

Readiness for Transitioning to ICD-10 Coding: A Comparison on Practice Ownership and Community Size

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Abstract

Over the past twenty years, media coverage regarding legislative actions in the health care industry has predominantly focused upon the current Congressional health care bill, HIPAA (the Health Insurance Portability and Accountability Act) legislation and patient privacy rights. However, medical offices must abide by many legislative policies and regulations to provide health care to patients in a legal, efficient, and financially viable manner. Although many of these legislative policies do not garner the same widespread attention as that received by the current health care bill and HIPAA, they, nonetheless, require an equally significant level of attention in the medical community.

In this paper, the authors examine one of the current legislative rulings affecting the billing portion of the medical community, the transitioning process from the ICD-9 to the ICD-10 coding system. The authors study the influence of practice ownership type and community size on the level of preparedness for ICD-10 implementation. The results show that there is little difference between practice ownership types and community size, when preparing for implementation of ICD-10. However, the data does raise the question of actual versus perceived preparedness levels for the mandatory implementation of ICD-10.

Keywords: Health care strategy, Health care billing systems, ICD-10

1. INTRODUCTION

IT managers are faced with many decisions and directives as they provide technology services to seamlessly support the strategic operations of their respective businesses. Many of those directives are generated in-house; however, for

heavily regulated industries such as health care, a number of those edicts come from external regulatory bodies. Such regulations are often a necessary requirement to sharing data across multiple organizations. The preparation and modifications to systems and business processes for carrying out these changes provide a significant adjustment to, often times, several

aspects of an organization. Depending upon different characteristics of the organization, these changes can be crippling.

In this paper, the authors examine two characteristics of health care organizations potentially influencing the conversion from the ICD-9 to the ICD-10 bill coding system: organization type and community size. Through this research, the authors hope to determine if organization type (physician or hospital-owned) and community size (urban or metropolitan) affect the level of preparation physician practices possess as they transition to the newer version of the insurance bill coding system.

2. LITERATURE REVIEW

Physician offices in the U.S. and throughout the world utilize a universal medical coding scheme developed by the World Health Organization entitled International Statistical Classifications of Diseases (ICD). This coding scheme (ICD version 1) was originally created in 1893 and adopted in the U.S. in 1898 for providing a standard means of classifying and coding medical conditions and procedures (Rivers, Frimpong, & Rivers, 2008). The coding scheme is designed to promote international comparability in healthcare information in the form of collection, processing, classification, and presentation of mortality statistics (CDC, 2011).

As medicine has progressed and new diseases discovered, the coding scheme has undergone multiple revisions. The current version used across the health care industry is version 9, or ICD-9. The U.S. mandated changeover to ICD-10 (version 10) was originally scheduled for October 1, 2013. However, due to the number of changes associated with the new coding scheme and their level of impact on the entire healthcare industry, on April 9, 2012, the changeover deadline was extended to October 1, 2014 (US HHS, 2012).

Switching from the current International Classification of Diseases part 9 (ICD-9) to the new International Classification of Diseases part 10 (ICD-10) is inevitable. Every health care organization will have to change coding systems, and thus, must be prepared for this major organization-wide change (Buenning, 2011). Effected organizations include hospitals, insurers, clearinghouses, hardware and software manufacturers and vendors, health care institutions such as physicians, research

institutions, and anyone else who utilizes the ICD-9 codes (Buenning, 2011).

The conversion to the ICD-10 coding scheme will require alterations by external business partners as well as every part of a health care organization's operations including the manager's office (new policies, vendor contracts, and budgets), physician's office (new documentation processes), nurse's station (changes in forms and documentation), the laboratory, waiting room/front desk (system changes and a new HIPAA form), and most importantly, the billing and coding department (new code sets and policies/procedures) (Buckholtz, 2011; Rivers, Frimpong, & Rivers, 2008). The magnitude of recording more highly specialized data changes the paying system, particularly for Medicare and Medicaid. With the number and diversity of required changes, an overlooked adjustment to a system could prove detrimental.

The effect of the changeover to the new ICD coding scheme on the health care industry has been compared to the changes prompted by Y2K. Unfortunately, many providers have yet to start preparing for the transition which could turn out to be quite costly in the end (Moore, 2010). Currently, the United States uses the ICD-9 (ninth edition) utilizing the Clinical Modifications version (used in all health care settings) and the Procedure Coding System (used in inpatient hospital settings) (Buenning, 2011). The main motivation behind the move to an updated coding scheme is the need to capture more data, which in turn, will help to improve quality measurements, reduce coding errors, improve pattern tracking of diseases, track outbreaks more effectively, make claims submissions more efficient, and improve the identification of fraud and abuse of the system (Buenning, 2011). An emerging and extensively growing health care system, like that of the U.S., needs an expandable system.

Characteristics of the ICD-10 Coding Scheme

The new codes associated with the ICD-10 coding scheme are meant to address some of the shortfalls within the old ICD-9 scheme, including the use of a seven digit code instead of a five digit code allowing for new diseases and procedures to be identified (Enos, 2011). Rivers, Frimpong, & Rivers (2008) found that the ICD-9 codes were obsolete in comparison to the new ICD-10 codes, and that the main issues concerning this transformation would come in

the form of when and who would incorporate the necessary updates.

The underlying logic behind the major changes is that the new ICD-10 will be more specific to diagnoses and treatments. The coding system will go from 14,000 codes with ICD-9 to about 69,000 codes with ICD-10 (Buckholtz, 2011). The ICD-10 scheme better reflects current medical practices (inclusion of updated medical terminology and classification of diseases) and allows for diagnosis coding in all healthcare settings, which entails a more detailed and organized coding experience (Buenning, 2011; Ronning, 2011). A wider advantage of the ICD-10 scheme is the ability to synchronize data with other countries so that diseases and mortality factors can be compared throughout various nations (Ronning, 2011). Enos (2011) identified the following differences in the two coding systems:

- ICD-10 is a three volume code set instead of two;
- ICD-10 has alphanumeric categories instead of numeric ones;
- Some rearrangement of chapters are seen in the ICD-10; and
- ICD-10 has almost double the categories of ICD-9.

Preparation Concerns

Conn (2011) found that survey respondents believed the industry, as a whole, was behind in the conversion process to the ICD-10 schematic but awareness of the switchover was increasing. Lack of preparation for the transition was also found to be a financial concern. A hospital research and consulting firm noted that even if a hospital was compliant on ICD-10 codes, lack of sufficient preparation could cost a hospital between 1 and 2.5 million dollars (Conn, 2011). That is a significant potential loss for being compliant but poorly prepared. A practice could go out of business resulting from problems associated with adopting the ICD-10 scheme.

A February 2010 Noblis Insights Panel survey of 37 health care executives also depicted the uncertainty in preparing for the ICD-10 changeover with 34% of participants unsure of the readiness of their organization in preparing for the ICD-10, 14% not on course for the change, and 52% on course for the change (Raths, 2010). Part of the lack of preparation was associated with confusion regarding implementation responsibility within organizations (i.e. should the responsibility lie

with the CEO, CFO, CIO, or others). This was a major concern since 48% of the participants were either not ready or unsure about their organization's readiness.

The major concerns with ICD-10 for physicians involve the increase in specificity and the training that this specificity entails (Buckholtz, 2011). Better documentation of procedures and processes, which was previously not required, may place some physician practices in a bind. The physician and the billing and coding departments must transform to more in-depth systems which will require an investment from the practice (Buckholtz, 2011).

Entities involved within the practice (such as accounts receivable and providers) are also involved in the ICD-10 update, and must be ready for the new system so that business can run smoothly between providers, payers, and other associations (Buckholtz, 2011). Proper training of the employees, who actually get the money in the door (the billing and coding departments) as well as the physicians themselves, is critical to the transformation process.

Preparing for the Change

There are numerous approaches to developing a plan and implementing a new coding scheme for an entity. The change to ICD-10 is no different. An entity can develop a plan based on their internal knowledge, utilize a plan suggested by an industry group, or hire consultants. One set of guidelines for changing to ICD-10 was suggested by the Center for Medicare and Medicaid Services (CMS) and addressed a number of general topics. These topics included performance of an impact analysis to identify potential business process changes, readying of the IT department, readying outsiders (payers and vendors), performing internal testing, and performing external testing (CMS, 2011). Brief discussions of these topics are found next.

Impact Analysis: The CMS recommends that a budget and impact analysis on each section of the organization be completed in order to make a smooth transition to ICD-10 and to be prepared for the changes in light of the financial impact of the switchover (CMS, 2011; Conn, 2011). Conn (2011) found that 25% of organizations have not started to develop an implementation budget. With the possibility of losing millions just for being compliant but unprepared, providers must be ready by the mandated implementation day.

Readying the IT Department: The underlying systems that allow for daily operations to take place must be equipped to handle the ICD-10 coding scheme. Managing these systems and being ready for the changes to those systems can be advantageous (Dimick, 2011; Dugan, 2010; Meyer, 2011). Return on investments from appropriate information systems management has proven to be very important in other industries experiencing coding changes such as banking and transportation. Thus, with long term consideration made for other changes, ICD-10 should bring revenue to the healthcare industry as well (Dugan, 2010).

Extensive training and education must be completed in workflow management and technology systems to transfer effectively to ICD-10. Dugan (2010) recommends teams and committees to help in the transformation process. If sufficient information technology resources are unavailable, third party consultants can be used to fill in the gaps (Dugan, 2010). Appropriate IT preparedness can benefit the organization through producing better results from the staff, the billers and coders, and from other departments within the organization.

Communication with Business Associates: Communication with payers, vendors, and suppliers is also crucial in adopting ICD-10. The CMS recommends that medical practices contact their vendors to see what updates are going to be made and if those updates are included in the organization's contract (CMS II, 2011). Contracts with payers and suppliers may also have to be adjusted to accommodate the coding change (CMS II, 2011).

The fate of a successful transition to ICD-10 for many organizations' lies in external business partners since the organization will depend on integration with payers, vendors, and suppliers (Ronning, 2011). All entities must be in sync so that the organization runs properly and has what it needs to operate normally. Ronning (2011) recommends preparing for potential risks from claim rejections and denials and improper payments as other external partners try to adjust to the new system. With readiness varying among organizations, the transition may be difficult and providers may have to wait for unprepared external members of the process before payment is received.

One way organizations are transitioning to the change is by using reimbursement mappings that match ICD-9 codes to individual ICD-10 codes using statistics to determine unknown characteristics of the procedure (Butler & Mills, 2009). This, however, can be quite risky due to calculated results and rounding.

General Equivalency Maps (GEMS)

CMS, in cooperation with the Centers for Disease Control and Prevention (CDC) and the American Health Information Management Association (AHIMA), developed general equivalency maps (GEMS) to assist with the transformation to the new ICD-10 codes (CMS, 2010). GEMS provide a bi-directional translation so users can code back-and-forth between the current ICD-9 codes and the new ICD-10 codes (CMS, 2010). This process is often called cross walking, and is a key capability during both implementation planning and remediation efforts after the ICD-10 deadline (Ronning, 2011).

Unlike reimbursement maps, GEMS are very specific (Wollman, 2011) and are recommended by the CMS as a general purpose translation tool for all types of providers and payers. GEMS can be used for ICD-10 in various ways including converting payment systems and providing risk adjustments, quality measures, and research applications (CMS, 2010). With so many uses for GEMS, many physicians can benefit from using these mappings to become better prepared.

Although CMS sets up the GEMS, it is still difficult to transfer between the two. With only a 20% exact match of ICD-9 to ICD-10 codes, many doctors may have varying opinions on which codes to use for what procedure (Wollman, 2011). This could also affect how much payers pay out and the revenues of the providers since major differences can occur in the cost of the procedures performed (Wollman, 2011).

Comparison of Hospital-Owned versus Physician-Owned Practices

In comparing hospital-owned practices to physician-owned practices, there are many differences. Some of those differences include: the number of patients assisted, the amount of revenue generated, practice size, budget levels, types of experiences, and community size. In an interview with Dr. Glynis Ablon, Ablon recommended that new physicians never enter into private practice before going "to work for someone else for at least three to five years." (Gillette, 2004; p. 70). Although physicians

have received extensive medical training, their lack of business knowledge and training can be a key problem for private practice physicians (Gillette, 2004), especially in dealing with technical issues such as coding.

Hospital-Owned Physician Offices: Hospital-owned physician offices are not without their own issues such as EHR implementation and new legislation regarding health care reform. With such issues weighing heavily on their operations, preparations needed for the transformation to ICD-10 may be overlooked (Danzig, 2010).

The priority level of practice needs may fall to third or fourth in line of importance when needs of other hospital sectors take precedence over physician needs (Whaley, 2011). Other hospital departments (i.e. information technology, accounting) help hospital-owned physician practices with things such as payroll and EHRs so less strain is placed on the physician (Whaley, 2011). This is not the case in privately-owned practices.

According to a study conducted by Greene, et al. in 2002, hospital physicians cost hospitals thousands of dollars each year:

1. Hospital physicians see approximately 1,500 less patients than private practice physicians. Although the hospital may charge and collect more dollars per patient, the costs that the hospital incurs per patient are almost twice as much.
2. Hospital-owned practices see more Medicare and Medicaid patients who require more procedures than a typical patient seen by a private practice.
3. Hospitals are willing to work from a deficit situation because of the value of the greater good such as improving access to health care or reaching out to those who are underserved in the health care community.

The findings of Greene et al. (2002) were partly contradicted by Bishop and Kathuria (2008). Bishop and Kathuria (2008) found that hospital managed physicians operated more cost-effectively than private physicians with an equal quality of care provided to patients.

Private Physician-Owned Offices: Private practices are at risk in the changeover process. They have been experiencing a 6% annual increase in expenses while getting paid less, due in part, to reimbursement denials (Sauer, 2011).

Fifty seven percent of private practice physicians experience a 20% rejection rate from insurers on first time preauthorization requests for drugs, tests, and procedures (Sauer, 2011). The number of examined patients is positively correlated to the amount of revenues generated by a physician's practice. As a result of the current severe recession and rising costs of consumer out-of-pocket health care expenses, patient volume is down for private practice physicians (Sauer, 2011).

Managing a practice is a challenging prospect for physicians, since they have little or no business experience. Couple that with the Health Insurance Portability and Accountability Act (HIPAA), the Office of the Inspector General (OIG) Template Compliance Program, and the necessity to implement Electronic Health Records (EHRs), and managing a practice is made more complex than ever before (Sauer, 2011). With a grim outlook for private practices, many are shifting into hospital-owned groups (Sauer, 2011).

Based on Bishop and Kathuria's (2008) finding that private physician-owned practices operate less efficiently than hospital-owned practices, fewer funds would be available to physician-owned practices for ICD-10 implementation. Implementation resources would also be fewer because physician-owned practices do not receive fees for referrals. Whereas a hospital physician may recommend the hospital in which he or she is employed to their patients resulting in revenues for the organization (Halley, 2010). In addition, hospitals should have more revenue to prepare for the change to ICD-10 since they charge more per patient (Greene, 2002). Based on these observations, private physician-owned practices would have fewer funds for the preparation to ICD-10.

3. PURPOSE OF STUDY

This research examined whether or not the ownership of a practice (physician versus hospital owned) and the community size of a practice (metropolitan – St. Louis, Missouri versus urban – Cape Girardeau, Missouri) has any effect on the readiness of a physician practice in the transition to the ICD-10 coding schematic. The readiness level was based on the CMS timeline for successful implementation. The two questions explored in this research are as follows:

- Is there a difference in preparation for ICD-10, based on the CMS timeline, between hospital-owned and physician-owned practices?
- Is there a difference in preparation for ICD-10, based on the CMS time line, between metropolitan-located and urban-located practices?

4. METHOD

This study investigated whether ownership type and the community size of a physician's office influenced the preparedness of the entity for the changeover from ICD-9 to ICD-10. Surveys were sent to the billing and coding departments of hospitals and privately-owned physician offices in Cape Girardeau, Missouri (location of authors' institution) and St. Louis, Missouri (largest metropolitan center closest to the authors' institution).

The survey issued was based on a time-line produced by CMS which highlights different tasks and dates those tasks are to be completed by in order to be correctly prepared for the ICD-10 switchover on October 1, 2013 (CMS, 2011). The CMS notes, that even though each organization differs, the guideline is intended to provide a smooth transition to the ICD-10 regardless of differences among the organizations (CMS, 2011). Thus, responses may be similar regardless of ownership or size of IT department.

An eleven-question survey was mailed to 44 randomly selected physician offices in the two Missouri cities probing their level of preparation. Thirty-one useable surveys were returned for a 70% response rate. Of the 31 respondents, 7 or 23% were hospital-owned practices while 24 or 77% were physician-owned practices. The 7 hospital-owned practices consisted of surveys from the 2 hospitals in Cape Girardeau and 5 of the 18 hospitals in St. Louis. Of the 31 returned surveys, 17 or 55% were from practices in St. Louis (metropolitan area, approximately 2.1 million people) and 14 or 45% were from practices in Cape Girardeau (urban area, approximately 53,000 people).

Once the surveys were returned, concern was raised that only seven hospital-owned practices responded. Further investigation indicated that many hospital-owned practices were owned by the same hospital. These practices have all of

their billing and coding provided by the hospital. Therefore, one response by a hospital would represent the environment of many different practices owned by the same hospital. This information relieved the concern since 100% of the Cape Girardeau hospitals and 28% of the St. Louis hospitals had responded to the survey.

Survey Instrument

The original mandatory implementation date for ICD-10 was October 1, 2013. On April 9, 2012, the implementation date was postponed, to October 1, 2014. All data collected in this study was collected prior to the change in the mandatory implementation date.

In preparation for the October 2013 switch to ICD-10, the CMS issued a suggested set of Implementation Steps, with suggested quarterly completion dates (running 2011 to 2013). Based on the steps that needed to be completed by the end of Spring 2012, the research survey in Appendix I was developed.

Variables

The variables SCORE and READY were the two dependent variables used in the study. SCORE was computed as the summation of "yes" responses to the seven questions concerning whether a step had been completed. This variable could range from 0 (if the participant responded "no" to all seven questions) to 7 (if the participant responded "yes" to all seven questions). The variable READY was the participant's answer to the survey question "Do you believe your organization will be prepared for the ICD-10 deadline?" The independent variables in the study were OWNERSHIP and COMMUNITY. OWNERSHIP is a demographic variable indicating whether the physician's office was owned by a hospital or the physician. COMMUNITY is a demographic variable indicating whether the physician's office is located in the St. Louis, Missouri area (metropolitan) or the Cape Girardeau, Missouri area (urban).

Research Questions

Hospital-owned physician practices have more resources (such as information technology and accounting services) than physician-owned physician practices (Whaley, 2011). They also employ more business and administrative professionals than do private physician-owned practices (Greene, 2002). With more resources and data processing skills available, one would project that hospital-owned physician practices would be more prepared for the implementation

of the new ICD-10 coding system. This belief was tested with research question one:

R1: Are hospital-owned practices more prepared for adoption of ICD-10 than physician-owned practices?

Intuitively, one might assume that practices in larger metropolitan cities would be larger than practices in smaller urban cities. A larger practice would have more resources than a smaller practice and, therefore, should be more able to implement system changes such as the implementation of ICD-10. Based on this belief, one could project that practices in a metropolitan area would be more prepared for the implementation of ICD-10 than one in a smaller urban area. This theory was tested with research question two:

R2: Are practices in metropolitan areas more prepared for adoption of ICD-10 than practices in urban areas?

5. FINDINGS & DISCUSSION

In examining R1, the mean SCORE for all respondents was 5.48 out of 7.00. The mean SCORE for hospital-owned practices was 6.43 and physician-owned practices was 5.21. A one-way ANOVA with the dependent variable SCORE and the independent variable OWNERSHIP was performed to test whether the SCORE was different for hospital-owned practices versus physician-owned practices. The test returned a $F=1.923$ and $p=.176$. This result indicated that hospital-owned practices were not any more ready to implement ICD-10 than were physician-owned practices at a .10 rejection level. This result was contradictory to our a priori beliefs that since hospital-owned practices have more professional administrative staff and, therefore, more data processing resources, they would be more advanced in the implementation process.

Examination of R2 found the mean SCORE for all respondents to be 5.48 out of 7.00. The mean SCORE for St. Louis practices was 5.76 and for Cape Girardeau practices, 5.14. A one-way ANOVA with the dependent variable SCORE and the independent variable COMMUNITY was performed to test whether the SCORE was different for St. Louis practices and Cape Girardeau practices. The test returned an $F=.679$ and $p=.417$. This result indicated that metropolitan practices were not any more ready to implement ICD-10 than were urban practices at a .10 rejection level. This result was also

contradictory to our a priori beliefs that since metropolitan practices would be larger and have more resources, they would be more advanced in the implementation process.

Tasks Based Questions

The answers to each of the task-based questions were analyzed. The percentage of "yes" responses to each task question by OWNERSHIP can be found in Table 1. Also in Table 1, the probability (significance) for a Pearson Chi-Square for each question is presented. The Pearson Chi-Square compared whether there was a difference between how hospital-owned practices answered the question versus how physician-owned practices answered.

Examination of Appendix 2 - Table 1 indicates that all questions were answered statistically the same except for the question concerning ongoing communications between the IT department and data manager concerning the progressing efforts of ICD-10. On this question, 100% of hospital-owned practices had an ongoing communication while only 67% of physician-owned practices answered affirmatively.

Interestingly, all other tasks showed no significant difference between preparedness of hospital-owned practices and physician-owned practices. The tasks with no difference included, completion of budget and impact assessment, implementing a system to map ICD-9 codes to ICD-10 codes, the belief that outsiders (payers and vendors) would be ready for implementing ICD-10 and performing internal and external tests ahead of the switchover.

The percentage of "yes" responses to each task question by COMMUNITY is found in Table 2. In Table 2, the probability (significance) for a Pearson Chi-Square for each question is presented. The Pearson Chi-Square compares whether there is a difference between how St. Louis practices answered the question versus how Cape Girardeau practices answered.

Examination of Appendix 2 - Table 2 indicates that five of the seven task questions were answered statistically the same. One of the questions indicating a difference concerned completion of a budget and impact assessment. This question had 100% "yes" responses from St. Louis practices and 71% "yes" responses from Cape Girardeau practices. The second question indicating a difference concerned evaluation of payer's preparedness. St. Louis

firms were more confident with 94% "yes" responses than Cape Girardeau practices with 64% "yes" responses.

All other tasks showed no significant difference between preparedness of St. Louis practices and Cape Girardeau practices. The tasks with no difference included: completion of budget and impact assessment, implementing a system to map ICD-9 codes to ICD-10 codes, ongoing communications between the IT department and data manager concerning the progressing efforts of ICD-10, the belief that vendors would be ready for implementing ICD-10 and performing internal and external tests ahead of the switchover.

Self-Assessment of Meeting Switchover Deadline

The last question of the survey asked the participant, "Do you believe your organization will be prepared for the ICD-10 deadlines?" Seventy-one percent of the respondents said "yes".

The answer to the question "Do you believe your organization will be prepared for the ICD-10 deadlines?" was also examined at the OWNERSHIP and COMMUNITY level. All (100%) hospital-owned practices answered "yes" while 63% of the physician-owned practices answered affirmatively. The OWNERSHIP groups were also compared with a resulting Pearson Chi-Square=3.699 and $p=.054$, significant at the .10 level. St. Louis practices had 82% "yes" answers while Cape Girardeau practices answered positively 57%. The COMMUNITY groups were compared with a resulting Pearson Chi-Square=2.368 and $p=.124$, not significant at the .10 level.

The response of 71% of the practices stating that they believed they would be ready for the ICD-10 deadlines was an improvement over Raths' 2010 survey of 37 health care executives stating 52% of them were on course for timely ICD-10 adoption. The 71% affirmative rate still seems low when considering the deadline for final adoptions was drawing close (18 months away at the time the data was collected) and the heavy financial consequences of not being prepared.

One of the original research questions addressed whether hospital-owned practices were further along the preparation process for the switchover to ICD-10 than physician-owned practices. Using CMS's suggested implementation steps,

we did not find a difference between the two but the survey indicated that hospital-owned practices believed they would be ready at a higher rate (100% ready) than physician-owned practices (67% ready). Why would the hospital-owned practices be ready even though they had not completed all of the tasks suggested by the CMS to be completed by this point in time? Are the hospital-owned practices fooling themselves? Do the hospital-owned practices trust that their expert administrative and data processing personnel will pull implementation out of the bag? These are questions that could be addressed in a follow-up study or included in future research.

6. RESEARCH LIMITATIONS

The results of the study were rather limited as only the practices in two cities were examined. In addition, as potential respondents were approached and surveys distributed, we found that all practices under a hospital's ownership would be at the same level of preparation as they were using the same billing process. Although the study assumed that the generalized findings would apply similarly to practices in any state and results found there to be no difference in levels of preparedness based upon location or ownership type; future researchers may not find this to be the case. Future researchers may consider this study as a starting point for crafting their own survey instrument and extending our research.

7. FUTURE RESEARCH

This research project can be extended in a number of ways. Our research examined two cities in one state, one classified as urban and the other as metropolitan. The study could be expanded to include practices in multiple states as well as comparisons with practices around the globe. New research could examine the influence of additional variables' on medical practices' preparedness to implement ICD-10. Other potential demographic variables include size of practice (number of doctors or practice revenues), practice's technology efficacy level, and type of practice (general or specialty).

Another extension of this study would be to gather factors as to why the practices believed they would or would not be ready by the ICD-10 implementation date. This information could help reveal why some practices are successful in their implementation and others are not. Is their preparedness judgment based on level of confidence, planning, practice or employee

training? Other factors used to make their decisions could also be uncovered.

Further research on medical practices' preparedness could be performed with a new survey instrument developed from the suggested steps for implementation from other organizations such as the American Medical Association, American Health Information Management Association, or the North Carolina Healthcare Information and Communications Alliance.

8. CONCLUSION

Through this study, we found that hospital-owned practices were no further along the CMS's suggested ICD-10 implementation steps than were physician-owned practices, even though hospital-owned practices have more implementation resources and skills. This was a surprising finding since hospital-owned practices were more confident that they would be ready for the implementation deadline (set by the U.S. government) than physician-owned practices. These findings raise the next question, "Why would the hospital-owned practices have more confidence that they would be ready for the switchover deadline while their progression along the CMS suggested ICD-10 implementation timeline was no further complete than those of physician-owned practices?" Will the hospital-owned practice be ready or are they fooling themselves?

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APPENDIX I

ICD Progress Survey

Please complete the following survey to the best of your knowledge relating to the switchover from the ICD-9 to the ICD-10 in your organization. Please answer Yes, No, or N/A (Not Applicable to your organization) for each question by circling your answer.

- | | | | |
|---|-----------------|----------------|-----|
| 1. Location (Please circle one): | Cape Girardeau | St. Louis | |
| 2. Ownership (Please circle one): | Privately Owned | Hospital-Owned | |
| 3. Has there been a budget and impact assessment throughout the organization as of spring 2011? | | | |
| | YES | NO | N/A |
| 4. Are any mapping procedures in place such as GEMS (General Equivalency Maps) in your organization to help employees prepare for the ICD-10 code switchover? | | | |
| | YES | NO | N/A |
| 5. Do the IT department and data manager of your organization have an ongoing communication process concerning the progressing efforts of ICD-10? | | | |
| | YES | NO | N/A |
| 6. Has communication with payers been continuous so that they are ready for the change? | | | |
| | YES | NO | N/A |
| 7. Has communication with vendors/suppliers been continuous so that they are ready for the change? | | | |
| | YES | NO | N/A |
| 8. Have tests been run to ensure systems utilizing the new codes will run efficiently and effectively after the ICD-10 switchover? | | | |
| | YES | NO | N/A |
| 9. Has your organization done any external testing pertaining to ICD-10? | | | |
| | YES | NO | N/A |
| 10. Do you believe your organization will be prepared for the ICD-10 deadline? | | | |
| | YES | NO | N/A |

Please feel free to leave any comments below:

APPENDIX II

Table 1 – Percent Yes by Task by OWNERSHIP

	ALL	Hospital Owned	Physician Owned	Significance
Budget and impact assessment done	87%	86%	88%	.901
Mapping procedures in place	61%	86%	54%	.132
Ongoing communication process inside organization	74%	100%	67%	.076*
Do payers think they will be ready	81%	100%	75%	.141
Do vendors think they will be ready	87%	100%	83%	.247
Run tests with new codes	84%	86%	83%	.880
Done any external testing	74%	86%	71%	.429

*significant at .10 level.

Table 2 – Percent Yes by Task by COMMUNITY

	ALL	St. Louis	Cape Girardeau	Significance
Budget and impact assessment done	87%	100%	71%	.018*
Mapping procedures in place	61%	53%	71%	.293
Ongoing communication process inside organization	74%	76%	71%	.750
Do payers think they will be ready	81%	94%	64%	.036*
Do vendors think they will be ready	87%	94%	79%	.199
Run tests with new codes	84%	88%	79%	.467
Done any external testing	74%	71%	79%	.613

*significant at .10 level.