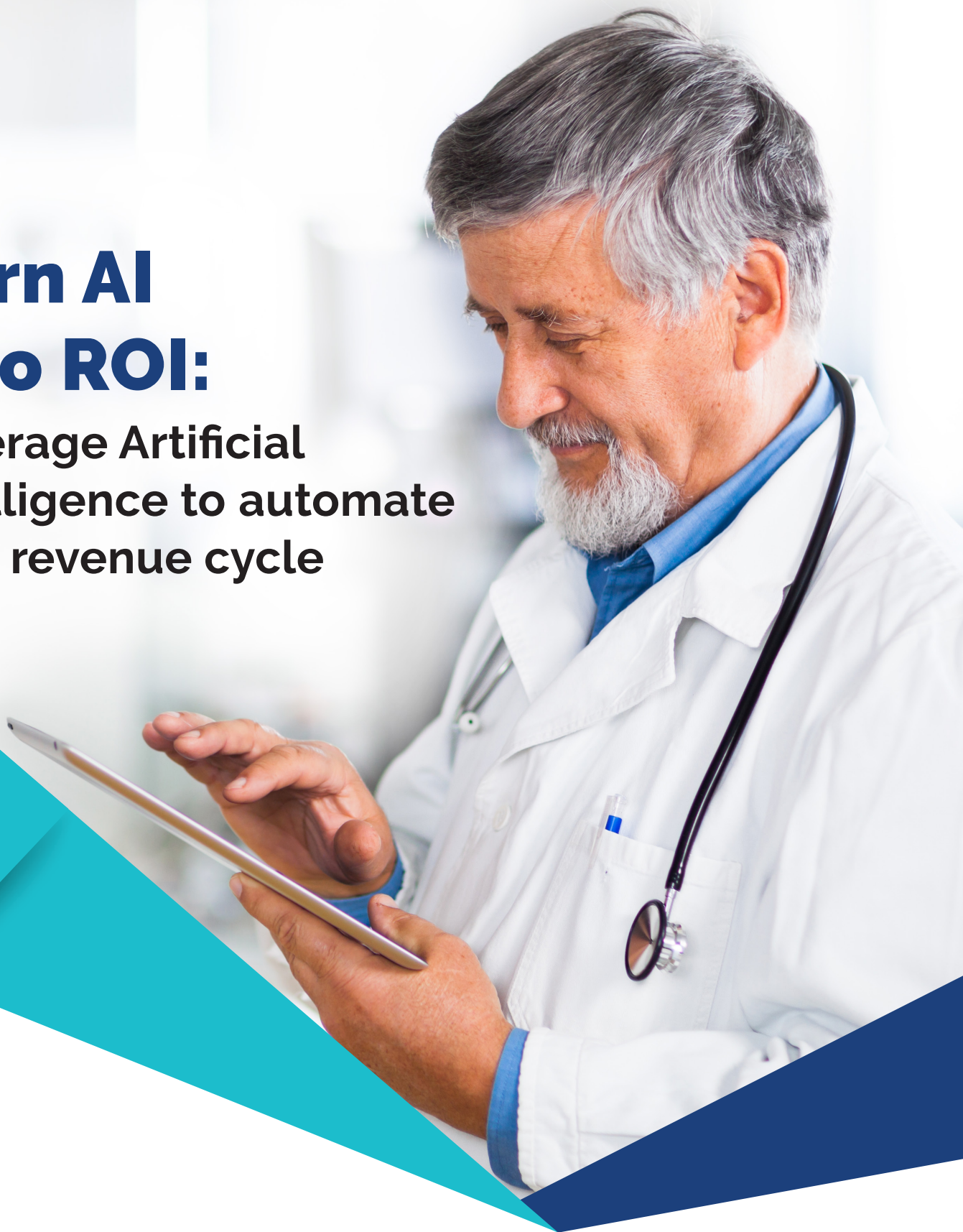


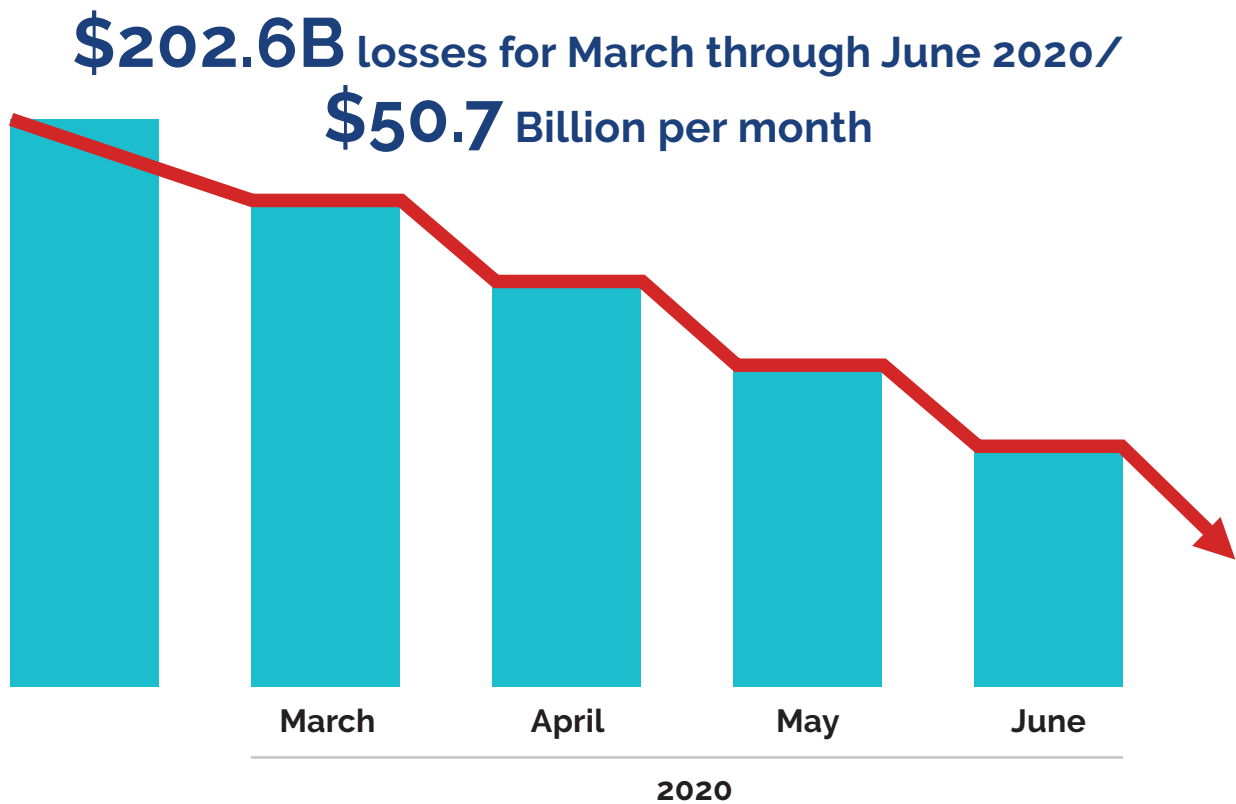
# Turn AI into ROI:

Leverage Artificial  
Intelligence to automate  
your revenue cycle



Hospitals and health systems are fighting for survival as they battle against COVID-19 which has created perhaps the greatest financial crisis in history for the industry.

The [American Hospital Association](#) estimates hospitals are slated to lose \$202.6 billion from March 1, 2020 through June 20, 2020, with financial losses averaging about \$50.7 billion per month, fighting the virus.



Moreover, a [research brief](#) from the nonprofit [FAIR Health](#) reported that the total costs for all hospitalized COVID-19 patients may range from a low of \$362 billion in charges and \$139 billion in estimated in-network amounts to a high of \$1.449 trillion in charges and \$558 billion in estimated in-network amounts, depending on the incidence rate and severity of the infection in the US population.

Statistics like these reveal that COVID-19 is creating a unique set of healthcare revenue cycle challenges including everything from billing and coding to patient financial responsibility to resource allocation.



## A time to innovate and automate

As health organizations continue to navigate their way through the COVID crisis, an increasing number are turning to intelligent automation, which consists today primarily of three distinct technologies: artificial intelligence (AI), machine learning (ML), and robotic process automation (RPA). Each of these complimentary technologies has a part to play in an effective automation strategy. These three each have their strengths and weaknesses, as well as 'sweet spots' in solving critical problems in revenue cycle today. Individually or in concert, they are being used by leading healthcare organizations to address some of the biggest pain points in revenue cycle management. Blending the right intelligent automation technologies can create a transparent, seamless patient experience while leading to increased revenue capture and integrity.

Revenue cycle management automation that delivers a transparent process from scheduling through the clinical encounter to insurance and patient collections can help today's health organizations realize the gains of technology. There are good reasons for turning to AI to help automate the revenue cycle management process.

Consider that HIMSS recently cited data indicating there can be as much as \$200 billion in administrative waste in the healthcare system due to inefficient revenue cycle practices. According to data from Optum, 97% of those in the industry trust AI to handle administrative or clinical applications, while 85% are currently implementing or developing some kind of AI strategy. More than half (55%) expect AI to achieve positive ROI in fewer than three years. The increase in implementations is expected to impact revenue integrity, clinical documentation improvement, coding and other parts of the revenue cycle.

Yet, there is still room for wider adoption when it comes to using AI for financial applications. [Research](#) shows that few healthcare organizations have automated more than a quarter of financial processes, while many lag behind in modernizing patient-facing revenue cycle activities such as patient collections and patient access.



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**Dan Hillman,**  
Vice President at HGS Healthcare Solutions

[Dan Hillman](#), Vice President at HGS Healthcare Solutions, notes that AI is a valuable technology to reduce revenue cycle process times and expense and drive down the overall cost to collect, a critical metric of any revenue cycle.

"The goal behind applying intelligent automation is to improve the efficacy of problem diagnosis and root cause analysis and to then minimize the often routine and rote processing tasks, allowing staff to focus on exceptions," Hillman explained. "This prioritization allows resources to be allocated to tasks that require additional judgment, which may involve analyzing complex and unstructured data to reach a decision on what actions to take next."

Using AI in this way can help address the increasing amount of data healthcare organizations must sift through with a speed and efficiency that human beings simply cannot match.

[Dan Schulte](#), HGS Senior Vice President, Provider Operations, noted that automation is needed more than ever in the industry. "We have to figure out faster and cleaner ways of identifying all of the key data elements required to get to a clean claims process by payer," he said. "What that means from an AI and electronic data acquisition perspective is that we either implement and understand the tools that exist and integrate them into the fabric of revenue cycle management services or we will fail as an industry."

Measuring key performance indicators and understanding how to track and interpret them is critical. "We want to manage the accounts receivable according to specific parameters," Schulte explained. "That means we need to put tools in play that help us clearly define which accounts are not processing claims cleanly, how many of them are and to which payer they are associated."



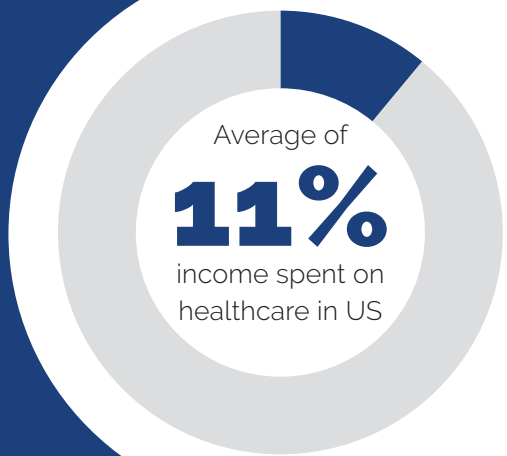
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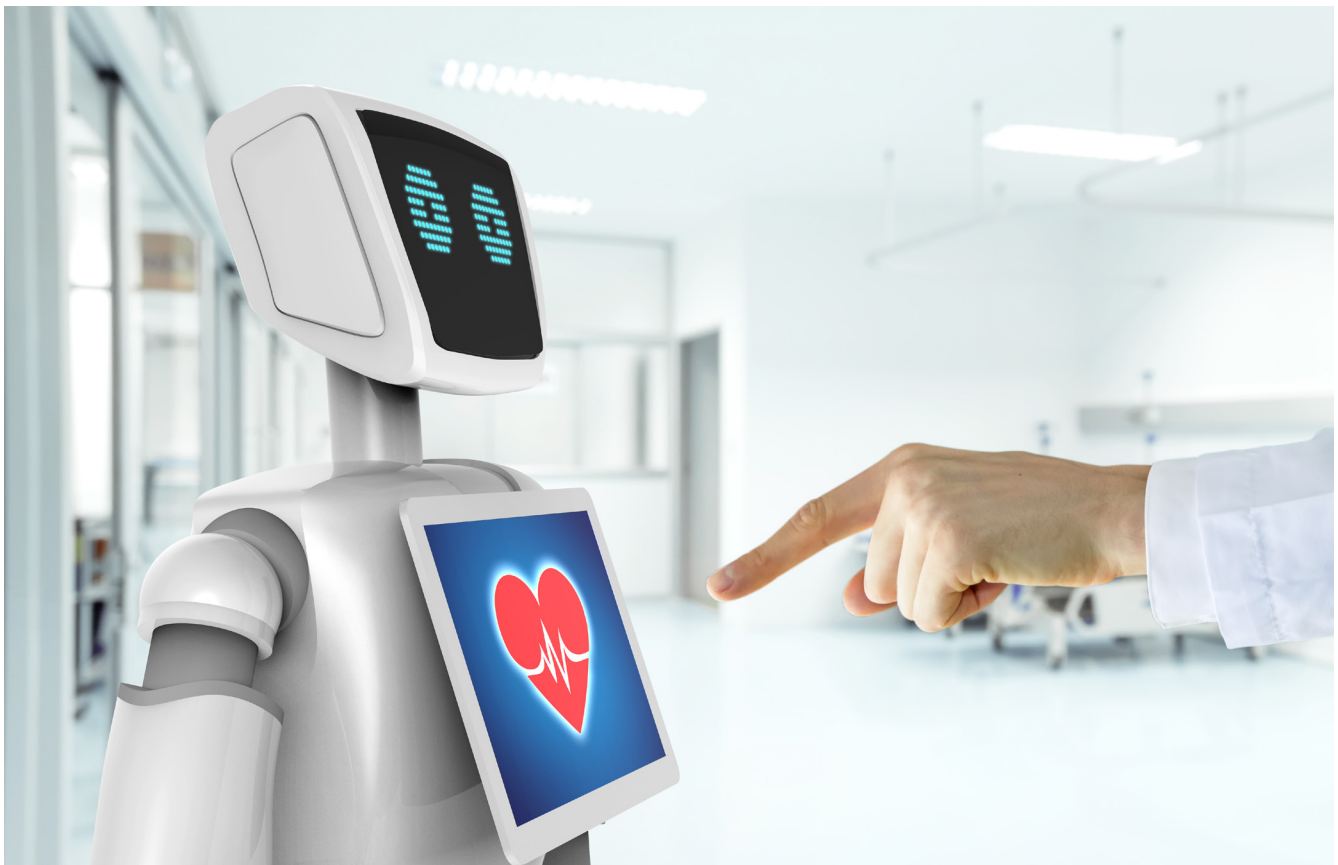


# Answering the call to think big

Time and cost efficiencies aren't the only or even primary reason healthcare organizations are increasingly turning to AI to automate the revenue cycle process. Instead, their accelerated investment in AI is in response to an urgent need to improve patient satisfaction. With the average US family now spending about 11 percent of their income on healthcare, and with about a quarter of those expenses attributable to co-pays, deductibles and other out-of-pocket health costs, according to [data](#) from the Kaiser Family Foundation, it is imperative that healthcare organizations deliver a quality financial experience in addition to exceptional clinical care.



Schulte noted that a significant part of patient satisfaction is tied to how fast the healthcare organization can present the patient with a clear picture of his or her financial liabilities. "Failure to do that has shown to be a great dissatisfier and doing it very late in the process is also dissatisfying," he said. "We can do a better job of presenting the patient with a clear picture of their financial responsibilities before treatment begins through the use of AI tools."



# Best use cases for revenue cycle AI

In order to effectively adopt AI to achieve both patient satisfaction and process efficiency objectives, it is critical that healthcare organizations view the revenue cycle as a whole when considering automation. Considering the end-to-end patient experience is essential in developing a transformative AI strategy. Only through this lens can healthcare organizations ensure that digital transformation will not only boost the bottom line but also create value for their patients.

As a technology, AI uniquely maps well to high transaction environments in which there are codified rules. The healthcare revenue cycle is built around an abundance of tagged data in which values are codified to data points to indicate certain events, such as why a claim was denied or specific attributes of a patient's diagnosis.

**Following are nine key functions within the revenue cycle that are prime candidates for AI automation.**

## 1. Prior authorizations

A survey of 1,000 practicing physicians conducted by the American Medical Association (AMA) found that 86 percent of doctors described the burden of prior authorizations as high or extremely high. Nearly an equal amount (88 percent) also said the burden has increased over the last five years. Those interactions can add up. In fact, physicians and their staff can spend almost two full business days each week completing prior authorizations, and more than one in three physicians has staff who work exclusively on the task, according to the AMA survey.

The transactional nature of prior authorizations including the tasks of clarifying, requesting and obtaining approval makes it ripe for AI automation. HGS's Hillman noted that many health plans use web portals for this process, requiring providers to navigate a diverse and inconsistent set of data requirements for each payer. While adoption is still low, there is cause for optimism to fully leverage technology for this purpose.

Additionally, Hillman noted that errors in the prior authorization phase of the revenue cycle may account for nearly **24% of all claim denials**, which makes this area a high priority for application of robotic process automation. Because of the well-defined business rules in this area and structured data that systems exchange in conducting prior authorizations, RPA can significantly improve this process. Implementing a "bot" that can perform the same tasks repetitively each time without variation can help reduce error rates, directly increasing patient satisfaction.

With manual prior authorizations requiring an average of 16 minutes and as much as 30 minutes per transaction, the opportunity to drive cost savings through automation is significant. With a typical manual prior authorization transaction costing as much as \$6.61 each, intelligent automation can reduce costs to just a few cents each. With prior authorizations often required multiple times for each patient visit, it is one of the most costly line items for revenue cycle management outside of collections.

# 24%

claim denials with prior authorization errors





## 2. Eligibility and benefit verification

Electronic transactions for eligibility and benefit verification have increased by more than 9 percentage points over the last three years. This is a positive development, but more can be done to reduce wasteful spending in this part of the revenue cycle. As the starting point for care delivery, this function represents a significant potential for improvement via intelligent automation.

## 4. Coding assistance

Automation can help improve the timeliness and accuracy of computer-assisted coding (CAC). Smart software systems can help identify the correct code for a given presenting diagnosis, freeing up human resources from reading documents to determine diagnosis.

## 3. Preparation of a patient presentment letter

AI and other automated tools can tap into external data from Experian, Equifax or insurance company databases to analyze whether the insurance is active, relevant to the patient care being contemplated and determine whether the patient can afford to pay for the care.

## 5. Payer propensity to pay

Schulte noted that automation can be leveraged to determine how payers are performing over time by service, patient type and physician. AI can be utilized to analyze historical accounts from a particular environment, to focus on exceptions.

## 6. Audits of charges

Automated tools that assist in preparing concurrent audits of the individual account are also valuable. Schulte explained, "Are all associated charges that ought to be included noted? Are there items on the bill that shouldn't be there?" By filtering out this information via an automated system, time can be better spent focusing on exceptions instead of every claim."

## Automate and innovate: Top tips to leverage AI

- Evaluate front-end inputs**  
 Are you using the best technology to get the best quality of data in the registration process?
- Select the best solutions for key functions**  
 Are you using the best technology available for charge integrity? From a bottom-line cash perspective, is your technology solution effectively tracking the performance of managed care contracts? Failing to do so will result in leaving 10 percent or more of your insurance cash on the table.
- Apply data analytics and AI solutions together**  
 Working in concert, AI and analytics can deliver insights that focus on the practical. What claim do I work on today? Which claim is likely to bring in the most cash for the effort?
- Leverage automation to manage small balances**  
 Very labor intensive, small balances of under \$2,000 when managed well through automation can bring ready cash through the door.







## 7. Credit balance adjustment

One of the most time-consuming and labor-intensive functions within the revenue cycle involves application of credit balances and the adjustments to patient accounts that must be made in a timely fashion. Automation can be deployed to help reduce compliance risk while simultaneously working to improve productivity and save significant staff time. Bots can be configured to identify the same payments from the same health plan and then process the same transaction, crediting the appropriate patient account each time.

## 8. Claim status update

Each year, almost 10% of claims are denied by payers. With the cost to recover these denials and underpayments approaching \$120 per claim, it is easy to see how a portion of the estimated \$266 billion in annual waste can be reduced by thoughtful and well-designed application of intelligent automation. Combined with advanced analytics, technologies like AI and robotic process automation can offer effective ways to reduce denials and underpayments and streamline the effort and resource requirements to follow up on exceptions.

## 9. Low-balance accounts

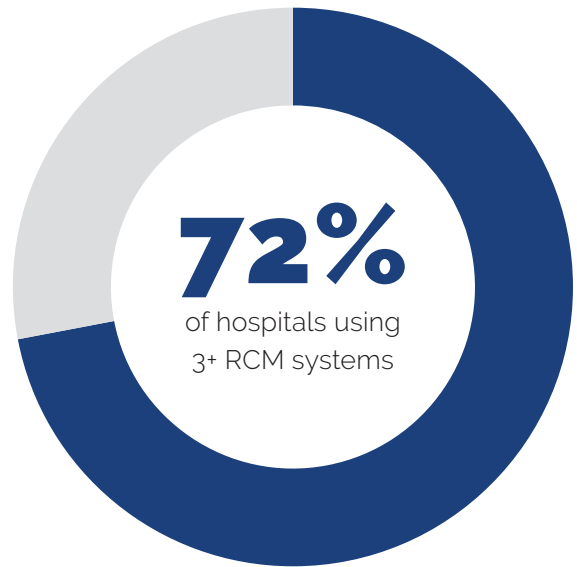
Collecting low-balance accounts (those under \$2,000) through manual processes is extremely labor intensive, with recoveries often below the cost of collecting the balance. To maximize the benefit of automation in this part of the revenue cycle, healthcare organizations can apply analytics to assess the likelihood of payment and the most effective use of staff resources to follow up on those accounts that are most likely to pay sooner and at a higher rate. Additionally, automation combined with analytics can help predict when payers will satisfy a claim.

Perhaps the biggest benefit from leveraging AI-powered revenue cycle management technology is that it can address these functions in real time—something the revenue cycle struggles to achieve due to a high volume of lower balance transactions. Patients need to understand what they're responsible for paying so they can make appropriate decisions relating to treatment options while providers need to identify in real time who is cleared to be treated financially and who is not in order to make informed decisions for the practice.

# Overcoming the interoperability challenge

Those healthcare organizations looking to test the AI waters will need to define the best automation strategy for their needs and invest in the right technology. Too many organizations invest in big box solutions which ultimately don't integrate effectively with their infrastructure. The result is a patchwork strategy built around clunky applications which fail to produce a seamless experience and may require a return to manual processes as workarounds.

Lack of interoperability between and among various IT solutions is another key challenge that healthcare organizations must address as they look to automate the revenue cycle process. A recent [HIMSS Analytics](#) study found that three-quarters of hospitals indicated that denials are the biggest challenge they face with revenue cycle management. Of those having the most trouble with denials, 72 percent of respondents polled were using their electronic health record system alongside three or more other RCM systems to manage their revenue cycle.



The survey also revealed that lack of interoperability posed moderate (65 percent) or extreme (33 percent) challenges when it came to gathering necessary data from disparate sources. Similar findings applied to the way revenue cycle data is collected.

Healthcare organizations' use of multiple solutions are getting in the way of achieving true efficiencies because of the lack of interoperability between them. Without full interoperability, data have to be normalized to drive improvements in the revenue cycle process and that is no easy task. Only with seamless integrations across RCM solutions can organizations improve efficiencies.





HGS's Schulte shared one example of interoperability challenges relating to the management of pre-authorization. The client in question uses a solution that sends responses that range from "yes", "no" and "maybe" to "I don't know" and "null answer". "We have to then review the data, key it into another system in order for that system to upload to the patient accounting system," Schulte said. "We then must engage in various labor-intensive processes to obtain the final answers regarding whether the test is authorized, covered and billable."

Schulte added that the problem is exacerbated by the fact that payer websites are not designed to help resolve patient claims. "Core friction comes from the quick movement from active to archive for accounts on the website, when the issues being resolved are only identified as or after the account moves to the archive, requiring phone calls rather than automated inquiries," he said. "This highlights the lack of priority or focus on clear communications."

Rather than using disparate solutions to address key functions such as benefits eligibility, coding assistance, claims scrubbing and electronic claims review, healthcare organizations should strive to rely on a single RCM platform by integrating mission-critical revenue cycle functions under one solution. Doing so will better enable your medical billing staff to optimize use of each of these features without disrupting workflows—resulting in cleaner claims and improved financial health.

Increasingly, organizations are dabbling in AI revenue cycle management without making significant upfront investments by adopting an [AI as-a-service](#) model. This type of AI focuses on offering the maintenance of bots as well as using machine learning capabilities and learning that's taking place across a neural network to enhance the bot. This end-to-end identification of processes as well as building and maintaining the bots require huge efforts which can often best be satisfied with an AI-as-a-service solution.



# Getting started with AI

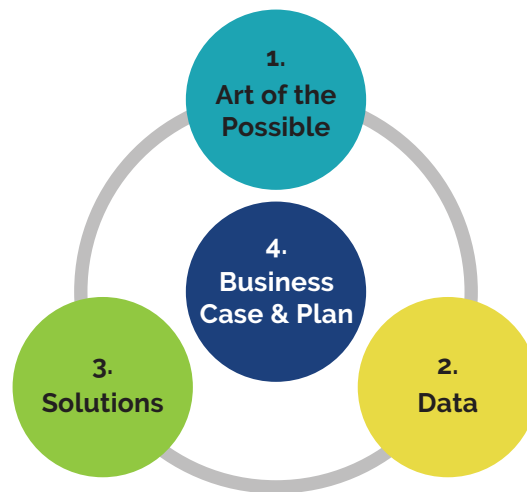
To realize business value, AI technologies must be deployed to deliver specific and measurable business outcomes for targeted use cases. While AI will enable healthcare organizations to effectively reduce costs, its greater impact will be in answering key questions such as: "How do I change the nature of the patient experience?" or "How can I initiate AI-driven insights to alter all levels of decision making?"

## How to get started – pragmatically

As with other properly made IT investments, the AI technological *How* depends on the use case's functional *What* and must be aligned with the business objective *Why*.

**4.** Finally, organize your use cases and solutions into an actionable roadmap with a corresponding business case.

**3.** Facilitate use case workshops or ideation campaigns to define and prioritize strategically aligned solution opportunities in the context of your data.



**1.** Start by defining AI and giving examples of the various technologies. Per the transformative capabilities of AI, discuss implications to operations, governance and controls.

**2.** Next, work with your IT and business data governance leads to better understand your data, its lifecycle and its quality

A good place to start with AI investments is identifying use cases. Organizations should be looking for opportunities where automation can perform tasks that negatively impact net revenue. Once those areas have been identified, they can assess staffing costs. How many people are performing a specific function? In what areas can automation free up capacity for more value-adding activities?

Healthcare organizations should also keep in mind that automating revenue cycle management isn't just a technology issue but a people one as well. HGS's Hillman noted that there is still a lot of fear, uncertainty and doubt (FUD) when it comes to leveraging AI in healthcare settings. "There's anxiety that AI will replace jobs," he explained. "We have to overcome this 'FUD' factor, especially in small and mid-size institutions which don't have the resources of larger national chains."

Additionally, Hillman explained there's some education to do regarding the differences between true automation innovation such as AI and robotic process automation and simple workflow tools which have been used for decades. "It has to be made clear that AI is not what has been traditionally used and thought of as workflow," he said. "The more we can reinforce that this is something new and really transformative, the more it can be applied in the right way."





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**Dan Hillman,**  
 Vice President at HGS Healthcare Solutions

Schulte agreed that AI automation is different than just moving from one patient accounting system to the next. "Workflow tools that have been used over the last 30 years have not been taking care of business for you," he explained. "They don't allow for learning and anticipating issues that AI and other automation tools can."

In order to effectively implement digital transformation, healthcare organizations should also focus on the following critical areas:

- **Learning agility**  
 There are clear links between learning agility and the success of the workforce to adapt to new skill sets and solutions. Taking steps to cultivate and facilitate learning ability in the enterprise is essential.
- **Developing a new approach to a risk culture**  
 In order to generate business success in digitization, healthcare organizations need to move outside of their comfort zone to adopt a new and disciplined approach to risk-taking in order to take advantage of opportunities and drive digital transformation.
- **Fostering a compelling employer brand**  
 Developing a strong employer brand will help healthcare organizations attract top digital talent needed to create a digital-first culture and maximize benefits of new and emerging technologies.

The time is now to leverage AI and other intelligent automation tools for revenue cycle management. In addition to improving quality, reducing cycle time and cost to collect, AI can uncover opportunities to enhance the patient experience while assigning higher-level work to human resources. All of these benefits add up to a significant reduction in the overall administrative waste in a health system.

## About HGS

A global leader in business process management (BPM) and optimizing the customer experience lifecycle, HGS is helping make its clients more competitive every day. HGS combines technology-powered services in automation, analytics and digital with domain expertise focusing on back office processing, contact centers and HRO solutions to deliver transformational impact to clients.

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