

# Transforming Healthcare with Artificial Intelligence



2026

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# Executive Summary

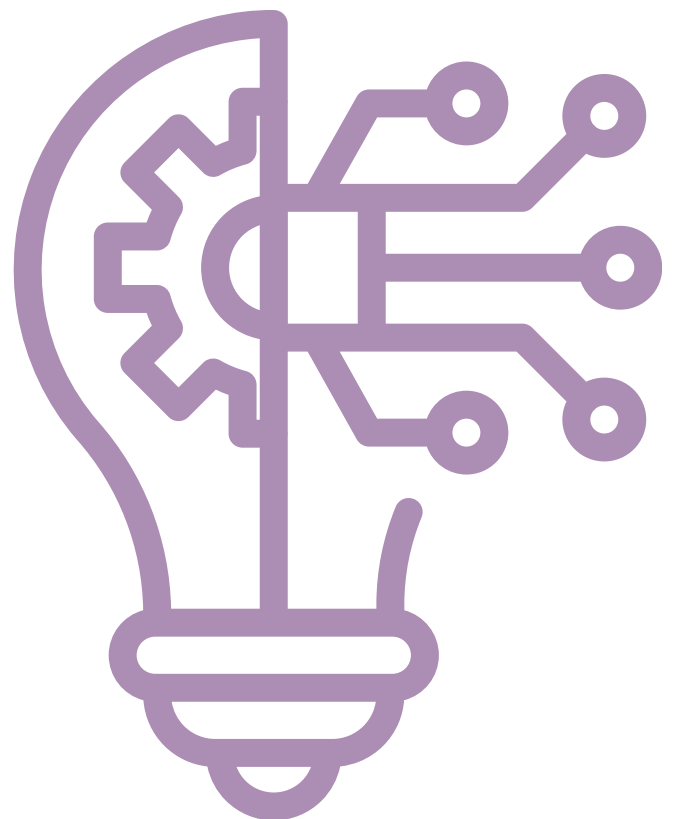
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Nearly every industry is looking to leverage the power of artificial intelligence (AI), and healthcare is no exception. Healthcare systems are under increasing pressure to deliver higher quality care while managing rising costs, volumes of client and provider data, workforce shortages, and compliance standards.

Traditional methods of delivering care and managing operations struggle to keep up with the pace of demand. As a result, healthcare organizations are implementing AI tools into their systems to streamline operational workflows, maintain compliance requirements, and enhance patient outcomes.

What started as an emerging innovation has become an essential part of modern care delivery. By analyzing large quantities of data, AI can identify patterns, automate administrative tasks, and support earlier diagnoses through machine learning, predictive analytics, and natural language processing. These capabilities allow healthcare professionals to focus on more personalized, data-driven care approaches.

This white paper explores the evolving role of artificial intelligence in the healthcare space and the opportunities it presents for innovation. As healthcare continues its digital transformation, AI will play an important role in enabling intelligent, scalable, and patient-centered care systems.



# Table Of Contents

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<b>The Need for Innovation in Healthcare.....</b>	<b>4</b>
<b>Key Applications of AI in Healthcare:.....</b>	<b>5</b>
<b>Key Applications: Real World Examples.....</b>	<b>6</b>
<b>Benefits of AI Adoption in Healthcare.....</b>	<b>7</b>
<b>Challenges &amp; Ethical Considerations.....</b>	<b>8</b>
<b>Incredible: Transforming Healthcare with AI.....</b>	<b>9</b>
<b>References:.....</b>	<b>10</b>

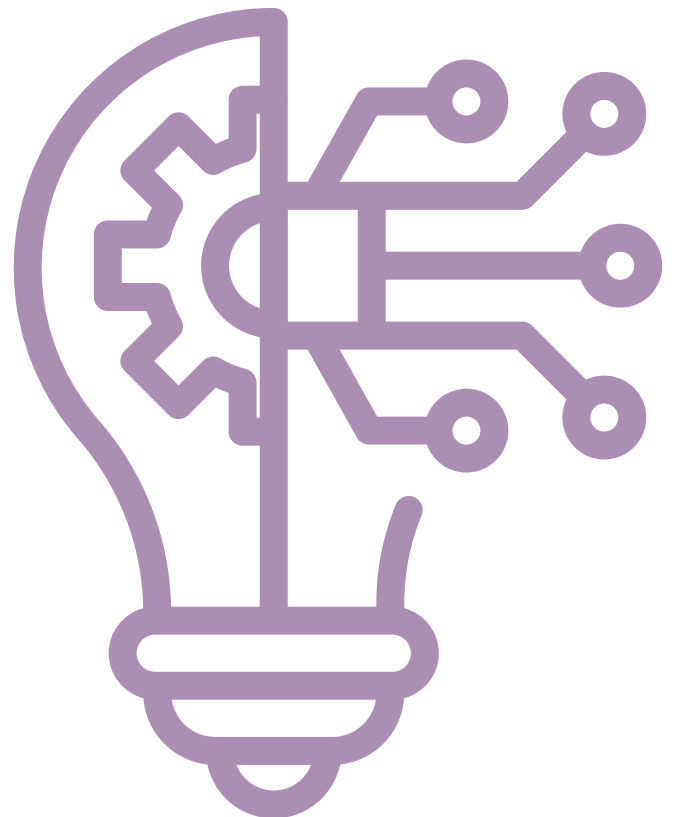
# The Need for Innovation in Healthcare

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Healthcare systems continue to face growing challenges that make delivering efficient, high-quality care increasingly challenging. Rising healthcare costs, physician shortages, and administrative burdens are just a few of the burdens healthcare providers continue to face. In the United States alone, the healthcare system is projected to face a shortage of nearly 100,000 healthcare professionals by 2028, further straining access to care and increasing workload for existing providers (Mercer, 2024).

Following the COVID-19 pandemic, the clinical workforce has experienced administrative burnout, burdens, and a lack of autonomy. While most of the widespread effects of COVID-19 have passed, the pandemic has altered the way we think about healthcare. Telehealth and telemedicine became integral during COVID and have since become a new normal in the healthcare space. These digital implementations accelerated the adoption of technology and AI in particular to evolve from an emerging innovation into an essential component of modern healthcare delivery.

Artificial intelligence has become increasingly relevant in addressing these challenges because of its potential to address major challenges, from financial constraints to workforce shortages. 66% of physicians reported the use of AI technologies in their practice in 2024, a figure that continues to grow as AI helps improve productivity and reduce paperwork while maintaining low risk to patient outcomes (AMA, 2024).



# Key Applications of AI in Healthcare

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The phenomenon of artificial intelligence is no longer just a futuristic concept in healthcare. As healthcare professionals continue to provide AI systems with diverse patient data and clinical inputs, these technologies are increasingly supporting evidence-based decision-making and enabling more personalized, proactive care. By analyzing patterns in complex datasets, AI can help clinicians anticipate patient needs, optimize treatment plans, and improve overall healthcare outcomes. AI is also transforming administrative workflows by automating routine tasks, reducing paperwork, and allowing healthcare staff to focus more on direct patient care.

## 4 Major Applications of AI in Healthcare:

- 1. Medical Imaging and Diagnostics:** AI in medical imaging helps clinicians detect and diagnose diseases more quickly and accurately. Machine learning algorithms can analyze radiology scans, MRIs, and CT images to identify patterns that may be easily missed by the human eye. For example, AI-assisted imaging systems have achieved over 95% accuracy in detecting cancers such as breast and lung cancer, sometimes outperforming human radiologists (Jiang et al., 2023). By supporting earlier detection, AI can improve patient outcomes and help reduce the amount of invasive procedures.
- 2. Predictive Analytics and Risk Assessment:** Traditional predictive analytics processes involve time-consuming manual analysis, but AI can analyze data at a massive scale, helping to identify trends and patterns. By analyzing patient histories, lab results, and real-time data, AI can forecast disease risk, predict hospital readmissions, and alert clinicians to potential health deterioration before becoming critical. Fine-tuning AI models helps make predictions more accurate by keeping the system updated and focused on specific healthcare tasks. Using predictive analytics and machine learning, AI can analyze patient data more effectively, helping healthcare professionals make better decisions and respond to potential problems earlier.
- 3. Clinical Decision Support:** Physicians face complex, stressful decisions daily. AI clinical decision support systems help the care team access, interpret, and apply clinical evidence at the point of care. AI tools can quickly analyze large amounts of medical literature, guidelines, and patient-specific data, helping to provide accurate diagnoses, personalized treatment plans, and better patient outcomes. To ensure safe, reliable, and evidence-based recommendations, AI clinical decision support tools must incorporate responsible AI principles at every stage of development and deployment. These principles include rigorous validation of training data, transparent sourcing of clinical evidence, bias mitigation, and continuous safety monitoring.
- 4. Administrative Task Automation:** AI for administrative tasks lets software handle daily office work that eats up valuable time, like scheduling, insurance verification, data entry, approvals, and more. AI tools can read context, make decisions, and act across apps so that professionals can focus more on direct patient care. By reducing repetitive administrative work, AI can help reduce burnout and save hours of work for professionals. The result? Improved job satisfaction, enhanced efficiency, and more focused care for patients.

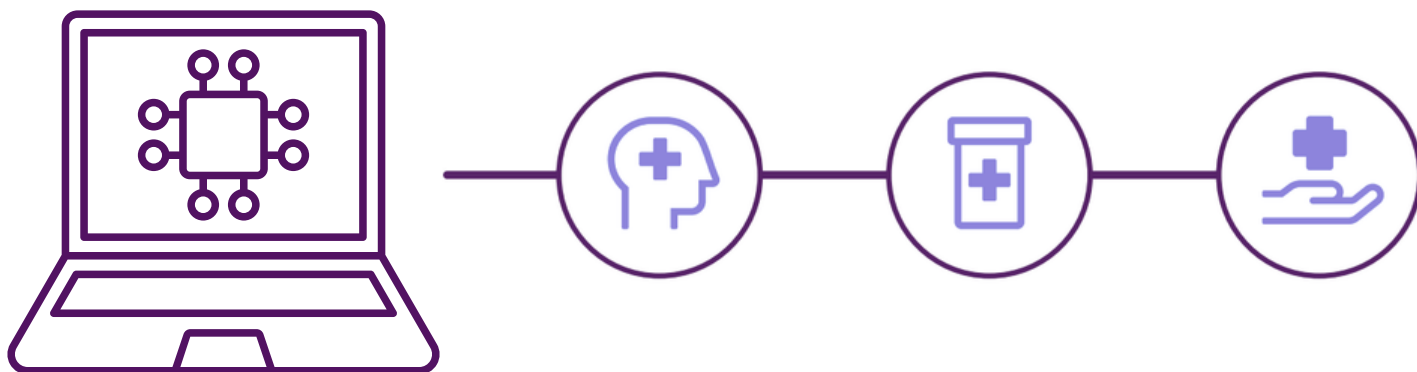
# Key Applications: Real World Examples

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A real-world example can illustrate how AI can be used for clinical decision support. For example, when reviewing possible medications and accurate dosages for a patient, such as an elder with renal impairment, a provider can enter a natural language query into an AI system and quickly receive context-specific, evidence-based recommendations. Instead of spending time manually researching drug monographs or medical literature, AI clinical decision support can provide the healthcare professional with concise information tailored to the patient's demographics and medical conditions.

This accelerated access to necessary information saves valuable time, reduces workload, and supports safer medication decisions. Integrating AI into this renal impairment case can further enhance clinical efficiency, ensure dosing accuracy, and allow healthcare professionals to dedicate more attention to direct patient care.

Another practical example of using AI in the healthcare space is within medical imaging. AI algorithms can analyze radiology scans and accurately detect abnormalities such as tumors or fractures. This helps healthcare professionals spot potential issues early, reduce the risk of a missed diagnosis, and focus on communicating care plans to their patients.



# Benefits of AI Adoption in Healthcare

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Artificial intelligence is driving measurable improvements across clinical, operational, and financial aspects of healthcare delivery. When trained on relevant data, AI systems can analyze large quantities of information to uncover patterns and support faster, more informed clinical decision-making. Some AI technologies can learn and improve over time, refining their recommendations based on new data and feedback. AI is an umbrella term that encompasses tools such as machine learning, natural language processing, and predictive analytics, each of which can contribute to improving healthcare delivery. By implementing AI tools into their workflows, healthcare organizations can enhance patient outcomes, streamline operations and reduce clinician burden, optimize costs and resources, and increase system agility and patient safety.

One of the most tangible benefits of using AI in the healthcare space is its ability to improve patient outcomes. AI-driven tools, such as predictive models and clinical decision support systems, can quickly analyze patient data to identify risks, recommend treatments, and reduce human errors. Research shows that AI systems can reduce diagnostic errors by up to 37% (HNA, 2026), improving the accuracy of diagnoses and patient safety. If AI-assisted monitoring systems can detect early signs of disease (among other concerns), that means timely intervention can improve patient survival rates.

Operational efficiency and clinical burnout have been other concerns in the healthcare space, especially since the pandemic shed light on these issues and their impact on patient care. By automating administrative tasks such as scheduling, claims processing, and payer documentation, AI provides healthcare professionals with more time to spend on patient care while reducing stress, fatigue, and burnout amongst staff. A major concern about AI across industries is that it will replace human connection, but in healthcare, AI is actually helping providers spend more time with their patients, strengthening the relationship between patient and provider.

Financially, AI can offer substantial cost savings and improved resource optimizations. Healthcare spending in the United States reached roughly 18% of GDP in 2023 and could rise to 25% by 2050 if current trends continue. AI technologies may help slow this growth by improving efficiency in areas such as hospital operations, drug discovery, scheduling, and supply chain management. Research from Morgan Stanley estimates that AI-driven innovations across healthcare could generate between \$400 billion and \$1.5 trillion in savings by 2050. By improving clinical operations, reducing unnecessary procedures, and optimizing resource allocation, AI-driven efficiencies within hospital systems alone could contribute \$300 billion to \$900 billion in cost reductions (Morgan Stanley, 2025).

Finally, AI supports system agility and patient safety. Through tools such as real-time monitoring, AI enables healthcare organizations to quickly respond to changing conditions, like patient surges or emerging health risks, while maintaining high standards of care. AI provides accurate and personalized information, helping professionals make informed decisions that improve patient trust and satisfaction.

# Challenges & Ethical Considerations

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Despite the potential benefits AI brings to healthcare systems, its adoption and implementation also present important challenges that should be considered to ensure safe and reliable use. Challenges such as data quality, algorithmic bias, model transparency, patient privacy, and workforce training must be carefully addressed to ensure AI tools are deployed responsibly and can be trusted within the healthcare industry.

One major concern for AI in the trusted healthcare space is data quality and availability. AI systems rely on large volumes of clinical data to properly function. AI tools are only as good as their data, and data quality issues can compromise decision-making and other data-driven workflows within an organization. Inconsistent, duplicate, or incomplete data are common examples of data quality issues that can lead to inaccurate, irrelevant predictions or biased outcomes. Addressing these challenges requires strong data maintenance practices, standardized data collection, and rigorous data validation to ensure AI systems are accurately trained.

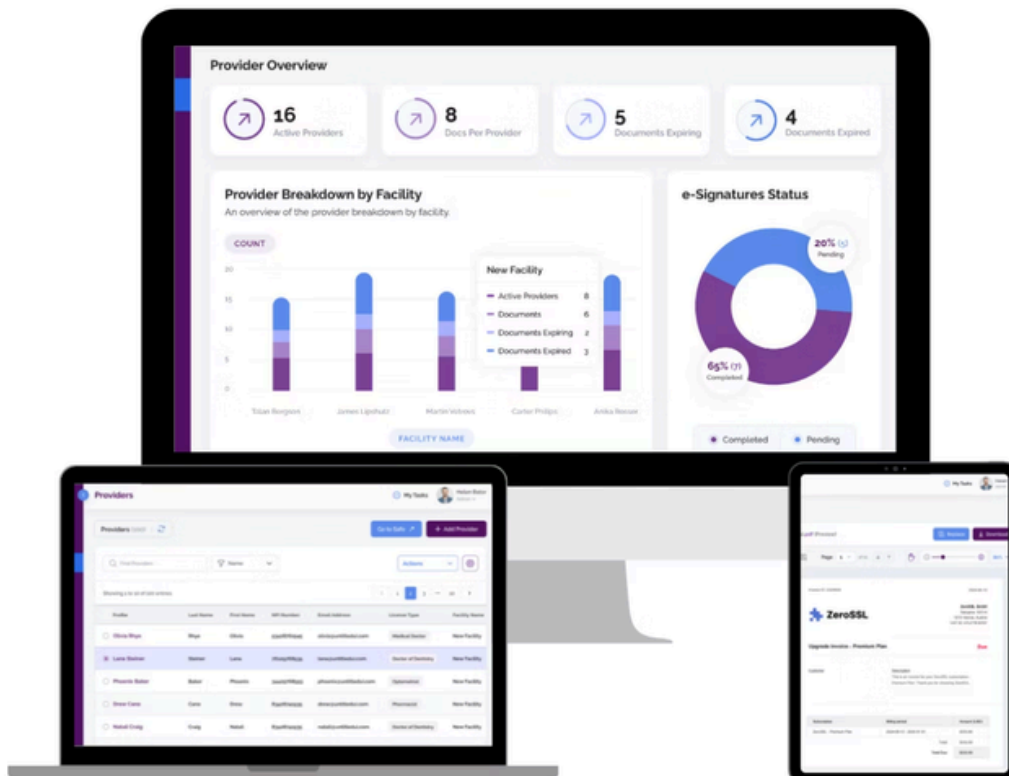
Another important concern in healthcare is algorithmic bias. Algorithmic bias occurs when AI systems produce unfair or inaccurate outcomes because the data used to train an AI algorithm is not diverse or representative (Chapman University, n.d.). If AI systems are trained on datasets that do not accurately represent diverse patient populations, the models may generate biased recommendations or unfair outcomes. To avoid disparities in diagnosis or treatment recommendations based on algorithm bias, healthcare professionals must continuously monitor AI systems and ensure that systems are analyzing diverse and representative data.

Regulatory oversight and data privacy are essential considerations of using AI in the healthcare industry. Healthcare organizations must remain compliant with strict privacy protections, such as those outlined under the Health Insurance Portability and Accountability Act (HIPAA). HIPAA establishes national standards to protect patients' medical records and other private health information and requires healthcare organizations to ensure that this confidential data is not disclosed in error (U.S. Department of Health & Human Services, n.d.). AI systems must also meet these regulatory standards for safety, and will require users to establish clear governance frameworks and monitoring so that patient trust is maintained.

Lastly, there remains a limited familiarity with the proper use of AI technology in the healthcare industry. Until recently, AI and data science were rarely included in medical school curricula, and many practicing professionals haven't received formal training on using and interpreting AI systems. This knowledge gap can slow the implementation of AI systems and create uncertainty when using AI tools in workflows. Organizations will need to invest time in educating and training professionals so that there is a confident, unified understanding of how to effectively integrate AI technologies into patient care.

# Incredible: Transforming Healthcare with AI

Incredible, a subsidiary of Intiva Health, has been redefining credentialing with its seamless, AI-integrated one-stop-shop platform. For years, credentialing has traditionally been a manual and error-prone process that wasted valuable time for providers. Incredible helps automate workflows and administrative tasks through AI-enhanced capabilities such as automated alerts for expiring documents and licenses, custom workflow creations, primary source verification, payer enrollment tracking, and ongoing sanction monitoring. Incredible also directly integrates with third-party verification systems such as DEA Lookup and National Practitioner Data Bank (NPDB) to help organizations save time and remain compliant. Additionally, providers with the Incredible app receive a unique digital ID with a scannable QR code that provides access to verified credentials. The goal of Incredible's AI-enhanced platform is to reduce compliance risk, automate workflows, and help healthcare professionals save time so they can focus more on patient care. Looking ahead, the future of AI is continuously evolving and not going away any time soon. Incredible is poised to continue transforming healthcare operations by expanding its AI capabilities and helping healthcare professionals ....



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