Current Coding Competency Compared to Projected Competency

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Abstract

Coding competency is extremely important to the health information management (HIM) profession and healthcare in general. The research presented in this article evaluates coding skill and competency using practice-based research. The projected skill set for the clinical data specialist, the future coding role set forth in the publication *Evolving HIM Careers*, was used to determine how prepared current coders are in terms of projected competencies. To conduct this investigation, a random sample of coders and non-coders were surveyed to determine how well the current level of skills relate to the skills described for the clinical data specialist. In addition to evaluating the skills of current coders, non-coders were used to determine whether there was a statistically significant difference between coders and non-coders' skills relative to the future competencies. If the coders and non-coders had similar self-assessed skills, the validity of the skill set would be questionable. If however, the self-assessed skill was significantly different, the assertion that the skill set is specific to coders would be more credible. The findings from the research suggest that there are many skills projected for the clinical data specialist that are shared by both coders and non-coders. Also, neither coders nor non-coders reflected the level of competence in their self-assessed skills in many areas, such as understanding coding and classification systems other than ICD-9 and CPT, designing audit tools, performing quality audits, and selecting statistical software applications appropriate to the data to be captured. The research also suggests that coding professionals who wish to prepare for the future should acquire more communication, research, and management skills. Further, because there are only a few skills that were found to be significantly different between the two groups, the non-coding health information professionals can prepare to become coding professionals by gaining skills in coding systems and reimbursement software. Moreover, the implication is that the skill set projected for coders applies to all HIM professionals as well.

Introduction

Coding professionals perform an important role in the revenue cycle of healthcare. This research study is based on the projected skill sets published in *Evolving HIM Careers*.[1] This book was the result of the visioning process undertaken by the American Health Information Management Association (AHIMA) for the purpose of transforming the health information management (HIM) profession. In 1996, the AHIMA House of Delegates discussed the seven new roles projected to be important in the future of HIM professionals. One of these roles was the futuristic coding role of the clinical data specialist. While the projected role was theorized to be an accurate portrayal of what the future would require of coders, there was no empirical evaluation of the projected skills in terms of preparedness. Because of the lack of empirical data about the accuracy of the coder's theorized skills, this study surveyed current self-assessed knowledge in the skill set identified in *Evolving HIM Careers* for the role of clinical data specialist. The overall research question that this study will answer is: how well does the current level of skills of HIM professionals relate to the skills described for the clinical data specialist? And the specific objectives include:

1. What is the current self-assessment of HIM professionals in terms of the projected skill set for the clinical data specialist?
2. How does self-assessed skill set compare to projected future skill requirements identified in *Evolving HIM Careers*?

3. Is there a significant difference between coders and non-coders in the self-assessment of current skills relative to the projected skills needed for the clinical data specialist?

The findings from the study provide information about self-perceived knowledge deficits in this role. This information will enable organizations, educational institutions, and individuals to address development of specific skills to prepare for future coding needs.

Literature Review

Coding-related articles in the literature describe the current coding environment and future skills required for coding. Industry experts predict that as use of the electronic health record (EHR) increases, individuals performing the coding function will need a greater breadth of skill for the future job requirements.

The future requirements of the clinical data specialist have been identified and expounded upon in *Evolving HIM Careers*. This work specifies that, as the EHR becomes more common in healthcare facilities, data will be the basis of practice standards and clinical protocols. Because of this development, HIM professionals will need to know more about available data and their interpretation. In the future role of the clinical data specialist, today's coding professional will need to develop, among other things, professional skills in reimbursement and basic statistics and must understand automated health record systems.[2]

Johns identifies the impetus for healthcare organizations' more heavy dependence upon data as the development of the EHR and the cost-driven environment. Data will be needed for a variety of purposes, including financial purposes, benchmarking best practices, and compliance monitoring. The demands will require training or retraining of HIM professionals: "Coders must be prepared to develop and assess technology at deeper levels than they currently do, especially in areas of data security, data structures, systems implementation, data integrity, process flow, information modeling, concept representation."[3]

Kloss concludes that the future roles of coding will be about the "creation, maintenance, and oversight of medical vocabularies and mapping from vocabulary to various classifications…." She also cites the trend to move from a nationally based orientation to a global perspective.[4]

In addition to recognizing that HIM professionals must undertake self-assessment, AHIMA encourages coders to evaluate themselves and to pursue continuing education in areas such as finance, Current Procedural Terminology (CPT), and Ambulatory Payment Classifications (APCs). Beinborn predicts that the future of automated coding will include the assignment of codes based upon computerized text.[5] In addition, coding software will be able to code records using a variety of classification systems. These include International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM), the Systematized Nomenclature of Human and Veterinary Medicine International (SNOMED), CPT, and the North American Nursing Diagnosis Association (NANDA). The Unified Medical Language System (UMLS) links clinical text to whatever classification system is required. Within the computerized patient record environment, future coding professionals will primarily "edit" coded information rather than manually assign codes.[6]

The HP3 Research Institute conducted a research study that evaluated demographic information, salary levels, credentials, education, and stress levels of coders.[7] The credential of the greatest number of respondents performing the coding function was Registered Health Information Technician (RHIT). The credential of the second greatest number of respondents was Certified Coding Specialist (CCS). This information is important because it leads to the supposition that most coding professionals are graduates from associate degree programs or may not have any formal higher education in HIM. These individuals may not have been exposed to the concepts of research methodology, various nomenclatures and classification systems, and advanced computer applications such as health informatics or database development.

Tully and Rulon discuss the use of coded data for risk adjustment in Medicare managed care.[8] Studies have been conducted in Australia to evaluate using ICD-9-CM codes to collect data from clinical indicators.[9] Mensah and Dixon discuss the increased use of coded data in multihospital databases and associated data quality concerns arising from the use of ICD-9-CM for reimbursement.[10] These articles describe the use of ICD-9-CM data for research studies and new uses of coded data. They support the need for the clinical data specialist to understand the research and healthcare policy applications of large clinical data sets. As demonstrated in the literature review, a variety of coding studies have been undertaken pertaining to the coding function, coding applications in reimbursement and research, and scenarios of the future of coding. None, however, addresses research to evaluate current coding skills in relation to the skills projected for the future. In light of the importance of the

coding function and the projected skill set that was visioned by HIM experts, this study was undertaken to test the projected skill set empirically.

Methodology

Preliminary Research

Because of the lack of empirical research regarding the skills identified in *Evolving HIM Careers*, a preliminary research study was undertaken in a local HIM association. The Lehigh Valley Health Information Management Association (LVHIMA), a local health information management association in Pennsylvania, undertook a small exploratory study to understand the role of the coding specialist of the future.[11] Just prior to this research endeavor, *Evolving HIM Careers* was published, projecting skills and knowledge requirements for future coding roles.

A one-page double-sided survey and separate cover letter were sent to all LVHIMA members. The content of the questionnaire was taken from the *Evolving HIM Careers* clinical data specialist section. One hundred and twenty nine surveys were sent out to 100 percent of the 1999-2000 LVHIMA membership. Seventy-four were returned for a 57.3 percent return rate. Only one mailing was undertaken.

The findings revealed that some self-assessment questions showed some differences between the coders and non-coders, but inferential statistics were not used. Using descriptive statistics, these differences appeared to occur in the following areas:

- understanding of ICD-9-CM and CPT
- understanding of elements required for research and outcomes
- ability to perform quality audits
- ability to identify the problems and issues suggested by audits
- ability to communicate electronically both internally and externally
- ability to identify clinical data and where they are warehoused
- ability to use and interpret data from reimbursement software applications
- ability to understand specific data elements and their values
- ability to clarify essential outcomes within a given context

The findings suggest that only a few skills differentiate future coding professionals from non-coding professionals. This implies that individuals who are not currently coders may still have many skills that will be needed in the clinical data specialist role of the future. Further research in the area of the skills associated with the clinical data specialist using a larger number of participants was thought to be fruitful. Therefore, a national study was undertaken. The national study used a survey similar to the one used in the preliminary research and separate cover letter. The content of the questionnaire was taken from the *Evolving HIM Careers* clinical data specialist section and the AHIMA annual membership form.

Research Design/Methods

This national study used a cross-sectional, descriptive survey design that gathered exploratory data from a stratified random sample of coders and non-coders. Descriptive and inferential statistics were performed to determine whether there is a statistically significant difference between self-assessed skills of the two groups.

Sample

A random sample of AHIMA members was obtained. A power calculation was done to determine the appropriate sample size and a stratified random sample by level of experience for both coders and non-coders was derived. The sample consisted of 80 coders and 317 non-coders for a total of 397.

AHIMA provided two sets of randomly selected labels derived from the year 2000 annual membership information for coders and non-coders. One set of labels was randomly drawn from all members who designate the primary job function of coding–inpatient, coding–outpatient, or coding physician. The other set of labels was randomly drawn from all those who did not list these as primary job functions.

Mailings

A cover letter was sent with the survey tool to the members for whom a label was generated. An explanation was given of the survey tool and the response categories. Respondents were requested to complete the survey and return it within two weeks. The letter also denoted that: (a) the results of the survey were confidential; (b) the aggregate results will be published in a future AHIMA Journal issue; and (c) in return for completing the survey, the respondents would receive a copy of the summary of results, a chance to win a $100 American Express gift certificate and an AHIMA product. Because the respondents would receive a copy of the results, they were requested to keep a copy of the completed survey for their records so that they could compare the aggregate results to their individual responses.

Each survey was sent with a stamped return envelope. When the survey was returned, it was checked off the mailing list, signifying that this person had returned the questionnaire, and it was entered into a spreadsheet. A second survey was sent out three weeks after the original survey to those who did not respond to the first mailing. Finally, a third mailing was sent to those who did not respond to the previous two mailings. The total response rate was 183 out of 397 equaling 46 percent.

Sampling

Instrumentation

HIM professionals were surveyed using a survey instrument (see Appendix A). The survey instrument comprised questions taken from the skill set identified for the clinical data specialist in *Evolving HIM Careers*. Because this is a new area of research, there are no existing instruments to use. Therefore, the researcher-designed instrument was evaluated for validity and reliability. In addition, a pilot survey was undertaken with 100 HIM professionals to evaluate the clarity of the survey tool. Following revisions based on the pilot study and clarity review, the final survey tool was derived for use in the study.

Validity

The self-assessment of skill section was taken directly from the clinical data specialist section of *Evolving HIM Careers* published by AHIMA. A panel of experts developed this text and each respective section. Because the skill set identified had not been altered, this section was considered to have content validity. Further, this survey was used in a pilot study prior to this current research and was found to be clear to respondents. Thus, the section dealing with future skill set self-assessment has face validity.

Reliability

Two methods were used to evaluate the reliability of the survey tool. First, the cover letter and survey were given to a group of 30 randomly selected credentialed HIM professionals from the AHIMA membership pool. This group of individuals was not told the purpose of the survey but was asked to complete the survey twice. The scores were evaluated for internal reliability using a Cronbach's alpha and were found to have a correlation coefficient of 0.9285. The test-retest correlation coefficient for reliability was found to be 0.908. Because the results of the reliability tests are high, the survey appears to be a reliable survey tool.

Data Analysis/Statistical Analysis

Descriptive Statistics/Graphs/Visuals

A summary of the demographics of the respondents for the study was derived and compared to the original sample. There did not appear to be a response bias. The mean, standard deviation, and frequency distribution for each competence question was calculated as shown in Appendix B. Descriptive charts relative to the demographics of the respondents of the survey are provided below, which show that the majority of those who responded had some type of higher education and the majority were either a Registered Health Information Technologist (RHIT) or a Registered Health Information Administrator (RHIA):

In terms of work setting, Figure 1 reveals that coders work more predominantly in acute care settings than non-coders. Figure 2 reveals the range of job titles of respondents. It appears to reflect that, beyond the title of director, coders hold fewer managerial titles, such as supervisor, coordinator, and assistant director, than non-coders. The information in Figure 3 reflects that the overall level of education of the non-coding respondents appears to be higher than the coding respondents. The percentage of coders whose highest level of education was a bachelor's degree was 34 percent compared to the percentage

of non-coders (45 percent) who held a bachelor's degree. Furthermore, the percentage of coders who had an associate degree was 51 percent, whereas the percentage of non-coders who had an associate degree was 28 percent.

It also appears from Figure 4 that there is a difference between coders and non-coders in terms of years of experience. For example, 22 percent of the non-coding respondents had less than one year of experience while 29 percent of the coding respondents had less than one year of experience, 20 percent of the non-coding respondents had one to four years experience compared to 21.1 percent of the coding respondents, and 26 percent of the non-coding respondents compared to 13 percent of the coding respondents had five to 10 years experience. This finding could help to explain why communication and management skills are self-assessed as less developed in the coders.

Finally, Figure 5 shows the difference in credentials between coders and non-coders. The majority of coders (63 percent) hold a Registered Health Information Technician (RHIT) credential, whereas the majority of non-coders (55 percent) hold a Registered Health Information Administrator (RHIA) credential.

Inferential Statistics

Two analyses were undertaken to determine whether there were statistically significant differences. First, the mean responses to each question for coders versus non-coders (Appendix B) and the projected competency were examined. Second, differences between the coders and non-coders were examined. Table 1 in Appendix B summarizes the first set of statistics that were calculated with the coding managers included as coders (Mean 1). Then, the statistics were run a second time using only those individuals who assign codes to be designated as coders (Mean 2). Both coders and non-coders were compared, through a one sample T-test, to the projected competency level. If there was a significant difference between the coders or non-coders mean score and the projected score, an asterisk was placed in the projected level column in the table. As reflected in Table 2, the second table in Appendix B, the mean score of coders and non-coders were also compared using a Mann-Whitney U test. If scores were significantly different between the mean score of coders and non-coders, asterisks were placed in the related mean column. The statistics provided evidence that there is a statistically significant difference between the self-assessed competence of coders versus non-coders in terms of projected skills as measured by the various questions.

Findings

The summary of the findings revealed a variety of interesting issues (Appendix B). The overall research question asks, "How well does the current level of skills of health information management (HIM) professionals relate to the skills described for the clinical data specialist?" In terms of this question, skills were found to be either significantly higher or lower than the projected score in 47 out of 50 questions. In four of the questions, coders self-assessed themselves at a higher level than projected and in 43 of the questions self-assessed themselves to be lower than the projected level.

In addition to the main research question, there were three specific aims of the research. For the first specific aim, "What is the current self-assessment of HIM professionals in terms of the projected skill set for the clinical data specialist?" the findings show that scores are either higher or lower than the projected levels. The second specific aim evaluates how self-assessed skills compare to projected future skill requirements identified in *Evolving HIM Careers*. The findings suggest that coders lack skills in the majority of areas. As discussed above, the self-assessed skill level of coders was found to be lower in 47 of 50 questions than projected levels.

Last, for the third specific aim, "Is there a significant difference between coders and non-coders in terms of the self-assessment of current skill in the projected skills needed for the clinical data specialist?" the findings reveal a significant difference found between coders and non-coders in many questions. In particular, there was a significant difference between the self-assessed knowledge level of coding systems and reimbursement systems. Other areas of self-assessed competency were also statistically significantly different in a total of 20 out of 50 questions when both mean 1 and mean 2 were used.

Limitations

Unfortunately, even though several attempts were made to collect the demographics for the respondents in the study, the information gathered was not comprehensive enough to use in the analysis of the data. The demographic information available is the aggregate demographic information based on the individuals who responded to the survey and was obtained from the

AHIMA membership database though AHIMA staff. For this reason, more detailed information such as educational level, credential, and year of experience of respondents for each competency question cannot be provided.

Implications

There are several implications from this research that may guide HIM professionals in preparation for the role of the clinical data specialist. First, it appears that non-management coding personnel self-assess themselves to be primarily competent in technical skills related to the coding function rather than in more broad skills such as research methodology, statistics, and project management. Some areas the majority of coders may need to acquire in order to become competent for the role of the clinical data specialist include communication, management, and project management skills.

It is also important to note that only 20 out of 50 questions showed a significant difference between coders and non-coders using both mean 1 and mean 2. This finding implies that coders and non-coders have more in common than they have differences in skills. This similarity may be the case because 90 percent of the coders and 86 percent of the non-coders had an educational level of an associate degree or higher. Similar skill sets may be due to exposure to a common educational curriculum.

Conclusion

This practice-based research has implications for professional application. This research identifies areas of professional development for HIM professionals. It is important to not only project what HIM practice will be, but also to undertake objective measurement of the projected roles and skill levels to provide guidance for skills development. Specifically, this research allows non-management coding professionals to target skill areas for development in order to prepare for the future role of clinical data specialist. Coding professionals desiring to prepare for the future should acquire communication, research, and management skills. Further, non-coding HIM professionals can prepare to become coding professionals by becoming more competent in coding systems and reimbursement software.
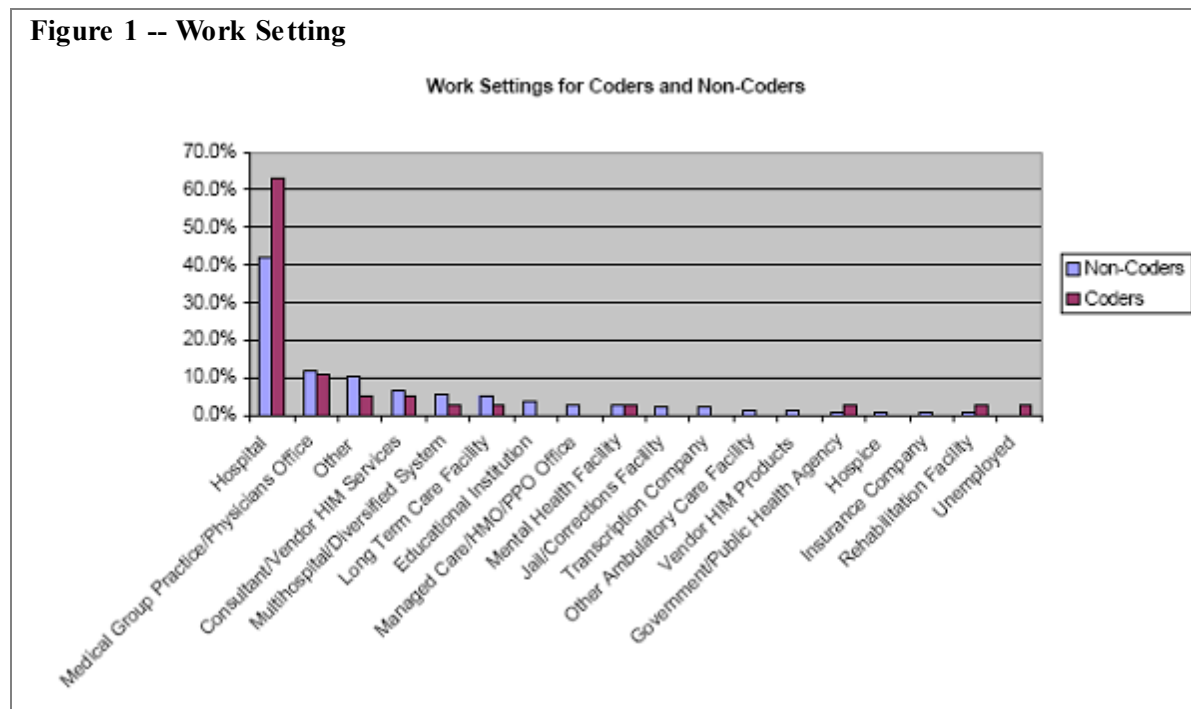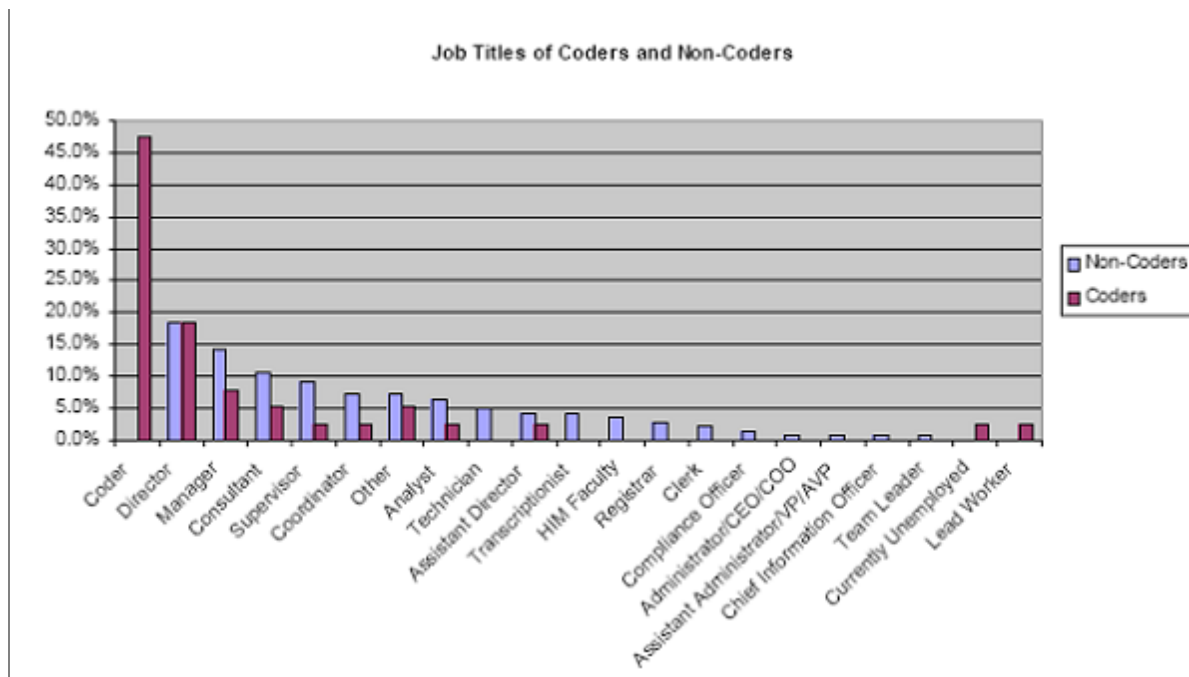
Figure 1 -- Work Setting

Work Settings for Coders and Non-Coders

Figure 2 -- Job Titles

Job Titles of Coders and Non-Coders

Figure 3 -- Educational Level

Coders' Education Level

- Master's Degree 5%
- HIM Certificate Program 5%
- AHIMA ISP Program 5%
- Associate Degree 51%
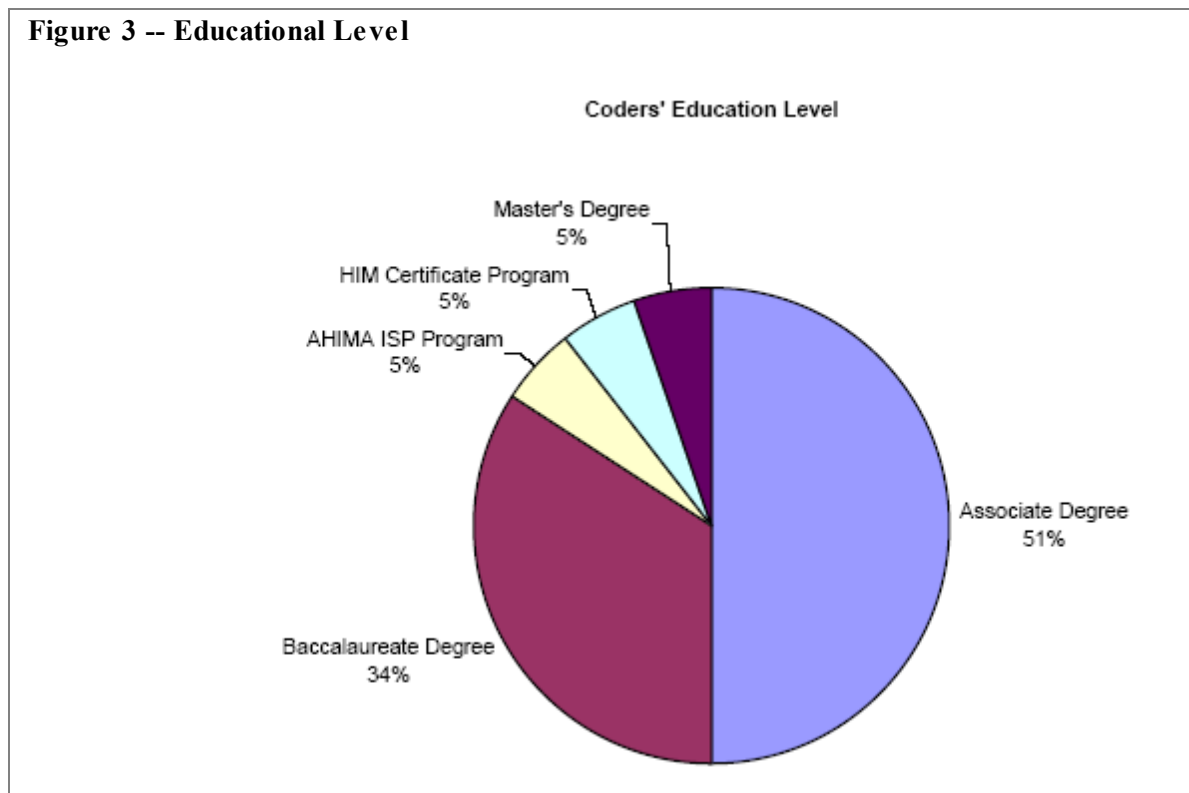- Baccalaureate Degree 34%

Figure 4 -- Years in Profession
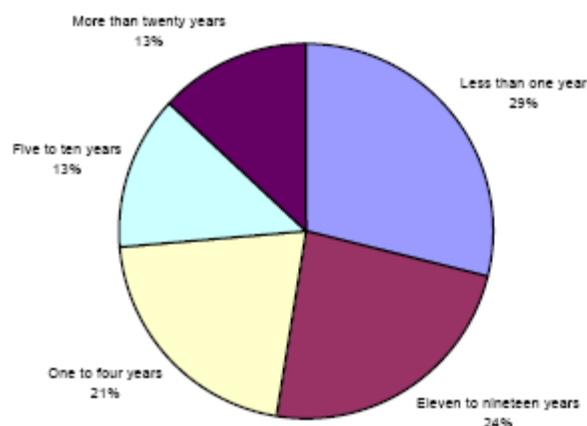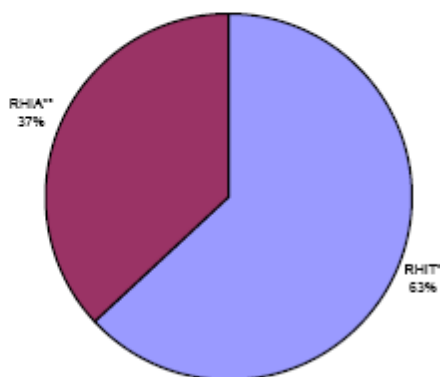
Coders' Years in the Profession

Figure 5 -- Credentials

Coders' Credentials

Notes

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