



The New Clinical

AI From the ED to the radiology suite, alumni physicians explore how artificial intelligence is reshaping care—and why judgment, guardrails, and education matter more than ever. *BY RENEÉ G. LEVY*

In an emergency department in Connecticut, a physician listens as his patient describes chest pain. In the background, an algorithm is already drafting the clinical note.

In Illinois, a radiologist opens a scan—and before he has even reviewed the images, software has flagged a potentially life-threatening abnormality.

In Washington, DC, a medical technology consultant stands before a room of attorneys and asks a question that leaves them uneasy: Who is responsible when an AI-guided medical decision goes wrong?

Artificial intelligence in medicine is no longer theoretical. It is infrastructure—embedded in documentation systems, imaging platforms, analytics dashboards, and decision-support tools. For alumni physicians working with new technology, AI represents both extraordinary acceleration and urgent responsibility.

Across specialties, their message is consistent: AI is rewriting the practice of medicine, but it doesn't replace physicians.



Partner:



A TOOL, NOT A REPLACEMENT

For Sarah Matt, MD '08, MBA, artificial intelligence isn't a futuristic threat or a magic cure-all. It is something far more practical. It's a tool—powerful, promising and potentially transformative—but only when used with intention.

"AI is not going to be replacing doctors," she says. "Doctors that use AI in a proper way are going to be replacing those who don't."

Trained as a surgeon, Dr. Matt has spent her career at the intersection of clinical care and health technology, from electronic health records and cloud infrastructure to digital strategy and the development of remote robotic surgery. She has watched waves of innovation crest and break, often with equal parts hype and frustration. Her view of AI is pragmatic: start with the problem, not the product.

"The best way to consider AI is first recognizing what problems you're trying to solve," she says.

Without a clearly defined use case—reducing documentation burden, improving diagnostic support, streamlining care coordination—AI risks adding friction rather than relieving it. Tools that require extra logins, duplicate documentation or new administrative steps are not transformative, she argues. They add more workload.

Sarah Matt, MD '08, MBA, is a health technology strategist focused on using digital tools to expand access to healthcare.

She points to ambient listening tools that generate clinical notes as one of today's most visible applications. These systems can reduce after-hours charting and mitigate burnout—but only if they integrate seamlessly into workflow.

She also urges physicians to understand AI's limits. An AI diagnostic tool may flag a potential condition, but clinicians must interpret that suggestion within a broader clinical picture. "The limitations are that AI only has the context that it's been given," she says.

The real skill lies in knowing when to rely on AI output—and when to question it.

For Matt, education is the fulcrum. Medical training must move beyond warning students about "Dr. Google" and toward teaching responsible AI use: understanding how models are trained, where bias may enter, and where guardrails belong. AI, she believes, should expand access and equity—not widen disparities.

Building inclusive tools requires intentional design, thoughtful governance, and ongoing human oversight, says Matt. "When aligned with real clinical needs and patient realities, AI can reduce friction, expand reach, and return time to what matters most: the patient-physician relationship."





Matthew Kuhn, MD '82, using a telescope in his backyard in Illinois. Dr. Kuhn's interest in AI links back to his use of computational tools while studying astronomy as an undergraduate.

SEEING WHAT THE HUMAN EYE CAN'T

Long before artificial intelligence became a buzzword, neuroradiologist Matthew J. Kuhn, MD '82, was already experimenting with computational imaging.

Today, Dr. Kuhn serves as chief medical officer of AI Analysis, Inc., a startup focused on detecting subtle changes in serial medical images—technology designed to help radiologists spot new or evolving lesions on follow-up scans. The technology relies on algorithms that “detect and analyze abnormalities that humans cannot otherwise visualize,” operating with speed and reliability.

The company also works in synthetic contrast enhancement for MRI and CT, potentially allowing physicians to reduce contrast dosing while maintaining diagnostic quality. For patients with renal risk or repeated imaging needs, that reduction could be significant.

Kuhn's interest in AI dates back to his undergraduate days at Binghamton University, where he studied astronomy and the computational tools used to detect distant stars and planets. During his radiology residency at Mount Sinai Beth Israel, he had a realization: “some of those tools used to study space could be repurposed for medical imaging,” he recalls.

The same mathematical principles used to identify faint celestial bodies could be applied to subtle abnormalities within the human brain.

UPSTATE LAUNCHES AHEAD CENTER FOCUSED ON AI AND HEALTH EQUITY

Upstate Medical University is taking a major step into the future of medicine with the creation of the AI for Health Equity, Analytics, and Diagnostics (AHEAD) Center—a new interdisciplinary hub designed to harness artificial intelligence to improve patient care while confronting disparities in health outcomes.

AHEAD is designed to advance both innovation and equity.

The center will focus on:

- Developing clinically useful AI algorithms to enhance patient care and improve the experience of providers, students and staff
- Designing novel, transdisciplinary AI architectures to address pressing clinical and research challenges
- Expanding AI education and training for medical, nursing, and graduate students, as well as residents and interns
- Ensuring AI applications in healthcare are equitable, inclusive and ethically grounded
- Engaging the community through public education about AI's role in medical research and care
- Optimizing healthcare technologies that support clinical care, research and education

The center will draw expertise from Upstate's colleges of medicine, nursing, health professions and graduate studies. Faculty from Syracuse University's departments of humanities, bioethics, and computer science will also contribute, bringing perspectives from engineering, social sciences, and computing into the healthcare arena.

“We are coordinating multiple initiatives to advance the AHEAD Center, including supporting Upstate faculty who are interested in using AI in their research, expanding AI education, and organizing talks and meetings to facilitate collaborations across regional universities and industry partners,” says Bardia Rodd, PhD, associate director of AI Innovation, SUNY Upstate AHEAD Center.

AHEAD is also working with Upstate's colleges on curriculum offerings to prepare students and faculty to apply AI responsibly in clinical and research settings. Emphasis will be placed on real-world applications, ethical decision-making, and the responsible use of emerging technologies.



He began working with artificial intelligence as early as 1989 at the University of Illinois' National Center for Supercomputing Applications, developing applications on the Cray-2 supercomputer for neuro-radiology databases. In many ways, he was building AI infrastructure decades before it entered mainstream clinical conversation.

Today's tools are far more sophisticated—and faster. In clinical practice in Peoria, Illinois, Kuhn uses AI-powered systems that triage stroke with perfusion CT and flag pulmonary emboli or intracranial hemorrhage from a patient worklist before a human has even opened the study.

For Kuhn, the power of AI lies in acceleration.

In one striking case, a 20-year-old postpartum woman presented with chest pain. A CT angiogram was performed to rule out pulmonary embolism. The AI confirmed normal pulmonary arteries but flagged a subtle coronary artery dissection that required urgent attention.

Kuhn says working at the intersection of medicine and AI provides a glimpse into the future of medicine. "The field is rapidly changing," he says. "We are working in a remarkable space with exciting teams from many different disciplines."

As long as AI remains focused on improving quality and patient care, he is optimistic. Pattern recognition may be augmented by machines, but empathy and judgment remain human.

"With the addition of AI, I would hope that physicians are even more able to offer kindness, compassion and warmth to their patients," he says.

THE ALGORITHM IN THE ROOM

On a busy shift in the emergency department, Peter T. Porrello, MD '97, MBA, moves between rooms at a relentless pace. Chest pain. Abdominal pain. A medically complex elderly patient. The cognitive load is enormous.

And quietly, AI is working alongside him.

Dr. Porrello, an emergency physician at Danbury and New Milford Hospitals and clinical assistant professor at the University of Vermont College of Medicine, has integrated AI into both the clinical and operational sides of his practice.

In the exam room, his department uses the Oracle Clinical AI Agent to generate documentation from recorded patient encounters (with consent). The system drafts structured sections—history of present illness, review of systems, physical exam, and medical decision-making—directly into the electronic medical record, where Porrello reviews and edits them.

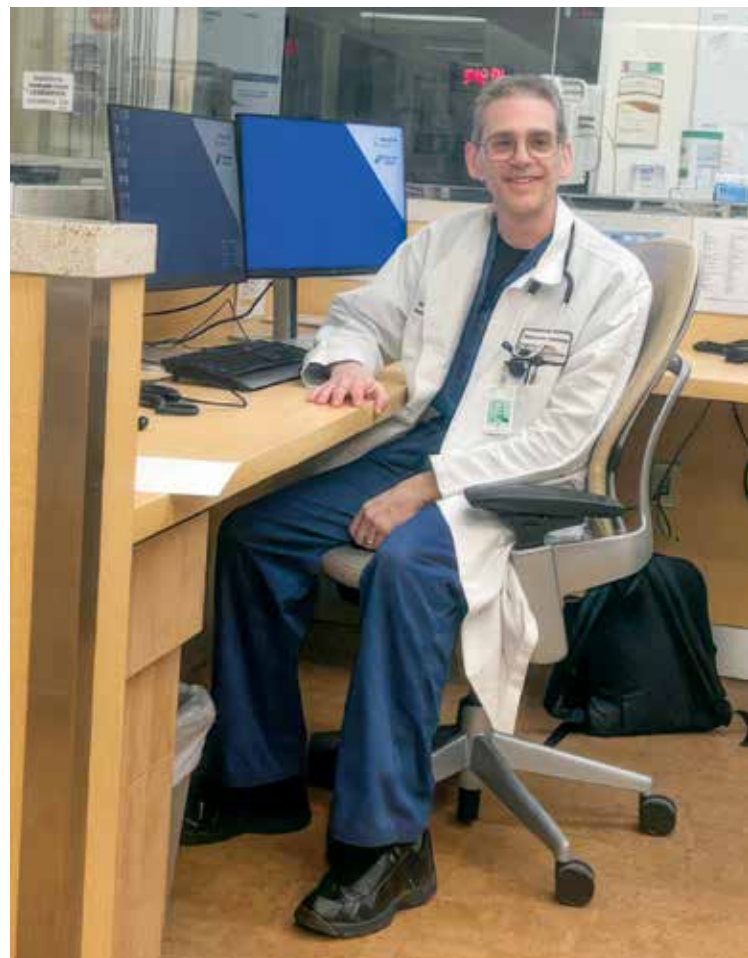
"The most immediate impact has been on documentation workflow," he says.

Less typing means more listening. More eye contact. More attention directed at the patient instead of the screen.

But the tool requires vigilance. "While errors are rarely egregious, in medicine, plausibly incorrect information can be more dangerous than obviously incorrect information, because it may go unnoticed," he says.

When AI output conflicts with clinical judgment, the physician's judgment prevails. AI is a draft assistant—not a decision-maker.

Beyond documentation, Porrello uses AI-enhanced reference platforms such as OpenEvidence to refine differential diagnoses and treatment plans. In modern emergency medicine—where patients arrive with extensive medical histories and layers of electronic



Peter T. Porrello, MD '97, has integrated AI into both the clinical and operational sides of his practice in the emergency department of his hospitals.

TRAINING TOMORROW'S DOCTORS FOR AN AI-DRIVEN FUTURE

As artificial intelligence rapidly reshapes clinical practice, educators at Upstate's Norton College of Medicine are rethinking how best to prepare tomorrow's physicians—not by turning them into computer scientists, but by teaching them how to think critically about tools that are evolving rapidly.

For Sriram Narsipur, MD, assistant dean of undergraduate medical education, the central challenge is keeping up with constantly evolving technology. Traditional medical curriculum is built around relatively stable foundations—basic sciences and how different body systems work. “AI is a completely different animal,” he says. “Everything is happening so fast that we can't make it a class because technology becomes outdated between conception and implementation.”

Instead, the Norton College of Medicine is weaving AI concepts throughout existing coursework. One key strategy is integrating AI into simulated clinical encounters. Students work through a series of online patient cases designed to mirror real-world diagnostic challenges. Within those exercises, they explore not only how AI might assist with diagnosis or treatment recommendations, but also the broader implications of relying on such tools.

Importantly, the focus is not on building algorithms. “We're consciously staying away from the computer science part of it,” Narsipur says. He likens AI to a CT scanner: physicians may not understand the engineering behind it, but they must know how to interpret results responsibly and effectively in patient care.

One practical concept now entering the curriculum is “prompt engineering”—the art of asking AI the right question. Patients increasingly consult AI tools before seeing a doctor, often returning with printouts or screenshots. The quality of the answer depends heavily on how the question is framed. Teaching students to be specific and intentional in the information they provide to AI systems is becoming a core skill. That training appears in health systems science modules and clinical communication exercises, where students learn to articulate findings clearly—both for patients and for digital notetaking systems that may be “listening.”

“By the time students graduate, there may be AI charting systems that are also ‘watching,’ but for now, we are teaching



Sriram Narsipur, MD, assistant dean of undergraduate medical education

students to be intentional about verbalizing what they are doing. “I'm going to take your blood pressure now,” he offers as an example.

Ethics and legality, however, sit at the center of the conversation. Who is responsible if a physician follows AI advice and a patient suffers harm? What if a physician ignores an AI recommendation and a bad outcome occurs? “We don't know the answers to that,” Narsipur acknowledges. These questions are embedded in case discussions to sensitize students to the professional and legal gray zones they will likely encounter.

Bias and data limitations are also part of the dialogue. AI systems are trained on published data, which may underrepresent certain populations. For example, dermatologic images have historically focused on white skin, potentially limiting

diagnostic accuracy in patients of color. Students are taught to vet AI-generated information carefully and to recognize what the technology does not know—unpublished research studies, decades of clinical experience, or subtle nonverbal cues from a patient.

Upstate students are permitted to use AI tools during clinical rotations within established guidelines. Prohibiting AI use, Narsipur argues, is neither realistic nor productive. “Students entering medical school today have already been using AI tools throughout college,” he says. “In some cases, they are more adept with AI than the faculty teaching them.” That generational shift presents both a challenge and an opportunity. Rather than positioning faculty as sole authorities, the curriculum invites open discussion, allowing students to share AI experiences while grounding those conversations in clinical judgment and professional responsibility.

Through collaboration with Upstate's new AHEAD Center and by drawing on educational resources from peer institutions, the Norton College of Medicine aims to remain nimble in its approach to AI. The goal is not to deliver definitive answers about a moving target, but to cultivate adaptable, ethically grounded physicians. As Narsipur puts it, while the tools will evolve, “we're the humans that have to deal with the ethics and legality.” In an era of accelerating technology, that human responsibility remains constant.

data—AI serves as what he describes as a “data-collation and summarization engine,” compressing large volumes of information into digestible formats.

As an administrator, Porrello is currently the only physician in his hospital actively integrating AI into operational analytics. He uses it to assist with data extraction, Excel formula construction, trend analysis, and report generation. What once required hours of manual spreadsheet work can now be drafted rapidly, allowing him to focus on validating results and interpreting operational significance.

That shift has produced measurable gains. By analyzing arrival patterns, throughput bottlenecks and staffing alignment, the department adjusted physician coverage during high-volume windows, improving door-to-provider times and smoothing patient flow. AI didn't independently make operational decisions; it accelerated the identification of actionable trends.

Porrello believes AI will meaningfully reshape healthcare delivery, however, cautions that its integration must be deliberate and governed responsibly. That includes training physicians against cognitive deskilling in their medical education.

“Clinical reasoning, intuition, and pattern recognition develop through repetition and deliberate practice,” says Porrello. “Overreliance on AI could erode those foundational skills if not balanced carefully.”

Medical education, he argues, must teach not only how AI works—but how it fails. Understanding algorithmic bias, data limitations and hallucination risk is essential. AI literacy must include critical appraisal, not blind adoption.

Ultimately, he says, AI is a tool. “Physicians must remain accountable for patient care, exercise independent judgment, and ensure that technology serves the patient—not the other way around.”



As an applied technology advisor, Dave Prakash, MD '03, is helping health systems and federal agencies implement AI responsibly.

GUARDRAILS NEEDED

When Dave Prakash, MD '03, MBA, addressed a meeting of the American Bar Association, he posed a question that exposed the system's uncertainty: What happens when a physician follows AI advice and harm occurs? And what happens if they override it—and are wrong?

“The legal system hasn't caught up,” he says. “We haven't clearly defined the boundary between product liability and physician liability.”

As AI becomes more embedded in care delivery, physicians face what he calls an uneasy dilemma about responsibility. “Right now, the liability almost always falls back on the clinician,” he says. That ambiguity, he argues, must be clarified as tools move closer to the bedside.

A former Air Force physician and pilot, Prakash now serves as an applied clinical technology advisor at Booz Allen Hamilton, helping federal agencies and health systems implement artificial intelligence responsibly.



His role spans infrastructure, policy, and governance. “You cannot simply purchase and deploy AI without first having people, processes, and technology in place to ensure the AI is performing safely and ethically,” he says.

He is deeply involved with the Coalition for Health AI (CHAI), a collaboration among academic medical centers, industry leaders, and health systems working to establish standards for responsible AI in healthcare. Through that work, he has helped develop AI governance playbooks and policy frameworks designed to guide hospitals in evaluating tools for accuracy, bias, privacy protections, and appropriate use. “We need structured ways to evaluate these models,” he says, arguing that physicians should treat AI evaluation much like a journal club—critically assessing training data, performance metrics, and applicability to their own patient populations before deployment.

One of Prakash’s chief concerns is misplaced trust. Large Language Models (LLMs) are widely used by clinicians and patients alike, yet research shows error rates in healthcare contexts “anywhere between 35 to 68 percent,” he says. In addition, sensitive patient information is routinely entered into public systems. He also points to automation bias—the tendency to accept algorithmic recommendations without fully engaging one’s own clinical reasoning, similar to the way people have become dependent on using GPS, even in familiar areas.

Yet Prakash remains energized by AI’s transformative potential. He envisions a shift from hypothesis-

driven science—where breakthroughs depend on what a physician believes might work—to data-driven discovery, where algorithms analyze billions of variables and outcomes to identify causal relationships humans would never imagine.

In one project, his team used large-scale insurance data to match patients with Type 2 diabetes to therapies that proved most effective for clinically similar individuals—potentially eliminating years of trial-and-error prescribing.

Yet even the most promising technology must contend with the reality of a reimbursement-driven industry. Many AI tools depend on CPT codes or payer approval to gain traction in clinical practice, regardless of their clinical value. Hospitals may invest in AI systems that promise efficiency only to discover they do not meaningfully bend the cost curve. Technology can add layers of oversight and administrative burden before it subtracts labor.

Prakash describes AI procurement as a “three-way tug of war” inside hospitals between buyers, users, and beneficiaries. If physicians remain passive, business incentives may dominate. Doctors, he argues, cannot afford to treat technology as someone else’s domain. They must understand it, question it, and help shape it.

“Doctors need to have a voice,” he says.

By bringing clinical judgment, ethical clarity, and patient-centered priorities to the table, “AI can become not just a powerful tool, but a principled extension of medicine itself.” ■

