

Journey to autonomous coding: One health system's hands-on experience

Multi-state health system in Midwestern U.S.

Solventum solutions

- **3M™ 360 Encompass™ Computer-Assisted Coding (CAC)**
- **3M™ Code Confidence**
- **3M™ 360 Encompass™ Autonomous Coding System**

Health system snapshot

3 million
total annual
patient visits

65
full-time
coders

Health system's coding journey

2015

Implemented CAC (auto-suggested codes) at all facilities

2018

Standardized and consolidated coding practices across health system

2022

Went live with semi-autonomous coding (auto-dropped codes) at all facilities

2023

Started deploying autonomous coding (no coder touch for qualified visits) at four facilities in a phased approach

Handling high volumes with the help of AI

When it comes to medical coding, the demand for qualified coders outpaces supply. With rising patient volumes, healthcare organizations often outsource coding to keep charts from piling up. As an alternative approach, coding teams can add technology to the equation.

A multi-state health system in the Midwest introduced computer-assisted coding (CAC) about a decade ago and has continued down the path of coding automation as artificial intelligence (AI) has advanced over the years. Now a pioneer for autonomous coding, the organization made incremental changes to get where it is today. Let's learn more about the health system's experience, insights gained along the way and results achieved by embracing the journey.

Lay the foundation: Computer-assisted coding

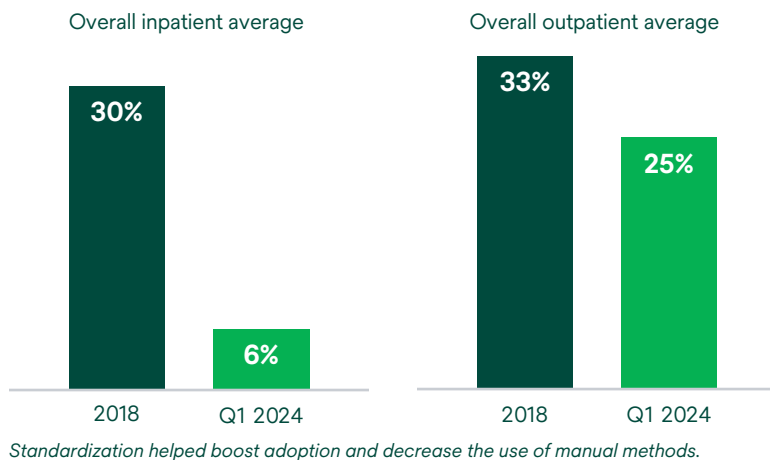
In 2015, the organization implemented 3M 360 Encompass CAC across its facilities for inpatient and outpatient facility coding. This solution analyzes patient documentation, auto-suggests codes for review and guides coders toward a complete and compliant final code set. When needed, coders can dig into the evidence that backs up AI-suggested codes and make adjustments.

While some coders took advantage of CAC to save time, others continued with manual entry. Faced with ambitious discharged not final coded (DNFC) and discharged not final billed (DNFB) goals, the health system decided to consolidate and standardize its coding practices. The first step involved reviewing coder acceptance methods to determine how often individuals relied on auto-suggested codes to arrive at their final code set versus entering codes manually. Then came ongoing training and peer education. Coders who leaned on manual methods were paired with coders who successfully used CAC.

The organization also dug into system precision, which measures how many codes were auto-suggested correctly by the AI engine, and recall, which measures how many correct auto-suggested codes made it to the final code set. This helped determine whether concerns with accuracy or completeness prevented coders from picking up auto-suggested codes so that the team could adjust as needed.

Thanks to these efforts, the use of manual coding methods decreased, and precision and recall improved. By standardizing coding processes, it became clear that AI could enable the coding team to do more with less – so the team decided to take the next step.

Percentage of final codes entered manually



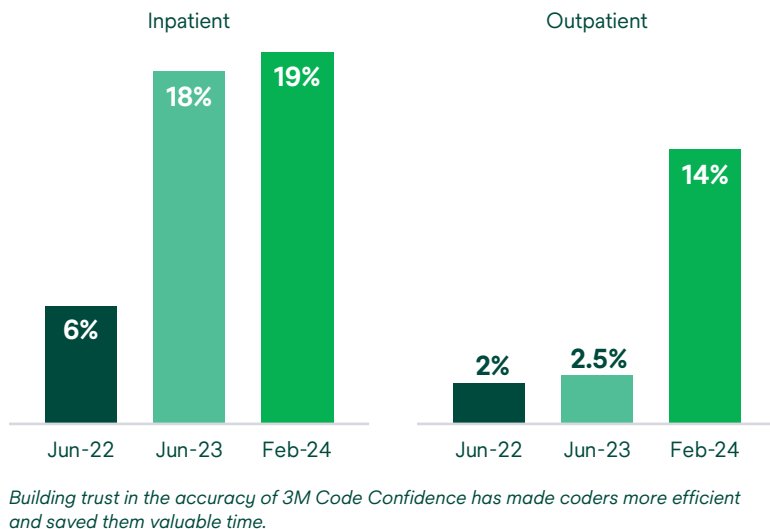
Level up: Semi-autonomous coding

As the organization continued its journey to autonomous coding, high precision rates paved the way for a smooth implementation of 3M Code Confidence. This solution identifies auto-suggested codes that are highly likely to be accurate based on the organization’s historical data and auto-drops them into the record for final code set completion. Due to minimal training and setup time, the director of coding services said, “I always say the 3M Code Confidence implementation was the easiest thing we’ve ever done.”

After going live in 2022, the health system’s coding team initially reviewed every auto-dropped code to gain confidence in the technology. Throughout the adoption process, leaders regularly shared data to demonstrate the system’s ability to select appropriate codes. When coders saw how frequently auto-dropped codes ended up in the final code set, they became more comfortable with the system. Currently 95% of accepted confident codes are no longer reviewed, and around 15% of final code sets no longer require review – taking routine work off coders’ full plates.

With the successful implementation of semi-autonomous coding in mind, the health system was eager to find out how much farther autonomous coding could take its team.

Percentage of auto-dropped codes in final code set



Enter the final phase: Autonomous coding

A strong track record of success working with Solventum (formerly 3M Health Care) led the health system to become a beta tester for 3M 360 Encompass Autonomous Coding. With this solution, outpatient medical visits that pass rigorous criteria are fully automated, final coded and ready for the next step in the billing process – without any coder interaction. Visits that do not pass organization-defined criteria go through a semi-autonomous workflow to help expedite and guide coders to a reliable final code set.

While leaders hope to apply automation to all service lines in the long run, they decided it would be more efficient to deploy the technology in phases. The health system’s coding operations, information technology (IT) and health informaticist teams worked closely with Solventum to test and tweak the deep learning AI engine that powers autonomous coding. In August 2023, they rolled the technology out at four select facilities with minimal hiccups and no downtime. The organization has decided to run 100% of qualified visits through the quality assurance (QA) process for coder review to gain peace of mind that the system produces the correct final code set.

Insights and results

While many coders at the health system regarded automation with skepticism and concern at first, working with the technology has changed their minds. According to the director of coding services, automation has “definitely made coders’ lives easier.” Less bogged down by routine tasks, their job satisfaction has dramatically increased.

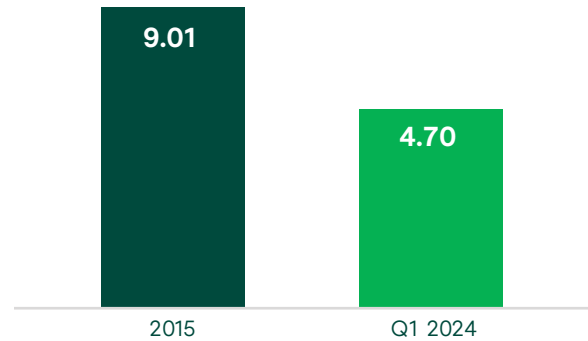
With happier staff and more stabilized DNFC and DNFB rates, the organization plans to extend autonomous coding to other services lines, including the emergency department and same-day surgeries. With less human intervention needed over time, the health system hopes to handle growing patient volumes without expanding its team in an environment where qualified coders are scarce.

“Our full-time employees would likely be significantly higher if we didn’t have 3M 360 Encompass.”

– Director of coding services

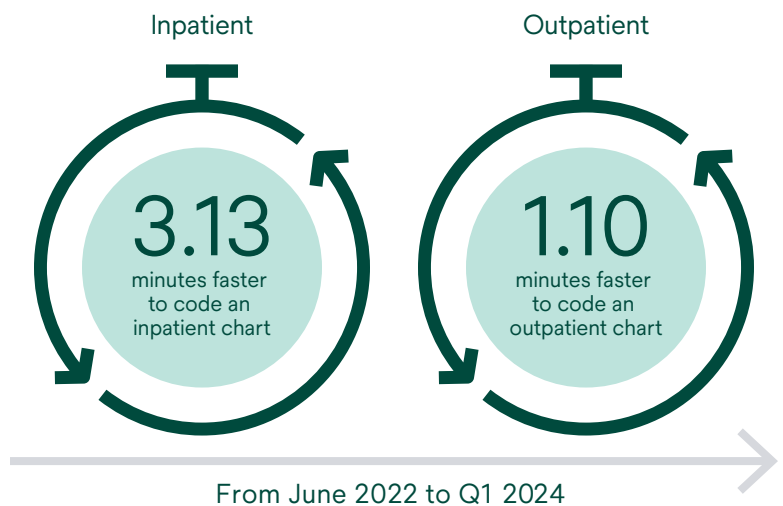
For other healthcare organizations interested in autonomous coding, the health system recommends taking the journey step by step. Its incremental path from CAC to semi-autonomous to autonomous coding has allowed its coders to acclimate to AI over time and build momentum to a future where routine work stays off their plates so they can spend their valuable time and expertise where it is needed most.

Average accounts receivable (A/R) days



Since embarking on its journey of coding automation in 2015, the health system has significantly improved its average A/R days.

Average time savings



As a result of standardization and automation technology, the health system saw a reduction in the time it takes to code a chart – increasing overall coding productivity.

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