

In radiology, AI is blurring the line between technology development and clinical practice

Owning a practice, startups say, helps them perfect their technology by deploying it in house

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Sept. 24, 2026

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A decade ago, machine learning scientist and Nobel laureate Geoffrey Hinton made a proclamation that still puts radiologists on edge.

“If you work as a radiologist,” the so-called godfather of artificial intelligence said at a conference, “you’re like a coyote that’s already over the edge of the cliff, but hasn’t yet looked down.” Deep learning was getting so good, so fast, said Hinton, that “people should stop training radiologists now.” In five years — ten, max — AI would do better than radiologists, he predicted.

The clock has run out on that prediction. But the field of radiology isn’t just staring at its shoes, waiting to see how technology upends the profession. Instead, a growing number of radiology practices, in particular outpatient and teleradiology groups, are aggressively embracing AI: developing and acquiring their own tech, deploying it in-house, and marketing their “AI-native” capabilities to radiologist employees and hospital customers alike.

The clinical practice of radiology and technology development are converging on many planes. Large, private equity-backed radiology practices like Radiology Partners have tech arms building and deploying their own diagnostic vision-language models. AI tech developers like [Harrison.ai](#) are supporting the creation of affiliated radiology practices. And Silicon Valley startups, including one in the latest Y Combinator batch, are launching with the intent to build AI-centric radiology practices.

Collectively, their case is similar. The field of radiology *has* developed and adopted more AI than many clinical specialties. But the technology has largely been tacked on, piece by piece, to existing systems, blunting its impact. Meanwhile, Americans are getting more medical imaging, and radiologists' ranks aren't growing fast enough. To keep up and make the most of AI, these companies say it needs to be integrated into clinical practice from the ground up.

“The reason I think this is happening is, if you look at what are the raw materials for AI, you need data, you need compute, you need AI expertise, and you need a kind of a test bed,” said radiologist Curt Langlotz, who directs of the Center for Artificial Intelligence in Medicine and Imaging at Stanford. Clinical practices have the data and the test bed. Bring in the AI expertise and compute, he said, “and it makes for a pretty good recipe for building AI.”

But as radiology practices lean into AI, it's not a given that the strategy will pay off — for patients or their businesses. Evolving regulation of generative AI in medical devices could impact deployment. And while administrative AI to help radiologists dictate their reports has demonstrated some ability to improve radiologists' job satisfaction and speed, many AI devices that help them detect and diagnose from images have not yet proven they can improve patients' health at the population level.

“I'm comfortable treating ‘AI native’ as a statement of design intent. I'm much less comfortable treating it as evidence of quality,” said Woojin Kim, chief strategy officer and chief medical information officer at AI radiology company HOPPR, and chief medical officer at the American College of Radiology Data Science Institute. “The practice still has to show the benefit.”

Starting from a clean slate

In September, a new radiology practice called Epsilon Health launched out of stealth with \$27.6 million in funding and an ambitious goal. “We do want to grow the largest practice in the country,” said founder Rustin Rassoli, and they want to do it by incorporating AI. Over the course of a

year, they've recruited about 50 radiologists to evaluate X-rays for customers.

"By owning the practice, we have the opportunity to improve many, many different angles of the process," said Rassoli, who graduated in 2020 with a math and computer science bachelor's degree and grew up with a radiologist father. Rassoli declined to share exactly what AI the practice is building and deploying. But he described how technology can help identify imaging mistakes — missing views, mislabeled patient information — before they reach a radiologist, so they don't have to interrupt or delay reading to correct them.

A month earlier, another San Francisco-based startup made a similar pitch when it announced it was acquiring a radiology practice: Y Combinator-backed Radley, founded by former Carbon Health co-workers. "Instead of building AI on top of legacy software, we're redesigning every part of the operation," co-founder Seak Meng Lay said in a launch [video](#), promising to increase capacity "without adding headcount" by using technology for scheduling, credentialing, and radiology report drafting.

Instead of focusing on the promise of AI to improve clinical decision-making, these pitches center on radiologists' efficiency — a need made more pressing by the field's workforce shortage.

Practicing as a radiologist today is like "drinking from a firehose," said Josh Ewell, founder of Frontier Radiology, which launched late last year in partnership with Harrison.ai, which has several radiology AI devices cleared by the Food and Drug Administration. He wanted to build a practice that allowed radiologists to return to their role as active clinical consultants for referring providers, rather than simply signing off on reports. It operates, like Epsilon, as a teleradiology practice, reading images remotely for customers that need to increase their own capacity.

Ewell recounted a time he spent three hours trying to track down a patient to report signs of pulmonary embolism that could kill him overnight. "If it's something that an assistant could do or an AI could do, like track down the right person to call," he said, "that's where we really start to generate time savings."

Helping radiologists do more

The pressure to deliver timely reads is real, but it's not particularly new. What is new — and likely contributing to the trend in AI-first radiology practices — is the potential for foundation models to make a significant impact on the administrative and workflow problems that eat up radiologists' time.

With the advent of large language models, it's now easy to build an AI to assist with all the administrative work of radiology, outside of actual image interpretation: "Scheduling, protocoling, priors, reporting, communication, and follow-up all shape whether AI helps," said Kim.

Generative AI is also finding its way into the work of interpretation. Machine learning forms the basis of hundreds of FDA-authorized image-reading algorithms that help radiologists triage and read X-rays and CT scans. But today, said Kim, "AI can now assist with a much broader range of tasks than a single finding on a single exam, thanks to advances in foundation models and agentic AI."

Several AI-first startup practices pitch vision-language models that automatically draft radiology reports directly from images as part of their strategy, bridging core clinical and administrative tasks for radiologists. HOPPR sells tools for radiology practices to integrate these kind of models into their reporting workflows. But it's also technology that large, incumbent radiology practices are developing and deploying in-house.

Nina Kottler, chief medical AI officer for Mosaic Clinical Technologies, the tech arm of Radiology Partners, first noticed groups presenting on foundation models at radiology conferences in 2023. By the end of 2025, the large practice had acquired a Stanford researcher-founded company, Cognita Imaging, that was building draft reporting models for X-rays and CT scans.

Startup founders look at existing practices working to incorporate AI and see their history as a hindrance. "There's a ton of baggage both on the technology side, but on the ops side and on the training side," said Epsilon's Rassoli. But the incumbents' leaders see power in the scale they've built.

Mosaic is working quickly toward FDA authorization, capitalizing on its thousands of employed radiologists to refine and test the technology as part of an IRB-approved trial. “We are basically deploying AI into a clinical practice, and that AI is pre-drafting a radiology report,” said Kottler. “The radiologist on every single one of those cases is then changing anything they think is wrong. That’s reinforcement learning.”

The large outpatient radiology provider RadNet has used a similar feedback loop since 2020. It has acquired several radiology AI companies and incorporated their FDA-cleared interpretation tools into its more than 400 outpatient imaging centers, while continuing to sell them externally.

By owning that technology, “we have immediate impact at RadNet,” said Sham Sokka, chief operating and technology officer at the company’s DeepHealth digital health subsidiary. But in the longer term, taking acquired tech “through the crucible of a large practice like RadNet” helps DeepHealth build better AI products to commercialize. Today, he said, the company is applying the same internal development process to draft reporting tools, too, while incorporating AI agents into the same scheduling and administrative workflows that plague every practice.

Silicon Valley in a highly-regulated market

While RadNet and Radiology Partners are building AI on two trajectories — for themselves and for the larger market — that’s not everyone’s plan. Some startups hope that they’ll gain enough efficiency from deploying AI tools that they won’t need to sell their products to make money.

Over the last decade, radiology has seen that the hard part about AI isn’t development: It’s integration. Dozens of radiology AI startups have folded as they tried and failed to make a business out of selling their FDA-cleared technologies hospital by hospital and outpatient practice by outpatient practice.

“The investment thesis behind these integrated models is that controlling more of the clinical and operational workflow allows companies to capture more of the value AI creates,” said Kim.

Langlotz recognizes the potential for startup practices to avoid some of the troublesome work of technology integration by starting with a clean slate. At the same time, he said, “Silicon Valley founders making their first move into health IT doesn’t have a great track record.” Health care is a highly regulated industry, both when it comes to the practice of medicine and the devices doctors use. And those regulations are particularly in flux when it comes to clinical AI.

Not all of the technology being used by AI-native radiology practices is regulated as a medical device by the FDA. Popular dictation products powered by large language models, for one, help radiologists write and format their reports. They’re administrative, not diagnostic.

But the FDA is in the process of determining how it will regulate medical devices — those that are involved in the diagnosis, cure, or prevention of disease — that use generative AI. In August, the agency, caught between the need to ensure the safety of a new technology and an administration that doesn’t want to bog down AI development with burdensome regulation, released a discussion paper that laid out a potential regulatory framework.

The industry is hoping for clarity as quickly as possible — including when AI tools are regulated at all. The FDA regulates medical devices when they’re commercially distributed, and exempts devices from registration when licensed practitioners manufacture devices “solely for use in their practice.” But “where the line falls between a practice using its own tools and a company selling a medical device is being actively debated right now,” said Kim. Mosaic recently petitioned the FDA for more clarity into how it will regulate diagnostic vision-language models, including the scope of the exemption for the practice of medicine.

The next several years will start to reveal whether radiology practices that build and implement their own AI-centric workflows can deliver on their financial and clinical promise. For that to happen, the tech deployed by a practice needs to be accurate, efficient, and useful enough to make radiologists want to keep using it.

If technology does help radiologists save time, then they’ll have to decide what to do with it. “If I was reading 30 cases in an afternoon before I had these tools, now I can read 30 cases and be done earlier and get home

and have dinner with my family,” said Langlotz. “Or I can read 40 cases and I can improve the income of my practice because we’re doing more work and earning more reimbursement.”

How much capacity improvement a practice can eke out — without downgrading clinical performance or simply offloading work to others — will inform how successful it is. The economics aren’t straightforward, said Kim: Even if you’re building it yourself, it’s expensive to build and implement AI workflows, including the monitoring systems to ensure their performance.

“The test,” said Kim, “is whether the business still works if AI delivers modest gains rather than dramatic ones.”