Measuring and Benchmarking Coding Productivity: A Decade of AHIMA Leadership

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The popular business adage “What gets measured gets managed” reminds us that improving, controlling, and managing any business process is contingent on first being able to accurately measure that process. Few process changes have had as profound an effect on an entire sector as healthcare’s switch from ICD-9-CM to ICD-10-CM/PCS. As the premier association of health information management (HIM) professionals, AHIMA made this change happen—leading the way in advocating and preparing for the transition and ushering in its smooth adoption by government, providers, coding professionals, and payers. Now, with ICD-10-CM/PCS finally fully in place, AHIMA is poised to unveil the healthcare sector’s preeminent study on coding productivity.

Background

From ICD-9-CM to ICD-10-CM/PCS: A Long and Winding Road

After many years of sustained advocacy led by AHIMA, ICD-10-CM/PCS was implemented in the United States on October 1, 2015. Championing the call for its adoption, AHIMA focused on the needs of a 21st century health system. As the depth and breadth of medical knowledge continued to expand, AHIMA knew that ICD-9-CM’s limited structural design lacked the flexibility to keep pace with changes in clinical practice and technology. As a result, AHIMA’s leaders and committed volunteers stepped up to the plate to make positive change happen.

ICD-9-CM: A Model Stretched to the Breaking Point

Originally developed in the 1970s, ICD-9-CM was, impressively, stretched beyond anything its creators had ever envisioned. However, by the early 2000s, it had long outlived its ability to support early 21st century health information needs (no other ICD iteration had been in use for more than 30 years). And there was much sustained concern that ICD-9-CM could never adapt adequately to meet future anticipated demands for detailed, high-quality health information.

At the request of the National Committee on Vital and Health Statistics, in 2004, RAND Corporation published a cost/benefit study of switching from ICD-9-CM to ICD-10-CM/PCS. RAND’s best guess was that, over a 10-year period commencing with the transition to ICD-10, the US health system would experience somewhere between $5 million and $40 million a year in lost productivity among two groups: coders and physicians. In that same time period, RAND estimated that the financial benefit of ICD-10-CM/PCS implementation could be between $700 million and $7.7 billion. Clearly, in this instance, the benefits far outweighed the costs.

AHIMA Leads the Way

Leading the way to successful implementation of ICD-10-CM/PCS meant creativity and forethought. AHIMA
leadership recognized that US healthcare data was being allowed to deteriorate while, simultaneously, the demand for high-quality data supporting improved quality and patient safety—and decreasing costs—was accelerating. Without a switch to ICD-10-CM/PCS, data on new diseases and technology or important clinical distinctions in diagnoses and procedures would not be accurately captured. This would limit the potential to analyze healthcare costs or outcomes, exchange meaningful data for individual and population health improvement, and constrain the move to a payment system based on quality and outcomes.\(^4\)

**Establishing Best Practices**

The productivity of coding professionals is an essential component of a high-quality, safe, and cost-effective health system. AHIMA is well-versed in the common factors impacting coding productivity. Regardless of the health setting in which a coding professional is employed and the ICD version being used, the following attributes increase the likelihood of achieving optimal coding productivity:\(^5\)

- High-quality, consistently available, high-speed, and secure network access to needed data sources and repositories
- A quiet work environment with limited distractions and interruptions
- Ease of access to data, as well as the availability of that data in a single source, i.e., the EHR, versus data that must be accessed from multiple sources
- Data presented in a narrative structure versus documentation segregated by clinician or data type
- Timely transcription of, completion of, and access to necessary documentation, written orders, results, and reports
- Limited keystrokes
- Online/mobile access to relevant, timely coding materials; edit guidance; and access to an encoder coupled with reference material
- Access to at least quarterly coding-oriented professional development

**Benchmarking Is Key**

The common attributes laid out above are examples of a benchmark, a tool that has become increasingly common in the health sector since the start of the new millennium. Originally conceived as performance measurement, the health sector adopted benchmarking due to simultaneous needs to control healthcare costs, better structure risk management, increase care quality, and satisfy patient expectations.

The basic principle of benchmarking consists of identifying a point of comparison against which performance can be compared. While many times benchmarking studies refer to just one or two of the following, in its full definition benchmarking encompasses:\(^6\)

- Seeking out, and implementing, best practices at best cost
- Analysis of processes and success factors for producing higher levels of performance
- The pursuit of best practices to increase patient, clinician, or other health stakeholders’ satisfaction
- A simple comparison of outcomes between comparable groups’ performances
- Promoting inter- and intra-team discussions among front-line health professionals on their practices
- Stimulating positive cultural and organizational change with the organizations being compared

Setting the stage for a successful transition to ICD-10-CM/PCS, AHIMA’s first step, taken in 2007, was to establish a benchmark for coding productivity using ICD-9-CM. Using AHIMA’s e-HIM Coding Benchmark Workgroup and results of its Coding Benchmark Survey, AHIMA published the following coding productivity
findings:7

**Inpatient**

24 inpatient records per eight-hour paid workday (20 minutes per record; three records per hour). This average would need adjustment depending upon components such as, but not limited to, acuity, organizational complexity, case mix, and other duties assigned to each coder.

**Ambulatory, Outpatient, and Interventional Surgery and Procedures Coding**

40 invasive procedure encounters per eight-hour paid workday (five per hour; 12 minutes per encounter or operative session).8 For ambulatory surgery departments serving patients with complex conditions, such expectations likely needed to be adjusted downward.

**Emergency Department (ED) Coding**

120 encounters per eight-hour paid workday (15 encounters per hour; four minutes per encounter). As many EDs serve patients with complex conditions, the expectations of coding productivity needed to be adjusted accordingly.

**Ancillary Tests Coding**

240 encounters per eight-hour paid workday (30 per hour; two minutes per report or test).

With these benchmarks established for ICD-9-CM coding productivity, in 2009, AHIMA convened thought leaders for an ICD-10-CM/PCS Summit.9 Building upon the initial success of the event, AHIMA continued to host the Summit annually through 2014. Using the collective brain trust in attendance at the annual Summits, AHIMA developed and led an industry-wide plan, gaining a strategic advantage for providers, payers, vendors, consultants, and secondary data users preparing to implement the new code sets. Thought leaders from all segments of the healthcare industry engaged in open discussion to co-develop optimal approaches to ICD-10-CM/PCS advocacy, transition, and use.10 Such thought leadership focused not only on the transition itself, but also on managing expectations for coding productivity changes post-implementation.

**A Last-Minute Delay**

Implementation in October 2015 came at the end of a long and rocky road. On April 1, 2014, President Barack Obama signed the “Protecting Access to Medicare Act,” which prevented ICD-10-CM from being implemented any earlier than October 1, 2015.11 At the time, Margarita Valdez, AHIMA’s director of congressional relations, called this legislative language “completely out of the ordinary” and “unprecedented.”12 A *Journal of AHIMA* article explained that the legislation (H.R. 4302) provided a temporary patch to the Sustainable Growth Rate,13 noting that physician groups were opposed to a short-term patch, favoring long-term reform of the system instead. While a long-term fix had been in negotiation for months, the article described how talks broke down toward the end. In a move to appease physicians opposed to the patch bill, H.R. 4302’s sponsors added language in the bill to delay ICD-10-CM/PCS implementation by one year.

This placed AHIMA and its members in a difficult position. As the leader of the call to action, AHIMA had spent several years training its members for ICD-10-CM/PCS implementation, and students in HIM curricula were being
trained on both ICD-9-CM and ICD-10-CM/PCS. Anecdotally, executives in health organizations—always wary of change that could negatively impact productivity, quality, and throughput—expressed doubt about whether ICD-10-CM/PCS would ever be implemented.\textsuperscript{14}

**AHIMA Takes the High Road**

AHIMA took the high road, expressing confidence that ICD-10-CM/PCS would be implemented in October 2015 and providing evidence to policy makers and executives that the majority of the preparatory work had been completed.\textsuperscript{15}

While dire predictions were made of a disaster about to happen, the reality was a smooth transition. This was not because the predictions of difficulty were inflated; rather, it was because of the monumental amount of advance work done behind the scenes, as Watzlaf et al. described:

> The successful transition occurred long before the go-live date and required information systems updates, education and training, testing, and a considerable amount of cooperation and collaboration. Industry anxiety was rampant in the months leading up to the transition, with predictions of dire coding productivity decline and an increased coding professional shortage as well as concerns about a negative impact to revenue and cash flow. Many of the grim predictions have not panned out as the industry settles in to a new normal when it comes to coding productivity and staffing.\textsuperscript{16}

**Coding Productivity Benchmarking in the ICD-10-CM/PCS Era**

Now, three years post-implementation, AHIMA is defining a “new normal” by establishing ICD-10-CM/PCS coding productivity benchmarks. To do so, several building blocks have been created, to be followed by an AHIMA-led systemic, highly credible study resulting in the standard for coding productivity.

One such building block is an ICD-10-CM/PCS coding productivity study examining average inpatient coding times.\textsuperscript{17} Using more than 150,000 medical records from health facilities that were primarily large, the study took into account all discharges in a five-month period beginning October 2015.\textsuperscript{18} Average inpatient coding time across DRG, principal diagnosis, and length of stay, as well as stratification by facility based on demographic variables such as case mix index (CMI), bed size, region, teaching or non-teaching, and trauma level were also examined.

**Documenting and Understanding Initial Productivity Decreases**

As a result of the 2016 study, authors validated that inpatient coding productivity:

1. Decreased immediately upon changeover to ICD-10-CM/PCS
2. Increased gradually over the weeks immediately following October 1, 2015
3. Remained below AHIMA’s 2007 coding productivity benchmarking study for several months following October 2015

As predicted, the decrease in inpatient coding productivity immediately following changeover to ICD-10-CM/PCS was precipitous. Using the 2007 AHIMA ICD-9-CM standard of 20 minutes to code the average inpatient record (or three records per hour), immediately following the ICD-10-CM/PCS implementation, that average rose to 42 minutes (or 1.4 records per hour). Productivity increased gradually over the five-month period. By the end of February 2016, coding productivity was at approximately 50 percent of the standard established in 2007, about 40 minutes (or 1.5 records per hour).
Increasing Productivity Over Time Noted in Second 2016 Study

In a second study, conducted over a five-month period commencing March 2016, researchers evaluated more than 165,000 inpatient records. The findings indicated that, on average, inpatient coders required 38.1 minutes per record. Similar to the first study, authors found an ongoing increase in coding productivity over time, ranging from 39 minutes (or 1.5 records per hour) to a low of 37 minutes (or 1.6 records per hour) at the end of the study in July 2016.19

Key Contextual Considerations in Interpreting 2016 Productivity Survey Findings

In the second 2016 study there was, as expected, a correlation between the case mix index (CMI) and the amount of time to code an inpatient record. As the CMI increased, so did the time needed to code the record. It is pivotal to take these findings into context, as the realities of the health system have changed over time. As the US population continues to age, and reimbursement methodologies continue to evolve, patients in acute settings are presenting with increasing complexity. While hard data does not exist to assess the impact of evolving patient acuity levels on coding productivity changes from 2007 to 2016, the possibility exists that such changes were having an effect. Coding productivity may have been impacted by multiple factors including, but not limited to, the ICD transition and increases in CMI. Such changes in the health environment will be taken into account as AHIMA proceeds toward an updated coding productivity standard.

In 2017, to gather initial information to help build an updated coding productivity standard, the AHIMA Foundation conducted phone interviews with 156 members. These members were selected because their profile included “coding professional” or a related title, and they all held (at minimum) a CCS, CCS-P, or CCA certification.20

Approximately 74 percent (n = 115) of those surveyed indicated a change in productivity. Of those, 31 percent perceived a productivity increase, while 24 percent perceived a decrease. The level of perceived change in productivity varied slightly based upon health setting, years of coding experience, educational level, and the use of encoder or computer-assisted coding (CAC) products.

Those with one to five years of experience encountered the lowest levels of decreased productivity, while those with between six and 10 years of experience had the highest levels of decrease (20 percent and 27 percent, respectively). Interestingly, those who used CAC to code reported a 17 percent perceived decrease in productivity overall, while those who did not reported 12 percent perceived decrease.

While acknowledging that this study was an exploration of coders and coding managers’ opinions of perceived change, it is interesting to note that their findings are in line with previous studies. The opinion survey found that 93 percent of respondents reported coding one to four inpatient charts per hour. Further, 54 percent of respondents reported coding 1-2 charts per hour.

These results are similar to research noted earlier in this article; studies in which large sample data sets were examined found that about 1.4 to 1.6 records per hour were coded in ICD-10-CM/PCS. Overall, AHIMA has provided multiple coding standard examples for ICD-10-CM/PCS for inpatient records.

What’s Next: AHIMA’s Forthcoming Research

As noted earlier in this white paper, the very nature of healthcare is in a state of continual change. Patients are presenting with increasingly complex health issues and greater acuity. Procedures, DRGs, and clinical best practices have continued to evolve, thus changing the foundation of the data to be coded. Further, healthcare is increasingly
“relational” versus “transactional,” as we continue to shift to a quality-oriented health system. And as the use of CACs becomes ingrained into the coder’s workflow, productivity will be impacted. These are just four examples of a number of confounding factors AHIMA will examine regarding coding productivity and quality.

Additional factors that need to be examined and linked to actual large samples of coded cases include the characteristics of the coder to include, but not limited to, education, experience, incentives, and credentials. Statistically valid coding productivity research will help illuminate how to best train, equip, and maintain coders’ knowledge. As the health system continues to shift toward value-based care, coders will need to understand these changes in order to maintain coding productivity. AHIMA understands this, having most recently published the 2019 finalized changes to the MACRA/Quality Payment Program. Through its thought leadership work on coding productivity, AHIMA will take the opportunity to fine-tune professional development programming and certification offerings to best meet the needs of the field. Finally, a coding productivity benchmark could help create coder compensation models in future.

Preparation for the Future

Lest any of us forget, ICD-11 is on the horizon. In June 2018, after 10 years of development, the World Health Organization (WHO) introduced ICD-11. WHO plans on presenting ICD-11 at the World Health Assembly in May 2019 and it will come into effect on January 1, 2022. While this is several years away, and there is no signal on the horizon of when the United States would adopt ICD-11, AHIMA will continue to lead the way through ongoing research pertaining to current and future ICD versions in regard to coding productivity, accuracy, and quality.

The long-term impact of ICD-10-CM/PCS deserves scrutiny and leadership. By accurately measuring a process such as coding productivity, AHIMA will contribute to the long-term sustainability of our nation’s health system. As the industry leader, AHIMA will ensure its members, health leaders, and policymakers have the benchmarks and standards required to continue healthcare’s journey toward a positive future.

Notes

2. Ibid.
4. “Testimony of Sue Bowman.”
8. Invasive procedures include a mixture of routine ambulatory surgeries, outpatient procedures, interventional cardiology/radiology, cardiac catheterizations, spinal injections, and nerve blocks.

10. Ibid.

11. R. 4302 became public law on April 1, 2014.


13. A method used by the Centers for Medicare and Medicaid Services (CMS) to control Medicare’s spend on physician services.

14. Butler, Mary. “Not So Fast!”


17. Ibid.

18. For this study, “large” was defined as teaching and trauma facilities with >500 beds and a CMI of <1.5.


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