DukeMed

ALUMNI NEWS
Fall 2023

Artificial Intelligence in Health Care:

Promise and Pitfalls

Taking Aim at Medical Misinformation • The Gut Microbiome's Role in Aging

Dear Friends,

I hope this message finds you and your family in good health and good spirits.

At the School of Medicine, the Fall semester is well under way. After the disruptions of the COVID-19 pandemic over the past three years, seeing students on the campus, walking the halls, and participating in labs and classrooms is a welcome and refreshing change.

Change is the norm in health care today, and that is true at Duke. One significant change is the restructuring of leadership for Duke Health's academic and clinical missions, previously consolidated under former Duke Chancellor for Health Affairs A. Eugene Washington, MD. Following Chancellor Washington's departure on July 1, Duke President Vincent E. Price asked me to serve as Executive Vice President for Health Affairs for Duke University and Chief Academic Officer of Duke Health, in addition to my continued role as Dean of the School of Medicine.

Craig Albanese, MD, MBA, who was named CEO of Duke University Health System earlier this year, will oversee Duke Health's clinical enterprise. In this shared leadership model, Craig and I will continue the critical integration of Duke Health's missions to enhance our ability to meet the needs of an increasingly complex world. This is a streamlined leadership structure that will allow Duke to move our missions forward efficiently and be responsive to the changing landscape.

Our work will be buoyed by the historic integration of Duke's physician practice under a single Duke University umbrella. This new model brings the clinical practice, now called the Duke Health Integrated Practice, within Duke Health, creating a unified, integrated academic health system that will enable us to better serve our patients, communities, faculty, and staff. This integration marks the beginning of an exciting new era for the School of Medicine and the Duke University Health System.

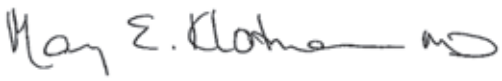
Science and medicine, of course, evolve continually. Few advances in recent memory have the potential to transform health care as much as the rapid ascendance of data science, artificial intelligence, and machine learning. In this issue of DukeMed Alumni News, you will read about some of the ways Duke is harnessing the power of AI while at the same time building safeguards to ensure its use is ethical, equitable, safe, and beneficial.

My role, responsibilities, and commitment as Dean of the School of Medicine remain unchanged and steadfast. It's a role that inspires and humbles me every day, and I am so proud of the incredible work our faculty, staff, students, and alumni are doing. As an academic health system, we care for the sickest patients; make the discoveries that drive new therapies; train future physicians, scientists, medical professionals, and health care leaders; and engage in vital community partnerships to improve health, expand access, and advance education and trust.

You, our alumni and friends, are essential partners in our work. Your support and service provide essential resources that enable us to carry out our core missions.

Thank you for everything you do for the School of Medicine. I look forward to seeing many of you in the days ahead, and I encourage you to remain engaged with Duke University School of Medicine.

With warm wishes,



Mary E. Klotman, BS'76, MD'80, HS'80-'85
Executive Vice President for Health Affairs, Duke University
Dean, Duke University School of Medicine
Chief Academic Officer, Duke University Health System

In DukeMed Alumni News, the names of alumni of Duke University and its constituent schools and degree programs are printed in bold along with their degrees and class years. HS (House Staff) signifies residencies, fellowships, or internships. Names of current students are printed in bold.

DukeMed Alumni News is published by the Duke Medical Alumni Association.

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Produced by Duke Health Development and Alumni Affairs, and the School of Medicine Office of Strategic Communications

23-0573-SOM

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DukeMed Alumni News is mailed two times a year to alumni, donors, and friends of Duke University School of Medicine.
Issues are available online at medalumni.duke.edu.

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Your comments, ideas, and letters to the editor are welcome.

CHRIS HILDRETH

Putting the Patient First

When Glenn Davis isn't busy supporting the Davison Club, he volunteers at a Habitat for Humanity construction site near Chapel Hill.

Endowment gifts provide sustained funding in perpetuity to shape the future. They are just one of many ways you can support Duke University School of Medicine. Please consider making a gift online at gifts.duke.edu/dmaa.

To learn more about how to support the School of Medicine, please contact Stacy Davis, Acting Assistant Vice President for Alumni and Development Programs, at 919-385-3188 or stacy.davis@duke.edu.

When **Glenn Davis, MD'72, HS'73-'75,** looks back on his time at the School of Medicine, what stands out the most is how strong the teaching was and how the faculty, especially Eugene Stead, MD, had the highest ethical standards. "Their insistence that the patient come first was an important part of my Duke experience that has resonated with me throughout my life," Davis recalled.

Davis, a psychiatrist, began his career in clinical research at the National Institute of Mental Health. In 1984 he became chief of staff at the Cleveland Veterans Administration Medical Center. He held prominent academic leadership positions at Detroit's Henry Ford Health System and became dean of the College of Human Medicine at Michigan State University in 2001.

Davis has supported the Medical Annual Fund and Davison Club for decades and recently made a planned giving scholarship endowment in recognition of the importance of financial assistance. "I got scholarship support, and I'd like to give back in an arena where I personally was assisted," he said.

Duke 100

1924·2024

One Hundred Years of 'Outrageous Ambition'

Duke was born on Dec. 11, 1924, when James B. Duke signed the Indenture of Trust that transformed Trinity College into Duke University and led to the creation of West Campus and the graduate and professional schools.

In January 2024, Duke will launch more than a year's worth of events and activities celebrating the university's first century — and looking forward to the next one.

The commemoration will begin with a Centennial Celebration Kickoff event on **Jan. 9, 2024** (the date, 1-9-24, echoes the year of Duke's founding) in Cameron Indoor Stadium. The event will feature musical performances, special guests, multimedia presentations, and more.

Events will continue throughout the year, celebrating what former University President Terry Sanford called Duke's spirit of "outrageous ambition." The Centennial will culminate in May 2025 with a commencement marking the 100th anniversary of the first Duke University graduating class. More information is available at **100.duke.edu**.

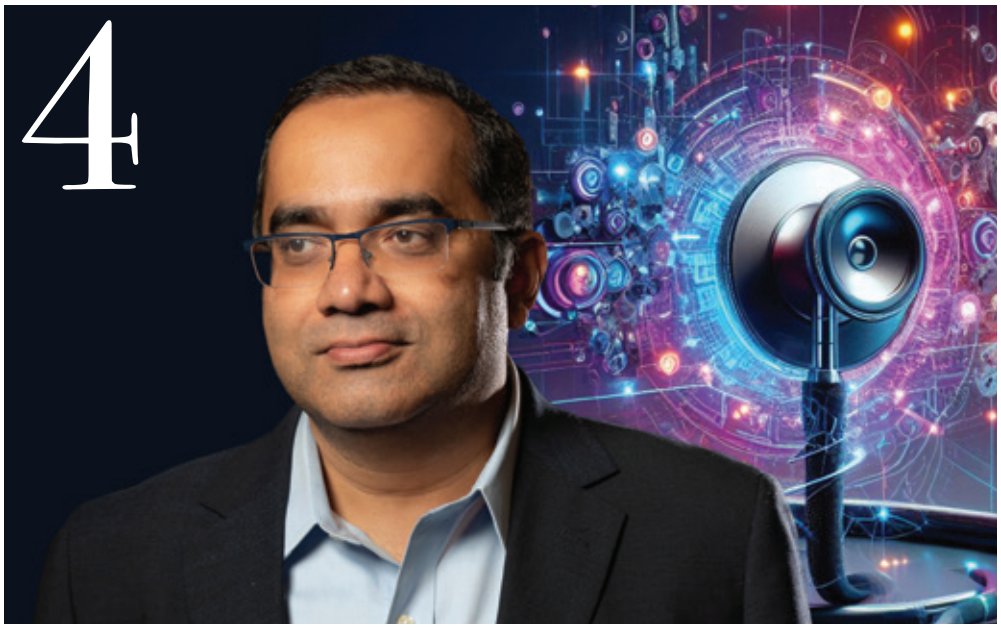
Who Helped You Find Your Way?

As Duke honors the people who have contributed to its success, we'd like to ask you to do the same.

When you were a health professions student or trainee at the School of Medicine, who had the biggest impact in helping you find your path? Was it a faculty mentor who introduced you to a new field, encouraged you just when you needed it, or gave you a new perspective? A fellow student or trainee who helped you through a tough time? Maybe even a classmate you wound up marrying?

Please send a brief note to **dukemed@dm.duke.edu** sharing your story about someone who made a significant difference in your life at the School of Medicine.

We'll share a selection of responses in the Spring 2024 issue of **DukeMed Alumni News**.



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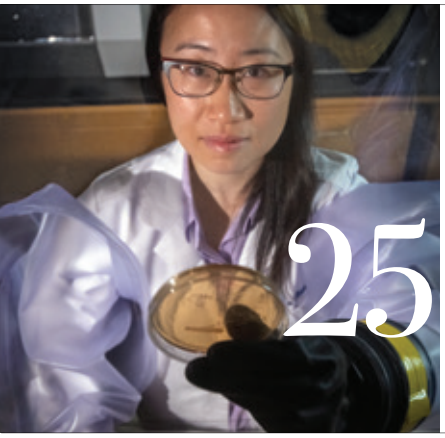
COVER STORY

Artificial Intelligence in Health Care

Health care researchers, clinicians, and educators are using artificial intelligence in myriad ways. Duke is at the leading edge of maximizing the benefits of AI while guarding against the potential risks.



KATE MEDLLEY

Gut Microbiome May Hold the Key to Healthy Aging

Duke Science and Technology Scholar Shuo Han, PhD, explores the surprising links between longevity and the microorganisms in the intestinal tract.

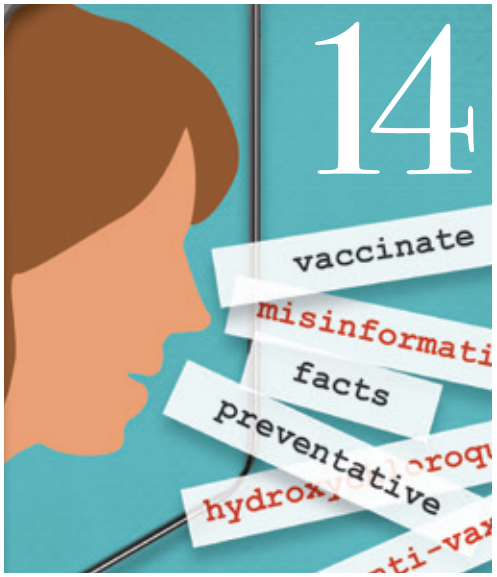
Duke
SCIENCE *and* TECHNOLOGY

Back Cover

Celebrating 50 Years of Discovery

Seven Nobel Prize Laureates were among the luminaries who gathered to celebrate Robert J. Lefkowitz's 50 years at Duke.

CHRIS HILDRETH



DAVID PICKEL

FEATURE

Unmasking Medical Misinformation

The internet, social media, and round-the-clock news have put almost limitless knowledge at our fingertips. Unfortunately, a lot of it is wrong. Duke researchers are working to combat false health claims.

OTHER CONTENT

"We have a huge potential to reduce physician burden, increase health care efficiency, and improve the patient experience. But we need to be very intentional about what AI will be doing."

— MICHAEL PENCINA

ARTIFICIAL INTELLIGENCE AND HEALTH CARE: PROMISE AND PITFALLS

Clinicians, researchers, and educators at Duke University School of Medicine and across Duke Health are using artificial intelligence (AI) to schedule surgeries more efficiently, give students immediate feedback on academic writing, and help speed up drug discovery.

These varied applications have one thing in common; they are pointed to well-defined tasks. That's one crucial characteristic for trustworthy AI, especially in health care, said Michael Pencina, PhD, director of Duke AI Health and, as of August 2023, chief data scientist for Duke Health.

"It's very important that AI technology serve the humans," Pencina said. "It's very powerful, but it's just math."

By Angela Spivey

CHRIS HILDRETH

HELPING PEOPLE, NOT REPLACING THEM

In June 2023, researchers from Duke Health published a study in the Annals of Surgery showing that three artificial intelligence (AI) models trained on data from thousands of surgical cases were 13% more accurate in predicting operating room time needed for each procedure, compared to human schedulers alone. These AI models are now in use across all operating rooms at Duke University Health System.

The practice makes more efficient use of surgical suites and surgeon time, said **Wendy Webster, MA, MBA'04, FACHE,** interim assistant vice president for Duke University Health System perioperative services and

CHRIS HILDRETH

> "The human schedulers are the conductors of the orchestra."
>
> — WENDY WEBSTER

director of clinical operations and health care analytics for Duke Surgery and Duke Neurosurgery. Cutting down on the number of surgeries that extend past regular working hours can reduce labor expenses for overtime. And more accurate predictions make it easier to plan a series of surgeries while using fewer operating rooms, she said.

But the algorithms don't replace people; they help them do their jobs better. "The human schedulers are the conductors of the orchestra," Webster said. An anesthesiologist "runs the board" — an electronic panel that draws from a shared calendar system built into the electronic health record. The board provides real-time progress updates for each surgeon. "They are really looking at, based on the time, how people are doing today, how the cases are progressing, where do we need to start to move people around and follow," she said.

The predictable workflow builds trust between the scheduling team and the surgeons, and it helps increase the number of surgeries that can be performed, giving patients better access, Webster said. "The secret sauce is that we went to the end user at the beginning and asked, 'Is this going to make their life more efficient?' Then you're side by side with the surgeon or the anesthesiologist or the nurse validating the data."

Another promising application of AI includes analyzing images such as mammograms to detect disease earlier. "Are there patterns in imaging that humans are missing that could be identified early on?" Pencina said. Imaging is one topic of discussion in the five-year partnership between Duke Health and Microsoft launched in August 2023 to responsibly and ethically harness the potential of generative AI and cloud technology to redefine the health care landscape *(See sidebar, page 8)*.

"The conversation we're having is circling around creating a reference standard for imaging of what healthy is," Pencina said. "Then we can start looking at disease."

A BOON TO DRUG DISCOVERY

You've probably heard of or even used one of the most popular forms of AI: ChatGPT, which has exploded in popularity in the last year and is being used in classrooms in the Duke Department of Biostatistics and Bioinformatics *(See sidebar, page 13)*. ChatGPT is what is known as a large language model, which can "train" itself on books and articles and "learn" the patterns and connections among words. When a user gives it prompts and asks it to create new content, ChatGPT instantly generates a written response.

Researchers at Duke are using protein language models that work on a similar principle to predict interactions among proteins and interactions between proteins and potential drugs. Rohit Singh, PhD, a new faculty member in the Duke Department of Biostatistics and Bioinformatics and the Department of Cell Biology, explained: "The reason it works so surprisingly well is because the way evo-

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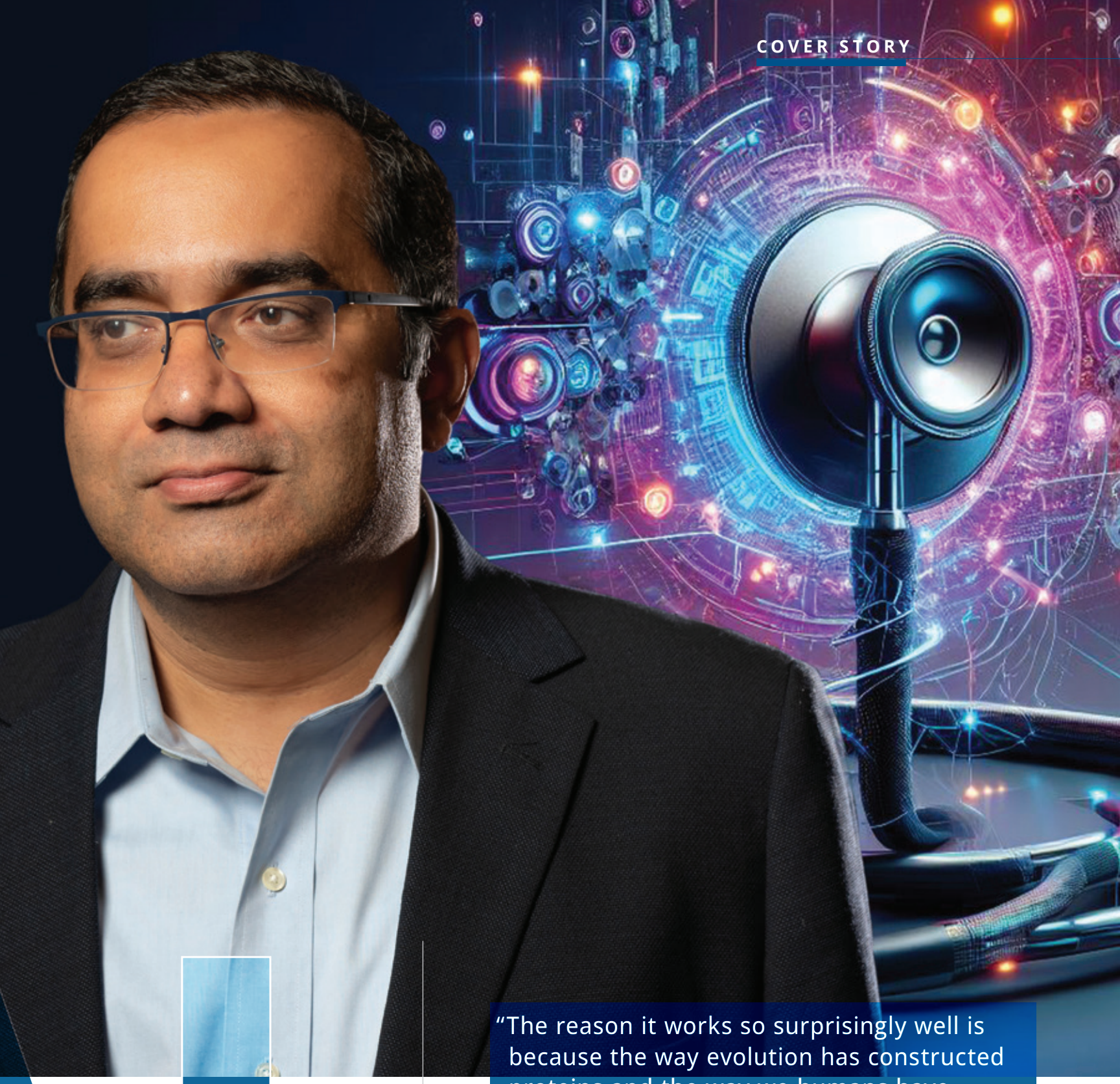


"The reason it works so surprisingly well is because the way evolution has constructed proteins and the way we humans have evolved language seem to have similarities."

— ROHIT SINGH

Partnership with Microsoft Aims to Harness AI for Health

Duke Health is embarking on a five-year, innovative partnership with Microsoft aimed at responsibly and ethically harnessing the potential of generative artificial intelligence (AI) and cloud technology to redefine the health care landscape.

By marrying Duke Health's leadership in patient care and medical research with Microsoft's technological expertise, this strategic partnership will usher in a new era of innovation, to include the creation of a Duke Health AI Innovation Lab and Center of Excellence.

"Duke Health's commitment to delivering the next generation of medicine is unwavering," said Craig Albanese, MD, chief executive officer of Duke University Health System. "Through this collaboration, we aim to bring the future of health care into the present, crafting a new normal that is not merely innovative but transformative."

"The partnership is a milestone in the evolution of digital health care," said **Jefferey Ferranti, MD, MS'06, HS'00-'06,** senior vice president and chief digital officer of Duke Health. "Our unrivaled expertise in data science, patient care, and technology innovation synergizes perfectly with Microsoft's health care solutions and AI technology. Together, we are poised to propel Duke into the forefront of digitally-focused health systems, while simultaneously studying the reliability and safety of generative AI in health care."

Microsoft will equip Duke with state-of-the-art training to foster a cloud-savvy IT workforce and construct a secure cloud environment to simplify and modernize IT operations. In addition, Duke intends to use Microsoft Azure's secure cloud to streamline clinical care, promote health equity, and further advancements in both research and education.

"Microsoft is excited to collaborate with Duke Health to operationalize responsible AI principles, helping to ensure that AI is deployed safely, effectively, and in an unbiased and transparent manner," said David Rhew, MD, global chief medical officer and vice president of Healthcare at Microsoft.

By Sarah Avery

"Together we will apply the latest Microsoft technologies to expedite and scale Duke Health's nationally recognized model of AI governance. By sharing best practices and lessons learned, we hope other organizations will benefit from our experience."

Duke Health and Microsoft will also pioneer new AI-based solutions designed to augment health care and fast-track innovation. Microsoft's reputation for leading-edge advancements in generative AI technology is globally recognized, and this collaboration will use Microsoft's Azure OpenAI Service to redefine health care experiences for providers and patients.

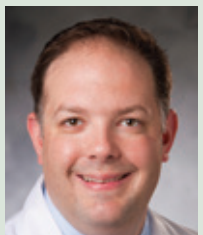
AI has a wide array of potential applications to enhance health care processes, including automation of administrative tasks to reduce workloads and expanded capabilities for personalizing patient education.

"As founding members of the Coalition for Health AI, Duke University and Duke Health have provided national leadership in AI research, development and governance, making the technology more trustworthy," said **Mary Klotman, BS'76, MD'80, HS'80-'85,** executive vice president for health affairs at Duke University, and dean of Duke University School of Medicine.

"As advocates for the responsible and ethical use of AI in health care, we recognize AI's immense potential to revolutionize health care, and remain steadfast in our commitment to ensuring Duke's innovation in this area adheres to the highest ethical standards," Klotman said.

Albanese

Ferranti



LES TODD

lution has constructed proteins and the way we humans have evolved language seem to have similarities."

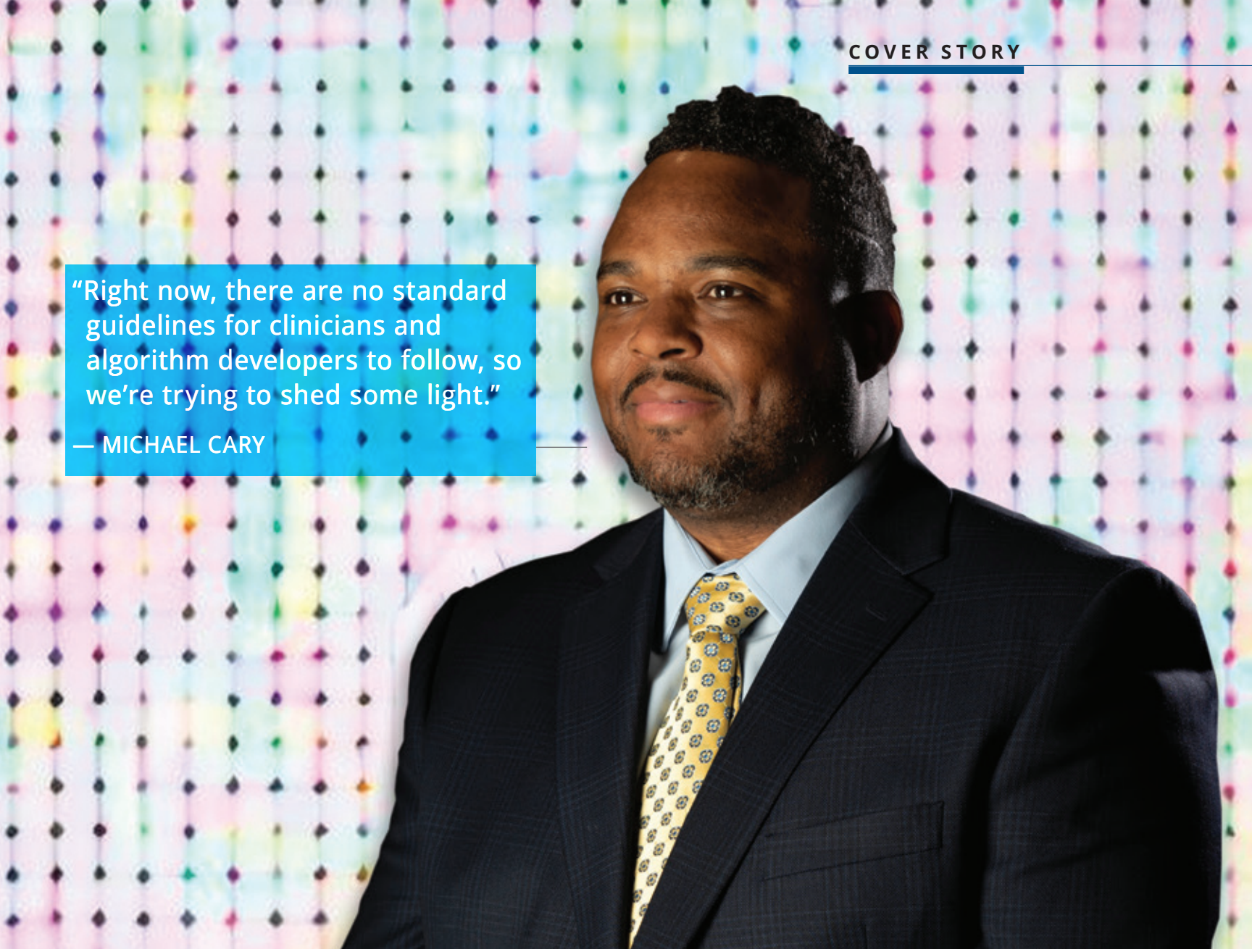
Proteins are made up of chains of amino acids. The sequences of these amino acids determine the 3D structure of the protein, which governs how a protein folds and how it can bind to other proteins or to therapeutics. "We know a lot about amino acid sequences of proteins but not very much about 3D protein structure, which is what determines the protein's function," said Scott Soderling, PhD, chair of the Duke Department of Cell Biology.

The correlation of amino acid sequences to 3D structure has "an order and a pattern," Singh said, not unlike human language. By training protein language models with the large amount of data available about amino acid sequences, these models can make predictions about structure that are more accurate than humans can achieve by themselves.

For many years, scientists have been determining the 3-D structure of proteins by dissolving them in a solution, crystallizing them, then using x-ray analysis, Soderling said. Using protein language models can help reduce or skip that laborious step.

Soderling said that using this and other AI approaches to find patterns in complex, large datasets will help scientists generate new hypotheses in basic and translational research that wouldn't be possible without AI. "It will replace some things, but it also will enable us to do new things," he said, including designing new proteins with therapeutic value that don't exist in nature, to better target certain diseases.

Discovering and developing a successful new drug takes an average of roughly 10 years and costs over $1 billion, Singh said. "It costs you this much because you're also folding in the cost of all the unsuccessful attempts you have made." Drugs may be tested first



> "Right now, there are no standard guidelines for clinicians and algorithm developers to follow, so we're trying to shed some light."
>
> — MICHAEL CARY

in a collection of cells in a test tube, then in a mouse or other animal model, and ultimately in human clinical trials.

"But imagine if we could do all of this in the computer before we spent a bunch of money trying it out," Singh said. "Machine learning can help us get much better at extrapolating from the simple examples to the complex examples."

BUILDING A BETTER ALGORITHM

In addition to designing new therapies, scientists use AI to predict disease risk. Finding out how to prevent disease is a long-standing passion for Pencina. "I lost my grandparents early on as a teenager due to cardiovascular disease, which right now we would say was definitely preventable," he said. Before coming to Duke in 2012, he spent a decade evaluating algorithms for the Framingham Heart Study, a long-term cohort study, now in its 75th year, aimed at identifying factors that contribute to cardiovascular disease.

Soderling

Economou-Zavlanos

His research shows that caution is needed in using AI in risk prediction. In a study published in January 2023 in JAMA, his team compared algorithms designed to predict stroke risk and found that those based on machine learning didn't perform better than standard, existing risk scores. The study also found that all the algorithms, including AI-based ones, performed worse in Black participants than white ones, although the risk of stroke is higher among Black patients.

"Disparities can potentially become propagated by these algorithms," Pencina said. His study also found that a simple algorithm that asked patients about their risk factors, health status, and their impressions of their own health performed as well, if not better, than algorithms that used more precise measurements. "That's telling me that patient engagement in risk prediction is very important," he said. "We need to better understand which variables are important, which ones we need to be collecting, and how to build these algorithms in a more equitable way."

The JAMA study is just one example demonstrating that health equity has to be "baked in" to machine learning algorithms from the start, said Michael Cary, PhD, RN, the Elizabeth C. Clipp Term Chair of Nursing and the inaugural AI Health Equity Scholar. A former practicing nurse, Cary is now a health services researcher dedicated

AI

> “Through the creation of an algorithm inventory, we have gained a transparent system of accountability, enabling us to identify the individuals responsible, which is crucial in the event of any mishaps.”
>
> — NICOLETA ECONOMOU-ZAVLANOS

to ensuring health care algorithms will inform clinical decision making and improve outcomes for patients. His career veered into AI when he launched a project at Duke to develop an algorithm to predict risk of decline and mortality in older adults more accurately.

One of the first requirements for improving equity in risk assessment is that the design team of an algorithm should be diverse in racial and ethnic background, as well as in profession, Cary said. “We think that math is unbiased,” he said. “I wouldn’t argue that it isn’t, but the producers of the math can be biased, because we’re talking about human beings.” Lack of diversity in racial or ethnic background among members of a design team increases the risk of introducing unconscious bias in algorithm design, he said.

Surprisingly, Cary, Pencina, and colleagues found that many algorithms don’t include health care providers — the end user — as part of the design team. “There is relatively little professional diversity in the design of these algorithms outside of data scientists,” Cary said. He, Pencina, and colleagues conducted the largest review of bias mitigation strategies used in health care algorithms to date and found that in over 100 published studies, even when health care professionals were involved on project teams, they were almost always physicians. That leaves out other practitioners such as therapists and nurses, who often deliver the bulk of bedside care to patients. “That is a design flaw,” he said. The review was published in October 2023 in the journal Health Affairs.

THE IMPORTANCE OF GUARDRAILS

Cary is developing research priorities and best practices for mitigating bias in use of AI in health care. For instance, he and collaborators are developing algorithms using a “health equity by design” approach, aiming to predict the risk of hospitalization. “The overarching goal is not solely to decrease rehospitalization rates among all patients, but to achieve this in an equitable manner that minimizes disparities and variations between different subgroups,” he said. “Right now, there are no standard guidelines for clinicians and algorithm developers to follow, so we’re trying to shed some light.”

He also serves on an oversight committee that reviews all clinical algorithms in use at Duke Health to ensure they meet quality standards, have been designed with equity in mind, and will improve patient care. The committee is part of the Algorithm-Based Clinical Decision Support (ABCDS) Oversight program, a collaboration between the School of Medicine and the Duke University Health System to ensure that all clinical algorithms in use are registered and reviewed.

In developing the program, Pencina, along with Nicoleta Economou-Zavlanos, PhD, and colleagues created a process akin to the one employed by the Food and Drug Administration for approval of medical devices, incorporating key best practices from software development. Developers register the algorithm, then submit project aims, along with evidence that the technology shows benefit, safety, and fairness, and future plans for deployment and funding.

“The significance of this lies in our careful governance and review process for algorithmic technologies throughout their development and utilization lifecycle,” said Economou-Zavlanos, director of ABCDS Oversight. “Through the creation of an algorithm inventory, we have gained a transparent system of accountability, enabling us to identify the individuals responsible, which is crucial in the event of any mishaps.” Duke University Health System has 54 registered tools or algorithms in use, about 39 of which use AI, she said. In addition to evaluating algorithms, the oversight program also educates the Duke community about health AI best practices.

Duke led the nation in putting this oversight into place early in 2021, ahead of the Food and Drug Administration’s national guidelines for health care algorithms issued in 2022. Now the Duke team is providing guidance at a national level as part of The Coalition for Health AI (CHAI), a community of academic health systems, industry partners, and AI practitioners that have come together to provide national guidelines.

Such “guardrails” are vital to realizing the promise of using AI in health care, Pencina said. He encourages developers to point AI to well-defined tasks, define the expected outcomes, and design the tool with the end user in mind. “We have a huge potential to reduce physician burden, increase health care efficiency, and improve the patient experience,” he said. “But we need to be very intentional about what AI will be doing.”

The images used on the cover of the magazine and the background patterns used in the portraits were generated by an Artificial Intelligence program available on the Internet. The majority of images were generated using Microsoft Bing, Image Creator powered by DAL-E3.

Alumni Making a Difference:
Erich Huang, PhD'02, MD'03, HS'03-'08

Head of Clinical Informatics at Verily, formerly Google Life Sciences

Erich Huang, PhD'02, MD'03, HS'03-'08, has been a pathfinder since transitioning in 2016 from clinical care to biomedical informatics and later directing Duke Forge, an initiative to build a data science culture and infrastructure focused on actionable health data science across Duke University. In 2020 he was selected as Duke Health's Chief Data Officer for Quality. Now the head of clinical informatics at Verily, formerly Google Life Sciences, his vision for the health care landscape remains centered on wielding artificial intelligence as a tool, not a replacement for the human touch.

CHRIS HILDRETH

What led you to Duke University School of Medicine, and how did that experience shape your career?

My connection to Duke started at birth; I was born at Duke Hospital. My father came to Duke for a hematology oncology fellowship, and after completing that he was the second Asian American faculty at Duke, in the 1960s. Although I initially resisted medicine, I inevitably followed the path, and being at Duke during its transformation in the 1970s and 1980s, when it established itself as a top medical school, was pivotal. What stood out was Duke's approach to clinical data, not only for patient care, but also for evidence generation. There was the concept that what was done in the course of taking care of patients could ultimately turn into generalizable knowledge that would serve patients around the world. That ethos was foundational for institutes like Duke Clinical Research Institute. Growing up, I was subconsciously influenced by these developments just from hearing conversations at the dinner table.

How can data best be used to positively influence health care?

As head of clinical informatics at Verily, I think of data as an equivalent of a diagnostic or therapeutic instrument. We use data to diagnose and categorize disease or health. We use data to treat disease and maintain health. And if we think about data this way, then data should be "diagnostic-grade" or "therapeutic-grade." In an era where we have cloud computing, application programming interfaces, and large language models with billions of parameters, we need to take a fresh look at health data and how we generate, capture, maintain, and transform it to take care of people. Medicines and devices have to meet certain standards to be used to diagnose and treat humans. There needs to be a similar rigor with which we treat data to achieve the same ends.

From starting as an assistant professor of surgery at Duke to becoming a pivotal figure in data science through Duke Forge, what inspired your shift to data science?

My PhD at Duke revolved around predicting cancer cell behaviors, using then-modern machine learning. So it was a natural next step for me to think about how to use the new electronic health record to start doing the same thing. In this case not in laboratory mice, but in how to understand human populations better. One thing you learn as a bench scientist is how important "garbage in, garbage out" is because you're in charge of your experiment. You actually generate your own data as a bench scientist. You don't have that opportunity when you're using data that comes from a health record. That (experience as a bench scientist) has been a primary motivation in my career and the reason why I've focused on data first and algorithm second. There's a need to develop more rigorous and uniform data practices to avoid that "garbage in" issue.

From the perspective of your former experience as Duke Health's chief data officer and now your role at Verily in the corporate sector, how do the two environments differ?

Academia is a great place for generating ideas. It's also a pretty good place for validation of those ideas, which is why we publish papers. But for ideas to scale in society, that is what the private sector and the world I now live in is terrific at. That's where concepts become usable software and can therefore provide real-world benefit and societal impact.

How have algorithms and artificial intelligence affected biomedical research and patient care, and what are the challenges in using it in health care?

Algorithms have had revolutionary impact in places like the algorithm behind pulse oximetry, which has saved countless lives, especially during the COVID-19 pandemic. Yet there's room for improvement, like addressing biases. AI is transforming sectors, and while it aids health care, it can't replace professionals. Take navigation, for example. AI aids us in finding the quickest route, pointing out restaurants en route, and even navigating traffic. However, it doesn't replace the human behind the wheel. I think there's been a bit of AI hubris. The human touch, combined with AI's precision, can revolutionize health care.

Alumni Making a Difference:
William Stead, AB'70, MD'74, HS'73-'77

McKesson Foundation Professor of Biomedical Informatics and Medicine, Vanderbilt University

William Stead, AB'70, MD'74, HS'73-'77, is one of the founders of the field of biomedical informatics. In the 1970s, first as a medical student and then while a nephrology fellow and member of the faculty at Duke, Stead worked with **Ed Hammond, BSEE'57, PhD'67,** director of the Duke Center for Health Informatics, and others to build The Medical Record, one of the first practical electronic medical record systems.

What has surprised you about how information systems have evolved?

What I have been and remain surprised by is the mismatch between the rapid advance of technology and the slow pace at which we've learned how to change the way we work to get the best fit between our people and their roles, the process of work, and the technology.

We had exponential growth in the power of the computer, along with the complete convergence of computing, communication, and media into one medium that are today's networked mobile IT infrastructure. This culminated in the years from 2000 to 2010, yet it took the pandemic to get us to figure out how to use telemedicine at anything close to scale.

Now we're beginning to figure out, "When do we need a face-to-face visit? When do we need a video visit? When can we get by with a text message through the portal?" We're not yet figuring that out systematically. So, the technology is way ahead of the people. And that's been true for a long time.

What are the most significant ways information systems have changed biomedical research and patient care?

The biggest changes have been in research. There's no way you could have the kind of collaborative research resources that we take for granted now, such as PubMed Central, GenBank, and clintrial.gov, without information systems. You couldn't do them by paper. Computational pipelines, structural biology, how we visualize protein folding, you can't do that any way but with a computer. It literally is impossible. Whole genome sequencing, machine learning, EHR-linked biobanks — those are all natively IT-enabled things. They basically shifted us to large-scale collaborative team science, working at multiple scales of biology.

In the clinical arena, things like order management, compliance, and billing are done fairly well. That said, the way those systems have been implemented, they take away cognitive attention from the clinical team, instead of augmenting the cognitive power of the clinical team. So, we have a real challenge because the electronic health records are essential, but at the moment, they're highly distracting to the clinical team.

How do you envision artificial intelligence improving medical education?

People are saying, "Well, how are we going to give tests? Students may use AI to answer questions on the test." Instead of trying to figure out how we protect the testing environment from the AI, I would think about how to design the test so that we know whether the doctor knows how to use their technology to get at the right answer. We're going to have to design whole new tests. It's not a matter of trying to figure out how to keep the technology out. There's no point in doing that. Why do we want to train somebody to work one way to take a test and work another to take care of the patient?

What are the biggest potential benefits and potential risks of AI and machine learning?

I think the biggest benefits are clearly the ability to reduce or eliminate administrative tasks and the ability to generate hypotheses for experimental validation. Those are things that will be dramatically helpful.

Right now, we have human clinicians who are not supported to help them know whether they're making the right diagnoses or not. There's no good feedback system.

I imagine a world where we make it easy for the clinical team to note when they make a diagnostic decision, to note over time if and how that changes, and to get feedback about what happens downstream. Right now, that doesn't happen. If you had that, then introducing AI into practice would be simple, because AI would simply be another member of the team. That's what its actual role is going to be: to augment human intelligence.

The challenge is to figure out how to put in place the supports the clinical team needs to learn and improve as they practice and to incorporate the technology as a member of that team.

ELIZABETH STEAD

There has been a lot written about the risk of bias, since the only data AI has is what it's been fed, and that data will contain bias. That's a well-known risk. Also, the AI doesn't tend to know what it doesn't know. It doesn't know what its limits are. Of course, you can say the same thing about humans. That's one of the things we try to teach good doctors in medical school: how to know their limits. I don't think we've figured out how to teach the technology that.

ChatGPT Enters the Classroom

Virtually instantaneous help in writing essays, planning trips, making dinner reservations, creating equations, and much more is drawing more and more people to ChatGPT. School of Medicine faculty are using its capabilities to improve the learning experiences of their students and assist with their own research.

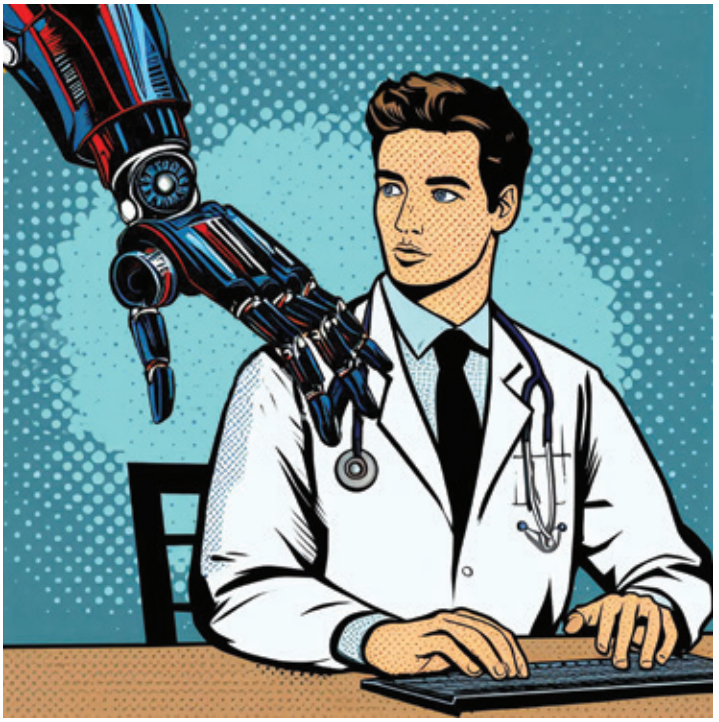
ChatGPT is a chatbot developed by Open AI that uses natural language processing (NLP) technology to answer questions in a conversational tone.

The program has exploded in popularity in the last year. "It's really just one more advance in a long series of advances in AI, but this advance happened almost overnight, and gave much more impressive results," said David Page, PhD, chair of the Department of Biostatistics and Bioinformatics. He's been studying AI and NLP for 35 years.

Many people have concerns about the potential for misuse, but Duke faculty find ChatGPT's energy-saving capabilities to be its best asset. "It can help you overcome the initial hesitation to get started on a new project," said Matthew Engelhard, BSE'05, MD, PhD, assistant professor in the Duke Department of Biostatistics and Bioinformatics.

Users enter the information they're looking for in the prompt textbox, and ChatGPT instantly generates a response. "Let's say you've outlined a new model or approach you want to develop," Engelhard said. "You can have a dialogue with these systems and say, 'I'd like you to write code that has these characteristics, and these objectives.' The result might not be exactly what you need, but it's often a helpful starting point."

Page is exploring using ChatGPT to help with scientific papers and grant proposals. "For someone who's an expert and just wants to save the time writing, it's very good because it can give you a great first draft and you can correct it and maybe go back and forth with it several times," Page said.



David Carlson, BSE'10, MS'14, PhD'15, assistant professor in Duke's Department of Civil and Environmental Engineering and the Department of Bioinformatics and Biostatistics, said the instantaneous feedback and constructive criticism that ChatGPT provides has facilitated student growth in his software engineering classes.

"It's not so much that it's doing the work for the student, it's that it's working with the student to help them come up and improve their results or improve their scientific documents," Carlson said.

Carlson said the system's timely responses are one of the main educational benefits. "If you get feedback quickly, you learn a lot better," he said. "Before, a student would write something and send it to me. But sometimes it could be days before somebody has time to look at it. With the instantaneous feedback, it allows you to really be in the mindset of writing and improve it rapidly."

Carlson said some students have been enamored with the system, while others have been more hesitant.

But none of them are ignoring the obvious dangers of misusing ChatGPT. To quell concerns about cheating, Carlson is adjusting the way he gives homework. He plans to increase the number of coding problems, but also add conceptual questions about the results.

Engelhard plans to use ChatGPT in his fall graduate student classes. He believes students' drive and motivation to learn will sway them from using the system to try to cut corners on assignments. But its use will need to be monitored, and students must have a foundational understanding of the subject matter.

"It's not so different from using a calculator in math class," he said. "There are cases where you need to put ChatGPT to the side to make sure that you are understanding the relevant concepts yourself, as opposed to using it as a crutch."

More broadly, concerns about ChatGPT's accuracy are growing. Page said ChatGPT doesn't yet fact-check itself and is still very unreliable when used as a search engine. "It will sound very authoritative and give you an answer, and it may even cite references and say, 'Here's where I'm getting this information.' But the references may be all made up. It's just trying to look realistic and not really be realistic," Page explained.

While many have expressed their concerns about how ChatGPT and other systems will influence society, others are looking forward to seeing what's next. "The systems are far from flawless, but I'm also extremely excited about the opportunities and how we can improve student outcomes by taking advantage of these technologies," Carlson said.

Page *Engelhard* *Carlson*



By Synclaire Cruel

Unmasking Medical Misinformation: Taking Aim at False Health Claims

The expanse of the internet, pervasive social media, and round-the-clock news sites have put a world's worth of knowledge literally at our fingertips: with a click or two you can summon vast amounts of information about almost anything.

Unfortunately, a lot of it is wrong.

Often that doesn't matter much. A false story about the origins of popcorn, for example, isn't likely to make much tangible difference in anyone's life, even if you repeat it to everyone you know.

Incorrect information about health and disease, however, can have devastating consequences, especially if it gets widely disseminated and accepted. Medical misinformation — the spread of false or misleading information related to health and medical topics — can lead people to make dangerous decisions, engage in harmful practices, avoid beneficial and life-saving preventive care and treatments, and otherwise put themselves and others at risk. It results in avoidable clinic and hospital admissions, billions of dollars in additional health care costs, needless illnesses, and deaths that could have been prevented.

Brian Southwell, PhD, adjunct professor in the Department of Medicine, and colleagues at Duke University School of Medicine are engaging with other researchers, medical professionals, and organizations in an effort to tamp down medical misinformation.

"'Misinformation' itself has become a buzzword," Southwell said. "We sometimes use the term without really thinking about what it means, but belief in false claims can lead to real harm if it undermines trust in established medical practices and institutions."

Medical misinformation can show up anywhere and everywhere: social media, websites, forums, television, videos, and even in-person conversations.

For example, as the COVID-19 pandemic raged on, a lot of attention was placed on hydroxychloroquine, a medication used to treat conditions like malaria and autoimmune diseases, to treat COVID-19. Despite limited scientific evidence, some people — even public figures — promoted the use of hydroxychloroquine and began self-medicating and hoarding the drug, keeping it from those who actually needed it.

According to an analysis by Brown University, over 300,000 COVID-19 deaths can be attributed to unfounded fears about the COVID vaccines, showing just how high the stakes of disinformation are.

In an effort to find better solutions, Duke University School of Medicine is co-hosting a National Forum on Best Practices to Address Health Misinformation: Healthcare Readiness and Response this November. Other co-hosts are RTI International, an independent, nonprofit research organization dedicated to conducting research that improves the human condition, and the Coalition for Trust in Health and Science, an organization with over 70 groups working together to advance trust and factual science-based decision making. The Duke Clinical and Translational Science Institute, which houses the Duke Program on Medical Misinformation, has also played an important role in organizing the event.

The event is designed to highlight inno-

DAVID PICKEL

By Alissa Kocer

Southwell

Barrett

vations and provides space for attendees to help develop best practices and interventions for health care organizations and their partners to address medical misinformation.

"Duke has made a big effort to address medical misinformation, with leaders like Dean Mary Klotman opting to take a stand on this issue," Southwell said, "Our goal with this forum has been to bring together health care leaders and practitioners to help brainstorm ideas for best practices and ways to mitigate misinformation."

Stamping out medical misinformation will require a multifaceted approach that addresses misinformation in the media and online environments, in medical education, and at the community level. Forum attendees will discuss possible solutions and potential stumbling blocks at each level and hear from clinicians and physicians about their experiences with medical misinformation.

This is only one part of a growing effort to eliminate medical misinformation and

"...belief in false claims can lead to real harm if it undermines trust in established medical practices and institutions."

— BRIAN SOUTHWELL

mitigate its harms. Southwell, along with Nadine Barrett, PhD, associate professor in family medicine and community health, is working with the National Academy of Science, Engineering and Math (NASEM) committee on Understanding and Addressing Misinformation about Science. That eventually will result in a consensus report on the scope and consequences of misinformation about science.

"As we look across the country," Southwell said, "we see a lot of headlines about misinformation in health and medicine. We need better engagement and widespread collaboration between many different types of organizations. Duke is helping to provide that."

Executive Vice President for Health Affairs and School of Medicine Dean Mary E. Klotman and Duke University President Vincent E. Price.

Klotman Named Executive Vice President for Health Affairs

Mary E. Klotman, BS'76, MD'80, HS'80-'85, has been named Duke University's first executive vice president for health affairs. She will also continue to serve as dean of Duke University School of Medicine.

Klotman's appointment follows a restructuring of the leadership model for Duke Health's academic and clinical missions, which were previously consolidated under A. Eugene Washington, MD, who served as Chancellor for Health Affairs of Duke University, and President and CEO of Duke University Health System.

As executive vice president for health affairs, Klotman is the chief academic officer of Duke Health. Craig Albanese, MD, who was named CEO of DUHS earlier this year, will oversee the Duke Health clinical enterprise.

In these roles, Klotman and Albanese will work in close partnership to build deep alignment between Duke's academic and clinical missions, and will establish shared goals and strategies, closely aligned organizational performance metrics, and other mechanisms to ensure effective, connectivity and coordination across Duke Health.

In a message to the campus community, Duke President Vincent E. Price said the new leadership structure is designed to "position Duke for success in the face of the challenging landscape for academic medical centers, including the changing health care marketplace, the need for more efficient and effective patient care models, and the ongoing imperative to support high-quality medical research."

Klotman will be responsible for strategic, academic, and budgetary oversight and authority for the School of Medicine and its affiliated academic institutes and programs. She will serve as the university official providing strategic oversight of university academic health affairs, in close coordination and collaboration with the president, provost, executive vice president, and the CEO of Duke University Health System.

She will also oversee the Duke-NUS Medical School in Singapore and, with the provost, oversee other relevant interdisciplinary centers including the Global Health Institute and the Margolis Center for Health Policy.

An infectious diseases specialist, Klotman is the R.J. Reynolds Distinguished Professor of Medicine at Duke and has served as dean of the School of Medicine since 2017. As dean, she has overseen advancements in research, teaching, and administration that have propelled the School of Medicine to new levels of national recognition and research activity. Under her leadership the school has also implemented significant new programs to advance diversity, equity, and inclusion; assure scientific integrity; and recruit, retain, and reward outstanding faculty.

"Academic health systems like Duke play a unique and essential role: we care for the sickest patients, make the discoveries that drive new therapies, train future health care leaders, and engage in vital community partnerships," Klotman said. "I look forward to working closely with Craig and his team to continue the critical integration of our missions, enhancing Duke's ability to address the needs of an increasingly complex world during a time of immense change."


Halabi


Mentz


Samei

FDA Awards Up to $50 Million for Research Center

Duke University and the University of North Carolina at Chapel Hill will receive up to $50 million over five years from the U.S. Food and Drug Administration to establish the Research Triangle Center of Excellence in Regulatory Science and Innovation (CERSI). The center also includes collaborations with North Carolina State University and North Carolina Central University.

Triangle CERSI, the newest of five CERSIs nationally, will work with FDA scientists to perform scientific research to support the FDA's needs.

The center is led by four principal investigators: Susan Halabi, PhD, James B. Duke Distinguished Professor of Biostatistics and Bioinformatics and co-chief of the Division of Biostatistics at Duke University School of Medicine; **Robert Mentz, MD, HS'10-'14**, associate professor of medicine and population health sciences and chief of the heart failure section at Duke University School of Medicine and a Duke Clinical Research Institute faculty member; Ehsan Samei, PhD, Reed and Martha Rice Distinguished Professor of Radiology at Duke University and chief imaging physicist for Duke University Health System; and Paul Watkins, MD, Howard Q. Ferguson Distinguished Professor of Pharmacy at the UNC Eshelman School of Pharmacy and professor at the UNC School of Medicine and the UNC Gillings School of Global Public Health.

The center will provide new infrastructure and tools to shorten the drug and device development process, to advance public health, and to inform regulatory decision making and guidance documents that complements and enhances other CERSIs.

Duke Launches New Precision Medicine Study

The Duke University Health System and School of Medicine are launching OneDukeGen, a precision medicine study that will advance health care through cutting-edge research and collaboration. In a partnership with nference, OneDukeGen will embark on a journey to unravel the intricate connections between genetics, health, and disease.

OneDukeGen will integrate comprehensive genomic data and health information to foster a deep understanding of hereditary disease susceptibilities. Led by Principal Investigator **Svati Shah,MD, HS'01-'05, MHS'13,** associate dean of genomics, the study aims to exclusively recruit over 100,000 consented Duke patients to participate in the research.

The study is committed to ensuring representation of diverse populations as well as equitable return of genetic sequencing results in research.

Duke Health Begins Clinical Trial of Universal Flu Vaccine

Duke Health is leading its first clinical trial under a large federal initiative to develop a new-generation flu vaccine.

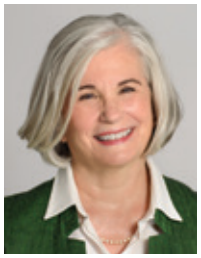
The phase 1 clinical trial is testing the safety of a vaccine candidate devised under the Collaborative Influenza Vaccine Innovation Centers (CIVICs) program. CIVICs is a multi-million-dollar investment by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, to develop a modern vaccine that provides longer and broader protection against both seasonal and pandemic influenza viruses.

The Duke Human Vaccine Institute (DHVI) has several large contracts under the CIVICs program, including contracts to manufacture vaccine candidates and lead clinical trials. **Emmanuel "Chip" Walter, MD, HS'90,** chief medical officer and director of the Duke Vaccine and Trials Unit at DHVI, is the principal investigator leading the clinical trials.

The trial's main objective is to evaluate the safety of different dosage levels. A secondary goal is to assess the immune response at each level and, finally, the researchers will gauge how long the immune response lasts and whether it's effective over time once the virus has undergone the small drift changes.

Medearis to Step Down in January

After 29 years of service to Duke, Ellen Medearis, vice president of Duke Health Development and Alumni Affairs, will retire effective January 5, 2024, after 29 years of service to Duke.


Medearis

Since Medearis assumed the role of vice president in 2011, the Duke Health Development and Alumni Affairs office has grown, as has its impact on the School of Medicine, the School of Nursing, and Duke University Health System. Under her decade-plus as vice president, the Duke Health development team has secured $1.3 billion in philanthropic support.

Medearis joined the Duke University School of Medicine Development Office in 1994, then served in the University Development Office from 1996-2010. During that time, she established the university's first comprehensive $1 million-plus gift program.

Duke will conduct a national search for Medearis's successor in this pivotal role.

Nicholson Retires from DHDAA

Sarah Nicholson, associate vice president for School of Medicine development and alumni affairs, retired effective Sept. 5, 2023.


Nicholson

Nicholson was responsible for people and programs that aim to develop and serve a loyal, engaged, and philanthropically active alumni base for the School of Medicine. She led a team that serves alumni of the MD, Physician Assistant, Doctor of Physical Therapy, and biomedical PhD programs, as well as residents, fellows, post-docs, and other trainees. The program has a long history of strong annual support from alumni, and over the past 10 years, has successfully secured major, leadership and principal alumni gifts to support the School of Medicine's missions.

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MEGAN MENDENHALL

Antibody Shows Promise for Preventing Organ Rejection

A man-made antibody successfully prevented organ rejection when tested in primates that had undergone a kidney transplant, Duke Health researchers report.

The finding clears the way for the new monoclonal antibody to move forward in human clinical trials. Results of the study appeared online Aug. 30 in the journal Science Translational Medicine.

Current medications to prevent organ rejection have a lot of side effects, said lead author Imran J. Anwar, MD, HS, a surgical research fellow in Duke's Department of

Surgery. The push over the last decades has been to develop new, less toxic drugs.

Anwar and colleagues, including co-senior author **Allan Kirk, MD'87, PhD'92, HS'87-'95,** chair of the Department of Surgery, focused on a monoclonal antibody identified as AT-1501. It was engineered to minimize the risk of blood clots, which had become problematic for an earlier version of this therapy.

In studies using primates that had undergone kidney transplantation, AT-1501 prevented rejection without the need for additional immunosuppressive drugs or promoting blood clots, confirming its immunosuppressive potential.

New Blood Test Detects a Key Indicator of Parkinson's Disease

Duke researchers have developed a blood test that detects Parkinson's disease, potentially establishing a way to help diagnose the condition before nervous system damage worsens.

A new blood-based diagnostic test would be a major advancement for Parkinson's disease, which afflicts 10 million people worldwide and is the second-most common neurodegenerative disease after Alzheimer's. The study appeared Aug. 30 in the journal Science Translational Medicine.

A simple blood test would allow doctors to diagnose the disease earlier and start therapies sooner, said senior author Laurie Sanders, PhD, an associate professor in Duke School of Medicine's departments of Neurology and Pathology.

Earlier studies have associated mitochondrial DNA damage with an increased risk of Parkinson's disease, and the Duke-led team had previously reported an accumulation of mitochondrial DNA damage specifically in the brain tissue of deceased Parkinson's patients.

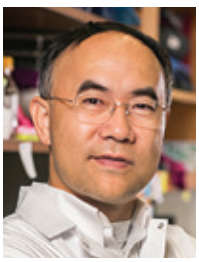
Using polymerase chain reaction technology, the Duke team developed an assay that successfully quantified higher levels of mitochondrial DNA damage in blood cells collected from patients with Parkinson's disease compared to people without the disease.

Synthetic Antibiotic Could Be Effective Against Drug-Resistant Superbugs

A scientific journey decades in the making at Duke University has found a new antibiotic strategy to defeat gram-negative bacteria like Salmonella, Pseudomonas and E. coli, the culprits in many urinary tract infections (UTIs). The synthetic molecule works fast and is durable in animal tests.

It works by interfering with a bacterium's ability to make its outer lipid layer.

Lead investigator Pei Zhou, PhD, a professor of biochemistry in the Duke School of Medicine said that the compound disrupts the synthesis of the bacterial outer membrane, without which the bacteria cannot survive.



Zhou

The compound, called LPC-233, is a small molecule that has proven effective at wrecking the outer membrane lipid biosynthesis in every gram-negative bacterium it was tested against. Co-authors at the University of Lille in France tested it against a collection of 285 bacterial strains, including some that were highly resistant to commercial antibiotics, and it killed them all.

And it works fast: LPC-233 can reduce bacterial viability by 100,000-fold within four hours. The compound is also tenacious enough to survive all the way to the urinary tract after oral administration, which may make it a vital tool against stubborn urinary tract infections.

Newly Identified Lipid in Breast Milk Might Reduce Cerebral Palsy in Infants

About 10% of the 60,000 babies born before 32 weeks' gestation in the United States every year develop cerebral palsy resulting from infections that damage nerve fibers in the brain called white matter.

While it's known that the white matter loss will lead to neurological deficits, there is currently no treatment to help these infants avoid the outcome.

In experiments using neonatal mice, researchers at Duke Health have identified a fatty molecule in breast milk that triggers a process in which stem cells in the brain produce cells that create new white matter, reversing the injury.

The study appeared Aug. 3 in the journal Cell Stem Cell. Corresponding author **Eric Benner, MD, PhD, HS'11**, a distinguished assistant professor in the Department of Pediatrics, is one of the co-founders of Tellus Therapeutics, a Duke spinout company developed with the help of the Duke University Office for Translation & Commercialization to bring this therapy from the bench into the neonatal intensive care unit.

The fatty molecule identified in the study will be administered intravenously to patients in an upcoming clinical trial.

The lipid molecule enters the brain and binds with stem cells there, encouraging the stem cells to become or produce a type of cell called oligodendrocytes.

The oligodendrocytes are like a hub that allow for the production of white matter in the central nervous system. This newly produced white matter in pre-term infants prevents the neurological damage that would otherwise impact the child's ability to move — the hallmarks of cerebral palsy.

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Ready for Anything

Bobby Maynor, Carolyn Maynor, and their daughter, Sydney, who is a junior at Duke.

> *"If I could, I'd go to medical school at Duke all over again"*
>
> Carolyn Maynor, MD'89, HS'89-'95

The years **Bobby Maynor, MD'88, HS'88-'91,** and **Carolyn Maynor, MD'89, HS'89-'95,** spent as medical students, residents, and interns at Duke were grueling. "It was probably the hardest job we've ever had," Carolyn said. "But those were also some of the most fulfilling, wonderful experiences we've ever had."

And they left both the Maynors very well prepared for long and successful careers — Carolyn as a radiologist and Bobby in internal medicine. "Once you get through medical school and residency at Duke, you're ready for anything," Bobby said.

The Maynors, who got married in Duke Chapel during medical school, have stayed close to their professional roots. They've been active members of the Davison Club and philanthropic supporters for decades, and Carolyn serves on her alumni reunion committee.

"I love seeing the new medical students come into this beautiful place because I know what an extraordinary experience they're going to have," said Carolyn. "If I could, I'd go to medical school at Duke all over again."

Gifts to the Davison Club provide critical unrestricted support for medical education at Duke University School of Medicine. Please consider making a gift online at **gifts.duke.edu/dmaa.**

To learn more about how to support the Davison Club and the School of Medicine, please contact Jill Malley, director of Davison Club & Special Gifts, at **jill.malley@duke.edu**

1960s

Charles V. Taft, AB'64, MD'68, is retired from orthopaedic surgery practice and now manages Stauber Farm, using regenerative farming practices to restore soil and sequester carbon back into it. He also has a forestry management plan for 90 acres of a 128-acre farm and partners to help manage River Ridge Land and Cattle Farm near the New River in Independence, Virginia.

1970s

Graham E. Quinn, AB'69, MD'73, is a professor and pediatric ophthalmologist conducting research at the University of Pennsylvania and the Children's Hospital of Philadelphia. He and his wife, Dianne, have three children and two grandchildren and divide their time between homes in Philadelphia, New York City, and Leland, North Carolina.

Jonathan Moss, PhD'73, MD'74, professor emeritus of the Department of Anesthesia and Critical Care at the University of Chicago, developed Relistor, a medication approved for the treatment of opioid-induced constipation in palliative care patients, for worldwide use. He is a global expert on the pharmacology of anesthetic drugs with a special focus on adverse reactions to anesthetic drugs and adjuvants in the perioperative period. He and his wife, Barbara, have been married for 51 years and have one son and two grandchildren.

1980s

Dean C. Taylor, MD'85, HS'87-'91, was elected president of the American Orthopaedic Society for Sports Medicine (AOSSM). Taylor is a professor in the Department of Orthopaedic Surgery and chair of the Feagin Leadership Program at Duke University School of Medicine. In addition, he serves as team physician for Duke University Athletics, a position he has held since 2006. A graduate of the U.S. Military Academy at West Point, Taylor served in the U.S. Army for 24 years, retiring as a colonel in 2005. In 2019, he was the recipient of the Society of Military Orthopaedic Surgeons' (SOMOS) prestigious Col. Brian Allgood Memorial Leadership Award, which recognizes leadership excellency in military orthopaedic surgery. He has served AOSSM in many capacities and received numerous AOSSM honors, including the George D. Rovere Award in 2019 for his contributions to sports medicine education.

Lisa Rider, AB'83, MD'87, two years ago became head of the Environmental Autoimmunity Group at the National Institute of Environmental Health Sciences, National Institutes of Health. She previously served as deputy head of the group, which focuses on environmental and genetic risk factors and developing new therapies for myositis and other autoimmune diseases. In the fall of 2022, she received the Excellence in Investigative Mentoring Award of Distinction from the American College of Rheumatology.

Joon Sup Lee, MD'88, is the new chief executive officer of Emory Healthcare. Lee, who began his new post on July 1, 2023, is responsible for overseeing the most comprehensive academic health system in Georgia, with 11 hospitals, 250 provider locations, and more than 24,000 employees. An interventional cardiologist by training, he previously served as the executive vice president at the University of Pittsburgh Medical Center (UPMC) and president of UPMC Physician Services. He held a variety of leadership positions at Pittsburgh, including chief of cardiology at the University of Pittsburgh School of Medicine and chief medical officer for the UPMC Health Plan.

2000s

Victoria Mobley, BS'98, MD'04, was recently recognized for exemplary contributions to public health in North Carolina with the Ron H. Levine Public Health Award. The prestigious award, presented by the North Carolina Department of Health and Human Services (NCDHHS), honors efforts to improve the public health system, expand the scope or capacity of public health services, or build new and lasting partnerships. Mobley serves as the HIV/STD medical director at the NCDHHS Division of Public Health and the director of the NC Epidemiology Field Services Unit. She is an adjunct assistant professor at the University of North Carolina at Chapel Hill's Gillings School of Public Health. Among her other awards are the North Carolina Governor's Award for Excellence, COVID-19 Response Team; Visionary of the Year, Community Roots Award from Triangle Empowerment Center, Inc.; and, the David Jolly "Excellence at the State" Award, North Carolina Community AIDS Foundation.

HOUSE STAFF

Bill Powers, MD, HS'75-'77, returned to Duke on July 1, 2022, as a professor of neurology. He previously served for 11 years as chair of the Department of Neurology at the University of North Carolina at Chapel Hill, and before that for many years at Washington University in St. Louis, studying cerebral blood flow and metabolism in health and disease. He has received numerous awards, twice chaired American Heart Association/American Stroke Association committees charged with updating care guidelines, and serves on several editorial boards and committees. He and his wife, Karen, live in Chapel Hill and recently celebrated their 40th anniversary with a trip to France.

J. Thaddeus Beck, MD, FACP, HS'88-'91, was honored with an Oncology Icons award from Targeted Oncology. As a founding member of Highlands Oncology in Rogers, Arkansas, Beck is board certified in internal medicine, medical oncology and hematology from the American Board of Internal Medicine. In 2002, he was elected a Fellow of the American College of Physicians.

Robert A. Harrington, MD, HS'90-'93, has been named the Stephen and Suzanne Weiss Dean of Weill Cornell Medicine and provost for medical affairs of Cornell University. Harrington, a cardiologist, was formerly the Arthur L. Bloomfield Professor of Medicine and chair of the Department of Medicine at Stanford University. The appointment was approved by the Cornell Board of Trustees and the Weill Cornell Medicine Board of Fellows. Harrington, a member of the National Academy of Medicine, began his new position on Sept. 12. A past president of the American Heart Association, Harrington chaired Stanford's Department of Medicine since 2012. He previously served as the Richard Sean Stack, MD, Distinguished Professor and director of the Duke Clinical Research Institute at Duke University.

Your fellow DukeMed alumni want to hear about you! Please email updates and photos for Class Notes to
dukemed@duke.edu

JIM ROGALSKI

Everardo Machias, PhD, assistant professor in the Department of Pathology, assistant research professor in the Department of Cell Biology, and a member of the Duke Cancer Institute.

From Migrant Farm Worker to Duke Scientist

Pathologist Everardo Macias Tackles Prostate Cancer

Everardo Macias, PhD, assistant professor of pathology at Duke University School of Medicine, explores the complexities of prostate cancer, the second-leading cause of cancer death in men.

His quest to find innovative cancer treatments mirrors his own incredible journey — from a migrant farm worker to a groundbreaking scientist.

As a first-generation high school graduate working in the fields of Minnesota, he had never even planned to go to college.

Today he leads cutting-edge research, using human cancer genetics and advanced gene testing to tackle one of prostate cancer's trickiest players: cancer cells that dodge usual treatments.

"It still baffles me how traveling in the back of a pickup truck one summer in high school got me all the way to Duke," said Macias, a member of the Duke Cancer Institute and an assistant research professor in the Department of Cell Biology.

"As a Hispanic of Mexican American descent with roots in a small Texas town, my journey to becoming an independent investigator has been enriched tremendously by great mentorship and programs geared toward increasing diversity in biomedical research."

By Jamie Botta

LONG TRUCK RIDE LEADS TO DUKE

As a child, Macias moved back and forth between the United States and Aguascalientes, Mexico. But after his parents separated, he and his four siblings settled with their mother in Sabinal, a small town in southwest Texas.

The summer before his senior year in high school, Macias traveled to northern Minnesota in the back of a pickup truck for three days with another family to work as a migrant worker on sugar beet farms. Although it was far from home and the work was backbreaking, the pay was better than it was in Texas.

When he returned for senior year, his guidance counselor mentioned an opportunity in Austin, Texas, at St. Edwards University: a College Assistance Migrant Program (CAMP) Scholarship that would pay for the first year of college.

> *"It hit me how powerful higher education is. It was an 'ah-ha' moment for me."*
>
> — EVERARDO MACHIAS

"Although I worked on farms in Mexico and Texas, I only worked one summer as a true migrant farm worker. When I met other students in the CAMP program who were bona-fide migrant farm workers for as long as they could remember, they told stories of what they went through and how much work and suffering it took. I knew I couldn't squander the opportunity," Macias said.

As an undergraduate at St. Edwards, he held summer internships at Monsanto, the St. Louis-based manufacturer of agricultural and biochemical products.

"I realized that my life had taken a 180-degree turn, that I was now conducting research on transgenic seed varieties for a company whose products I was working with in fields just three years before," he said. "It hit me how powerful higher education is. It was an 'ah-ha' moment for me."

He earned a bachelor's degree in chemistry from St. Edwards, and his advisors recommended graduate school. He received a PhD in comparative biomedical sciences from North Carolina State University and completed postdoctoral fellowships at the University of North Carolina at Chapel Hill and the University of Texas-Austin.

In 2013, he made his way to Duke as a project scientist in the Department of Surgery. After a stint as an assistant professor at Cedars-Sinai in Los Angeles in 2015, he rejoined Duke in 2018 as a cancer researcher.

"Everardo is working at the cutting edge

of prostate cancer research," said Jiaoti Huang, MD, PhD, professor and chair of the Duke Department of Pathology and member of the Duke Cancer Institute.

His trajectory, Huang said, "demonstrates his personal quality, perseverance, determination, and the opportunities this great country affords people of different backgrounds. His story is an inspiration to us all."

TACKLING THE NEUROENDOCRINE CHALLENGE

In rare cases, prostate cancer starts in neuroendocrine cells. Some prostate cancers become resistant to treatment and turn into neuroendocrine tumors, which are more aggressive and have poorer outcomes.

In 2022, Macias earned a Department of Defense Prostate Cancer Research Program (PCRP) Idea Development Award to pursue new treatments for neuroendocrine tumors. The DOD recently committed to funding Macias' research for three more years.

He's principal investigator of the DOD grant that includes Huang and co-investigators Ming Chen, PhD, associate professor in pathology; and Jung Wook Park, PhD, assistant professor of pathology.

Macias's lab delves into the genetics behind tumor growth. Through functional genomic screens, he has identified lesser-known protein kinases that are critical to prostate cancer tumor growth. Kinases are high-value targets because they are potentially susceptible to drug treatments.

STEVE CONLON

In his pathology lab at Duke University School of Medicine, Everardo Macias, PhD, is pioneering ways to combat aggressive prostate cancers, especially neuroendocrine tumors that resist treatment.

In lab experiments, Macias and colleagues discovered that blocking NUAK2, a protein kinase prevalent in prostate cancer cells, curtailed neuroendocrine tumor cell growth.

He collaborates with medicinal chemists and structural biologists to pinpoint pharmacological molecules in cancer cells to target with medicines, aiming to save lives from prostate cancer.

MENTORING TOMORROW'S SCIENTISTS

Macias ranks mentoring his first graduate student, Amelia Schirmer, PhD, a skilled cancer researcher, as one of his proudest achievements. Macias is one of nearly 40 Duke faculty mentors in the Duke Preparing Research Scholars in Biomedical Sciences Post-Baccalaureate Research Education Program (PRIME-PREP).

Additionally, Macias has mentored two undergraduate Duke students who graduated with first-author publications and are now applying to medical school.

Macias has a deep commitment to mentoring aspiring researchers, especially from rural and underrepresented backgrounds. He's actively involved in graduate admissions, summer research programs, and lab mentoring.

"I believe it's as simple as having a mentor of similar heritage, or who may have had a comparable upbringing as you, to make seeking guidance in academia much more approachable," he said.

DCI 50th Anniversary Event Celebrates Over $86M Raised

Duke Cancer Institute (DCI) completed its celebration of five decades of life-changing discovery and care with a black tie event on Saturday, October 14, 2023. The evening's finale unveiled the total raised for cancer research and care during DCI's anniversary time frame: more than $86 million, including $32.7 million in planned gifts.

Special guest Kristin Chenoweth and cancer survivor Harper Harrell.

More than 225 guests attended the event, which alone raised $100,000.

Hosted by DCI Executive Director Michael Kastan, MD, PhD, the event featured inspiring stories from several cancer survivors, a guest appearance by former Duke basketball coach Mike Krzyzewski, and a performance by award-winning actress, singer, and philanthropist Kristin Chenoweth.

LES TODD

DCI Executive Director Michael Kastan (third from left) celebrates DCI's 50th anniversary with cancer survivors and their family members: (left to right) Heather and Harper Harrell, Allin and Caro Foulkrod, and Jamie Valvano.

Naggie Named Director of CTSI

Susanna Naggie, MD, HS'02-'09, MHS'13, has been named director of the Duke Clinical and Translational Science Institute (CTSI).

Naggie served as interim director of CTSI since December 2022 and as the faculty director of the Clinical Research Networks Pillar within CTSI since September 2021. She continues in her role as vice dean for clinical and translational research in the School of Medicine and continues to serve as co-principal investigator of Duke's National Institutes of Health Clinical and Translational Science Award.

As director of CTSI, Naggie is responsible for leading all programs within the institute, which is dedicated to accelerating scientific discovery, innovation, and translation and improving equity in science, medicine, and health. CTSI oversees the function and funding of more than 30 institutional centers and programs at Duke and also plays a key role in enhancing the equity, diversity, and inclusiveness of research activities and programs within the university.

A physician-scientist, Naggie is a professor of medicine who has dedicated her academic career to the care of patients with HIV and viral hepatitis, with a research focus on understanding the mechanisms of accelerated liver fibrogenesis and identifying biomarkers for risk-stratification in this patient population.

Evans Named HHMI Freeman Hrabowski Scholar

Chantell Evans, PhD, assistant professor of cell biology at Duke University School of Medicine, has been selected as one of the 31 inaugural Freeman Hrabowski Scholars by the Howard Hughes Medical Institute (HHMI). The five-year scholarship is renewable for a second five-year term and will provide up to $8.6 million over 10 years. It includes full salary, benefits, a research budget, and scientific equipment.

The scholarship is named in honor of Freeman A. Hrabowski III, president emeritus of the University of Maryland, Baltimore County, and a major force in increasing the number of scientists, engineers, and physicians from backgrounds underrepresented in science in the US.

Evans, who joined Duke in September 2021 as a Duke Science and Technology Scholar, investigates mitochondrial dynamics in neurons. With this scholarship, she will explore how neurons use quality control pathways to restore or sequester and eliminate damaged mitochondria. These cleanup processes are important for maintaining mitochondrial health and are implicated in Parkinson's disease and amyotrophic lateral sclerosis.

Michelle Wynn Awardees Named

The Duke University School of Medicine has announced the 2023 Michelle P. Winn Awards honoring individuals and teams who exemplified inclusive excellence over the past year. Each year, Winn Awards are given to one staff member, faculty member, student, and team from across the more than 10,000 members of the School of Medicine.


Susanna Naggie


Chantell Evans


Kevin P. Weinfurt


Jane Gagliardi

The recipients of the 2023 Winn Inclusive Excellence Award are:

- **Rebecca Gibson, MD, PhD'25,** Molecular Genetics & Microbiology student (Student Award)
- Steven Shipes, Clinical Research Unit (CRU) Research Practice Manager, Department of Radiology (Staff Award)
- Tomi Akinyemiju, PhD, Associate Professor in Population Health Sciences and Associate Research Professor of Global Health (Faculty Award)
- Duke Clinical Research Institute (DCRI) Government Trials & Networks (GTN) Anti-Racism Working Group: Crystal Cannon, Felecia Cathcart, Princess Abbott-Grimes, Renee Pridgen, Susan Knox, Tedryl Bumpass, Todd Robbins, Toya Hobbs, Yashika Johnson (Team Award)

Weinfurt Named Interim Chair of Population Health Sciences

Kevin P. Weinfurt, PhD, has been named interim chair of the Department of Population Health Sciences.

Weinfurt will serve as interim chair for 12 months while Chair Lesley Curtis, PhD, assists the U.S. Food and Drug Administration on its evidence generation initiative. Curtis will continue to serve in her faculty roles as professor of population health sciences and professor of medicine at Duke University School of Medicine during her one-year appointment to the FDA program.

Weinfurt is the James B. Duke Distinguished Professor of Population Health Sciences and vice chair of research in the Department of Population Health Sciences. He is a faculty member of the Duke Clinical Research Institute and holds secondary appointments as a professor of psychology and neuroscience, professor of psychiatry and behavioral sciences, professor of biostatistics and bioinformatics, and as a faculty associate of the Trent Center for the Study of Medical Humanities and Bioethics. Weinfurt also co-directs the Center for Health Measurement at Duke and is co-director of the Clinical Research Training Program.

Gagliardi Named Associate Dean for Learning Environment and Well-being

Jane Gagliardi, MD'98, HS'98-'03, MHS'09, has been named the new associate dean for learning environment and well-being.

Gagliardi is a professor of psychiatry and behavioral sciences, professor of medi-

cine, and the director of the Combined Internal Medicine-Psychiatry Residency Training Program.

As associate dean for learning environment and well-being, Gagliardi serves as the academic leader ensuring that the School of Medicine's health professions education programs occur in professional, respectful, and positive learning environments, including the MD, Physician Assistant, Doctor of Physical Therapy, Occupational Therapy Doctorate, and Master of Biomedical Sciences programs.

Gagliardi is an alumna of Duke University School of Medicine and Duke's combined residency training program in Internal Medicine-Psychiatry. She has been on faculty in both departments since completing residency training in 2003.

Two Faculty Receive High-Risk, High-Reward Grants

The National Institutes of Health (NIH) has awarded grants to two Duke University School of Medicine faculty members through the NIH Common Fund's High-Risk, High-Reward (HRHR) Research Program.

Akankshi Munjal, PhD, assistant professor of cell biology; and Samira Musah, PhD, assistant professor of biomedical engineering, nephrology, and cell biology, will receive $1.5 million over the next two years through the program's New Innovator Award, which supports unusually innovative research from early career investigators who are within 10 years of their final degree or clinical residency and have not yet received an NIH R01 or equivalent grant.

Munjal's research focuses on the principles of tissue morphogenesis using zebrafish.

Musah's research focuses on understanding how molecular signals and biophysical forces guide organ development and physiology and how these processes can be therapeutically harnessed to treat human disease.

Filiano Wins Hartwell Biomedical Research Award

Anthony Filiano, PhD, assistant professor of neurosurgery at Duke University School of Medicine, is one of 10 recipients of the 2022 Hartwell Individual Biomedical Research Awards. Filiano will receive $100,000 a year for the next three years for his project, "Reviving Brain Myelination as a Curative Therapy for Leukodystrophy."

Leukodystrophy refers to a group of devastating childhood disorders in which there is a breakdown of the white matter (myelin sheath) of the brain and spinal cord. Filiano's research focuses on Krabbe disease, which is fatal by the age of two to three years. There is currently no cure.

Filiano's award from The Hartwell Foundation will support research seeking to identify toxic molecules in the cerebrospinal fluid (CSF) — the fluid that surrounds the brain and spinal cord — that potentially contribute to Krabbe disease.


Akankshi Munjal


Samira Musah


Anthony Filiano


Aditee Narayan


Nicole Guinn


Beth Shaz

Pranam Chatterjee, PhD, assistant professor of biomedical engineering and computer science, also received a 2022 Hartwell Individual Biomedical Research Award.

Duke has been designated as one of The Hartwell Foundation's Top Ten Centers of Biomedical Excellence every year since 2006.

Distinguished Emeriti Faculty Honored

School of Medicine Dean **Mary E. Klotman, BS'76, MD'80, HS'80-'85,** honored the 2023 cohort of Distinguished Emeriti Faculty at a ceremony on June 13.

Distinguished Emeriti Faculty from the School of Medicine are:

- **Rebecca H. Buckley, MD, AB'54, HS'58-'64,** James Buren Sidbury Distinguished Professor Emerita of Pediatrics
- James T. Dobbins III, PhD Professor Emeritus of Radiology
- Robert M. Judd, PhD Professor Emeritus of Medicine
- Richard S.E. Keefe, PhD Professor Emeritus of Psychiatry and Behavioral Sciences
- John H. McCusker, PhD Associate Professor Emeritus of Molecular Genetics and Microbiology
- Paul L. Modrich, PhD James B. Duke Professor Emeritus of Biochemistry
- Jed E. Rose, PhD Professor Emeritus of Psychiatry and Behavioral Sciences
- **James R. Urbaniak, MD'62, HS'62-'69,** Virginia Flowers Baker Distinguished Professor Emeritus of Orthopaedic Surgery

Three Selected to ELAM and ELH

Aditee Narayan, BS'96, MD'00, HS'03-'06, was selected as a member of the 2023-2024 class of fellows for the Hedwig van Amerigen Executive Leadership in Academic Medicine® (ELAM) Program at Drexel University College of Medicine; and Nicole Guinn, MD, and Beth Shaz, MD, MBA, were selected as fellows for the parallel Executive Leadership in Health Care Program.

ELAM and ELH are prestigious year-long fellowships aimed at expanding the national pool of outstanding women candidates for leadership in academic medicine and health care respectively.

Narayan is a professor of pediatrics and associate dean for curricular affairs in the School of Medicine.

Guinn is an associate professor of anesthesiology and interim chief of the Division of Neuroanesthesiology, Otolaryngology and Offsite Anesthesia.

Shaz is a professor of pathology and the deputy director of the Marcus Center for Cellular Cures.

A gel that regrows the brain? Ingenius.

Strokes are a leading cause of death in the U.S. Tatiana Segura's novel gel is a revolutionary treatment for stroke patients, promoting brain tissue regeneration. Because at Duke when cross-disciplinary teams unite, science advances.

TATIANA SEGURA
Professor of Biomedical Engineering
Professor in Neurology
Professor in Dermatology

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Duke
SCIENCE *and* TECHNOLOGY
CHALLENGE ACCEPTED

Gut Microbiome May Hold the Key to Healthy Aging

One of the latest targets in the study of healthy aging is the gut. Increasingly, research points to changes in the gut microbiome as a predictor of longevity and how well we age.

Learning about the balance of the microbiome — the collection of microorganisms such as bacteria, viruses, and fungi in the intestinal tract — is an evolving field, and Duke Science and Technology Scholar Shuo Han, PhD, is helping drive its progression.

Her goal is to understand the interplay between the human gut microbiota and aging. Specifically, she has mapped the human gut microbial metabolism and identified molecular candidates for modulating health and aging.

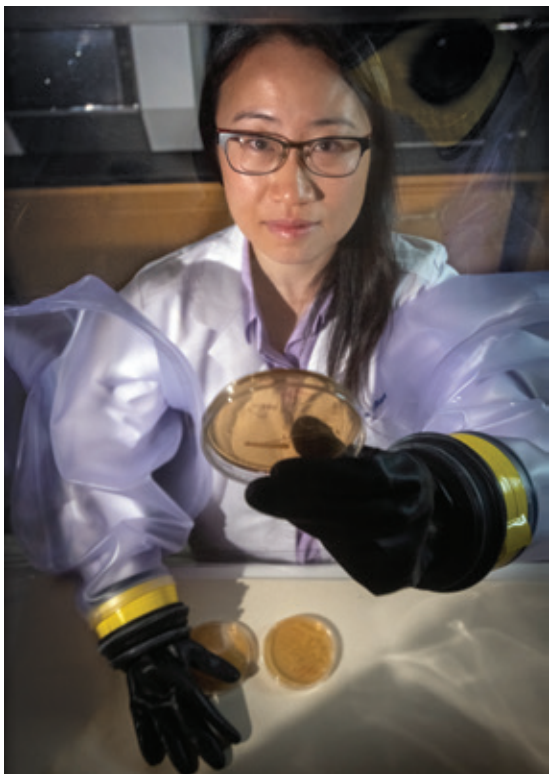
"My work has provided the microbiome field with candidate mediators of the microbiome-host interactions, a web resource with which to explore it, and example applications to functionally study the gut microbial metabolism," said Han, an assistant professor in the Department of Biochemistry at Duke University School of Medicine.

There are signs that what happens in the gut can improve health. Studies have found gut microbiome pattern differences in older adults who are lean and physically active compared to their less-fit peers. Other research connected early frailty to reduced gut microbial diversity.

In animal studies, microbiota transplantation from a young to an old host acts as a reset button for aging mice, increasing lifespan and changing metabolism.

To Han, such studies are a "promising indication that the gut microbiota communities do not merely coexist with the host, but play a functional role in shaping a response to the aging process."

Prior to joining Duke in September 2022, Han was a postdoctoral research fellow at Stanford University. She developed a metabolomics tool to propel her research in microbiota-host interactions and identify the diverse universe of gut microbial metabolites, using mass spectrometry, bioinformatics, bacteriology, and germ-free mouse models.



KATE MEDLEY

"Duke has all the aspects I was looking for in my future home: a highly collegial and collaborative environment and a wealth of opportunities to work with exceptional graduate and undergraduate students as well as to continue my work on promoting diversity."

— SHUO HAN

In her current research she hopes to identify novel mechanisms of gut-host interactions and help develop therapeutics to treat age-related declines in health.

Han was recently selected as a Whitehead Scholar, which provides support to Duke's most promising assistant professors. She has a secondary appointment in the Department of Molecular Genetics and Microbiology and is on the team at the Duke Microbiome Center and the Duke Aging Center, where she is a senior fellow.

"Duke has all the aspects I was looking for in my future home: a highly collegial and collaborative environment and a wealth of opportunities to work with exceptional graduate and undergraduate students as well as to continue my work on promoting diversity," Han said.

She serves as co-chair of the Department of Biochemistry's Equity, Diversity, and Inclusion committee. She works with a team of graduate students, postdocs, and staff members in the department to promote diversity in hiring, community outreach, and mentoring initiatives.

After moving from China to Los Angeles as a child, mentoring played a role in Han's development, and she has paid it forward by teaching at underserved public schools and led a summer program for underrepresented minority students at Stanford.

Her interest in science, she said, has evolved over time, starting with a fascination with bugs in her childhood and then to yeast genetics as an undergraduate at the Massachusetts Institute of Technology.

"In graduate school, it was aging, and as a postdoc my focus became microbiome research," Han said. "So, my interests have changed, but my love for science and wanting to be a scientist has always been the same."

By Shantell M. Kirkendoll

CHRIS HILDRETH

Marie and A. Eugene Washington with Kafui Dzirasa

Dzirasa Receives Inaugural Presidential Distinguished Chair

Kafui Dzirasa, MD'05, PhD'07, HS'10-'16, is the inaugural recipient of Duke University's first Presidential Distinguished Chair.

Mary E. Klotman, BA'76, MD'80, HS'80-'85, presented Dzirasa with the A. Eugene and Marie Washington Presidential Distinguished Chair, at an event honoring Chancellor Emeritus Washington in June 2023.

An anonymous donor established the chair in early 2021 to support superb science and to honor the Washingtons.

Presidential Distinguished Chairs are a new class of endowed professorships, created to maximize the university's ability to recruit and retain exceptional faculty in a wide range of disciplines, including those aligned with the Duke Science and Technology initiative. Presidential Distinguished Chairs are intended to support faculty who will make transformative discoveries, push the boundaries of science, improve human health, and support intellectual vision and innovative energy to inspire educational collaboration across the Duke community.

Dzirasa, who joined the Duke faculty in 2009, is a pioneering researcher whose expertise in neuroscience, psychiatry, and engineering is transforming the understanding of the basic biological mechanisms of mental illness. He is also a national leader who has distinguished himself as an advocate for diversity and inclusion in science.

Dzirasa has won numerous honors and is a Howard Hughes Medical Institute Investigator and a member of professional organizations including the National Academy of Medicine, the American Society for Clinical Investigation, and the American Institute for Medical and Biological Engineering.

Margolis Family Foundation Gives $10M to Advance Health Policy

The Robert and Lisa Margolis Family Foundation has given $10 million to Duke University to leverage and extend the work of the Margolis Center for Health Policy.

A nationally and internationally recognized leader in health policy, the center was founded in 2016 through an initial gift from the family foundation established by **Robert J. Margolis, MD'71, HS'70-'72,** and Lisa Margolis.

The new $10 million gift will create a permanent, unrestricted endowment for the center that will support its efforts to educate the next generation of health care leaders, advance health care transformation, and further biomedical innovation. The gift is also meant to encourage other donors to help expand support for the center and further build its endowment. As an incentive to donors, each new endowment established for the center will be matched by the Margolis Family Foundation.

Duke-Margolis leads interdisciplinary health policy research, conducts timely policy studies, supports innovative education, fosters cross-campus collaborations, and translates research into policy and more as it seeks to transform health care throughout the world.

Founding donor Robert Margolis said that it was his family's hope that the $10 million gift will inspire other donors to make their own endowment gifts to support the mission of the center and advance key areas of health reform that matter to them.

"Creating a world where everyone has access to equitable, affordable, and high-quality health care that enables them to thrive is a dream we hope to see in our own lifetime. We know we can make progress together," he said. "We invite our Duke community of alumni, donors and friends to work with us to make this a reality."

Samulski Foundation Gift Honors Pioneering Medical Physicist

A generous gift from the R.J. Samulski Innovation Foundation has established the Thaddeus V. Samulski Associate/Assistant Professorship in recognition of the life's work of the late Thaddeus Samulski, PhD, a faculty member at Duke University School of Medicine.

The professorship will support a medical physicist in Samulski's former department, the Department of Radiation Oncology.

Kyle Lafata, MS'15, PhD'18, is the inaugural recipient of the professorship. Lafata earned his PhD in medical physics from

Duke in 2018 and joined the Department of Radiation Oncology in 2020. The overarching goal of his lab is to develop and apply new technology to transform imaging into computational biomarkers.

Samulski studied hyperthermia — a form of cancer treatment in which heat is applied to tumors to kill cancer cells — and developed methods and technology capable of measuring temperature noninvasively with magnetic resonance imaging in real time in patients undergoing hyperthermia treatments. His work improved treatment efficacy and patient experience and demonstrated that non-invasive thermometry was a viable treatment method for patients with soft tissue sarcomas.

Samulski was also a dedicated and gifted mentor, establishing the first medical physics training program in the Department of Radiation Oncology.

Doug and Stefanie Kahn

Kahns' Gift Supports Alzheimer's Disease Research

Doug and Stefanie Kahn experienced firsthand the devastation Alzheimer's disease can cause when their fathers both developed the disease. The experience impelled them to try to do something to help.

They recently made a $1 million gift to establish the Kahn Family Alzheimer's Disease Research Center Fund to support the operating expenses of the newly established Alzheimer's Disease Research Center (ADRC). The center, a collaboration with the University of North Carolina at Chapel Hill, is one of a network of only 33 National Institutes of Health-funded ADRCs in the country, and the only one focused on gathering data in pre-symptomatic, young, and diverse populations.

The Kahns' gift builds on their previous giving and service to Duke. They are the parents of three Duke students and have been active volunteers and donors, having supported Duke athletics, the Nasher Museum of Art, the holiday card campaign at Duke Children's, and more. Doug served on the Duke Health (later Duke University School of Medicine) Board of Visitors from 2016-2022, and Stefanie serves on the Nasher Museum of Art Board of Visitors.

The gift to support the ADRC honors their fathers, Donald Schneider and Mike Kahn, and their desire to see progress made in addressing the causes of the disease and developing treatments and cures.

Steads' Professorship to Honor Hammond

Anru Zhang, PhD, is the inaugural recipient of the Eugene Anson Stead Jr., MD, and E. Harvey Estes Jr., MD, Associate Professorship in the Department of Biostatistics and Bioinformatics in the School of Medicine, established by **William "Bill" Stead, AB'70, MD'74, HS'73-'77,** and Janet Stead in honor of William Edward "Ed" Hammond, PhD, professor in the Department of Family Medicine and Community Health and director of the Duke Center for Health Informatics at Duke University.

Zhang

The professorship is currently named for the late Eugene Stead, Bill's father and the influential longtime chair of the Department of Medicine at Duke, and E. Harvey Estes, a cardiologist and the first chair of the Department of Community Health Sciences. It will be renamed for Hammond once he leaves active employment at Duke.

Bill and Janet Stead created the professorship in the hope that each recipient would emulate Hammond's example of building bridges between disciplines. Bill Stead and Hammond, with others, developed one of the very first electronic medical record systems at Duke in the 1970s.

Recruited to Duke in 2021, Zhang is applying his previous work in designing statistical methodologies and data science to extract data from electronic health records to help detect disease and improve patient treatment plans.

Gift for Presidential Chair Honors McNeill

An anonymous $5 million gift has established a Presidential Distinguished Chair Professorship in endocrinology in honor of **Diana McNeill, AB'78, MD'82, HS'87-'88.**

A nationally recognized diabetes clinician, McNeill is a gifted educator, mentor, and physician. Elected a master clinician by the American College of Physicians, she won the North Carolina Diabetes Provider of the Year award and the 2020 Dema C. Daley Founders Award given to a member of the internal medicine community recognized nationally as an educator, innovator, and leader. She was awarded the Duke Medical Alumni Association Distinguished Service Award in 2022.

McNeill

The Presidential Distinguished Chair will go to a physician-scientist of exceptional eminence in endocrinology within the School of Medicine's Division of Endocrinology, Metabolism and Nutrition.

This is the first endowed professorship in endocrinology and only the third Presidential Distinguished Chair to be established in the School of Medicine.

"We are deeply appreciative of this exceptional gift," said Kathleen Cooney, MD, chair of the Department of Medicine. "The gift of a Presidential Distinguished Chair will help attract a world-class scientist and give them the resources and flexibility needed to make discoveries in endocrinology that will be transformative. I'm delighted that Diana has been honored in this way. She is a tireless patient advocate."

Henry Vann Austin, MD'67, HS'67-'71, died on February 25, 2023. He was 82. He was a founding lifetime member of the Iron Dukes and a lifetime member of Duke Medical Alumni Association. He was inducted into The Founders Society of Duke University, which presented him with the Sower Award. He served two years in the U.S. Army at Fort Carson in Colorado Springs, and then joined the Pinehurst Medical Clinic. In 1995, he founded Pinehurst Rheumatology, his medical passion.

Peter Neal Barboriak, PhD'87, MD'89, HS'89-'95, died on March 29, 2023. He was 65. He received his undergraduate degree at Marquette University and earned his MD/PhD at Duke. He had a distinguished career in forensic psychiatry and was board-certified in both forensics and geriatric psychiatry. He served at McLean Hospital in Massachusetts and John Umstead Hospital in North Carolina. He was forensic psychiatry training director for University of North Carolina Hospitals, unit clinical director at Central Regional Hospital, and director of the Forensics Division at Broughton Hospital in Morganton.

Stephen C. Beuttel, MD'71, HS'71-'76, died on March 10, 2023. He was 77. He served in the U.S. Navy for 25 years, retiring as captain and chief of medicine at the Portsmouth Naval Hospital in Portsmouth, Virginia. After retirement from the Navy, he served as medical director of the Veterans Outpatient Clinic in Winston-Salem. He was named a Master of the American College of Physicians in 2006.

Edward Hecht Bossen, MD'65, HS'65-'70, died on June 24, 2023. He was 83. He served in the U.S. Army Reserve and in active duty, achieving the ranks of major and captain. He joined Duke's Department of Pathology in 1972. He was director of surgical pathology and anatomic pathology, remaining with the department until attaining emeritus status in 2012. He established one of the first muscle biopsy diagnostic services in the country. He was an expert general surgical pathologist and a renowned teacher. The Department of Pathology established the annual Edward H. Bossen Team Player Award in his honor.

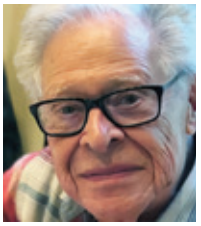
Richard D. Brasington Jr., MD'80, died on April 30, 2023. He was 71. He was professor emeritus of medicine and former director of the rheumatology clinic and the rheumatology fellowship training program at Washington University School of Medicine in St. Louis, where he established a clinical trials unit in the Division of Rheumatology. He played a key role in developing a curriculum guide for the American College of Rheumatology. The American College of Rheumatology named him a master three times and awarded him the Distinguished Program Directors' Award. He was a fellow in the American College of Physicians and president of the Washington University chapter of Alpha Omega Alpha. He helped create the James and Philip Brasington Memorial Endowed Fund in the Department of Psychiatry.

David Emerson Cowan, MD'55, died on April 22, 2023. He was 94. He was an active-duty U.S. Navy physician for 10 years, retiring as a captain. He established a practice in Rock Hill, South Carolina, and served in numerous leadership roles at York County Hospital and Piedmont Medical Center, including department chair, chief of staff, and board member. Following "retirement," he practiced part-time in Chester, South Carolina. He made many trips to provide medical care in Guatemala and Honduras, and spent an extended period providing care in Malawi.

Ronnie Lewis Cox, MD'61, HS'61-'62, HS'62-'66, died on October 14, 2022. He was 88. He served in the U.S. Army at the 97th General Hospital in Frankfurt, Germany, and as an alternate physician of the U.S. Embassy in Bonn. He practiced medicine in High Point, North Carolina, for 38 years and was instrumental in establishing the first cardiac catheterization lab at High Point Regional Hospital and the High Point Dialysis Unit. He received recognition for meritorious service from the North Carolina Heart Association.

Gould Coates Garcia, MD'58, died on September 28, 2022. He was 89. He served a three-year residency in internal medicine at Charity Hospital in New Orleans and then served a two-year commitment to the U.S. Air Force at Laughlin Air Force Base in Del Rio, Texas. Following his military service, he joined Internal Medicine Associates in Emporia, Kansas. He practiced internal medicine with Internal Medicine Associates for 35 years until his retirement in 1999.

David Hall, MD, HS'75-'80, died on June 29, 2023. He was 78. He received his medical degree from the Medical College of Virginia, his surgical degree from Vanderbilt University, his orthopedic degree from Duke University, and his hand fellowship from Johns Hopkins University. He served as a captain in the United States Army.



Robert L. Hallet, MD'49, HS'49-'50, died on March 3, 2023. He was 99. He graduated from Duke University School of Medicine as an obstetrician and gynecologist. He practiced medicine in Columbus, Ohio, for 48 years, and served as chairman and chief of staff at both St. Ann's and Grant Hospitals. He was a member of the AOA honorary medical fraternity.

Barry Noel Hyman, MD'63, died on April 27, 2023. He was 84. He served as an officer in the U.S. Air Force for two years, receiving the Air Force Commendation Medal for outstanding service. He joined the staff of the Baylor College of Medicine as a specialist in both medicine and ophthalmology. He served on the Joint National Committee of the National Institutes of Health to provide guidelines for the treatment and prevention of hypertension. He was recognized as a specialist by the American Society of Hypertension and was president of the American Society of Diabetes in Houston.

Thomas Wayne Jackson, MD, MHS'91, HS'86-'88, died on March 20, 2023. He graduated from Emory University in 1978 and received his MD from the Medical College of Georgia in 1982. He had a number of roles in geriatric medicine in Augusta, Georgia, and Columbia, South Carolina, and worked for 10 years at the VA hospital in Augusta.

Walter Scott James Jr., AB'53, MD'57, HS'57-'58, died on March 1, 2023. He was 91. He served in the U.S. Air Force at McClellan Air Force Base in Sacramento, California, where he was chief of pediatrics. He was chief of staff and chief of pediatrics at Piedmont, Scottish Rite, and Northside Hospitals. After private practice, he became head of Kaiser Permanente's pediatric department. He was named Pediatrician of the Year, and The Georgia Chapter of the American Academy of Pediatrics named him Honorary President. He co-invented the Toddler Alarm and served as an advisor and on the board of directors for Healthdyne, Inc., as well as with the Sudden Infant Death Syndrome Institute.

William Jurgelsky, MD'67, died on December 27, 2022. He was 91. He earned his PhD from Rutgers University and devoted 20 years to research with the National Institutes of Health. Upon retirement from the NIH, he attended Duke University School of Medicine. After receiving his medical degree, he pursued his dream of establishing a camel farm. In southwest Virginia he opened Lost World Ranch, the largest Bactrian camel facility in North America.

John Paul Lunas, MD'62, died on June 29, 2023. He was 87. He served in the Public Health Service at Mt. Edgecombe, Alaska. After completing his internal medicine residency education at Oregon Health and Science University in Portland, Oregon, he returned to Alaska and practiced in Sitka until 1990. Afterward, he moved to Cortland, New York, where he practiced briefly as an internist and then covered emergency room duties for a contract organization throughout New York.

Frederick Dunham McFalls, MD'59, died on March 17. He was 93. He served in the U.S. Army Medical Corps in Korea from 1952-1954. He joined the faculty at Duke University School of Medicine as an assistant and associate professor of anatomy. He was head of medical development for Carolina Biological Supply. He served on the faculty as a clinical professor at the University of South Florida in Tampa, where he also conducted private practice and was staff psychiatrist at Mental Health Care, Inc.

Paul Cecil Mohl, MD'71, died on February 15, 2023. He was 78. He was the training director and education vice chair of the UT Southwestern Department of Psychiatry and served as the president of the American Association of Directors of Psychiatric Residency Training. Upon his retirement, UT Southwestern created the Paul C. Mohl Award for Excellence and Dedication in Psychotherapy Supervision.

John Morledge, HS'53, died on December 29, 2022. He was 94. He served as a flight surgeon in the U.S. Air Force and was a pioneering cardiologist in Madison, Wisconsin, where he taught for years at the University of Wisconsin Medical School. He trained hundreds of health care professionals and cared for patients until he retired at 87.

Edward M. Mullin, Jr., MD, HS'72, died on June 4, 2023. He was 80. He served in the Public Health Service at the National Institutes of Health. During his 40-year career as a urologic surgeon in Allentown, Pennsylvania, he served as chief of urology, president of the medical staff, and interim chairman of surgery at Lehigh Valley Hospital. He was also a clinical professor of surgery at Penn State Hershey Medical School.

Ellen Perkins Sanders, MD'11, died on June 20, 2023. She was 38. She completed her family medicine residency at the Medical University of South Carolina. She worked as a family physician at the Longstreet Clinic in Hall County, Georgia.

Marvin Short, MD'62, died on October 11, 2022. He was 90. He was drafted into the U.S. Army, then released to attend medical school at the University of Texas, Galveston, as an ensign of the U.S. Naval Reserve. He joined the faculty at Duke, where he helped establish the neuropsychiatric lab and the Physician Assistant program. He was a pioneer in drug development and treatments. He led in developing a neurosurgical unit at Broughton Hospital in Morganton, North Carolina, conducted private practice in psychiatry, and developed behavioral treatment facilities and programs at facilities including Marshall Pickens Hospital, Briarwood Hospital, and Avalonia Group Homes.

Carleton A. Smith Jr., MD, HS'86, died on December 20, 2022. He was 73. He went to medical school at Wayne State University and completed his residency at Duke. He practiced anesthesiology in Albuquerque, New Mexico, and Grand Rapids, Michigan.

Daniel N. Tucker Jr., AB'55, MD'58, died on July 10, 2023. He was 90. He served as a doctor in the United States Navy and was stationed in Guantanamo Bay, Cuba during the Cuban Missile Crisis. Before leaving the Navy, he achieved the rank of lieutenant commander. Following his service, he returned to Duke for further training in allergy and immunology and then moved to Palm Beach County, Florida, to join the Palm Beach Medical Group. He practiced medicine actively until he was 85 years old and continued to see certain patients thereafter.

David Michael Waggoner, BSEE'63, MD'69, died on June 16, 2023. He was 82. He taught at Cleveland Metropolitan General Hospital and had a private practice at UH Suburban Health Center. He served as chairman of medicine at Fairview General Hospital/Cleveland Clinic, vice president of medical affairs at Hillcrest Hospital/Cleveland Clinic, director for Ernst and Young, and director of MD recruitment for Cleveland Clinic Abu Dhabi. In retirement, he taught nurse practitioner students at Ursuline College and volunteered as a doctor for Good Neighbor Medical Clinic in Beaufort, South Carolina.

Thomas H. White Jr., MD'59, HS'59-'64, died on March 23, 2023. He was 89. He served in private practice in Charlotte for 35 years. He served on the staff at Presbyterian and Mercy Hospitals and the Carolina Medical Center. He was a member of the American College of OB-GYN, American Board of OB-GYN, Charlotte OB-GYN Society, American Medical Association/North Carolina Medical Society, and the Bayard Carter Society of OB-GYN, where he served as president. At Presbyterian Hospital, he was chief of staff, chairman of the Credential Committee, and chairman of the Bioethics Committee, which he helped form.

Jack Williams, AB'60, MD'65, HS'68-'72, died on February 28, 2023. He was 84. At Duke he was a member of Phi Beta Kappa, Delta Phi Alpha, and Phi Delta Theta. He served as a U.S. Air Force medical officer in France and Turkey. He had a private practice in Shelby, North Carolina, and served in roles including chief of staff and chief of surgery at Cleveland Regional Medical Center. He was his Duke University School of Medicine class agent for over 50 years and served as president of the Davison Club. In 1991 he received the Charles A. Dukes Award for outstanding volunteer service to Duke.

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Symposium Celebrates Lefkowitz's 50 Years at Duke

CHRIS HILDRETH

Seven Nobel Prize Laureates and two former Duke chancellors were among the luminaries who gathered in Page Auditorium Oct. 2-3 for a symposium to celebrate Robert J. Lefkowitz, MD's 50 years at Duke.

Lefkowitz has been on the faculty at Duke University School of Medicine since 1973, conducting pioneering research that has changed the landscape of medicine, mentoring more than 200 trainees, and becoming Duke University's first Nobel Prize winner, when he and **Brian Kobilka, MD, HS'84-'87,** a former postdoctoral fellow in his lab, were jointly awarded the 2012 prize in chemistry.

duke.is/Lefkowitz50

Produced by Duke Health Development and Alumni Affairs, 2023. 22-0573