

Deloitte.



How AI can help hospitals
strengthen their financial
performance and reduce
clinician burnout

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Introduction

Artificial intelligence, or AI, has emerged as a transformative force across various industries, empowering organizations to create innovative business models, create efficiencies and unlock untapped sources of value. The potential of AI isn't limited to technical experts, as evidenced by the widespread adoption and attention surrounding applications like ChatGPT. With AI's accessibility increasing rapidly, it comes as no surprise that 94% of C-suite executives view AI as critical to their success in the next five years.¹

For hospital executives, the value of AI goes beyond a future prospect—it's a pressing and immediate need today given margin pressures. The COVID-19 Public Health Emergency officially concluded on May 11, 2023, signifying the end of numerous funding sources that were instrumental in sustaining hospitals during the pandemic. Consequently, median hospital operating margins experienced a significant downturn over the past year, leaving healthcare organizations grappling with financial challenges.² There are opportunities for AI to help address unmet needs and health inequities to reduce cost or generate revenue.

Moreover, the post-pandemic landscape continues to present its own set of obstacles—supply chain issues, workforce shortages, and increased administrative demands—all of which add to the strain on hospital systems. These conditions have far-reaching implications for both operational efficiency and, crucially, the well-being of healthcare professionals, contributing to a rise in clinical burnout.

In this white paper, we'll delve into the tangible ways hospitals can use artificial intelligence (AI) to address the financial constraints and clinician burnout currently burdening them. By embracing AI-driven solutions, healthcare systems can take a proactive stance in tackling the challenges at hand and create significant value for their patients, employees, and operations. Additionally, we'll explore the common barriers that have hindered the widespread adoption of AI in health care and discuss actionable strategies that hospitals can employ to overcome these obstacles effectively.



The financial landscape

Let's begin with a look at the financial pressures confronting hospitals today.

By one estimate, 56% of hospitals' total operating revenue goes toward labor—and that's not even counting temporary or contract personnel.³ A key challenge is turnover. Some staff are leaving for other industries where wages may be higher. Others are exiting the medical field altogether. This is occurring even as many hospitals are seeing an uptick in patient volumes, putting remaining staff at risk due to burnout and safety concerns.

Supply costs are another part of the equation. Hospitals face a double whammy of record-high inflation and ongoing shortfalls of drugs, devices, and other essential medical supplies. This has contributed to a significant decline in margins.

Then there are administrative expenses, which in the US account for 30% of total health care costs.⁴ Much of the administrative burden falls on clinicians, which detracts from the patient care they're trained to deliver. Administrative bottlenecks contribute to emergency department boarding and delays or missed handoffs along the care continuum. The consequences are costly because they tend to lengthen hospital stays and increase the number of readmissions.

These challenges have been compounded with reduced reimbursements due to payer denials and utilization management. At many hospitals, the rise of ambulatory surgery centers has had significant impact on inpatient revenue and elective surgeries leading to lost revenue. Competition with other health systems, telehealth companies, and emerging health players further add to the profit squeeze.



Empowering providers while revolutionizing patient care

So how can AI help? Before we get to that, let's clarify what we mean by artificial intelligence.

AI is the branch of computer science dedicated to building machines that mimic human intelligence. The technologies that comprise AI (see sidebar) may be used independently or combined to create a solution.

AI solutions can be narrowly aimed at specific tasks or generalized to tackle a range of intellectual pursuits. They can help providers drive quality care outcomes and accelerate revenue collection while reducing margin pressures for providers. By automating processes and alleviating administrative burden, **clinicians operate at the top of their license**, enabling them to prioritize and provide optimal patient care.

Let's break it down with a few examples, including improvement metrics that our experience suggests are reasonable to aim for.

- Maximize **throughput** by accurately predicting patient demand and **length of stay**, increasing transparency into available beds, finding potential bottlenecks, automating discharge prioritization, and initiating actions to address flow barriers to enhance patient flow and reduce wait times. *Aim for: 4% to 10% improvement in avoidable days*
- **Optimize operating room blocks** by leveraging predictive analytics to reduce operational waste, increase administrative efficiency, and enable them to achieve peak performance. *Aim for: 10% to 20% increase in utilization*
- Accelerate **prior authorization** to improve operational efficiency, reduce denials, increase revenues, and enhance patient care based on a large language model's understanding of medical policy. *Aim for: 4% to 6% reduction in denials due to missing or incomplete information*
- Revolutionize **supply management** by optimizing preference cards and removing unused surgical instruments based on analytical insights. This can reduce wear and tear, drive down instrument costs, minimize surgical delays, and enhance patient satisfaction. *Aim for: 2% to 8% reduction in preference card cost*

- Automate **appeal letter generation** with generative AI technology, based on an understanding of medical policies from payers and plans to detail the underlying denial issues and show the resolutions needed to overcome the denial. *Aim for: appeal responses that are up to 30 times faster than before*
- **Predict staffing needs** in the immediate, short and near terms based on claims, electronic health records data, and environmental data for conditions such as asthma which may drive up volumes in the ER
- **Identify health equity gaps** and trends by leveraging AI to combine and mine large data sets like patient data, claims data, SDOH, etc.

A selection of AI technologies

Robotic process automation

Replaces repetitive, rules-based activities to reduce time spent on manual processes

Natural language processing

Interprets unstructured and structured data from handwriting or voice into contextually relevant content

Generative AI

A subset of artificial intelligence focused on the ability of machines to create original content across various modalities like text, images, audio, code, voice & video

Cognitive analytics

Analyzes complex datasets using AI and machine learning to identify patterns and insights

Machine learning

Through training, mimics human behavior in environments that cannot be pre-programmed

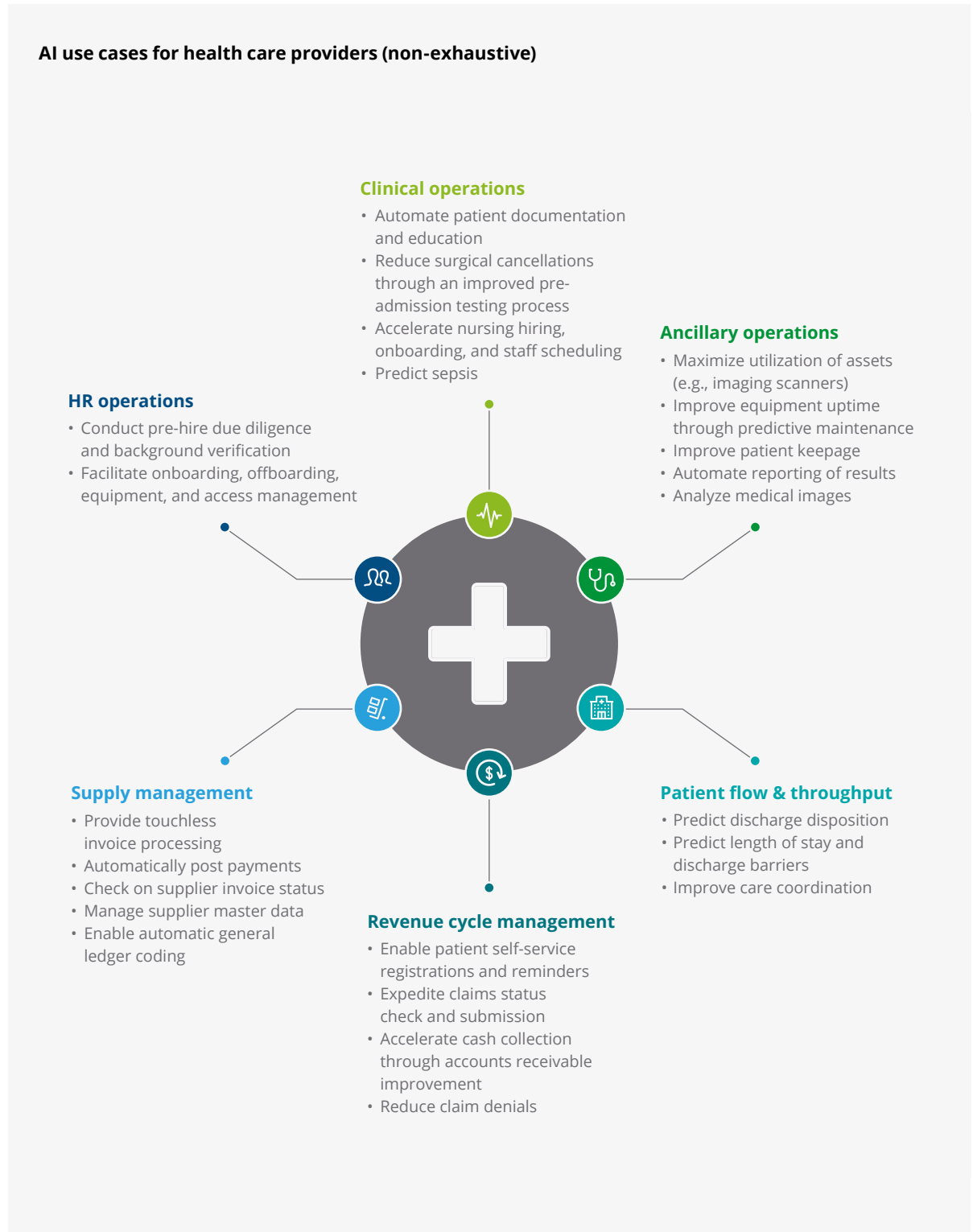
Intelligent data extraction

Intelligent or optical character recognition, paired with machine learning, converts structured and unstructured (e.g., paper) documents to digital data

Real-time location services

Track patients, clinicians, and assets in real time to optimize operations and logistics

Many other use cases exist for AI, generative AI, and automation to improve margins, boost efficiency, reduce clinician burnout, and enhance patient care. A non-exhaustive list appears in the following illustration.



The use of [AI in healthcare](#) is impacting the industry, our own level of care, and help expedite lifesaving treatments to the public.

Scaling the AI use cases

Despite its promise, AI has yet to achieve its full potential in hospital organizations. Many of the specific challenges with AI have less to do with the state of the technology than with health systems' ability to scale. In Deloitte's State of AI in the Enterprise survey, 50% of leaders say their top AI scaling challenges include:

- Anxiety over the change AI can/will bring to the industry
- Identifying use cases with the highest potential value
- Integrating data from various sources into a proper data infrastructure

A closer look reveals that organizations face unique challenges at various stages of AI implementation. During the initial phase, the main challenges are identifying the use cases that offer the greatest return on investment and proving AI's overall business value. As organizations advance and seek to expand their AI initiatives, several other barriers emerge. One is adequate maintenance of machine learning models and ongoing support. Another challenge is the scarcity of talent with the necessary expertise. There's also the complexity of integrating AI seamlessly into existing business processes, workflows, and systems. There needs to be attention to governance and monitoring AI development and implementation which can build [trust](#).

This underscores the importance of strong leadership and focused investment to ensure the success of an AI transformation. It also highlights how hard it can be to consistently fund initiatives after the initial excitement has waned. An AI-driven organization demands discipline and focus in maintaining systems and algorithms to continuously generate value instead of mere noise. This discipline and focus extend to actively identifying and comprehending all associated challenges that may not be immediately apparent during the early stages of an AI initiative.

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Health systems are already reaping the benefits of AI

- ☑ A leading healthcare provider improved throughput (and therefore margin) by using machine learning models to drive down avoidable days and optimize stay length. *Result: 10% improvement in avoidable days identified within 1st quarter*
- ☑ Another leading provider developed an AI and automation strategy to transform its talent acquisition function. *Result: a 70% increase in hiring speed and a 2,000-employee improvement in talent acquisition throughput within six months*
- ☑ A prominent revenue cycle outsourcer used AI to automate more than 12 million transactions, streamline financial clearance and registration, automate authorization processes, and reduce calls and no-shows through text reminders. *Result: \$35 million in annual savings*
- ☑ A large healthcare provider empowered its accounts payable function with various AI solutions to process over \$2.1 billion in invoices. *Result: A 70% reduction in manual processing costs, avoidance of \$385 million in duplicate payments, and \$25 million in savings over 18 months*

Strategic next steps

There's no single way to reduce financial pressures with AI. Much depends on what you want to accomplish and how you plan to achieve it. Culture also plays a role. Still, all organizations can take certain steps toward using AI to support clinicians and reduce margin pressures.

Invest in AI business models and solutions

When it comes to successful AI deployment and adoption, leadership, and culture matter. Fortunately, business leaders across the board are increasingly optimistic about the transformative potential of AI. Use this opportunity to establish new business models and solutions to drive greater results with AI. A transparent value realization framework can help you track business impact, while an executive champion is essential for crafting and translating the vision into achievable action steps and milestones.

Select use cases that accelerate outcomes

Use cases that are easier to achieve or have a faster or higher return on investment can create momentum for further investment. They can also make it easier to drive internal cultural and organizational changes that accelerate the benefits of AI. With that in mind, consider developing a portfolio of AI-enabled use cases to enhance clinical operations, revenue cycle management, and the human resources function. Then determine the capabilities you need to carry them out.

Adapt governance and AI operations

As we mentioned, your ability to deploy AI ethically and at scale depends on how well you've (re)designed your data structure and governance to accommodate the unique demands of this recent technology (see sidebar, "Developing trustworthy approaches to counter AI bias"). Be sure to do so in the context of reducing margin pressures with AI-enabled clinical solutions to improve operations. Automated MLOps with comprehensive auditability and governance can help you put AI into operation.

Elevate talent beyond technical skills

Technology and talent acquisition are no longer separate. As the line of distinction between digital and AI is blurring every single day, strategize your approach to AI based on the skillsets you have available, whether they derive from humans or prepackaged solutions. An AI foundry, or innovation and development studio with core flex staffing, is one option for delivering solutions in an agile way. Organizations are already placing Chief AI Officer roles to drive the AI thinking and getting the workforce ready.



Developing trustworthy approaches to counter AI bias

A Deloitte study shows that AI bias may be more prevalent within organizations than executives realize.⁵ This bias can aid faulty decision-making, and damage consumer trust and stakeholder relationships. In a critical sector like health care, the ramifications can be more severe given the potential to directly impact life and health. For instance, Deloitte research shows how faulty algorithms can cause racial bias in the United States, effectively reducing access and quality of care for certain communities.⁵

In the health care sector, it's vital for organizations to grasp how AI models predict outcomes for different groups. Equally important is their responsibility to ensure these models are well-trained and reflect the people they serve. Recognizing potential risks like bias, security, privacy, and reliability is crucial. Organizations should actively work to address these challenges. If not done appropriately, this can exacerbate inequities.

To that end, organizations can often achieve better outcomes when they adopt an ethical AI framework that aligns with Trustworthy AI principles.⁶ Across all attributes in Deloitte's survey, respondents from high-outcome organizations tend to report having more of these operational processes in place, which can help to increase confidence that their AI solutions are meeting ethical and quality standards.¹

Managing these risks can have a major impact on an organization's AI efforts. In fact, 50% of Deloitte survey respondents cite management of AI-related risks as a top inhibitor to scaling AI projects. Despite such sentiments, only 33% of respondents say they have aligned their AI risk management with their organization's broader risk management efforts. However, according to the same survey, 33% of high-outcome and 29% of low-outcome organizations do engage outside vendors to independently audit their AI systems.

Unleashing the power of AI

Here's a final thought to take with you: Treat AI as an investment. As you would with any other investment, create a portfolio of opportunities—in this scenario, a use case backlog—and methodically deploy AI against it.

The integration of AI and automation in hospitals and health care providers can revolutionize the healthcare landscape, paving the way for more efficient, accurate, and patient-centric services. By putting AI-driven diagnostics, predictive analytics, and robotic process automation to work, health care professionals can focus on what truly matters: delivering compassionate care and personalized treatment plans.

As always with AI, it's crucial to address ethical considerations, data privacy, and the need for continuous human oversight. Consider a balanced approach by using AI to complement the skill and compassion of health care providers. Embracing this evolution now can shape a more sustainable future for the industry while fostering a culture of innovation and excellence in the pursuit of patient care.

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Generative artificial intelligence (AI) has begun to unleash digital waves across industries, but its promise to transform health is only just beginning. [Discover how](#) this powerful technology can help bring unprecedented efficiency, effectiveness, and innovation to the health care sector—and explore a framework to help your organization realize its potential.

About Deloitte's Care Delivery Transformation and AI & Automation Services

Deloitte develops tailored strategic, operational, and AI-enabled solutions for a variety of health care settings. Our solutions help our clients focus on improving:



Care quality, efficiency, and effectiveness



Margin and overall profitability



Patient, employee, family, and member experience

Different organizations, and even different divisions in the same organization, are at various stages of their AI journey. We bring in scaled AI from proof of concept to industrialization, with a focus on:

- **Data to dollars.** Insights are actionable and monitored across time for value realization
- **Business intelligence (BI) to AI.** Retrospective and introspective BI (showing what happened, when, and how) pairs with predictive and preventive AI algorithms
- **Intelligent automation.** End-to-end processes are automated and orchestrated
- **Operation to innovation.** Businesses move to the edge of how they should evolve

With this strategy, we support enterprises in swiftly harnessing substantial business value through scalable AI capabilities. Our flexible and innovative engagement approach provides a tailored solution, with support from industry-leading alliances and powered by solutions and frameworks like the following:

- **ReadyAI.™** Accelerates your AI journey with fluid capacity and flexible capability—integrating specialist skills with tested assets and curated data sets to explore and scale the potential of AI technology
- **ConvergeHealth.™** Supports better outcomes across the industry, such as enhanced patient safety, improved patient care, increased cost efficiencies at scale, and optimized decision-making
- **HealthPrism.™** Mobilizes one of the largest social drivers of health datasets in the country to help improve health outcomes in vulnerable populations and empower decision-makers across health by revealing insights
- **Deloitte use case inventory.** Helps hospitals start their AI journey with a comprehensive list of AI use cases that can generate value across clinical and non-clinical functions



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Endnotes

1. [Key findings from the State of AI in the Enterprise](#), 5th edition, Deloitte, October 2022.
2. Andrew Sudimack and Daniel Polsky, "Inflation Is Squeezing Hospital Margins—What Happens Next?" Health Affairs, October 25, 2022, <https://www.healthaffairs.org/content/forefront/inflation-squeezing-hospital-margins-happens-next>.
3. Ron Southwick, "Hospitals facing 'very difficult year', with some signs of hope," Chief Healthcare Executive, April 6, 2023, <https://www.chiefhealthcareexecutive.com/view/hospitals-facing-very-difficult-year-with-some-signs-of-hope>.
4. "High U.S. Health Care Spending: Where Is It All Going?," October 2023 <https://www.commonwealthfund.org/publications/issue-briefs/2023/oct/high-us-health-care-spending-where-is-it-all-going>
5. [Addressing bias in health care](#), May 2022
6. [Trustworthy Artificial Intelligence \(AI\)™](#)



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