



Choosing the Right Autonomous Coding Vendor: A Guide for Radiology Leaders

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As artificial intelligence (AI) reshapes the healthcare revenue cycle, departments across healthcare systems are racing to keep pace with evolving technologies. One of the most promising innovations on the table is autonomous medical coding, emerging as a leading innovation in building a more robust and efficient revenue cycle. However, many early adopters have discovered that not all vendors can deliver what they promise.

Some healthcare providers jumped into autonomous coding only to discover the solution they implemented resulted in prolonged implementation timelines, required more human oversight than expected, did not deliver consistent and compliant results, and did not achieve promised direct-to-bill (DTB) rates. Leaders are now being forced to go back to the drawing board, searching for a vendor capable of harnessing the power and efficiency of AI to truly optimize their coding operations and financial performance.

This column provides a practical framework for radiology leaders navigating the vendor selection process for autonomous coding. It outlines key considerations from setting pilot expectations to assessing ongoing support and compliance, to help ensure your next choice delivers desired results.

Starting with a Pilot: Setting the Foundation for Success

Any autonomous coding journey should begin with proof-of-concept (POC) through a well-structured pilot. The pilot should not merely be about testing functionality but about validating performance for your unique environment using real patient data. The pilot phase serves as the proving ground to support a vendor's claims.

The most effective pilots are conducted within a tightly controlled timeline to ensure quick turnaround once data is received, to prevent manual manipulation of results. It should include evaluation of DTB rates, coding accuracy, and a side-by-side comparison of AI-coded cases to those completed by human coders. If a vendor is reluctant to commit to these parameters or to mutually agreed-upon measurable outcomes, it may signal a gap between their marketing claims and actual capabilities.

Don't Underestimate the Value of Radiology Expertise

Radiology presents distinct challenges that set it apart from other specialties when it comes to coding. Documentation

can vary significantly from one radiologist to another, and accurate coding often hinges on the quality and completeness of information provided by referring physicians. Assigning ICD-10-CM diagnosis codes can be particularly nuanced, taking into consideration both patient history and exam results to arrive at a final conclusion. Additionally, radiology departments frequently grapple with medical necessity denials, which require close alignment with local coverage determinations (LCD), national coverage determinations (NCD), and payer-specific policies.

For these reasons, it's critical to evaluate a vendor's radiology-specific subject matter expertise. Has the coding engine been trained on a robust volume of radiology reports? Does the team include certified radiology coders and domain experts who understand the intricacies of radiology coding? The absence of this specialty focus can lead to costly oversights and a DTB rate that never quite reaches expectations.

From Data to Decisions: Why Model Architecture Matters

Beneath the surface, the AI model's architecture will determine how well it performs real-world coding. The most

effective platforms use transformer-based deep learning models, which represent the leading edge of natural language processing. These models can understand the context and relationships between words, allowing them to extract meaning from even the most complex radiology reports.

Transformer models are a superior technology because they are adaptive. When combined with active learning capabilities, these engines can improve over time by focusing on the most relevant data and incorporating feedback from coders and auditors. Without this level of sophistication, a platform may resort to rule-based logic or struggle to keep up with evolving documentation styles.

Transparency Builds Trust

You should never have to guess how your AI platform arrived at a code. Look for vendors that offer clear model transparency and not a “black box” approach. Without transparency, organizations will struggle to understand coding decisions and fully trust the technology that’s meant to compliantly optimize financial performance.

A black-box system is one in which the internal logic of the coding engine is hidden from users. The coding engine generates CPT, ICD-10-CM, and HCPCS codes, but it doesn’t reveal why it selected those codes, what data it relied on, or how it interpreted documentation to arrive at a decision. In contrast, a transparent coding system offers explainability and accountability.

Transparency in autonomous coding systems is essential for building trust, ensuring compliance, and driving continuous improvement. In radiology, the ability to see how and why codes were assigned is critical. A transparent system provides an audit trail, shows which parts of the radiology report were utilized to arrive at a decision, and allows users to review and validate coding outputs. This not only supports coding compliance but also empowers coders to catch and correct errors, contributing to better outcomes over time.

Ensuring Accuracy and Compliance from Day One

Data quality is the foundation of performance. If the training data is incorrect or inconsistent, even the most advanced engine will struggle to deliver accurate results. An autonomous coding engine is only as effective as the data it’s trained and optimized on, a successful onboarding process is critical to maximizing performance and achieving high DTB rates.

Highly qualified vendors will conduct thorough data validation during implementation, analyzing historical claims and documentation to uncover inconsistencies and quality issues that could compromise coding accuracy.

One of the most appealing benefits of autonomous coding is the potential to increase coding accuracy while ensuring compliance. Ask vendors how their platform supports essential compliance safeguards such as the Centers for Medicare & Medicaid Services (CMS) National Correct Coding Initiative (NCCI) edits, NCDs, and Medicare Administrative Contractor (MAC) LCDs. These aren’t optional in radiology but are foundational to avoiding denials and ensuring proper reimbursement. It is equally important to clarify how the platform identifies and applies payer-specific rules, which can vary widely and often dictate whether a claim is paid or denied.

Measuring Direct-to-Bill Performance

The clearest indicator of true autonomy is a platform’s DTB rate: the percentage of cases that are coded and sent straight to billing without any human intervention. Best-in-class vendors regularly achieve DTB rates of 85% or higher for radiology claims, but it’s critical to dig deeper into what those numbers represent by considering the following questions:

- How is the DTB rate defined? Is it measured at the claim level or at the line-item level? Does it include only

routine studies, or are more complex procedures factored in as well? Most importantly, how is that performance validated? Does the vendor rely solely on internal metrics, or is performance reviewed by a third party?

- Can the vendor demonstrate results from radiology clients with similar case volumes, modality mix, and complexity? Are the reported outcomes consistent across multiple client sites, or dependent on highly customized workflows?

Request client references and seek real-world data. Do not accept vague benchmarks like “industry standard” or “comparable performance.” Without proper context, those metrics are meaningless and could be masking wide performance gaps in real-world settings.

Managing Implementation: Timeline, Training, and Resources

Radiology managers with implementation experience know the process may come with unexpected challenges, possibly delaying timelines. Delays often stem from a lack of alignment between the vendor’s capabilities and the healthcare organization’s workflows.

To avoid unnecessary delays, ask each vendor for a detailed rollout plan, including a realistic timeline. While some platforms can go live in as little as three months, requiring minimal human resource involvement from your organization, others may require up to a year. It is important to note that a longer implementation period may not necessarily translate to better results. In fact, it may signal the product is not yet capable of achieving high direct-to-bill rates.

Additionally, the most capable vendors support customization during implementation and validate coding engine performance against your unique report formats and coding policies.

A vendor should also provide dedicated project management, training for your team, and post-launch support to

ensure a successful go-live as well as continuous improvement.

Fitting Seamlessly into Your Workflow

Technology should conform to your processes, not the other way around. Whether your organization relies on real-time coding or batch processing, your autonomous coding solution should integrate with your radiology information system (RIS), electronic health record (EHR), and/or billing systems without friction.

It is equally important to consider the end-user experience. A streamlined interface for coders and auditors is essential for managing exceptions, conducting quality assurance reviews, and optimizing productivity. For managers, intuitive and configurable dashboards should provide real-time visibility into operational metrics, allowing for quick responses to emerging issues.

Furthermore, robust reporting capabilities should deliver detailed, exportable data that supports operational oversight, workload management, process optimization, and audit readiness. The ability to track and measure key performance indicators (KPIs) in real time is essential for driving accountability, identifying trends, and ensuring sustained success.

Working Together: Collaboration That Drives Results

The true test of a vendor relationship comes after go-live. Strong vendors view themselves as an extension of your team, not merely tech support. They offer collaboration, flexibility, and ongoing improvement. As your organization grows or shifts, your vendor should be able to adapt. For example, can their solution easily scale with increasing coding volume? Can it seamlessly integrate with new systems if you change your RIS, EHR, or billing platform? Flexibility in

response to workflow or infrastructure changes is key to long-term success.

Moreover, a dedicated account manager or client success lead should be assigned to your organization, serving as a consistent point of contact for both strategic planning and issue resolution. Ongoing involvement should not be limited to technical trouble shooting, it should include guidance and support from experienced professionals who understand the complexities of radiology operations and coding compliance.

Vendors should also share real-time performance metrics, benchmarking data, and identify areas for improvement. You should never be left guessing how the platform is performing or where adjustments are needed. There should also be a clear process for incorporating feedback from your coding, auditing, and compliance teams to improve accuracy and performance.

Data Security and Compliance: Non-Negotiables

In today's regulatory environment, data security and compliance are non-negotiable, and they should be treated as a top priority in any evaluation of autonomous coding technology. Because autonomous coding platforms handle protected health information (PHI), data security is not just a feature, it is a requirement. Any vendor you consider should demonstrate full HIPAA compliance and align with the rigorous standards expected of healthcare technology partners.

Look for vendors who have achieved recognized industry certifications. Two of the most widely respected are HITRUST CSF Certification, which provides a comprehensive framework for managing risk, and SOC 2 Type II Certification, which evaluates the operational effectiveness of a vendor's data security controls over time. These certifications provide independent assurance that the platform has met or exceeded stringent security and privacy requirements.

If a vendor does not yet hold these certifications, at a minimum they should be able to produce documentation of a third-party HIPAA compliance audit and attestation, verifying that their platform adheres to all relevant security and privacy regulations.

Final Thoughts: Choose a Partner, Not Just a Platform

While AI promises powerful gains in efficiency and accuracy, not every vendor has the experience, infrastructure, or specialty knowledge to deliver on those promises. Radiology presents unique coding challenges; therefore, success in this environment requires radiology-specific expertise, transparent processes, and a deep commitment to compliance. A true partner will guide you through a strategic pilot, validate performance with real-world data, adapt to your workflows, and provide continuous support well beyond go-live.

The best autonomous coding vendors do not just offer a product; they offer a partnership that evolves with your organization, supports your team, and drives measurable financial and operational outcomes. 

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