When Covid-19 hit, UConn Health united. p.2

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TO OUR READERS,

I hope you are enjoying this wonderful season. The sun is shining, and it appears we are close to the end of the tunnel regarding the numbers of Covid-19 patients being admitted to the hospital. I am happy to report that in early June UConn Health resumed regular services and is ready to meet the health care needs of all of your patients.

Safety continues to be our top priority. With the resumption of regular services at UConn Health, we have put in place several safety measures to protect our community and patients, including:

- A universal masking policy for patients, visitors, and employees at all of our facilities
- Temperature and risk-factor screenings, social distancing policies, directional flows, and visitor limitations
- Covid-19 testing prior to elective surgery procedures and isolation of patients with symptoms.

Although we feel very good about all the precautions in place to keep patients, visitors, and employees protected and safe, for those patients who still feel uncomfortable seeking care, we are offering video and phone visits. Our goal is to ensure that patients do not hold back on necessary care.

As we emerge from perhaps the most challenging part of the pandemic, I want to recognize the strength, resilience, and generosity of our community during these unprecedented times.

It hasn’t been easy, but you have risen to the occasion. I am also eternally grateful for the health care providers who have donated their time and energy to help with our response, as well as for all of the donations that we’ve received to help protect our front-line workers.

To the 2020 class of doctors, dentists, and researchers at UConn Health: Although we were unable to celebrate your accomplishments in person, I am proud of all of you and wish you the best of luck in the next phase of your lives.

This edition of UConn Health Journal will look a little different than our typical issue. The special section starting on page 2 includes stories on our health care heroes’ response, the research breakthroughs already being discovered by scientists across the University, and the generous efforts to help protect our essential workers.

As we transition into the “new normal” of health care services, I want to reiterate my heartfelt thanks for your patience, heroism, and help throughout this challenging period. We have shown that together, we can accomplish anything.

Warm regards,

Dr. Andrew Agwunobi
CEO and Executive Vice President for Health Affairs, UConn Health

2-11 BRAVE NEW WORLD

As people the world over were told to stay home to stem the spread of Covid-19, health care workers, researchers, and essential employees were just getting started. At UConn Health and the University of Connecticut, heroes of all types faced the uncertainty with expertise, care, and compassion. These are their stories.

3 The Re-Engineering of UConn Health | Feature Story

Having worked in refugee camps with cholera and Ebola patients, Dr. Kevin Dieckhaus, an infectious disease specialist at UConn Health, knew much had to be done to prepare UConn John Dempsey Hospital for biocontainment.

A team led by Dieckhaus and Director of Construction Services George Karnarow sprung into action, redesigning the hospital on the fly to protect nurses, doctors, and patients.

UConn allied health students show posters they created and delivered to patients and staff.

Elizabeth Athel ’20 MD is among 225 graduates who celebrated commencement with UConn Health’s virtual ceremony May 15.

22 CRISIS AVERTE

For years, Diana Fritzson lived in fear that her brain aneurysm would burst. And then expert surgeons at UConn Health prevented a potentially deadly stroke.
As people the world over were told to stay home to stem the spread of Covid-19, health care workers, researchers, and essential employees were just getting started. At UConn Health and the University of Connecticut, heroes of all types faced the uncertainty with expertise, care, and compassion.

Photos by Tina Encarnacion

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They’d watched it coming. First as a strange outbreak in China…then in Southeast Asia…then Washington state. It was like watching a tidal wave come in. And the team at UConn Health knew one thing: they weren’t going to let Covid-19 rage through their hospital like a tsunami on a beach.

As Covid-19 overwhelmed health systems around the world, infectious disease specialist Dr. Kevin Dieckhaus thought of resource-poor areas he had worked in before. Uganda. Haiti. In such places, situations arise where the number of patients can exceed resources available to treat them. That had never happened before in the U.S. And back in February Dieckhaus was keenly aware that some people couldn’t imagine it being otherwise.

He was particularly worried that the 169-bed hospital might have to start consolidating patients into smaller spaces, with many per room, potentially even in the hallways. By now, we’ve all seen pictures of this, mostly in hard-hit areas of New York City, where the virus hit early and the population density allowed it to spread rampantly. But early this year, before cases of the virus were confirmed on the East Coast, that possibility was merely a nightmare vision in his mind. He resolved that he would not let that happen at UConn Health.

“I’ve been in cholera units. There’s one way in, one way out. You must disinfect yourself in bleach on the way in and out. That’s not ingrained in the American way,” where the room of a patient with a dangerous infectious disease is treated as a special zone unto itself, Dieckhaus says. But he knew that was what they’d need to do in order to keep staff and patients safe. He was worried his colleagues wouldn’t like it—generally in these contained units, you go in at the beginning of your shift and don’t leave until the end, in order to minimize the risk of disease transmission and conserve personal protective equipment (PPE). You can’t eat lunch, or go to the bathroom to relieve yourself, or even scratch your nose.

But such a unit would be critical to ensuring staff and patient safety and to minimize the risk of running out of PPE. Before the hospital had seen a single patient with the new coronavirus, Dieckhaus began campaigning for a biocontainment area for patients with Covid-19.

“I’m the guy running around saying, ‘The sky is falling!’” Dieckhaus says. He was worried that the hospital administration and the other doctors and nurses would think he was overreacting.

But the hospital administration listened to him. And he found a powerful ally in Director of Construction Services George Karsanow.

TO THE DRAWING BOARD
Karsanow’s role is to oversee all planning, design, and construction at UConn Health. He directs a team of architects and managers and was already familiar with the fine points of infection control in a hospital.

Above: Staff screen every individual entering the facility with a series of questions and a temperature scan.

Opposite: Through a window, a group of providers in full personal protective gear watches a parade honoring UConn Health workers as it passes through the Farmington campus April 15. First responders from around the Farmington Valley and those from UConn Police and Fire departments, as well as UConn’s canine and costumed mascots, showed their appreciation at the event.

From left are Sylwia Sobczak, CNA; Aneta Kozlowska, CNA; Weislawa “Wendy” Paszkowski of environmental services; Rebecca Sopelak, RN; and Diane Wentworth, CNA, all of MED 3, the designated Covid-19 floor.

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The Re-Engineering of UConn Health
By Kim Krieger

As people the world over were told to stay home to stem the spread of Covid-19, health care workers, researchers, and essential employees were just getting started. At UConn Health and the University of Connecticut, heroes of all types faced the uncertainty with expertise, care, and compassion.

Photos by Tina Encarnacion

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“Believe it or not, we do things similar to biocontainment zones all the time. You have to protect the other areas of the building from whatever is occurring in your construction zone. It’s normal in a hospital,” Karsanow says. Covid-19 was much more serious and sensitive than the usual infection risks they encountered, but the basic practices would be the same.

First, they had to identify where to draw the line between clean and contaminated. Sometimes that line would require walls and doors to block airflow; sometimes it could just be a literal line on the floor. The second step was to put procedures in place to contain the contamination. For example, staff must wear PPE, so the team, which included the Facilities and Maintenance group, created donning stations at the entrance to the biocontainment zone and doffing stations at the exit. The doffing stations were elaborate, with a regimented series of steps at different locations, ending with a final hand washing, that had to be done before staff could be considered clean.

The most complex part of the process was that the biocontainment zone had to be dynamic, able to expand or contract along with the number of patients. The planning team, which eventually included doctors, nurses, and administrators as well as members of facilities operations and campus planning, design, and construction, had to come up with multiple scenarios. Blueprints had to be drawn for each one. Karsanow drew countless versions of the hospital floor plan, sometimes drawing several in the same weekend.

“When we started back in March developing surge plans, we had no idea what to expect. We were assuming the worst; could we go from a 169-bed hospital to a 500-bed hospital?” How do you do that while maintaining service to other essential areas such as the dialysis center? These were the puzzles Karsanow and the rest of the team had to solve.

Airflow, in particular, was a limiting factor. Normally, the HVAC system is set up to blow air out of patient rooms, to protect them from any germs that might be floating in the hallway air. But for Covid-19 patients, that had to be reversed; the rooms needed negative air pressure to avoid pushing virus particles into the hallway. Mechanical engineer John Lombardi, a director in Facilities Management and Operations, was able to arrange that airflow reversal, but because of the way the HVAC is set up, it had to be done for blocks of rooms, not individually. The team would run into conundrums: They might be able to have four Covid-19 rooms in this section, or nine, but if they had nine they would contaminate access to a critical location.

Initially they settled on a plan where half the ICU would be a biocontainment zone reserved for Covid-19 patients. Karsanow and the rest of the team built additional walls and doors so that if the patient count went up, they could easily convert the entire ICU into a Covid-19 ward. When that happened in early April, he had his team ready the pre-/post-operative recovery unit to serve. Thanks to the flattening of the curve, they haven’t had to use that section.

Karsanow walked the Covid-19 floors regularly in March and early April. “I felt safe because I knew I was following the protocol,” he says.

‘THIS IS OUR CALLING’

ICU assistant nurse manager Crystall Coe, BSN, RN, puts on all her PPE at the beginning of her shift and enters the biocontained area to care for her patients. It’s hot, sweaty, and irritating to wear the PPE for many hours at a time, and many people are getting sore spots on the bridge of their nose and
You can’t run away. You move forward and do your job,” Karsanow says. “Even when the stress of taking care of such ill patients, and the sadness of seeing some of them die, makes everyone tense.’

“We’re all a little grumpy, but at the end of the day we say, ‘I love you’ and keep going,” Coe says.

Out of the 5,022 workers at UConn Health, only 87, or 1.7%, had contracted Covid-19 as of June 10. Since there were no clusters of infection among employees working in close proximity, the team believes very few, if any, of the cases were acquired at work. The biocontainment zone and the protocols developed by Dieckhaus, Karsanow, and the rest of the Covid-19 surge preparedness team are largely to thank.

And yet in the back of his mind, Karsanow worries, not about the quality of his infrastructure and protocols, but about people.

“I worry people won’t have infinite patience to do this. At some point, something’s going to break down,” he says. Not necessarily in the hospital, but in society. Already people are tiring of self-isolation and quarantine. There will be second and third waves of Covid-19, he says Coe. Even when the stress of taking care of such ill patients, and the sadness of seeing some of them die, makes everyone tense.

“Every day another area steps up,” said Deb Abromaitis, the director of the Office of Accreditation and Regulatory Affairs who worked with the Department of Public Health to obtain approval for the testing site. “It’s been an unbelievable multidisciplinary effort. It has just been one great thing after another from our people.”

CRISPR-based Coronavirus Test In Development

Researchers in UConn’s Department of Biomedical Engineering — a shared department in the schools of Dental Medicine, Medicine, and Engineering — have been working to develop and have filed a patent application on a new, low-cost, CRISPR-based diagnostic platform to detect infectious diseases, including the novel coronavirus SARS-CoV-2.

Changchun Liu, associate professor, developed the “All-In-One-Dual CRISPRa-Cas12a” method to enable simple, rapid, ultrasensitive, visual detection of SARS-CoV-2 and HIV viruses, intended for use at home or in small clinics.

The polymerase chain reaction (PCR) method, currently considered the gold standard for disease diagnostics, relies on expensive equipment and well-trained personnel. Unlike the PCR, Liu’s method is isothermal yet has better sensitivity and specificity than other isothermal amplification technologies.

“We envision that such simple, affordable, and mobile diagnostics technology can be widely used for rapid diagnostics of the SARS-CoV-2,” Liu says.
To Keep Them Safe

When Covid-19 and resulting PPE shortages hit Connecticut, the UConn and UConn Health community collected, produced, and even invented ways to keep health workers safe — and, in the case of a special blue heart, to show them support.

1 Dr. Chris Wiles developed a 3D-printed frame to make usable for health care workers a supply of 40,000 face masks that UConn Health had in storage, and teams from Farmington and Storrs joined up to produce them.

2 Joe Luciani, director of UConn’s Proof of Concept Center, programmed his specialized laser cutting equipment to produce plastic face shields, sending hundreds per week to UConn Health.

3 Waltham, Massachusetts, cabinet company KVC Builders manufactured and donated intubation hoods to protect hospital staff from aerosols generated during intubation. Emergency Department Chief Dr. Robert Fuller and Dr. Paul Kaloudis also improvised their own version, with improved visibility and freedom of movement compared to others on the market.

4 Using facial recognition software and 3D printing, the Connecticut Convergence Institute for Translation in Regenerative Engineering developed a method to fabricate custom-fit mask frames that give conventional masks the optimal protective qualities of N95 respirators.

5 As the trend of displaying hearts to thank essential employees spread, a UConn Health doctor’s daughter and family created the “Blue Heart for Heroes” to honor the ones at UConn Health.

6 A group of alums are part of The Ventilator Project, a Boston-based volunteer effort to bring a low-cost emergency ventilator to market as quickly as possible.

7 Congregants at the Chinese Baptist Church of Greater Hartford, of which UConn Health professor of pediatrics Dr. Ching Lau is a member, tapped suppliers in China to purchase and donate more than 30,000 surgical and medical masks to UConn Health and other Hartford-area hospitals.

8 Within days of classes going online, Chemistry Department assistant professor in residence Yashan Zhang, Ph.D., spurred an effort to send pallet-loads of unused lab supplies from departments across campus to UConn Health, and the UConn Bookstore donated 1,000 disposable scrubs and about 500 splash goggles.

9 UConn employees and graduate students in the Fraunhofer USA Center for Energy Innovation started producing UConn Nation hand sanitizer to World Health Organization specifications, donating bottles to local facilities and charities including Covenant Soup Kitchen in Willimantic.

BRAVE NEW WORLD

Crystall Coe, assistant nurse manager in the intensive care unit at UConn John Dempsey Hospital, is among the first to use a custom-fit frame over her mask.

A load of donated supplies on its way to UConn Health.

From left, Justin Schroeder ’20 (ENG), Noah Pacik-Nelson ’20 (ENG), Matt Grasso ’19 (ENG), and Mark Waldner ’19 (CLAS).
UConn Team Collaborating on Potential Coronavirus Vaccines

Just as he did with Zika, UConn pathobiologist and associate professor Paulo Verardi, Ph.D., and his research team wasted no time when they started seeing Covid-19 headlines, quickly beginning to brainstorm vaccine designs and connect with collaborators. By the time government shutdowns hit Connecticut in mid-March, Verardi’s team had joined an international collaboration supported by $115 million in funding from China’s Evergrande Group, a Fortune Global 500 company. The collaboration allows the vaccines Verardi’s team designs at UConn to be tested by a team at Boston University’s National Emerging Infectious Disease Laboratories. Verardi’s team is working with non-infectious genetic material from the virus to create virus-like particles that they hope make an effective vaccine.

Potential Coronavirus Vaccines

UConn Team Collaborating on

Verardi’s team is working with non-infectious genetic material from the virus to create virus-like particles that hope make an effective vaccine.

Modeling Virus Spread to Identify Drug Targets

In an effort to help other researchers and drug companies target potential treatments for Covid-19, a UConn team is building mathematical models of how the SARS-CoV-2 virus replicates.

Drawing on his previous work in mathematically modeling how the hepatitis B virus spreads, UConn Chemical and Biomolecular Engineering head Ranjan Srivastava, Ph.D., realized he could apply the principles of what he knew to the behavior of the novel coronavirus. “Our goal is to mathematically model how the virus replicates within an infected cell and how the infection spreads within the human body,” Srivastava says. “If we can model how the virus replicates, we can identify the best drug targets to interrupt that process.”

While the final product is about a year away, Srivastava expects to have some crude simulations available this summer, allowing drug researchers to simulate different combinations of solutions against the virus.

“Oftentimes, a combination of drugs is the best approach to treating viruses. However, viruses can be very complex, and it is not always clear what combination will have the strongest impact,” Srivastava says. “The benefit of our approach is we can rapidly identify good drug combinations and immediately use medicine that is already available on the market.”

UConn Health Tests Convalescent Plasma Treatment

Dozens of UConn Health Covid-19 patients have received convalescent plasma from those who have recovered from the illness as part of a program launched in April to study the treatment.

“It has been remarkable how many people have done really well and were discharged fairly quickly after their transfusion,” says infectious disease specialist Dr. Lisa Chirch. “In the absence of a clear, effective medication for this virus, plasma is something we can be doing routinely with relatively low risk and significant potential to be helpful, especially early on.”

Under a protocol developed by the Mayo Clinic, the lead institution providing coordinated access to investigational convalescent plasma for hospitalized patients, UConn Health is investigating the use of the plasma for those with severe or life-threatening Covid-19 or those at high risk of progression to severe or life-threatening disease.

To be a volunteer donor, a person must have received convalescent plasma from UConn Health Covid-19 patients who are suffering from Covid-19. If the blood is suitable, the antibody-containing plasma will be used to treat patients who are suffering from Covid-19.

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On May 14, the Connecticut Air National Guard flew over UConn Health in a salute to health care workers during the global Covid-19 pandemic.

National Science Foundation Rapid Response Research grant, will be carried out by Srivastava and his team through coding and running simulations. All of their work will be publicly available for any researcher to use.

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“The use of convalescent plasma is not new to medicine,” says Dr. Mauricio Montezuma, the principal investigator of the study. “Data on convalescent plasma in Covid-19 is limited; however, two small reports from China are promising.”

Several UConn Health employees joined the project as it launched, donating their plasma through the American Red Cross, which has the technology and license to process the plasma.

“We decided that health care employees deserved to have the first opportunity to participate in this program,” says Chirch. “We are all aware of how hard-hit the health care community has been by this pandemic, including UConn Health employees. The fact that so many who have been ill and recovered have stepped up to donate is a testament to their resilience and dedication.”

The study is now open to volunteers from the public. To learn more about eligibility requirements and to register, visit s.uconn.edu/redcrossplasma.

Dementia Gene Raises Risk of Severe Covid-19

Having a faulty gene linked to dementia doubles the risk of developing severe Covid-19, says a large-scale study by researchers at UConn School of Medicine and University of Exeter Medical School.

“This is an exciting result because we might now be able to pinpoint how this faulty gene causes vulnerability to Covid-19. This could lead to new ideas for treatments,” says co-author Chia-Ling Kuo, Ph.D., assistant professor in the Department of Public Health Sciences and a researcher at Connecticut Convergence Institute for Translation in Regenerative Engineering and the UConn Center on Aging.

“It’s also important because it shows again that increasing disease risks that appear inevitable with aging might actually be due to specific biological differences. It could help us understand why some people stay active to age 100 and beyond while others become disabled and die in their 60s.”

Visit s.uconn.edu/covidresearch for an up-to-date roundup of UConn Covid-19-related research.

Paulo Verardi is a researcher in UConn’s Center of Excellence for Vaccine Research.

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Visit s.uconn.edu/covidresearch for an up-to-date roundup of UConn Covid-19-related research.
What’s more, brushing your teeth twice a day won’t just give you a dazzling smile — study after study has shown that maintaining excellent oral health is critical to staying healthy, especially in older patients.

This link drives the interprofessional nature of the education and research at the UConn School of Dental Medicine, part of a growing trend to better prepare every member of the health care team to treat the overall health of the patient as part of an interdisciplinary collaboration.

**What Lies Beneath**

At UConn Health, this comprehensive education begins at the start of dental and medical school. Students from both schools participate in a shared biomedical sciences curriculum during their first 16 months.

“The curriculum at UConn Health is very special,” says Dr. Douglas Peterson, professor of oral medicine and a lead faculty member for the interprofessional curriculum. “It capitalizes upon high quality basic and clinical science, and positions students and faculty from UConn professional schools to continue to learn how best to treat a medically complex patient based upon the highest quality scientific evidence.”

Interprofessional health care is vital to meeting the challenges of health care today. It requires the entire health care team — including but not limited to dentists, physicians, nurses, pharmacists, and social workers — to collaborate to provide safe and effective treatment. For School of Dental Medicine students, this concept is taught both in the classroom and in the clinics.

“From the dental medicine perspective, our faculty works with dental students in lectures, seminars, and clinical settings throughout the four year curriculum to continually highlight the scientific and clinical relationships between oral and systemic health and disease,” says Peterson.

To that end, dental students are trained to notice the ways certain systemic diseases manifest in the mouth. Dentists are often the first line of defense, able to perform testing to either rule out the suspected underlying cause or refer patients to their physicians for further evaluation and treatment when needed.

“The interface between oral health and disease and systemic health and disease is centrally important,” says Peterson. “We teach the dental and medical students that, if we detect an oral disorder for which the cause cannot be completely attributed to oral factors, we then need to think about the possibility of a systemic relationship to the oral condition.”

In one prevalent example, dentists have become increasingly instrumental in detecting untreated diabetes. More than 21 percent of the 34.2 million people in the U.S. with diabetes were not aware of or did not report having the disease, according to 2020 Centers for Disease Control and Prevention data.

The relationship between diabetes and periodontal disease is one of the best-studied connections between an underlying medical condition and its oral manifestation, says Dr. Rajesh V. Lalla, UConn School of Dental Medicine professor and associate dean for research.

“The common and preventable gum disease periodontitis manifests as red,
Medicine oral pathologist Easwar Natarajan, BDS, D.M.Sc., examines a sample under a microscope.

In 2018, general dentistry residents at UConn Health began a pilot study to assess the feasibility and impact of implementing a diabetes screening protocol in UConn’s dental clinics. Patients deemed at risk were offered chairside HbA1C testing, which measures average blood glucose levels over a three-month period. Nearly 60% of patients tested were found to be in the pre-diabetic range and received referral to primary care for diagnosis and treatment. Early intervention with prediabetic patients has been shown to cut the risk of developing type 2 diabetes in half.

Dentists might also be the first to notice symptoms of HIV or cancer. Oral candidiasis, an oral fungal infection that may signify a weakened immune system, was one of the first diagnostic signs of HIV when the epidemic started in the early 1980s, according to Dr. Anna Dongari-Bagtzoglou, professor and head of the department of oral health and diagnostic sciences at the School, who has been studying oral candidiasis for over two decades.

An unusual lesion or sore detected during a routine check-up could trigger screenings and a biopsy, as it could mean oral cancer.

“It is important to be evaluated by a dental professional on a regular basis. If a potentially serious mouth condition is developing, early diagnosis and treatment is key,” says Peterson. “Our dental students graduate from UConn knowing that considering the patient’s overall health — rather than just what’s going on in their mouth — could make a big difference in a patient’s health and well-being.”

Two-Way Street

On the flip side, UConn Health researchers also contribute to the growing body of evidence that shows keeping your mouth healthy helps keep the rest of you healthy. Large-scale studies published by the American Heart Association and American Academy of Periodontology have shown that patients with poor oral hygiene have been found to be at increased risk of heart attack, heart failure, stroke, and respiratory disease. A recent paper published in the Journal of the American Geriatrics Society by Dr. Patrick Coll, professor of family medicine and medicine at the UConn School of Medicine, with UConn School of Dental Medicine faculty coauthors, examined the links between poor oral hygiene and systemic infection in older patients. It also emphasized the importance of health care providers of all types encouraging good oral hygiene and how to provide it, they write.

“There are many aspects to promoting healthy aging, and oral health is an important piece,” Coll says. Coll says he and the rest of the interprofessional health care team at UConn are committed to providing the very best health care, including oral care, based on the latest research and clinical evidence.

“The overall goal of this line of health care is centered in the UConn Health mission to achieve and maintain patient wellness,” says Peterson.

Poor oral health and aging can also lead to tooth loss, affecting a person’s ability to chew, potentially leading to malnutrition.

Coll and his coauthors recommend eldercare facilities adopt interventions to help combat the barriers older populations face in receiving proper oral care. Patients with dementia may neglect their oral health and be reluctant to see a dental hygienist, for example, and nursing home residents often receive inadequate care despite federal requirements, the UConn experts say.

Medicare doesn’t currently cover dental care, making it difficult for low-income seniors to see a dentist. Nursing homes should adopt risk assessment tools to identify patients at high risk for poor oral hygiene and should educate staff on the importance of good oral hygiene and how to provide it, they write.

“‘The overall goal of this line of health care is centered in the UConn Health mission to achieve and maintain patient wellness,” says Peterson.”

Our dental students graduate from UConn knowing that considering the patient’s overall health — rather than just what’s going on in their mouth — could make a big difference in a patient’s health and well-being.”

— Dr. Douglas Peterson, UConn Health Professor of Oral Medicine
Her grandmother died of a ruptured brain aneurysm, and Diana Fritzson was 38 when her mother died of the same cause at age 63. Fritzson refused to be the third link in that chain.

After discovering aneurysms do run in some families, Fritzson sought annual screenings, which came back clean. “Maybe I dodged this,” she thought.

But during her screening in 2014, a small balloon in one of her blood vessels appeared. For another four years, Fritzson waited and watched under the care of her neurologist, her anxiety growing. She worried every time she suffered a migraine, but low likelihood of rupture and her overall good health meant the doctor wasn’t too concerned.

Fritzson, though, was scared. “I saw my mother die. I knew my grandmother died of this. What am I going to do, sit here and wait for it to rupture?” she remembers thinking.

Like Fritzson, about 6.5 million Americans have brain aneurysms, a bulging weak spot in the wall of a brain artery that has a 1% chance of rupturing or leaking, sending blood into the brain and causing what’s called a hemorrhagic stroke. Aneurysms aren’t the only cause of brain bleeds; they can also result from cavernomas, arteriovenous malformations, hypertension, and head trauma.

Strokes are the fifth leading cause of death in the U.S., killing about 146,000 people each year, according to the American Stroke Association. There are two types, and 87% of strokes are the other kind — ischemic strokes, in which an artery is blocked by a clot.

UConn Health’s award-winning primary stroke center is well equipped to handle the most complex cases of either type. The 2017 addition of neurosurgery chief Dr. Ketan Bulsara elevated UConn Health’s ability to offer world-class care and become a tertiary referral center for the full spectrum of strokes, including the most complex requiring surgical or endovascular intervention.

But Bulsara doesn’t only want to save those facing a life-threatening emergency.

Through early detection and expert treatment, he wants to prevent the potentially catastrophic results of a stroke. He wants to help people like Diana Fritzson.

Just imagine the comfort of knowing that your brain aneurysm is taken care of, that you don’t have to worry about every headache that you have.
I saw my mother die. I knew my grandmother died of this. What am I going to do, sit here and wait for it to rupture?

Brain aneurysms can be treated in two primary ways: through microsurgery — placing a titanium clip across the neck of the aneurysm, as in Fritzon’s case — or endovascular surgery, which entails putting coils into the aneurysm. UConn Health, with its state-of-the-art, biplane hybrid operating room that allows for a range of surgical procedures, can offer the full range of treatment options like few other medical centers, Bulsara says.

Though the microsurgical clipping procedure involves a craniotomy, for Fritzon’s aneurysm, it was a sure bet and had a low risk profile. And she was in skilled hands — Bulsara was trained by neurosurgery pioneers who developed many of the procedures used today.

“Just imagine the comfort of knowing that your brain aneurysm is taken care of, that you don’t have to worry about every headache that you have,” Bulsara says. “For Diana, every headache would no longer cause fear that what happened to your mother and grandmother could happen to you.”

With more awareness and research available and easier access to surveillance imaging, lesions such as aneurysms that can be treated before problems arise are being detected in more and more patients. The advanced neurosurgical care offered by UConn Health’s multidisciplinary team is shaping the future of treatment for these potentially catastrophic lesions, Bulsara says.

Fritzon, for one, hasn’t regretted her decision for a second. Since her surgery in August 2018, she has dedicated much of her time to advocating for others, raising money for the Brain Aneurysm Foundation through an annual 5K in West Hartford that she started and founding the state’s first brain aneurysm support group in partnership with the Brain Aneurysm Foundation and UConn Health. She also represented the state at the American Heart Association’s highest level of recognition, the Get With The Guidelines Gold Plus and Target: Stroke Elite Plus Award. Among other factors, the honor recognizes that at least 85% of UConn Health ischemic stroke patients receive clot-busting drugs within 60 minutes of coming through the door.

“I’m now a really confident advocate,” says Fritzon, who lives in Marlborough, Connecticut. “I sat down and Dr. Bulsara talked to me like a human being. He validated my concerns, and within 10 minutes he understood my constant anxiety and that my quality of life was affected by what I was going through.”

“By the second visit, he said, ‘Diana, I can go in and clip this aneurysm. I’m confident that I can do this for you safely.’”

She decided to go ahead with the surgery. The neurosurgery team coordinated all her care, and Bulsara was her personal point of contact.

When a stroke occurs, patients need to get to the closest stroke center as fast as possible — studies show every minute without treatment kills nearly 2 million brain cells.

For patients close to Farmington, there is no better choice than UConn John Dempsey Hospital, which in 2019 earned the American Heart Association’s highest level of recognition, the Get With The Guidelines Gold Plus and Target: Stroke Elite Plus Award. Among other factors, the honor recognizes that at least 85% of UConn Health ischemic stroke patients receive clot-busting drugs within 60 minutes of coming through the door.

Since Dr. Sanjay Mittal was hired as medical director of the stroke program in 2013, UConn John Dempsey Hospital has been certified as a primary stroke center by accrediting body The Joint Commission and has met increasingly more stringent guidelines.

A “stroke alert” procedure ensures patients are whisked into a CT scan within 10 minutes of arrival at UConn Health to determine what type of stroke they’re having. Neurologists available around the clock, state-of-the-art radiology, and pharmacists on call to dispense clot-busting drugs mean the team can act fast.

The 2017 addition of Dr. Ketan Bulsara, UConn Health neurosurgery chief, means the hospital can now offer the full range of surgical and endovascular treatment options for both ischemic and hemorrhagic stroke.

One of these procedures is mechanical thrombectomy, a lifesaving, highly specialized endovascular procedure only done at a few hospitals in the state, to remove clots in patients’ brains. A cutting-edge neuroimaging technique using software called RAPID at UConn Health helps determine which patients might be good candidates for the procedure, potentially quadrupling the narrow window for intervention to 24 hours from the onset of symptoms. Dr. Abner Gershon, assistant professor of radiology, is also involved in the care of patients requiring mechanical thrombectomies.

“We’re constantly seeking improvement. Everyone works really hard,” says stroke program coordinator Jennifer Sposito, RN. “But what really sets us apart is we do it all in a really personalized manner. We truly treat patients as part of the family.”

STROKE CENTER

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New Gynecologic Oncologist Complements Experienced Team

When the carcinomas of the female reproductive tract are surgically removed, patients are confronted with a barrage of emotions that can be overwhelming. Dr. Jennifer Jorgensen, who recently completed a gynecologic oncology fellowship at Albert Einstein College of Medicine in New York City, has joined UConn Health's gynecologic oncology team at the Carole and Ray Neag Comprehensive Cancer Center. Years of experience, fresh perspective, and a comprehensive team approach combine to provide unparalleled care in UConn Health's gynecologic oncology team at the Carole and Ray Neag Comprehensive Cancer Center.

Dr. Jennifer Jorgensen, who recently completed a gynecologic oncology fellowship at Albert Einstein College Hospital in the Bronx, N.Y., has joined Dr. Molly Brewer, Dr. Bradford Whitcomb, and a team of nurses to provide complete cancer care from diagnosis through treatment, whether a patient needs surgery, chemotherapy, radiation, or palliative care.

All three doctors provide surgery options that include open, laparoscopic, vaginal, and robotic techniques to treat all types of gynecological cancers including vulvar, ovarian, vaginal, cervical, and uterine. They also treat patients with premalignant lesions and those at high risk due to genetics, using molecular and genetic data to provide better outcomes for the patient. During her residency and fellowship, Jorgensen spent a lot of time with those at high risk due to genetics, using molecular and genetic data to provide better outcomes for the patient.

Understand the socioeconomic issues and support systems that play into a patient's care. Knowing of the potential barriers, Jorgensen is dedicated to focusing on the whole patient and emphasizes the importance of community outreach. Multidisciplinary specialists including nurse navigators, social workers, behavioral health specialists, and genetic counselors are integrated into the team, ensuring a patient will be connected with a resource for any need that may arise.

It's early in her career, so Jorgensen says she soaks in all she can from her teammates. "Dr. Brewer is an exceptional mentor and role model, helping me with her experience, but also making sure that she helps everyone around her grow," says Jorgensen. "Dr. Whitcomb is a great mentor on the day-to-day practical. I find everyone here so dedicated to their job and the patients."

Brewer, Obstetrics and Gynecology chair, has been a pioneer for women in the field for over 20 years. She is often heard saying, "I love my patients." She says the shortage of taking care of women with difficult cancers, and the inspiration of watching them make it through, is why she chose gynecologic oncology. Whitcomb is a retired U.S. Army lieutenant colonel who served in the Army Medical Department for more than 25 years. His first wife died of advanced breast cancer, giving him a new perspective on how to care for patients with advanced or recurring cancers.

"I very much care about the families," he says.

Multidisciplinary, Compassionate Care for MS Patients

In the short time since he arrived at UConn Health in summer 2019 to lead the multiple sclerosis (MS) and neuroimmunology program, Dr. Jaime Imitola has begun transforming the way that MS care is delivered. Over the last decade, MS diagnoses have been occurring earlier than ever, with most patients learning they have the disease in their 20s and 30s, and some in their teens, says Imitola, who created and led the Progressive MS clinic at Ohio State University prior to joining UConn Health.

Imitola says, "No one is prepared to be diagnosed with anything," he says. "But it's especially heartbreaking when you have to deliver the news to someone who is 17 years old and in the prime of their life, or 20 to 30 when they are thinking about a job or a family of their own. "Often, they get angry," Imitola says. "And we want to help them in any way we can to restore the balance that is lost when you get the devastating news that you have a disease that will be with you for the rest of your life."

But with earlier diagnosis comes the opportunity for earlier intervention. And earlier intervention can lead to the delaying of the onset or worsening of symptoms and progression. "My job is to make sure the potential for a life remains," Imitola says.

After seeing his first MS patient in medical school, Imitola dedicated himself to studying the autoimmune disease and has been internationally recognized for his work to understand the role and impact of inflammation on stem cells in MS and his search for a cure with neural stem cells. While his expertise is unparalleled, it's his team's compassion and desire to help patients understand the disease and treatments that is making UConn Health's Multiple Sclerosis Center the premier point of care in the region.

Since joining UConn Health, Imitola's early efforts to strengthen the program have included launching a partnership with the National Multiple Sclerosis Society, a roundtable to discuss pressing issues for patients in the area, and a symposium to educate providers in the region about current MS diagnosis and care standards. UConn Health's MS patients can take advantage of an on-site infusion center, a new support group, “life therapy,” a novel concept in rehabilitation medicine; and a comprehensive, multidisciplinary team.

“Our patients are strong and resilient. They overcome challenges daily,” Imitola says. “And, with us, they have a dedicated and invested team behind them to support them every step of the way.”
Neuro-Oncologist Thrives on Constant Improvement

The last thing we are here is stagnant.

— Dr. Kevin P. Becker

When Dr. Kevin P. Becker decided to leave Yale University to join UConn Health, he was thrilled by the chance to lead UConn’s burgeoning neuro-oncology program, part of the Division of Neurosurgery in collaboration with the Department of Neurology and the Carole and Ray Neag Comprehensive Cancer Center.

“To come up here to develop the program from the ground up was an extremely unique opportunity,” Becker says. “It was the best decision I could have made. The potential here for neurosurgery and neuro-oncology is tremendous.”

Becker is a board-certified neurologist and fellowship-trained neuro-oncologist specializing in treating patients with brain, spine, and nervous system tumors. He is director of medical neuro-oncology and assistant professor of surgery and neurology in the UConn School of Medicine.

The biggest challenge so far in establishing UConn’s neuro-oncology program, says Becker, is the competition from other centers around the state. But between patients who have followed him to UConn and those who have learned of UConn Health’s new, advanced offerings, the caseload is “exploding,” Becker says.

A top priority for Becker is building on UConn’s collaboration with the Preston Robert Tisch Brain Tumor Center at Duke University, which will enable patients to participate in the latest clinical trials.

The interdisciplinary collaboration and a patient-centered approach to care sets UConn Health’s neuro-oncology team apart, according to Becker.

“The extent of collaboration is extraordinary right across the board,” he says. “It just seems to work somewhat seamlessly in most cases, and I think that’s something I wasn’t really experiencing” prior to coming to UConn Health.

“We work as a team,” he says. “There is such acute attention to supporting the patients, all the way through social work support and palliative care, on a level I have not seen before.”

The team approach across disciplines and the recent additions of Becker and Dr. David Choi, the only neurosurgeon in Connecticut with fellowship training in spinal oncology, to the expert team at UConn Health means the hospital is poised to handle virtually any brain or spine tumor case in a world-class fashion, according to Dr. Ketan Bulsara, chief of the Division of Neurosurgery, who previously worked with Becker at Yale.

Further, “there are very few neuro-oncologists in the world with the experience and level of training of Dr. Becker,” Bulsara says.

As he works toward goals like formalizing a regularly scheduled neuro-oncology tumor board meeting and developing a robust clinical trial program, Becker says the organization’s drive toward constant improvement and growth makes the difference for patients who choose UConn Health.

“I think me coming on board was that last piece in the puzzle that has glued us together as what I think is ultimately a major tertiary center for brain tumor and spinal cord tumor treatments,” he says. “It’s only going to get better.”

“You just never want to go to a place that’s stagnant, and the last thing we are here is stagnant.”

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Empowering the HIV Community
Two NIH-funded study programs at UConn School of Medicine seek to address problems faced by those living with HIV and those at risk of contracting the disease. The PROMOTE study, led by Dr. Carla Rash, will receive $3.4 million from the National Institute on Minority Health and Health Disparities for her EMPOWER program, testing ways for her EMPOWER Health Disparities grant to support patients interested in seeking employment through weekly job-seeking employment activities. The researchers are counseling HIV-positive patients interested in seeking employment through weekly job-related activities. Dr. Kristyn Zajac is using a $2.8 million, five-year grant from the National Institute on Drug Abuse to help unemployed persons living with HIV obtain jobs. The researchers are counseling HIV-positive patients interested in seeking employment through weekly job-related activities.

How Do Repeats Influence Genome Biology?
Christine Beck, Ph.D., an assistant professor of genetics and genome sciences at UConn Health and researcher at The Jackson Laboratory for Genomic Medicine, will receive approximately $2 million from the National Institute of General Medical Sciences to reveal the impact of transposable elements on our genome and our health. Throughout human history, our genomes have been subject to mutation. They have reshuffled and duplicated parts of themselves, and some of this has happened through a process known as transposition. About 50% of human DNA today is made of duplicated sequences that are the remnants of transposition events that took place in our evolutionary history. “Successful completion of these investigations will greatly increase the existing knowledge of repeat-mediated rearrangements in mammalian genomes and expand our understanding of how repeats influence genome biology,” Beck says.

Apathy and Reward in Alzheimer’s Disease
Dr. David Steffens, chair of psychiatry in UConn’s School of Medicine, and co-investigators at UConn Health received a $491,000, two-year award from the National Institute of Mental Health to study apathy, the most common neuropsychiatric symptom in patients with Alzheimer’s disease. Apathy syndromes recently have been tied to brain-based positive valence systems, which are responsible for responses to positive situations. The researchers will examine how Alzheimer’s-associated apathy differs from apathy in people diagnosed with late-life major depression by using functional magnetic resonance imaging (fMRI) and tasks that focus on the brain’s reward system. This research will help to identify new targets for intervention to improve apathy in patients with Alzheimer’s and will also further knowledge regarding differences in reward-based neurobiology.

How can health care providers support each other during a situation like this?
It is important to reach out to those who may be more vulnerable to the illness or the stress of caring for patients under these circumstances and offer assistance and support. Volunteering to help out when staffing is short, or to cover basic needs like shopping for those unable to get out due to being quarantined, can provide enormous relief to those who are having difficulty coping with the crisis.

What kinds of things should providers watch for in themselves or their colleagues to avoid going down the path to burnout?
If you feel yourself getting burned out, it is important to let someone know about it and seek help. If you see someone else looking burned out, say something! Watch for signs of burnout including depression, despair, irritability, treating patients like “cases” or “numbers” rather than people, and loss of a sense of personal achievement. If providers start to notice these signs, they need to ask for help.

What are some self-care recommendations that can mitigate the stress and other complications that come with an ongoing public health crisis?
It is important to have downtime that you can devote to your own self-care. Get adequate sleep and exercise. Practice mindfulness, and treat yourself to things you enjoy. Take walks and spend time in nature. Cultivate a positive attitude. Listen to music you enjoy. Talk with family and friends. If you are not coping, seek help from friends or professionals.

Can something like this have the opposite effect of burnout, as in, times like this are the reason people got into health care?
Most health care providers entered the field because they want to make a positive difference for their patients, and challenges like the Covid-19 pandemic can spark renewed interest in medicine and reinvigorate some clinicians to join the fight against the virus. Some older physicians have come out of retirement to answer calls for help in this crisis. The surge of creativity is obvious on social media, with so many innovative ideas, humor, and constructive solutions like making face masks, blogs that exchange information about how to treat Covid-19 patients, and sharing of coping mechanisms. These remind us that we are all in this together, and we will get through it together.

Preventing Provider Burnout
Burnout is a real concern in health care, especially during a public health crisis of unknown scope and duration. Dr. L. John Greenfield, who is studying physician burnout, shares his observations on how the stress of the Covid-19 pandemic can impact the providers on the front lines.

How long can it take to recover from ongoing stressful situations or provider burnout?
Recovery from burnout does not follow a predictable timeline and differs for everyone. It may depend on whether this is purely situational or if you might be prone to depression even without the additional stress. Recovery is an active process and may take ongoing effort and help from professionals.

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In this evolving environment, we are as committed as ever to providing useful resources and expert care to you and your patients.

**REFERRING PHYSICIANS LINE:** 860-679-5555  
**COVID-19 CALL CENTER:** 860-679-3199  
**PATIENT RESOURCES:** health.uconn.edu/coronavirus