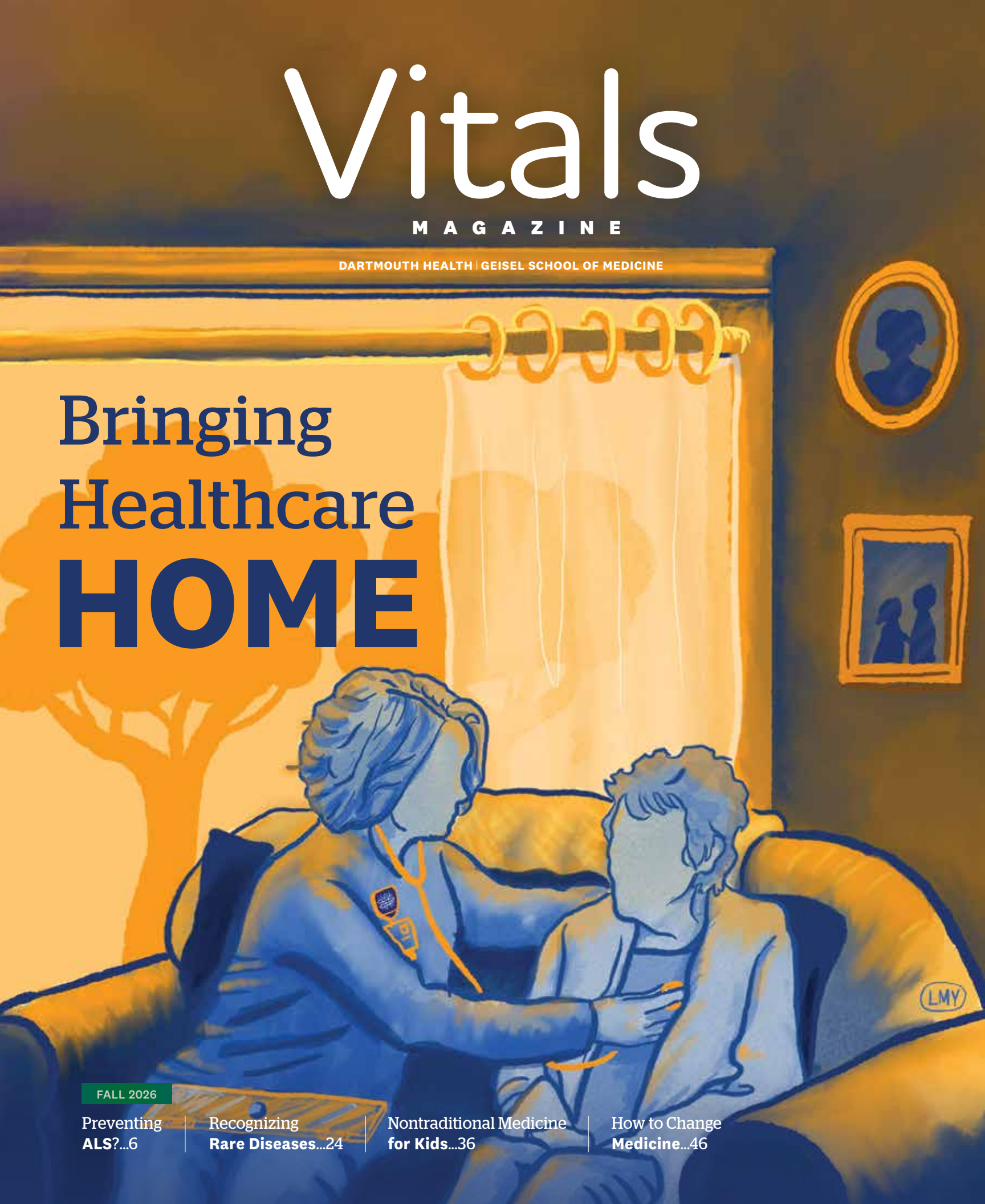
Vitals

MAGAZINE

DARTMOUTH HEALTH | GEISEL SCHOOL OF MEDICINE

Bringing Healthcare HOME



FALL 2026

Preventing **ALS**?...6

Recognizing **Rare Diseases**...24

Nontraditional Medicine **for Kids**...36

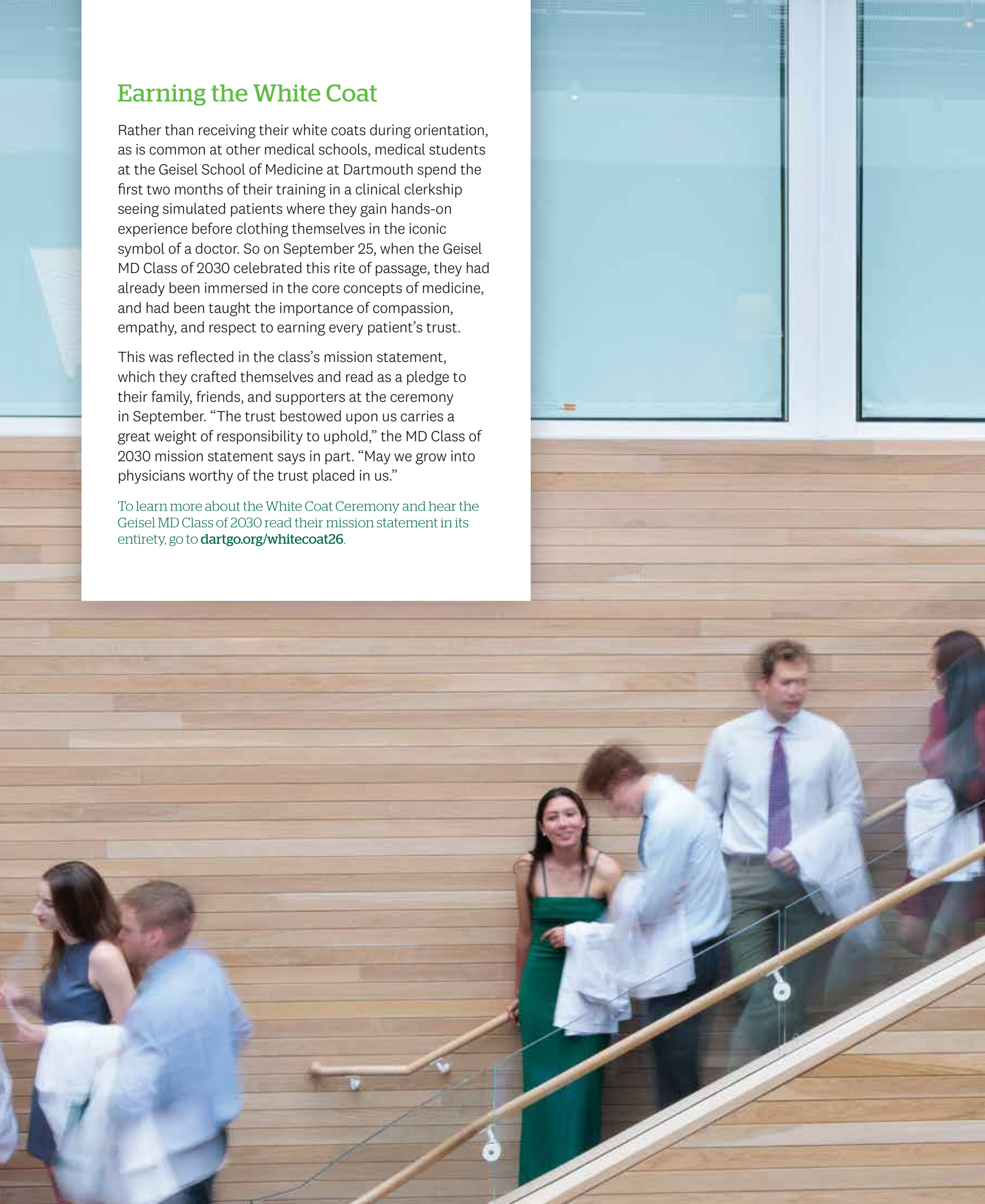
How to Change **Medicine**...46

Earning the White Coat

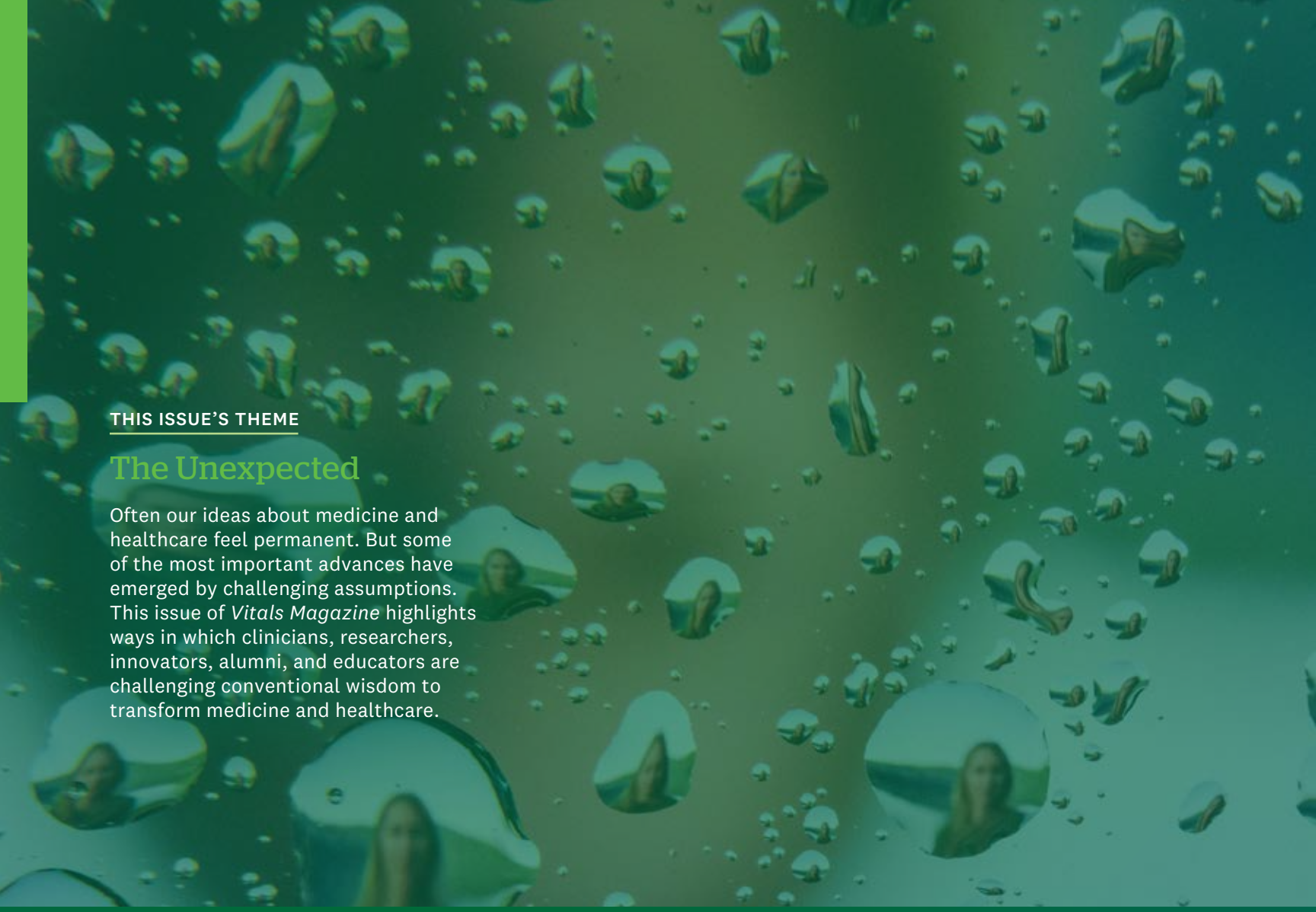
Rather than receiving their white coats during orientation, as is common at other medical schools, medical students at the Geisel School of Medicine at Dartmouth spend the first two months of their training in a clinical clerkship seeing simulated patients where they gain hands-on experience before clothing themselves in the iconic symbol of a doctor. So on September 25, when the Geisel MD Class of 2030 celebrated this rite of passage, they had already been immersed in the core concepts of medicine, and had been taught the importance of compassion, empathy, and respect to earning every patient's trust.

This was reflected in the class's mission statement, which they crafted themselves and read as a pledge to their family, friends, and supporters at the ceremony in September. "The trust bestowed upon us carries a great weight of responsibility to uphold," the MD Class of 2030 mission statement says in part. "May we grow into physicians worthy of the trust placed in us."

To learn more about the White Coat Ceremony and hear the Geisel MD Class of 2030 read their mission statement in its entirety, go to **dartgo.org/whitecoat26**.







THIS ISSUE'S THEME

The Unexpected

Often our ideas about medicine and healthcare feel permanent. But some of the most important advances have emerged by challenging assumptions. This issue of *Vitals Magazine* highlights ways in which clinicians, researchers, innovators, alumni, and educators are challenging conventional wisdom to transform medicine and healthcare.

Vitals Magazine

STORIES ON HEALTH AND MEDICINE

Fall 2026

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In This **ISSUE**

Features

06 **Preventing ALS?**

10 **Sustaining Cancer Care through Climate Disruption**

12 **An Unexpected Place for Healthcare**

22 **Reprogramming Chronic Pain**

24 **Recognizing Rare Diseases**

30 **Grief Motivated the Creation of These Programs**

36 **Nontraditional Medicine for Kids**

42 **The Accident Advantage**

46 **How to Change Medicine**

Sections

04 A Note from Leadership

32 Snapshots: From Farm to Bedside

40 The Future of Our Children's Hospital

50 Briefly Speaking

56 Alumni Perspectives

58 The Ripple Effect of Giving

For more *Vitals Magazine* storytelling, go to ***vitalsmagazine.dartmouth.edu.***

Far From Bystanders, We Are **This Community**



We sometimes work under a difficult irony here at Dartmouth Health and the Geisel School of Medicine at Dartmouth. The beauty of our rural setting and the way of life it affords us belies one of the most significant challenges in medicine today: How to deliver state-of-the-art healthcare where patients might be hundreds of miles away from a hospital, where weather and terrain can disrupt access to care, and where our aging population's medical needs are growing more complex each year.

These challenges are front and center for us. We are not just doctors, nurses, technicians, professors, researchers, and learners—alongside our family members, friends, and neighbors, we are patients, too. Solving the challenges in rural healthcare is personal for us.

That is no accident of circumstance—it's intentionally part of our strategic decision-making. As Dartmouth President Sian Leah Beilock, PhD, has noted, rural health is "one of the hardest problems in American medicine—one that Dartmouth has chosen to own." Indeed, just last fall, she named rural health and society as a key priority across the College's undergraduate and graduate programs. "Where you live shouldn't determine the care you get," she said.

That sentiment underlies everything we have been doing for many years—and is most recently reflected in the launch of Dartmouth Health at Home, a set of programs focused on transforming how we care for our aging populations. These initiatives will bring a broad spectrum of clinical care and healthcare delivery innovation to patients in their own homes. We will ensure patients can remain where they feel most comfortable and can heal safely at home by providing the necessary support for both the patients and their loved ones. We know that the rural setting makes this both a monumental task and an imperative.

With the combined power of our clinical, research, and educational enterprises, Dartmouth Health at Home will redefine how care is delivered in a rural setting by reducing our patients' barriers to accessing care and creating a model for how rural health systems around the country—and the globe—can operate.

> "We are not just doctors, nurses, technicians, professors, researchers, and learners...we are patients, too."
>
> **—Joanne M. Conroy, MD, and Jennifer Hunt, MD, MEd**

We are in the business of changing healthcare and medicine not just for our own community but in ways that are intentionally designed for the world to adopt as well. That work—like everything we do—is both grounded in our rurality and fueled by the entrepreneurial spirit woven throughout our institutions.

Our students and trainees are embedded into our community and trained to become leaders that know how to create systems of change within healthcare. Through Geisel's Rural Health Pathway of Concentration, students can augment their clinical training with curated co-curricular and experiential learning. The Pathway graduated its first cohort this past spring.

Each year, we host the Rural Health Symposium, creating a forum for experts and practitioners from around the globe to tackle real-world barriers like healthcare worker shortages, transportation limits, financial hardships, and the sustainability of rural hospitals, and to build actionable steps with real impact.

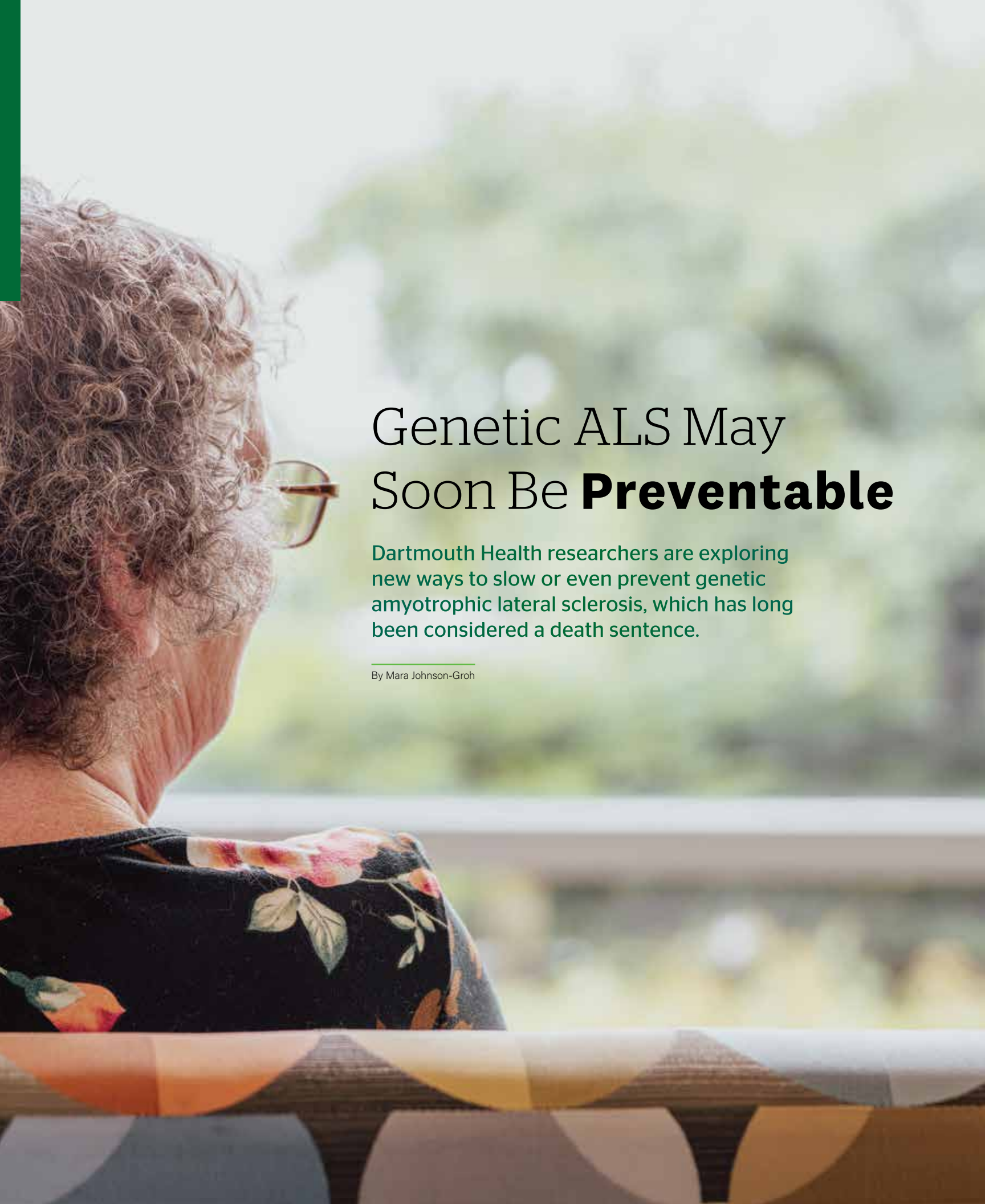
Both the Dartmouth Health Center for Rural Health Care Delivery Science and Dartmouth Health Center for Advancing Rural Health Equity are leading the way in our understanding of rural health through research, addressing the problem by building community relationships and expanding our outreach.

With 20% of Americans living in rural areas (a statistic that more than doubles here in northern New England) we are enthusiastic about our ability to serve as innovators in this area. By harnessing the shared resources across our institutions, we are emboldened to tackle this complex problem with a simple goal: to help those in our rural communities live their healthiest, longest lives possible.

To learn more about Dartmouth Health at Home, turn to page 12.

Joanne M. Conroy, MD
CEO and President
Dartmouth Health

Jennifer Hunt, MD, MEd
Dean
Geisel School of Medicine



Genetic ALS May Soon Be **Preventable**

Dartmouth Health researchers are exploring new ways to slow or even prevent genetic amyotrophic lateral sclerosis, which has long been considered a death sentence.

By Mara Johnson-Groh

Linda Commo watched her father pass away just three years after his diagnosis. Now she, too, has ALS.

When Linda Commo first started noticing the symptoms, she recognized what it was right away. Her issues lifting her right arm and holding objects matched what she had watched her dad experience two decades prior. It would take her nearly two years to get tested, but when the results came in, her self-diagnosis was correct: It was amyotrophic lateral sclerosis, or ALS.

Sometimes known as Lou Gehrig's, ALS is a merciless neurodegenerative disease that attacks motor neurons in the brain, leading to the loss of muscle control. While the symptoms start small, they quickly advance to loss of mobility, speech, and eventually breathing. For a long time, a diagnosis of ALS has been considered fatal, with most patients only having a few years to live. Commo's dad passed away just three years after his diagnosis.

But with the help of new research at Dartmouth Health's Dartmouth Hitchcock Medical Center (DHMC), that prognosis is beginning to change, particularly for familial ALS, a genetic form that affects some 10–15% of ALS patients according to the ALS Association, including Commo and her father. From large-scale research projects that are identifying early diagnostics to clinical trials with promising personalized medicine, DHMC researchers are leading the future of ALS treatment so that a diagnosis of familial ALS no longer means what it used to.

"We are moving ALS from a disease with no hope to a treatable disorder," says Mark Garret, MD, a neurologist and director of the ALS Center at DHMC and assistant professor of neurology at the Geisel School of Medicine at Dartmouth.

An Ounce of Prevention

Typically, ALS isn't diagnosed until the disease causes significant, debilitating symptoms. At that point, many nerve cells in the brain and spinal cord have already been irrevocably damaged by the disease, Garret says. If ALS could be identified earlier, it could help halt the disease before too much damage is done.

Early diagnosis is a main focus for Garret, who is one of just a handful of researchers nationwide focusing on preventing ALS. In 2024, Garret helped launch a clinical trial with the Access for ALL in ALS consortium, a National Institutes of Health–funded group of 36 clinics that track enrolled participants who are known carriers of genes that cause ALS. The consortium is creating a biobank filled with participants' blood samples, strength testing, cognitive exams, and more for researchers to use to identify potential indicators that could predict onset of ALS.

> "We are moving ALS from a disease with no hope to a treatable disorder."
>
> **—Mark Garret, MD**
> Director of DHMC's ALS Center

"We hope to learn more about the earliest biological changes before someone develops ALS to see if there are signs that we could be paying attention to that predict when someone is about to develop ALS," Garret says of the study, which is called simply PREVENT. "This may be a critical window to start therapies that could eventually prevent the disease."

Study participants have often seen the devastating effects of ALS firsthand. PREVENT participant Chris, who lives in Vermont, has taken part in numerous ALS studies since his brother died from ALS in 1999 at the age of 27. In one of the studies, Chris found he carries the same genetic mutation that caused multiple members of his family to develop ALS, but he has not shown any symptoms. For the past two decades he's had quarterly doctor's visits and monthly blood draws.

"It's not something that I'm doing to help myself," says Chris, who prefers to be anonymous because of stigma about the disease. "But it's something to maybe help the next generation, my kids or others, with the disease."

In the two years since PREVENT launched, the study has enrolled nearly 600 people, including 11 at DHMC. Though the PREVENT study, and others like it, are still in the early stages, results are already pointing towards one key blood marker called neurofilament light chain, which is a protein that marks nerve injury. Elevation in neurofilament light chain can also be seen in patients



▲ Neurologist Mark Garret, MD, is looking for ways to stop the progression of familial ALS before it starts.

with Alzheimer's or Parkinson's, or who have had a stroke. But, due to ALS's rapid onset, the neurofilament light-chain levels are particularly high in these patients. Early results from the Dominant Inherited ALS study—a precursor to PREVENT that both Garret and Chris were involved in—showed elevated levels of the neurofilament light chain in some participants' blood 6 to 12 months before they developed ALS symptoms.

"This research is promising, and we're looking for additional tools," Garret says. "Neurofilament might elevate 6 to 12 months before, but there may be other proteins that elevate a little earlier."

For now, these studies are being conducted on a small percentage of people who have familial ALS or its carrier gene. Non-inherited, or sporadic, ALS is much more difficult to diagnose early given its rarity in the general population. But the hope is that one day advancements in familial ALS can be extended to sporadic ALS, Garret says.

A Miracle Drug

Finding early-onset familial ALS symptoms is, of course, only half the battle. Ultimately that knowledge needs to be met with treatments that can halt the progression of ALS. However, until recently, the drug options for ALS remain limited.

Garret was first introduced to one potential ALS drug in 2020, during his medical training in neurology at Washington University in St. Louis, when he helped administer a clinical trial for a promising new drug called tofersen. Tofersen, now the first of three FDA-approved treatments for ALS, targets the second most common type of familial ALS, caused by a mutation that leads to a buildup of SOD1, a toxic protein in motor neurons of the brain and spinal cord. By blocking the production of SOD1, tofersen can halt the development of ALS symptoms in some patients.

"ALS is this universally fatal, incurable, rapidly progressive disease, but we saw people who were doing really well and seemed to have significant slowing of progression and stabilization of their disease with tofersen," Garret says. "In the last couple of years, we've seen patients who are actually stable or even improving in terms of their muscle strength, which was really previously thought to be impossible in ALS."

One of those success stories is Dale Kandoll, who started receiving tofersen soon after his ALS diagnosis in 2024. The strength in Kandoll's legs had been decreasing, but the drug stabilized his condition, and he's still able to walk short distances and drive.

"There are people like me who are improving," says Kandoll, who's also involved in one of the ALS consortium studies. "I hope what can be learned from me and others with ALS can make it easier for the next generation of people with ALS."

Commo also found relief with tofersen. She began taking the drug when it was approved in 2023 and is also now taking riluzole, another ALS drug. In the past three years she's seen her symptoms stabilize and has had improvements in her speech and balance. Though she can no longer knit, Commo is still able to enjoy doing jigsaw puzzles on her phone and diamond painting, in which crafters adhere plastic gems to a canvas with a preset design. Now six years out from her diagnosis, Commo has lived longer than she ever dreamed.

"My doctor says that I'm still right about where I was when I went into the program," Commo says. "So that makes me feel good. I didn't think I'd live as long as my dad did after his diagnosis."

The Future of ALS Treatment

Garret is also working with clinical trials of other ALS drugs like NUZ-001, which, like tofersen, works to reduce levels of toxic proteins that damage nerve cells. Currently, three patients at DHMC's nationally recognized ALS Center are enrolled. The Center uses a multidisciplinary approach, with in-house neurologists, speech therapists, dietitians, physical therapists, and more to deliver the best possible care.

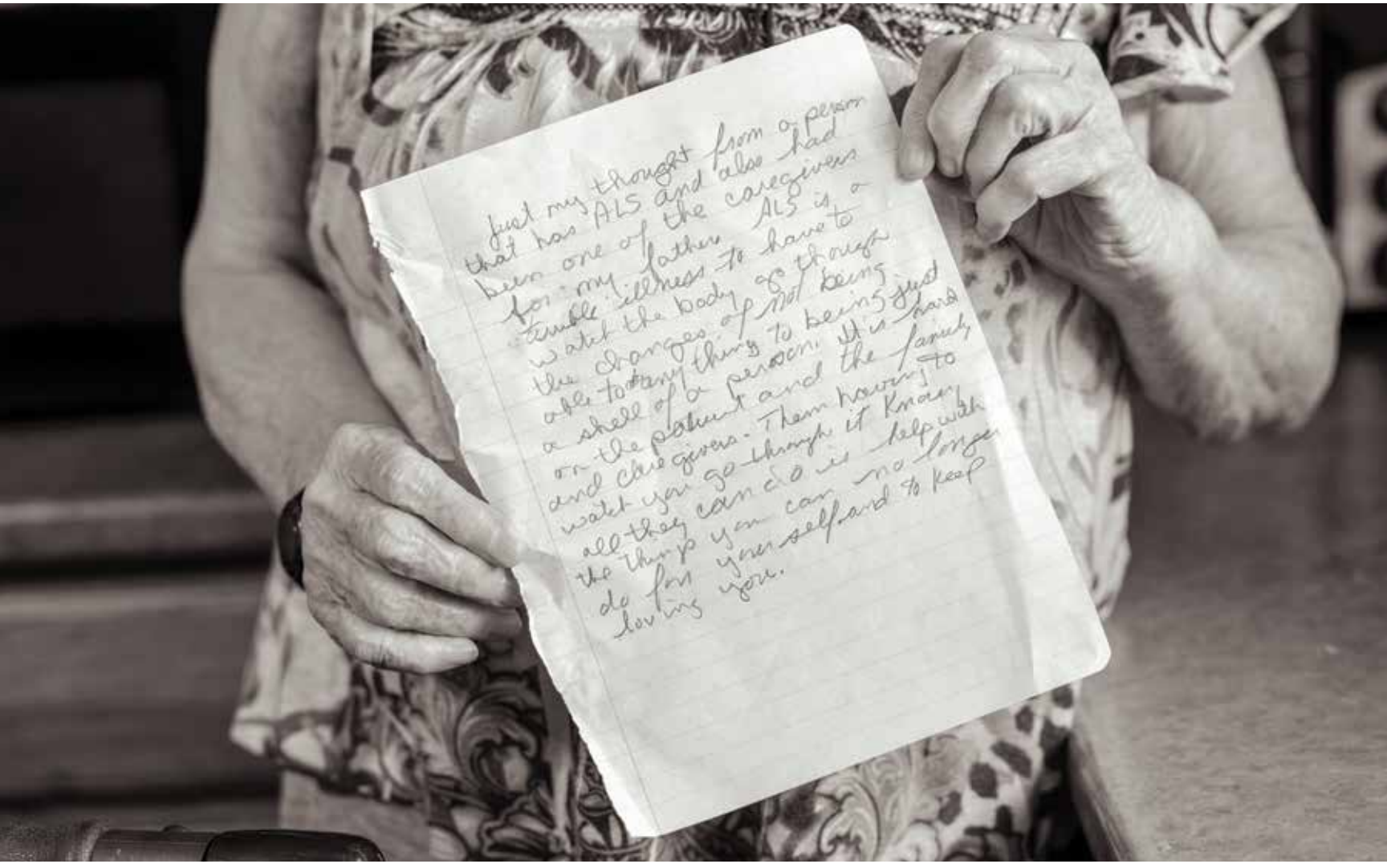
Several of Garret's patients at DHMC are also in line for a tailored genetic therapy to treat a type of familial ALS that affects the TARDBP gene. Genetic therapies work by modulating the gene or its end product associated with the disease. For ALS, one genetic therapy aims to switch off the TARDBP gene so it cannot produce its problematic protein. Personalized treatments like these are becoming increasingly common, not just for ALS but for many neurological diseases, and have demonstrated success with diseases like spinal muscular atrophy and genetic epilepsy.

"The future of neurology in general is shifting to genetic therapies," says Barbara Jobst, MD, chair of neurology at DHMC. "There are a lot of studies tailored to a particular gene in a particular person."

With advances in predicting onset and new genetic therapies, the future of ALS is brighter than it's ever been. "Unlike when I first got involved in ALS studies, there is now hope and there are now treatments—at least for SOD1—that are game changing," Chris says. "I believe that every day that we move forward, there's more and more hope. And I hope that someday nobody gets this terrible disease."

To support ALS research at Dartmouth Health, contact Matthew Hall at 603-667-6309 or Matthew.R.Hall@hitchcock.org.

Patients interested in DHMC's ALS Center can go to **dartmouth-hitchcock.org/als** to learn more.



▲ Linda Commo holds a note she wrote in August 2026 about what it's like having ALS.



Surviving Cancer... **and Blizzards**

Severe storms are getting more extreme. This Dartmouth Cancer Center oncologist is making sure lifesaving care won't get interrupted.

By Mara Johnson-Groh

New Englanders are no strangers to severe weather, knowing how to prepare and when to avoid dangerous roads. So when a blizzard strikes, or flooding hits, people don't always venture out—including for medical appointments.

However, hunkering down and delaying medical care can influence how effective that care ultimately is, says Katie Lichter, MD, MPH, an assistant professor of radiation oncology and health policy at Dartmouth Cancer Center. She has seen her own patients skip appointments due to concerns about their ability to safely reach the clinic.

"Climate change is increasing the frequency and severity of extreme weather events, which directly disrupts our ability to deliver continuous care," Lichter says. "I see it in my practice today—winter storms and flooding are causing missed visits, which only intensifies the emotional, physical, and financial strain on our most vulnerable patients."

That's why Lichter is studying climate change's impacts on cancer care. And, as director of Dartmouth Cancer Center's new Division of Resilient and Sustainable Cancer Care, she is devising ways to reduce these deadly disruptions.

Where There's Smoke

Lichter first began to understand the impacts of climate change on healthcare during her residency in San Francisco.

"I was caring for patients in the ICU whose lung cancer had rapidly worsened due to widespread wildfires at the time," Lichter says. "The wildfires acted as a threat multiplier. Not only were patients exposed to dangerous smoke, but evacuations and road closures meant they couldn't safely access their regular care facilities."

Today, Lichter applies her experience in California at Dartmouth. Though wildfires are less of a risk in New England, severe weather like winter storms, heat waves, and flooding also cause missed appointments, especially for rural residents.

"We know it's absolutely critical not to miss visits because continuous care directly impacts patient outcomes," she says. "Even a few missed appointments can compromise the effectiveness of a patient's treatment."

An Early Warning System

By combining medical records with local and national weather data, Lichter is investigating how many Cancer Center patients miss visits due to extreme weather and which populations are most at risk.

For example, she looked at a November 2025 winter storm and found that one in ten patients missed their medical appointments during the week of that storm. Those absences were ten times higher than the number of missed appointments due to wildfires in California, which Lichter had reported in *The Journal of Climate Change and Health* in 2025.

Lichter is harnessing her winter storm findings (not yet published) to develop a proactive early warning system called the WEATHER-Care project. Supported by an American Cancer Society Institutional Research Grant and the Dartmouth Climate Collaborative, the Lichter lab plans to launch the system this winter. It will be the first of its kind in the nation.

WEATHER-Care would text patients who have appointments within 48 hours that a weather event is coming. The text would also communicate rescheduling and telehealth options. Lichter and her team hope the system can meaningfully reduce treatment disruptions.

Ultimately, she aims to extend her work beyond winter storms. "We need to look at the whole picture. It's not just about knowing who lives on an unpaved, unplowed road," Lichter says. "We also need to identify which patients might have reduced kidney function from chemotherapy, or comorbidities like diabetes, that put them at severe medical risk during high heat days."

Fewer Visits; Fewer Drives

Lichter is also exploring whether changing cancer treatments themselves could help, too. One new radiation technique holds promise. Called hypofractionation, it increases the radiation dosage per session, contracting treatment schedules from weeks to days and significantly reducing patients' travel days.

Lichter has also studied ways to reduce appointments, such as timing breast cancer screenings to personal indicators, instead of just age, to minimize how often a low-risk patient must come in.



Katie Lichter, MD, MPH, has seen patients fall behind on treatments due to extreme weather. She's working to prevent those interruptions.

These approaches both reduce patient burden with no decrease in care quality and carry a lighter environmental footprint. This dual focus on building climate resilience while actively advancing healthcare decarbonization is a core mission of the Lichter lab.

This work, Lichter notes, wouldn't be possible without the support of Charles Thomas Jr., MD, chair of the Department of Radiation Oncology and Applied Sciences at the Cancer Center, whose leadership has helped bring Dartmouth Health to the national forefront of sustainable healthcare.

"We must recognize that sustainability matters deeply to the health of our future communities and to many patients themselves," Lichter says. "By addressing the true environmental and human costs of our care pathways, we can actively reduce tomorrow's cancer burden."

To learn more about receiving care at Dartmouth Cancer Center, go to **cancer.dartmouth.edu**.

To support Dartmouth Cancer Center, contact Jaclynn Rodriguez at 603-646-5287 or Jaclynn.Rodriguez@hitchcock.org.

Bringing Healthcare Home

Dartmouth Health and Dartmouth are rewriting the rules of healthcare to build a system that will deliver all kinds of medical care to patients in their homes.

By Eva Botkin-Kowacki

It was 2019. Richard "Dick" Levy D '60 was losing weight and wasn't sleeping well.

Three years earlier, Levy's wife Susan had been diagnosed with Lewy body dementia, a progressive brain disorder that causes changes in cognition, visual hallucinations, and movement difficulties. Doctors said she had three to five years to live.

Without a second thought, Levy became his wife's primary caregiver and case manager so she could live out her life in the comfort of her own home. He administered her medications, coordinated doctors' appointments, took care of everything around the house, and helped Susan navigate her diminishing capabilities.

At first Susan had just been misplacing things, but then she forgot how to make coffee and struggled to think through plans for the future. Her symptoms only worsened from there. "She cried a lot, and that just tore me to shreds," Levy recalls.

Levy had thought he was well equipped to be Susan's caregiver on his own. He had spent his career in healthcare, was on hospital boards, and had extensive resources at his fingertips near their home in the San Francisco Bay Area. But after three years, his day-to-day tasks had increased significantly. Levy was overwhelmed, and the stress was taking a toll on him—he was getting sick himself.



Levy's experience is not unique. On average, according to the AARP's *Caregiving in the US 2025* report, family caregivers spend 27 hours a week providing care—the equivalent of an unpaid part-time job. This takes a toll. The AARP found that nearly a quarter of caregivers reported having difficulty caring for themselves while caring for a loved one.

Knowing he wasn't the first person to feel overwhelmed caring for a loved one, Levy wondered how others handled the pressure. So he joined a caregiver support group. And that decision changed everything.

"They gave all kinds of practical advice on how to get through this," Levy says. "It was just other people who figured it out on their own. It wasn't rocket science."

On the advice of the group, Levy began building a team of home health aides and clinicians to do house calls and administer Susan's medical care. He hired people to help him do household tasks like cooking, cleaning, and laundry. He managed Susan's care like he had run companies as a CEO.

Susan passed away on September 19, 2023, at home. She had lived seven years after her diagnosis and only had to be admitted to the hospital twice—and she was never institutionalized.

"At the end, I realized we had done something right," Levy says. "Susie had a pretty good life. She had family and friends around her, and a dog [named Butter] that slept at the foot of her bed, curled around her feet."

But Levy couldn't shake the feeling that others—who haven't been healthcare CEOs or on hospital boards—should have access to this kind of home care, too. "Why can't the medical system do that for everybody?"

Soon, it could.

Dartmouth Health and Dartmouth have teamed up to establish a new system of care that aims to significantly expand the kinds of medical care people can receive in their homes. Through a set of transformative philanthropy-backed initiatives, the academic health system will soon bring primary, palliative, and acute care to patients at home, along with a support system for family caregivers.

"Home care, I think, is the future of healthcare," says Levy, a former biotech CEO. "And Dartmouth may be the world leader in putting that together."

> "Patients and their care partners overwhelmingly prefer care delivered in their homes over institutional settings—but only if they have adequate support."
>
> **—Amber Barnato, MD, MPH, MS**
> Director of The Dartmouth Institute for Health Policy & Clinical Practice

The Right Place

The new system, called Dartmouth Health at Home, comprises several initiatives. Among them are the Family Caregiver Institute, Palliative Care at Home, and Primary Care at Home, all fueled by a $20 million gift from Levy to rethink how chronic care is delivered and how patients and families lead their healthiest lives. Another initiative in this new system of care will bring acute care into the home: Thanks to a $10 million gift from Kenneth R. French, professor emeritus at Dartmouth's Tuck School of Business, Dartmouth Health is building the Vickie French Hospital at Home initiative.

The new system of care will be built by an interdisciplinary team of clinicians, care coordinators, healthcare researchers, economists, and engineers. Using the expertise of The Dartmouth Institute for Health Policy & Clinical Practice, Dartmouth Health at Home will be intentionally designed to be sustainable and affordable, meeting the medical and practical needs of patients and their families in the context of their daily lives.

This initiative is coming at just the right time. There are now 61.2 million people in the U.S. aged 65 or older, according to U.S. Census Bureau data, and that number is rising. With many long-term care facilities closing or struggling to stay afloat, the demand for a healthcare model that allows people to age in place is increasing. This is acutely felt in the Northeast, as the region's population has the highest median age in the



country, and among those states, New Hampshire's population is the second oldest, topped only by Maine. Vermont is not far behind.

"In healthcare, we spend a lot of time making patients come to us, and now we're taking care to the patient," says Nathan E. Goldstein, MD, chair of the Department of Medicine at Dartmouth Health, the Herman O. West Professor of Geriatrics at the Geisel School of Medicine at Dartmouth, and co-CEO of Dartmouth Health at Home.

"As a practicing physician, I have seen firsthand that where care is delivered is often just as important as the type of care we provide," he says. "For older adults, the home is where they heal best, feel safest, and retain the greatest sense of connectedness to their families and their community. With the launch of these programs, we will transform the way that we provide care in northern New England, and establish a blueprint for rural communities across the country. This is a prime example of providing the right care to the right patient at the right time, in the right place."

A Hospital in Your Home

When someone suddenly becomes seriously ill or is injured, their first thought is often, "I've got to go to the hospital." But that may soon change with the Vickie French Hospital at Home initiative, which will be the first program in a rural area to deliver acute care to patients at home.

"We are bringing the hospital to patients. We will send doctors to the house, we'll send nurses, we'll send medications, we'll draw their labs there, we'll send X-rays there," Goldstein says. "We will invest in remote monitoring so we can keep track of patients and their vital signs as if they were in the hospital."

Once fully operational, this initiative will give patients with many acute diagnoses, such as heart failure or pneumonia, the option to receive hospital-level care in their homes. Patients recovering from surgery could also be sent home earlier with clinical supervision once stabilized.

"We're going to start with patients in the hospital who tend to be relatively stable, which are post-op patients," Goldstein says. "Then we'll move to the



next set of patients, which are folks who might be in the hospital for, say, pneumonia," building toward higher-acuity home-centered care, complete with advanced monitoring and specialist consultations that would traditionally take place at a hospital.

The new program is named in honor of French's late wife, Vickie, who worked alongside her husband to develop and refine the vision for a "hospital without walls."

"She saw the wisdom of it, and I'm glad she did," French says of Vickie, who passed away in January. The couple had already been setting up their own home to age in place when they first learned about the concept of a hospital at home. "I could see immediately that it was something that I would like to have available to me and to our community."

A Rural Model

The idea to shift more care into the home has been catching on nationwide, particularly in the wake of the COVID-19 pandemic. At the time, to keep people out of overburdened inpatient facilities, the Centers for Medicare & Medicaid Services (CMS) launched an

Acute Hospital Care at Home (AHCAH) initiative that temporarily offered waivers for individual hospitals to provide Medicare patients with inpatient-level home care. (After several short-term extensions, that waiver program was recently extended through 2030.)

Hospital at Home programs across the country have shown early success, demonstrating lower 30-day mortality rates compared with comparable inpatient approaches, as well as lower Medicare spending in the 30 days post discharge, according to a 2024 CMS-conducted study of the AHCAH initiative. But until now, this model has not been tested in an exclusively rural context.

For care to be delivered at home, whether acute or any other kind, rurality presents unique challenges, from interruptions in power, internet access, or cell service, to limited additional resources and long travel distances.

"If you're a patient who is medically homebound, that means it's really taxing to leave for a doctor's appointment," says Dartmouth Health at Home Chief Operating Officer Julie McKenney, MHCDS, MBA, FACHE.

Indeed, Levy says that taking his wife to a doctor's appointment in the last couple years of her life could be a whole-day ordeal: Multiple people would have to help him get her out of bed, dress her, and transport her in and out of the car. "It was very distressing to Susan because she was out of her comfort zone," he says. "Eventually I just started skipping doctor's appointments because it was too much trouble and did more damage to her quality of life."

Long travel distances in rural areas compound that challenge. The team aims to build a system that addresses the unique challenges of rurality and takes the coordination burden off the patient and their family. McKenney says: "This is truly putting the patient at the center of all that we do."

'Insuring' Equitable Access

One big thing for the team to figure out is a payment model that supports home care over time, across the care continuum, and enables anyone to access Dartmouth Health at Home's services. Right now, funding for home care is largely private or limited in scope.

Medicare, Medicaid, and commercial insurance typically cover skilled home health aides and nurses, physical therapy, occupational therapy, speech-language pathology, and social work—but only in the short term, either when someone is recovering after hospitalization, or under hospice, when someone has a terminal diagnosis with a life expectancy of six months or less, explains Tammy Tarsa, DHA, MBA, BSN, president and chief executive officer of Dartmouth Health Home Care (formerly known as Visiting Nurse and Hospice for Vermont and New Hampshire) and co-CEO of Dartmouth Health at Home.

> "I have seen firsthand that where care is delivered is often just as important as the type of care we provide."
>
> **—Nathan E. Goldstein, MD**
> Chair of the Department of Medicine at Dartmouth Health

The AHCAH waiver can bring more complex care into the home for patients on Medicare, but it has limitations. "What CMS did in 2020 is say, okay, let's keep people out of the hospital," explains McKenney. To do that, she says, CMS flagged certain diagnoses as eligible for a Diagnosis-Related Group (DRG) payment—often referred to as a "global payment." With a DRG payment, a hospital is paid a set amount by the insurance company to care for a patient with a given diagnosis regardless of the patient's length of stay in the hospital. With the waiver, CMS essentially allowed hospitals to use that same DRG payment to care for patients in their homes.

The waiver's scope—acute diagnoses—means it can't fully meet the needs of Medicare patients under Dartmouth Health at Home, as the programs will provide care for chronic illness and other scenarios, too.

"Home-based health services are funded by a patchwork of reimbursement streams—each tethered to a particular payer, patient subset, or waiver—so that many essential supports remain

unfunded for the majority of people who need them," says health economist Carrie Colla, PhD, D '01, dean of Dartmouth's Guarini School of Graduate and Advanced Studies and the Susan J. and Richard M. Levy Distinguished Professor in Health Care Delivery Science at Geisel.

Colla and others at The Dartmouth Institute are working to figure out how to harness existing payment mechanisms to reduce gaps, ensure the financial sustainability of Dartmouth Health at Home, and reduce the financial burden of healthcare on patients and their families. The concept of global payment could play a role, she says, but in a rural area, it might not pay for itself, as each at-home provider visit takes longer when it involves driving long distances, adding to the cost of that care. Instead, Colla says, Dartmouth Health at Home will likely need to deploy a few different payment approaches to break even.

Goldstein says, "We are the most rural academic medical center in the country. If we can figure this out here, then we can really change the way we think about caring for folks."

Modeling Care for Others

Figuring out a sustainable payment model may take some trial and error, says Goldstein, and certainly quite a bit of research. That's where philanthropy is already proving to be key, providing the team with seed funding to get the programs off the ground while supporting a rigorous research and evaluation strategy. Without it, he says, these pioneering programs would need to be able to pay for themselves on day one.

Payment isn't the only puzzle. The team also wants to make sure the initiatives truly provide positive patient experience and outcomes, reduce caregiver stress, and are built to be sustainable and replicable in similarly rural regions around the country.

That's why an interdisciplinary team is assembling from across Dartmouth. Spearheaded by The Dartmouth Institute, the research effort is made up of coordinated teams from Geisel, Tuck, and Dartmouth's Thayer School of Engineering.

With philanthropic support from Levy, the Dartmouth Health at Home team will start small and iterate quickly. New projects will largely follow the rapid-cycle pilot process that has proven successful through The Susan and Richard Levy Health Care Delivery Incubator. Announced with a gift from the Levys in 2020, the incubator has funded 22 pilot projects aimed at reimagining how care is delivered to patients across the Dartmouth Health system.

The Dartmouth Health at Home research and innovation team, led by Amber Barnato, MD, MPH, MS, department chair and director of The Dartmouth Institute and the John E. Wennberg Distinguished Professor at the Geisel School of Medicine at Dartmouth, will work in parallel with operations to demonstrate that their approaches will have both a return on investment and a meaningful impact on patients' lives.

"Dartmouth is a demonstration site for providing a system of care like I had for Susie," Levy says. "As we've seen through the Incubator, reimagining healthcare delivery can be as simple as having the right teamwork to deliver care in the home."

And, notes Levy, who has supported healthcare initiatives both at Dartmouth and closer to his home in the San Francisco Bay area, Dartmouth is well suited to that "right teamwork" because it "is just small enough to be nimble. Dartmouth understands that cross-disciplinary teams work better than individuals working independently."

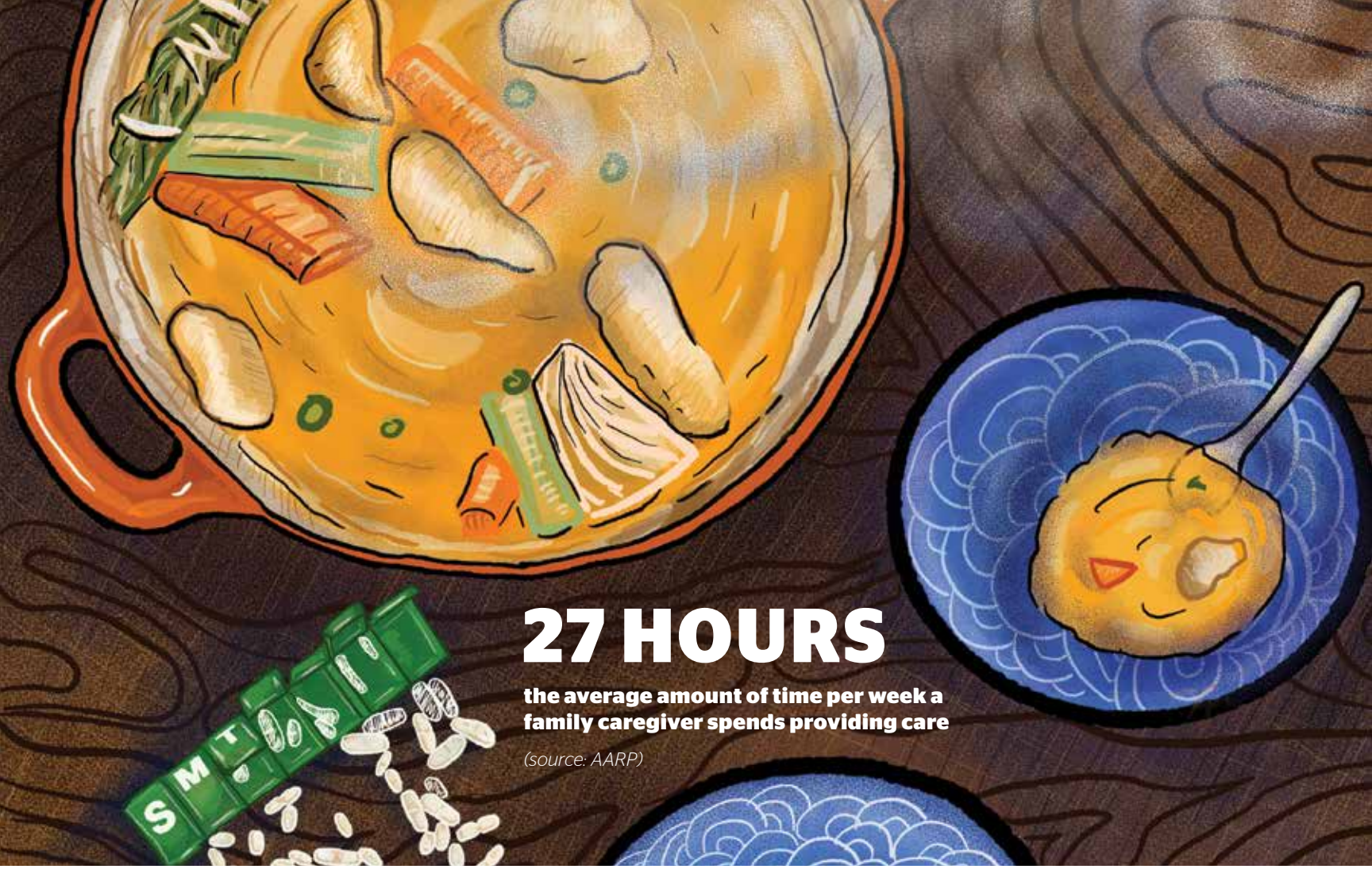
Caring for the Caregivers

When Levy was taking care of his wife, he found that small things like counting her pills stymied him; his mind was overwhelmed, having to keep track of too many things at once, from Susan's doctor's appointments to figuring out what was for dinner.

Indeed, the inability to take on seemingly ordinary tasks is often why people remain in an inpatient facility, Tarsa says. Dartmouth Health at Home is building partnerships across the health system, Dartmouth, and community organizations to fill that gap.

Many of these impediments fall into a category called "activities of daily living" (ADLs)—which encompass everything from getting dressed and going to the bathroom to shoveling a path to get outside. Right now, ADLs are generally not considered part of medical care and often fall to family caregivers.

In the U.S., 63 million adults provide ongoing care to family, friends, or neighbors, according to the AARP. That means almost a quarter of all American adults are family caregivers. This is often why patients are



unable to remain in their homes, says Barnato, who studies end-of-life care.

"Patients and their care partners overwhelmingly prefer care delivered in their homes over institutional settings—but only if they have adequate support," she says. "Once family caregiving demands exceed caregivers' capacity or threaten their economic wellbeing, preferences shift away from the home settings."

To recognize and alleviate that burden, Dartmouth Health at Home is establishing a Family Caregiver Institute.

The vision is "an organization that will be dedicated to the caregiver—the care partner—and improving the health, the confidence, and the well-being of those family caregivers by providing specialized education, training, and support services," says Dartmouth Health Home Care's Director of Specialty Programs Aimée Green, who is leading operational planning for the Family Caregiver Institute. Like Levy, many caregivers create their own grassroots network of support. The institute, Green says, will create a formal system of support.

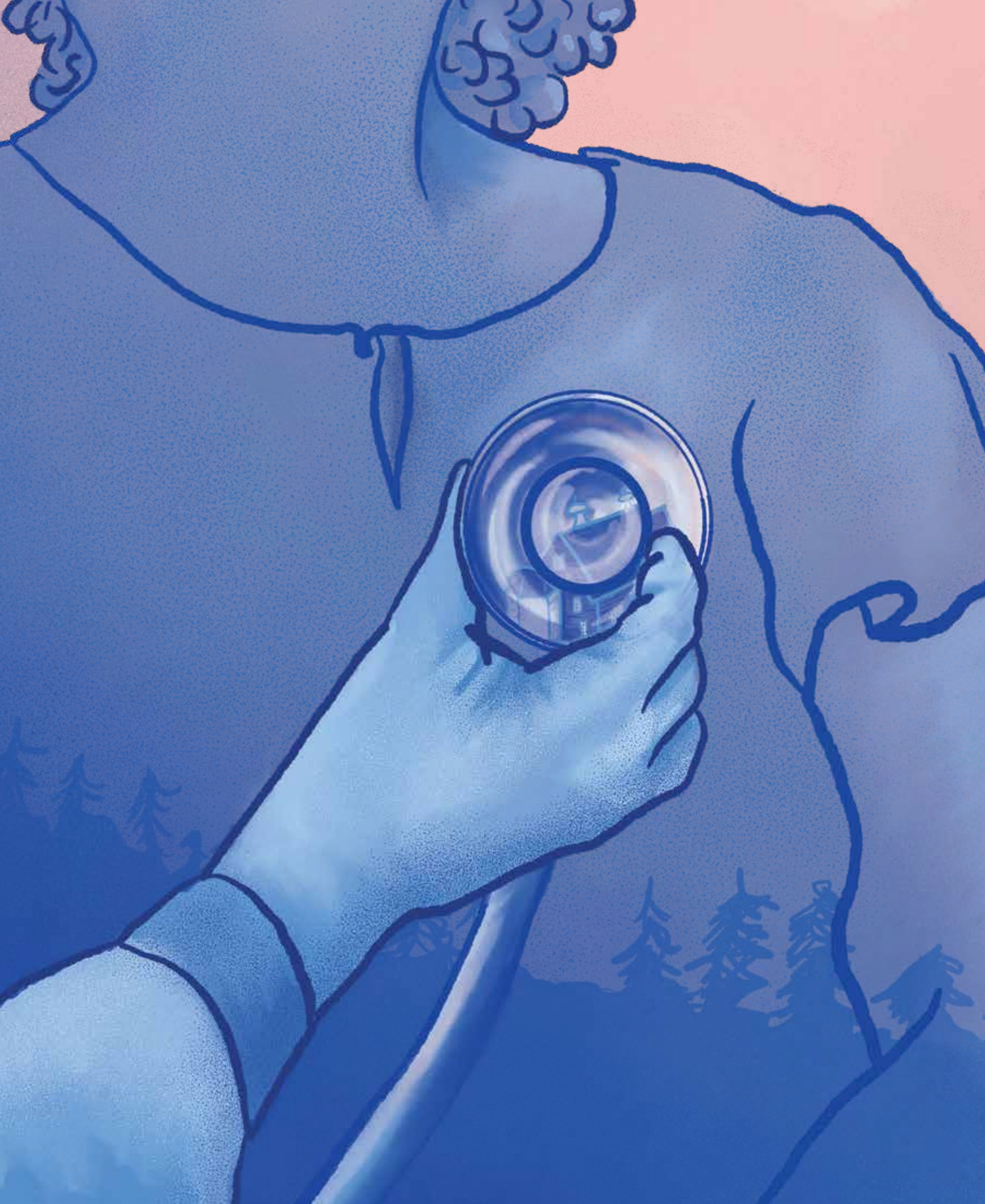
The institute will include an on-call team of care coordinators to help family caregivers navigate their loved ones' appointments, as well as classes, support groups, and in-home training. Family caregivers will learn skills like how to dress wounds, administer medications, and change colostomy bags. Respite care will also be available to give caregivers a break.

The Institute, Green says, will become a blueprint for other health systems to better support family caregivers around the country.

What Happens to the Hospital?

The ultimate goal of Dartmouth Health at Home is to keep patients from having to go to the hospital or a long-term care facility. But the brick-and-mortar hospital will continue to have a place.

"Just like not all healthcare needs to be delivered in the hospital, not all healthcare is appropriate for the home," Tarsa says. "We're not going to do surgeries in the home" or send anyone home who isn't ready. "It has to make sense for the patient."



Eligible patients might not choose to participate in Dartmouth Health at Home; they'll always be asked their preference, Goldstein says.

Goldstein is realistic about the amount of work that lies ahead: "We're not building the architecture of a brick-and-mortar hospital, but we have to identify the patients, we have to figure out how to get doctors and nurses and meds and labs and X-rays to them. We have to be able to create a 24/7 on-call process for them, we have to be able to get someone to their house within 30 minutes of a call, and, if need be, be able to move them from their home to the brick-and-mortar hospital in a very quick, defined period of time. That's not something you build overnight."

Dartmouth Health is not starting from scratch. The health system already provides care in a variety of facilities across northern New England and shepherds patients between them via the Dartmouth Health Advanced Response Team (DHART), one of the nation's most successful complex ground and air medical transportation systems.

"We currently move patients from the academic medical center to a critical access site or an acute rehab or skilled nursing facility if they no longer need the specialist care provided at Dartmouth Hitchcock Medical Center" in Lebanon, New Hampshire, says Jessica Ryan, MSN, RN, CPHQ, system vice president for care coordination. "Now the home would be just another place that we'd transport to."

> "Home care, I think, is the future of healthcare."
>
> **—Richard "Dick" Levy D '60**
> Biotech CEO and donor

Across the Dartmouth Health system, McKenney says, "we have perhaps 90% of what we need already. It's just figuring out where those things are, coordinating it all, and maybe doing some tweaks."

As the health system and the Ivy League university build a new system of care through Dartmouth Health at Home, Goldstein says, one thing is clear: The patient must be at the center of every endeavor.

That mentality buoys Levy's desire to build a reimagined system for delivering healthcare: "One of the best medical 'drugs' is empathy," he says. "Home care, by definition, is built around empathy. It's a powerful medicine, and our healthcare system has to become an empathy machine."

To learn more about the plans for Dartmouth Health at Home, go to **dartmouth-health.org/at-home**, or contact Kim Labonte at 603-646-5110 or Kim.Labonte@dartmouth.edu.

Watch a video of Richard "Dick" Levy D '60 talking about his experience as a family caregiver.

Reprogramming **Chronic Pain**

How Dartmouth researchers are helping patients manage chronic pain through psychology, brain science, and digital therapeutics.

By Jeremy Martin



Months after her spinal fusion, "Sarah" was still taking opioids for pain the operation had been supposed to fix. The incision had healed, and her scans looked normal. But ordinary movements still hurt, and the fear of making things worse was taking a toll on her daily life.

Sarah is one of nearly 60 million Americans living with chronic pain. Unlike acute pain, which warns of danger, chronic pain can persist long after tissues have recovered. Stress, poor sleep, inactivity, and trauma can sensitize the nervous system, amplifying pain and someone's reactions to it.

Desperate for relief, Sarah enrolled in an early study testing SpinePal, a digital therapy designed at Dartmouth to help patients recover after spine surgery. The program reflects a growing recognition that chronic pain isn't sustained by damaged biology alone, but by interactions among the brain, body, behavior, and lived experience.

Interrupting the Cycle

SpinePal was developed by psychologist Madelyn Frumkin, PhD, assistant professor of biomedical data science and psychiatry at the Geisel School of Medicine at Dartmouth, and neurosurgeon Murray Echt, MD, assistant professor of surgery at Dartmouth Health's Dartmouth Hitchcock Medical Center (DHMC). Delivered through a smartphone app, SpinePal combines cognitive behavioral therapy, mindfulness, relaxation training, and recovery coaching before and after surgery to reduce the fear, stress, and opioid reliance that can keep patients trapped in pain.

"People really vary in how they experience pain," Frumkin notes. Some patients with extensive tissue damage may recover quickly, while others experience debilitating pain despite few visible signs of ongoing injury. Two patients may undergo the same surgery and exhibit nearly identical MRI scans, yet report dramatically different levels of pain.

That variability has stymied physicians and patients alike. For example, of the million-plus Americans who undergo spine surgery each year, 10 to 40% develop persistent pain, disability, or prolonged opioid use, according to studies published in *Pain Medicine* and *Anesthesia & Analgesia*. Roughly half of patients taking opioids before surgery continue using them afterward.

The missing piece isn't always another procedure or prescription. Standard post-operative care rarely addresses psychosocial factors like depression, anxiety, fear of movement, and "catastrophizing"—the tendency to fixate on worst-case outcomes. But, Echt says, in clinical settings, "we see all the time that factors such as depression and anxiety lead to disability, and they predict outcomes after spine surgery more consistently than surgical or imaging factors."



▲ SpinePal, an app designed at Dartmouth, combines cognitive behavioral therapy, mindfulness, relaxation training, and recovery coaching to tackle tough-to-treat pain.

Tracking Pain in Real Life

Built to intervene during that window, SpinePal combines wearable biosensors with brief smartphone check-ins that ask patients about their pain, mood, activity, sleep, and recovery throughout the day. Together, those data create a much more detailed picture of healing than occasional clinic visits weeks or months after surgery.

To determine whether patients would use the program, Frumkin's team interviewed 10 people (including Sarah) who continued using opioids for pain management months after spine surgery, walking them through SpinePal's design and content to understand what resonated, what didn't, and what they needed most during surgery.

At its core, the therapy works by targeting the thought patterns that can unintentionally keep pain cycling. "As cognitive behavioral therapists, we're often helping people put thoughts on trial," Frumkin says. "What evidence supports this fear? What evidence doesn't? What happens if we respond differently?"

The goal isn't convincing patients that their pain is imaginary—a misconception that has long stigmatized chronic pain. Instead, the therapy teaches people to recognize how fear, avoidance, and other learned responses can reinforce pain while building new ways to respond through movement, coping skills, and gradual reengagement with daily life.

Digital therapeutics may also address access problems that chronic pain patients often encounter. Pain psychologists remain scarce nationwide, especially in rural areas, leaving many without behavioral support during recovery. "Most people will never see a pain psychologist," Frumkin says. "So we have to think about scalable ways to deliver these tools."

Echt and Frumkin are now preparing a larger pilot study to test whether SpinePal improves recovery. Neither researcher promises the app will make Sarah's pain disappear, or anyone else's. What they're testing is whether technology can change their relationship to pain, and if that's enough to spare some of the millions of people still waiting for relief long after their wounds have healed.

To learn more about medical and healthcare innovation at Geisel, contact Kim Labonte at 603-646-5110 or Kim.Labonte@dartmouth.edu.

When Rare Becomes **Recognizable**

Once impossible, treating rare diseases is more achievable than ever. But now diagnosing them is the bottleneck.

By Jeremy Martin

Three years ago, a 45-year-old woman walked into Parth Shah's office with anemia and a swollen spleen. She'd had two strokes and, for 30 years, couldn't eat a full meal. Nobody knew why.

Parth Shah, MD, a hematologist at Dartmouth Cancer Center and director of genome informatics at Dartmouth Health's Dartmouth Hitchcock Medical Center (DHMC), had a fresh way to look at her symptoms. As part of DHMC's joint clinic for genetic vascular disorders, Parth Shah, in consultation with DHMC clinical geneticist Nidhi Shah, MD, ordered comprehensive genomic and transcriptome sequencing via the DH-CancerSeq assay. That testing revealed PROS—a disorder so rare most physicians never encounter it.

PROS, or PIK3CA-Related Overgrowth Spectrum, is caused by mutations in PIK3CA, a gene that normally regulates cell growth. That gene is often linked to breast cancer, as mutations in it can drive the uncontrolled growth of breast cells. In PROS, however, the impact of mutations strikes in the womb, leading to the symptoms experienced by Parth Shah's patient.

Diagnosis in hand, Parth Shah prescribed a breast cancer drug that counteracts PIK3CA. Within three months, his patient's spleen had normalized and she could eat full meals again—completely transforming her life after three painful decades.

"Thirty years," says Parth Shah, who is also assistant professor of pathology and laboratory medicine at the Geisel School of Medicine at Dartmouth. "How much are we missing?"

Parth Shah has since identified and treated more patients with PROS, as well as with other rare diseases, through a comprehensive genomic sequencing platform. Today, DHMC is among the first U.S. hospitals to offer comprehensive genomic sequencing to patients, making it a leader in how rare disease diagnoses are done.



Parth Shah, MD, director of genome informatics at Dartmouth Health's Dartmouth Hitchcock Medical Center, uses comprehensive genomic sequencing to help patients with difficult-to-diagnose diseases get answers.

A Need for Speed

PROS is one of more than 10,000 known rare diseases, which together affect roughly 30 million Americans, according to the National Organization for Rare Disorders. Half are children, three in 10 of whom won't see their sixth birthday.

Despite remarkable advances in treating rare diseases over the past several decades, diagnosis remains the field's greatest bottleneck. These patients still wait an average of five years for an accurate diagnosis, and 60% are misdiagnosed at least once before learning what they have, according to a 2024 analysis published in the *European Journal of Human Genetics*.

"Rare disease is rare because we don't test for it," Parth Shah says.

By definition, a rare disease affects fewer than 200,000 people at any given time. Individually, these conditions are uncommon. Collectively, they represent one of medicine's greatest diagnostic challenges. Patients often spend years cycling through specialists and inconclusive tests while conditions worsen, organs sustain irreversible damage, and disabilities become permanent.

> "Rare disease is rare because we don't test for it."
>
> **—Parth Shah, MD**
> Hematologist at DHMC

In parallel, without enough diagnosed patients, clinical trials struggle to enroll enough participants, slowing the development of new therapies. As a result, clinical trials for rare diseases run nearly twice as long as those for common diseases, according to a 2026 white paper by Arya Consulting Partners.

Traditional genetic tests scan for a narrow list of known mutations. If a patient's mutation is excluded, the test will come back negative, and their diagnostic odyssey continues. Parth Shah's comprehensive genomic sequencing casts a much wider net.

DHMC runs whole-exome sequencing, which reads all 18,000-plus protein-coding genes, alongside whole-transcriptome sequencing, which captures what those genes are actively doing at any given moment. Think of DNA as a face—the stable, permanent record. The transcriptome is the expression, constantly shifting, reflecting what's happening in the body right now.

"You can look at a transcriptome and say this cell is normal or abnormal," Parth Shah explains.

This approach can also help hone treatment approaches.

When Parth Shah's team analyzed a cohort of small cell lung cancer patients treated with tarlatamab, a newly approved immunotherapy, they found that while only 40% of patients responded in clinical trials, their research suggested transcriptome sequencing could predict response with up to 90% accuracy—more than doubling precision in patient selection.

DHMC is among the few academic medical centers in the country running both exome and whole-transcriptome sequencing routinely on patients, versus just in research settings. Parth Shah helped develop the custom transcriptome assay that many large academic medical centers across the country have since adopted.

"What is new at DHMC is that those genes are no longer being shipped to labs across the country to be studied," Parth Shah says. "Now it's all in-house. We are cataloging them for every patient who walks in."

The speed of that in-house process can transform care for many diseases, including for acute myeloid leukemia (AML). Patients with AML once waited weeks in the hospital to learn their prognosis. Now, Parth Shah's team has identified gene fusions with 100% sensitivity, he says, while uncovering mutations previous testing missed—delivering precise information about a patient's diagnosis and treatment options in 24 to 36 hours. So far, six AML patients of his have already gotten treatments they would never have received as a result of conventional testing alone.

The sequencing platform also creates institutional memory. As Parth Shah sequences each patient, their genetic profile is cataloged in a HIPAA-compliant database. When physicians at DHMC were looking for patients with a specific rare lung cancer mutation that would allow them to be offered treatment through a clinical trial, Parth Shah queried the database. Five minutes later: "Yep, I have three."

Newborn Sequencing for Life

But what if Parth Shah's PROS patient had been diagnosed at birth, long before two strokes and 30 years of suffering?

That possibility drives Nidhi Shah. In addition to her role as a clinical geneticist at DHMC, she is the principal investigator for Dartmouth Health Children's on the nationwide BabySeq project, which sequences newborns' entire genomes in the first weeks of life using a separate whole-genome platform



designed to detect the thousands of genetic disorders that can affect children from birth onward.

"We sequence right after birth, then return information as it becomes relevant throughout [their] life," explains Nidhi Shah, who is also an assistant professor of pediatrics at Geisel. Because a genome doesn't change, one test at birth becomes a lifelong reference: how a toddler will metabolize medications, what cancer risks might emerge later, whether a young adult carries genes they might pass to their future children.

One newborn tested positive for biotin deficiency, a condition that can cause seizures and developmental delays. The preventive treatment is biotin, a daily vitamin. "If you just take the biotin, you don't ever have seizures," Nidhi Shah says. The child is now healthy.

Five years of BabySeq data show that parents who receive genetic results do not "medicalize" their children: They don't rush to emergency rooms more often or spend more on healthcare out of worry.

Nidhi Shah is also studying how well genomic medicine functions outside major urban hospitals. Since many families she sees live in rural New Hampshire and Vermont, she is keenly aware that an early diagnosis matters only if patients can realistically act on it.

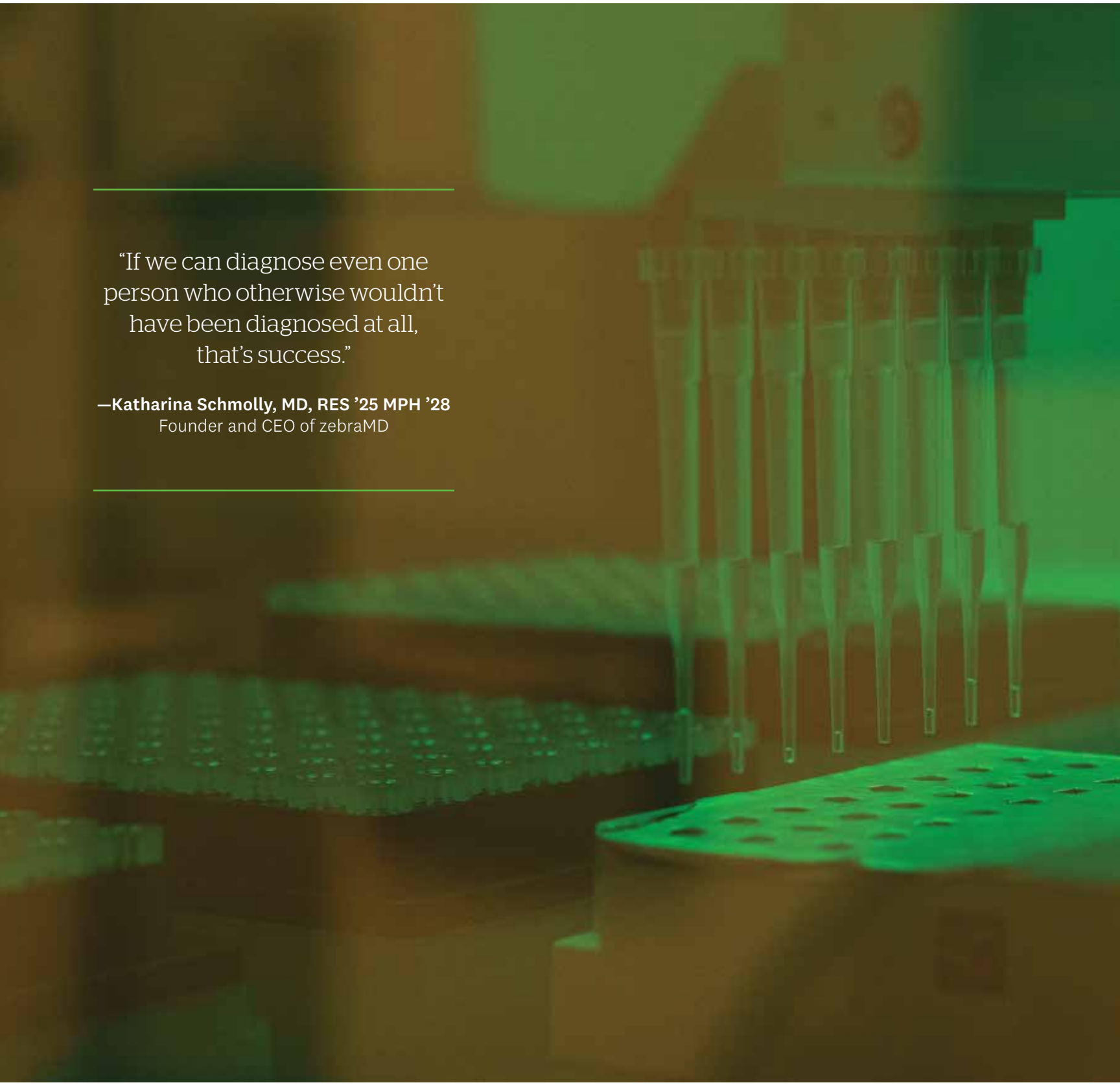
Pattern Recognition

Not every rare disease presents at birth. Many surface slowly, after years of vague and disconnected symptoms. And the challenge isn't only getting the right genetic test. Often, it's identifying that something is wrong in the first place and getting the patient to the right specialist. That gap led Katharina Schmolly, MD, RES '25 MPH '28, founder and CEO of zebraMD, who worked in Parth Shah's lab and trained under Nidhi Shah during her internal medicine residency at DHMC, to build something different.

ZebraMD is an artificial intelligence (AI) platform that scans electronic health records (EHRs)—previous visits, lab results, family history—alongside wearable data, home monitoring devices, and environmental and geospatial information to identify symptom patterns that match known rare diseases and prompt physicians to consider diagnoses they might otherwise miss. When a match surfaces, AI analyzes the full chart against published clinical guidelines and alerts the treating physician, either in their inbox or at the point of care. The platform also connects patients to relevant clinical trials, support organizations, and financial assistance programs.

"Even highly trained specialists can't memorize 10,000 different diseases," Schmolly says.

The University of California, San Francisco (UCSF)—which has extensively reviewed zebraMD's platform for security and patient data compliance and is where Schmolly went to medical school and first began to develop zebraMD—and NewYork-Presbyterian Weill Cornell Medical Center are piloting the system. In a study published in January 2025 in the *Journal of the American Medical Informatics Association*, zebraMD's



"If we can diagnose even one person who otherwise wouldn't have been diagnosed at all, that's success."

—Katharina Schmolly, MD, RES '25 MPH '28
Founder and CEO of zebraMD

original algorithm, co-created with collaborators at UCSF, identified porphyria patients with 89–93% accuracy and caught 71% of cases 1.2 years earlier than doctors did. The platform now has prediction algorithms for more than 350 rare diseases.

"If we can diagnose even one person who otherwise wouldn't have been diagnosed at all, that's success," Schmolly says.

As pilots at UCSF and Weill Cornell wrap up, Schmolly launched a standalone browser-based version, usable by both physicians and patients without EHR integration, for a public beta this September aimed specifically at medically underserved communities in northern New England. The standalone tool can connect to patient portals and accept medical records in any format. Later this year, it will connect to national health exchanges, giving it reach across all EHR systems used in rural New Hampshire and Vermont.

The Cost of Diagnosis

Even with better tools, a diagnosis doesn't always open a door to treatment. Nearly 95% of rare diseases have no FDA-approved therapy, according to the National Center for Advancing Translational Sciences, in large part because it is nearly impossible to enroll enough patients in clinical trials to validate new drugs. That's the deeper promise these diagnostic tools carry. More diagnoses mean more patients eligible for trials. More trials mean more therapies.

Bereft of treatment options, rare diseases are inherently more costly to manage, up to 10 times more expensive than common conditions, *The American Journal of Managed Care* reports. And despite impacting a fraction of the population, rare diseases are responsible for nearly half of all direct medical costs, according to a study published in the *Orphanet Journal of Rare Diseases*.

"Cures only get funded at scale when the economics work," says Emma Dean, PhD, MS, a health economist and assistant professor at The Dartmouth Institute for Health Policy & Clinical Practice. "And the hidden kingmaker is not the drug company. It's the payer."

Insurance companies, Medicare, and Medicaid decide who and what gets covered. Even when treatments exist, they're not guaranteed to be covered by medical plans. Off-label use, like repurposing a breast cancer drug for PROS, can foil reimbursement. "Payers often require prior authorization, and patients may face higher out-of-pocket costs even when the drug works," Dean explains.

One treatment for a condition recently added to New Hampshire's newborn screening panel costs $800,000 per year, says Nidhi Shah. But "if you start treating them before things go wrong," she adds, "you don't need to treat them for as long."

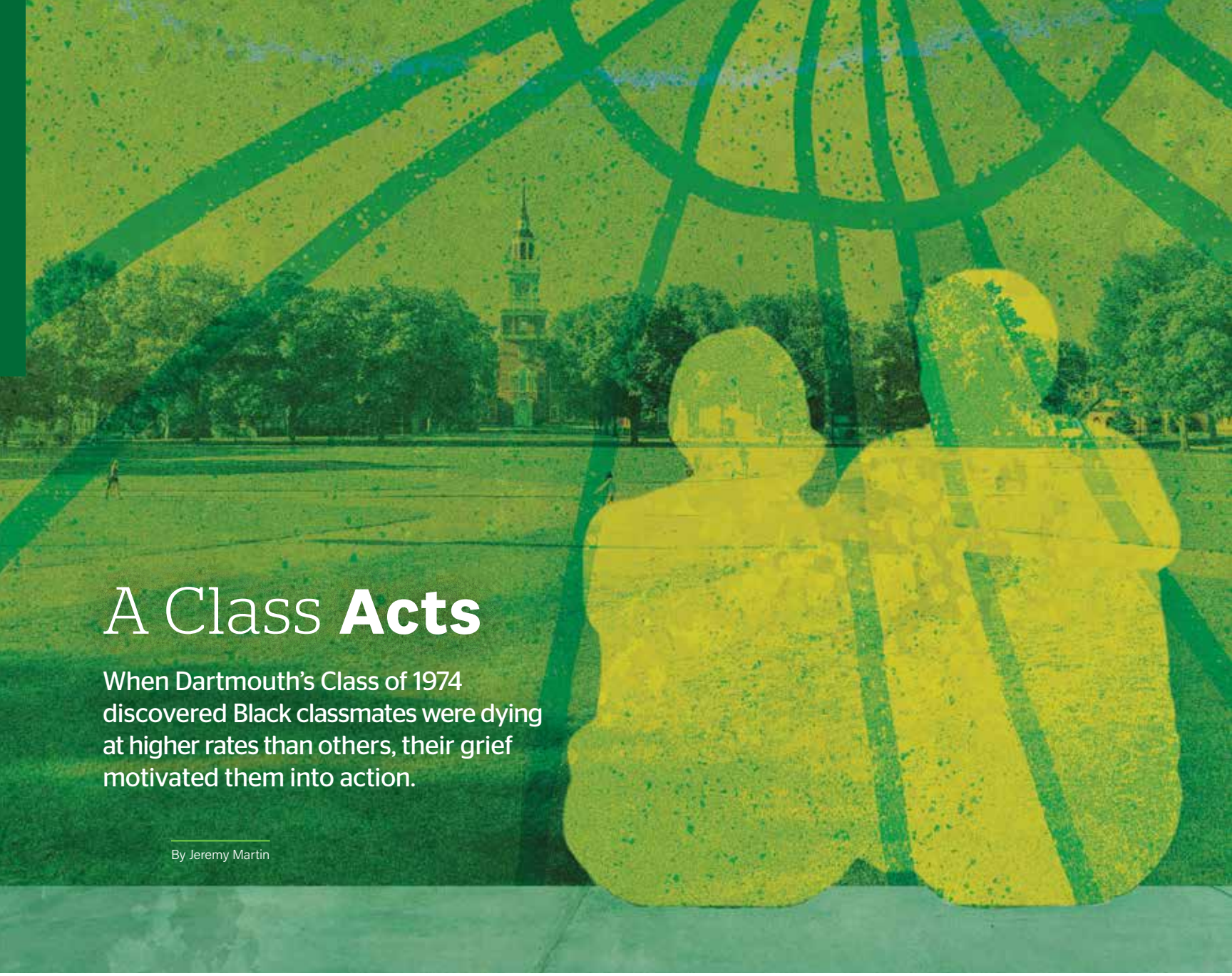
Seeing the Stripes

Parth Shah's PROS patient has recalibrated his perspective. "It changed my whole point on how I wanted to deliver care," he says. "I wouldn't be surprised if in the next four to five years almost everybody's being sequenced. We're doing it now, bench to bedside, in real time."

Already, DHMC tests every leukemia patient in its care, and now completes rapid genomic testing for critically ill babies in neonatal intensive care. The hospital also conducts molecular autopsies for New Hampshire: sequencing children who die with no known cause, providing both closure for families and valuable genomic data.

For patients born tomorrow with biotin deficiency, with PROS, or with any condition in that fortunate 5% with available treatments, they may get something previous generations never had: answers before it's too late. The diseases won't disappear. But the diagnostic odyssey, the years of inconclusive tests and delays that rob people of money, comfort, and often their lives—that is already changing for the better.

To learn more about the Laboratory for Clinical Genomics and Advanced Technologies at Dartmouth Health, contact Matthew Hall at 603-667-6309 or Matthew.R.Hall@hitchcock.org, or go to **dartgo.org/rarediseases**.



A Class **Acts**

When Dartmouth's Class of 1974 discovered Black classmates were dying at higher rates than others, their grief motivated them into action.

By Jeremy Martin

Members of Dartmouth's Class of 1974 expected their 45th reunion to be a celebration. Instead, preparations for the gathering left some alumni grappling with an unexpected sense of loss. As class officers compiled the memorial list—those who had died since the last reunion—a pattern emerged: The friends they were mourning seemed disproportionately Black.

The observation was unsettling enough that a small group of alumni decided to investigate. After confirming the numbers with the College and comparing their class's memorial list to that of neighboring classes, the disparity was clear: Within their cohort, Black alumni had died at roughly 2.3 times the rate of their non-Black classmates.

"Every one of us has a story about a Black classmate who's no longer with us," says Mike Thomas D '74.

For Thomas and many of his classmates, these were roommates, teammates, study partners, and lifelong friends. Determined to understand what they were seeing—and do something about it—the class formed the Mortality Disparity Working Group in 2020. Led by co-chairs Thomas and Bill Geiger D '74, the group adopted an ambitious vision of "a future without racial, ethnic, and gender health and mortality disparities."

Preventing More Grief

The motivation behind that vision, notes Jerry Bowe D ’74, 45th Reunion class president, is first understanding what happened, then preventing it from happening again. “It’s too late for our guys,” he says, “but it’s not too late for those who come after us who face these same challenges.”

The plan didn’t come together overnight, and it took years of outreach. Over time, the group gained former Dartmouth President James Wright’s support and raised $519,000 to create the Class of 1974 Commemorative Health Equity Fund to underwrite a new Health Equity Scholars Program. Launched in 2023, the program places selected undergraduates as paid, three-term, co-curricular assistant researchers alongside faculty in the Health Equity and Advocacy Lab at The Dartmouth Institute for Health Policy & Clinical Practice—a research group devoted to identifying structural barriers to healthcare access.

For some Health Equity Scholars, the issue is personal, too. After emigrating from South Korea, Chae Lee D ’26 became her mother’s medical interpreter. Navigating a healthcare system that often felt impossible to access led Lee to the Health Equity Scholars Program, where she worked with Alka Dev, DrPH, MHS, a public health demographer at The Dartmouth Institute. There, Lee helped build an index measuring how well all 50 U.S. states support people with disabilities—examining Medicaid programs, housing, transportation, and financial resources.

Understanding What Happened

In a separate partnership with the Working Group, beginning in 2026, Dartmouth’s sociology department selected the Class of 1974 mortality disparity as the research question for Sociology 92, its senior capstone course, giving students the chance to investigate why the gap exists.

> “Every one of us has a story about a Black classmate who’s no longer with us.”
>
> **—Mike Thomas D ’74**

Under the guidance of Jason Houle, PhD, chair of Dartmouth’s sociology department, three Sociology 92 research teams examined the Class of 1974 health disparity through different phases of life.

One team found that Black alumni who grew up in the Jim Crow South during the 1950s and 60s had a mortality rate 1.6 times higher than Black classmates raised elsewhere, suggesting early exposure to structural racism can shape health across a lifetime.

Another group mined Dartmouth yearbooks from the early 1970s in the Rauner Special Collections Library, finding that non-Black alumni in the Class of 1974 were more likely to join clubs that built career-advancing social networks, while Black alumni more often joined affinity groups.

A third team, through interviews with surviving alumni, revealed that Black classmates reported facing greater barriers in the labor market after graduation, along with poorer health outcomes and higher stress than their white peers.

What struck Houle—and the Working Group—was the students’ reaction. After the course, students expressed that they wished they’d known what they know now four years earlier, when they first arrived at Dartmouth, because it would have changed how they approached their friendships and relationships at the College.

For Thomas, that response gets at everything. The disparity uncovered by the Class of 1974 persists because deeper structural forces shape health in ways that outlast any diploma. “It doesn’t go away on its own,” he says. “So we’re not going away either.”

To learn more about the Mortality Disparity Working Group, go to **1974.dartmouth.org** or contact Elizabeth Fitzgerald at 603-646-5820 or at Elizabeth.F.Fitzgerald@dartmouth.edu.

From Farm to **Bedside**

These Dartmouth Health initiatives are turning the proverb "an apple a day keeps the doctor away" into medical care.

For many patients, medical care can take a financial toll. So when doctors advise patients to eat healthier to support their recovery and prevent further illness, it may ring hollow. Seeking out healthier options can be expensive in terms of money, logistics, and energy. That's why these Dartmouth Health programs are putting locally grown, intentionally nutritious, farm-fresh meals directly into patients' hands—for free.





All Dartmouth Cancer Center patients being treated at Dartmouth Hitchcock Medical Center—regardless of circumstance—can place a grocery order through the Healing Harvest food pantry that they can pick up at their appointments. Grocery items are specifically tailored to the nutritional needs of cancer patients. Options include high-calorie snacks and drinks, fresh produce, milk, eggs, and bread from several local farms, including Cedar Circle Farm & Education Center in East Thetford, Vermont (pictured). Patients can also choose premade frozen meals intentionally prepared by the kitchen team at Cedar Circle to be palatable for people going through chemotherapy or other treatments that might take away their appetite. Healing Harvest provides about 7,800 single-serve freezer meals cooked at Cedar Circle to patients each year. In 2025, Healing Harvest distributed more than 12,000 bags of groceries to more than 1,000 cancer patients, philanthropically supported by The Prouty and Friends of Dartmouth Cancer Center.

Healing Harvest relies on partnerships with local farms and businesses to provide healthy ingredients to cancer patients. One partner, Cedar Circle Farm & Education Center, grows the majority of hothouse vegetables provided through Healing Harvest, totaling more than 3,320 pounds of cucumbers, peppers, and tomatoes each year.









What pregnant patients eat can be critically important to their health and the health of their babies. The Healthy Food Healthy Births program at Dartmouth Hitchcock Medical Center (DHMC) treats food as something that can be prescribed by a doctor. Patients with a prescription can get local produce and nutritionally appropriate meals, prepared by Cedar Circle Farm & Education Center or Kearsarge Food Hub's Sweet Beet Market and Café. They can take these frozen meals home from their clinic appointments or, during their pregnancy and postpartum periods, they can choose to have the meals delivered to their homes to eliminate transportation as a barrier to nutritional care. Patients can choose their menus, which have been carefully assembled to meet the specific nutritional needs of pregnancy, and are also offered options specifically tailored to their personal medical needs, such as food allergies or gestational diabetes. The program is currently supported by a four-year grant, awarded in 2025 after a successful pilot program from August 2022 to July 2024. In the first nine months, the program supported about 50 patients with approximately 4,000 meals. Healthy Food Healthy Births is part of a broader initiative at DHMC—called Food is Medicine—to integrate food-based interventions and nutrition into healthcare, treating it as a prescription.































These initiatives wouldn't be possible without philanthropic support and grant funding.

To learn more about Healing Harvest, contact Christine Howeiler at 603-646-2266 or Christine.R.Howeiler@hitchcock.org.

To learn more about Food is Medicine, contact Matthew Hall at 603-667-6309 or Matthew.R.Hall@hitchcock.org.



Handing Kids the Tools for **Their Own Wellness**

A new approach to pediatrics shifts the focus from disease to health.

By Mara Johnson-Groh

Paisley Krouse, a patient of Matthew Hand, DO, receives a massage during a doctor's appointment.

The year Rebecca Searles' son Daniel spent recovering from a devastating medical incident was the year the family hit rock bottom. The medications that Daniel, then age 9, had been taking to manage his Kabuki syndrome, a rare genetic disease, had been poisoning his body for at least a year, eventually resulting in seizures and hallucinations. So Daniel, who also has associated conditions including autism, attention-deficit/hyperactivity disorder (ADHD), and insomnia, was taken off all his medications, and life at home and school became incredibly challenging.

"We were scraping the bottom of the barrel of what other medicines we could try that were not going to make him sicker," Searles says. "We got to a place where we were just desperate and I was like, OK, at this point, I will try pretty much anything."

That's when Searles turned to Daniel's longtime nephrologist, Matthew Hand, DO, section chief of pediatric nephrology at Dartmouth Health Children's. Hand recommended a new approach: integrative medicine. Integrative medicine brings in traditional methods to work side by side with Western medicine, with a focus on wellness rather than disease. Searles was hesitant at first, but with no other options left she agreed to try Daniel first on cannabidiol (CBD) and eventually medical marijuana to manage his epilepsy, ADHD, and autism—something she never thought she'd do in a million years.

"But the first time that we used it, I was like, why didn't we do this sooner?" says Searles, who saw Daniel quickly become able to emotionally self-regulate again. "It's been really life altering for Daniel and a lifesaver for our family."

The Searles family are not alone in seeking treatment outside of Western medicine. A 2017 survey conducted by the American Academy of Pediatrics found over half of children with chronic illnesses are using integrative techniques to complement their standard care.

> "It's been really life altering for Daniel and a lifesaver for our family."
>
> **—Rebecca Searles**
> patient's mother

Although some of its methods are ancient, integrative medicine is having a modern moment, driven by people in a wide range of situations, from those like Searles who have no standard options left, to those who have a distrust of medical establishments or who simply prefer less medicated options.

But too often patients and their families are left to navigate these techniques—which include everything from acupuncture to dietary supplements—on their own, as many doctors have little to no knowledge of alternative therapies.

To grow awareness around integrative medicine and help providers better incorporate integrative approaches into their practices, Hand launched the Pediatric Integrative Medicine Initiative (PIMI) at Dartmouth Health Children's in 2023. PIMI became the first initiative of its kind in the United States, and today its evidence-based approach is spurring a cultural shift nationwide.

Through PIMI, Hand organizes monthly lectures and Q&A sessions for providers in the Dartmouth Health system. Open to everyone from nurses and social workers to doctors and office staff, these online meetings focus on data-driven approaches to integrative health, providing essential information that is often absent in a standard medical education. Past lectures have focused on topics that providers commonly see come into the office, such as autism, ADHD, insomnia, and anxiety.

"Introducing integrative medicine into what a patient is already doing with their regular care plan can be a tipping point," says Administrative Director of Dartmouth Health Children's Catherine Garfield Legare, MHA, who is excited about the education PIMI provides, including using integrative techniques to help patients reduce reliance on prescriptions, which for some can have undesired side effects. "I'm honored to partner with Dr. Hand to grow PIMI, knowing expanding knowledge and tools to more clinicians can make an incredible difference in helping patients achieve better health."



Matthew Hand, DO, section chief of pediatric nephrology at Dartmouth Health Children's, is training other clinicians to practice integrative medicine techniques—sometimes using himself as a stand-in for a patient. In this case, he's demonstrating how to use the Seeds and Beads program, which offers a needle-free alternative to acupuncture.

Appealing to the Picky Eaters

Stigmas have long dogged integrative approaches, so Hand is focused on communicating the evidence behind his techniques to help drive a new mindset in pediatrics. There are many more clinical trials that back integrative techniques than people realize, Hand says, and there are many tools out there that don't have to break the bank.

One of those tools is simply adjusting what we eat. Specific foods and nutrients can help the body recover from traditional medical procedures, says Dartmouth Health clinical dietitian Filomena Kersey, RDN, CD, CSO, LD, who often works with Hand. For example, when a child becomes nauseous from radiation treatments for cancer, a dietitian might recommend ginger or peppermint to help counteract the nausea and reduce the amount of anti-nausea medication needed.

"Some of the children on the autism spectrum we see are selective eaters," says Dartmouth Health clinical dietitian Kiah Williams, RDN, LD. "Sometimes rounding out the micronutrients in a meal can help make food taste better and be more appealing to them. And finding ways to cut down on ultra-processed foods can help support them in feeling better as well."

Dietary supplements are another option for patients. As a more than $200 billion industry, health supplements are already hugely popular, but finding reputable brands and understanding correct dosing can be difficult.

"Trying to figure it out is like going down a rabbit hole," says Geraldine Rubin, MD, chair of pediatrics at Dartmouth Health's Cheshire Medical Center and fellow of the American Board of Integrative Medicine.

To streamline prescriptions and patient use of supplements, PIMI is exploring a company who will offer PIMI's recommended supplements, vetted by Hand, including recommended dosages. This will allow clinicians to include the recommended supplements and dosages directly into the patient's medical record and their after-visit summary.

"This would be a game changer for us because a lot of our pediatricians want alternatives to pharmaceutical drugs but don't know what's out there," Rubin says. "With a program like this we'll be able to input clinically proven alternatives."

Solutions for Every Budget

Having a catalog of recommended supplements also helps providers find ones that fit their patients' budgets. Integrative medicine has long been limited to those who can afford it, as services like acupuncture and massage therapy are often not covered by insurance. With one in three children in New Hampshire on Medicaid, according to a 2025 analysis by the American Academy of Pediatrics, low-cost solutions are essential.

PIMI is also promoting low-cost methods that can be conducted in an inpatient setting, such as osteopathic manual therapies, which are hands-on techniques that use palpitation and stretching and have been proven to help headaches, constipation, colic, and more. Hand is especially excited to be launching a new program called Seeds and Beads, which offers a needle-free alternative to acupuncture. Also known as auricular acupuncture or acupressure, this method was developed in New Mexico based on principles from Chinese medicine. It uses small, cheap beads that can be fixed to specific points on a patient's ear to help maladies like anxiety, insomnia, and pain relief.

"Kids are often afraid of needles, so this is a great, proven alternative and one anyone can do," Hand says. "It just takes a two-hour course, and we've already trained several dozen people across Dartmouth Health."

In addition to working to increase participation across the Dartmouth Health system, Hand would ultimately like to create informational resources accessible to any provider, anywhere.

Thanks to integrative medicine, Searles says, Daniel is now a thriving middle-schooler who loves being on the cheerleading team and playing soccer with his friends—two things he couldn't do before.



▲ Daniel Searles, now 13, at the gym. His mom credits integrative medicine for his ability to participate fully.

"Integrative medicine has given Daniel a high quality of life and filled the holes where traditional medicine hasn't worked for us," Searles says, noting that she hopes integrative medicine becomes just as accessible to families as cardiology departments and other medical specialties. "There's so much good it can do if more people have access to it."

To learn more about integrative medicine at Dartmouth Health Children's, go to **dartgo.org/pedsintegrative**. To support Dartmouth Health Children's, contact Polly Antol at 603-646-5316 or Polly.Antol@hitchcock.org.

A Historic Investment and an Invitation to Reimagine Child Health

Thanks to a transformational commitment from Tom Golisano, Dartmouth Health Children's is embarking on an exciting new era of compassionate, close-to-home care.



Dean Davies, at age 2, with parents Victoria and Christopher. Dean receives care at Dartmouth Health Children's as part of the Complex Care Program.

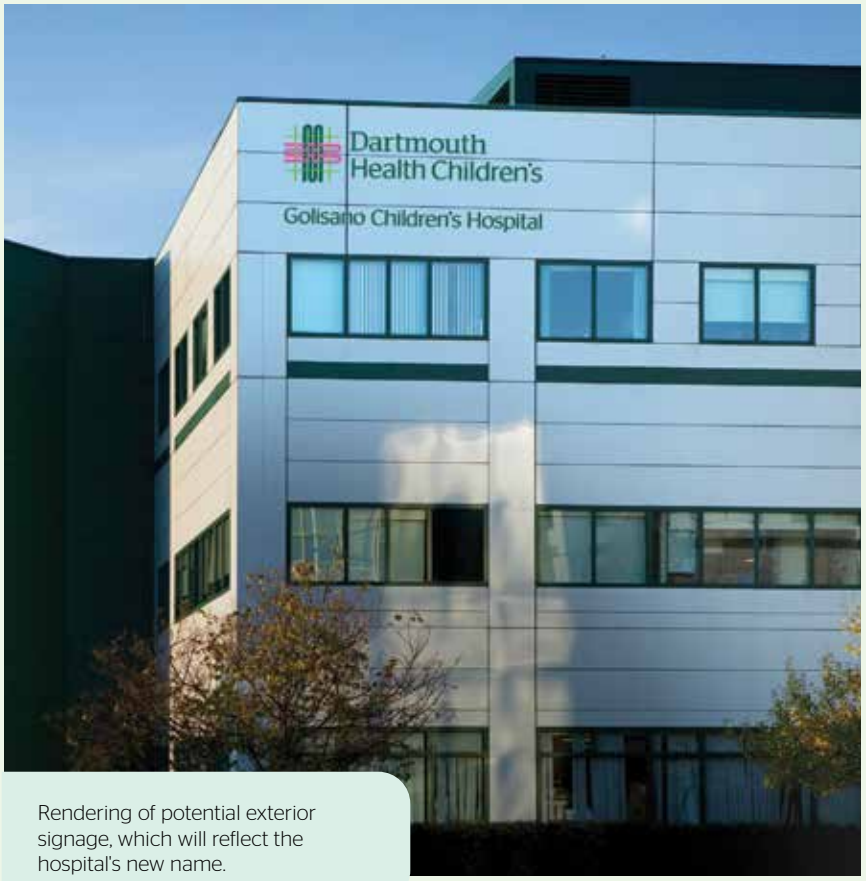
For more than 30 years, Dartmouth Health Children's has been the anchor of pediatric healthcare across New Hampshire and Vermont. Caring for more than 100,000 young patients each year at 23 locations, we are the familiar face families turn to—whether they're facing a routine checkup or the most frightening moment of their lives. Now, that legacy enters an exciting new chapter.

In September, entrepreneur and visionary health leader Tom Golisano announced a $30 million philanthropic investment in Dartmouth Health Children's, marking the largest gift in Dartmouth Health's history. In recognition of this extraordinary commitment, Children's Hospital at Dartmouth Hitchcock Medical Center (CHaD) is becoming Golisano Children's Hospital at Dartmouth Health and will join the Golisano Children's Alliance, a national network of children's hospitals united by a shared commitment to the highest standards of pediatric care.

This investment means that more children and families will benefit from compassionate, close-to-home care, while also enabling us to modernize critical-care facilities for our sickest patients. Above all, it helps us ensure that no family in our region will ever be beyond our reach.

But this milestone is also a beginning. We are inviting our entire community to join a bold campaign that will reimagine child health from the ground up: expanding specialty care, modernizing critical-care facilities for our sickest patients, and bringing exceptional services closer to home for the kids and families of New Hampshire and Vermont.

This is a moment three decades in the making. Now, we have an extraordinary opportunity to cement this legacy together.



Rendering of potential exterior signage, which will reflect the hospital's new name.



Rendering of the renovated Intensive Care Nursery, which will bring the highest care standards to our youngest patients.

WHAT WE'RE BUILDING

- Reimagined neonatal and critical care facilities for our smallest and sickest patients
- Growing specialty care in Manchester, New Hampshire, home to our busiest clinic
- Greater access to behavioral and mental healthcare for kids, teens, and adolescents
- A strengthened Child Life Program and dedicated pediatric social work team

> **Mr. Golisano's extraordinary generosity is deeply personal to all of us who work here, and to the kids and families who rely on us. Now, the real work begins.**
>
> **KEITH LOUD, MD, MSC,**
> Physician-in-Chief,
> Dartmouth Health Children's

BE A PART OF WHAT COMES NEXT

Join us in building a brighter future for the children and families of northern New England.

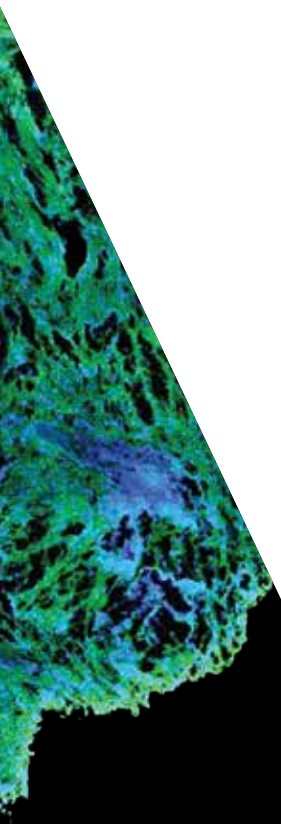
Polly Antol
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Child Health Initiatives
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The Accident **Advantage**

Some of medicine's biggest leaps forward started with a surprise. At Dartmouth, serendipity is part of the plan.

By Jeremy Martin





Days before winter break in 2016, David Leib, PhD, and his research team at the Geisel School of Medicine at Dartmouth found themselves in a pathogenic pickle.

The team was using mouse models to investigate neonatal herpes simplex virus (HSV). HSV in newborns is rare, but it can cause profound neurological damage and, in some cases, death.

But recently, progress had stalled. The team couldn't get the HSV dosage right, so on a whim they tried a different approach: Give the mice very low doses of virus—down to 100 viral particles—and monitor any effects.

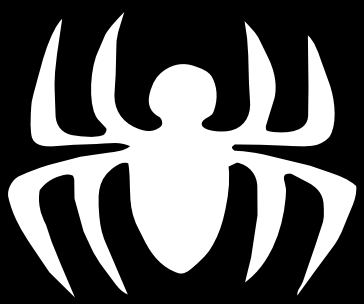
"100 virus particles is almost like no virus at all," says Leib, a virologist and chair of the department of microbiology and immunology at Geisel. "We call it a 'homeopathic dose.'"

They didn't expect much to happen. And initially, nothing did. The mice showed no HSV signs or behavioral changes before the research team left for winter break. But just in case, the team had set up specialized equipment to monitor the mice's feeding, drinking, and movement while they were gone.

And when they reconvened in the new year, a month later, they noticed that, with time, something had shifted. The HSV mice were exhibiting signs of anxiety. Further testing revealed learning and memory deficits that hadn't existed weeks before.

"The mice who received this tiny amount of herpes infection couldn't remember which order the objects go on the screen," Leib says, referring to a mouse-specific cognitive test his team conducted with a tablet. The mice struggled to learn and were slower to correct themselves, appearing unable to retain new information.

What had begun as a study of neonatal HSV infection had turned into something else entirely: The mice, it seemed, were showing early signs of dementia. This raised the startling possibility that a common virus might play a role in neurodegeneration, for which the precise mechanisms—and therefore, a prevention or cure—continue to evade experts.



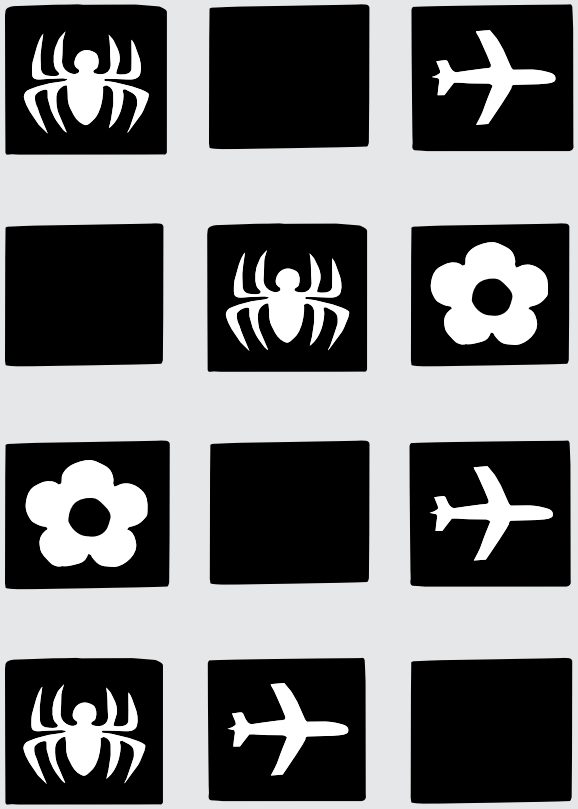
Top: David Leib and his team identified HSV antibodies (green) gathered in the brain tissue of adult mice, indicating a dormant HSV infection in the brain, even though the virus was not actively causing symptoms.

Bottom: Patients and study subjects—such as those in Leib's laboratory—often do memory tests for cognitive decline. Try memorizing the order of these three symbols before you turn the page.

Photo courtesy of David Leib

TEST YOURSELF:

Can you remember the pattern from p. 42-43? In each set of three, identify if a symbol is in the correct location.



Medicine is full of unexpected breakthroughs like Leib's. A 2024 analysis of 1.2 million publications found that 58% report outcomes scientists didn't anticipate. But accidental discoveries only become big breakthroughs if someone recognizes their significance—and has the freedom and support to dig deeper.

At Dartmouth, a place Leib calls "an epicenter of serendipity," that freedom is increasingly a feature of the institution's academic research philosophy.

Double Serendipity

Alexander Fleming was studying staphylococcus when mold—accidentally introduced into his petri dish—killed the bacteria, and penicillin was born. Viagra was engineered to treat chest pain. Ozempic began as a diabetes drug. Could the unexpected discovery made by Leib's team lead to a similarly out-of-the-box advancement? The team would first need to see if their findings in mice also applied to people.

Through a partnership with the Birthing Pavilion at Dartmouth Health's Dartmouth Hitchcock Medical Center (DHMC), Leib's team found a window into human HSV: discarded suction bulbs, vaginal swabs, and obstetricians' gloves from routine deliveries. By testing these items, they found HSV DNA on almost 7% of these items, suggesting an unexpectedly high level of exposure during labor and delivery. These are not causing the severe infections that affect 0.016% of births, Leib says, but are possibly analogous to the same silent, low-level exposure Leib's team had given the mice.

Their findings, published in February 2025 in *PLOS Pathogens*, suggest HSV exposure in newborns may contribute to anxiety, cognitive decline, and neurodegenerative disease decades later. Maternal HSV vaccinations—which aren't yet available but are in the development pipeline—could be an effective preventative.

Leib calls the discovery "a double serendipity": an unexpected finding that led, almost accidentally, to a potential breakthrough in one of medicine's most stubborn challenges.

"There is no doubt in my mind—and I think most scientists would agree—that serendipity is the driver of so much discovery," says Leib. "[It] is the catalyst of science."

Fertile Ground

Modern funding structures don't always make room for these moments. A 2025 analysis of 100,000 National Institutes of Health (NIH) grants found that higher-risk research was less likely to be renewed than safer, more predictable work.

Dartmouth and Dartmouth Health have bet the other way—and are seeing the benefits. Every dollar donated to Dartmouth Cancer Center's Prouty Pilot Grant Program—which supports high-risk, early-stage research—generates an additional $12 in federal grant support, made possible by data produced during the pilot period. Similarly, the Byrne Family Cancer Research Institute, launched with a $25 million lead gift in 2022 from the Jack & Dorothy Byrne Foundation, has since attracted $110 million in grants.

The Leib lab's finding of a possible link between low levels of HSV and dementia is striking on its own, but the result, Leib says, was not happenstance. It was the product of persistent curiosity and Dartmouth's unique ingredients: interactions and collaboration that go far beyond the norm.

For example, the fact that Leib's HSV mice were monitored over winter break—the observation that set their discovery in motion—came from a chance encounter with Francesca Gilli, MS, PhD, an immunologist and neurologist at Geisel, who had lent equipment and lab space to Leib for an entire month.

"You bump into people from a lot of disparate areas" in the hallway and around town, says Leib, who has

also tapped into experts across Dartmouth, as well as DHMC clinicians. Their response, Leib says, is invariably focused on being helpful.

"It's not like, 'Well, what's in it for me?' It's like, 'That's really interesting. Let me help you with that,'" Leib says. As a result, "[it] pulls you in directions you couldn't possibly expect."

Throughout Dartmouth's history, this sentiment has also led to discoveries with far-reaching impact. Geneticist Victor Ambros, PhD, came to Dartmouth in 1992 after being denied tenure at Harvard while studying "schmutz" in roundworm data. That schmutz was microRNA, and his discovery of its role in gene regulation earned him the 2024 Nobel Prize in Physiology or Medicine. Immunologist Jason McLellan, PhD, spent years stabilizing coronavirus spike proteins during his postdoctoral training at Dartmouth. His 2016 breakthrough while at Geisel became the foundation for most COVID-19 vaccines and led to his induction into the National Inventors Hall of Fame.

Neither discovery was planned. Both required an institution willing to let researchers follow the unexpected long enough for it to change medicine.

"At First, I Didn't Believe It"

Nearly a decade after Leib's initial HSV breakthrough, Tyler J. Curiel, MD, MPH, the Gmelich Professor of Cancer Immunotherapy at Dartmouth Cancer Center and Geisel, was on his own hunt.

His lab was looking for new ways to circumvent cancer's defenses. Specifically, they wanted to strip tumor cells of a protein called PD-L1—a kind of molecular shield that helps cancer cells evade the immune system.

To find the right drug, they screened FDA-approved medications, a strategy that would let them skip years of safety testing and move faster toward the clinic.

"My working hypothesis was that the drug that you need is already out there," Curiel says. "Somebody's already made it. You just have to find it."

Their screen flagged an unexpected option: telmisartan, a blood pressure medication in use for 25 years. It was FDA-approved, affordable, and widely available.

The idea that a blood pressure drug could also fight cancer would have been surprising enough. Then came the experiments to find out how it all worked. When Curiel's team tested telmisartan in tumor cells genetically engineered to lack PD-L1—essentially deleting telmisartan's supposed target—the drug kept working anyway.

> "When you see crazy stuff, a lot of times it's just crazy. But every once in a while, it's important."
>
> **—Tyler Curiel, MD, MPH**
> Cancer immunology researcher

"At first, I didn't believe it," Curiel says. "I kept saying, 'We're doing something wrong.'"

Further investigation revealed that telmisartan doesn't attack cancer cells directly. Instead, it makes other cancer drugs work dramatically better. Specifically, telmisartan supercharges a class of drugs called PARP inhibitors, which treat cancer patients who have the BRCA gene mutation. Most patients lack that mutation, which has always limited who could benefit from PARP inhibitors.

Remarkably, telmisartan amplified the PARP inhibitors' ability to damage a tumor not only in BRCA-positive cancers, but across many tumor types—even those lacking BRCA mutations. This means telmisartan could lead to drastically expanded treatment options for huge new swaths of cancer patients.

These findings were published in March 2026 in the *Journal for ImmunoTherapy of Cancer*, and Curiel and his colleagues are already leading two clinical trials testing this drug combination: one for metastatic, castrate-resistant prostate cancer, and another for platinum-resistant ovarian cancer.

Discoveries like this depend less on luck than on staying open to, and listening to, surprising signals. "When you see crazy stuff, a lot of times it's just crazy," says Curiel. "But every once in a while, it's important."

Leib puts it another way—borrowing from a line often attributed to the late futurist Isaac Asimov: "The greatest sound in a science lab isn't 'Eureka.' It's 'that's funny.'"

Anne Holden contributed to this report.

To learn more about research at the Geisel School of Medicine at Dartmouth, contact Kim LaBonte at 603-646-5110 or Kim.Labonte@dartmouth.edu.



How to Change **Medicine**

Medical discoveries can take years to reach patients. Dartmouth's Center for Implementation Science is transforming that process.

By Jeremy Martin

For decades, millions of Americans were advised by their doctors to take low-dose aspirin daily to prevent heart attacks and strokes. Then, in 2019, new research showed that for adults without existing cardiovascular disease, the risks of internal bleeding often outweighed the benefits. The American College of Cardiology and the U.S. Preventive Services Task Force updated their guidelines accordingly. But many clinicians kept recommending aspirin anyway, either missing the memo or being held back by habit and inertia.

That pattern plays out across medicine: In a landmark analysis published in 2013 in *Mayo Clinic Proceedings*, researchers found that about 40% of established medical practices, when rigorously re-evaluated, were ineffective or even harmful, and end up being reversed, as with daily aspirin. And according to a 2011 study in the *Journal of the Royal Society of Medicine*, it takes an average of 17 years for new evidence to change clinical practice.

That's where implementation science comes in. Rather than asking only whether an intervention works,

17 YEARS

average amount of time for new evidence to change clinical practice

(source: Journal of the Royal Society of Medicine, 2011)

implementation scientists and practitioners study how evidence-based practices can be adopted, adapted, sustained, and delivered effectively—and how practices that prove ineffective or harmful can be stopped.

Although researchers have long studied why new evidence fails to reach practice, trained implementation practitioners are scarce. To help address that need, the Geisel School of Medicine at Dartmouth established the Dartmouth Center for Implementation Science (DCIS), which serves as the school's hub for implementation research, training, and education, including a first-of-its-kind Master of Science in Implementation Science (MSIS) program.

Jeremiah Brown, PhD, MS '03 MS '06, professor of epidemiology and biomedical data science at Geisel, helped architect the center, founded in 2022, and its master's program. In 2025, the National Institutes of Health awarded Geisel a $12 million COBRE grant to establish DCIS as a center of excellence and train the next generation of implementation scientists.

"We're trying to accelerate the adoption of evidence-based practices," Brown says of the center's overarching purpose. "Implementation science is a vehicle to get change to happen in a systematic way."

Bridging the Know-Do Gap

Patients in the United States routinely go without treatments that could help them, not because the treatments don't exist, but because the systems meant to deliver them haven't caught up.

U.S.-based organizations accounted for roughly 55% of major pharmaceutical breakthroughs worldwide between 2010 and 2019, according to a 2021 Springer Nature analysis. Yet in the Commonwealth Fund's 2024 *Mirror, Mirror* report, which compared 10 high-income countries across 70 performance measures, the U.S. ranked last in access, affordability, equity, and outcomes.

"Implementation science has been a critical player in helping to bridge this dangerous know-do gap," says Sara Becker, PhD, D '00, inaugural director of Northwestern University's Center for Dissemination and Implementation Science.

Even as recognition for implementation expertise has grown, dedicated master's-level programs are still exceedingly rare. "Geisel's MSIS program is special," says Becker, who was the keynote speaker for the second annual Dartmouth Implementation Science Symposium in October, "because it is one of the first standalone master's programs in implementation science in the country."

Both Sides of the Equation

Central to DCIS's work is adoption: getting evidence-based practices into clinical use and sustaining them. De-implementation—removing ineffective practices and substituting better ones—is also critical. Replacing an established practice often requires introducing new evidence while carefully phasing out older practices.

"This cancer protocol that you have may not be great, and there may be a new one, but nothing switches overnight," says Gayle Cohen, MEd, director of Geisel's MSIS program.

Whether the goal is adopting a better practice or retiring an outdated one, the real challenge is making change stick. Kelly Aschbrenner, PhD, AM, co-director of DCIS and associate professor of psychiatry at Geisel, has spent her career studying why.

Part of the story, she says, is that change is hard and people are creatures of habit. She adds, "Even when an intervention works well, there are still questions about whether organizations have the infrastructure, staffing, leadership support, and long-term resources to sustain it."



▲ Jeremiah Brown, PhD, professor of epidemiology and biomedical data science at Geisel, helped architect the Dartmouth Center for Implementation Science and the first Master of Science in Implementation Science program in the country.

Brown's research illustrates what that looks like in practice: Every year, up to 14% of the more than 2 million Americans who undergo cardiac catheterization—a procedure used to diagnose and treat heart conditions—experience acute kidney injury (AKI), one of the most common and costly complications of the procedure. Evidence-based steps to prevent it exist, like administering an IV fluid bolus or limiting contrast dye. The problem, Brown found, was that only about 25% of cardiovascular teams were following those guidelines. So Brown built a $4 million national trial funded by the National Institutes of Health (NIH) including 20 VA medical centers—dubbed IMPROVE AKI—to help clinical teams put those practices into consistent use. Using team-based coaching and real-time surveillance dashboards, the IMPROVE AKI program reduced the odds of AKI following cardiac catheterization by 46%, with improvements that held long after the formal intervention ended. Brown was recently awarded a $6.6 million grant from the NIH to scale out the implementation research nationally in 30 hospitals participating in the American College of Cardiology CathPCI Registry.

Digital therapeutics can help support that effort, says Sarah Lord, PhD, who along with Aschbrenner co-directs DCIS and serves as associate professor in psychiatry and biomedical data science. "When you couple continuous symptom monitoring with usage data from digital therapeutics, researchers can better understand not only whether and how interventions work, but also when people use them, how engagement changes over time, and what supports are needed to sustain both implementation and long-term treatment effects," Lord says.

As artificial intelligence enters clinical settings, Brown believes the demands on implementation science will only intensify. "AI is going to be predicting based on current practice patterns," he says, "and may be slow to uptake policy changes until those changes are realized within the data."

And the people best equipped to manage that lag are those trained to think critically about how evidence moves—or fails to move—through complex systems.

Training the Next Generation

Dartmouth's MSIS program is both addressing the shortage of trained clinical practitioners and attracting students from beyond medicine. The current cohort includes educators across the K-12 and university spectrum and a criminal justice professional developing reentry programs to reduce recidivism, as well as medical professionals.

Capstone projects span fields and continents, too. One student is examining implementation frameworks for eating disorder interventions. Another is studying strategies for reaching Indigenous health populations in New Zealand.

For the clinicians in the program, the urgency is closer to home. Traci Kazmerski, MD, MS, an associate professor of pediatrics at the University of Pittsburgh

School of Medicine who studies cystic fibrosis (CF), came to the MSIS program after years of frustration with what she calls “the how”—how to translate what she knew about her patients’ needs into care that actually reached them.

The 17 years it typically takes for evidence to change clinical practice “feels unnecessary. Clinician scientists want to do something now and want a structure to ensure that changes they trial are feasible, sustainable, and replicable.” The MSIS program, Kazmerski says, has been “invaluable in shaping the way I think about translating research into practice.”

For Brown, the goal was never simply to build a program or a center. It was to ensure that when medicine learns something new, healthcare systems can deliver those discoveries with the training to make them last.

To learn more about implementation science at Dartmouth, contact Kim Labonte at 603-646-5110 or Kim.Labonte@dartmouth.edu, or go to **dartgo.org/implementation**.



New & **Noteworthy**

Institutional milestones from across Dartmouth Health and the Geisel School of Medicine at Dartmouth



Dartmouth Health to Lead $44M National Study on Older-Adult Care Decisions

The National Institute on Aging selected Dartmouth Health to lead a $44 million study of how older Americans with serious illness make decisions about their medical care. Dartmouth Health will serve as the study's rural anchor for the Advancing Ethical Goals in Society (AEGIS) trial, which will enroll more than 12,000 older patients. Research indicates that, in rural settings, patients face a widened and persistent gap in accessing the care they want and deserve. AEGIS will study shared decision-making, in which patients and families act as equal partners in their medical choices. Of the $44 million total, Dartmouth Health will receive $13.2 million to lead the trial's rural sites, with an additional $623,000 supporting investigators at the Geisel School of Medicine at Dartmouth.

To learn more, go to: **dartgo.org/adultcaredecisions**.

Master of Health Administration Earns Accreditation

In July, the Master of Health Administration program (MHA) at Dartmouth received accreditation from the Commission on Accreditation of Healthcare Management Education, considered the benchmark of quality for graduate programs in the field. The Tuck-Geisel program, launched in 2024, is the only MHA nationally to be delivered jointly by a top-ranked business school and an Ivy League medical school.

dartgo.org/mhaaccreditation

TDI Expert Named New Dean at Guarini

Carrie Colla, PhD, D '01, health economist and healthcare policy expert, is the new dean of Dartmouth's Guarini School of Graduate and Advanced Studies. Colla—the Susan J. and Richard M. Levy Distinguished Professor in Health Care Delivery Science at the Geisel School of Medicine at Dartmouth and vice chair of The Dartmouth Institute for Health Policy & Clinical Practice since 2024—has spent the last 15 years teaching in Dartmouth master's degree programs.

dartgo.org/collaguarini

Alice Peck Day Partners with Local Schools

Alice Peck Day Memorial Hospital is partnering with Lebanon High School (LHS) and River Valley Community College on LEBMed, a new healthcare externship program developed by LHS to prepare local students for careers in healthcare. The program enables LHS students to complete the requirements needed to become licensed nursing assistants in New Hampshire.

dartgo.org/lebmed

U.S. News & World Report Ranks Top Hospitals

Dartmouth Health's Dartmouth Hitchcock Medical Center (DHMC) has again been named a 2026–2027 Best Hospital by *U.S. News & World Report*, ranking regionally as the top hospital in New Hampshire and best regional hospital for community access. Additional recognition for Dartmouth Health member hospitals came for Alice Peck Day Memorial Hospital (for hip replacement), Cheshire Medical Center (for chronic obstructive pulmonary disease and colon cancer surgery), and Mt. Ascutney Hospital and Health Center (for rehabilitation).

dartgo.org/usnews26

National Award for Hampstead Medical Officer

Patrick Hattan, MD, co-chief medical officer at Hampstead Hospital and Residential Treatment Facility, received a National Alliance on Mental Illness (NAMI) Exemplary Psychiatrist Award in June. He's worked closely with NAMI New Hampshire to strengthen patient and family engagement in improving psychiatric care and the patient experience.

dartgo.org/hattannami

Cheshire Closing Gap in Abuse Care for Children, Teenagers

With the opening of the Compassionate Care & Advocacy Clinic at Cheshire Medical Center this summer, pediatric and adolescent patients who may have been sexually abused can receive a forensic exam, related care, and additional resources (such as mental health referrals) from specially trained providers. In 2024, 48 children in Cheshire County were referred for these exams outside of the region, but many families declined due to lack of transportation, finances, or other logistical barriers.

dartgo.org/ccac

DHMC Opens New Mammography Imaging Center

Dartmouth Hitchcock Medical Center (DHMC)'s new Mammography Imaging Center opened in July, bringing screening and diagnostic mammography services together in one location, eliminating the long-standing need for patients to navigate between separate areas of the hospital for imaging, follow-up testing, and biopsies. The facility also expands screening capacity and offers new imaging options, improving access to timely diagnostics for more women.

dartgo.org/mammography

DHMC Named to Becker's 100 Great Hospitals in America

Dartmouth Hitchcock Medical Center (DHMC), Dartmouth Health's flagship hospital and New Hampshire's only Level 1 trauma center and academic medical center, has been named to Becker's Hospital Review's 2026 list of 100 great hospitals in America.

dartgo.org/beckers100

Cell Biology Paper of the Year Award

The American Society for Cell Biology's research journal, *Molecular Biology of the Cell*, gave its Paper of the Year Award to Geisel School of Medicine researchers Gregory J. Schwarz and Jennifer Landino for their paper "Membrane Composition-Dependent Patterning of Rho and F-actin in an Artificial Cell Cortex."

dartgo.org/cellpaperoftheyear

Research **Briefs**

Explore recent discoveries made by innovators at Dartmouth Health and the Geisel School of Medicine at Dartmouth that could transform health and medicine.



Macrophage Findings Could Lead to Better Cancer Treatments

White blood cells, also known as macrophages, are the foundation of the immune system. New insights into how they work could help create more targeted cancer treatments.

In cancer, macrophages are known to have opposing functions—some coordinate immunity against tumors while others support tumor growth. But previously, researchers hadn't been able to tell these two populations apart.

Using single-cell sequencing and spatial transcriptomics in lung cancer tissue, researchers at the Geisel School of Medicine at Dartmouth, led by Principal Investigator Claudia Jakubzick, PhD, discovered that macrophages divide labor inside the tumor partially based on location. They also found that it's possible to target these macrophage subpopulations. In a cancer vaccine mouse model, the researchers found that administering maraviroc, an FDA-approved HIV drug, substantially reduced the levels of the macrophages that promote tumor growth.

The results, published in *Nature Immunology* in March 2026, could allow researchers to create better, more precise treatments that target harmful immune cells rather than eliminating entire immune cell populations.

To learn more, go to **dartgo.org/macrophages**.



Improving Emergency Care for Rural Youth at Risk of Suicide

Adolescents in rural communities are twice as likely to die by suicide as their urban counterparts. Youth in rural areas often rely on emergency departments for mental health crises, yet these departments are not always well equipped to help.

To improve crisis care in rural areas, researchers at the Geisel School of Medicine at Dartmouth, Dartmouth Health Children's, and Dartmouth Health, led by JoAnna K. Leyenaar, MD, MPH, PhD, a pediatric hospitalist at Dartmouth Hitchcock Medical Center and the Batalden Distinguished Chair in Healthcare Improvement at the Dartmouth Institute for Health Policy and Clinical Practice, with the assistance of Geisel medical students Nikolas G. Hernandez MED '28, Alyssa Helmling MED '28, and Emma Jacobs MED '28, developed the Plan & Protect program.

This safety planning program, tailored to the needs and lived experiences of rural youth, provides digital resources for emergency departments in rural areas that may have limited resources. By interviewing adolescents ages 12 to 17, the researchers narrowed in on simple, engaging tools that allowed for more user-centered interventions specific to rural youth who face challenges including stigma, a need for connection, and privacy concerns.

The program was presented at the Pediatric Academic Societies 2026 Meeting, held in Boston in April 2026, and at the Vermont Medical Society 2025 conference, where the team received the first-place oral presentation award.

To learn more, go to **dartgo.org/planprotect**.



Keeping the Weight Off After GLP-1s

GLP-1 medications like Ozempic, popular for treating obesity and type 2 diabetes, can be tremendously successful in helping patients lose weight. However, they're not a cure: Within 18 months of stopping medication, most former GLP-1 patients regain the pounds they had shed.

But a new study led by Dartmouth Health gastroenterologist Shelby A. Sullivan, MD, identified a procedure that can help those patients keep the weight off. Known as duodenal mucosal resurfacing, this procedure targets the innermost lining of the small intestine, using heat to burn off unhealthy parts of the lining that are commonly caused by the typical Western diet.

In a clinical trial presented at the Digestive Disease Week conference in Chicago in May 2026, patients who underwent duodenal mucosal resurfacing kept off over 80% of the weight they had lost on GLP-1s. Following the patients over six months after the procedure also showed that the difference in regained weight between the treated and control groups increased, suggesting that the procedure can help with longer-term weight maintenance. The trial also showed no serious complications, and recovery time from the procedure was only a day to recoup from anesthesia. These findings could bring hope to patients wishing to stop taking GLP-1s long-term, whether due to side effects, cost, or other reasons.

To learn more, go to **dartgo.org/weightloss**.

Video Games Designed to Reduce Teen Depression

Video games get a bad rap, but new research found that educational games can be highly effective in treating and preventing depression in adolescents. Led by Lynn Fiellin, MD, professor at the Geisel School of Medicine at Dartmouth, the researchers tracked more than 500 high school students to see the effects of playing an hour of video games per day for six weeks.

In the study, half of the students played commercial role-playing games and half played PlaySmart, a digital game with therapeutic content developed by the researchers themselves. In PlaySmart, players navigate tasks and choices, like identifying signs of depression or turning to an adult for help, ultimately making better choices that lead to more positive outcomes.

A year later, teenagers in the PlaySmart group reported fewer depressive symptoms and better attitudes toward seeking psychological care. The results, published in August 2026 in *JAMA Network Open*, were as good as or better than general school-based programs. The researchers believe that behavioral games like PlaySmart have tremendous potential in helping more adolescents access care, especially in places where traditional mental health services are limited or stigmas are high.

To learn more, go to **dartgo.org/playsmart**.

Alpha-gal Syndrome Can Cause Severe Allergic Reactions After Transfusions

Alpha-gal syndrome—the tickborne disease best known for triggering life-threatening meat allergies—can increase risks to some patients receiving blood plasma and platelet transfusions, according to new research led by Dartmouth Health and the Geisel School of Medicine at Dartmouth.

In a study spanning five countries that tracked over half a million platelet and plasma transfusions, the researchers found an increase in severe alpha-gal syndrome reactions, including hives, stomach pain, and anaphylaxis, in patients with type O blood who had received platelets or plasma from type AB or B donors. This transfusion-related alpha-gal syndrome, called TRAGS, was found more frequently in areas with high concentrations of alpha-gal syndrome, including among Dartmouth Health patients.

The findings, published in August 2026 in *JAMA Internal Medicine*, will likely change transfusion practices in regions with high tick populations. Already, Dartmouth Health's Dartmouth Hitchcock Medical Center has stopped giving transfusions of AB and B platelets to O patients.

To learn more, go to **dartgo.org/alpha-gal**.

To learn more about medical and healthcare research at Geisel or Dartmouth Health, contact Matthew Haag at 603-646-5130 or Matthew.P.Haag@hitchcock.org.








GIVINGTUESDAY

100% Gift Match Across Dartmouth Health

Make your impact on December 1

This GivingTuesday, no matter which Dartmouth Health hospital or clinic you choose to support, gifts made before midnight on December 1 will be matched to that hospital's annual fund—dollar for dollar—to have even more impact.

Your generosity helps keep world-class healthcare close to home across northern New England. Your support enables our doctors, nurses, specialists, and staff to continue to bring life-changing, compassionate care to all of our patients and families.

Learn more
DHGeiselGiving.org/GivingTuesday

Dartmouth Health

Alumni **Perspectives**

Vitals Magazine asked two alumni how they are challenging conventional wisdom and embracing the unexpected in their work to transform medicine and healthcare.





Keith DellaGrotta, MD, MED '15

Sports Medicine Physician
Point Performance

Pushing Musculoskeletal Medicine Beyond a Binary

Six years into practicing emergency medicine, I noticed a pattern I had not anticipated becoming my life's work: patients cycling through the ER for musculoskeletal pain that did not require emergency care. Without timely outpatient management, the ER was a stopgap—expensive, impersonal, and unable to address root causes. That observation, along with a personal passion for fitness, redirected my career into sports medicine.

What I have found on the other side is a field being quietly rewritten. Patients today want to stay active well into their 60s, 70s, and beyond—not just survive aging, but move through it well. That demand is pushing musculoskeletal medicine past its old binary of physical therapy or surgery.

Holistic physiologic and biomechanical assessments can guide patients to reach their sport and activity goals. Tools like shockwave therapy and carefully titrated and targeted orthobiologic injections (e.g., platelet-rich plasma, mesenchymal stem cells) now offer real solutions for tendinopathy, arthritis, and various injuries, particularly in patients who have not seen results from conventional PT. In my practice, a large majority of these difficult cases achieve meaningful, lasting functional improvement—often in people who assumed their options were exhausted.

These therapies are not universal fixes. They require the right patient, the right pathology, and honest conversations about what intervention, including surgery, genuinely is necessary. But for many, they are changing what is possible—proof that healthcare's unexpected turns often lead somewhere better.



Inviting Dartmouth and Dartmouth Health ALUMNI

If you would like to share your perspective in a future issue of *Vitals Magazine*, contact managing editor Eva Botkin-Kowacki at Eva.Botkin-Kowacki@dartmouth.edu.

From the 1960-80s archives: Dartmouth medical students in the lab.

What Snake Bites Taught Us About Food Allergies

Bites of poisonous snakes cause an estimated 81,000 to 138,000 deaths annually, primarily within under-resourced populations in Sub-Saharan Africa, India, and other parts of Asia. People who are bitten but don't die of the bite often suffer from life-altering disabilities, including amputations.

In better-resourced parts of the world, including North America and Europe, there has been a decades-long increase in the percent of the population who are at high, potentially fatal, risk for developing anaphylaxis due to ingestion of common food items, such as peanuts, tree nuts, milk, eggs, fish, and shellfish.

Poisonous snake bites and ingestion of foods to which one is highly allergic cause similar reactions in the body: Mast cells, normally distributed throughout the tissues, very rapidly degranulate and release large amounts of stored mediators, including histamine, proteases (such as tryptase and chymase), and other biologically active substances. This can be a catastrophic reaction with potentially fatal consequences.

But that mast cell activation isn't supposed to be maladaptive. My research group showed that this massive release of mast cell proteases can actually increase survival in a mouse model after injection of the venom of four different poisonous snakes, the Gila monster, two deadly species of scorpions, or the honeybee.

Our work has demonstrated the benefits of extensive mast cell activation in response to certain venoms, and it has devised ways (including immunotherapy) to limit the ability of mast cells to be activated by otherwise benign food components.



Stephen J. Galli, MD, MED '70

Professor Emeritus;
Pathology, Microbiology and Immunology
Stanford University School of Medicine

A Ripple **Effect**

Every day, generous donors make a difference in the lives of the patients, providers, clinicians, students, faculty, and staff across Dartmouth Health and the Geisel School of Medicine at Dartmouth. Their gifts ensure that high-quality care is delivered in the right place, at the right time to those who need it most, that research and groundbreaking innovation can flourish, and that Geisel students have the support required to become the next generation of healthcare leaders. But what inspires these donors to give back? We're sharing a few of those stories of inspiration below.

"There's power in every penny, and a tiny pebble in a pond can send ripples far beyond its point of impact, but if you never drop that first pebble or give that first penny, you'll never know the effect they could have."

—Dani Capsis



Forget the Casserole: Take Action Instead

Dani Capsis of Lyme, New Hampshire, says her husband, Mike Morton D ’80, was known for leading by example in many areas of his life, especially when it came to helping others. He donated significantly to causes he cared about and lived simply to make that possible.

Many years ago, during one of Capsis’ hospital stays at Dartmouth Health’s Dartmouth Hitchcock Medical Center (she is a two-time breast cancer survivor), Mike wondered why the lightbulbs in the lobby were the old-style, inefficient bulbs and not the newer LEDs so many of us have switched over to. So he quietly made a gift to swap them out for the more energy-efficient option. “His idea was that the money saved [in energy costs] could go toward patient care,” Capsis recalls.



Dani Capsis proudly shows her support during The Prouty earlier this year.

The pair had been together for roughly 20 years by 2019, when Mike received a devastating diagnosis: glioblastoma, an aggressive form of brain cancer. They married later that same year and battled the disease until Mike died in January 2021.

Five years on, Capsis is hoping others will do what she did in the wake of Mike’s passing: Turn grief into action. With a generous gift, she created the Kermit Moon Cancer Research Fund to support research and treatment of brain cancer at Dartmouth Cancer Center. She’s rallying support among friends, family, and perfect strangers with the hope that the fund can reach the $1 million mark. “I don’t want any other family to have to go through what we went through,” she says.

But who—or what—is Kermit Moon, exactly? It’s Mike Morton, 100%, she says.

Among his many professional achievements in the technology realm, Morton authored software used in creating online puzzles and word games and loved playing around with language and creating anagrams. So when it came time to name the fund, an anagram of Mike Morton—Kermit Moon— seemed appropriate.

Capsis’ gift and crowd-sourced fundraising efforts are the most recent example of her ability to marshal forces to support the innovative research that goes on here. For 20 years, she’s been part of The Prouty, as a team captain, a volunteer, and even as a steel-drum player at a pivotal point on the Prouty course. This year alone, she raised more than $250,000 for Dartmouth Cancer Center through the annual event.

She and Mike have supported Dartmouth Health and Geisel for nearly three decades with gifts both large and small. “It’s not about the amount, it’s in the doing, and the example you’re setting for the people around you.” That, she believes, is the real power of philanthropy.

Capsis thinks back to well-intentioned friends who asked how they could help her during Mike’s illness and eventual passing. Reflecting on that time now, her message is blunt, but—she hopes—motivating: “If you want to help, don’t stop at the casserole or a lasagna you were going to make. Also consider turning your grief into greater impact, and support research and treatment initiatives like Kermit Moon that may lead to prevention instead.”



▲ Dave Almstrom at home in Meredith, New Hampshire.

A Near Miss Makes for a Big Fan

Dave Almstrom was enjoying one of his favorite hobbies with his son—cutting firewood—in February 2024 when disaster struck: A 200-pound dead oak log that had been hidden in the branches above him broke loose, landing on his arm and chainsaw.

In pain and with a makeshift splint on his arm, Almstrom insisted his son take him to Dartmouth Health's Dartmouth Hitchcock Medical Center (DHMC).

He was moved swiftly from DHMC's Emergency Department to surgery, where surgeons performed intricate work, inserting three plates and two dozen screws to successfully reconstruct his shattered arm. He had a long recovery ahead; there was swelling and tissue damage from the freak accident, and it was predicted it could take him a year to recover.

But thanks to the team from Dartmouth Health's Hand Occupational Therapy department, and his commitment to at-home exercises, in just four months, Almstrom had full control of his hand again.

To thank them, he and his wife Betty made a gift in early 2026 to Dartmouth Health's "Honor a Caregiver" campaign. "My therapists were personable, knowledgeable, skilled, and caring," Almstrom wrote in tribute. "They performed painless recovery for my fractured arm, [and] my wife and I are indebted to them all. They really got me through this."

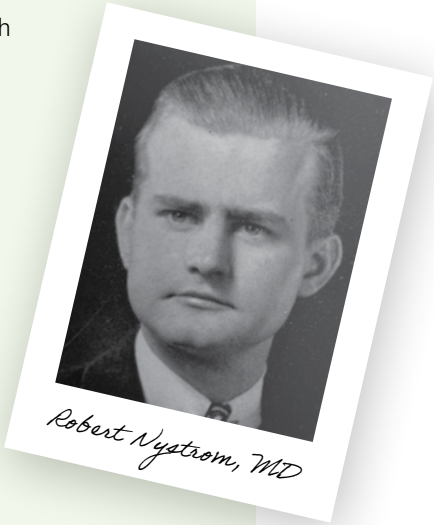

Frederic Lord, MD

Bequest Honors Teacher, Helps Med Students

Every teacher hopes they can leave an impression on their students—that they fostered their love of learning, piqued their academic curiosity, and prepared them well for further studies and a future career.

For Robert Nystrom, MD, D '44 MED '44, that was the case with his anatomy teacher, Frederic Lord, MD, D 1898 MED 1903—and the motivation for Nystrom leaving a bequest to create a scholarship honoring Lord at the Geisel School of Medicine at Dartmouth, where he taught from 1911 to 1946. It was also Nystrom's way of helping future generations of medical school students to earn the highest caliber of medical education, as he did more than 80 years ago.

Nystrom, who died in December 2022, attended Northwestern University Medical School after Dartmouth and served for two years in the U.S. Army as a medical officer. He worked as an ophthalmologist in private practice from 1953 to 1975 and finished his career at the Department of Veterans Affairs Medical Center in Dallas as the chief ophthalmologist. He also served as an associate professor of ophthalmology at the University of Texas Medical School.


Robert Nystrom, MD

Today, scholarships like Nystrom's help students like Xavier Takam, who is set to graduate from Geisel in 2027. Takam shared with scholarship donors recently, "Your support has enabled me to work alongside inspiring faculty and peers, developing clinical and research skills that deepened my love for medicine. Thank you for investing in students like me and for investing in our future. You are creating a path for us to follow your legacy and keep giving to the community as you graciously do."

Nurse Inspired by Her Own Family Experience

For Loren White, LPN, giving back has always been woven into her story, long before she joined Dartmouth Health as a nurse in family medicine at Dartmouth Hitchcock Clinics in Nashua, New Hampshire.

"I always saw my mom giving back to people," White says. "Even a small portion from what we can give—for us it might be nothing, but for others, that's all they have in that moment."

It's a lesson she's followed in professional pursuits: first, as a lawyer in São Paulo, Brazil, then as a nursing assistant and interpreter in the States. Now, as a licensed practical nurse, she's caring for patients and supporting families both on the job and through the donations she makes each month to Dartmouth Health Children's.

Her impulse to give is deeply personal. In 2008, White's brother passed away in the U.S. His last wish was to be buried in Brazil, but his family didn't have the means to make that happen. "All his friends gave a little here, a little there," White recalls. "Because of them, we were able to send [him] home. It made me realize how powerful it is when people come together to give, even just a little."

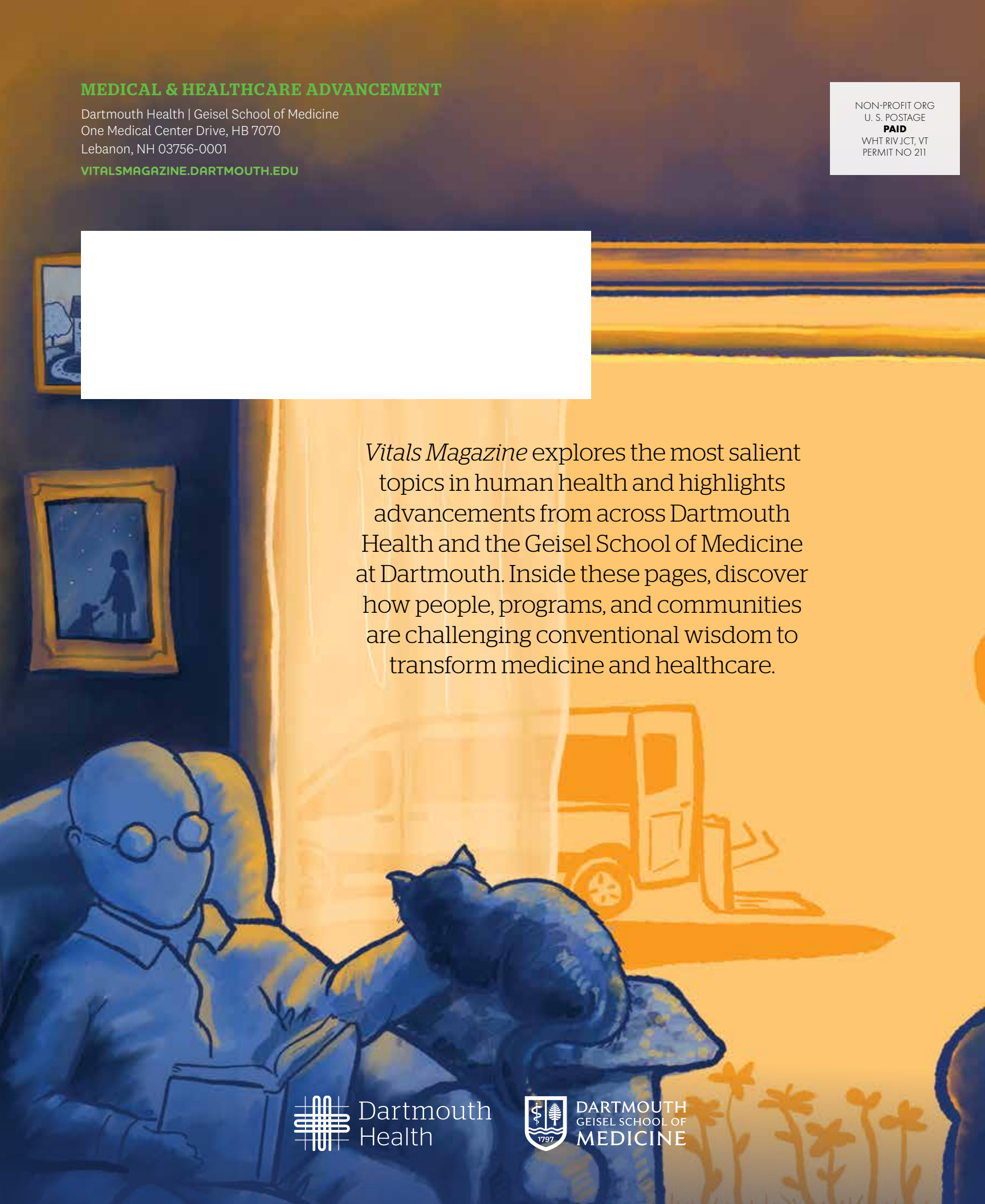
Of her own giving, she says, "It's not a lot, but if everybody gives a little, it adds up to something that helps children and families when they need it most."

MEDICAL & HEALTHCARE ADVANCEMENT

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Vitals Magazine explores the most salient topics in human health and highlights advancements from across Dartmouth Health and the Geisel School of Medicine at Dartmouth. Inside these pages, discover how people, programs, and communities are challenging conventional wisdom to transform medicine and healthcare.

Dartmouth Health

DARTMOUTH GEISEL SCHOOL OF MEDICINE