

LATEST TECH TRENDS IN PROVIDER REVENUE CYCLE SERVICES

How Automation, AI, and Data are
Transforming Hospital Revenue Cycles



TABLE OF CONTENTS

- Executive Summary
- Introduction: The State of the Provider Revenue Cycle Today
- What's Driving Change: The Need for Tech Transformation
- Emerging Technologies Reshaping Revenue Cycle Management
- Insights from the Field
- The Role of IT Service Providers in the New RCM Era
- Future Outlook: What's Next for Revenue Cycle Tech?
- RCM Reimagined: Final Reflections
- References

Executive Summary

The U.S. Healthcare Sector is at a pivotal point, moving towards digital transformation- particularly in the provider revenue cycle. Owing to rapidly advancing technology, this sector has seen tremendous progress over the past decade.

Healthcare organizations have begun to face tighter margins and growing regulatory requirements making it imperative to adopt technology for the purpose of making operations easier. The healthcare sector also took a substantial hit during the COVID-19 pandemic, further increasing pressure on providers.

This paper aims to explore how new technology will change hospital revenue cycles and how IT service providers will deliver these services. It seeks to provide a clear picture of the healthcare sector's ongoing transformation through its operational and financial improvements. From technologies like Robotic Process Automation (RPA), Natural Language Processing (NLP), Generative AI and much more, emerging technologies are proving to be effective in increasing the efficiency in RCM.



Introduction: The State of the Provider Revenue Cycle Today

Management of the financial aspects of patient care, from the first consultation to the final payment is known as the revenue cycle. Often referred to as Revenue Cycle Management (RCM), this process encompasses all operations, like registration, verification, billing, coding, and numerous other functions.

The revenue cycle is an elaborate process, with its own hurdles at every step. It tends to be time consuming and has a high error margin. It tends to be complicated, especially due to flaws in the Billing and Coding processes. Inaccurate coding, outdated codes and incorrect submissions may lead to revenue loss. For instance, according to an analysis by Change healthcare, it has been observed that 5-10% of healthcare claims are denied annually, representing a potential loss of up to \$262 billion for the industry. Significant inefficiencies in conventional denial management systems are highlighted by the startling estimate that 65% of denied claims are never resubmitted. With appeals costing anything from \$25 to \$50 each claim, dealing with these denials is equally expensive.

5-10% of healthcare claims are denied annually, representing a potential loss of up to **\$262 billion** for the industry

About **65%** of denied claims are never resubmitted.

Coding and patient data errors are estimated to be the root cause of almost **65%** of claim denials, according to the Medical Group Management Association (**MGMA**).

Some of the key areas of difficulty in the RCM process include- claim denials, inaccurate data entry, billing errors, delays in processing, etc. In fact, coding and patient data errors are estimated to be the root cause of almost 65% of claim denials, according to the Medical Group Management Association (MGMA).

Pressure on Healthcare providers is constantly increasing to improve efficiency and cut costs due to shrinking margins, labour shortages, demand for digital transformation, etc.

What's Driving Change: The Need for Tech Transformation

The current RCM system is plagued with several flaws concerning human inaccuracy, speed and efficiency. Providers are threatened by increasing staffing shortages and shrinking margins, impacting patients as well. Labour costs are increasing and to manage increasing patient financial responsibility, providers are forced to invest in financial tools.

With constant regulatory and compliance changes, revenue cycle operations are directly impacted. New coding standards and new rules around billing are some examples of such change. The No Surprises Act, having increased transparency requirements for providers, places additional responsibility on RCM teams to improve accuracy.



In order to navigate such challenges, it is crucial for the revenue cycle to go through a technology-driven transformation. According to a recent analysis by McKinsey, automation might drastically lessen the workload for overburdened RCM teams by reducing healthcare administrative costs by up to 30%. By embracing digital tools, providers may enhance the experiences of both patients and employees while swiftly responding to changes in regulations.

Emerging Technologies Reshaping Revenue Cycle Management

Robotic Process Automation (RPA): Robotic Process

Automation or RPA is a technology that automates repetitive processes across several applications and systems, like data entry and transaction processing, using software robots. "Bots" mimic human interactions and handle repetitive tasks in digital systems like data entry, claim processing etc.

Natural Language Processing (NLP): NLP uses AI to understand and process human language in medical records. It is a field that combines computer science, AI and language studies in order to increase operational efficiency.

Predictive Analytics/Machine Learning: Involves analysis of historical data through machine learning to make predictions and optimize financial performance. Some examples of its functions are- Forecasting future revenue, identifying potential claim denials and predicting patient payment behavior.

AI Usage (for coding and screening): AI is used in automating code extraction from medical documents thereby improving accuracy. It helps with reducing denials by analyzing past data. Chatbots and virtual assistants driven by AI can assist patients with issues about insurance coverage, payment options, and billing as well.

Agentic AI: The term "Agentic AI" describes artificial intelligence systems that behave autonomously, functioning as agents in their surroundings to accomplish predetermined objectives. In contrast to conventional AI systems that need human input to make decisions, agentic AI functions autonomously, navigating and interacting with its environment using internal models, learning algorithms, and decision-making processes.

Cloud Based RCM platforms: These are web-based platforms offering end-to-end RCM services. A discernible trend in the healthcare sector has been the use of cloud-native technologies, which provide improved cost control, data accessibility, and efficiency throughout the revenue cycle.

Mayo Clinic: It is known to use AI for research, administrative processes, predictive analytics, claim processing, coding, etc. A new \$10 million artificial intelligence education program is being launched at the Mayo Clinic in Minnesota to teach medical professionals and personnel how to use the best AI technology for patients in an ethical manner.

A Southwest health institution enhanced its procedures for financial clearance and care coverage. In order to assist in updating medical records and entering insurance information into various financial systems, it had 22 operational bots as of 2022. These bots handled almost 90 million records over the course of a year, saving 1.73 million worker-hours. Some of the 40 bots in use by 2024 were temporary remedies for interoperability until more dependable alternatives were developed.

Cleveland Clinic: Has partnered with IT service providers to apply several AI-powered tools during the revenue cycle. This will enable coders to use a coding AI assistance tool that aids thorough, effective, and precise coding techniques. Additionally, a second AI tool is in the works, focused on clinical documentation integrity (CDI).

An autonomous 99-bed rural hospital employs AI-powered computer-assisted coding to recommend relevant medical codes. Over the previous ten years, the hospital's discharged-not-final-billed cases decreased by 50%, coder productivity improved by over 40%, and the case mix index increased by 4.6%. The financial impact that resulted was somewhat more than \$1 million USD, which is more than ten times the amount that was spent on the technology solution.

Seattle Children's Hospital: In collaboration with Google Cloud, Seattle Children's Hospital is creating Pathway Assistant, an AI-powered tool. The purpose of this AI agent is to assist physicians by quickening clinical decision-making by providing easier access to evidence-based, standardized care pathways. Structured CSW data, free-text clinical notes, and visual data like diagnostic images are only a few of the inputs that the AI agent interprets and synthesizes. Following that, it displays this data in a way that is practical, clinician-friendly, and customized for the particular patient.

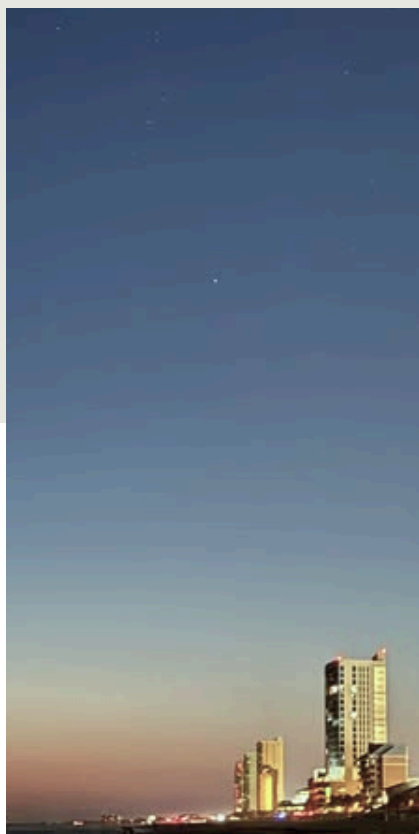
The Role of IT Service Providers in the New RCM Era

Solutions3X combines automation, AI-powered technologies, and domain expertise to provide a comprehensive, tech-enabled approach to revenue cycle management. IT service providers are evolving, now offering services powered by analytics, automation and cloud-based tools. Due to this shift, providers have gradually begun to move away from manual processes, leaning heavily towards more data-driven operations.

With the right technology, health systems can decrease denials, speed up reimbursement cycles and increase claim accuracy. Additionally, modern platforms offer a variety of features like intelligent coding and real time eligibility checks, which directly improve patient satisfaction and financial performance. According to HFMA, companies who completely automate their revenue cycle see an increase in the clean claims rate of up to 30%.

Revenue cycle employees devote a large portion of their time on pre-registration and scheduling in the front end (or patient access). It is estimated that technology can save between 38% and 47% of time, or roughly 700 to 870 hours annually per scheduler, according to Deloitte Insights. IT service providers would help through the use of technologies that automate pre-registration and scheduling, speeding up the procedure and lowering staff workload. Health systems are becoming more and more reliant on technology and artificial intelligence (AI), which makes these tools crucial for developing a quicker, more intelligent, and more resilient revenue cycle.

As the RCM landscape continues to change, IT service providers will soon be central to it, essential to redesigning complex processes. Over 90% of healthcare executives, according to Deloitte, intend to boost their spending on RCM technology and collaborations with IT service providers within the upcoming three years. The future of RCM will belong to those who manage to integrate cutting-edge technology with a deep understanding of healthcare.



Future Outlook: What's Next for Revenue Cycle Tech?

RCM is expected to go through a significant digital transformation over the next 5 years, replacing human labor with more AI oriented operations. This should result in increased efficiency, reduction of errors and delays as well as lower operational costs. With a compound annual growth rate (CAGR) of 12.21%, the RCM market is expected to reach \$140.3 billion by 2032 from \$49.8 billion in 2023. This further supports the need for efficient revenue management solutions.

A Pulse Survey conducted by the Healthcare Financial Management Association (HFMA) and AKASA found that about 46% of hospitals and health systems currently use AI in their RCM operations. With 74% of hospitals employing some kind of revenue-cycle automation, including AI and robotic process automation (RPA), this development is a part of a larger trend toward automation in the healthcare industry.

Healthcare organisations will be more proactive, leaning more heavily on prediction and prevention rather than reaction to deal with problems. Value-based care models, automation, AI, and improved patient involvement can all help providers increase productivity, profitability, and compliance.



RCM Reimagined: Final Reflections

Due to factors like declining margins, changing payment methods, growing patient financial responsibility, and complicated regulations, the provider revenue cycle is undergoing a significant transition. Technology is more of an enabler than a supporting function now- with AI, automation and other tools, providers are able to overcome several challenges in RCM.

In order to succeed in the new era, providers must partner with creative, forward-looking service providers that bring both knowledge and the ability to execute. Focus must be given to the patient financial experience and operational efficiency. These partnerships will be essential to fostering long-term growth, helping providers be more adaptable while delivering a smoother, patient-centered financial journey.

In such a rapidly evolving healthcare market, in order to stay relevant, it is essential for providers to embrace innovation that improves both operational and financial results. Going forward, technology, collaboration and data intelligence will drive revenue cycle management – and the time to act is now.

References

1. Allzone Management Services. (n.d.). The Future of RCM: Trends, AI, Automation & Value-Based Care. Retrieved from <https://www.allzonems.com/future-of-rcm-trends-ai-automation-value-based-care/>
2. American Medical Association. (n.d.). How Geisinger Uses Robotics and AI to Improve Care and Find Value. Retrieved from <https://www.ama-assn.org/practice-management/digital-health/how-geisinger-uses-robotics-and-ai-improve-care-find-value>
3. Avasant. (n.d.). RCM Outsourcing on the Rise Due to COVID-19 and Changing Reimbursement Models. Retrieved from <https://avasant.com/report/rcm-outsourcing-on-the-rise-due-to-covid-19-and-changing-reimbursement-models/>
4. Beckers Hospital Review. (2024). The Next Era of Revenue Cycle: What Hospital Leaders Should Know. Retrieved from <https://go.beckershospitalreview.com/financewp/the-next-era-of-revenue-cycle-what-hospital-leaders-should-know>
5. Centers for Medicare & Medicaid Services. (2024). No Surprises: Understand Your Rights Against Surprise Medical Bills. Retrieved from <https://www.cms.gov/newsroom/fact-sheets/no-surprises-understand-your-rights-against-surprise-medical-bills>
6. Deloitte. (2024). GenAI in Revenue Cycle Management. Retrieved from <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/gen-ai-in-revenue-cycle-management.html>
7. Flobotics. (n.d.). RCM Trends 2024. Retrieved from <https://flobotics.io/blog/rcm-trends/>
8. Healthcare IT Today. (2024). The Mayo Clinic Platform Integrates Healthcare AI Innovation. Retrieved from <https://www.healthcareittoday.com/2024/09/06/the-mayo-clinic-platform-integrates-healthcare-ai-innovation/>
9. HFMA. (2023). Improving Clean Claims Rate Through Automation [as referenced in industry benchmarking].
10. Mayo Clinic. (n.d.). Artificial Intelligence at Mayo Clinic. Retrieved from <https://www.mayoclinic.org/giving-to-mayo-clinic/our-priorities/artificial-intelligence>

11. MDClarity. (n.d.). Revenue Cycle Management in Healthcare. Retrieved from <https://www.mdclarity.com/blog/revenue-cycle-management-healthcare/>
12. McKinsey & Company. (2022). The Next Wave of Healthcare Innovation: The Role of AI and Automation in Administrative Cost Reduction
13. Revedy. (2024). AI and Automation in Healthcare: Insights from RCM Leaders at HFMA Las Vegas 2024. Retrieved from <https://revedy.io/ai-and-automation-in-healthcare-insights-from-rcm-leaders-at-hfma-las-vegas-2024/>
14. Thoughtful AI. (n.d.). The Future of Revenue Cycle Management: Market Analysis and Growth Trajectory. Retrieved from <https://www.thoughtful.ai/blog/the-future-of-revenue-cycle-management-market-analysis-and-growth-trajectory>
15. Change Healthcare. Revenue Cycle Denial Rates and Rework Costs in U.S. Hospitals. 2017. Healthcare Finance News, <https://www.healthcarefinancenews.com/news/change-healthcare-analysis-shows-262-million-medical-claims-initially-denied-meaning-billions>.
16. "Claims Appeals Cost Hospitals \$8.6B Annually." HealthLeaders Media, 2018, <https://www.healthleadersmedia.com/finance/claims-appeals-cost-hospitals-86b-annually>.
17. "Medical Claim Denials & Appeals: Statistics That You Want to Know." DrCatalyst <https://www.drcatalyst.com/blog/medical-claim-denials-appeals-statistics-that-you-want-to-know>
18. "Seattle Children's and Google Cloud launch AI-powered Pathway Assistant to support clinical care." Business News Today <https://business-news-today.com/seattle-childrens-and-google-cloud-launch-ai-powered-pathway-assistant-to-support-clinical-care/>
19. "Cleveland Clinic and AKASA Announce Strategic Collaboration to Launch AI Tools for the Revenue Cycle" Cleveland Clinic Newsroom <https://newsroom.clevelandclinic.org/2025/04/29/cleveland-clinic-and-akasa-announce-strategic-collaboration-to-launch-ai-tools-for-the-revenue-cycle>
20. "3 Ways AI Can Improve Revenue-Cycle Management" AHA <https://www.aha.org/aha-center-health-innovation-market-scan/2024-06-04-3-ways-ai-can-improve-revenue-cycle-management>
21. "Technology and health care workforce" Deloitte Insights <https://www2.deloitte.com/us/en/insights/industry/health-care/technology-making-health-care-work-more-meaningful.html>