


# Start Smart: A Practical Guide to Adopting Autonomous Medical Coding

Expert guidance on how to prioritize care settings  
and specialties to maximize financial impact



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# Contents

Executive Summary	03
Introduction	04
Choosing the Right Care Setting	05
Choosing the Right Specialty	07
Case Study	10
Conclusion	11



# Executive Summary

Autonomous medical coding is gaining momentum as health systems confront shrinking margins, rising denial rates, and ongoing coder shortages. With the right solution, you can improve accuracy, reduce staffing burden, accelerate revenue recognition, and cut denials.

But given that resources are finite, choosing the right solution is only part of the equation - where you start matters just as much. Starting in the right care setting and specialty not only delivers faster ROI, it also builds momentum for system-wide adoption.

This guide, designed for revenue cycle leaders, offers practical recommendations on how to:

- Choose the best care setting to launch your program
- Select the right specialty to maximize early impact
- Lay a scalable foundation for enterprise wide roll out



# Introduction

Revenue and profitability are crucial to the long term success of any health system. But most hospitals and health systems are struggling, posting negative to low single-digit operating margins. The financial pressure is straining health systems ability to recruit staff, deliver high-quality care, and sustain patient satisfaction.

One of the most powerful levers for improving margins is optimizing the revenue cycle process and revenue recognition. By billing quickly and accurately, health systems can improve cash flow, reduce costs, and strengthen financial stability.

At the center of the revenue cycle process is coding - the process of translating a patient's history and treatment into the alphanumeric codes that unlock reimbursement. The challenge is: *coding is complex and getting harder than ever*. Chart volumes continue to rise, payer requirements grow more complex, and coders are increasingly scarce.

By 2033, demand for coders is projected to increase by nearly 15,000

openings per year - making this a problem health systems cannot solve by hiring alone.

Fortunately, we've reached a point where technology capable of effectively automating coding is available. And, autonomous coding is already providing value: for example, Mercyhealth boosted their revenue by 5.1% using Arintra's GenAI-native autonomous coding platform. Little wonder then that nearly 40% of leaders aware of autonomous coding plan to implement it within the next 24 - 36 months.

But as with any technology, realizing value depends on choosing the right solution - and just as importantly, starting in the right place. For your autonomous coding journey, choose a starting point that maximizes ROI, provides streamlined implementation, and sets the foundation for growth.

This begs the question: **Which care setting and which specialty area will deliver the most value?**



# Choosing the Right Care Setting to Deliver Rapid ROI and Build for Expansion

Autonomous medical coding *delivers value in every care setting*, both inpatient (hospital) and outpatient (professional). But with limited resources, you have to choose where to begin. At first glance, inpatient coding may seem like the more attractive starting point, given the higher dollar value per claim. But for fastest time-to-value and ROI, start with outpatient, and then expand to inpatient on a planned timeline.

This isn't an either/or decision - it is a *sequencing strategy* that accelerates cash flow, builds momentum, and sets you up for system-wide scale.

## Why Outpatient First?

### Chart Volume

Healthcare data indicates that outpatient care generates at least 15 - 20 times more encounters per patient per year than inpatient care, making outpatient chart volume dramatically higher. This gap will only widen as outpatient volumes are projected to grow 18% by 2035, compared to just 5% for inpatient.

Inpatient's smaller chart volumes makes it more manageable with existing staff, but outpatient volumes simply can't be met with human coders.

The scale of outpatient charts makes automation essential, and its value compounds quickly.

### Billing Speed

Outpatient revenue flow depends on rapid claims processing. Payers expect outpatient claims within 24 - 72 hours. Because of the high volumes, even small delays compound quickly, leading to backlogs and denials.

Inpatient billing does not have the same urgency. Stays are longer, the coding turnaround times are slower, and claims don't go out as quickly - typically being held for 3 to 4 days before submission.



That's why automation's speed and consistency deliver the greatest immediate impact on the outpatient side.

## Margins

Outpatient charts carry lower per-claim values and thinner margins, leaving little financial room to absorb additional personnel costs. Even if you could hire enough coders to work on every single chart, the cost makes those margins tighter, or sends you straight into the red.

Inpatient's higher per-claim dollars provide more cushion for human effort. That's why automation is most urgent in outpatient. As an added bonus, the people freed up from handling the more routine charts can focus their time on more complex cases, provider education and revenue integrity projects, delivering further value

## Coverage Gaps

Because of the volume and the limited coding team, in many outpatient specialties, fewer than 30% of charts are touched by a professional coder. This creates blind spots that lead to denials, revenue leakage, and compliance gaps. Inpatient charts, with the lower volume and higher margin, are more consistently routed through coders, reducing these risks.

Automating outpatient first helps close the biggest gaps in accuracy and compliance, while laying the groundwork for expanding into inpatient.

## Current Tooling

Inpatient coders often benefit from legacy CAC tools like 3M that reduce some of the manual burden. Outpatient coders, by contrast, typically lack equivalent support, relying far more on manual workflows. This makes outpatient the area where autonomous coding delivers an outsized impact from day one.



## The Bottom Line

Outpatient is where urgency and opportunity intersect. High volumes, thin margins, and rapid turnaround requirements make automation's impact both immediate and visible. Starting with outpatient coding proves ROI quickly, secures stakeholder buy-in, and paves the way for expansion into inpatient coding.



# Choosing the Right Specialty to Maximize ROI and Enable System-Wide Scale

We have established that outpatient is the optimal care setting to start your autonomous coding journey. But outpatient includes numerous specialties, and you can't automate all of them at once. *Sequencing* is essential: choose a specialty where automation can solve pressing challenges and generate visible ROI, then expand from there.

## To identify the right specialty, start by answering these 3 key questions about your organization:

### Q1: Where is your need the greatest?

Every health system is different. Where some might have a desperate need for coding support in pediatrics, others might be struggling with rehabilitative services. Keep in mind when identifying the area with the greatest need, that it doesn't just come down to staff coverage. Even with adequate staff coverage, some specialties still face significant challenges and bottlenecks.

### Consider..

- Which specialty has the longest A/R?
- Which generates the most denials or payer requests for information?
- Where is coder expertise most limited?
- Where are providers most dissatisfied with coding support?





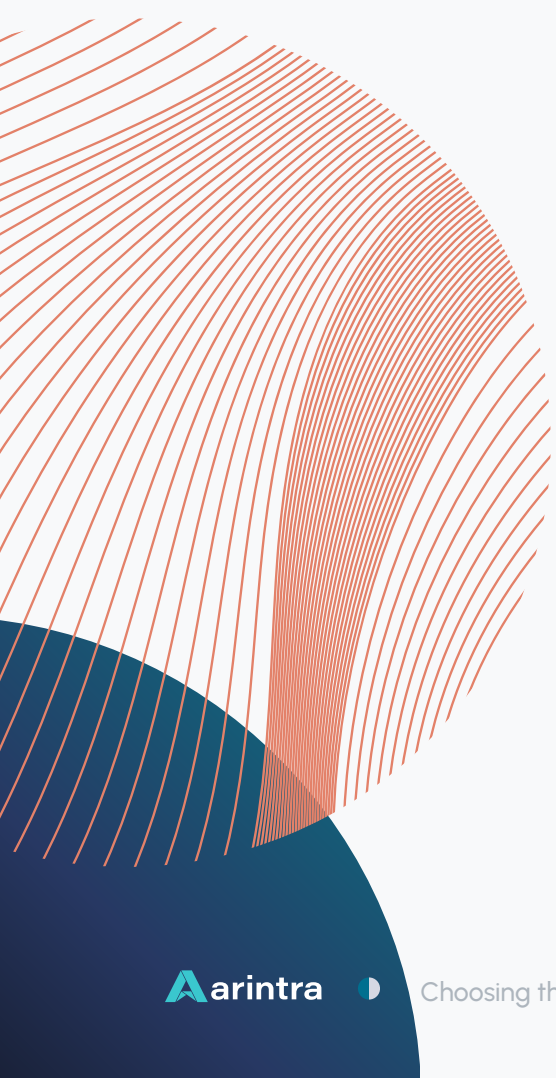
## Q2: Where do you have capacity to support implementation?

Successful implementation requires support from your team, from ensuring the vendor has the right data to answering questions about proprietary workflows and more. Choose a specialty that has the personnel and the bandwidth to support the automation vendor during implementation. Keep in mind that once automation for your first specialty is in place, you can cross-training and redeploy that team into other areas that need support.

## Q3: Where is your highest potential ROI?

Tangible ROI is critical for expanding automation further. *Revenue uplift is key* - when you can show direct revenue gains, it's easier to get buy-in from executives and other stakeholders for expanding autonomous coding to additional specialties

But don't ignore overall ROI, including both hard and soft metrics. Track and report on metrics like denial reduction, shorter A/R days, coder productivity. Softer metrics like physician and coder satisfaction, while harder to quantify, directly impacts employee access, burnout, and retention.





## Bonus Question: Vendor Capabilities

**Which specialty allows you to validate the vendor's capabilities for future expansion into additional specialties?**

The 3 questions listed above were all about your requirements and capabilities. Now let's turn to the vendor. The right vendor should be capable of covering not only the initial specialty you're interested in, but the whole range of specialties you have. Because coding automation is a rapidly evolving area, vendors only cover certain specialties - for now.

Two factors will help test the vendor's ability to support your specific workflows and requirements, and expand across varied specialties:

- Does the specialty require a breadth of codes, including ICD, CPT, HCC and E/M?
- Does coding for the specialty have a reasonable level of complexity?

Starting with a specialty that requires multiple types of codes and complex workflows not only validates vendor capabilities, but also lays the technical groundwork for faster expansion into simpler areas later on.

For example, internal medicine coding involves numerous diagnoses and treatment options: chronic conditions, preventative services, coordination of care, transition of care, and so on. Coupled with the importance of understanding when and why CPT, ICD, and E/M coding is used, internal medicine is a great starting point for testing an automation vendor's capabilities.



## The Bottom Line

Your first specialty sets the tone for autonomous coding success. Pick the specialty where automation will solve pressing challenges, create tangible revenue impact and validate vendor capabilities. Use that win to secure buy-in for expansion. With the right sequencing, your first specialty becomes both proof of concept and the blueprint for enterprise-wide adoption.



# Case Study: Choosing the Right Specialty to Start

A large health system partnered with Arintra to automate coding. Like many health systems, they needed autonomous coding across multiple specialties. To determine where to start, they assessed need, capacity and ROI potential - and narrowed the decision to radiology and internal medicine.

At first glance, radiology seemed like an easy win: high volume, faster deployment, straightforward charts. But after a thorough analysis, they realized that internal medicine was the stronger foundation.

01

**Revenue Impact:** Radiology offers quick productivity gains but little direct revenue uplift, as radiology codes are standardized and relatively straightforward. Internal medicine's variability provided a bigger financial upside.

02

**Future Scalability:** Radiology uses ICD-10 and CPT codes but not HCC. Internal medicine uses all three, making it a better test case to validate vendor capability and a springboard for expansion.

03

**Provider Relationships:** Radiology involves little direct physician interaction. Internal medicine automation reduced coder-physician back-and-forth, improving workflows and satisfaction for both.

## Result

By starting with internal medicine, the health system achieved immediate productivity and revenue gains, while validating the vendor's ability to scale across more complex specialties. Radiology was a quick follow and added value, but internal medicine provided the stronger launchpad.



# Conclusion: Keeping the Train on Track

When coding runs smoothly, claims move quickly, billing is accurate, and revenue stays on track. Automating first in the outpatient setting ensures that pace can be sustained at scale, despite chart volume, staffing challenges or payer pressures. With a thoughtful sequencing strategy, you can start in the specialty that delivers the clearest ROI, demonstrate early wins, and expand into additional areas for even greater profitability.

With the right foundation and the right vendor partner, autonomous coding can transform not just your coding operations, but the financial health of your entire system.

No matter how complex your coding requirements, Arintra's GenAI native autonomous coding platform offers the flexibility and scale, delivering 5%+ revenue uplift, 43%+ lower denials, and 12%+ reduction in A/R days.



See how Arintra can help you **increase your revenue, lower your cost, and drive more efficient processes.**

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