Assessing the Planning and Implementation Strategies for the ICD-10-CM/PCS Coding Transition in Alabama Hospitals

Save to myBoK

by Shannon H. Houser, PhD, MPH, RHIA; Darius Morgan, RHIA; Kay Clements, MA, RHIA, CCS, CPC; and Susan Hart-Hester, PhD

Abstract

Health information management (HIM) professionals play a significant role in transitioning from ICD-9-CM to ICD-10-CM/PCS. ICD-10-CM/PCS coding will impact many operational aspects of healthcare facilities, such as physicians' documentation in health records, coders' process for review of clinical information, the billing process, and the payers' reimbursement to the healthcare facilities. This article examines the level of readiness and planning for ICD-10-CM/PCS implementation among hospitals in Alabama, identifies training methods/approaches to be used by the hospitals, and discusses the challenges to the ICD-10-CM/PCS coding transition. A 16-question survey was distributed to 116 Alabama hospital HIM directors in December 2011 with follow-up through February 2012. Fifty-three percent of respondent hospitals began the planning process in 2011, and most facilities were halfway or less than halfway to completion of specific implementation tasks. Hospital coders will be or are being trained using in-house training, through seminars/webinars, or by consultants. The impact of ICD-10-CM/PCS implementation can be minimized by training coders in advance, hiring new coders, and adjusting coders' productivity measures. Three major challenges to the transition were identified: the need to interact with physicians and other providers more often to obtain information needed to code in ICD-10-CM/PCS systems, education and training of coders and other ICD-10-CM/PCS users, and dependence on vendors for major technology upgrades for ICD-10-CM/PCS systems. Survey results provide beneficial information for HIM professionals and other users of coded data to assist in establishing sound practice standards for ICD-10-CM/PCS coding implementation. Adequate planning and preparation will be essential to the successful implementation of ICD-10-CM/PCS.

Keywords: ICD-10-CM/PCS (ICD-10) coding, health information management

Introduction

Introduced in the United States in 1979, the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) established a coding system to document inpatient diagnostic and procedural codes.[1] However, ICD-9-CM is now over 30 years old. The new age of technology has brought numerous improvements in medical procedures and applications impacting the effectiveness of this coding system.[2-4] The federally mandated transition to the International Classification of Diseases, Tenth Revision, Clinical Modification, and the International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-CM/PCS) brings an expansion of the existing ICD-9-CM code set, adding 54,000 diagnosis codes and 83,000 procedure codes.[5-6] Implementation of the ICD-10-CM/PCS coding systems' increased granularity will bring challenges to providers and healthcare organizations throughout the healthcare delivery system, particularly as healthcare entities attempt to comply with mandates for health information exchange (HIE).[7-13]

As many healthcare providers and organizations continued to plan for the transition to ICD-10-CM/PCS,[14-15] the Department of Health and Human Services considered the possibility of yet another extension to a new compliance date of October 1, 2014.[16-17] On September 5, 2012, a final rule was published in the *Federal Register* announcing the delay of ICD-10-CM/PCS to October 1, 2014.[18-19] Some healthcare organizations ready for the transition may feel the extra time is unwarranted; however, for those providers who delayed ICD-10-CM/PCS implementation because of challenges associated with planning,[20-24] costs of implementation,[25-26] and training,[27-31] the extension offers time to successfully complete the implementation process.[32]

According to data from a 2012 collaborative study by the Georgetown University Student Consulting Team and Booz Allen Hamilton, "training was regarded as the most significant and costly component of the transition."[33] This transition impacts the delivery of care within the overall healthcare system; therefore, the incorporation of appropriate roles and job functions into training programs is critical to the success of an implementation plan.[34] Moreover, understanding an organization's level of readiness for implementation provides a foundation for the development of a successful ICD-10-CM/PCS transition plan.

The purpose of this study was to assess Alabama hospitals' readiness for ICD-10-CM/PCS by the mandated implementation date. Prior literature has highlighted methods to prepare for ICD-10/PCS implementation and has identified potential challenges;[35-44] however, no study was found that assessed readiness among Alabama hospitals for the implementation of ICD-10-CM/PCS by the scheduled implementation date. This research focused on three specific objectives:

- To assess the level of readiness among Alabama hospitals for the upcoming implementation date for ICD-10-CM/PCS;
- To assess training methods and approaches by the hospitals in preparing to transition from ICD-9-CM to ICD-10-CM/PCS coding; and
- To assess the challenges and barriers of ICD-10-CM/PCS coding transitions.

Methods

Survey Participants and Procedure

The study participants were volunteers drawn from the Alabama Association of Health Information Management directory. Data were collected from a self-designed survey by researchers. A total of 116 surveys were sent to hospital health information management (HIM) directors in Alabama hospitals during December 2011. The 116 surveys were e-mailed through Surveymonkey.com to HIM directors who provided valid e-mail addresses. For seven HIM directors without valid e-mail addresses or who preferred to receive a hard copy of the survey, a survey was mailed to the address provided. Three follow-up surveys were sent to nonrespondents in two-week intervals ending the first week of February 2012. A total of 43 valid surveys were received, yielding a response rate of 37 percent. This study was approved by the University of Alabama at Birmingham (UAB) Institutional Review Board.

Survey Development and Measures

The 16-question self-completed survey was based on AHIMA's "ICD-10-CM/PCS Transition: Planning and Preparation Checklist,"[45] "AHIMA Survey on ICD-10 and 5010 Compliance,"[46] and AHIMA's "5010 and ICD-10 Compliance Q2 Survey Results."[47] The survey questions included the respondent's individual information (position, credentials, and education level); hospital characteristics (type, location, bed size, number of HIM employees); HIM roles in the transition to ICD-10-CM/PCS coding; training plans and approach; the status of ICD-10-CM/PCS transition and preparation; and the respondent's perception of challenges and barriers to ICD-10-CM/PCS transition. The responses were maintained in Surveymonkey.com. Results were analyzed via Surveymonkey.com and Microsoft Excel. The survey questions were pretested for validity and clarity by HIM professionals in the principal author's department, and revisions were made based on the pretest feedback.

Results

Characteristics of Respondents

Of the 43 survey respondents, the vast majority (93 percent) were either HIM directors or managers, and the rest of the respondents (7 percent) were hospital administrative personnel. Of the valid 41 responses from the facilities, 41 percent were federal or nonfederal government hospitals, 37 percent were not-for-profit, and 22 percent were investor-owned for-profit hospitals. About 39 percent of hospitals had 100 or fewer beds, and slightly more than half of the hospitals (51 percent) were located in rural areas of Alabama. (See Table 1.)

Table 1
Characteristics of Participating Hospitals (n = 41)

Characteristics	N	Percentage
Type of hospital		
Nonfederal government	16	39.0%
Federal government	1	2.4%
Investor-owned for-profit	9	22.0% 36.6%
Nonprofit	15	
Bed size >100	16	39.0%
100–299	12	29.3%
300–499	7	17.1%
>500	6	14.6%
Location		
Urban	20	48.8%
Rural	21	51.2%

Note: Two respondents did not provide the information for Table 1.

Planning for ICD-10-CM/PCS

The respondents who hold HIM leadership positions within their respective facilities played different roles on the ICD-10-CM/PCS implementation planning team. Data indicated that these roles included team leader (31 percent) and team member (31 percent). The remaining 38 percent of respondents were either in the process of forming a team or had not begun the implementation planning process.

Respondents' comments indicated that only 15 percent of the facilities began planning for ICD-10-CM/PCS implementation before 2011, 53 percent began the planning process in 2011, 25 percent would start planning in 2012, 3 percent would start planning after 2012, and 5 percent were not sure when they would begin planning.

Regarding a timeline for specific implementation tasks, data showed that a large portion of facilities were halfway or less than halfway to completion (50 percent). The implementation tasks (see Table 2) that were less than halfway completed or at the halfway point of completion include conducting clinician and code set user education (94 percent), identifying and budgeting for required information system changes (93 percent), creating awareness of the impact of the ICD-10-CM/PCS code set throughout the organization (91 percent), assessing the status of payers' and other business associates' progress toward ICD-10-CM/PCS preparedness (86 percent), and determining organizational structure and responsibilities for the transition (83 percent).

Table 2
Status of ICD-10-CM/PCS (ICD-10) Implementation (Percentage of Respondents)

Please indicate along the continuum where your organization is with each of these ICD-10 implementation tasks:						
	Not Started (0%)	Just Started (25%)	Halfway Done (50%)	More Than Halfway (75%)	Almost Done (90%)	Finished (100%)
Determine organizational structure and responsibilities for ICD-10 transitions	26	40	17	9	3	6
Create an ICD-10 code set impact awareness throughout the organization	40	34	17	3	3	3

Please indicate along the continuum where your organization is with each of these ICD-10 implementation tasks:

	Not Started (0%)	Just Started (25%)	Halfway Done (50%)	More Than Halfway (75%)	Almost Done (90%)	Finished (100%)
Identify and budget for required information system changes	27	42	24	0	6	0
Are your system changes ready to employ the 5010 standard on January 1, 2012?	15	15	6	9	18	36
Perform comprehensive systems audit for 5010 transaction standards compatibility standards compatibility (i.e., inventory of systems applications)	15	18	12	9	18	27
Assess status of payers' and other business associates' progress toward ICD-10 preparedness	26	51	9	9	3	3
Conduct a detailed assessment of staff education needs (for all staff) and determine budgetary constraints	26	34	17	3	14	6
Determine the best methods of providing education	14	37	20	9	11	9
Conduct clinician and code set user education	38	38	18	6	0	0
Develop an ICD-10 implementation budget for coder training	17	31	11	9	17	14

Respondents were allowed to select one or more choices to the question of "Who will be responsible for leading the planning for ICD-10-CM/PCS?" Responses included the HIM director (65 percent), a coding manager/supervisor (25 percent), and a consultant or coding vendor (15 percent); 15 percent were unsure, and the remaining 20 percent listed various individuals from hospital administration and other departments, such as the chief financial officer (CFO) and the information technology (IT) department.

Training Plans and Approaches for ICD-10-CM/PCS

ICD-10-CM/PCS implementation training is not only focused on coders but also involves other staff, such as senior executives, HIM leadership, financial management, and IT personnel. According to the Centers for Medicare and Medicaid Services (CMS) and the American Health Information Management Association (AHIMA), the ICD-10-CM/PCS implementation planning and preparation process includes four phases: phase 1, implementation plan development and impact assessment; phase 2, implementation preparation (including coder training); phase 3, "go-live" preparation; and phase 4, postimplementation follow-up.[48-49] Depending on the facility type, size, and complexity, the phases may vary in length or may overlap.[50]

The training plans reported by survey respondents varied for each phase and are shown in Table 3. Phase 1 training activities were focused on senior executives (96 percent), HIM leadership (90 percent), and IT personnel (81 percent); phase 2 training was focused on coding staff (90 percent), financial management, including accounting and billing personnel (72 percent), and HIM leadership (70 percent); phase 3 training was focused on coding staff (69 percent), IT personnel (69 percent), and business associates (65 percent); while phase 4 training was on for coding staff (66 percent), HIM leadership (60 percent), and financial management staff (60 percent).

Table 3
Training Plans for Facility Personnel Included at Each Phase of Implementation

	Phase 1 (%)	Phase 2 (%)	Phase 3 (%)	Phase 4 (%)
Senior executives	96	32	36	52
HIM leadership	90	70	60	60
Other HIM professionals	52	59	55	41
Coding staff	66	90	69	66
Medical staff	43	68	61	46
Financial management (including accounting and billing personnel)	56	72	64	60
IT personnel	81	54	69	50
Clinical department managers	50	65	50	39
Business associates	60	48	68	40
Other key stakeholders affected by identified problems	52	56	52	56

Figure 1 shows that the coder training approaches identified by the respondents included in-house training (58 percent), facility-paid seminars or webinars for employees to attend (58 percent), facility-paid courses to be provided by a consultant or consultants (33 percent), seminars or webinars (given by AHIMA, the state HIM association, or other organizations) that coders attend on their own (18 percent), and courses that coders take on their own (such as an academic course from a university or college; 9 percent). Three percent of respondents indicated that no training would be provided by the healthcare facility.

**Figure 1: Training Approaches Provided by Facilities**
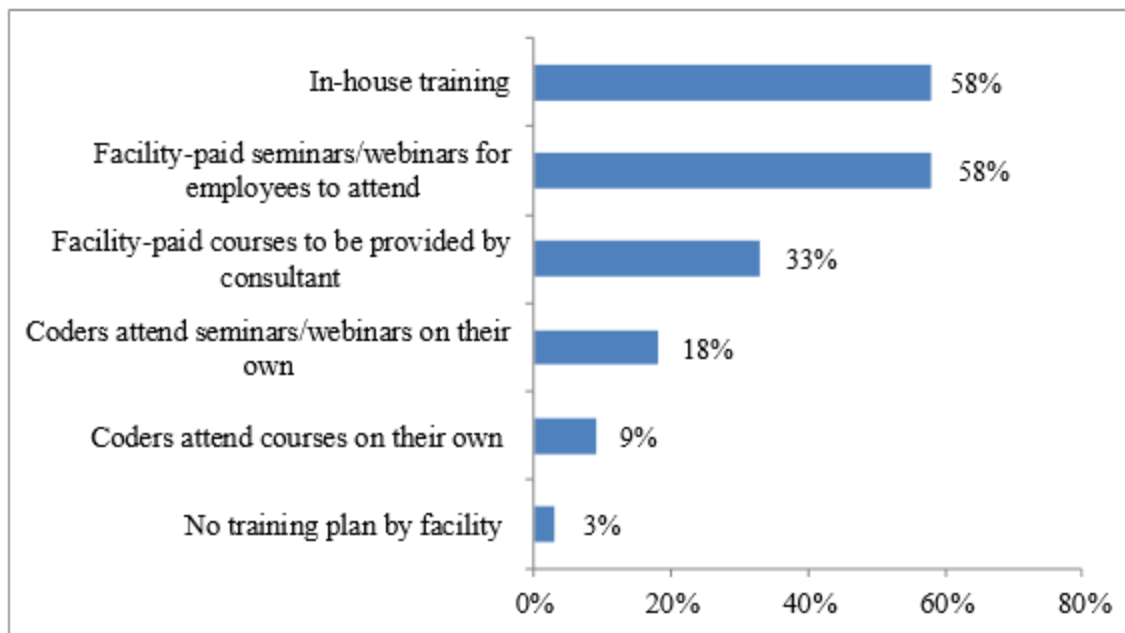
Challenges and Barriers to ICD-10-CM/PCS Implementation

Respondents were asked how they would deal with the anticipated loss of efficiency and productivity that the implementation of ICD-10-CM/PCS would bring. As shown in Figure 2, most of the respondents (77 percent) said that they would train coders in advance to minimize the impact; others would adjust coders' productivity measures (47 percent), hire new coders (35 percent), increase coders' hours to compensate for the loss of productivity (18 percent), take other approaches (15 percent), or do nothing (12 percent).

Figure 2: Planned Strategies to Compensate for the Impact of the ICD-10-CM/PCS Transition on Efficiency and Productivity
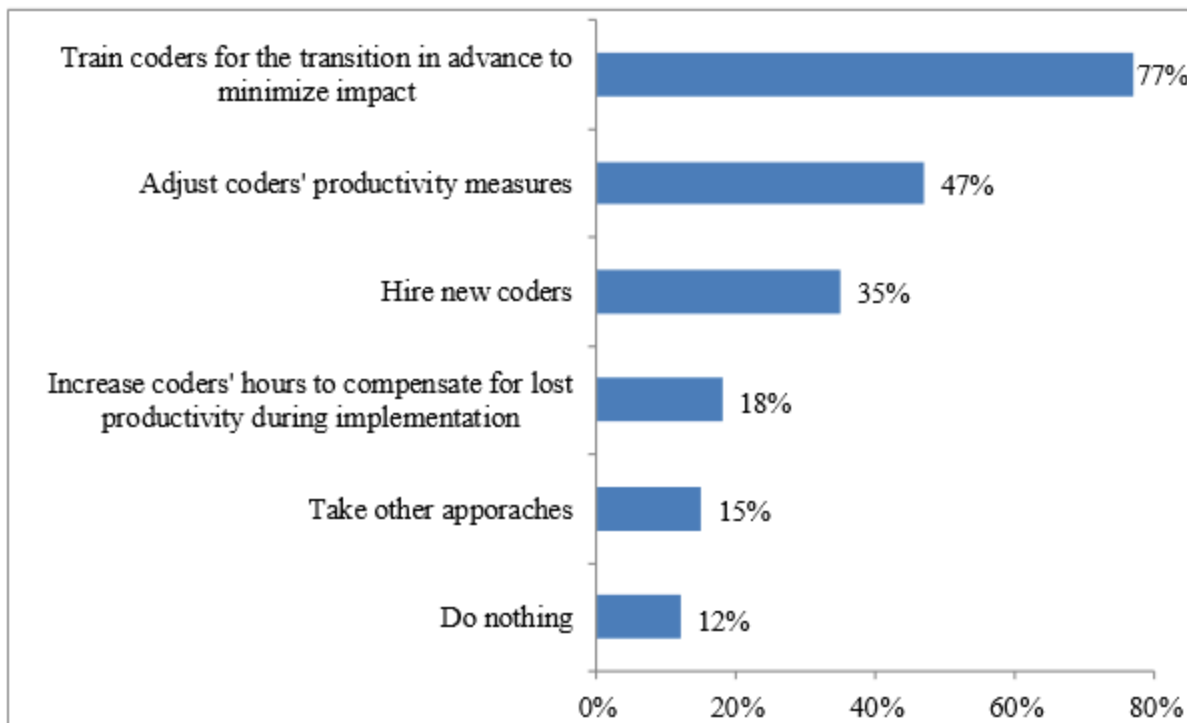
Data shown in Figure 3 indicated that the top three most important perceived challenges and barriers to the ICD-10-CM/PCS transition were the need to interact with physicians and other providers more often to obtain information needed to code in ICD-10-CM/PCS systems (100 percent), the need for education and training of HIM department coders (94 percent), and dependence on vendors for major technology upgrades for ICD-10-CM/PCS systems (94 percent). Other challenges and barriers included the loss of individual productivity for coders (91 percent); the need for education of other ICD-10-CM/PCS users (revision of charge masters, encounter forms for ancillary/emergency room areas, etc.; 91 percent); and managing two databases for codes for a period of time (84 percent). A few additional challenges that were not included in the figure included: a decrease in the number of experienced coders if they retire and leave the position (78 percent); limited resources for training of HIM coders (78 percent); and the need to hire new coders to compensate for decreased productivity of current staff at the beginning of the implementation process (56 percent).

Figure 3: ICD-10-CM/PCS Transition Challenges and Barriers
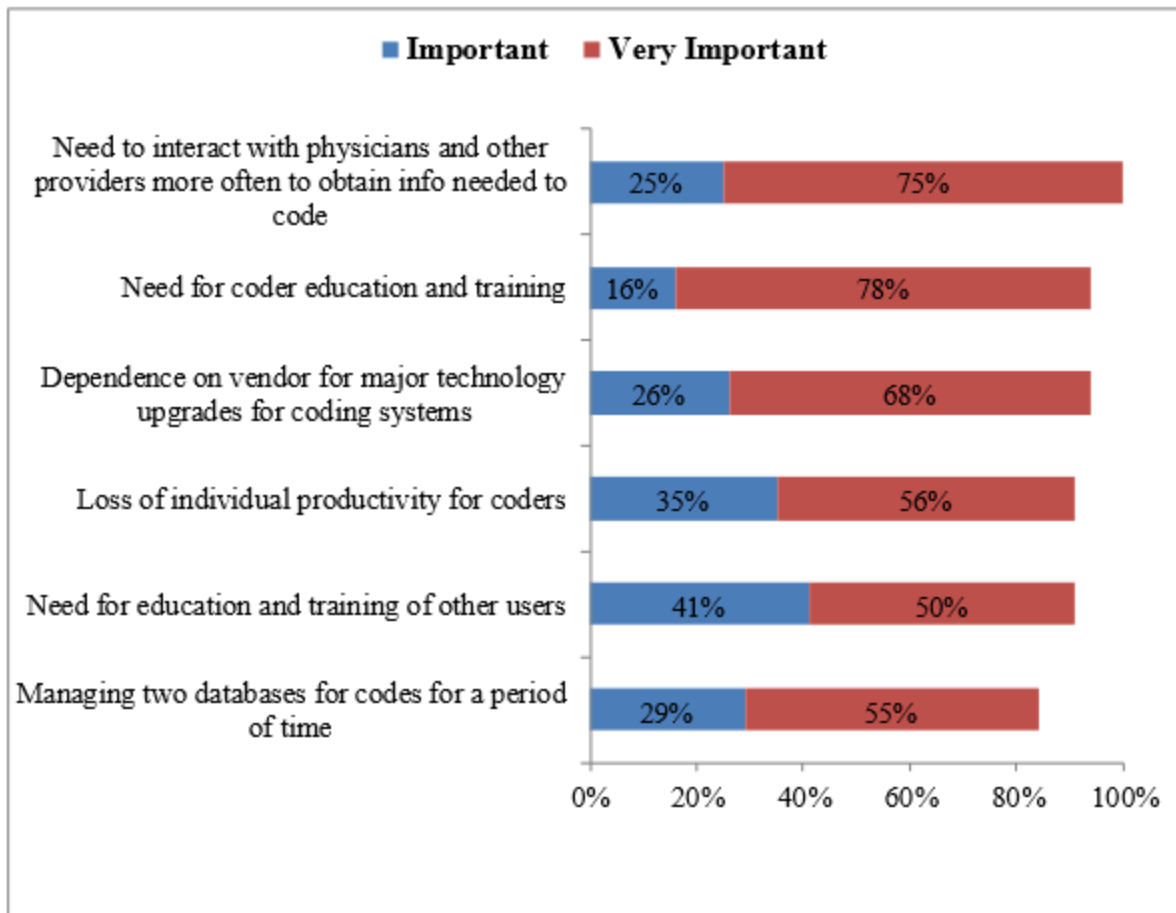
Discussion

The majority of the survey respondents represented the HIM field as directors or managers, and the majority of respondents felt that HIM directors would be responsible for leading the planning for ICD-10-CM/PCS implementation. Despite the low percentage of respondents indicating that their facilities had not formed teams prior to 2011 (15 percent), 53 percent indicated entering the planning process in 2011. Whether this delayed timeline for planning was a result of anticipated changes to the start date[51-52] is unknown as the survey did not address this issue.

Data showed that a large majority of the facilities were halfway or less than halfway toward completion of the ICD-10 CM/PCS implementation, indicating that facilities that entered the planning stage in 2011 moved quickly to address specific implementation tasks identified in Table 2. All respondents indicated plans that fell within the four implementation phases proposed by CMS and AHIMA. Interestingly, the majority of phase 1 activities were associated with senior executives, HIM leadership, and IT personnel with limited involvement of other facility staff. However, development of the implementation plan and impact assessment must reach beyond the higher level tier of administrative authority to address issues of staff ownership of the change process. Respondents indicated that phase 2 involvement did include training for coders, medical staff, and other data users within the facility. Involvement of a variety of staff (administrative and clinical) at this point in the process may facilitate a sense of ownership for the needed change; however, it does not speak to the challenge of interacting with providers specifically to obtain input and buy-in regarding the planned implementation. The study results suggest that the surveyed hospitals in Alabama are meeting their target implementation tasks and, if they continue through phase 4, will be ready to transition to the ICD-10-CM/PCS coding systems. Having the implementation date of October 1, 2014, published in a final rule allows facilities to benefit from the additional time to prepare.

Indeed, data showed that 100 percent of the respondents felt that the need to interact with physicians and other providers more often to obtain information needed to code in this new system was the top challenge to ICD-10-CM/PCS implementation. Respondents also consistently noted other challenges, including the need to train coders and the dependence on vendors for technology upgrades. Respondents agreed that a variety of options were available to address an anticipated

loss of efficiency and productivity. The majority of respondents stated that they would train coders in advance of start-up to minimize this loss; more than half of the respondents stated that they would hire new coders to compensate for decreased productivity of the current staff at the beginning of the implementation process.

This study has several limitations: First, despite a 37 percent response rate, the survey does not provide a complete picture of the healthcare facilities that did not respond to the survey. Second, since ICD-10-CM/PCS coding has not been implemented, the results are restricted to the current facilities' perception of their challenges and the anticipated planning. The proposed plans and training approaches may be changed during actual implementation phase. Finally, the study was conducted among hospitals in Alabama. It cannot be assumed that Alabama hospitals are more or less prepared than hospitals elsewhere in the nation, so the results may not necessarily be generalizable.

Implications for the HIM Field

Our study has the following implications for the HIM practitioner's role in this transition. The implementation of ICD-10-CM/PCS represents the most significant change in the coding and billing of healthcare services in the last 30 years. It is essential that HIM professionals prepare for this and lead their healthcare facilities to a successful and smooth transition to the ICD-10 coding systems.

Better Assessment

Each facility should continue to monitor the current level of readiness, identify any gaps, and be prepared with trained staff and new processes in place for the transition to the new coding systems. HIM professionals must remain engaged in the organization's ICD-10-CM/PCS implementation team and continually assess the organization's state of readiness. Some facilities may have the benefit of an outside vendor that can lead the effort with minimal impact on the leadership. Using an assessment tool allows a facility to identify its strengths and weaknesses so that the areas that need to be addressed can be identified as early as possible. The delay of the implementation date offers HIM professionals and other leaders the opportunity to identify the multiple uses of coded data in the facility in order to plan for the revision of billing and/or encounter forms with ICD-10-CM diagnosis codes, to revise program codes in billing and clinical applications, and to communicate with vendors and payers to be aware of their state of readiness. As each year passes, changes that occur in the ICD-10-CM/PCS codes have to be updated in any ICD-10-CM/PCS systems in place for testing in organizations. The implementation team is the leadership's key to monitoring the organization's level of readiness for the implementation of ICD-10-CM/PCS systems.

Better Planning

Each facility should select the training approach or approaches that best meet the facility's needs and characteristics. Hospitals in Alabama range in size from small rural facilities to tertiary academic medical centers. Training methods appropriate for one facility may not work for another facility. With smaller facilities, it may be more cost effective to send coders to a training seminar. Larger organizations may opt to bring the trainers into the organization and plan workshops to reduce the amount of time and travel involved. Online courses through academic institutions offer potential training opportunities and eliminate the need for traveling. Professional organizations (AHIMA, state HIM associations), vendors, and consultants may offer a combination of online training and face-to-face lecture presentations. Facilities should examine their own resources for ICD-10-CM/PCS training and develop a training plan to meet their own needs.

Conclusion

This study examined the readiness of Alabama hospitals for implementation of ICD-10-CM/PCS by the mandated date. Results confirmed that while some facilities were slow to start the implementation process prior to 2011, the majority have now started planning process. With the delayed date for the implementation of ICD-10-CM/PCS systems, hospitals have additional time to complete their preparation and training. Training approaches addressed in this study targeted a full range of facility personnel and included methods designed to enhance employee skills while limiting facility costs. HIM directors were associated with primary leadership roles for implementation, a significant responsibility that is in line with their professional knowledge and skill sets. The survey results confirmed that Alabama hospitals are following recommended guidelines to

assess, prepare, and plan for the implementation of ICD-10-CM/PCS coding systems. Adequate planning and better preparation will be essential to the successful implementation of ICD-10-CM/PCS by October 1, 2014.

Shannon H. Houser, PhD, MPH, RHIA, is an associate professor in the Department of Health Services Administration at the University of Alabama at Birmingham in Birmingham, AL.

Darius Morgan, RHIA, is a compliance intern at the Baptist Health System corporate office in Birmingham, AL.

Kay Clements, MA, RHIA, CCS, CPC, is a health information management program director at the University of Alabama at Birmingham in Birmingham, AL.

Susan Hart-Hester, PhD, is a professor of family medicine and director of the Health Professional Shortage Core in the Delta Regional Institute at the University of Mississippi Medical Center in Jackson, MS.

Notes

[1] Centers for Medicare and Medicaid Services. *ICD-10 Overview*. Available at https://www.cms.gov/ContractorLearningResources/Downloads/ICD-10_Overview_Presentation.pdf.

[2] American Hospital Association (AHA) and American Health Information Management Association (AHIMA). *ICD-10-CM Field Testing Project*. September 23, 2003.

[3] Jackson, V., and A. Muckerman. "Navigating Regulatory Change: Preliminary Lessons Learned During the Healthcare Provider Transition to ICD-10-CM/PCS." *Perspectives in Health Information Management* (Winter 2012).

[4] Centers for Medicare and Medicaid Services. *ICD-10-CM/PCS: An Introduction*. Available at http://www.cms.gov/Medicare/Coding/ICD10/downloads/ICD-10Overview.pdf.

[5] American Medical Association. *Preparing for the Conversion from ICD-9 to ICD-10: What You Need to Be Doing Today*. April 13, 2010. Available at http://www.ama-assn.org/ama1/pub/upload/mm/399/icd9-icd10-conversion.pdf.

[6] Hughes, C. *5010 & ICD-10 Overviews*. American Academy of Family Physicians. 2011.

[7] American Medical Association. *Preparing for the Conversion from ICD-9 to ICD-10: What You Need to Be Doing Today*.

[8] Hughes, C. *5010 & ICD-10 Overviews*.

[9] Department of Health and Human Services. "Health Insurance Reform; Modifications to the Health Insurance Portability and Accountability Act (HIPAA); Final Rules." 45 CFR Part 162. Federal Register 74, no. 11 (January 16, 2009): 3296–328. Available at http://edocket.access.gpo.gov/2009/pdf/E9-740.pdf.

[10] AHIMA Coding Products and Services Team. "Destination 10: Healthcare Organization Preparation for ICD-10-CM and ICD-10-PCS." *Journal of AHIMA* 75, no. 3 (2004): 56A–D.

[11] Hazlewood, A. "ICD-9-CM to ICD-10-CM: Implementation Issues and Challenges." AHIMA's 75th Anniversary National Convention and Exhibit Proceedings, October 2003.

[12] Dimick, Chris. "ICD-10 Delay Impacts All Sectors of Healthcare: Industry Attempts to Answer the Question 'What Now?'" *Journal of AHIMA* 83, no. 6 (June 2012): 32–37.

[13] Sanders, T., F. Bowens, W. Pierce, B. Stasher-Booker, E. Thompson, and W. Jones. "The Road to ICD-10-CM/PCS Implementation: Forecasting the Transition for Providers, Payers, and Other Healthcare Organizations." *Perspectives in Health Information Management* (Winter 2012).

[14] AHIMA. *5010 and ICD-10 Compliance: Q2 Survey Results*. July 2010. Available at http:www.ahima.org/downloads/pdfs/busdev/5010_and_ICD-10_Survey_Results.pdf.

[15] AHIMA. *Tracking the Industry's Progress: AHIMA Survey on ICD-10 and 5010 Compliance*. September 2011.

[16] Department of Health and Human Services. "HHS Announces Intent to Delay ICD-10 Compliance Date." News Release, February 16, 2012. Available at http://www.hhs.gov/news/press/2012pres/02/20120216a.html.

[17] American Academy of Family Physicians. "HHS Proposes Delaying ICD-10 Compliance to October 2014." April 10, 2012. Available at http://www.aafp.org/online/en/home/publications/news/news-now/practice-professional-issues/20120410icd-10date.html.

[18] Department of Health and Human Services. "Administrative Simplification: Adoption of a Standard for a Unique Health Plan Identifier; Addition to the National Provider Identifier Requirements; and a Change to the Compliance Date for the International Classification of Diseases, 10th Edition (ICD-10-CM and ICD-10-PCS) Medical Data Code Sets." 45 CFR Part 162. *Federal Register* 77, no. 172 (September 5, 2012): 54664.

[19] Dimick, C. "HHS Announces: ICD-10 Delayed One Year." *Journal of AHIMA*. August 24, 2012. Available at http://journal.ahima.org/2012/08/24/hhs-announces-icd-10-delayed-one-year/.

[20] Piselli, C., K. Wall, and A. Boucher. "A New Language for Health Care?" *Healthcare Financial Management*, January 2010. Available at http://www.gcchimss.net/enews/PiselliWallBoucher.pdf.

[21] AHIMA e-HIM Workgroup on the Transition to ICD-10-CM/PCS. "Planning Organizational Transition to ICD-10-CM/PCS." *Journal of AHIMA* 80, no. 10 (October 2009): 72–77.

[22] Schwend, G. "Expanding the Code: The Methodical Switch from ICD-9-CM to ICD-10-CM Will Bring Both Challenges and Rewards to Healthcare." *Health Management Technology* 28, no. 6 (June 2007): 12, 14.

[23] Rivers, P., J. Frimpong, and M. Rivers. "Transitioning from ICD-9-CM to ICD-10-CM: The Examination of Potential Barriers." *Journal of Health Care Finance* 35, no. 2 (2008): 76–83.

[24] "An ICD-10 Roadmap: Seven Experts Provide Ideas for Implementation, Including Upfront Planning and Training, Considered Important Factors in a Successful Transition to This Coding System." *Health Management Technology* 31, no. 5 (2010): 20, 22–23.

[25] Baldwin, G. "ICD: Intensive Cash Flow Disruption?" *Health Data Management* 18, no. 9 (2010): 27–28, 30, 32.

[26] Law, L., and M. A. Porucznik. "Switching to ICD-10: The Impact on Physicians." *AAOS Now*, February 2009. Available at http://www.aaos.org/news/aaosnow/feb09/reimbursement1.asp.

[27] Jackson, V., and A. Muckerman. "Navigating Regulatory Change: Preliminary Lessons Learned During the Healthcare Provider Transition to ICD-10-CM/PCS."

[28] American Medical Association. *Preparing for the Conversion from ICD-9 to ICD-10: What You Need to Be Doing Today*.

[29] Schwieters, J. "Strategies for Dealing with the National Coding Shortage." *Healthcare Financial Management* 64, no. 4 (April 2010): 36–38.

[30] Majerowicz, A. "Developing an ICD-10-CM/PCS Coder Training Strategy." *Journal of AHIMA* 82, no. 4 (2011): 58–60.

[31] AHIMA. "Transitioning to ICD-10-CM/PCS in the Classroom: Countdown to 2014." *Journal of AHIMA* 83, no. 6 (June 2012): 68–73.

[32] AHIMA ICD-10-CM/PCS Academic Transition Workgroup. "Transitioning to ICD-10-CM/PCS—An Academic Timeline." *Journal of AHIMA* 80, no. 4 (April 2009): 59–64.

[33] Jackson, V., and A. Muckerman. "Navigating Regulatory Change: Preliminary Lessons Learned During the Healthcare Provider Transition to ICD-10-CM/PCS."

[34] American Medical Association. *Preparing for the Conversion from ICD-9 to ICD-10: What You Need to Be Doing Today*.

[35] Piselli, C., K. Wall, and A. Boucher. "A New Language for Health Care?" *Healthcare Financial Management*, January 2010.

[36] AHIMA e-HIM Workgroup on the Transition to ICD-10-CM/PCS. "Planning Organizational Transition to ICD-10-CM/PCS."

[37] Schwend, G. "Expanding the Code: The Methodical Switch from ICD-9-CM to ICD-10-CM Will Bring Both Challenges and Rewards to Healthcare."

[38] Rivers, P., J. Frimpong, and M. Rivers. "Transitioning from ICD-9-CM to ICD-10-CM: The Examination of Potential Barriers."

[39] "An ICD-10 Roadmap: Seven Experts Provide Ideas for Implementation, Including Upfront Planning and Training, Considered Important Factors in a Successful Transition to This Coding System."

[40] Baldwin, G. "ICD: Intensive Cash Flow Disruption?"

[41] Law, L., and M. A. Porucznik. "Switching to ICD-10: The Impact on Physicians."

[42] Schwieters, J. "Strategies for Dealing with the National Coding Shortage."

[43] Majerowicz, A. "Developing an ICD-10-CM/PCS Coder Training Strategy."

[44] AHIMA. "Transitioning to ICD-10-CM/PCS in the Classroom: Countdown to 2014."

[45] Bowman, Sue, and Ann Zeisset. "ICD-10-CM/PCS Transition: Planning and Preparation Checklist." AHIMA Body of Knowledge, March 2011.

[46] AHIMA. *Tracking the Industry's Progress: AHIMA Survey on ICD-10 and 5010 Compliance*.

[47] AHIMA. *5010 and ICD-10 Compliance: Q2 Survey Results*.

[48] Centers for Medicare and Medicaid Services. *Preparing for ICD-10 Implementation in 2011 National Provider Teleconference*. January 12, 2011. Available at https://www.cms.gov/Medicare/Coding/ICD10/downloads/Jan122011_ICD10_Call.pdf.

[149] Bowman, Sue, and Ann Zeisset. "ICD-10-CM/PCS Transition: Planning and Preparation Checklist."

[50] Centers for Medicare and Medicaid Services. *Preparing for ICD-10 Implementation in 2011 National Provider Teleconference*.

[51] Department of Health and Human Services. "HHS Announces Intent to Delay ICD-10 Compliance Date."

[52] American Academy of Family Physicians. "HHS Proposes Delaying ICD-10 Compliance to October 2014."

Driving the Power of Knowledge