

PERCEIVED EFFECTS OF ICD-10 CODING PRODUCTIVITY AND ACCURACY AMONG CODING PROFESSIONALS

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Research Question

Did the implementation of ICD-10 increase, decrease, or have no change on the productivity and accuracy of coding professionals?

Overview of Research Findings

Overall, those who responded noted they experienced a 14.15 percent decrease in productivity, yet only a 0.65 percent decrease in accuracy (see [Figure 1](#)). Of those who responded in our study, 67.9 percent noted a decrease in productivity ($n=106$), 5.8 percent an increase in productivity ($n=9$), and 26.3 percent no change in productivity ($n=41$). In terms of accuracy, only 26.9 percent saw a decrease in accuracy ($n=42$), 11.5 percent an increase in accuracy ($n=18$), and 61.5 percent no change in accuracy ($n=96$).

Background

With the implementation of ICD-10, the number of diagnosis codes for healthcare services has increased from 13,000 to 68,000,¹ as did the number of procedure codes. While the new codes allow for greater specificity of reporting diagnoses and care delivered, a report from the RAND Corporation also notes that the new code set has resulted in a number of costs including training, loss in productivity, and system changes and updates.² In spite of these, RAND indicates that the change to ICD-10 may assist in improving disease management, reducing miscoding or inappropriate coding, and better understanding healthcare outcomes. Training conducted to ensure a smooth transition from ICD-9 to -10 often included preparatory training,³ as well as ongoing in-service or related training as specific issues are identified following implementation.

Prior to ICD-10 implementation, it was reported that costs for training and system changes were estimated at between \$425 million and \$1.15 billion, in addition to between \$20 and \$170 million per year due to loss of productivity related to the new code set.⁴ In spite of these anticipated charges, shifting to the new code set was anticipated to result in between \$700 million and \$7.7 billion in direct benefits related to improving medical coding and health outcomes.⁵ Early reports underscore the importance of continually evaluating and making adjustments to ensure appropriate coding.⁶

Additionally, some reports indicate that the impact on productivity seen to date has been limited,^{7,8} however the true costs associated with the implementation of ICD-10 and its true financial impact and ramifications are not yet fully understood.

Methods

A survey was developed to examine whether the implementation of ICD-10 increased, decreased, or had no change on the productivity and accuracy of coding professionals. The survey contained thirteen questions pertaining to respondent demographics (level of education, years of experience in the field), type of facility at which the respondent is currently employed, and the perceived impact of the ICD-10 implementation on coding productivity and accuracy (increase, decrease, or no change). A random sample of 400 individuals listing "coding professional" or a related title in their AHIMA member profile and also holding at minimum a CCS, CCS-P, or CCA certification⁹ was selected from the AHIMA member database. Before beginning survey calls, the three individuals responsible for data collection were trained on methodology for survey delivery to ensure consistency. To increase awareness of study activities, an introductory email was sent to individuals selected for the study sample to notify them of their inclusion. In addition, a brief article announcing the study was posted in the *Journal of AHIMA* blog¹⁰ and linked on the AHIMA and AHIMA Foundation Facebook pages. The survey was conducted verbally by telephone interview with three attempts made per respondent. In total, outreach was made to a sample of 438 individuals, 38 individuals from the initial sample could not be reached due to invalid contact information and were replaced with alternates. Survey responses were obtained from 156 individuals, and 11 declined to participate.

Results

As noted above, approximately 74 percent of those surveyed indicated a change in productivity and 38 percent a change in accuracy (see [Table 1](#)). For those who perceived a change in productivity, an average increase of 30.36 percent and average decrease of 23.89 percent was reported; while an average increase 24.50 percent and decrease 12.52 percent was indicated by those who perceived change in accuracy.

The level of the decrease in both productivity and accuracy varied depending on the type of setting in which the individual is employed (in-patient or outpatient facility), as well as factors like years of experience, level of education, and the use of encoder or computer assisted coding products (CAC). Among individuals working in an in-patient setting who perceived a decrease in their coding productivity, the average decrease was 24.30 percent while those in an outpatient setting perceived a decrease of 22.10 percent. Similarly with regard to accuracy, those working in an in-patient setting reported an average decrease in accuracy of 13.25 percent and those in outpatient settings indicated an average decrease of 10.58 percent (see [Table 2](#)).

In addition to variance based on facility type and type of records coded, years experience in the coding field seemed to influence productivity and accuracy levels. Those with one to five years of experience encountered the lowest levels of decreased productivity, while those with between 6

and 10 years experience had the highest levels of decrease (19.97 percent and 27.14 percent, respectively). Those with the highest number of years of experience (16 to 20 years) had the lowest levels of decrease in accuracy, while those with between 11 and 15 had the highest decrease (7 percent and 15.87 percent, respectively) (see [Table 3](#)).

Little if any variance exists in the average decrease of accuracy reported by respondents based on educational level. Those with Bachelor degrees had the lowest level of reported decreased accuracy, while those holding Graduate degrees had the highest level of decreased accuracy (7.62 percent and 25.60 percent, respectively). In terms of productivity, those with Associate degrees had the largest decrease, while those with Graduate degrees had the smallest decrease (26.76 percent and 20.71 percent, respectively). (see [Table 4](#)).

Those who use a CAC to code experienced a 17.13 percent decrease in productivity overall, while those who did not experienced on average an 11.92 percent decrease in productivity overall. In terms of accuracy, those who use a CAC to code experienced a 0.2 percent increase in accuracy and those who did not noted a 1.58 percent decrease in overall accuracy. Results from our analysis on use of a CAC for coding seem counterintuitive. To better understand the why this difference occurred, we examined the difference in productivity and accuracy for inpatient and outpatient coding. When we break down the analysis, we see that initial discrepancies seem to be based on the fact that a higher percentage of CAC use occurs in inpatient settings that have higher levels in decreased productivity with CACs. When controlling for setting (in-patient/outpatient), differences do not exist in rates in the use of CAC when coding records (16.73 percent and 17.19 percent, respectively).

Discussion

Findings from this study show that the implementation of ICD-10 has led to a perceived decrease in productivity but has had no effect on accuracy of coding. While this study provides valuable insights into how implementation of ICD-10 impacted coding productivity and accuracy, several questions still need to be addressed. More specifically, future research needs to address questions related to: 1) whether or not levels of productivity will revert to pre-ICD-10 levels; 2) as the use of CACs become more ingrained into the coder workflow, will productivity and accuracy levels increase; and 3) providing more clarity in defining "accuracy."

1. Respondents indicated that they experienced initial changes in productivity following implementation; the level of the decrease has lessened over time. It is recommended that additional studies be conducted in the future to assess if productivity has returned to or exceeded pre-ICD-10 levels.
2. Respondents using CACs indicated that the introduction of these technologies often coincided with the implementation of ICD-10, and thus may have led to greater decreases in productivity

due to lack of familiarity with the system. It is recommended that future study be conducted related to level of comfort with CACs and to seek clarification regarding if decreases in productivity are due primarily to the implementation of ICD-10, to the introduction of CACs, or to a combination of both factors.

3. Based on the analysis of the data, it seems that there may have been variation in respondents' understanding of the survey question related to accuracy. It is recommended that further study be conducted to clarify the definition of "accuracy" and ensure consistency in reporting. Efforts should seek to determine if reports of a change in "accuracy" is related to the granularity of coding afforded by ICD-10 improving coding, or if respondents feel they are more often selecting the correct code for the diagnosis or procedure.

Findings from this study provide valuable insight into the perceived impact of ICD-10 implementation on productivity and accuracy for coding professionals. While a perceived decrease on productivity and no effect on accuracy were noted, future work in this area is needed to gain further insight on the impact of ICD-10 implementation.

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William J. Rudman, PhD, RHIA, is the Executive Director of the AHIMA Foundation and Vice President of Education Visioning for AHIMA.

Kathryn Jackson, RHIA, is the Research Manager for the AHIMA Foundation.

Patricia Shank is the Executive Coordinator for AHIMA.

Darlene Zuccarelli serves as Liaison for the AHIMA Board and Executive Office for AHIMA.

Notes

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Click [here](#) to download a copy of the full report.

William J. Rudman, PhD, RHIA; Kathryn Jackson, RHIA; Patricia Shank; and Darlene Zuccarelli. "Perceived Effects of ICD-10 Coding Productivity and Accuracy Among Coding Professionals." *Perspectives in Health Information Management* (2016): 1-10.

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