patients and the students both appreciate it. It’s a win-win situation.”

A Connecticut native, Nieves grew up in Meriden. He earned his MD at Cornell University and returned to Connecticut to complete an internal medicine residency at Yale University. He sees patients in UConn Health’s Outpatient Pavilion.

It also was the motivation behind his pursuit of a master’s degree in public health at Harvard and the founding of his private practice in the Greater Hartford area, which he had for six years, and it shapes his vision for health care delivery.

“Innovations in primary care delivery models and digital health technology is a bargaining field right now,” Nieves says. “I’m in the process of developing that research agenda.”

Dr. Marja Hurley, professor of medicine and orthopedics, was elected 2020 chair of the Oversight board of the National Institutes of Health/ National Institutes of Diabetes and Digestive Kidney Diseases Network of Minority Research Investigators. She also was elected into membership in the Association of Osteobiology.

Laura Haynes, Ph.D., professor of immunology at the UConn Center on Aging, accepted a newly created position as specialty chief editor for “Aging and the Immune System,” a specialty section of the journal Frontiers in Aging Neuroscience.

UConn John Dempsey Hospital was designated by Blue Cross Blue Shield as a Blue Distinction Center for both knee and hip replacement and spine surgery for meeting all overall quality measures as well as cost measures that address consumers’ needs for affordable health care.

Dr. Ketan Bulsara was elected to the Society of Neurological Surgeons, the premier, senior academic neurosurgical organization whose active membership is limited to 220 members. Connecticut Magazine’s June 2020 “Best Doctors” issue includes 47 physicians from across UConn Health. See who was featured at uconnhealth.org/bestdoctors20.

Dr. Michael L. Carius, assistant clinical professor of traumatology and emergency medicine, was named chair-elect of the Board of Directors of the American Board of Medical Specialties, the leading not-for-profit organization overseeing physician certification in the United States.

UConn John Dempsey Hospital received the highest gold-level honors from the American Heart Association (AHA) for the sixth straight year for heart attack care and the fourth consecutive year for stroke care. For 2020, UConn Health was awarded the AHA Mission: Lifeline Gold-Plus Receiving Quality Achievement Award for ST-elevation myocardial infarction heart attack care and the AHA’s Get With the Guidelines – Stroke Gold Plus Target: Stroke Elite Honor Roll Award.

Dr. Cato T. Laurencin, University Professor, has been named the 2020 recipient of the Materials Research Society’s Von Hippel Award, the Society’s highest honor and one of the highest honors in the world for work in materials science. Laurencin also will receive the Association of American Medical Colleges 2020 Herbert W. Nickens Award for his contributions to promoting justice in medical education and health care equity throughout the nation.

The award assures the continued maintenance of both software tools and ensures the team is able to work together to support their tens of thousands of users around the world.

COPASI is a virtual environment that allows cell biologists to explore the spatial dimension of biochemical reactions in the complex geometries of cells and tissues.
Innovative Patch Could Revolutionize Covid-19 Vaccine Administration

UConn researchers recently partnered with the Biomedical Advanced Research and Development Authority (BARDA) to develop a single-use, self-administered microneedle vaccine technology for infectious diseases such as Covid-19, which can be quickly distributed in an epidemic or pandemic to provide people effective, long-term protection.

Thanh Duc Nguyen, Ph.D., assistant professor of mechanical and biomedical engineering—a shared department between the schools of Medicine, Dental Medicine, and Engineering—and Steven Szczepanek, Ph.D., associate professor of pathobiology and veterinary science in the College of Agriculture, Health, and Natural Resources, received a $432,990 contract from the U.S. Department of Health and Human Services (HHS) BARDA to develop this technology. In addition, the researchers received $160,000 from UConn for the project.

Typically, vaccines against infectious diseases like Covid-19 require multiple painful, expensive, and inconvenient injections, including a prime and several booster shots. This project will create a self-administered microneedle system that requires only a one-time administration into skin—similar to a nicotine patch—and releases the vaccine in a way that simulates the effect of multiple injections.

Since the microneedle patch can be easily applied at home, the researchers hope that this single-use technology will prevent patients from visiting health care facilities and risking exposure multiple times during a pandemic.

“We envision that in a pandemic, the microneedle patch can be quickly distributed to people on a global scale for self-administration in their local pharmacies or minute clinics, and potentially even at home, with just one application, to create effective, pan-community immune protection,” Nguyen says.

The microneedle patch will contain the spike protein, or S-protein, that is on the shell of the Covid-19 virus and will be programmed to automatically deliver the S-protein as a vaccine antigen against Covid-19 into the skin to trigger long-term immune protection against the virus. The microneedles dissolve at different times, providing bolus injections of the vaccine at specified times, according to Szczepanek.

“Periodic exposure tends to drive the immune system to attack foreign objects, which is why many vaccines against infectious diseases are given as multiple shots over a period of months or years,” says Szczepanek. “One of the holy grails in the field of vaccination is to develop a platform that can deliver the vaccine with one administration, even if multiple injections are needed to achieve full immunity. We developed the innovative patch, which Thanh had engineered. ‘This technology is truly groundbreaking,’ he says.

A microneedle patch developed in collaboration with the Biomedical Advanced Research and Development Authority will allow vaccines for diseases like Covid-19 to be delivered over time with one application. UConn engineer Thanh Duc Nguyen (pictured above, right, with doctoral student Khanh Tran) and pathobiologist Steven Szczepanek lead the project.

Home Genetic Testing

The multimillion-dollar at-home genetic-testing industry has boomed in recent years, with mail-in kits making popular Christmas or birthday gifts. Companies promise to inform consumers not only about their ancestry but also about their risk for genetic diseases. While learning more about your genetic makeup may seem harmless, UConn Health genetic counselor Connor Linehan warns of the pitfalls.

Q: What should people know before they take an at-home genetic test?

Giving people access to their genetic data can be an invaluable resource. However, the information received can be difficult to understand and easy to misinterpret. While the companies must be in compliance with some U.S. government regulations meant to ensure the accuracy of the information, patients may make assumptions about that information that could be dangerous.

For example, one popular company tests for the presence of three well-known mutations in the genes BRCA1 and BRCA2, which are known risk factors for breast cancer. Testing positive for one of these mutations can raise a woman’s lifetime risk for developing breast cancer to roughly 85% and increase the risk for other forms of cancer as well. While a negative result would be good news, one concern is that without genetic counseling from a professional, patients might take the result to mean that they will never develop breast cancer and could choose to stop having mammograms against medical recommendations.

Q: Should providers recommend against their patients taking these at-home tests?

Genetic information is complex and incredibly easy to misinterpret. As with any medical question or concern, patients should mention their plan to do home genetic testing to a member of their medical team and explore whether talking to a genetics professional might help them understand what’s going on. It’s always best for a patient to talk to their doctor about any health-related decision so that together they can put an informed and complete plan in place.

Q: How would a genetic counselor help?

Genetic counselors provide the context for this information. In the breast cancer example, the result sent to the patient doesn’t take into account the fact that the three mutations tested for are only seen commonly in one particular ethnic group and wouldn’t be expected in patients not of that ancestry. Nor does it address that there are hundreds if not thousands of mutations in those two genes alone that may increase a person’s risk of developing cancer. That is to say nothing of the dozens of other genes that we now know are linked to hereditary cancer.

All of these qualifiers and more would be made clear to a patient by a genetics professional before medical testing is ordered. It is also worth noting that at-home testing is not the same as the testing that a genetic counselor would offer to patients—at-home testing is often incomplete or unnecessarily broad.

Learn more about UConn Health’s Division of Medical Genetics at health.uconn.edu/medical-genetics.
Dedicated Line for Referring Physicians

**860.679.5555**

- Make patient appointments
- Arrange patient admissions
- Engage in physician-to-physician consultation
- Obtain general information and assistance

Contact [practicerelations@uchc.edu](mailto:practicerelations@uchc.edu) for general information or for assistance regarding the resources, education, and referral information UConn Health requires.

As 2020 has shown us, heroes are everywhere. At UConn Health, our practitioners not only go above and beyond for our patients and partners during times of crisis but also during times of calm. Our referring physicians are heroes, too, seeking out the best care for patients when faced with challenges beyond the scope of their practices.

Our best work happens when we collaborate. Consult with our experts on tough cases or arrange patient appointments with our specialists. Let’s provide the highest quality care we can, together.

**Referring Physicians Line: 860-679-5555**
[health.uconn.edu](http://health.uconn.edu)

**BRINGING EVERYDAY HEROES TOGETHER.**