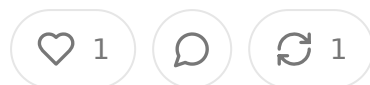


The Hospital AI Adoption Reality Check What the Data Actually Tells Us About Market Timing and Competitive Moats

DEC 14, 2025 • PAID



Share

DISCLAIMER: The views and opinions expressed in this essay are solely my own and do not reflect the views of my employer.

If you are interested in joining my generalist healthcare angel syndicate, reach out at trey@onhealthcare.tech or send me a DM. Accredited investors only.

Table of Contents

Abstract

Introduction: The Survey That Changes Everything

The Adoption Curve Nobody Expected

The Epic Problem (Or Opportunity, Depending on Your Portfolio)

The Evaluation Paradox

What This Means for Seed Stage Bets

The Independent Hospital Trap

Following the Money: Operating Margins and Medicaid Mix

The Fast Follower Phenomenon

Where the Real Opportunities Hide

Implications for Portfolio Construction

Conclusion: Timing Is Everything

Abstract

A December 2024 JAMA Network Open study surveying 2,174 US hospitals reveals that 31.5% currently use generative AI integrated with their EHR and another 24% plan to adopt within a year. This represents one of the first systematic analyses of hospital-level AI deployment and the findings challenge several prevailing assumptions in health tech investing. Key insights include: Epic users are 21.9 percentage points more likely to adopt AI than Oracle users, suggesting significant platform moat advantages. Hospitals conducting comprehensive AI evaluation are slower to adopt than those with minimal validation practices, raising questions about deployment safety and vendor accountability. Independent hospitals and those serving high Medicaid populations lag substantially in adoption, creating a digital divide that may widen. The research provides quantitative evidence for several investment theses while invalidating others, with direct implications for both early-stage venture building and growth-stage expansion strategies.

Introduction: The Survey That Changes Everything

So here's something you don't see every day in healthcare research. Actual data. Not vendor case studies, not consultant projections, not some breathless conference presentation where everyone agrees AI will change everything but nobody can quite explain how. This is a proper survey of 2,174 nonfederal acute care hospitals with a 51.5% response rate, weighted to reflect the full population, published in JAMA Network Open. It's the kind of study that makes you recalibrate your entire mental model of what's actually happening in the market versus what everyone's been saying at pitch meetings.

The timing matters. This survey hit the field in April through September 2024, which means it captures the market right around when everyone started taking generative AI seriously for clinical workflows. Not the hype cycle of late 2022 when ChatGPT launched, not the trough of disillusionment that followed, but the actual deployment phase when health systems had to decide whether to write checks and change workflows.

And the headline number is wild. More than half of US hospitals either currently have generative AI integrated with their EHR or plan to within a year. That's not "pilot" or "exploring" or any of the other weasel words we're used to hearing. That's actual implementation with integration into clinical workflows. For context, that's faster adoption than we saw with basically any other healthcare IT innovation in recent memory.

But the really interesting stuff is in the details. Who's adopting, who isn't, and why, which tells us about where to deploy capital.

The Adoption Curve Nobody Expected

The researchers broke hospitals into three buckets. Early adopters at 31.5% who are already using generative AI in 2024. Fast followers at 24.7% planning to use it within a year. And delayed adopters at 43.7% who either had vague plans more than a year out, no plans, or didn't know. That last category is fascinating because it includes 32% of hospitals that flat out said they have no plans to use generative AI. Not "we're thinking about it," not "we're waiting for more evidence," just no plans period.

This distribution doesn't match the Rogers adoption curve that everyone loves to use in pitch decks. The gap between early adopters and delayed adopters is too large to ignore; it's driven by structural factors rather than just innovation appetite. Which matters a lot if you're trying to figure out total addressable market for your portfolio companies.

The predictive AI correlation is strong and makes intuitive sense. Hospitals using machine learning models integrated with their EHR were 26.2 percentage points

likely to be early adopters or fast followers of generative AI compared to hospitals with no predictive AI experience. That's a massive effect size. It suggests that organizational capability and infrastructure matter way more than we typically account for in market sizing. You can't just multiply the number of hospitals times your per-hospital pricing and call it TAM. The actual addressable market is probably 30 to 40% smaller because a meaningful chunk of hospitals fundamentally lack the capacity to be customers anytime soon.

But here's where it gets weird. Among hospitals that do use predictive AI, those reporting all three evaluation practices (accuracy testing, bias evaluation, and post-deployment monitoring) were actually 12.1 percentage points less likely to be early adopters compared to hospitals reporting just one evaluation practice. Read that again. The hospitals doing the most rigorous validation work are slower to adopt AI tools. The hospitals doing minimal validation are faster to deploy.

This is either very good or very bad depending on whether you're a patient or a shareholder. From an investment perspective, it means early traction metrics might overweight customers with weaker governance, which could create downstream issues. From a societal perspective, it means we're potentially deploying powerful tools fastest in the organizations least equipped to validate them.

The Epic Problem (Or Opportunity, Depending on Your Portfolio)

Let's talk about the elephant in the data. Epic users were 21.9 percentage points more likely to be early adopters or fast followers than Oracle Cerner users. That's the reference category, so let's extend it. Epic vs Meditech shows an even larger gap. Epic vs CPSI is basically a different universe. Nearly half of Epic users (48.8%) were early adopters compared to 15.6% of Oracle users and 3% of CPSI users.

This isn't just vendor preference. This is platform lock-in manifesting as a competitive moat in the AI layer. If you're building an AI tool for hospitals, your motion has to account for the fact that 52.3% of hospitals use Epic and those hospitals are 3x more likely to adopt AI than non-Epic users. Which means one of two things

Either you build deep Epic integration and accept that you're playing in their ecosystem, or you focus on the other 47.7% and accept much slower adoption curves and smaller deal sizes.

The data shows hospitals using predictive AI from their EHR vendor were 22.4 percentage points more likely to be early adopters of generative AI than hospitals using models only from other sources. This suggests customers prefer integrated solutions from vendors they already trust over best-of-breed point solutions. That's the exact opposite of what most health tech founders want to hear but it's what the data shows.

For early stage investors, this creates a dilemma. Do you back companies building on top of Epic's platform where distribution is easier but you're subject to their roadmap and pricing power? Or do you back companies trying to displace Epic workflows where the market is bigger but adoption is glacial? The middle path of "Epic integration plus our special sauce" might be the worst of both worlds since Epic can just copy your features.

There's another angle though. Epic's dominance in driving AI adoption means they're effectively setting the standard for what hospital AI looks like. If Epic's tools are mediocre but widely deployed, that creates an opening for better products that can demonstrate clear ROI advantages. The hospitals that are fast followers rather than early adopters might be the sweet spot since they have capability but haven't locked into Epic's AI suite yet.

The Evaluation Paradox

Back to this evaluation thing because it's genuinely concerning. Among hospitals using predictive AI, only 65.6% reported evaluating most or all models for accuracy using their own patient data. Only 52.9% evaluated for bias. Only 53.3% conduct post-deployment monitoring. And remember, these are hospitals that are sophisticated enough to use predictive AI in the first place. The hospitals jumping straight to generative AI without that background are presumably doing even less validation.

The researchers created a count variable for evaluation practices and found that of hospitals reported zero evaluation practices. Zero. Another 9.7% reported one practice, 11% reported two practices, and 46.7% reported all three. That's a bimodal distribution. You've got hospitals that take validation seriously and hospitals that don't bother at all, with relatively few in the middle.

Here's the kicker. Hospitals reporting one evaluation practice were 23.3 percentage points more likely to be early adopters or fast followers than hospitals reporting no practices. Makes sense, you need some baseline competency. But then hospitals reporting all three practices were 12.1 percentage points less likely to be early adopters compared to those with just one practice. The most rigorous validators are the slowest adopters.

From a venture perspective, this creates a timing problem. If you're selling AI to hospitals, your early customers are likely to be the ones with weaker validation processes. That's fine if the product actually works, but it creates risk if there are edge cases or failure modes you haven't discovered yet. Your early reference customers might not catch problems until they're deployed at scale.

Conversely, if you're targeting the hospitals with strong evaluation practices, expect longer sales cycles and more stringent validation requirements. But those customers might be stickier and less likely to churn when competitors show up. The fast followers who are waiting to see proof before deploying might actually be better long-term customers than the early adopters who deploy on vibes.

There's also a signaling issue. If hospitals with robust AI governance are slower to adopt your product, what does that tell you about product-market fit versus regulatory/safety concerns? It might mean your product is great but needs better documentation. Or it might mean the sophisticated buyers are identifying risks you haven't mitigated. Hard to tell from outside but worth digging into during diligence.

What This Means for Seed Stage Bets

If you're writing seed checks into healthcare AI companies, this data should recalibrate your TAM assumptions and go-to-market expectations. The headline number is that 56.2% of hospitals are adopting generative AI by end of 2025. But that's heavily skewed by Epic users, teaching hospitals, and well-resourced systems. If your product requires extensive integration or local validation, your realistic near-term market is probably the 31.5% of early adopters and maybe the top half of the followers.

That means instead of modeling 4,376 nonfederal acute care hospitals as your TAM, you should probably be modeling 1,500 to 2,000 realistic targets for the first few years. And those targets are concentrated. Of Epic's roughly 2,300 hospital customers, nearly half are already using generative AI. That's your highest propensity segment, but it's also where Epic has the most leverage to compete with you or acquire you.

The correlation between predictive AI maturity and generative AI adoption means you can use public data about hospitals' existing AI programs to score leads. Hospitals participating in CMS alternative payment models are more likely to be adopters (1.2 percentage points per additional APM). Teaching hospitals are 9.6 percentage points more likely to adopt than non-teaching. System-affiliated hospitals are way more likely than independent. These are all observable characteristics you can use to prioritize sales efforts.

The evaluation gap creates an interesting opportunity for picks-and-shovels play. If hospitals are deploying AI faster than they can validate it, there's a market for validation tools, bias testing frameworks, and post-deployment monitoring. That's less sexy than clinical AI but potentially more defensible since it's hard to build a moat around a clinical algorithm but easier to build one around validation infrastructure that integrates with multiple AI vendors.

The platform risk with Epic is real but maybe not fatal. Yes, Epic controls the big chunk of high-propensity customers. But 47.7% of hospitals use other EHRs, and those hospitals are adopting AI too, just slower. If you can find a wedge that doesn't require deep EHR integration or if you can build adapters for multiple EHR platforms, you can avoid Epic dependency. The hospitals using Oracle, Meditech

CPSI might be slower to buy but they're also less likely to have Epic's AI feature available, creating more urgency for external solutions.

The Independent Hospital Trap

Independent hospitals got crushed in this data. Only 16.3% of independent hospitals were early adopters compared to 38.5% of system-affiliated hospitals. Another 15% of independents were fast followers compared to 29.2% of system hospitals. That means 68.8% of independent hospitals are delayed adopters with no clear plans to implement generative AI anytime soon.

This is a bigger gap than we saw with predictive AI adoption, suggesting the resource constraints and technical barriers are even higher for generative AI. Independent hospitals likely lack dedicated IT staff, data science capabilities, and the purchasing power to negotiate favorable terms with AI vendors. They're also less likely to have the patient volume needed to fine-tune models or validate performance.

For investors, this means the community hospital market is probably not addressed for most AI products in the near term. You can't build a business selling expensive tools to hospitals that have already decided they're not buying. And even if you can get meetings, the deal sizes would be small and the support costs would be high because these hospitals lack internal expertise.

The exception might be SaaS-based solutions that require zero IT lift and deliver immediate ROI in areas like billing, coding, or administrative automation. Generative AI for prior authorization or claims appeal writing might work for independent hospitals because it directly reduces labor costs without requiring clinical integration. But anything that touches clinical workflows or requires EHR integration is probably a non-starter.

Critical access hospitals showed similar patterns. Only 24% were early adopters compared to 34.7% of non-CAH hospitals. CAHs serve rural populations and operate on thin margins, making them risk-averse buyers of new technology. They're also more likely to use smaller EHR vendors like CPSI that have less robust AI

capabilities. If your product strategy depends on CAH adoption, you need a fundamentally different approach than targeting academic medical centers.

The system affiliation effect suggests that health system IT departments are driving AI purchasing decisions rather than individual hospital CFOs or CMIOs. That changes the sales motion. Instead of selling bottom-up to department heads, you have to sell top-down to system-level executives. Longer sales cycles, more stakeholders but bigger contracts and faster multi-site rollouts once you close.

Following the Money: Operating Margins and Medicaid Mix

Here's where the data gets really interesting from a market segmentation perspective. Hospitals in the top 20% of operating margins were 5.2 percentage points more likely to be early adopters or fast followers and 5.9 percentage points more likely to be early adopters specifically. That's not a huge effect but it's directionally important. Hospitals with money adopt new technology faster than hospitals without money. Groundbreaking insight, I know.

But the Medicaid effect is larger and goes the other way. Hospitals in the top 20% of Medicaid discharge share were 4.9 percentage points less likely to adopt AI over the next 12 months and 8.9 percentage points less likely to be early adopters versus fast followers. High Medicaid hospitals are both less likely to adopt and slower to adopt when they do.

This creates a safety net problem that should concern anyone building in this space. The hospitals serving the most vulnerable populations are the least likely to adopt the tools that could theoretically improve care quality and reduce costs. That's partly due to resource constraints but it might also reflect different incentive structures. If you're operating on Medicaid reimbursement rates, investing in AI to increase patient throughput doesn't help much because you're already underwater on every patient.

From an investment perspective, this means the customer LTV distribution is highly skewed. High-margin hospitals serving commercially insured populations are going to be your whales. They have budget, they have sophisticated IT, they're willing to

new things. Safety net hospitals serving Medicaid populations are going to be much lower value customers even if you can get them to buy. Your pricing and packaging needs to account for this. Freemium models or tiered pricing based on hospital characteristics might make sense.

The alternative payment model correlation is intriguing. Each additional APM a hospital participates in correlates with 2.6 percentage points higher likelihood of being an early adopter or fast follower. APM participation signals that a hospital is trying to manage total cost of care and quality metrics, which means they're potentially receptive to tools that help with risk stratification, care coordination, and population health. If your product has a value-based care angle, targeting ACO participants or bundled payment programs makes sense.

The uncompensated care burden didn't show a statistically significant effect in the adjusted analysis, though there was a trend toward slower adoption among hospitals with high uncompensated care. That's consistent with the Medicaid story since hospitals with high uncompensated care are generally serving similar populations and operating on thin margins.

The Fast Follower Phenomenon

The 24.7% of hospitals planning to adopt within a year are arguably the most interesting segment for investors. These aren't laggards who will never buy. They're sophisticated organizations that have made a deliberate decision to wait for more evidence before deploying. And they're doing more validation work than the early adopters.

Fast followers reported higher rates of comprehensive evaluation practices (all three validation types) than early adopters. They're more likely to be government and not-for-profit hospitals rather than nonprofits. They have slightly lower operating margins than early adopters. They're less likely to get their AI from their EHR vendor and are more likely to use third-party tools.

This creates a window for startups. The early adopter market is largely captured by Epic and other EHR vendors. But the fast follower market is still up for grabs. The hospitals are waiting to see which solutions actually work before committing. If you can generate strong evidence from your early deployments, you can target fast followers with a proof-based sales motion rather than selling on vision.

The evaluation requirements matter though. Fast followers are going to want to validate data using their own patient populations. They're going to ask harder questions about bias, accuracy, and failure modes. Your sales cycle will be longer; you'll need more technical resources to support POCs and custom validation work. But the payoff is potentially better customer quality and lower churn.

There's also a competitive timing dynamic. If you're in market now with a working product, you have maybe six to nine months to lock up fast followers before they commit to EHR vendor solutions or competitors. After that, the delayed adopters are going to be much harder to convert since they're systematically different organizations with structural barriers to adoption.

The delayed adopter segment is worth understanding even if you're not targeting them. These are the hospitals that said either they have no plans to use generative AI (32%), they might use it in five years (6.7%), or they don't know (5%). The no-plan group is particularly interesting because it's not a technology adoption problem, a fundamental resource or strategic priority problem. These hospitals have decided it isn't worth the investment given their other constraints.

For a startup, trying to convert delayed adopters is probably wasted effort unless you can radically simplify deployment or prove immediate ROI that overwhelms their resource constraints. More likely, these hospitals will eventually adopt whatever solution their EHR vendor includes by default, if anything. They're not going to be early customers for point solutions.

Where the Real Opportunities Hide

So given all this, where should investors actually be looking? A few themes emerge from the data.

First, picks and shovels around AI validation and governance. The evaluation game is real and it's going to create problems. Hospitals are deploying tools they haven't properly validated, which means there's demand for validation infrastructure. That could be bias testing tools, post-deployment monitoring, incident management, regulatory compliance frameworks. Less glamorous than clinical AI but potentially more defensible and less dependent on Epic cooperation.

Second, administrative and operational use cases that don't require clinical integration. The hospitals most likely to adopt AI are using it for ambient documentation, message drafting, and coding support. These are IT-light deployments that deliver immediate productivity gains. There's probably room for more specialized tools in revenue cycle, prior authorization, claims management, and scheduling. Anything that reduces administrative burden without requiring deep EHR integration.

Third, decision support tools for the fast follower segment that can demonstrate ROI with rigorous validation. These hospitals want evidence and they're willing to pay for quality. If you can build something that passes their validation requirements and shows measurable outcomes, you can command premium pricing. Focus on use cases where clinical impact is measurable and where hospitals have existing workflows that can be augmented rather than replaced.

Fourth, infrastructure that helps smaller hospitals and independent organizations access AI capabilities they can't build themselves. The digital divide is real but it might be solvable with the right delivery model. Cloud-based, zero-integration-required tools with simple pricing could work for community hospitals if the value proposition is strong enough. Think about what Carta did for cap table management or what Gusto did for payroll but for hospital AI.

Fifth, anything that helps hospitals transition from EHR vendor AI to best-in-class alternatives. Epic's market position is strong but their AI tools are probably not

best in every category. If you can build something demonstrably better and make it easy to switch, there's a market among hospitals that adopted Epic's AI by default are open to upgrades. You need to be 10x better, not 10% better, but the opportunity exists.

What to avoid? Probably anything that requires deep clinical integration at independent hospitals or CAHs. Anything that depends on hospitals having sophisticated data science capabilities. Anything that requires extensive customization or manual configuration. And anything where Epic has announced plans to build competing features, unless you're confident you can get enough market share to become acquisition targets before they ship.

Implications for Portfolio Construction

If you're building a healthcare AI portfolio, this data suggests you need exposure to multiple adoption curves and multiple buyer segments. Putting all your capital in clinical AI for academic medical centers is going to concentrate risk in a small number of Epic-dependent companies fighting for the same early adopter customer.

Better to have some companies targeting early adopters with clinical tools, some targeting fast followers with validated solutions, and some targeting the broader market with administrative and operational tools that don't require sophisticated EHR integration vs standalone), and buyer personas (system CIOs vs department heads vs individual clinicians).

The platform risk is unavoidable but manageable. Any health tech portfolio is going to have Epic exposure because that's where the market is. But you can balance Epic-dependent companies with companies that have multi-EHR strategies or that operate in areas where Epic's features are weak. Pay attention to Epic's roadmap and price changes since those will directly impact your portfolio companies.

The evaluation and governance gap creates both risk and opportunity. Companies that help hospitals validate and monitor AI are providing essential infrastructure, but

they're also implicitly acknowledging that the AI being deployed might not be ready for prime time. That's honest but it's also potentially limiting if it positions you as a safety police rather than the innovation enabler. Frame it as quality improvement and risk management rather than compliance and you'll have an easier time selling.

The timing window matters. The fast followers are in market right now and they make purchasing decisions over the next 12 months. Companies that close these customers can build dominant market share before competitors catch up. Companies that miss this window will have to fight for delayed adopters with entrenched competitors and lower willingness to pay. So if you have portfolio companies in this space, push them on sales execution and market share capture over the next two to three quarters.

Finally, the digital divide is going to persist and probably widen. That's unfortunate from an equity perspective but it's reality from an investment perspective. The companies that win are going to be the ones serving well-resourced health systems, not the ones trying to democratize AI for community hospitals. There might be some impact opportunities in the underserved segment but the commercial returns are going to be in the top quartile of hospitals by resources and sophistication.

Conclusion: Timing Is Everything

The big takeaway from this research is that we're in the middle of a major technological transition in healthcare and the adoption curve is steeper than most people expect. More than half of US hospitals will be using generative AI by end of 2025. That's not just that's happening, that's measurable.

But the distribution of adoption is highly uneven in ways that matter for investment decisions. Epic users are adopting 3x faster than non-Epic users. Teaching hospitals are adopting way faster than community hospitals. System-affiliated hospitals are adopting faster than independent hospitals. High-margin hospitals serving commercially insured populations are adopting faster than safety net hospitals serving Medicaid populations.

The evaluation gap is concerning. Hospitals are deploying AI faster than they're building the capability to validate it. The most rigorous hospitals are slower to adopt, which might be prudent but also means the market is rewarding speed over safety in the short term. That creates opportunity for validation tools but also suggests we might see some high-profile failures as inadequately tested AI gets deployed at scale.

For entrepreneurs, the message is to know your customer segment and tailor your product and GTM accordingly. If you're going after Epic-using academic medical centers, you need deep integration and you're competing with Epic's roadmap. If you're going after fast followers, you need strong evidence and validation capabilities. If you're going after community hospitals, you need zero-IT-lift deployment and immediate ROI.

For investors, the message is that TAM estimates based on total hospital counts are probably too high and you need to segment by adoption propensity. The realistic term market for most healthcare AI products is probably 30 to 40% smaller than total hospital count suggests. But within that addressable market, adoption is happening fast and there's real money being spent.

The next 12 months are going to be critical. The fast followers are making decisions right now. The delayed adopters are entrenching or opting out. The companies that execute over the next few quarters are going to build market positions that are hard to dislodge. The companies that miss this window are going to be fighting uphill for years.

So if you're sitting on dry powder looking at healthcare AI deals, pay attention to where companies are focusing. Early adopters are largely spoken for. Delayed adopters are going to be tough. Fast followers are the sweet spot. Companies with traction in that segment and a plan to scale into the broader market are the ones worth backing.

And if you're operating a company in this space, the data tells you exactly where to focus. Target system-affiliated hospitals using Epic with strong operating margins, participating in alternative payment models. Sell to system-level IT decision-makers. Build for fast followers who want evidence but are ready to move. Avoid independent hospitals.

hospitals and CAHs unless you have a radically different deployment model. And whatever you do, ship fast because the window is closing.

The AI revolution in healthcare is happening. It's just happening unevenly, predictably, and in ways we can measure and understand. That makes it investable. And that's the whole point.



1 Like • 1 Restack

← Previous

Next →

Discussion about this post

Comments

Restacks



Write a comment...