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White Paper

The AI Roadmap for Healthcare Revenue Cycle: A Step-by-Step Guide

Start
Intro

Step 1:
Understand the challenge

Step 2:
Choose the right AI

Step 3:
Evaluate implications

Step 4:
Identify AI champions

Step 5:
Find the right model

Step 6:
Consider vendors

Step 7:
Measure the ROI

Step 8:
Next steps

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The AI Roadmap for Healthcare Revenue Cycle: A Step-by-Step Guide

AI's potential in hospitals is massive — but so is the pressure on healthcare leaders. Boards want innovation (and they want it yesterday). Internal teams want efficiency. And everyone can agree that they want AI to streamline operations, cut costs, and drive the mission forward.

But let's be real: "AI" is an umbrella term big enough to cover everything from simple chatbots to game-changing automation.

So how do you separate the signal from the noise?

How do you justify the investment when margins are tight and budgets are under a microscope?

How do you choose the right solution for your team?

And isn't AI expensive?

If you've had questions like these, we're glad you're here. We're here to take you through it, one step at a time.

As a leader in clinical AI, we've developed a proven roadmap to help hospitals like yours evaluate, implement, and measure AI in the revenue cycle. **This step-by-step guide will walk you through everything — from assessing solutions and getting buy-in, to ensuring real ROI**.

Let's start at the beginning and make AI work for you and your organization's challenges.

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Step 1: Understand the challenge you're trying to solve and the data available

How can AI help your hospital?

At a time when seemingly every vendor has AI in their product descriptions, it can be overwhelming to distinguish them. Before engaging, it's best to look within: What challenges at your hospital or health system are most ripe for AI? Where are your gaps and your biggest pain points? If current technology and processes haven't fully solved it, you may have found a great place to start.

With your potential challenges identified, zero in on the one that has the most accessible, quality data (which AI needs to be effective!).

Consider where your best data is, and if you're willing to share it with a vendor to achieve significant results.

From there, it's time to explore what you want the end result to look like based on the challenge. For example, are you looking for time savings? Happier staff? Cold, hard ROI? All of the above? No matter what it is, you'll be best prepared for the subsequent steps if your problem and ideal solution are clearly defined.

Taking action

Engage frontline staff and leadership to identify pain points, then sort AI opportunities into categories.

For example, operational efficiencies, revenue optimization, and clinical decision support are categories to align AI investments with strategic priorities. From there, if you don't intimately know the people and data within each, take the time to meet with them, understand their challenges, and explore the data.

We've found that hospitals achieve the greatest success with AI when they've realized a snowball effect: Start small, get a win, and then scale.

Real-world example

Within a large Southeastern health system, one CDI leader knew there were likely opportunities to apply AI. But first? She undertook fully understanding the challenge. She realized they didn't have their arms around just how many opportunities they were leaving on the table, and where those opportunities lie. **She researched and implemented new chart impact metrics and discovered that their team was touching much fewer charts than they thought**.

Instead of using more budget (that might not exist) to hire more staff members (that are hard to come by) to review 100% of patient charts, she pursued an AI solution that could help them do that specifically — an outcome that may have been different had she not started at the root challenge.

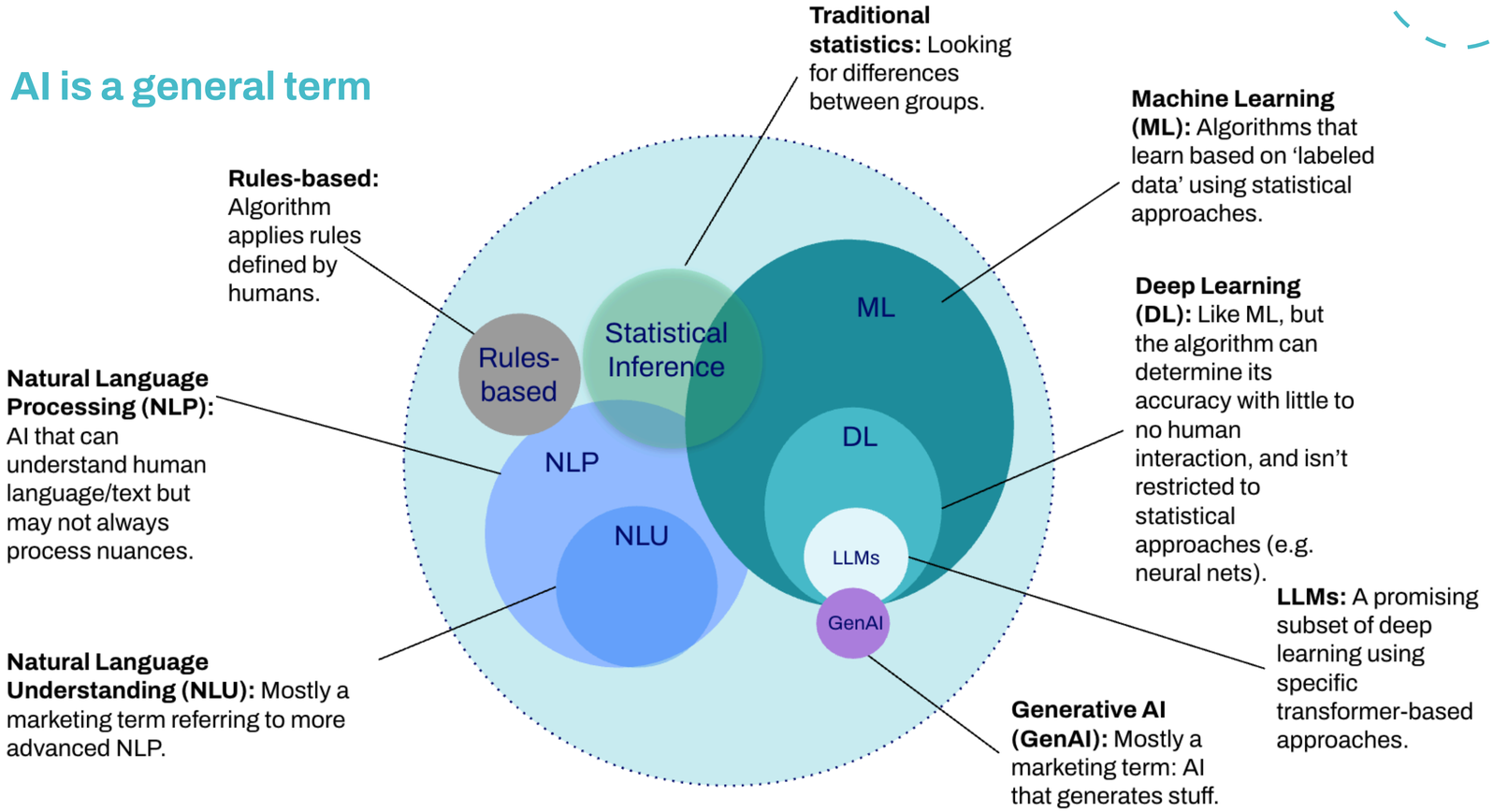
Step 2: Choose the right AI for your challenge

Understand the differences

AI isn't one-size-fits-all — different types of AI solve different challenges in hospital revenue cycles. While you don't need to be an AI expert, **having a basic understanding of the key technologies can help you choose the right solution for your organization**.

For example, Machine Learning (ML) and Deep Learning (DL) analyze structured data like medications, lab results, orders, vitals, and radiology — key clinical indicators from a patient's visit — and billing data. Natural Language Processing (NLP), on the other hand, extracts meaning from unstructured text, such as physician notes documented in the patient chart.

AI is a general term



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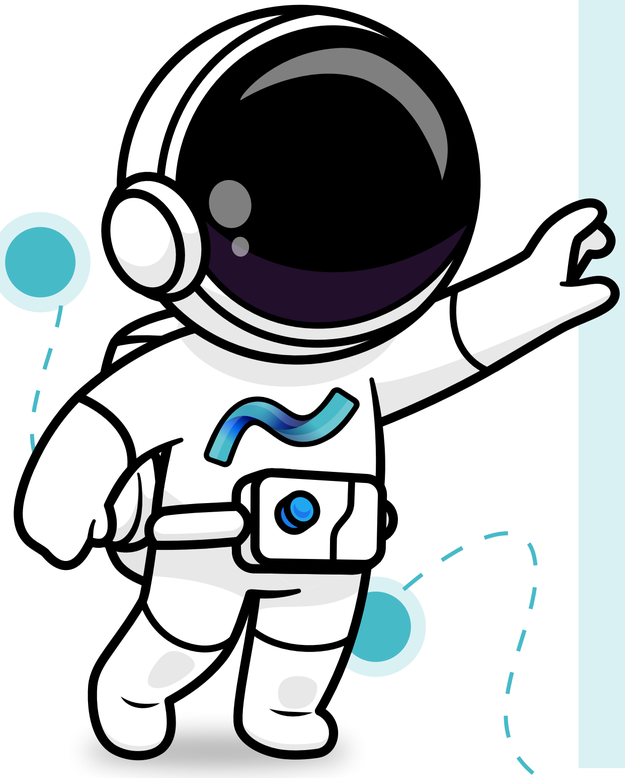
Step 2: Choose the right AI for your challenge



Taking action

Healthcare data is notoriously complex, making it essential to assess its readiness for AI. Reflecting on the challenge you identified in Step 1, consider the types of data involved. Is it structured (like lab results and billing codes) or unstructured (like physician notes)? Can AI effectively analyze the data in its current state, or will it require preprocessing or normalization?

Additionally, ensure the data can be securely shared with an AI vendor — taking proper precautions like a Business Associate Agreement (BAA) and other compliance measures to safeguard protected health information (PHI).

Real-world example

Many hospitals rely on prioritization algorithms to flag charts that may have missing or incorrect diagnoses. While helpful, this type of AI alone isn't comprehensive. **Research shows that 60% of missed and incorrect diagnoses are rare diagnostic codes.**[1] Our research indicates that a large amount of diagnoses being missed or sent to final billing without another review, which could add up to millions in missed revenue and lower quality of care scores.

More advanced AI models and algorithms that combine AI types like ML and LLM are able to continue improving without your team manually needing to make updates. Simply agreeing or disagreeing with AI suggestions enables the algorithms to improve automatically. **In other words, the longer you use AI, the more precise it becomes**.

Angela Comfort, DBA, MBA, RHIA, CDIP, CCS, CCS-P, Assistant Vice President Revenue Integrity at Montefiore Health System, recently described the importance of ML within CDI.

"[Machine learning] is especially important as healthcare organizations deal with frequent updates to ICD and CPT codes," she said. "The AI needs to be able to adapt, ensuring that your coding and documentation are always up-to-date and compliant. Machine learning helps the AI remain dynamic, continuously evolving as new guidelines are introduced."

Given the constantly evolving nature of the revenue cycle and its data, choose AI that can dynamically adapt as necessary to provide the biggest impact for your organization.

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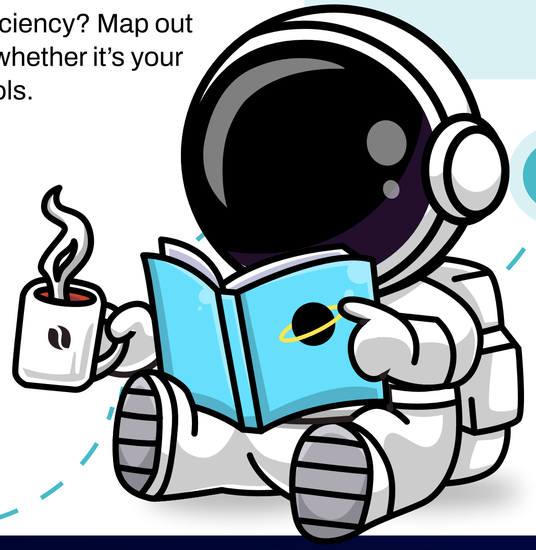
Step 3: Evaluate implications for your team and workflows

Considering how new tech will affect your processes

New technology doesn't exist in a vacuum — it impacts people, processes, and workflows. The key to a successful AI implementation isn't just choosing the right tool; it's ensuring your team can seamlessly integrate AI into their daily routines without disruption. Before implementing AI, take a close look at your existing revenue cycle processes. Where will AI fit in? Will it automate tedious manual work, assist with decision-making, or provide insights to improve efficiency? Map out how AI will interact with current systems, whether it's your EHR, billing platform, or other financial tools.

Taking action

The right AI solution should be designed to work with — not against — your staff. Integration with minimal friction is a must. Features like intuitive interfaces, seamless EHR integration, and automated insights. Consider small pilot programs before full-scale implementation to gather feedback and refine processes.



Real-world example

A large national health system with ~300 patient discharges annually already had additional staff and supplemental support in place to help with second-level patient chart reviews. But they were determined to identify as many missing revenue and quality opportunities as possible — without disrupting their current technology and workflows. They researched and selected a clinical AI partner that came into play after their current review processes and before final billing to make educated recommendations for their CDI team to validate.

The result?

An additional

$54M in annual net new revenue

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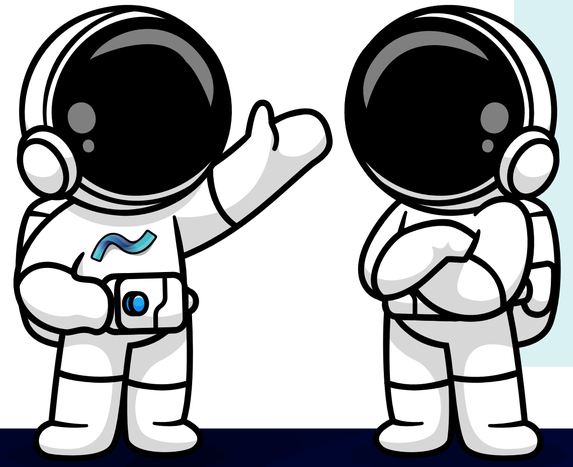
Step 4: Identify AI champions at your hospital

Assemble your AI team

Rome wasn't built in a day and it certainly wasn't built alone. When it comes to AI implementation, you need to have the right team on board. A successful rollout requires a dedicated AI leadership team that can help you advocate for adoption, ensure smooth integration, and measure its impact. These AI champions will be the driving force behind turning strategy you've defined into execution.



Taking action

Identifying champions to implement AI at your organization means getting the right messaging in front of the right person. While it may look slightly different depending on your organization, the job titles can generally be sorted into three buckets for AI implementation into the revenue cycle:

Financial

Titles: CFO, CRO, VP of Revenue Cycle
Messaging: We need an AI partner that aligns with our budget and revenue goals. That means flexible pricing models, including contingency-based options, and clear, measurable ROI. AI should uncover new revenue opportunities while ensuring that every dollar recovered is directly attributable. Our top priority is maximizing revenue with minimal risk.

Clinical

Titles: Physician Champion(s), VP or Director of CDI, Senior Director of Coding
Messaging: AI isn't here to replace our clinical teams — it's here to support them. The right AI solution should lighten workloads, reduce administrative burden, and allow staff to work at the top of their licenses. Seamless integration is key, meaning minimal training and no major workflow disruptions. AI should accelerate or improve existing processes.

IT

Titles: Director of Technology, Director of Business Intelligence, EHR Engineer
Messaging: AI implementation should be seamless, scalable, and secure. We need a partner with proven experience integrating with top EHR systems, ensuring smooth deployment with minimal IT lift. IT should be involved early in the process to assess security, compliance, and interoperability. The goal is zero disruptions to revenue cycle workflows during go-live.

Real-world example

A large Southeastern health system knew they needed to get both their AI end-users and implementation staff on board with AI. First, they met with different department roles and determined who should be involved. From there, they focused on the simple question: "What's in it for me?"

For example, they explained to their coding teams how quickly the bills would be released with the AI. They stressed the small number of hours required of IT and how small the implementation would be compared to an EHR. They even hosted a call with C-suite leaders early on to share their proposed plan and answer questions.

With strategically placed champions of AI on your team, the easier the subsequent steps in the process, from vendor evaluation to implementation to measurement, will be. When your hospital sees AI as the win-win scenario that it can be, identifying champions in your corner will be a piece of cake.

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Step 5: Find the right model to work with your budget

No budget? No problem! (with some models)

You've heard the phrase "put your money where your mouth is." But traditional SaaS vendors didn't exactly get the memo. Most require large upfront investments — meaning you pay now and hope the software delivers value later. While that might work for some technologies, AI in revenue cycle management should be proven, measurable, and immediately impactful — no crossed fingers required.

Instead of betting on an expensive subscription, consider AI models with performance-based pricing — where the solution pays for itself by uncovering revenue. With options like contingency-based pricing, shared savings models, and volume-based approaches, AI vendors can align their success with yours, sharing in the risk and reward and protecting against empty promises.

Taking action

Consider alternate payment models, especially if your budget is small (or non-existent!). Some AI companies are operating on a contingency model, meaning hospitals only pay when they produce results. For the revenue cycle, that means only paying for AI findings your team approves. This takes away the risk for hospitals and pays off only if the AI solution performs. These are a few of the ways contingency model is flipping the script for hospitals:

Traditional SaaS		Contingency model
Pay upfront for future value	vs	AP more closely matches AR
Pay whether or not you get value		Pay only for value you capture
Pay the same even if you change		If you improve upstream, you pay less

The contingency model offers flexibility all while mitigating risk, **and means you don't need a new budget line item to implement AI**.

Real-world example

A Northeast academic health system with 125,000 patient discharges per year needed to find an AI vendor that could help them do more with less. As a safety net health system that serves a high proportion of underserved and Medicaid patients, they needed a solution that didn't require a big upfront investment. They implemented clinical AI with a contingency-based payment model (no upfront investment!) to achieve $41M in annualized net new revenue, helping boost their bottom line and continue to provide their patients quality care.

$41M annualized net new revenue

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Step 6: Consider vendor due diligence

Making a secure, compatible choice

With patient data comes great responsibility. And healthcare data security remains top of mind for hospitals and health systems across the country. Implementing AI should be treated with the same care as other technologies.

Taking action

Not only should you choose an AI vendor that can integrate well with your existing technology and EHR, **but security should also be a top priority**. The AI vendor should be able to speak to HIPAA compliance, as well as data security practices which can include encryption and secure transfer methods, access controls, network security, regular audits, and staff training.

In addition to best practices, AI vendors can also attain compliance certifications. SOC 1 Type 1 and SOC 2 Type 2 compliance certifications which mean the company has undergone audits to ensure data security and compliance. Any added and verified certifications can help give you the peace of mind that your patients' data is in good hands with AI.

Real-world example

One West Coast academic medical center knew they wanted to utilize an AI vendor, but they also knew they needed to go in-depth with the questions they asked before proceeding. That's why they outlined their need to understand how their data would be used, the security behind it and who would be involved in the processes.

For example, they asked questions like:

- "Does your organization have someone who is responsible for implementing safeguards to protect client data?"
- "Does your organization perform annual HIPAA security and privacy training for all employees?"
- "Can you describe how the data will be encrypted?"
- "Does your organization use secure authentication methods? What are they?"

Their list of questions was extensive, but paid off for the peace of mind it provided moving forward with an AI vendor.

Step 7: Measure the ROI

Reporting for success

Ahh: You give a sigh of relief for a successful implementation and a job well done. But your journey with AI isn't over yet! It's important to ensure that your team is supported, the AI continues to learn from your team, and to evaluate other ways AI could be successful for your staff.

Taking action

AI isn't just about automation — it's about delivering measurable value. Choose key performance indicators (KPIs) that reflect your hospital's goals and regularly review AI's impact. Here are key metrics to consider when measuring success:

Financial impact

- Increase in net new revenue
- Reduction in write-offs and lost revenue
- Cost savings from reduced manual processing

Operational efficiency

- Time saved per team
- Reduction in manual workload
- Speed of AI-driven workflows vs. traditional methods

Clinical & compliance improvements

- Improved documentation accuracy and completeness
- Reduction in compliance risks related to coding and billing
- Better alignment with payer requirements for medical necessity

User adoption & satisfaction

- Staff engagement and ease of AI adoption
- Reduction in time spent on training and workflow adjustments
- Positive feedback from revenue cycle, clinical, and IT teams

Regularly tracking these KPIs ensures AI isn't just working — it's delivering real, scalable impact. When you see real, impactful results, that's when AI goes from a new tool to an essential part of your revenue cycle strategy.

Real-world example

New revenue for hospitals is crucial at a time when margins are thin and costs continue to rise. One Midwestern health system focused on implementing AI that not only would provide the revenue impact they were seeking, but that could also ease the workload for their team and help them review more charts, more accurately.

By implementing clinical AI to help with second-level chart reviews, they were able to achieve their revenue goals all while gaining insight into how the AI was working — with additional metrics like CDS and coding agree rates, the number of queries sent, and top diagnosis opportunities for upstream improvement. They did it all while **uncovering $11M in annual net new revenue** thanks to a receipt that more accurately and completely reflected the patient care provided.

$11M annual net new revenue

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Step 8: Take the next steps on your AI journey

Putting this guide into action

Now that you're ready, prepared, and informed, it's time to take the next steps on your journey to implement AI for your revenue cycle back office. But you don't have to go it alone.

SmarterDx builds clinical AI that helps hospitals recover millions in earned revenue, enhance care quality metrics, and optimize healthcare operations. Our experts specialize in seamless AI integration, ensuring that your investment delivers measurable results from Day 1.

Ready to take the next step?

Our team would love to connect and help you navigate your AI journey. Reach out today — let's turn your AI strategy into real results.

Sources

[1] Internal SmarterDx data compiled of all-time missing and incorrect diagnoses.

[2] National survey of hospitals, health systems and post-acute care providers conducted by Premier, Inc.

You've landed

Introduction | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 | Step 7 | Step 8