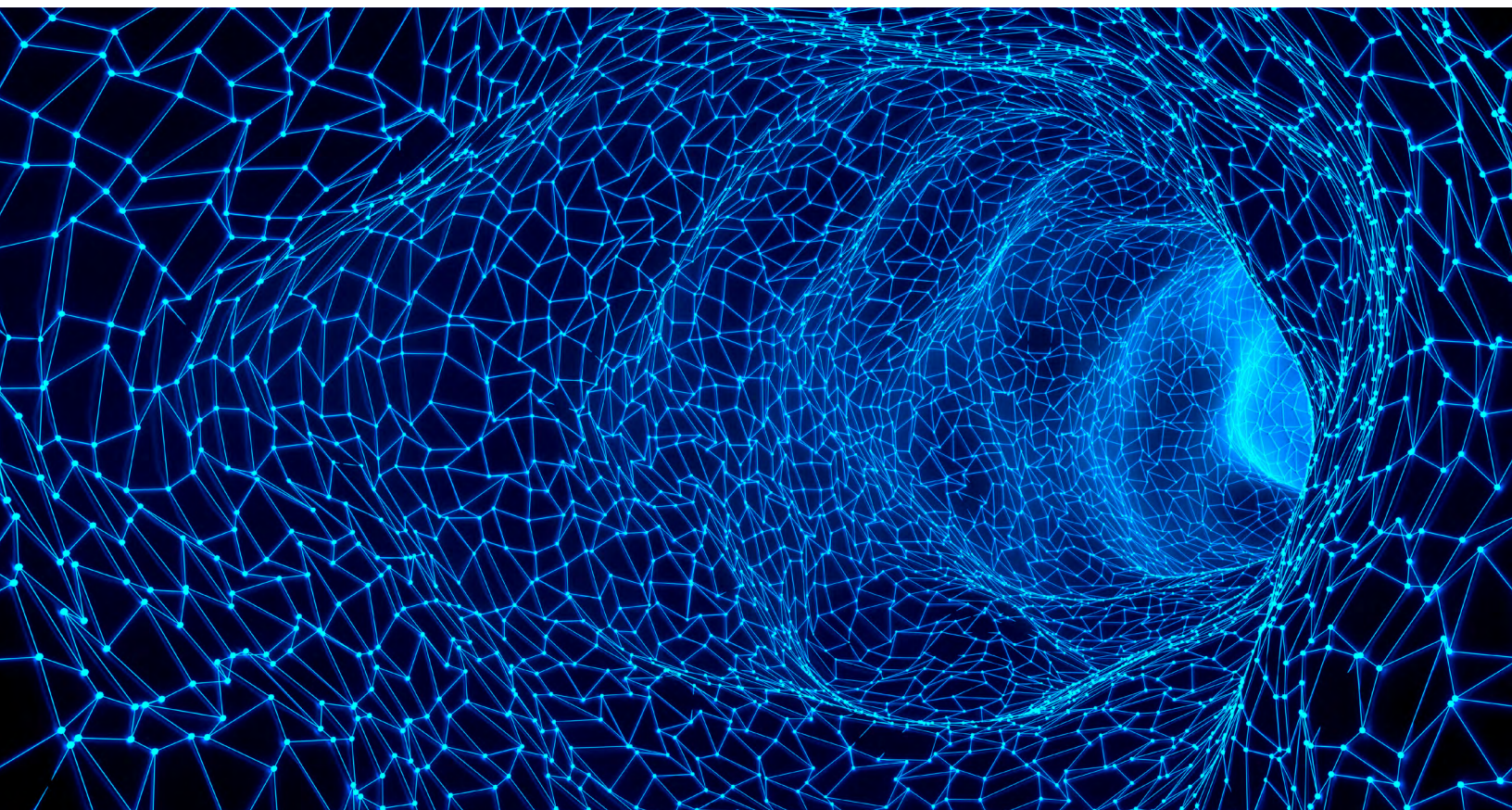


Healthcare Practice

# Setting the revenue cycle up for success in automation and AI

As new technologies emerge, revenue cycle leaders can prepare to harness the potential of these capabilities by establishing the conditions for success today.

*by Sanjiv Baxi, Sagar Parikh, Michael Peterson, and Andrew Ray*



### The financial pressures US health systems

have long grappled with have worsened over the last several years.<sup>1</sup> To be sure, productivity of administrative functions has increased to counter these pressures, but most of the gains over the last 20 years have been through labor, not capabilities or process improvement.<sup>2</sup>

Technologies such as automation and analytics—and more recently, generative AI (gen AI)—could help improve performance. In fact, research suggests that effectively deploying automation and analytics alone could eliminate \$200 billion to \$360 billion of spending in US healthcare.<sup>3</sup> Some of these savings would come from administrative functions (including revenue cycle management [RCM]) or nonclinical parts of healthcare provisioning (including scheduling, coordinating care with insurers, documentation, and claim or bill adjudication). Deploying such technologies may also reduce clinician burnout and improve patient experience, which are both increasingly important in how healthcare is evolving.

In this article, we focus on how the RCM function could lay the foundation to harness technology to contribute to better system performance. The function is manual, complex, and dependent on stakeholders throughout health systems. In other words, RCM performance hinges on effective and timely collaboration. The potential of recent advances in technology, particularly gen AI, have highlighted the need to consider—or reconsider—incorporating these advancements into administrative functions, and doing so effectively holds the promise of further separating the health systems that thrive and grow from those that do not.

Leaders of health systems have often been skeptical of opportunities for tech-enabled performance improvement after years of

automation and analytics projects that have not generated expected value, both within and beyond administrative functions. In addition to perceived technology limitations, these outcomes often resulted from operational challenges, skills gaps, a failure to improve the foundational infrastructure upon which technology depends, and approaches to deployment and measurement that weigh on projects from the start.

Overcoming these challenges and capitalizing on the next wave of technologic innovation entails investing in the right mindsets, infrastructure, and capabilities throughout the revenue cycle and beyond. Specifically, healthcare organizations would need the following:

- top-team commitment to technology efforts, backed by a long-term vision
- a holistic approach to investing in technology instead of one based on ad hoc funding of one-off experiments
- a clear path to move offerings from pilot to systemwide adoption, with distinct deployments for pilots and full-scale implementation and tailored change management
- a talent strategy that ensures technology efforts are led and supported by teams with experience in business, technology, and healthcare
- holistic indicators of future value to measure success

Operating in these different ways necessarily requires a change in approach, but the outcome could help health systems access untapped potential and do so in time for exciting opportunities to come.

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<sup>1</sup> *McKinsey on Healthcare: Weathering the storm*, McKinsey, December 2022.

<sup>2</sup> Pooja Kumar, Edward Levine, Nikhil Sahni, and Shubham Singhal, "The productivity imperative for healthcare delivery in the United States," McKinsey, February 27, 2019.

<sup>3</sup> David M. Cutler et al., *The potential impact of artificial intelligence on healthcare spending*, National Bureau of Economic Research working paper, number 30857, January 2023; Brandon Carrus, David M. Cutler, Prakriti Mishra, and Nikhil R. Sahni, "Administrative simplification: How to save a quarter-trillion dollars in US healthcare," McKinsey, October 20, 2021.

## Value from automation and analytics in revenue cycle management has been elusive

In our experience, technology deployments in RCM are often hampered by four things:

- partial solutions—fit for purpose to minimize up-front investment—that fail to generate significant value because they never reach the minimum threshold for impact
- new technology implementations that don't account for refining and customizing solutions, transitional periods, trial and error, or system downtime
- skills gaps spanning functions—such as technology, reimbursement, or finance—that slow or outright halt technology implementation
- competing challenges, such as operations under crisis (including the COVID-19 pandemic), electronic health-record implementation, and a rapidly evolving regulatory environment, resulting in limited bandwidth for individuals and impeding collaboration critical for solution development

As a result, some executives have stepped back from investing in bold bets on technology, part of a general hesitancy to support initiatives that could produce high rewards but that also require teams to fail fast and pivot quickly if needed. Modest investments in proven technologies are now the

norm and paradoxically prevent the realization of meaningful outcomes.

These smaller-scale investments are not inherently less likely to succeed, but health systems often omit essential elements, which essentially doom them to fail. Many technology deployments purchase solutions for pilots without sufficiently considering their potential to eventually scale across the enterprise, which could cap the impact of the pilot. The business case for the solution becomes more challenging when the potential investment is evaluated based only on its short-term value rather than the full potential of the new technologies to the organization.

For instance, many health systems have piloted tech-enabled solutions to streamline prior authorizations from insurers. But stakeholders generally fail to update their tech stack and workflows, train staff to optimally use updated technology, and redesign affected processes to fully capture value. As a result, these pilots tend to fall short of stakeholders' initial hopes, lack enterprise scalability, and limit sustainability of impact for the organization.

Now, with the emergence of gen AI technologies, health systems are at risk of missing an early window to set the stage to realize value from it in administrative processes unless they reconsider their approach. (For more on gen AI, see sidebar, "Generative AI: Considerations and risks.")

# Overcoming challenges and capitalizing on the next wave of technologic innovation entails investing in the right mindsets, infrastructure, and capabilities throughout the revenue cycle and beyond.

## Generative AI: Considerations and risks

Generative AI (gen AI) could be used throughout the revenue cycle (see exhibit). Perhaps the most evocative use case in development is one in which voice recognition dictation software records, transcribes, and structures notes from physician–patient encounters and uses the information to complete administrative tasks in the background, freeing physicians to spend more time with patients.

Gen AI could also lessen health systems' dependence on resource-intensive processes that have often been understaffed or in which staff are inadequately trained. Call centers have already improved their productivity by 15 to 30 percent using gen AI.<sup>1</sup> Toward the beginning of the patient journey, gen AI could help identify duplicate patient records, automate eligibility determination based on payer policies and contracts, coordinate prior authorizations from health insurance companies, and even propose solutions to address any administrative gaps identified. Without a proper solution, all of these are major impediments to patient experience, physician well-being, and health system performance.

In the midcycle, the technology may help improve clinical documentation accuracy and limit clinicians' time spent on time-consuming

recordkeeping, especially “pajama time” charting—that is, updating medical records well after working hours.

At the end of the patient journey, gen AI could support accounts receivable with automated follow-ups and structure fact-based appeals to health insurers incorporating historical insurer performance, policy manuals, and contracted terms.

To be sure, new technologies such as gen AI come with risks.<sup>2</sup> Health systems could invest to mitigate and manage these risks now—for instance, by establishing guardrails in how data are structured to minimize bias or inequitable impacts to different populations or, eventually, by having humans validate computer-generated outputs to prevent closed-loop automation. As with cybersecurity, health systems can implement controls and protocols to prevent misuse and disuse, elements that are critical for managing risk. Finally, although applying technology to use cases typically aims to create positive economic value, breaking even—net the cost of applied risk-mitigation strategies—may be a satisfactory outcome if holistic value is created elsewhere, including patient experience, physician well-being, and operational improvement.

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<sup>1</sup> Erik Brynjolfsson, Danielle Li, and Lindsey R. Raymond, *Generative AI at work*, National Bureau of Economic Research working paper, number 31161, April 2023.

<sup>2</sup> Kevin Buehler, Rachel Dooley, Liz Grennan, and Alex Singla, “Getting to know—and manage—your biggest AI risks,” McKinsey, May 3, 2021.

## Learning from successes

While it may take some time before robust gen AI solutions become commercially available in healthcare—and even longer for enterprise scalable products to be usable in revenue cycle management—health systems can begin to prepare now since these technologies will be imperative to performance in the future. Starting with an understanding of their own capabilities, the most successful deployers of advanced technologies

have some characteristics in common. Successfully leveraging automation and AI requires top leaders' commitment to continuous improvement. Teams could reset how they measure the value created by pilots to be more holistic and long-term. Across the organization, teams could be set up and resourced to support the success of pilots and scaled implementations. The technology ecosystem can be adjusted to support the new technology. The right talent at the right time is another critical enabler.

### **Commitment to continuous improvement from the top team**

Health system leaders can capture value by being nimble and failing fast when required, adjusting rapidly and pursuing opportunities for value as they shift, and investing for the long term by setting the technology foundation to enable automation, analytics, and—when it’s ready—gen AI. Doing so requires leaders from within the revenue cycle function and more broadly to establish and model a willingness to seek out opportunities and a mindset of iteration and continuous improvement in rapid feedback cycles.<sup>4</sup>

Most of the value from effective technology implementations comes from applying them to areas of opportunity. Identifying these opportunities requires an open-ended assessment—and often, for maximal impact, redesign—of affected processes. Setting up organizations to foster better ways of working could create sustainable value and improve the experiences of both patients and clinicians in the long term.

This represents a departure from many health systems’ default posture. Consider the case of denials. Pressure to quickly improve cash flow might lead stakeholders to default to simply managing denials instead of preventing them. As such, a detailed look at denial of payments from insurers might uncover where and how health systems can more effectively appeal, especially since 60 percent of denials may not be appealed at all.<sup>5</sup> However, an expansive view could lead decision makers to evaluate the underlying root causes of denials and identify ways to use improved stakeholder collaboration and advanced technology tools on the horizon to avoid them. The results would be helpful to healthcare organizations, and notably, they would also give patients more seamless experiences.

### **Assessment of pilots according to their long-term value**

Choosing and tracking the right metrics could mean the difference between uncovering surprising insights and a failed experiment. In piloting technology solutions, health system stakeholders often look for rapid monetary impact. By those standards, almost all pilots would be doomed to fail.

Instead, decision makers would ideally evaluate pilots holistically. First, what do a pilot’s outcomes suggest about how it could help clinicians and patients have better experiences? Second, how might the pilot translate into long-term bottom-line impact if it were scaled? Last, what kind of near-term benefit—operationally and financially but also for key stakeholders in healthcare—might it realistically bring? These questions are necessarily broad, so evaluating pilots may require looking at measures of progress traditional financial metrics may not reflect.

For example, solutions deployed to reduce write-offs from denials may not achieve this goal over the relatively short time period during a pilot. However, the solutions may allow revenue cycle operators to work more efficiently by increasing the quantity and quality of claims processed, which would translate to value seen in lagging indicators such as write-off amount. But organizations that focus only on a limited set of metrics, such as write-off value, may be inclined to decommission such a pilot quickly. This would hamper the adoption of automation and analytics in the revenue cycle even though those solutions often have meaningful value in the medium to longer term and create value in other ways. In this example, there is an opportunity to reduce unnecessary correspondence between payers and providers to improve staff experiences, reduce high volumes of work that can contribute to burnout, and reduce the stress that denial of payment creates for patients.

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<sup>4</sup> Daniel Brosseau, Sherina Ebrahim, Christopher Handscomb, and Shail Thaker, “The journey to an agile organization,” McKinsey, May 10, 2019.

<sup>5</sup> Srivalli Harihara and Leigh Poland, “Claims denials: A step-by-step approach to resolution,” *Journal of AHIMA*, April 25, 2022.

### **Coordination across the organization**

As with any complex undertaking, coordination is key. Revenue cycle teams cannot shoulder an overhaul of their operations alone. Health systems' complex organizational structures make collaboration across departments necessary even when difficult.

Part of this coordination will involve making the right tradeoffs for the organization and updating departments' incentives to reflect those decisions. For instance, an automation or gen AI solution may decrease accounts receivable days (the average length of time between invoicing and payment) but increase the average number of days it takes to submit a bill. This tradeoff may make the most sense for the organization because it ensures that documentation is accurate and comprehensive.

The most effective RCM operators set out to understand how their organizations work in the context of stakeholders' journeys through a given process, particularly the pain points along the way. One outcome of this understanding is insight into where and how tasks can leverage new technology effectively. Just as importantly, these journeys show where and how new technology and processes will interface with legacy processes (and ultimately inform where upgrades may be required).

### **Support of the new technology with ecosystem elements**

A technology solution is unlikely to yield the desired outcomes if it is dropped into entrenched tech environments, processes, and ways of working without accounting for the broader technology ecosystem. For example, an algorithm designed to identify claims with higher likelihoods of clinical denial prior to submission may require updated workflows to recognize these risks—and certainly to address them. Before submitting a claim, organizations may create preventative workflows to assess and address claim gaps that lessen denial likelihood. To effectively take preventative actions, staff may need to be retrained on how to preemptively attach additional documentation, clinicians may need to update their approaches to documentation, and payor contracting teams may need to understand how changes in the operating model can improve collaboration with insurers that request documentation or deny payment. One

critical move is to structure and streamline the system's technology ecosystem, from vendors all the way down to health system data. Healthcare provider technology ecosystems and provider data are often messy, difficult to access, and difficult to navigate. Organizing the ecosystem in a structured way that is accessible and easy to navigate can help streamline new implementations, simplify data governance, reduce the risk of unexpected (or unknown) vendor capability duplication, and reduce potential errors across the system.

The potential impact could be significant: structuring and creating notes while also enabling clinicians to address and reconcile documentation gaps early—even in real time—can be transformative, freeing up significant time both in the context of a patient visit (thereby improving patience experience) and after. In the most optimistic future, one could imagine enabling payers and providers to align on clinical protocols in collaboration to improve individual and population health.

### **Talent and expertise that covers relevant areas**

Deploying automation and analytics (and eventually, gen AI) works best in a setting where the talent involved has the time and expertise to be effective. Often, a project will be an additional task for a leader who already has a full slate of responsibilities and who has only some of the expertise needed to make the most of new technology.

Experts in different domains across the organization could help decision makers identify and prioritize feasible, effective technology use cases, allowing existing teams to focus on their own work. Leaders with domain experience and knowledge of pain points in the revenue cycle can quantify the possible impact of use cases; healthcare operators and clinicians can point out potential workflow and process pitfalls; practitioners with experience deploying technology in healthcare can assess use cases' technical feasibility and guard against technology-specific challenges before they arise; and value assurance and expert technical translators could help ensure that progress is pegged to eventual value with a clear link between business and technology. Cross-competency training is also helpful to unlock new opportunities to collaborate more effectively.

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To be sure, technology talent is hard to come by, and the United States has more open positions than candidates, especially in healthcare. Although it is critical to attract and retain analytics and automation talent, our experience shows that successful technology deployments tend to feature partnerships across the organization to identify opportunities to create value. In the longer term, an internal academy to upskill the existing workforce, a talent recruitment and retention plan within specific technology domains, and fresh ways to innovate and collaborate are crucial to fully unlock the potential

of automation and analytics while also attracting the right talent to these massive healthcare challenges.

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US healthcare systems are at a critical juncture. New ways of working, enabled by technology, will be fundamental to righting the ship or continuing to succeed. Leaders and teams that successfully shift their mindsets will be best placed to weather this challenging time.

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Exhibit

## Automation, analytics, and generative AI can be used throughout the revenue cycle.

■ Few applications today   
 ■ High interest and experimental applications   
 ■ Increasingly frequent applications   
 ■ Widely adopted

Revenue cycle area	Functions	Automation Repetitive process digitalization	Analytics ML <sup>1</sup> and AI forecasting	Generative AI <sup>2</sup> As of June 2023, use cases increasing rapidly
<b>Front end</b>	Patient scheduling	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Patient preregistration and registration	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Patient access services	High interest and experimental applications	High interest and experimental applications	Few applications today
	Clinical-decision support	High interest and experimental applications	High interest and experimental applications	Few applications today
	Insurance verification	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Disability	Few applications today	Few applications today	Few applications today
	Eligibility and enrollment services	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Out-of-state billing	Few applications today	Few applications today	Few applications today
	Preauthorization and precertification	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Payment enablement	High interest and experimental applications	Increasingly frequent applications	Few applications today
	Point-of-service collections	High interest and experimental applications	High interest and experimental applications	Few applications today
<b>Midcycle</b>	Utilization management	High interest and experimental applications	High interest and experimental applications	Few applications today
	Revenue integrity: inpatient code validation	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Revenue integrity: charge capture	Increasingly frequent applications	Increasingly frequent applications	Few applications today
	Revenue integrity: charge description master	High interest and experimental applications	Increasingly frequent applications	Few applications today
	Coding	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Health information management	High interest and experimental applications	Few applications today	Few applications today
	Transcription	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Clinical-documentation integrity	High interest and experimental applications	Increasingly frequent applications	Increasingly frequent applications
<b>Back end</b>	Clearinghouse	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Prebilling scrubbing	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Billing	Increasingly frequent applications	High interest and experimental applications	Few applications today
	Payment posting	Increasingly frequent applications	Increasingly frequent applications	Few applications today
	Zero-balance underpayment	Increasingly frequent applications	Increasingly frequent applications	Few applications today
	Denial and appeals management	Increasingly frequent applications	Increasingly frequent applications	Increasingly frequent applications
	Accounts receivable follow-up	Increasingly frequent applications	Increasingly frequent applications	Few applications today
	Coverage discovery	Increasingly frequent applications	Increasingly frequent applications	Few applications today
	Contract management and modeling	High interest and experimental applications	Increasingly frequent applications	Few applications today
	Transfer diagnosis-related group	Increasingly frequent applications	Increasingly frequent applications	Few applications today
	Generate bills and patient statements	Widely adopted	Increasingly frequent applications	Few applications today
	Patient follow-up	High interest and experimental applications	Increasingly frequent applications	Few applications today
	Third-party collections for bad debt	High interest and experimental applications	High interest and experimental applications	Few applications today
Financing	Few applications today	High interest and experimental applications	Few applications today	

<sup>1</sup>Machine learning.

<sup>2</sup>The AI column will likely change quickly.