Magnifying Nursing Excellence

UConn Health has launched its journey to Magnet nursing excellence recognition by the American Nurses Credentialing Center of the American Association of Nursing (AAN). “Magnet designation is the ultimate honor for a hospital’s high-quality nursing,” says Sue Ellen Goodrich, RN, nursing director of Professional Practice for UConn Health. “Research shows us that stellar nursing practice truly makes a difference in patient care and outcomes.”

To pave the road to Magnet status for its more than 1,200 nurses, UConn John Dempsey Hospital is aiming to increase the number of Magnet-designated, with 460 total Magnet hospitals worldwide. The Magnet Recognition program, created in 1990, is based on 14 “Forces of Magnetism” characteristics grouped into five pillars: Transformational Leadership; Structural Empowerment; Exemplary Professional Practice; New Knowledge, Innovation, and Improvements; and Empirical Outcomes.

To jump-start the Magnet journey, UConn Health has adopted a nursing professional practice model of compassion, integrity, collaboration, and innovation, with improvement initiatives aimed at preventing patient falls, central line–associated blood stream infections, catheter-associated urinary tract infections, and hospital-acquired pressure ulcers. UConn Health has also joined the national program NICHe (Nurses Improving Care for Healthsystem Elders).

“We look forward to building an even stronger foundation of nursing excellence while providing greater benefits to our patients and nurses,” says UConn Health Chief Nursing Officer Ann Marie Capo, RN, whose leadership and vision was pivotal to starting the Magnet process.

By 2020, UConn aims to grow from 64 percent to 80 percent of RNs with a baccalaureate or higher in nursing. The new Nursing Research Council and Nursing Research Fellows Program will work to translate research for use at patient bedside.

A Path With Less Pain: Genetic Clues Show Which Breast Cancer Patients Are Prone to Post-Treatment Agony

For some breast cancer patients, the treatment can hurt worse than the illness. UConn Health researchers have correlated symptoms with specific genes, which could lead to personalized care plans that minimize suffering.

Matching Medicine to the MS Patient

UConn Health researchers have discovered why drugs for an aggressive form of multiple sclerosis work in the lab but fail in real patients. Each primary progressive multiple sclerosis patient has uniquely defective stem cells, perhaps making the debilitating illness a prime candidate for personalized medicine.

UConn Health Journal is a publication of University Communications at the University of Connecticut.
Connecticut’s Effective Formula for Cystic Fibrosis Screening

While all states require newborns to be screened for cystic fibrosis, Connecticut does it differently than most. A unique collaboration — in which UConn Health screens the newborns, Connecticut Children’s Medical Center provides timely clinical intervention, and University of Florida Health (UF Health) offers genetic counseling via telemedicine — leads to early diagnosis and treatment, which can add years to patients’ lives.

Cystic fibrosis (CF) is a progressive genetic disease. A thick mucus buildup forms in the lungs, making patients prone to infections, lung damage, and respiratory failure. The pancreas doesn’t release enzymes, inhibiting the body’s ability to digest food and absorb nutrients. If UConn Health screenings within days of birth show a CF gene mutation, a sweat test — considered the most reliable way to diagnose CF — is recommended to determine whether the baby is a carrier or has the disease.

And it’s at this stage when the process becomes unique. On the same visit as the sweat test, parents have a no-cost, private, video consultation with a UF Health genetic counselor, made possible by a grant from the Cystic Fibrosis Foundation, to help them understand the implications of the mutations.

Three other clinical sites in the U.S. partner with UF Health. UConn Health screens 7 of 10 infants born in the state, accounting for more than half the screenings done under the UF Health partnerships.

Though it wasn’t mandated by state law until 2009, UConn Health has screened newborns for CF since 1993. The collaboration with UF started in 2014. “With the addition of the genetic counseling piece, our program has significantly decreased the time to sweat test and ultimately CF diagnosis,” says Dr. Melanie Sue Collins, associate director of the Central Connecticut Cystic Fibrosis Center at Connecticut Children’s.

The approach is well received by parents, says Sidney Hopfer, UConn professor in the Department of Pathology and Laboratory Medicine. “We have all the pieces: the tests are significant, the genetic counseling, our program has significantly decreased the time to sweat test and ultimately CF diagnosis,” Hopfer says. “In my opinion, this is something that should be done nationally.”

Ovarian Cancer Vaccine

UConn Health is recruiting patients for the world’s first personalized genomics-driven ovarian cancer vaccine clinical trial. The FDA-approved trial will test the experimental vaccine Oncimmune, which was invented by Neag Comprehensive Cancer Center Director Dr. Pramod Srivastava. The vaccine aims to boost the immune response of patients with ovarian cancer to prevent relapse. To learn more, call Quratsulim Ali at 860.679.7648.

Dr. Cato T. Laurencin

A team led by Dr. Cato T. Laurencin, who in 2016 received a number of prestigious honors including a National Medal of Technology and Innovation, has found a way to regenerate rotator cuff tendons after they’re torn using stem cells and a “nano-mesh” material. Laurencin’s team has also joined the New Hampshire–based Advanced Regenerative Manufacturing Institute to speed the development of human limb growth.

Fitbit Helps Save Patient’s Life

This January, Patricia Lauder of Harwinton, Connecticut, had an illness she just couldn’t shake. Visits to doctors, testing, and X-rays came back negative for pneumonia or any other health issues.

Lauder started experiencing shortness of breath and fatigue after walking short distances. She noticed that her Fitbit fitness tracker — which she purchased after her 73-year-old purchased one — was showing her resting heart rate increasing by five points a day. On the day her resting heart rate spiked to 140 beats per minute, she called an ambulance.

A CT scan at UConn John Dempsey Hospital revealed she was suffering from two large blood clots in her lung arteries, known as pulmonary embolisms.

“I didn’t have a Fitbit on my wrist, I might not be here to tell my story,” Lauder says.

Research doesn’t stop when we report it. Here are updates on past UConn Health Journal stories:

Visit healthjournal.uconn.edu/archive to read the original stories.
Scientists Pave Path for Tackling Rare Cancers

An international team of scientists led by the UConn School of Medicine and Icahn School of Medicine at Mount Sinai sequenced a genome for an extremely rare form of cancer, demonstrating the utility of this approach in opening the door for therapy options for rare diseases that are neglected due to scarcity of patients or lack of resources.

The team’s findings were published by JCI Insight, a journal of the American Society for Clinical Investigation.

Leading genomic scientists from UConn, Mount Sinai, and other collaborating institutions performed exome sequencing on tumors and matched normal samples from 17 patients with parathyroid carcinoma, an ultra-rare form of cancer for which there is no effective treatment.

Researchers found several mutations in known cancer-related genes and pathways. This in-depth characterization provides a clear view of genetic mechanisms involved in parathyroid carcinoma and could lead to the first therapy options for patients.

The genetic variants identified in this study have been detected in other cancers and are the subject of ongoing “basket” trials, or clinical trials focused on specific mutations rather than the tissue where the cancer formed.

“This is the largest genomic sequencing study to date for this rare and deadly cancer, and we believe it serves as important validation for using this approach to uncover clinically relevant information in any number of neglected diseases,” said Rong Chen, senior author of the paper and assistant professor in the Department of Genetics and Genomic Sciences at Mount Sinai. “Genomic analysis is opening the doors to diseases that could never have been understood through traditional biomedical research because there simply aren’t enough patients to observe.”

Mount Sinai’s work built upon an ongoing “basket” trial, or clinical trials focused on specific mutations rather than the tissue where the cancer formed.


“As some of the tumor-specific genomic vulnerabilities we found turn out to be shared with much more common cancers, so drugs already being developed for other cancers may prove valuable in parathyroid cancer,” said Arnold, the study’s co-leader, who serves as the Murray-Heilig Chair in Molecular Medicine, director of the Center for Molecular Medicine, and chief of endocrinology at UConn School of Medicine. “This offers new hope for our patients and serves as a model for approaching other rare and neglected diseases.”

The study was funded by the Icahn Institute of Genomics and Multiscale Biology at Mount Sinai and the Murray-Heilig Fund in Molecular Medicine at UConn School of Medicine through the UConn Foundation.
HONOR ROLL

Kyle M. Baumbauer, Ph.D., has received the 2017 Award in Pain from the Rita Allen Foundation and the American Pain Society for his research on pain after spinal cord injury.

Dr. Linda K. Barry was named one of Savoy magazine’s Top Black Doctors for 2017.

UConn medical student Laura Hatchman and her faculty mentor Lisa Barry, Ph.D., received the Biomarkers and Frailty Best Paper Award at the American Geriatrics Society annual meeting held in May.

UConn John Dempsey Hospital was recognized with a Gold Plus rating, the highest for heart failure patient care by the American Heart Association. In addition, the hospital was added to the AHA’s Heart Failure Honor Roll for 2017.

Diagnosing Disruptions in the Autonomic Nervous System

Since the bodily functions it controls are automatic and involuntary, people don’t think much about their autonomic nervous system (ANS). But ANS dysfunction can indicate serious medical problems, and early detection is key to avoiding complications.

UConn Health is home to the only testing laboratory in the state dedicated to diagnosing disruptions in the body’s ANS. ANS is the control center that regulates the body’s automatic functions, including stress response, heart rate, blood pressure, digestion, and urinary functions. Interruptions in the system can occur if there is a disruption in communication between the brain, spinal cord, and peripheral nerves.

Abnormal ANS reflexes can be a sign of medical conditions such as cardiovascular problems, diabetic neuropathy, and Parkinson’s or other neurodegenerative diseases.

“A series of simple ANS tests can help a patient finally find potential answers and treatment options for lingering, undiagnosed symptoms,” says UConn Health neurologist Dr. Matthew Imperioli. “The Neurology Department’s ANS Lab at UConn Health is proud to be filling a patient-care gap to meet the needs of patients across Connecticut.”

Testing at UConn Health’s ANS lab can be performed in less than an hour by Imperioli, who has advanced fellowship training in this growing neurology subspecialty. Since it opened in May 2016, the lab has been busy assessing patients referred by neurology and primary care physicians searching for answers for their patient’s symptoms, such as recurrent fainting or dizziness.

The panel of four tests hunts for any abnormal ANS reflexes. Quantitative sudomotor axon reflex testing (QSART) uses specialized electrode technology on the arm and leg to measure sweat capabilities. Simultaneous heart rate and blood pressure technology captures any variability during deep breaths and forceful exhales.

Also, an automated tilt table with EKG and specialized heartbeat-to-heartbeat blood pressure monitoring repeatedly checks for any changes as a patient rotates from a lying-down position to nearly standing.

“Early detection of an ANS disorder is critical so we can prevent patient falls or injury, avoid health complications, prescribe the correct medications, and improve a patient’s quality of life sooner rather than later,” Imperioli says.

The Healing Power of Fat

Fat cells are increasingly being used in cosmetic and reconstructive plastic surgery, and now UConn Health has restored one patient’s lost voice by leveraging the power of fat.

In 2013, Ed Favolise, 70, a retired superintendent of schools in Connecticut, had surgery to remove a precancerous tumor from his chest. Part of the tumor caused a nerve that was severed during surgery, leaving his right vocal cord paralyzed and a major gap between his vocal cords.

For three years, Favolise’s voice was limited to a squeaky, high-pitched whisper while he pursued remedies at three different medical centers. After five surgeries and continuous vocal therapy, Favolise turned to the Voice Center at UConn Health.

Dr. Denis Lafreniere, chief of the Division of Otolaryngology, teamed up with Dr. Andrew Chen, chief of the Division of Plastic Surgery, to offer an innovative solution.

In the operating room, Lafreniere and Chen withdrew fat cells from Favolise’s abdomen, processed and measured them to make sure they had enough pure fat cells, and placed them directly into his injured vocal cord via a needle injector through a laryngoscope. The result? A permanently plumped vocal cord that’s in the proper position to contact the left vocal cord.

“My speech improved immediately and significantly,” says Favolise. “My experience shows that sometimes you need to be willing to take a chance on a pretty surprising, promising alternative medical solution and procedure.”
A Path With Less Pain

Genetic Clues Show Which Breast Cancer Patients Are Prone to Post-Treatment Agony

By Kim Krieger
Can we really call such treatment a “cure”? It would be better if we could know in advance which patients might suffer from which treatments.

Depression. The women rated their well-being both before and after treatment for cancer, reporting on their pain, anxiety, depression, fatigue, and sleep quality. Young and her colleagues then looked for connections between genes and symptoms.

They looked at three genes in particular: NTRK1, NTRK2, and COMT. These genes are already associated with pain from other research. NTRK1 is connected to rapid-eye-movement sleep (dream sleep), and a specific variant is linked to pain insensitivity. NTRK2 is associated with the nervous system’s role in pain, fatigue, anxiety, and depression. And some common versions of COMT are linked to risks of developing certain painful conditions.

The researchers also chose these genes because the variants associated with pain, fatigue, and other symptoms are fairly common, making it possible to get meaningful results from a sample size of just 51 people.

After the analysis, a couple results jumped out at them. Two of the genes, COMT and NTRK2, had significant correlations with pain, anxiety, fatigue, and sleep disturbance. The other gene didn’t.

“I always like having a yes/no answer — if we get some nos, then we know the analysis wasn’t just confirming what we wanted to see,” says Young.

Such a quick look at a small sample of cancer patients can’t give all the answers as to who is going to develop postoperative and post-chemotherapy pain. But what they did find is very suggestive. Some of the gene variants were associated with symptoms before surgery. For example, women with two copies of the A variant of COMT reported more anxiety than other women did. COMT was also linked with pain, both during and after cancer treatment: women with one variant of COMT reported more pain, while women with a different variant reported less.

Fatigue also seems to have a genetic component. Women with one copy of the T variant of NTRK2 reported more posttreatment fatigue than others, and women with two copies reported much more.

Surprisingly, the genes linked to various symptoms worked independently, and didn’t work together to increase overall pain and discomfort. In other words, they weren’t synergistic; they didn’t make each other worse.

The genes’ effects were also independent of the type of treatment the women received; the 51 women followed a number of different types of treatments: different surgeries, different chemotherapies. The gene variants predicted pain and fatigue above and beyond any differences explained by treatment effects. Other experiments by other researchers have shown the COMT variants are connected to the development of skeletal muscle pain.

The gene variants predicted pain and fatigue above and beyond any differences explained by treatment effects.

“So it’s not just our study but the entire literature that suggests COMT could be playing a role in how sensitive you are to many different types of pain,” says Young.

“We are focusing on how we can identify women who are at risk of experiencing persistent pain and fatigue, as these symptoms have the highest impact on reducing quality of life after treatment,” says Starkweather. “It’s a great example of how we can make progress toward the goal of personalized health care. The next piece of the puzzle is to identify the most effective symptom-management interventions based on the patient’s preferences and genetic information.”

Young, Starkweather, and their colleagues say further research, ideally looking at a person’s whole genome, is needed to refine the connections between genetic profiles and the risk of pain. With that knowledge, patients could work together with their care team to develop individualized symptom-management plans. Properly prepared patients would feel more control and less suffering. And perhaps the cure would no longer hurt worse than the disease.
At first, Christine Derwitsch thought she was just really out of shape. She and her husband had gone out for a hike. They went hiking often, but this time, by the summit of the first hill she had to sit down. Her legs were so heavy. She laughed it off, saying she’d been spending too much time sitting at a desk. But over the next few months, walking became harder and harder. And gradually, Derwitsch realized something was wrong.

“I went on Facebook, and I looked at what I’d been able to do before — hiking, my sister’s wedding — and I couldn’t do that anymore. I thought, ‘This isn’t right.’”

It took her almost a year, but 29-year-old Derwitsch was finally referred to a neurologist at UConn Health, who diagnosed her with primary progressive multiple sclerosis (PPMS). It was a relief to finally understand what was happening to her legs, but the news wasn’t good; there were very few treatment options available.

Most cases of multiple sclerosis have a pattern of illness and then remission: symptoms flare up, then go away, then flare up again. There are effective drugs that help patients extend the periods of remission, and someone diagnosed with MS in his or her 20s may live comfortably for decades.

But PPMS is a different story.

“It’s a harder diagnosis to make because there are no attacks,” says Dr. Matthew Tremblay, Derwitsch’s neurologist at UConn Health, who specializes in treating MS. And the same thing that makes
While primary progressive multiple sclerosis is harder to treat than typical MS, UConn Health researchers have found why drugs that work in the lab fail on real patients with PPMS, like Christine Derwitsch (pictured).

PPMS harder to diagnose makes it harder to treat. Most drugs for MS are designed to prevent relapses by suppressing the immune system. But PPMS patients don’t have relapses. To help them, a drug would need to help them regrow myelin, the insulation around our nerves that people with multiple sclerosis can’t reliably repair. Doctors seeing this kind of drug for PPMS keep chasing a mirage.

For PPMS, many researchers look for possible treatments among medications that have already been approved for other illnesses. That way they can go right from lab to patient if they show promise. And so far many medications have shown promise — in the lab. But no matter how well a compound works in the lab, it never seems to help many people in the clinic. It’s a conundrum that frustrates both doctors and patients.

In the meantime, she is staying mobile and positive. She credits Tremblay for getting her insurance to cover her treatment — he actually got on the phone with her insurance company, she says.

“Dr. Tremblay has so much knowledge about MS, but also a dedication and passion. Every time I have a question, he has an answer.”

Good genomics research requires healthy curiosity, powerful data analysis, rigorous scientific methodology — and a strong ethical grounding. UConn Health and The Jackson Laboratory for Genomic Medicine co-hosted the Ethical, Legal, and Social Implications Research Program’s (ELSI) fourth annual conference June 5 through 7. To explore how ethical decisions surrounding genomic discoveries are informed by the legal and social context of our society.

Nearly 300 people attended the three-day “Genomics and Society: Expanding the ELSI Universe” conference, which brought experts from around the world to UConn Health in Farmington, Connecticut, to discuss both what we can do with our genomic knowledge and the responsibilities that come with that power.

“The increase in genomic testing and technology are fueling breakthrough discoveries and how we use them; affecting how we understand genetic influences health care; exploring how social norms and beliefs impact the appropriate use of genetics in research and clinical settings; the relationship between genomic discovery and the citizenry and the differences in lifestyle, environment, and biology encountered in different populations across the country.

Many of the funding for ELSI comes from the National Human Genome Research Institute, with the goal of supporting research that anticipates and addresses the societal impact of genomic science. The institute has four broad priorities: genomics research; tracking how that research influences health; exploring how social norms and beliefs affect how we understand genetic advances and how we use them; and legal, regulatory, and public policy implications of genetic testing in the criminal justice system; the relationship between genomic discovery and the citizenry and the differences in lifestyle, environment, and biology encountered in different populations across the country spoke about the ELSI project can be found at www.genome.gov/elsi.

EVENT SPOTLIGHT

Keynote speakers from the National Institutes of Health (NIH) and universities across the country spoke about the ethics of genomics in the clinical setting; the relationship between genes, ancestry, and identity; and the NIH’s All of Us initiative. All of Us seeks to broaden the genetic database used for research in the United States so that it more accurately reflects the citizenry and the differences in lifestyle, environment, and biology encountered in different populations across the country.

UConn Health and The Jackson Laboratory Host Global Genomics Conference
What are some of the major public health issues facing Connecticut?

There are many public health issues facing both Connecticut and the nation as a whole. At the Department of Public Health, our emphasis is on the Centers for Disease Control and Prevention's 6|18 initiative, which targets six major health conditions—asthma, high blood pressure, tobacco use, hospital-acquired infections, teen pregnancy, and diabetes—with 18 evidence-based interventions. Each of these conditions is common, preventable and costly, but importantly, all have proven interventions that can be effectively employed across the healthcare spectrum to improve both individual and community health, saving lives and dollars. Other areas where I believe we can see good results in Connecticut by employing evidence-based interventions include addressing HIV and the rising number of syphilis cases.

As DPH commissioner, what drives your daily public health passion and mission?

I am convinced that we—as a nation, a state, and as public health professionals—can do more than we are currently doing to impact public and population health. Addressing the health disparities that continue to plague our population, costing millions of lives and countless health care dollars, is what drives me. We are so fortunate to live in one of the richest countries, and states, in the world, yet we spend so little on public health. My mission is to spread the message that modest investments of money, time, and effort in proven education and prevention methods can lessen these disparities, which will save millions of dollars in health care costs and, more importantly, save lives.

Tell us about your connection to UConn Health and what you hope to accomplish as a member of the board of directors.

I am a 2009 graduate of the UConn Master of Public Health program and receive my own health care at UConn Health. Spending time there for my education and health care has really crystallized for me that UConn Health is the epicenter of clinical care and education in Connecticut. UConn Health is where advances in science and medicine happen, which allows patients to get the best in cutting-edge care. As a member of the board of directors, I am looking to learn and understand better the role that this large institution plays in public health work. I hope my passion for public health and the elimination of health disparities will allow me to give a voice to the importance of integrating education, prevention, public health, and clinical care in order to strengthen our health care system, curb rising health care costs, and foster healthy communities and individuals.

How can physicians assist the DPH daily to address and reduce these issues?

Doctors, particularly primary care physicians, are the main point of contact with the public for health education. We need to engage practitioners in addressing the six major health conditions with their patients—screening for the conditions, educating in advance to enhance prevention of disease, and providing effective, evidence-based treatments when needed. Physicians play a critical role on the front lines of health care to shift our focus from treatment to prevention through lifestyle changes and other healthy choices. They are an indispensable part of the continuum of care between DPH, health care practitioners, and public health.

New Neurosurgery Chief Brings Elite Expertise to UConn Health

Dr. Ketan R. Bulsara, a world-renowned neurosurgeon, brings an unparalleled range of expertise in treating neurological disorders to UConn Health as the new chief of the Division of Neurosurgery.

Bulsara came to UConn Health from Yale, where he built successful programs in neurovascular and skull base surgery. He has trained with the pioneers in neurosurgery and is an author on many national and international guidelines and standards.

Bulsara is among an elite few neurosurgeons in the world with dedicated dual fellowship training in skull base/cerebrovascular microsurgery and endovascular surgery. He is directing both of those disciplines in UConn Health’s Department of Surgery in addition to serving as chief of neurosurgery.

“Dr. Bulsara is a world-class neurosurgeon who brings a level of expertise that is almost unheard of in the field,” says Dr. David McFadden, chair of the UConn Health Department of Surgery. “Whether it’s complex tumors, aneurysms, or any sort of brain- or nerve-related problem, he is well-equipped to offer a full range of treatment options.”

That includes the full spectrum of treatment of both hemorrhagic stroke and ischemic stroke. Bulsara was an early adopter of mechanical thrombectomy, a procedure in which the surgeon removes a clot from a blocked blood vessel going to the brain. Bulsara’s collaboration with UConn Health’s stroke program puts UConn Health in a position to handle these more complex cranial cases.

Bulsara also will be involved in UConn Health’s efforts to expand its epilepsy program to include neurosurgical treatments, and will be recruiting additional neurosurgeons with other areas of expertise.

“Neurosurgery, the way I look at it, is a multidisciplinary specialty. The focus of my division is to optimize patient outcome. We’ll build a team that’s tailored and personalized for every single patient. Ultimately, as a team, we provide the best care for the patients.”

Dr. Ketan R. Bulsara
Education:
• Davidson College, B.S.
• Duke University, M.D.
Residency:
• Duke University Medical Center, Neurosurgery
Selected Accolades:
• From the American Association of Neurological Surgeons and the Congress of Neurological Surgeons:
  • Mayfield Award in Clinical Science (2002)
  • Mayfield Award in Basic Science (2001)
• Shulman Award (2001)
• Traveling Fellowship in Neurosurgery (2003)
CREATING THE MEDICINE OF TOMORROW, TODAY.

UConn Health is home to over 380 doctors-in-training and nearly 150 future dentists learning, training, and seeking daily. Together, just like the almost 5,000 that came before them, they are the future of medicine. They are the medicine of tomorrow... that is the Power of Possible.