Confidential

A National Job Analysis Study of the Certified Healthcare Technology Specialist Trainer Role 2016

Conducted for:

American Health Information Management Association

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Executive Summary

The Job Analysis described in this report was conducted in 2016 at the request of the American Health Information Management Association (AHIMA). The purpose of the study was to describe the job activities of the healthcare technology specialist in a Trainer Role in sufficient detail to provide a basis for the development of a professional, job-related certification examination.

A Job Analysis Advisory Committee (AC) was appointed by AHIMA to conduct the activities necessary to identify job responsibilities and develop the test specifications for the Certified in Healthcare Technology Specialist - Trainer (CHTS-TR) examination. The AC represented varied national regions and practice settings. All AC members were experts in the duties and activities associated with the profession.

The study involved developing a job task list and survey, distributing the survey, and analyzing the survey responses. Test specifications for the CHTS-TR examination were developed based on survey responses. The AC was responsible for the following functions regarding Job Analysis survey development:

- developing a sampling plan for the survey,
- identifying task statements for the survey instrument,
- determining the survey rating scales,
- determining the relevant demographic variables of interest, and
- integrating tasks, rating scales, and demographics into a survey instrument.

AMP, a PSI business (PSI/AMP) project staff modified and created an online survey for distribution to a sample of healthcare technology specialists. The target professional was defined as follows:

CHTS Trainer Role:

Workers in this role—using adult learning principles—design and deliver health technology training programs to employees. The background of workers in this role may include experience as a health professional, technologist, informaticist, or information management specialist. Experience in instructional design and/or training is desired. Workers in this role will:

- *Be able to use a range of health IT applications, preferably at an expert level*
- *Communicate both health and IT concepts as appropriate*
- *Assess training needs and competencies of learners*
- *Design and deliver lesson plans, structuring active learning experiences for users*
- *Track training records of users and develop learning plans for further instructions.*

Hyperlinks to a web-based survey were distributed by electronic mail to 1,333 healthcare technology specialists, with 32 survey invitations returned as undeliverable. Three hundred forty nine (349) participants responded and provided usable responses to be included in the analysis, which resulted in an overall return rate of 27%. After a demographic section, respondents were routed to either one or up to all four specialist role surveys, depending on their choice. There were

a total of 213 respondents who completed the CHTS Manager Role survey, 109 respondents completed the CHTS Technical Role survey, 105 respondents completed the CHTS Trainer Role survey, and 75 respondents completed the Clinician/Practitioner Consultant Role survey. The results from the 105 CHTS Trainer Role respondents are presented in this summary. The results from the three other specialist role surveys are also reported but documented elsewhere. Responses to the demographic questions indicated that there were sufficient numbers from relevant groups for subsequent analyses.

Survey data were presented to the AC at the second job analysis meeting for review and comment. The survey was divided into three parts – Task Inventory, Knowledge/Skill Inventory, and Background Information sections. The Task Inventory consisted of eight major areas:

1. Training Assessment
2. Training Program Development
3. Learning Modules
4. Training Implementation
5. Training Evaluation
6. Training Tracking
7. User Support
8. Change Management

The AC developed and used exclusion decision rules to identify tasks appropriate for the examination content outline. Of the 49 tasks on the original survey, 2 tasks were excluded based on the following exclusion criteria.

Rule 1 *Keep only tasks performed by 71.5% or more of respondents.*
Applying this rule eliminated 1 task (R37: Issue completion certificate).

Rule 2 *Keep only tasks rated at least Significant (2.00) by respondents.*
Applying this rule did no eliminated any additional tasks.

Rule 3 *Keep only tasks rated at least Significant (1.90) by 3 out of 4 region subgroups (Northeast, Midwest, South, and West).*
Applying this rule eliminated one additional task (R38: Summarize feedback).

Rule 4 *Keep only tasks rated at least Significant (1.90) by 3 out of 3 years of experience in health IT workforce roles subgroups (0-5 years; 6-16 years; and more than 17 years).*
Applying this rule did not eliminate any additional tasks.

Rule 5 *Keep only tasks rated at least Significant (1.90) by 3 out of 3 levels of education (High school graduate, GED, or associates degree; Bachelor's degree; Master's and above).*
Applying this rule did not eliminate any additional tasks.

Rule 6 *Keep only tasks rated at least Significant (1.90) by 6 out of 6 certifications held subgroups (CP, IM, IS, PW, TR, and TS).*
Applying this rule did not eliminate any additional tasks.

Rule 7 *Keep only tasks rated at least Significant (1.90) by 3 out of 4 job title subgroups (Director/Executive; Manager; Technical; and Other).*
Applying this rule did not eliminate any additional tasks.

Rule 8 *Keep only tasks rated at least Significant (1.90) by 3 out of 3 number of employees subgroups. (Less than 100; Between 101 and 1,000; and More than 1,000).*
*Appl*ying this rule did not eliminate any additional tasks.

In summary, the decision rules resulted in identifying tasks comprising the content domain that were performed by 71.5% of the respondents. Also, the tasks identified were considered at least significant by the respondents. Finally, the tasks were viewed similarly regardless of the location, years of work experience, highest level of education, certifications held, primary job level, and number of employees.

The AC also developed and used exclusion decision rules to identify knowledge/skill statements appropriate as supplemental information on the examination content outline. The Knowledge/Skill Inventory consisted of four major areas:

1. Technical Knowledge: Health Data Management
2. Technical Knowledge: Health Information Technology & Systems
3. Non-Technical Knowledge: Hard Skills
4. Non-Technical Knowledge: Soft Skills

Of the 80 knowledge/skill statements on the original survey, 1 statement was excluded based on the following exclusion criterion.

Rule 1 *Keep only tasks rated at least Significant (1.70) by respondents.*
Applying this rule eliminated one statement (K50: Inferential statistics).

One purpose of the knowledge/skill statements is to provide guidance to the item writers/exam committee. As such, the AC assigned priority designations (low, medium, or high) to each knowledge/skill statement to provide some additional detail on the level of emphasis for each statement.

The AC reviewed and considered all respondent comments. No additional tasks or knowledge statements were added or removed. Two tasks and one knowledge statement was slightly edited before final inclusion. The final 47 tasks comprising the content domain were used to construct the detailed content outline, consisting of five major content areas. The AC members assigned cognitive complexity designations to each critical task according to their perceptions of job conduct. Items linked to these tasks should closely align with the complexities of the job. The AC members were confident candidates' scores should reflect critical job content and complexity when tests are developed to the new set of specifications. It was decided that a 100-item examination sufficiently samples the content domain to render a pass or fail decision based on examination scores. The resulting examination matrix and detailed content outline will be used by AHIMA to assemble future examination forms.

Introduction

The Job Analysis described in this report was conducted in 2016 at the request of the American Health Information Management Association (AHIMA). The purpose of the study was to describe the job activities of the healthcare technology specialist in a Trainer Role in sufficient detail to provide a basis for the development of a professional, job-related certification examination.

A Job Analysis Advisory Committee (AC) was appointed by AHIMA to conduct the activities necessary to identify job responsibilities and develop the test specifications for the Certified in Healthcare Technology Specialist - Trainer (CHTS-TR) examination.

The AC developed a comprehensive inventory of activities that the healthcare technology specialist in a Trainer Role may perform by brainstorming job activities and reviewing both the current detailed content outline and the previous Job Analysis study. In addition, demographic variables were developed, and a rating scale was selected for use on the survey. After pilot testing, the Job Analysis survey was distributed to 1,333 healthcare technology specialists. The returned surveys were analyzed to determine the significance of each task to the healthcare technology specialist in a Trainer Role.

Job Analysis survey data were evaluated to determine the degree of consensus among professionals on critical aspects of the job. Data were specifically analyzed to answer the following questions:

1. What percentage of professionals performs each job task?

2. Which tasks are more significant to the job?

3. Which knowledge/skill statements are more significant to the job?

These questions helped identify the more significant job activities and knowledge from which the content of the CHTS-TR examination was specified.

Methodology

Forming the Job Analysis Advisory Committee

The AC was consulted throughout the survey development stages to ensure that expert judgment was available to AMP staff. The responsibilities of the AC are listed in the following section. The members of the AC were experienced professionals, all thoroughly familiar with the skills and activities of the profession. Listed below are the AC members.

Name	Credentials	Organization
Valerie Ball	IS	NC State University College of Veterinary Medicine
Tammie Bolling	TR	Pellissippie State Community College
Cynthia Buege	IM	Michigan Public Health Institute
Tamara Flynn	IM	Pitt Community College
Paula Arceneaux Ivey	IM	Hospital Corporation of America - Gulf Coast Division
Diane Lerch	PW, TR	Tampa General Hospital
Daphnie Mustafa	IM	Inova Health System
Geri Newman	IM	UF Health Shands Hospital
Issac Perkins	IM	Johns Hopkins EPIC Training
Tamara Rodriguez	PW	Tallahassee Memorial Healthcare
Nancy Rosivack	IM, IS, PW, TR	NJ-HITEC
LaShunda Smith	IM, PW, TR	Baptist Health
Tatyana Pashnyak	TR	Bainbridge State College
Shelley Safian		Safian Communications Svs. Inc.
Tanya Scott	CP, PW	Lemont Scott Group
Melinda Teel		Midland College

Job Analysis Advisory Committee Responsibilities

1. Provide PSI/AMP current information about the job.
2. Develop the Job Analysis survey:
   a. develop a sampling plan,
   b. identify tasks for the survey instrument,
   c. determine the survey rating scales,
   d. determine the relevant demographic variables of interest, and
   e. integrate the definition, tasks, rating scales, and demographics into a survey instrument.
3. Review the final form of the survey for completeness, relevance to the profession, appropriate language, and clarity of instructions.

A significant investment of time by the AC members ensured a successful Job Analysis study. We are grateful to each of these professionals for their guidance, expertise, and devotion to this complex project.

Developing the Job Analysis Survey

Developing the Task List

With the assistance of PSI/AMP project staff, the AC drafted an inventory containing a comprehensive list of job activities. The task list was drafted from various sources, including the previous test specifications and other descriptions of the healthcare technology specialists in a Trainer Role. The final document consisted of 49 tasks presented in content order.

Selecting Rating Scales

The AC also assisted in the selection of the rating scale used in the survey. The scale was based on similar scales used by PSI/AMP in previous national job analysis surveys by other professions. A significance scale, including a "not applicable for my role" data point, was selected by the AC to include on the survey for the tasks.

The scale was designed to identify the job activities that are most significant to achieving the healthcare technology specialist in a Trainer Roles' job objectives. Such information was necessary to demonstrate that the examination measures significant aspects of the job and covers appropriate content. The following scale was used:

Please use the scale shown below to express your judgment of the significance of each task as it applies to your current role in the health IT workforce.

0 = Not applicable for my role
1 = Minimally significant
2 = Significant
3 = Very significant

Selecting Background Information Questions

The Background Information section was designed to gather information about the respondents' demographic characteristics. Demographic questions were used to help the AC evaluate potential bias in the respondent group. Therefore, the following information about the survey respondents was available:

- work location
- facility setting
- primary job level category
- years of relevant work experience
- highest level of education
- whether education included healthcare/medicine or IT
- hold the CHTS credential
- years holding the CHTS credential
- which of the CHTS credentials held

- other certifications held
- licenses held
- primary work setting
- number of employees in your organization
- age
- gender

Region, years of work experience, level of education, additional certifications held, primary job level, and number of employees were used to identify subgroups for analyses and to describe the sample.

Integrating the Definition, Tasks, Rating Scales, and Demographics into a Survey

Following the first AC meeting, survey components were compiled into draft form. The draft survey was reviewed by the AC. The pilot survey was distributed to all AC members and a sample of potential participants for review and comment. The purpose of the pilot study was to determine (1) if the directions were clear, (2) if any important tasks were missing from the survey, (3) if the tasks were clearly worded, and (4) if the rating scale was easy to use and understand. The AC also reviewed comments from the pilot study participants. Any needed modifications to the survey were made prior to distribution. The final survey is shown in Appendix A.

Sample Selection

In an effort to obtain information from respondents who represented professionals throughout the United States and other countries, 1,333 surveys were e-mailed to the certified healthcare technology specialists by PSI/AMP. This group of names was selected by AHIMA, and represented a target sample of the population of the healthcare technology specialists.

Results

Return Rate and Sample Size

Hyperlinks to a web-based survey were distributed by electronic mail to 1,333 healthcare technology specialists, with 32 survey invitations returned as undeliverable and 0 opted out. Three hundred forty-nine (349) participants responded and provided usable responses to be included in the analysis, which resulted in an overall return rate of 26.8%. After a demographic section, respondents were routed to either one or up to all four specialist role surveys, depending on their choice. There were a total of 213 respondents who completed the CHTS Manager Role survey, 109 respondents completed the CHTS Technical Role survey, 105 respondents completed the CHTS Trainer Role survey, and 75 respondents completed the Clinician/Practitioner Consultant Role survey. Table 1 below shows the summary of survey invitations sent and response rate. The results from the 105 CHTS Trainer Role respondents are presented in this report. The results from the three other specialist role surveys were reported and documented elsewhere. Responses to the demographic questions indicated that there were sufficient numbers from relevant groups for subsequent analyses.

A general approach was incorporated to evaluate the standard error of the ratings. An approximate standard error was used for the rating scale by applying the equation:

Standard error = $1/\sqrt{105}$, where 105 = sample size

The resulting standard error of the ratings was 0.096. This indicates that ratings were highly stable, and reflective of the population of professionals.

Table 1. Response Rate Summary

Credential	No. Sent
Clinician/Practitioner (CHTS-CP)	169
Implementation Manager (CHTS-IM)	292
Implementation Support Specialist (CHTS-IS)	167
Practice Workflow and Information Management Redesign Specialist (CHTS-PW)	360
Trainer (CHTS-TR)	228
Technical/Software Support Staff (CHTS-TS)	117
Total Invitations Sent	**1,333**
Undeliverable	32
Opt-out	0
Valid Overall Response	**349**
Overall Response Rate	**26.8%**
# who responded to Management Role survey	213
# who responded to Technical Role survey	109
# who responded to Trainer Role survey	105
# who responded to the Clinician/Practitioner Consultant survey	75

Task and Respondent Rating Reliability Estimates

To find the extent to which *tasks* were consistently rated within each survey section, a statistic known as coefficient alpha (Norusis, 1994, p. 204; Hopkins, Stanley & Hopkins, 1990, p. 133-134) was used. Coefficient alpha is an estimate of the amount of error reflected by the scores associated with the instrument. Higher estimate values (e.g., .90 or higher) reflect smaller amounts of error. To determine the extent to which the *respondents* were consistent in rating inventory activities, a statistic known as the intraclass correlation (Guilford, 1956) was used. Separate reliability estimates were calculated for content areas and are displayed in Table 2. Since the maximum reliability coefficient is represented by a value of 1.00 and the total reliability estimate for the whole task list was 0.98 (alpha) and 0.96 (intraclass), the respondents' task ratings were considered highly reliable. Based on these data, it is very likely that a different sample from the same population would have produced similar task ratings.

Table 2. Task and Respondent Rating Reliability Estimates

Survey Section	Reliability (consistency)			
	# of Tasks	Between Tasks (Coefficient Alpha)	Between Respondents (Intraclass Correlation)	Number of Respondents*
1. Training Assessment	5	0.855	0.917	106
2. Training Program Development	9	0.946	0.895	104
3. Learning Modules	7	0.979	0.528	104
4. Training Implementation	5	0.881	0.957	105
5. Training Evaluation	7	0.918	0.822	103
6. Training Tracking	5	0.897	0.815	101
7. User Support	4	0.848	0.884	103
8. Change Management	7	0.947	0.555	104
Total	**49**	**0.979**	**0.916**	**97**

*Only those who responded to every task in each section with a rating of 0 to 3 were included for these analyses.

Demographic Analyses

The following figures and tables present background information collected from the respondents (also see Appendix B). These demographic data helped describe the sample.

A typical respondent is described below:

- Works in the South of the U.S.
- Facility is in an urban setting
- Works in a hospital setting
- Holds the TR certification
- Has 12 years of relevant work experience
- Holds a Baccalaureate or Master's degree
- Education included both healthcare/medicine and information technology
- Has held the CHTS credential for 3 years
- Also holds the RHIA and/or the RHIT credential
- Has between 101 and 1,000 employees in their organization
- Female over the age of 40

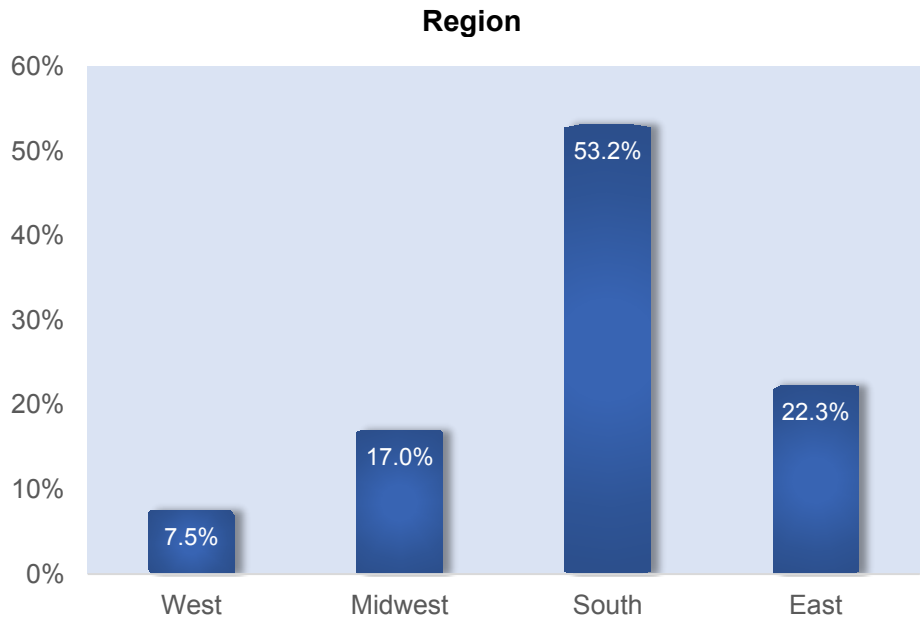

Figure 1. Location (recoded into Region) (n=98)

Survey respondents were first asked to indicate the location in which they work. As shown in *Figure 1,* the respondents were distributed across the U.S. The largest group (53.2%) of respondents was from the South. This demographic variable was used to create subgroups for task analysis (see Appendix F).

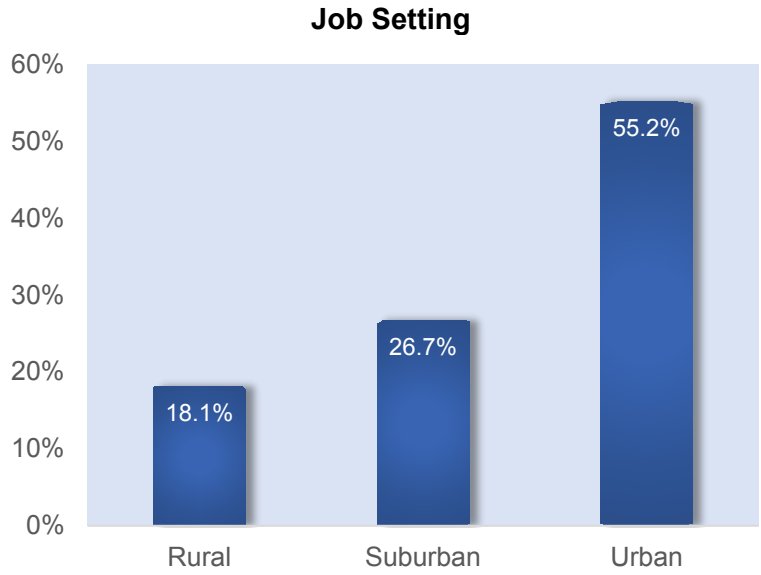

Figure 2. Job Setting (n=105)

Figure 2 shows the job setting respondents held. Approximately 55.2% of the respondents reported they worked in an urban setting, while 26.7% reported a suburban setting.

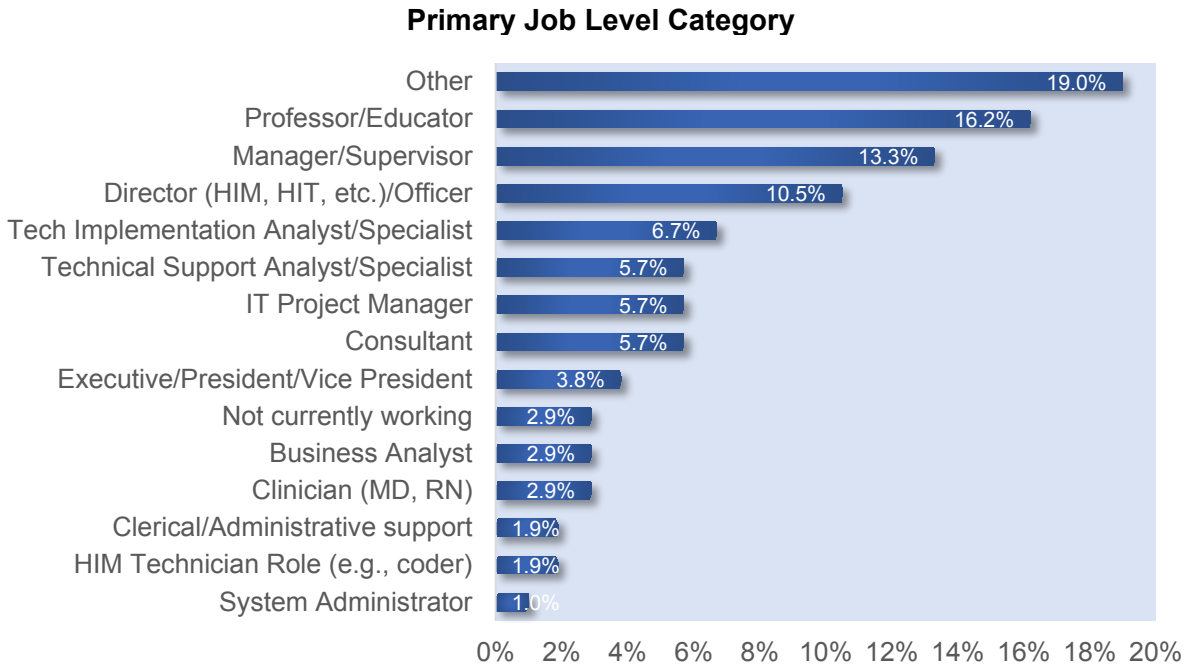

Figure 3. Primary Job Level Category (n=105)

Figure 3 shows the primary job level categories that respondents described themselves. The largest groups described themselves as either Professor/Educator (16.2%) or Manager/Supervisor (13.3%). This demographic variable was used to create subgroups for task analysis (see Appendix J).

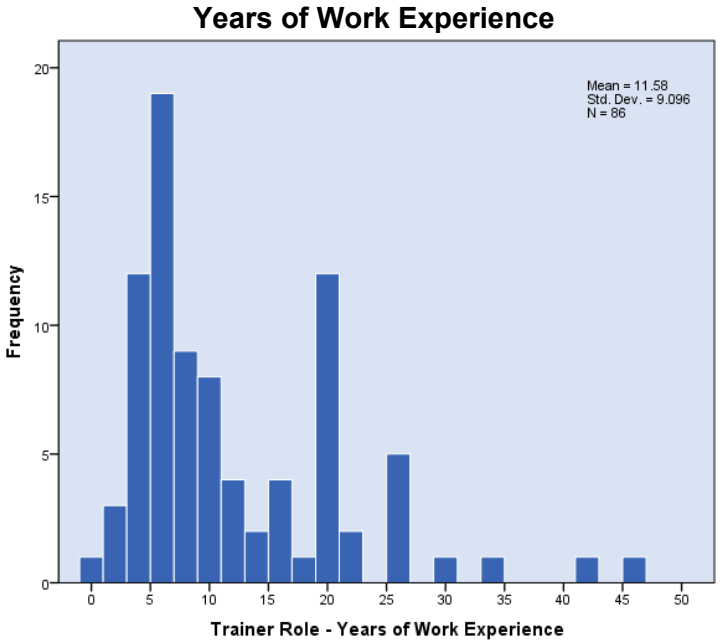

Figure 4. Years of Work Experience (n=86)

Figure 4 shows the years of work experience held by the respondents. This demographic variable was used to create subgroups for task analysis (see Appendix G). The average years of experience among the respondents was 12 years.

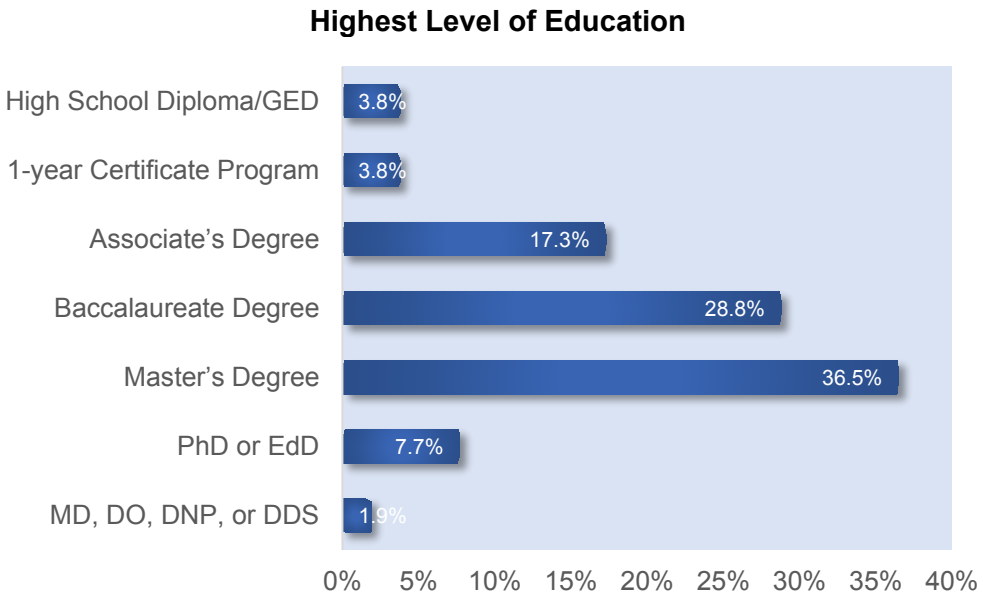

Figure 5. Highest Level of Education (n=104)

Figure 5 shows the highest level of education that was achieved by the respondents. A majority (65.3%) hold either a Baccalaureate or Master's degree. This demographic variable was used to create subgroups for task analysis (see Appendix H).

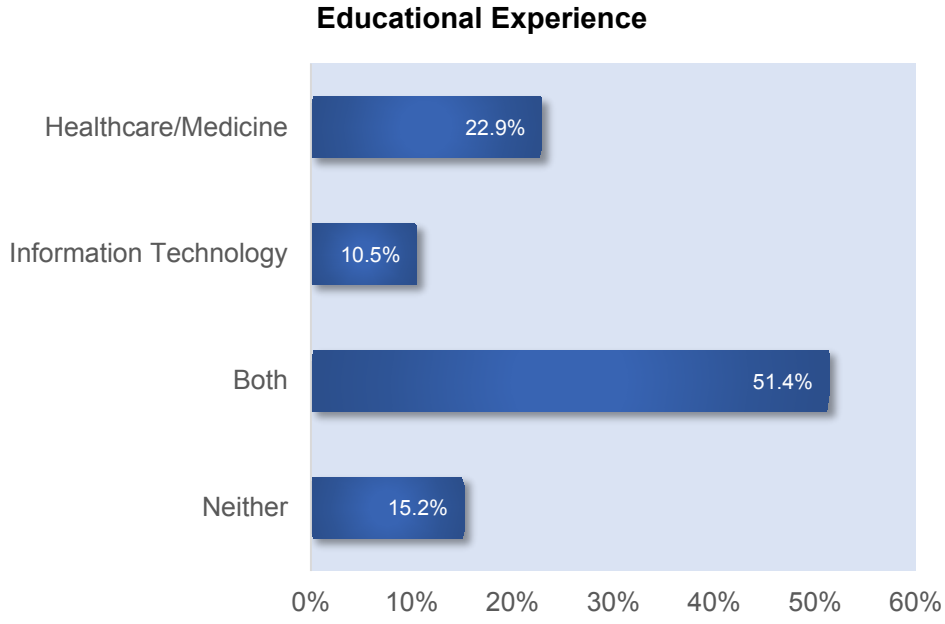

Figure 6. Educational Experience (n=105)

In *Figure 6*, survey respondents were asked to indicate whether their educational experience included healthcare/medicine or information technology. Half (51.4%) of the respondents indicated that they have experience in both Healthcare/Medicine and Information Technology.

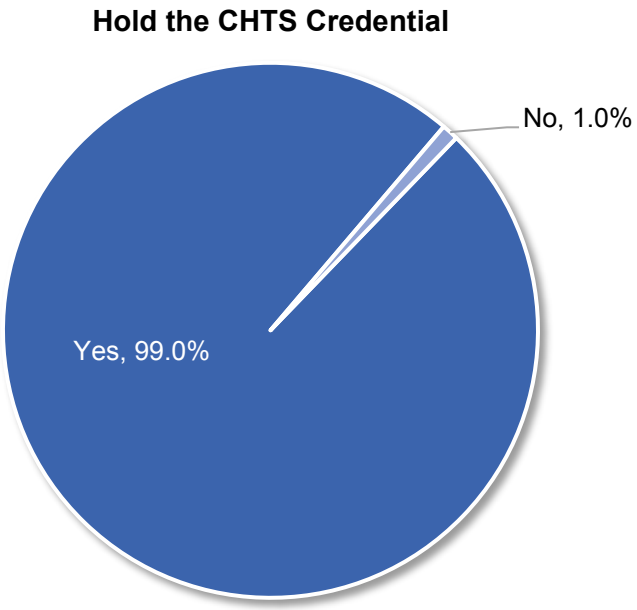

Figure 7. Hold the CHTS Credential (n=105)

In *Figure 7*, survey respondents were asked to indicate whether they hold the CHTS credential. Nearly all (99.0%) of the respondents hold a CHTS credential.

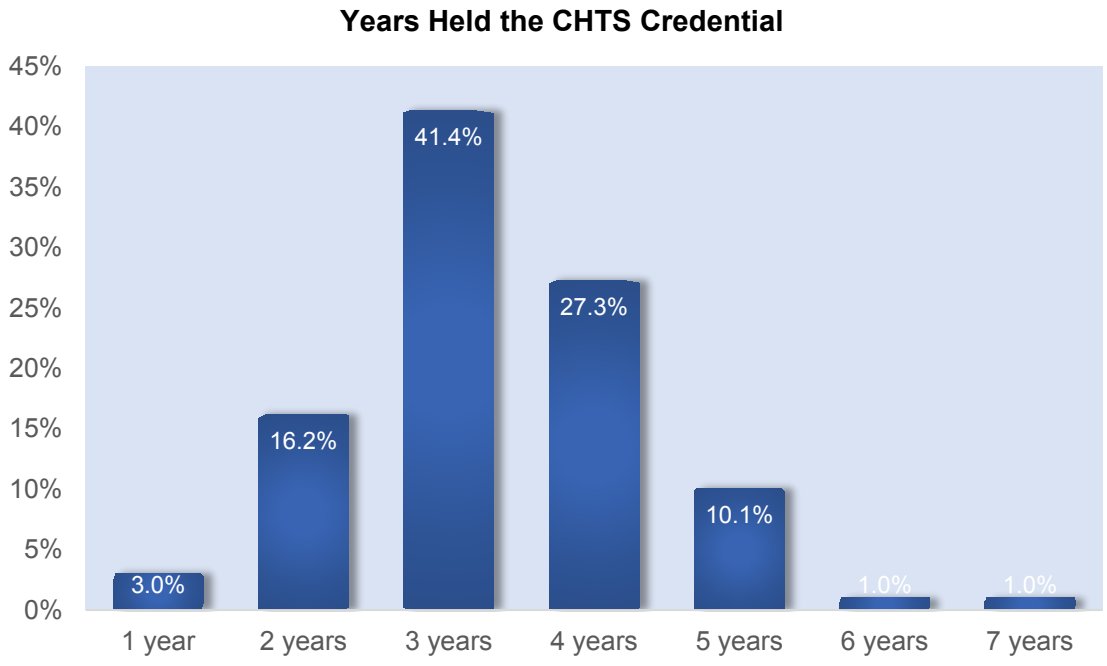

Figure 8. Years held the CHTS Credential (n=99)

Figure 8 shows that most respondents have held the CHTS credential between 2 and 5 years. The average length of time holding the CHTS credential is 3.3 years.

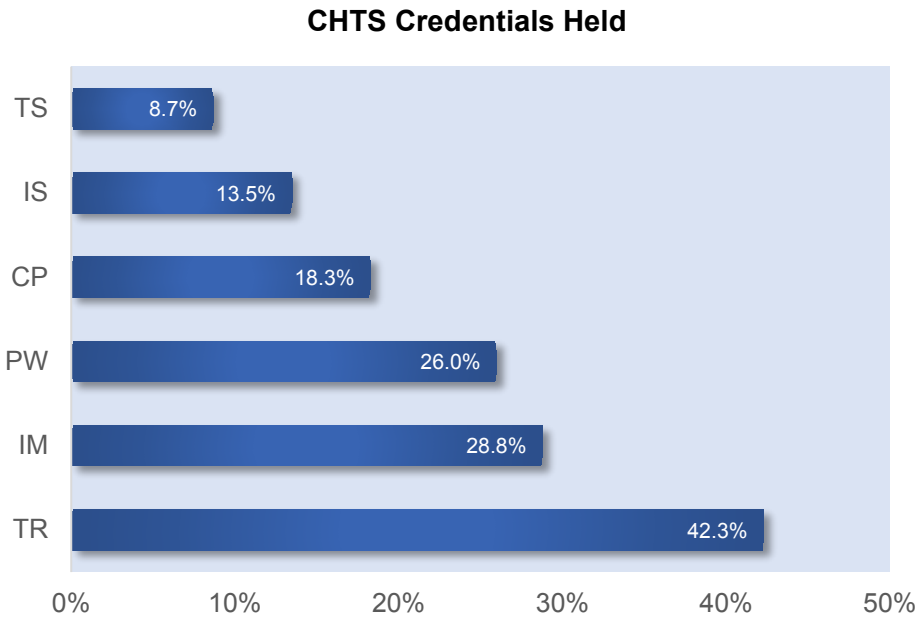

Figure 9. CHTS Credentials Held (n=104)

Figure 9 shows that a majority of respondents (42.3%) held the Trainer (TR) credential. This was a select all that apply variable. This demographic variable was used to create subgroups for task analysis (see Appendix I).

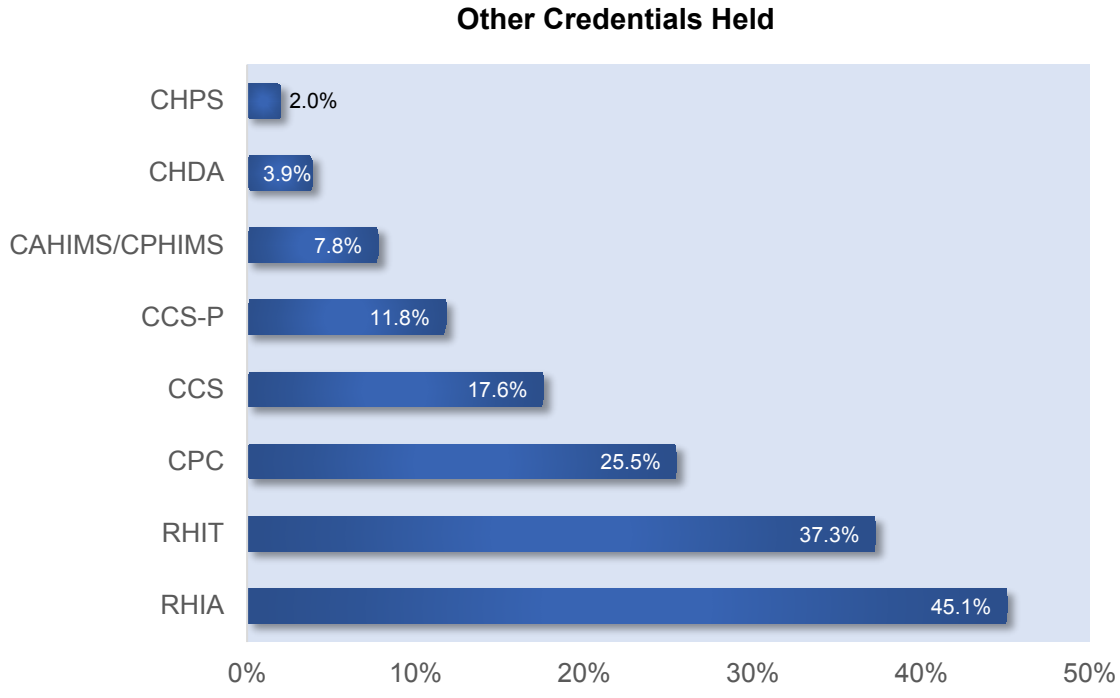

Figure 10. Other Credentials Held (n=77)

Survey respondents were asked about other credentials they may hold. *Figure 10* shows that nearly half (45.1%) of the sample also held the RHIA credential while a over a third (37.3%) held the RHIT credential. This was a select all that apply variable.

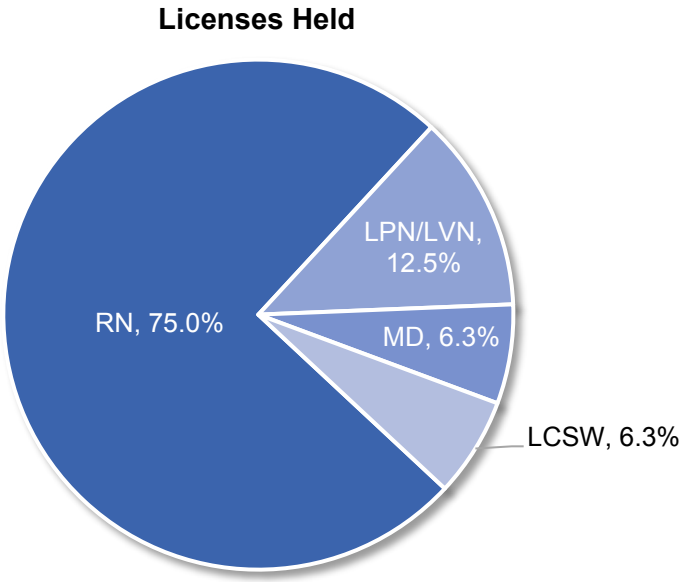

Figure 11. Licenses Held (n=16)

Figure 11 shows that 16 respondents held a license; most (75.0%) held the RN license.

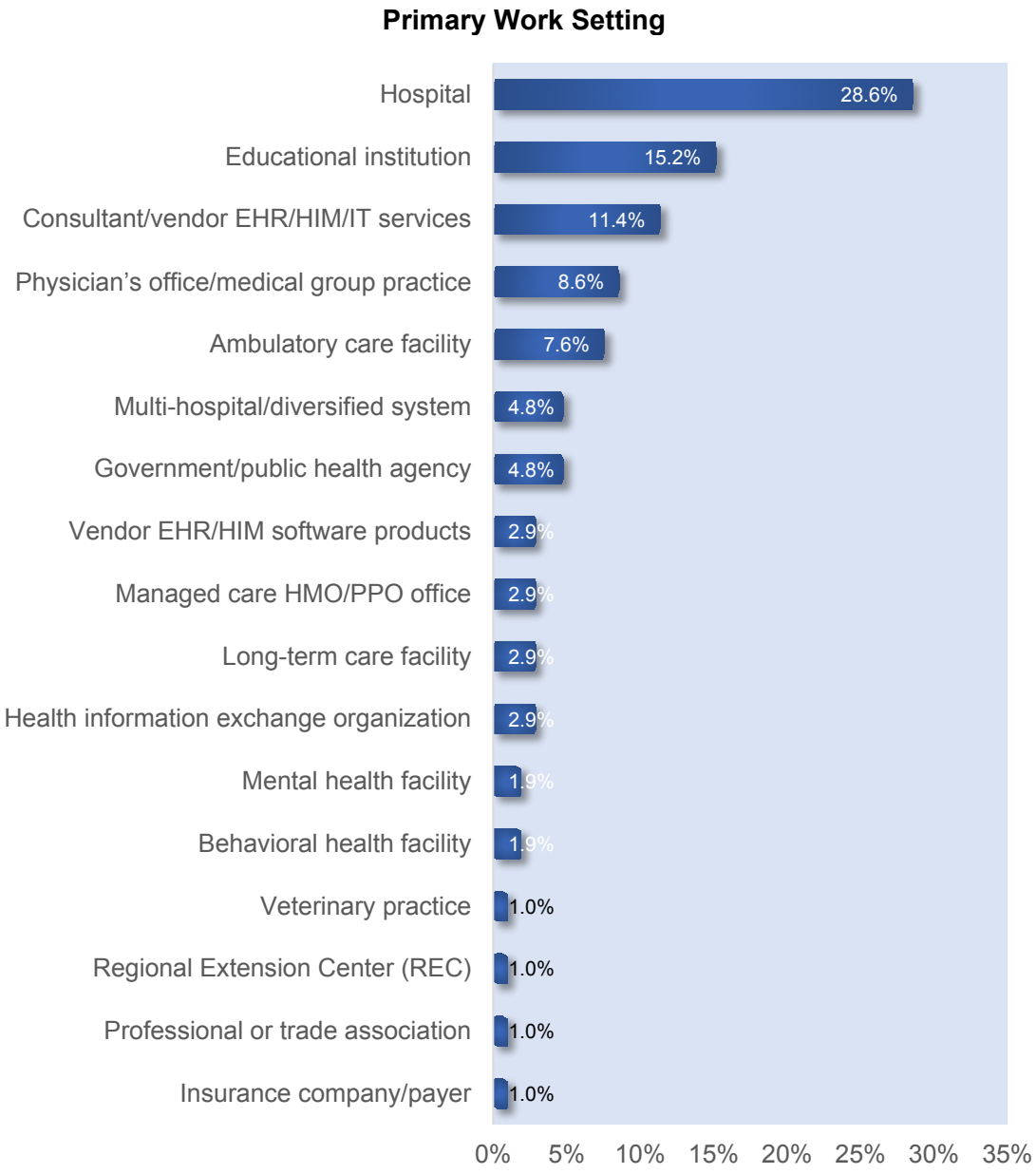

Figure 12. Primary Work Setting (n=105)

The respondents were asked the following question: "Which of the following best describes your primary work setting?" *Figure 12* shows that the majority (28.6%) of respondents describes their work environment as a hospital.

Figure 13. Number of Employees in Organization (n=105)

Figure 13 shows that the almost half (42.9%) of respondents work in organizations with between 101 and 1,000 while forty percent have over 1,000 employees. This demographic variable was used to create subgroups for task analysis (see Appendix K).

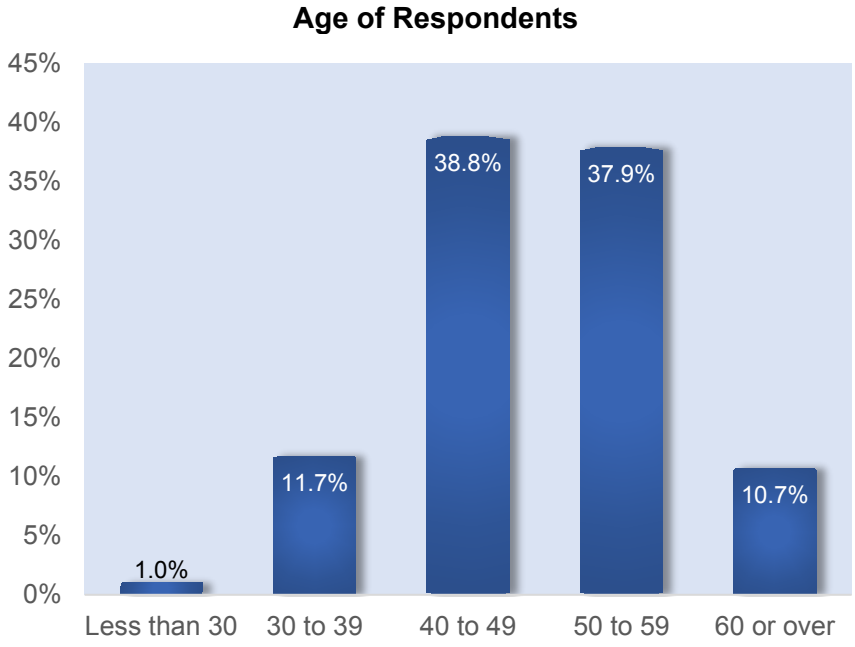

Figure 14. Age of Respondents (n=103)

Figure 14 shows that the majority (76.7%) of respondents are between the ages of 40 and 59.

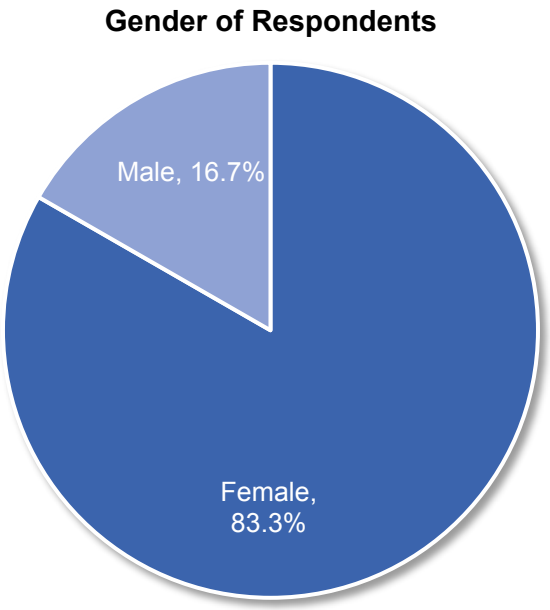

Figure 15. Gender of Respondents (n=102)

Figure 15 shows that most (83.3%) respondents were female.

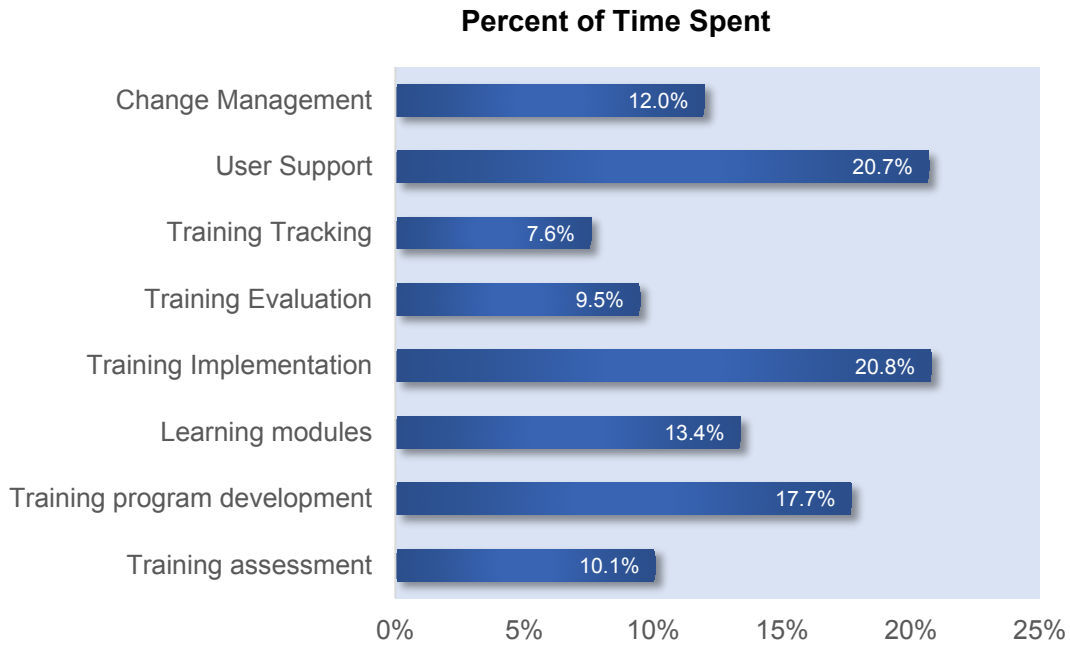

Figure 16. Percent of Time Spent

At the end of the survey, survey respondents were asked to indicate the percent of their time spent in different roles. As shown in *Figure 16*, respondents spent most of their time in user support (20.7%), training implementation (20.8%), and training program development (17.7%).

Respondents were asked to what extent they thought the task and knowledge/skill inventory adequately covered the important job tasks and required knowledge in their role. *Figure 17* below shows that all (100%) respondents stated that the task inventory adequately or completely covered the essential job tasks. *Figure 18* shows that all (100%) respondents felt that the Knowledge/Skill inventory adequately covered all knowledge requirements that underlie essential job tasks.

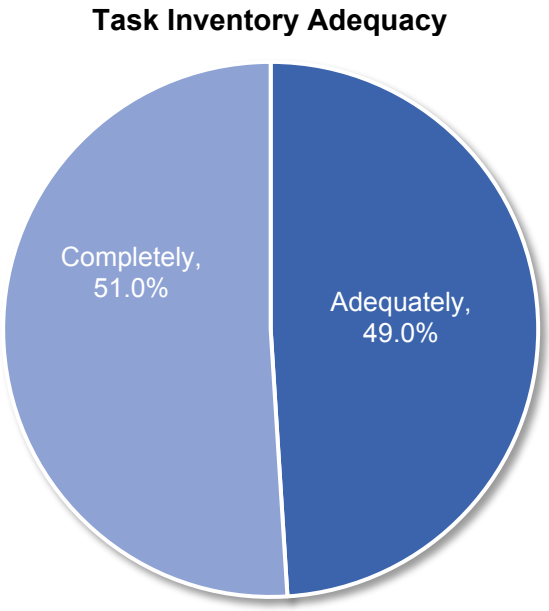

Figure 17. Task Inventory Adequacy (n=100)

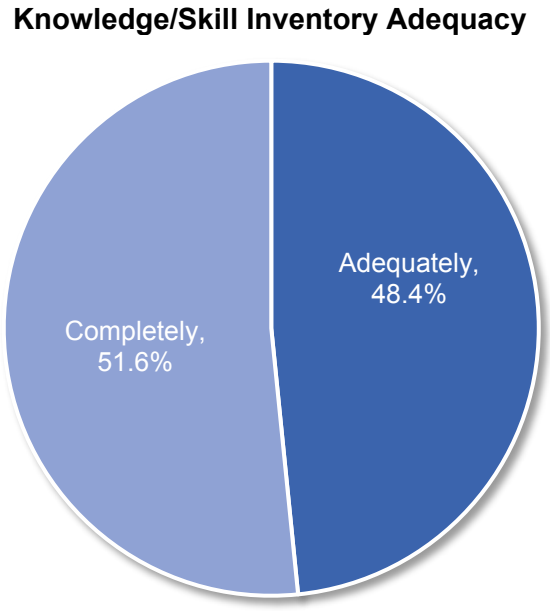

Figure 18. Knowledge/Skill Inventory Adequacy (n=95)

Mean Task Ratings and Percent Performing

To determine which tasks were more significant and performed by respondents, descriptive data were calculated for each task (see Appendices C – E). Additionally, for each task, the frequency of those who selected each significance rating was calculated. The purpose of these data was to determine which tasks would remain on the final content outline.

For example, task 1 (Identify audience) had a mean significance rating of 2.45. Five (5) respondents provided a "not applicable for my role" or "0" rating for the task. The tasks presented in Appendix C are sorted in the order they appear on the survey. Tasks presented in Appendix D are sorted in ascending order by the frequency of respondents who do perform the task. Appendix E provides the same descriptive information as Appendices C and D, but the tasks were sorted in ascending mean significance order.

Table 3. Summary of Mean Significance Task Ratings

Significance Value Label	Mean Values Range	Frequency	Percent
Very Significant	2.50 – 3.00	3	6.1
Significant	1.50 – 2.49	46	93.9
Minimally Significant	1.00 – 1.49	0	0.0
	Total	**49**	**100.0**

The significance scale had values ranging from 1 (Minimally Significant) to 3 (Very Significant). A summary of the ratings for the significance scale for task ratings is shown above in Table 3. None of the average task ratings were rated as "Minimally Significant." All the task ratings were rated at least "Significant" by respondents (mean significance rating of at least 1.50).

The AC reviewed the data for each task. They concluded that the ratings obtained from the Job Analysis survey were in agreement with their judgments about the job. Consequently, the AC also concluded that the survey data adequately defined the profession on a national basis. Moreover, the AC judged the results sufficient for the purpose of delineating the structure and content of a national certification examination.

It is critical that the test specifications reflect the responsibilities of the broadly defined population who might be eligible to take the examination. Therefore, it was vital to ensure that the test specifications and resulting examination content included tasks considered important to job success by those for whom the examination was intended. While developing the test specifications, the AC used their collective judgment to interpret the survey results and ensure that the content of the examination was appropriate for a national sample from a variety of backgrounds.

As indicated previously, Appendices D and E show mean significance ratings and percent performed for each task across the whole sample. Appendices F-K show mean task significance ratings for sample subgroups. The AC was encouraged to consider how best to limit the content eligible for the test specifications to only the broadly performed and significant tasks. Therefore, the AC adopted 8 decision rules to identify tasks *ineligible* for assessment, as summarized in Table 4.

Table 4. Decision Rules

Appendix	Variable	Number and Description of Decision Rule*		Threshold
D	Percent Not Performing	1	Keep only those tasks performed by at least 71.5% of the respondents.	"Not Performed" rating >28.5
E	Mean Rating	2	Keep only those tasks rated by respondents as at threshold.	2.00
F	Region	3	Keep only those tasks rated at least at threshold by 3 out of 4 subgroups.	1.90
G	Years of Experience	4	Keep only those tasks rated at least at threshold by 3 out of 3 subgroups.	1.90
H	Degree	5	Keep only those tasks rated at least at threshold by 3 out of 3 subgroups.	1.90
I	Certifications Held	6	Keep only those tasks rated at least at threshold by 6 out of 6 subgroups.	1.90
J	Level in Organization	7	Keep only those tasks rated at least at threshold by all 3 out of 4 subgroups.	1.90
K	Number of Employees	8	Keep only those tasks rated at least at threshold by 3 out of 3 subgroups.	1.90

Note: To account for error in the mean ratings based on this sample of respondents, means for all tasks were evaluated for inclusion/exclusion within the 95% confidence interval (1.86-2.14) for each variable.

Making Decision Rules Operational

Having judged that the sample sufficiently represented the population, the AC applied the following criteria to implement its decision rules.

Rule 1. *Keep only tasks performed by 71.5% or more of respondents.*
Tasks with "not performed" rating frequencies of more than 28.5% were considered ineligible. When applying this rule, one task was eliminated (R37: Issue completion certificate).

Rule 2. *Keep only tasks rated at least Significant (2.00) by respondents.*
Realizing that error occurs in every measurement, the AC defined the lower boundary of Significant as a mean rating of 2.00 for tasks. They examined all tasks within a 95% confidence interval (2.00 ± 2* standard errors of .096) for inclusion. Applying this rule did not eliminate any additional tasks.

Rule 3. *Keep only tasks rated at least Significant (1.90) by 3 out of 4 region subgroups (Northeast, Midwest, South, West).*
Because healthcare compliance professionals across the country should endorse the content of a nationally applied examination, the task ratings were examined by geographic region. Therefore, the AC defined a mean importance rating of 1.90 (+/- 2 SEs) for tasks by 3 out of 4 location subgroups as criteria. When applying this rule, one task was eliminated (R38: Summarize feedback).

Rule 4. *Keep only tasks rated at least Significant (1.90) by 3 out of 3 years of experience subgroups (0-5 years, 6-16 years, and 17 or more years).*
Because professionals with different years of experience may view the job differently, the AC examined task ratings by years of experience. The AC defined a mean significance rating of 1.90 (+/- 2 SEs) for tasks for 3 out of 3 subgroups as the criteria. Applying this rule did not eliminate any additional tasks.

Rule 5. *Keep only tasks rated at least Significant (1.90) 3 out 3 by all levels in the organization subgroups (High School thru associates, baccalaureate, or master's +).*
Because professionals at different educational levels in the organization may view the job differently, the AC examined task ratings by level of education in the organization for all 3 subgroups as the criteria. Applying this rule did not eliminate any additional tasks.

Rule 6. *Keep only tasks rated at least Significant (1.90) by 6 out of 6 certifications held subgroups (CP, IM, IS, PW, TR, and TS).*
Because professionals at with various types of certifications may view the job differently, the AC examined task ratings by level in the organization. The AC defined a mean significance rating of 1.85 (+/- 2 SEs) for tasks for 6 out of 6 subgroups as the criteria. Applying this rule did not eliminate any additional tasks.

Rule 7. *Keep only tasks rated at least Significant (1.90) by 3 out of 4 primary job levels. (Director/Executive, Manager, Technical, and Other).*
Because professionals with different levels of experience may view the job differently, the AC examined task ratings by level of experience. The AC defined a mean significance rating of 1.90 (+/- 2 SEs) for tasks for 3 out of 4 subgroups as the criteria. Applying this rule did not eliminate any additional tasks.

Rule 8. *Keep only tasks rated at least Significant (1.90) by 3 out of 3 number of employees subgroups (Less than 100, 101 to 1,000, and more than 1,000).*
Because professionals at different sized institutions may view the job differently, the AC examined task ratings by level of education. The AC defined a mean significance rating of 1.90 (+/- 2 SEs) for tasks for 2 out of 3 subgroups as the criteria. Applying this rule did not eliminate any additional tasks.

After all decision rules were applied, the AC reviewed and considered all respondent comments, no tasks were removed.

Table 5 presents information used by the AC to determine the number of items for each of the major areas of practice. The goal was to distribute items in accordance with observed working patterns across the major content areas. Respondent data were used to suggest a starting point for the content experts. The AC discussed the respondents' time spent in the five content domains and considered their time spent as how the items should be distributed. The AC decided to start with the respondent's response to percentage of time spent in each of the major domains, and make adjustments based on their expert opinion.

Table 5. Respondent Time Spent

What percentage of your time in the Trainer Role is spent in each of these areas?

	N	Min.	Max.	Mean	SD
1. Training Assessment	85	0	25	10.1	5.8
2. Training Program Development	89	0	75	17.7	12.9
3. Learning Modules	83	0	100	13.4	15.2
4. Training Implementation	90	0	75	20.8	15.3
5. Training Evaluation	83	0	75	9.5	10.4
6. Training Tracking	85	0	50	7.6	7.0
7. User Support	88	0	70	20.7	17.9
8. Change Management	82	0	50	12.0	10.9

Cognitive Complexity

After the number of items was determined for each major domain, the next step involved defining the cognitive complexity of the content domain. A complexity scale was used to determine at what cognitive level individual tasks were performed. The information provided a basis for matching test item complexity to job complexity. The AC discussed each task in each section and considered the typical complexity of task performance using the descriptions described in Table 6. They then determined a distribution for each major category by the cognitive categories of recall, application, and analysis, using Table 7 as a guideline. The AC then finalized the exact distribution based on its experience and perceptions about each major content domain.

Section and task complexity is based on Bloom's *Taxonomy of Educational Objectives* (1956, pp. 201-207) and follows:

Table 6. Cognitive Complexity Scale

Recall	Requires only the identification, recall, or recognition of isolated information, such as specific facts, generalizations, concepts, principles, or procedures. The information generally does not vary relative to the situation.
Application	Requires comprehension, interpretation, or manipulation of limited concepts or data, in which the response or outcome is situationally dependent, but not overly complex (e.g., application of knowledge which varies based on patient characteristics and environment). Activities that require candidates to recognize elements and relationships among data and to classify, explain, or differentiate are usually application level.
Analysis	Requires the integration or synthesis of a variety of concepts or elements to solve a specific problem situation (e.g., evaluating and rendering judgments on complex problems with many situational variables).

Table 7. General Guidelines for Item Distribution by Cognitive Level based on Mean Cognitive Level by Major Content Domain

	<1.45	<2.05	<2.45	>2.449
Recall	100%	40%	20%	20%
Application	0%	60%	60%	20%
Analysis	0%	0%	20%	60%

Test Specifications

The AC reviewed 47 tasks that remained eligible for the examination, assigned cognitive levels to each, and determined the number of items in each category to develop the final detailed content outline. To determine the allocation of content, the AC members expressed independent judgments about the percentage of the examination that should be allocated to the five major domains (content areas) on the examination. They were asked to consider the mean percentage of time in the domains indicated by the survey respondents (Table 5), the number of tasks in each content area, the breadth of those tasks, as well as the mean importance of the tasks expressed by the survey respondents. After discussion, the AC agreed upon the percentage of the examination to be allocated to each area. The AC decided that a 100-item examination sufficiently samples the content domain to render a pass or fail decision based on examination scores. The resulting examination matrix and detailed content outline will be used by AHIMA to assemble future examination forms. An overview of the final test specifications is shown in Table 8. The full specifications, including the final detailed content outline, is presented in Appendix M. Test developers, item writers, and the Examination Committee will use the test specifications and detailed content outline to build future forms of the examination.

Table 8. CHTS-TR Test Specifications

Content Area	Cognitive Level			Total
	Recall	Application	Analysis	
1. Training Assessment	2	6	3	**11**
2. Training Program Development	4	5	10	**19**
3. Learning Modules	2	8	2	**12**
4. Training Implementation	4	10	4	**18**
5. Training Evaluation	2	5	3	**10**
6. Training Tracking	1	4	1	**6**
7. User Support	3	5	2	**10**
8. Change Management	2	8	4	**14**
Total	**20**	**51**	**29**	**100**

Knowledge/Skill Areas

In addition to the task inventory, survey respondents were asked to rate the significance of 80 knowledge/skill statements identified by the AC. The eighty knowledge/skill statements were organized into the following four major domains:

1. Technical Knowledge: Health Data Management
2. Technical Knowledge: Health Information Technology & Systems
3. Non-Technical Knowledge: Hard Skills
4. Non-Technical Knowledge: Soft Skills

To determine which knowledge/skill statements were rated more significant by respondents, descriptive data grouped by CHTS role was calculated for each statement (see Appendix L). The purpose of these data was to determine which tasks would remain on the final content outlines. The AC developed and used an exclusion decision rule to identify knowledge/skill statements appropriate as supplemental information to the examination content outline. Of the 80 knowledge/skill statements on the original survey, 1 statement was excluded based on the following exclusion criterion.

Rule 1 *Keep only tasks rated at least Significant (1.70) by respondents.*
Applying this rule eliminated one statement (K50: Inferential statistics).

One purpose of the knowledge/skill statements is to provide guidance to the item writers/exam committee. As such, the AC decided to use priority designations (low, medium, or high) to provide some additional detail on the level of emphasis for each knowledge/skill statement. Table 9 below shows the criteria used by the AC when assigning level of priority to each statement. Full details of the final list of knowledge/skill statements sorted by priority can be viewed in Appendix M, after the task inventory.

Table 9. Knowledge/Skill Statement Thresholds

Mean Threshold	Priority
if mean > 1.995	High
if mean is 1.90 to 1.99	Medium
if mean is < 1.90	Low
if mean is < 1.70	Not included[1]

[1] Unless included by unanimous AC vote due to its importance.

Conclusions

The Job Analysis described in this report was undertaken to provide evidence supporting content valid inferences from examination scores. The study was conducted to determine and comprehensively describe the job of the healthcare technology specialists in a Trainer Role, to evaluate this description through the ratings of job experts, and to define areas that should be assessed in CHTS-TR examination.

The AHIMA formed the AC, who prepared a comprehensive list of tasks describing the job. A representative sample of job experts completed the survey. The AC reviewed the survey results and used the survey ratings to develop test specifications directly related to the significant tasks that the healthcare technology specialists perform. These test specifications will be used to ensure the examination is current and job-related. Each future form of the examination will contain the specified number of items distributed across the content areas. Because each test form will be developed to match these job-related test specifications, valid content-related inferences can be drawn about candidates' abilities to perform the job of the healthcare technology specialist in a Trainer Role.

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Appendix A. Job Analysis Survey

Welcome to the Job Analysis Survey for
Healthcare Technology Specialists

This survey will be used to help define the content for the Certified Healthcare Technology Specialist (CHTS) Exams. You will be asked demographic questions about your background and profession, and then asked to rate tasks, knowledge and skills that may be applicable to your work. Your ratings will provide information about the requirements related to the effective job performance as a healthcare technology specialist.

The survey should take approximately 15 minutes to complete. You will be able to close the survey and begin again where you left off if you do not complete the survey in one session.

If you experience any technical difficulties, please email: AHIMAJASurvey@goamp.com.

This survey is being conducted by American Health Information Management Association (AHIMA).

Please click 'Next' below to begin the survey.

Role Description

The CHTS certification program intends to assess basic competency of individuals who are seeking to demonstrate their proficiency in certain health IT workforce roles integral to the implementation and management of electronic health information in ***one or more*** of these roles:

- Assess workflows
- Manage projects
- Select hardware and software
- Work with vendors or users
- Install or test systems
- Diagnose IT problems
- Train practice staff on systems

Demographics

Please answer the following questions about your background. This information is confidential and will be used only to analyze the data across different groups of respondents (e.g., respondents from different geographical region; respondents with different level of education).

Please indicate the location of the facility in which you primarily work.

Is the facility in which you work located in a rural, suburban, or urban area?

- ◯ Rural
- ◯ Suburban
- ◯ Urban

Which of the following best describes your primary job level category?

- ◯ Executive/President/Vice President
- ◯ Director (HIM, HIT, etc.)/Officer
- ◯ Professor/Educator
- ◯ Manager/Supervisor
- ◯ Consultant
- ◯ Clinician (MD, RN)
- ◯ IT Project Manager
- ◯ Other (please specify)
- ◯ Business Analyst
- ◯ System Administrator
- ◯ Tech Implementation Analyst/Specialist
- ◯ Technical Support Analyst/Specialist
- ◯ HIM Technician Role (e.g., coder)
- ◯ Clerical/Administrative support
- ◯ Not currently working

Demographics

How many years of relevant work experience related to this role do you have?

What is the HIGHEST level of education you have completed?

- ◯ High School Diploma/GED
- ◯ 1-year Certificate Program
- ◯ 2-year Certificate Program
- ◯ Associate's Degree
- ◯ Baccalaureate Degree
- ◯ Master's Degree
- ◯ Professional Doctorate Degree (e.g., PT, PharmD, JD, DVM)
- ◯ PhD or EdD
- ◯ MD, DO, DNP, or DDS

Did your education include healthcare/medicine or information technology?

- ◯ Healthcare/Medicine
- ◯ Information Technology
- ◯ Both
- ◯ Neither

Do you hold the CHTS credential?

◯ Yes ◯ No

Demographics

How many years have you held the CHTS credential?

Which of these CHTS certifications do you hold?

Select all that apply.

- [ ] CP
- [ ] IM
- [ ] IS
- [ ] PW
- [ ] TR
- [ ] TS

Demographics

What other certifications do you hold?

Select all that apply.

- [ ] CAHIMS/CPHIMS
- [ ] CCA
- [ ] CCS
- [ ] CCS-P
- [ ] CHDA
- [ ] CHPS
- [ ] CMUP/CMUA
- [ ] CPC
- [ ] RHIA
- [ ] RHIT
- [ ] Other (please specify)

What licenses do you hold?

Select all that apply.

- [ ] APRN (NP or CNS)
- [ ] DO
- [ ] LPN/LVN
- [ ] LVT/RVT
- [ ] MD
- [ ] PA
- [ ] RN
- [ ] LCSW
- [ ] Other (please specify)

Demographics

Which of the following best describes your primary work setting?

- ◯ Ambulatory care facility
- ◯ Behavioral health facility
- ◯ Billing agency
- ◯ Consultant/vendor EHR/HIM/IT services
- ◯ Correspondence company
- ◯ Educational institution
- ◯ Government/public health agency
- ◯ Health information exchange organization
- ◯ Home healthcare agency
- ◯ Hospice
- ◯ Hospital
- ◯ Insurance company/payer
- ◯ Jail/corrections facility
- ◯ Law firm
- ◯ Long-term care facility
- ◯ Managed care HMO/PPO office
- ◯ Mental health facility
- ◯ Military health facility
- ◯ Multi-hospital/diversified system
- ◯ Outpatient/ambulatory surgery center
- ◯ Pharma/medical device/biotech manufacturer
- ◯ Physician's office/medical group practice
- ◯ Professional or trade association
- ◯ Regional Extension Center (REC)
- ◯ Rehabilitation facility
- ◯ Transcription company
- ◯ Urgent care center (freestanding emergency care center)
- ◯ Vendor EHR/HIM software products
- ◯ Veterinary practice

Approximately how many employees are in your organization?

- ◯ Less than 10
- ◯ 11 to 50
- ◯ 51 to 100
- ◯ 101 to 500
- ◯ 501 to 1000
- ◯ More than 1000

Demographics

Optional Questions

What is your age?

- ◯ Less than 30
- ◯ 30 to 39
- ◯ 40 to 49
- ◯ 50 to 59
- ◯ 60 or over

With which sex do you identify?

- ◯ Female
- ◯ Male

CHTS Trainer Role

CHTS Trainer Role:

Workers in this role—using adult learning principles—design and deliver health technology training programs to employees. The background of workers in this role may include experience as a health professional, technologist, informaticist, or information management specialist. Experience in instructional design and/or training is desired. Workers in this role will:

- Be able to use a range of health IT applications, preferably at an expert level
- Communicate both health and IT concepts as appropriate
- Assess training needs and competencies of learners
- Design and deliver lesson plans, structuring active learning experiences for users
- Track training records of users and develop learning plans for further instructions

Does this role describe you?

- ◯ Yes
- ◯ No

If yes, please indicate the type of your training employer.

- ◯ Vendors (external)
- ◯ Consultant (external)
- ◯ Internal training/education department

Task Rating Scale Instructions

Please use the scale shown below to express your judgment of the**significance of each task as it applies to your current role in the health IT workforce**.

Not applicable for my role
Minimally significant
Significant
Very significant

Please consider whether this task is performed in your current role in the health IT workforce; if you do not need to deal with the task, select "not applicable for my role." If you do need to have the knowledge related to the task, select the rating corresponding to how significant it is to your role in healthcare IT workforce.

Trainer Tasks

Please indicate the significance of each task as it applies to your current role in the health IT workforce.

Training assessment

	Not applicable for my role	Minimally significant	Significant	Very significant
1. Identify audience	◯	◯	◯	◯
2. Describe learning outcomes	◯	◯	◯	◯
3. Define physical environment	◯	◯	◯	◯
4. Identify training methodologies	◯	◯	◯	◯
5. Define scope of project	◯	◯	◯	◯

Training program development

	Not applicable for my role	Minimally significant	Significant	Very significant
6. Write objectives	◯	◯	◯	◯
7. Design learning activities to support objectives	◯	◯	◯	◯
8. Suggest timeframes for objectives	◯	◯	◯	◯
9. Apply teaching/learning principles	◯	◯	◯	◯
10. Develop evaluation tools	◯	◯	◯	◯
11. Design materials to meet evidence-based healthcare practices	◯	◯	◯	◯
12. Design materials to meet training quality standards	◯	◯	◯	◯
13. Design materials appropriate to the planned delivery mode	◯	◯	◯	◯
14. Utilize resources	◯	◯	◯	◯

Trainer Tasks

Please indicate the significance of each task as it applies to your current role in the health IT workforce.

Learning modules

	Not applicable for my role	Minimally significant	Significant	Very significant
15. Create training activities	○	○	○	○
16. Create content	○	○	○	○
17. Organize content	○	○	○	○
18. Sequence content	○	○	○	○
19. Create training materials	○	○	○	○
20. Create presentation	○	○	○	○
21. Test the presentation	○	○	○	○

Training Implementation

	Not applicable for my role	Minimally significant	Significant	Very significant
22. Create training environment	○	○	○	○
23. Coordinate training schedule	○	○	○	○
24. Deliver training	○	○	○	○
25. Adjust training delivery as needed	○	○	○	○
26. Engage audience	○	○	○	○

Trainer Tasks

Please indicate the significance of each task as it applies to your current role in the health IT workforce.

Training Evaluation

	Not applicable for my role	Minimally significant	Significant	Very significant
27. Initiate evaluation tools for formative and summative assessment	○	○	○	○
28. Analyze results	○	○	○	○
29. Solicit feedback	○	○	○	○
30. Suggest alternative learning methods	○	○	○	○
31. Address users who lack competency	○	○	○	○
32. Review and report evaluation results	○	○	○	○
33. Revise training if needed	○	○	○	○

Training Tracking

	Not applicable for my role	Minimally significant	Significant	Very significant
34. Maintain training records	○	○	○	○
35. Utilize learning management system software	○	○	○	○
36. Generate outcome (results) reports	○	○	○	○
37. Issue completion certificate	○	○	○	○
38. Summarize feedback	○	○	○	○

Trainer Tasks

Please indicate the significance of each task as it applies to your current role in the health IT workforce.

User Support

	Not applicable for my role	Minimally significant	Significant	Very significant
39. Answer end-user questions	◯	◯	◯	◯
40. Conduct follow-up training	◯	◯	◯	◯
41. Troubleshoot user application and technical issues	◯	◯	◯	◯
42. Advise users about continuing education	◯	◯	◯	◯

Change Management

	Not applicable for my role	Minimally significant	Significant	Very significant
43. Participate on committees	◯	◯	◯	◯
44. Serve in advisory roles	◯	◯	◯	◯
45. Participate in strategic planning	◯	◯	◯	◯
46. Support change management	◯	◯	◯	◯
47. Identify and engage champions	◯	◯	◯	◯
48. Identify and engage stakeholders	◯	◯	◯	◯
49. Address stakeholders' needs	◯	◯	◯	◯

Trainer Tasks

How well do you feel the task list covered the important job tasks in the Training Role?

- ◯ Completely
- ◯ Adequately
- ◯ Inadequately (please specify why)

Were any important job tasks in the Training Role omitted from the survey?

What percent of your time in the Training Role is spent in each of these area?

Please type your numeric response below (i.e., 25, not 25%). Your choices must sum to 100.

Training assessment	
Training program development	
Learning modules	
Training Implementation	
Training Evaluation	
Training Tracking	
User Support	
Change Management	

Knowledge and Skills Rating Scale Instructions

Please use the scale shown below to express your judgment of the**significance of each knowledge/skill as it applies to your current role in the health IT workforce**.

Not applicable for my role
Minimally significant
Significant
Very significant

Please consider whether this knowledge is used in your current role in the health IT workforce; if you do not need the knowledge, select “not applicable for my role.” If you do need to have the knowledge, select the rating corresponding to how significant it is to your role in healthcare IT workforce.

Knowledge and Skills

Please indicate the significance of each knowledge/skill as it applies to your current role in the health IT workforce.

Technical Knowledge: Health Data Management

	Not applicable for my role	Minimally significant	Significant	Very significant
1. Data analysis	○	○	○	○
2. Health care delivery systems	○	○	○	○
3. Health care regulation	○	○	○	○
4. Health care revenue cycle	○	○	○	○
5. Health informatics	○	○	○	○
6. Health information management concepts & principles	○	○	○	○
7. Diagnostic and procedural coding (e.g., ICD-CM/PCS, CPT, HCPCS)	○	○	○	○
8. Information governance	○	○	○	○
9. Meaningful use	○	○	○	○
10. Medical sciences	○	○	○	○
11. Medical terminology	○	○	○	○

Knowledge and Skills

Please indicate the significance of each knowledge/skill as it applies to your current role in the health IT workforce.

Technical Knowledge: Health Information Technology & Systems

	Not applicable for my role	Minimally significant	Significant	Very significant
12. Audio/visual skills (e.g., LCD projector)	○	○	○	○
13. Computer systems	○	○	○	○
14. Database structures (e.g., SQL)	○	○	○	○
15. EHR/EMR/PHR principles	○	○	○	○
16. Flowchart applications	○	○	○	○
17. General hardware maintenance	○	○	○	○
18. Health information exchange	○	○	○	○
19. Health information systems	○	○	○	○
20. Health IT applications	○	○	○	○
21. HL7	○	○	○	○
22. Implementation life cycle	○	○	○	○
23. Interface integration	○	○	○	○
24. Interoperability	○	○	○	○

Knowledge and Skills

Please indicate the significance of each knowledge/skill as it applies to your current role in the health IT workforce.

Technical Knowledge: Health Information Technology & Systems (Continued)

	Not applicable for my role	Minimally significant	Significant	Very significant
25. IT fundamentals	○	○	○	○
26. IT security principles	○	○	○	○
27. Network technology (e.g., VPN, cloud-based)	○	○	○	○
28. Platforms and operating systems (e.g., Windows, Mac, Linux, Mobile devices)	○	○	○	○
29. PC skills (e.g., Microsoft Office, internet)	○	○	○	○
30. Performance improvement	○	○	○	○
31. Peripheral devices (e.g., printers)	○	○	○	○
32. Servers	○	○	○	○
33. Software development life cycle	○	○	○	○
34. Standard technical language	○	○	○	○
35. Technical specs (hardware, software)	○	○	○	○
36. Writing test scripts	○	○	○	○

Knowledge and Skills

Please indicate the significance of each knowledge/skill as it applies to your current role in the health IT workforce.

Non-Technical Knowledge: Hard Skills

	Not applicable for my role	Minimally significant	Significant	Very significant
37. Accreditation standards	○	○	○	○
38. Adult learning principles	○	○	○	○
39. Basic statistics	○	○	○	○
40. Best practices	○	○	○	○
41. Budget management	○	○	○	○
42. Change management	○	○	○	○
43. Clinical and operations workflow	○	○	○	○
44. Consumerism and marketing	○	○	○	○
45. Ergonomics	○	○	○	○
46. Facilitation skills	○	○	○	○
47. Gov't agencies associated with healthcare	○	○	○	○
48. Human resource management	○	○	○	○
49. Industry trends	○	○	○	○
50. Inferential statistics	○	○	○	○
51. Legal and ethical issues	○	○	○	○
52. Nomenclatures	○	○	○	○

Knowledge and Skills

Please indicate the significance of each knowledge/skill as it applies to your current role in the health IT workforce.

Non-Technical Knowledge: Hard Skills (Continued)

	Not applicable for my role	Minimally significant	Significant	Very significant
53. Operations management	○	○	○	○
54. Organizational structure	○	○	○	○
55. Process improvement	○	○	○	○
56. Project management	○	○	○	○
57. Public health	○	○	○	○
58. Quality control	○	○	○	○
59. Quality improvement	○	○	○	○
60. Quality of patient care	○	○	○	○
61. Report writing principles	○	○	○	○
62. Resource management	○	○	○	○
63. Risk management	○	○	○	○
64. Simulation technology	○	○	○	○
65. Telehealth and telemedicine	○	○	○	○
66. Training methodologies	○	○	○	○
67. Virtual training or meeting tools	○	○	○	○
68. Work flow improvement & management	○	○	○	○

Knowledge and Skills

Please indicate the significance of each knowledge/skill as it applies to your current role in the health IT workforce.

Non-Technical Knowledge: Soft Skills

	Not applicable for my role	Minimally significant	Significant	Very significant
69. Analytical skills	○	○	○	○
70. Communication skills (written & oral)	○	○	○	○
71. Conflict resolution	○	○	○	○
72. Cultural competency	○	○	○	○
73. Culture of health care	○	○	○	○
74. Issue management	○	○	○	○
75. Leadership	○	○	○	○
76. Linguistic competency	○	○	○	○
77. Organizational culture	○	○	○	○
78. Presentation skills	○	○	○	○
79. Time management	○	○	○	○
80. Working with teams	○	○	○	○

Knowledge and Skills

How well do you feel the knowledge and skills list covered the important knowledge and skills in your role?

- ◯ Completely
- ◯ Adequately
- ◯ Inadequately (please specify why)

Were any important knowledge and skills omitted from the survey?

Thank you

Thank You for Completing the Job Analysis Survey for Healthcare Technology Specialists

If you have any additional questions or comments about this survey, please e-mail:
AHIMAJASurvey@goamp.com

Appendix B. Job Analysis Survey Demographics

CHTS Trainer (N=105)

Table 1. Please indicate the location of the facility in which you primarily work.

	Frequency	Percent
FL	15	15.3
TX	8	8.2
CA	5	5.1
KY	5	5.1
MD	5	5.1
NC	5	5.1
MO	4	4.1
SC	4	4.1
AL	3	3.1
DC	3	3.1
GA	3	3.1
IL	3	3.1
NJ	3	3.1
NY	3	3.1
OH	3	3.1
PA	3	3.1
TN	3	3.1
VA	3	3.1
MA	2	2.0
MI	2	2.0
AR	1	1.0
CT	1	1.0
HI	1	1.0
IA	1	1.0
IN	1	1.0
KS	1	1.0
LA	1	1.0
ME	1	1.0
MS	1	1.0
OK	1	1.0
PR	1	1.0
WA	1	1.0
WI	1	1.0
Total	98	100.0

Table 2. Region

	Frequency	Percent
A	7	7.5
B	16	17
C	50	53.2
D	21	22.3
Total	94	100.0

Region A: AK, CO, ID, MT, ND, OR, SD, UT, WA, WY, AZ, CA, HI, NV
Region B: IL, IN, IA, KS, MI, MN, MO, NE, OH, WI
Region C: AL, AR, FL, GA, KY, LA, MS, NM, NC, OK, SC, TN, TX
Region D: CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, WV

Table 2B. Regions grouped for subgroups

	Geographic Area
A	West
B	Midwest
C	South
D	East

Table 3. Is the facility in which you work located in a rural, suburban, or urban area?

	Frequency	Percent
Rural	19	18.1
Suburban	28	26.7
Urban	58	55.2
Total	105	100.0

Table 4. Which of the following best describes your primary job level category?

	Frequency	Percent
4.Professor/Educator	17	16.2
2.Manager/Supervisor	14	13.3
1.Director (HIM, HIT, etc.)/Officer	11	10.5
3.Tech Implementation Analyst/Specialist	7	6.7
4.Consultant	6	5.7
3.IT Project Manager	6	5.7
3.Technical Support Analyst/Specialist	6	5.7
1.Executive/President/Vice President	4	3.8
4.Clinician (MD, RN)	3	2.9
4.Business Analyst	3	2.9
4.HIM Technician Role (e.g., coder)	2	1.9
4.Clerical/Administrative support	2	1.9
4.System Administrator	1	1.0
4.Not currently working	3	2.9
4.Other (please specify)	20	19.0
Total	105	100.0

Table 4B. Primary job level for subgroups

	Frequency	Percent
Director/Executive	15	14.3
Manager	14	13.3
Technical	19	18.1
Other	57	54.3
Total	105	100.0

Table 5. How many years of relevant work experience related to this role do you have?
Mean: 11.6 years
SD: 9.1 years

	Frequency	Percent	Cumulative Percent
0	1	1.2	1.2
1	2	2.3	3.5
2	1	1.2	4.7
3	6	7.0	11.6
4	6	7.0	18.6
5	16	18.6	37.2
6	3	3.5	40.7
7	7	8.1	48.8
8	2	2.3	51.2
9	1	1.2	52.3
10	7	8.1	60.5
11	2	2.3	62.8
12	2	2.3	65.1
14	2	2.3	67.4
15	3	3.5	70.9
16	1	1.2	72.1
18	1	1.2	73.3
19	2	2.3	75.6
20	10	11.6	87.2
21	2	2.3	89.5
25	4	4.7	94.2
26	1	1.2	95.3
30	1	1.2	96.5
33	1	1.2	97.7
41	1	1.2	98.8
45	1	1.2	100.0
Total	86	100.0	

Table 5B. Years of experience subgroups

	Frequency	Percent
0 – 5	32	37.2
6 – 14	26	30.2
15+	28	32.6
Total	86	100

Table 6. What is the HIGHEST level of education you have completed?

	Frequency	Percent	Cumulative Percent
High School Diploma/GED	4	3.8	3.8
1-year Certificate Program	4	3.8	7.7
Associate's Degree	18	17.3	25.0
Baccalaureate Degree	30	28.8	53.8
Master's Degree	38	36.5	90.4
PhD or EdD	8	7.7	98.1
MD, DO, DNP, or DDS	2	1.9	100.0
Total	104	100.0	

Level 1: High School Diploma/GED, 1-year Certification program, 2-year certification program, Associates degree
Level 2: Baccalaureate degree
Level 3: Master's degree, PhD, EdD, MD, DO, DNP, or DDS

Table 6B. Highest level of education for subgroups

	Frequency	Percent
Level 1	26	25
Level 2	30	28.8
Level 3	48	46.2
Total	104	100.0

Table 7. Did your education include healthcare/medicine or information technology?

	Frequency	Percent
Healthcare/Medicine	24	22.9
Information Technology	11	10.5
Both	54	51.4
Neither	16	15.2
Total	105	100.0

Table 8. Do you hold the CHTS credential?

	Frequency	Percent
Yes	104	99.0
No	1	1.0
Total	105	100.0

Table 9. If yes - How many years have you held the CHTS credential?
Mean: 3.3 years

SD: 1.1 years	Frequency	Percent	Cumulative Percent
1	3	3.0	3.0
2	16	16.2	19.2
3	41	41.4	60.6
4	27	27.3	87.9
5	10	10.1	98.0
6	1	1.0	99.0
7	1	1.0	100.0
Total	99	100.0	

Table 10. If yes - Which of these CHTS certifications do you hold? (Select all that apply.) (N=104)

	Frequency	Percent
TR	44	42.3
IM	30	28.8
PW	27	26.0
CP	19	18.3
IS	14	13.5
TS	9	8.7
Total	143	137.5

Table 10B.

	Yes	No
TR	44	61
IM	30	75
PW	27	78
CP	19	86
IS	14	91
TS	9	96
Total	143	

Table 11. What other certifications do you hold? (Select all that apply.) (N=51)

	Frequency	Percent
RHIA	23	45.1
RHIT	19	37.3
CPC	13	25.5
CCS	9	17.6
CCS-P	6	11.8
CAHIMS/CPHIMS	4	7.8
CHDA	2	3.9
CHPS	1	2.0
Total	77	151.0

Table 12. What licenses do you hold? (Select all that apply.) (N=16)

	Frequency	Percent
RN	12	75.0
LPN/LVN	2	12.5
MD	1	6.3
LCSW	1	6.3
Total	16	100.0

Table 13. Which of the following best describes your primary work setting?

	Frequency	Percent
Hospital	30	28.6
Educational institution	16	15.2
Consultant/vendor EHR/HIM/IT services	12	11.4
Physician's office/medical group practice	9	8.6
Ambulatory care facility	8	7.6
Government/public health agency	5	4.8
Multi-hospital/diversified system	5	4.8
Health information exchange organization	3	2.9
Long-term care facility	3	2.9
Managed care HMO/PPO office	3	2.9
Vendor EHR/HIM software products	3	2.9
Behavioral health facility	2	1.9
Mental health facility	2	1.9
Insurance company/payer	1	1.0
Professional or trade association	1	1.0
Regional Extension Center (REC)	1	1.0
Veterinary practice	1	1.0
Total	105	100.0

Table 14. Approximately how many employees are in your organization?

	Frequency	Percent	Cumulative Percent
Less than 100	18	17.1	17.1
101 to 1000	45	42.9	60
More than 1001	42	40	100
Total	105	100.0	

Table 15. What is your age?

	Frequency	Percent
Less than 30	1	1.0
30 to 39	12	11.7
40 to 49	40	38.8
50 to 59	39	37.9
60 or over	11	10.7
Total	103	100.0

Table 16. With which sex do you identify?

	Frequency	Percent
Female	85	83.3
Male	17	16.7
Total	102	100.0

Table 17. Task Coverage

	Frequency	Percent
Adequately	49	49.0
Completely	51	51.0
Total	100	100.0

Table 18. Knowledge Statement Coverage

	Frequency	Percent
Adequately	46	48.4
Completely	49	51.6
Total	95	100.0

Table 19. What percent of your time in the Trainer Role is spent in each of these area?

	N	Min.	Max.	Mean	SD
Training assessment	85	0	25	10.1	5.8
Training program development	89	0	75	17.7	12.9
Learning modules	83	0	100	13.4	15.2
Training Implementation	90	0	75	20.8	15.3
Training Evaluation	83	0	75	9.5	10.4
Training Tracking	85	0	50	7.6	7.0
User Support	88	0	70	20.7	17.9
Change Management	82	0	50	12.0	10.9

Table 20. Reliability - Task

		Reliability (consistency)		
Survey Subsection	N	Between Topics (Coefficient Alpha)	Between Respondents (Intraclass Correlation)	# of Tasks
Training assessment	106	0.855	0.917	5
Training program development	104	0.946	0.895	9
Learning modules	104	0.979	0.528	7
Training Implementation	105	0.881	0.957	5
Training Evaluation	103	0.918	0.822	7
Training Tracking	101	0.897	0.815	5
User Support	103	0.848	0.884	4
Change Management	104	0.947	0.555	7
Total	97	0.979	0.916	49

Table 21. Reliability – Knowledge Statement

		Reliability (consistency)		
Survey Subsection	N	Between Topics (Coefficient Alpha)	Between Respondents (Intraclass Correlation)	# of Tasks
Technical Knowledge: Health Data Management	92	0.919	0.867	11
Technical Knowledge: Health Information Technology & Systems	91	0.958	0.966	25
Non-Technical Knowledge: Hard Skills	88	0.967	0.956	32
Non-Technical Knowledge: Soft Skills	94	0.936	0.953	12
Total	79	0.982	0.955	80

Demographic Questions (Open-ended Question Responses)

Which of the following best describes your primary job level category? – Other (please specify)

1. Account Manager
2. and Systems Administrator for our EHR
3. Application Analyst
4. Auditer
5. CDI Specialist
6. clinical analyst
7. Clinical Applications Analyst (Build and Support)
8. Clinical Data Analyst
9. Clinical Documentation Specialist
10. Clinical Informaticist
11. Clinical IT
12. Clinical Nurse Educator
13. Clinical System Analyst
14. Clinician (RN) working as a Tech Implementation/Support Analyst/Specialist
15. Coder
16. coding compliance auditor
17. Combination of IT PM and System Administrator
18. Credentialed Epic Trainer
19. Demand Management Analyst
20. Director of Finance in a Department
21. Director, Audits and Special Projects
22. Epic Trainer
23. Graduate Medical Education Residency Program Coord
24. health information exchange
25. HIM Assistant Director
26. HIM Educator
27. HIT Adviser on the Iowa Health Information Network IHIN
28. I am an RN in a Neonatal Intensive Care Unit
29. Informatics Manager
30. Joint Venture Integration Manager
31. Meaningful Use and Performance (i.e. Quality) Specialist
32. Medical Transcriptionist
33. NLU Adoptions Specialist
34. Nurse Informaticist
35. PCMH Manager
36. Performance Mangement Specialist/currrently installing EPIC
37. Physician Coding Educator Liaison
38. Practice Coach
39. Programmer analyst
40. Programmer, not Healthcare related
41. Project Coordinator
42. Project Manager (2)
43. Quality
44. Quality abstractor
45. receptionist
46. Reimbursement Coordinator
47. Revenue Cycle specialist
48. RN Clinical App analyst, implement clinical programs process
49. Strategist (Informatics Strategist)
50. telehealth clinical technician
51. Trainer (3)

What other certifications do you hold? - Other (please specify)

1. A+, Network+, Epic ASAP, Medical Assistant, Emergency Medical Technician
2. AAPC
3. Administrative Assistant
4. ANCC Board Certification - Nursing Informatic
5. Approved AHIMA ICD-10 trainer
6. BPMP
7. CASCC, CRC
8. CBCS, CHI, CMAA, CERHS
9. CBCS, CMAA, CHI, CEHRS
10. CCDS, CDIP, CIC, COC
11. CCHT
12. CCMA
13. CCRN
14. CDIP (3)
15. CDIP, CCDS
16. CEHRS
17. Certified Health Education Specialist (CHES)
18. Certified Healthcare Compliance (CHC)
19. Certified Training Generalist
20. CHAM
21. CHC (3)
22. CHDS (2)
23. CHDS (Certified Healthcare Documentation Specialist (AHDI)
24. CHDS, CPEHR
25. CHP
26. CHTS-CP
27. CHTS-IM (2)
28. CIT
29. COC (5)
30. Comptia A+ and Network +
31. CompTIA A+ and Network+
32. CompTIA Healthcare
33. CPA, EA, QPA
34. CPC
35. CPC-I
36. CPHIE, CPEHR, CPHIT
37. CPHQ (8)
38. CPHQ, CHCA
39. CPHT
40. CPMA, CEMC,
41. CPMSS; CPCS
42. CPRP
43. CPT - phlebotomy
44. CRC CDM CFPP CPhT
45. CRCR
46. CSBI, LSSGB
47. CSM
48. CSM, CSPO, Ahima approved icd-10 cm trainer
49. CSSBB
50. CSSYB
51. CTR
52. CVRN, PCMH-CCE
53. EPIC Certifications
54. EPIC's Epiccare Ambulatory and MyChart Certifications
55. ERMp

56. Health Information Security Professional
57. HIPAA - CHTS certification expired
58. ICD 10 CM AND PCS TRAINER APRROVAL
59. Informatics Nurse
60. McIT
61. MCSE, MCSA
62. MHA, CHPQ, FNAHQ, FAHIMA
63. Midas+ Certified System Manager
64. mos
65. NetSmart System Administrator
66. NextGen Certified Professional (NCP)
67. OCSA
68. PMP (6)
69. PMP, scrum
70. Post Bacc. Paralegal certificate
71. PRO-TS
72. Project+
73. RAC-CT
74. RN Board Certified - Informatics
75. RN-BC
76. RN-BC, CDIP, CCDS
77. RNC-NIC, IBCLC
78. Security+, Healthcare IT Technician, A+, Network+
79. Six sigma yellow belt
80. SSMBB, CPHQ, PCMH CCE
81. will be sitting for RHIA exam soon

What licenses do you hold? - Other (please specify)

1. CCDS
2. CERTIFICATE IN HEALTH INFORMATION TECH
3. Certified Pharmacy Tech
4. Clinical Laboratory Assistant
5. CMT
6. CNM
7. coa
8. CPA
9. EMT-A (former)
10. EMT-P
11. formerly EMT/Paramedic credential retired
12. Health Life & Accident
13. Licensed Nursing Home Administrator
14. LMT
15. Medical Assistant
16. Medical interpreter
17. PharmD
18. PMP
19. PMP, Scrum
20. Property & Causality Insurance License
21. RHIT
22. RRT PCT
23. RT
24. RT(R)(CT)
25. RTR

Survey Comments

Survey Adequacy

How well do you feel the task list covered the important job tasks in the Training Role? - Inadequately (please specify why)

(None)

Were any important job tasks in the Training Role omitted from the survey?

1. 1 - The questions do follow the ADDI the model, which is nice; however, I think the most significant part to training is being able to identify the type(s) of learners (i.e. the audience) you are dealing with, planning the material, delivery model, scalability to the audience, and accommodating different adult learning types (For example, some staff can only learn with hands-on, real life scenarios; others will catch on very quickly and will want to be able to move through the material quickly, more focused on nuances and "tips"). I still prefer to focus on one-on-one training where I can pace the class and adjust the model to the learner. I have found online modules are dis-engaging and are a huge hassle for clinical staff who work more in a one-on-one model in real life. Sometimes classes and online modules are unavoidable for upgrades; but that is my 2 cents on that... 2 - I am a system admin; however I still do a significant amount of my own training, material development and training planning. In an environment where you have dedicated professional trainers, I think it is critical that they work very, very closely with the system admin/developer to develop training that will accurately reflect the system build; this is always a real-life rub because often things could be changing (say in a Development Environment) while training is happening in a different environment. Getting updates and working with administrators to reflect what "real-life" will look like is more critical than working with the steak holders (they just want everything to work out in the end). 3 - FYI: this survey question was not properly formatted: "If yes, please indicate the type of your training employer." I have no room to complain as I am a serial misspeller; but, thought I would let you(all) know.
2. In my current role I am not utilizing my CHTS-TR credentials. However everything that I have learned as for as CHTS-TR is applied to this role.
3. Keeping up-to-date with EHR, training and other related software programs
4. This is very dependent on system used
5. Trainer education (i.e. Train-the-trainer). This is the way I develop Subject Matter Expertise in new areas of Health IT.
6. Yes, I have used other aspects of the duties for the other types of certifications at the same time as the trainer role. Oddly enough it was very influential in the training program for ICD-10.

How well do you feel the knowledge and skills list covered the important knowledge and skills in your role? - Inadequately (please specify why)

1. I am not employed in the healthcare industry. I do not have experience, in spite of my certification.
2. I feel like the questions were geared toward a healthcare delivery facility employee or contractor. It is frustrating that AHIMA focuses so much attention at hospitals when there are so many other areas of health IT.
3. I haven't used any of the knowledge and skills yet. I can't really answer the questions. I haven't found any job requires or need to use the knowledge.
4. not currently employed.
5. The certification is a joke that no one recognizes
6. This is a clerical role

Were any important knowledge and skills omitted from the survey?

1. AHIMA CEU Grab.
2. Continuing education
3. How to develop a continuing educational program to continue to make yourself relevant to the ever changing HIT environment.
4. I believe those of us who are professional, accredited coders have been required to attain and demonstrate so many more skills and informational competencies.This survey is very general and really could benefit by focusing on specific HIM roles. What exactly is the point of this survey?
5. I was a systems analyst when I obtained the CHTS credential. At that time, the credential was very relevant to my job. I have since retired and do coding on a per diem basis. The CHTS credential is not relevant to my current role.
6. Just a comment. I hope that AHIMA does not eliminate the CP designation from the CHTS credential. It is valuable to demonstrate expertise in front end data capture and how data are then extracted from the system for reporting purposes. I just think that is getting lost in the shuffle.
7. Keeping up with current technology
8. Literature reviews
9. multitasking problem solving business ethics
10. need an option in the beginning that says N/A for not currently employed.
11. negotiations
12. No, my issue is getting to use the skills I have.
13. Public health
14. Quality Reporting Programs - VPPM, PQRS, MIPS
15. The questions about Projectors, Microsoft office and PC skills are way out of line. Those are basic competencies to the other skill sets listed; akin to being able to read and write before entering high school... It should be more like "Basic PC and User Profile management"...

Appendix C. Task Ratings in Survey Order

Task Ratings and Percent Performing in Task Order

No.	Task Statement	N	Mean	SE	SD	% Perform
R1	1. Identify audience	107	2.45	0.066	0.67	95.3
R2	2. Describe learning outcomes	107	2.43	0.065	0.66	98.1
R3	3. Define physical environment	107	2.07	0.077	0.75	90.7
R4	4. Identify training methodologies	107	2.40	0.065	0.65	94.4
R5	5. Define scope of project	106	2.35	0.069	0.69	93.4
R6	6. Write objectives	107	2.27	0.072	0.72	94.4
R7	7. Design learning activities to support objectives	107	2.36	0.067	0.67	95.3
R8	8. Suggest timeframes for objectives	107	2.25	0.068	0.68	95.3
R9	9. Apply teaching/learning principles	106	2.45	0.059	0.61	98.1
R10	10. Develop evaluation tools	107	2.21	0.080	0.80	94.4
R11	11. Design materials to meet evidence-based healthcare practices	106	2.18	0.081	0.78	87.7
R12	12. Design materials to meet training quality standards	106	2.33	0.069	0.69	93.4
R13	13. Design materials appropriate to the planned delivery mode	105	2.35	0.071	0.71	96.2
R14	14. Utilize resources	106	2.42	0.065	0.66	99.1
R15	15. Create training activities	106	2.39	0.070	0.71	95.3
R16	16. Create content	106	2.42	0.072	0.72	93.4
R17	17. Organize content	105	2.47	0.067	0.67	95.2
R18	18. Sequence content	105	2.48	0.066	0.66	95.2
R19	19. Create training materials	105	2.48	0.063	0.63	94.3
R20	20. Create presentation	104	2.47	0.068	0.69	97.1
R21	21. Test the presentation	105	2.39	0.070	0.71	96.2
R22	22. Create training environment	105	2.19	0.083	0.79	85.7
R23	23. Coordinate training schedule	105	2.29	0.075	0.73	89.5
R24	24. Deliver training	105	2.49	0.067	0.67	96.2
R25	25. Adjust training delivery as needed	105	2.53	0.060	0.60	93.3
R26	26. Engage audience	105	2.56	0.060	0.61	98.1
R27	27. Initiate evaluation tools for formative and summative assessment	103	2.18	0.081	0.77	87.4
R28	28. Analyze results	103	2.17	0.080	0.76	89.3
R29	29. Solicit feedback	103	2.33	0.069	0.68	92.2
R30	30. Suggest alternative learning methods	103	2.20	0.079	0.77	92.2
R31	31. Address users who lack competency	103	2.36	0.075	0.71	87.4
R32	32. Review and report evaluation results	103	2.25	0.079	0.76	90.3
R33	33. Revise training if needed	103	2.41	0.070	0.70	96.1
R34	34. Maintain training records	103	2.11	0.089	0.84	85.4
R35	35. Utilize learning management system software	103	1.99	0.088	0.82	85.4
R36	36. Generate outcome (results) reports	101	2.02	0.091	0.83	82.2

No.	Task Statement	N	Mean	SE	SD	% Perform
R37	37. Issue completion certificate	102	2.06	0.100	0.84	69.6
R38	38. Summarize feedback	103	2.09	0.084	0.79	84.5
R39	39. Answer end-user questions	104	2.51	0.070	0.69	94.2
R40	40. Conduct follow-up training	104	2.39	0.072	0.70	91.4
R41	41. Troubleshoot user application and technical issues	103	2.30	0.081	0.78	90.3
R42	42. Advise users about continuing education	104	2.23	0.084	0.79	86.5
R43	43. Participate on committees	104	2.32	0.071	0.69	90.4
R44	44. Serve in advisory roles	104	2.30	0.078	0.75	88.5
R45	45. Participate in strategic planning	104	2.20	0.082	0.78	87.5
R46	46. Support change management	104	2.33	0.072	0.71	92.3
R47	47. Identify and engage champions	104	2.36	0.071	0.66	83.7
R48	48. Identify and engage stakeholders	104	2.35	0.076	0.71	84.6
R49	49. Address stakeholders' needs	104	2.43	0.076	0.72	85.6

Appendix D. Task Ratings in Descending Percent Performing Order

Task Ratings in Ascending Percent Performing Order

No.	Task Statement	N	Mean	SE	SD	% Perform
R37	37. Issue completion certificate	102	2.06	0.100	0.84	69.6
R36	36. Generate outcome (results) reports	101	2.02	0.091	0.83	82.2
R47	47. Identify and engage champions	104	2.36	0.071	0.66	83.7
R38	38. Summarize feedback	103	2.09	0.084	0.79	84.5
R48	48. Identify and engage stakeholders	104	2.35	0.076	0.71	84.6
R34	34. Maintain training records	103	2.11	0.089	0.84	85.4
R35	35. Utilize learning management system software	103	1.99	0.088	0.82	85.4
R49	49. Address stakeholders' needs	104	2.43	0.076	0.72	85.6
R22	22. Create training environment	105	2.19	0.083	0.79	85.7
R42	42. Advise users about continuing education	104	2.23	0.084	0.79	86.5
R27	27. Initiate evaluation tools for formative and summative assessment	103	2.18	0.081	0.77	87.4
R31	31. Address users who lack competency	103	2.36	0.075	0.71	87.4
R45	45. Participate in strategic planning	104	2.20	0.082	0.78	87.5
R11	11. Design materials to meet evidence-based healthcare practices	106	2.18	0.081	0.78	87.7
R44	44. Serve in advisory roles	104	2.30	0.078	0.75	88.5
R28	28. Analyze results	103	2.17	0.080	0.76	89.3
R23	23. Coordinate training schedule	105	2.29	0.075	0.73	89.5
R32	32. Review and report evaluation results	103	2.25	0.079	0.76	90.3
R41	41. Troubleshoot user application and technical issues	103	2.30	0.081	0.78	90.3
R43	43. Participate on committees	104	2.32	0.071	0.69	90.4
R3	3. Define physical environment	107	2.07	0.077	0.75	90.7
R40	40. Conduct follow-up training	104	2.39	0.072	0.70	91.4
R29	29. Solicit feedback	103	2.33	0.069	0.68	92.2
R30	30. Suggest alternative learning methods	103	2.20	0.079	0.77	92.2
R46	46. Support change management	104	2.33	0.072	0.71	92.3
R25	25. Adjust training delivery as needed	105	2.53	0.060	0.60	93.3
R5	5. Define scope of project	106	2.35	0.069	0.69	93.4
R12	12. Design materials to meet training quality standards	106	2.33	0.069	0.69	93.4
R16	16. Create content	106	2.42	0.072	0.72	93.4
R39	39. Answer end-user questions	104	2.51	0.070	0.69	94.2
R19	19. Create training materials	105	2.48	0.063	0.63	94.3
R4	4. Identify training methodologies	107	2.40	0.065	0.65	94.4
R6	6. Write objectives	107	2.27	0.072	0.72	94.4
R10	10. Develop evaluation tools	107	2.21	0.080	0.80	94.4
R17	17. Organize content	105	2.47	0.067	0.67	95.2
R18	18. Sequence content	105	2.48	0.066	0.66	95.2

No.	Task Statement	N	Mean	SE	SD	% Perform
R1	1. Identify audience	107	2.45	0.066	0.67	95.3
R7	7. Design learning activities to support objectives	107	2.36	0.067	0.67	95.3
R8	8. Suggest timeframes for objectives	107	2.25	0.068	0.68	95.3
R15	15. Create training activities	106	2.39	0.070	0.71	95.3
R33	33. Revise training if needed	103	2.41	0.070	0.70	96.1
R13	13. Design materials appropriate to the planned delivery mode	105	2.35	0.071	0.71	96.2
R21	21. Test the presentation	105	2.39	0.070	0.71	96.2
R24	24. Deliver training	105	2.49	0.067	0.67	96.2
R20	20. Create presentation	104	2.47	0.068	0.69	97.1
R2	2. Describe learning outcomes	107	2.43	0.065	0.66	98.1
R9	9. Apply teaching/learning principles	106	2.45	0.059	0.61	98.1
R26	26. Engage audience	105	2.56	0.060	0.61	98.1
R14	14. Utilize resources	106	2.42	0.065	0.66	99.1

Appendix E. Task Ratings in Ascending Mean Task Rating Order

Task Ratings in Ascending Mean Task Rating Order

No.	Task Statement	N	Mean	SE	SD	% Perform
R35	35. Utilize learning management system software	103	1.99	0.088	0.82	85.4
R36	36. Generate outcome (results) reports	101	2.02	0.091	0.83	82.2
R37	37. Issue completion certificate	102	2.06	0.100	0.84	69.6
R3	3. Define physical environment	107	2.07	0.077	0.75	90.7
R38	38. Summarize feedback	103	2.09	0.084	0.79	84.5
R34	34. Maintain training records	103	2.11	0.089	0.84	85.4
R28	28. Analyze results	103	2.17	0.080	0.76	89.3
R11	11. Design materials to meet evidence-based healthcare practices	106	2.18	0.081	0.78	87.7
R27	27. Initiate evaluation tools for formative and summative assessment	103	2.18	0.081	0.77	87.4
R22	22. Create training environment	105	2.19	0.083	0.79	85.7
R30	30. Suggest alternative learning methods	103	2.20	0.079	0.77	92.2
R45	45. Participate in strategic planning	104	2.20	0.082	0.78	87.5
R10	10. Develop evaluation tools	107	2.21	0.080	0.80	94.4
R42	42. Advise users about continuing education	104	2.23	0.084	0.79	86.5
R8	8. Suggest timeframes for objectives	107	2.25	0.068	0.68	95.3
R32	32. Review and report evaluation results	103	2.25	0.079	0.76	90.3
R6	6. Write objectives	107	2.27	0.072	0.72	94.4
R23	23. Coordinate training schedule	105	2.29	0.075	0.73	89.5
R41	41. Troubleshoot user application and technical issues	103	2.30	0.081	0.78	90.3
R44	44. Serve in advisory roles	104	2.30	0.078	0.75	88.5
R43	43. Participate on committees	104	2.32	0.071	0.69	90.4
R12	12. Design materials to meet training quality standards	106	2.33	0.069	0.69	93.4
R29	29. Solicit feedback	103	2.33	0.069	0.68	92.2
R46	46. Support change management	104	2.33	0.072	0.71	92.3
R5	5. Define scope of project	106	2.35	0.069	0.69	93.4
R13	13. Design materials appropriate to the planned delivery mode	105	2.35	0.071	0.71	96.2
R48	48. Identify and engage stakeholders	104	2.35	0.076	0.71	84.6
R7	7. Design learning activities to support objectives	107	2.36	0.067	0.67	95.3
R31	31. Address users who lack competency	103	2.36	0.075	0.71	87.4
R47	47. Identify and engage champions	104	2.36	0.071	0.66	83.7
R15	15. Create training activities	106	2.39	0.070	0.71	95.3
R21	21. Test the presentation	105	2.39	0.070	0.71	96.2
R40	40. Conduct follow-up training	104	2.39	0.072	0.70	91.4
R4	4. Identify training methodologies	107	2.40	0.065	0.65	94.4
R33	33. Revise training if needed	103	2.41	0.070	0.70	96.1
R14	14. Utilize resources	106	2.42	0.065	0.66	99.1

No.	Task Statement	N	Mean	SE	SD	% Perform
R16	16. Create content	106	2.42	0.072	0.72	93.4
R2	2. Describe learning outcomes	107	2.43	0.065	0.66	98.1
R49	49. Address stakeholders' needs	104	2.43	0.076	0.72	85.6
R1	1. Identify audience	107	2.45	0.066	0.67	95.3
R9	9. Apply teaching/learning principles	106	2.45	0.059	0.61	98.1
R17	17. Organize content	105	2.47	0.067	0.67	95.2
R20	20. Create presentation	104	2.47	0.068	0.69	97.1
R18	18. Sequence content	105	2.48	0.066	0.66	95.2
R19	19. Create training materials	105	2.48	0.063	0.63	94.3
R24	24. Deliver training	105	2.49	0.067	0.67	96.2
R39	39. Answer end-user questions	104	2.51	0.070	0.69	94.2
R25	25. Adjust training delivery as needed	105	2.53	0.060	0.60	93.3
R26	26. Engage audience	105	2.56	0.060	0.61	98.1

Appendix F. Mean Significance Ratings for Tasks by Region

Task Ratings by Region

**The "C" column shows the count of subclasses with mean significance less than 1.90.*

	West			Midwest			Southeast			Northeast			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R1	7	2.43	0.297	17	2.24	0.161	47	2.51	0.105	20	2.45	0.135	0
R2	7	2.43	0.297	17	2.29	0.187	49	2.51	0.088	21	2.24	0.153	0
R3	6	2.50	0.342	17	1.71	0.143	46	2.24	0.113	17	1.76	0.161	2
R4	6	2.50	0.342	17	2.35	0.147	49	2.41	0.096	18	2.22	0.152	0
R5	6	2.50	0.342	17	2.24	0.182	49	2.39	0.096	18	2.33	0.162	0
R6	5	2.80	0.200	17	1.82	0.214	49	2.35	0.090	19	2.21	0.145	1
R7	6	2.50	0.342	17	2.24	0.161	49	2.35	0.095	19	2.32	0.154	0
R8	6	2.50	0.342	17	2.00	0.149	49	2.27	0.096	19	2.37	0.157	0
R9	6	2.67	0.211	17	2.18	0.154	49	2.53	0.078	21	2.33	0.144	0
R10	7	2.43	0.297	17	1.88	0.189	48	2.31	0.112	18	2.06	0.189	0
R11	5	2.80	0.200	16	2.00	0.224	45	2.24	0.115	18	1.94	0.171	0
R12	5	2.80	0.200	17	2.12	0.208	48	2.31	0.095	18	2.39	0.143	0
R13	6	2.50	0.342	17	2.35	0.170	49	2.35	0.099	18	2.39	0.164	0
R14	7	2.57	0.202	17	2.35	0.147	49	2.43	0.101	21	2.43	0.130	0
R15	7	2.43	0.297	16	2.19	0.228	48	2.40	0.098	19	2.42	0.139	0
R16	5	2.80	0.200	16	2.25	0.214	47	2.45	0.100	20	2.30	0.164	0
R17	5	2.80	0.200	15	2.40	0.190	49	2.43	0.101	20	2.45	0.135	0
R18	5	2.80	0.200	15	2.40	0.190	49	2.43	0.101	20	2.45	0.135	0
R19	6	2.67	0.211	15	2.47	0.165	48	2.44	0.098	19	2.42	0.139	0
R20	7	2.43	0.297	15	2.47	0.165	49	2.39	0.104	19	2.53	0.160	0
R21	7	2.57	0.202	15	2.20	0.200	49	2.33	0.111	19	2.53	0.140	0
R22	5	2.80	0.200	14	1.79	0.239	43	2.23	0.119	18	2.00	0.181	1
R23	6	2.50	0.342	15	2.27	0.182	46	2.33	0.103	17	2.12	0.189	0
R24	6	2.67	0.211	16	2.50	0.183	48	2.50	0.099	20	2.30	0.164	0
R25	6	2.67	0.211	15	2.47	0.165	46	2.52	0.092	20	2.50	0.136	0
R26	7	2.43	0.297	16	2.44	0.157	49	2.63	0.081	20	2.40	0.152	0
R27	6	2.50	0.342	14	1.93	0.245	42	2.21	0.111	18	2.00	0.181	0
R28	6	2.33	0.422	15	2.00	0.195	44	2.32	0.107	18	1.78	0.173	1
R29	7	2.43	0.297	15	2.00	0.195	45	2.49	0.088	18	2.06	0.171	0
R30	6	2.50	0.342	15	1.87	0.192	46	2.24	0.113	19	2.05	0.179	0
R31	6	2.83	0.167	15	1.93	0.182	43	2.42	0.101	17	2.29	0.187	0
R32	6	2.67	0.211	15	1.93	0.206	44	2.39	0.109	18	2.06	0.171	0
R33	7	2.29	0.360	16	2.19	0.188	46	2.48	0.097	20	2.40	0.152	0
R34	6	1.83	0.401	14	1.79	0.187	41	2.29	0.127	18	2.00	0.214	2
R35	6	1.83	0.401	11	1.55	0.247	46	2.22	0.120	17	1.59	0.150	3
R36	4	2.25	0.479	12	1.67	0.225	42	2.19	0.124	16	1.81	0.209	2

No.	West			Midwest			Southeast			Northeast			C*
	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE	
R37	3	1.67	0.667	11	1.64	0.244	37	2.24	0.136	12	1.92	0.260	2
R38	5	2.20	0.490	13	1.85	0.222	44	2.23	0.117	16	1.69	0.176	2
R39	7	2.43	0.297	15	2.60	0.163	45	2.49	0.099	20	2.40	0.184	0
R40	6	2.50	0.342	15	2.27	0.153	45	2.38	0.111	19	2.26	0.168	0
R41	6	2.33	0.422	14	2.57	0.137	42	2.38	0.113	20	2.05	0.198	0
R42	6	2.17	0.401	15	2.00	0.218	44	2.34	0.108	15	2.00	0.239	0
R43	7	1.86	0.340	16	2.25	0.144	42	2.48	0.104	19	2.26	0.168	0
R44	6	2.00	0.365	16	2.25	0.214	43	2.40	0.106	17	2.24	0.202	0
R45	6	2.00	0.365	14	2.07	0.245	43	2.30	0.113	18	2.11	0.196	0
R46	7	2.14	0.340	16	2.25	0.171	46	2.37	0.105	17	2.53	0.151	0
R47	6	2.33	0.333	16	2.06	0.170	39	2.46	0.103	15	2.53	0.165	0
R48	5	2.60	0.245	16	2.00	0.204	40	2.50	0.101	16	2.31	0.198	0
R49	6	2.33	0.333	16	2.13	0.221	39	2.51	0.109	17	2.59	0.150	0

Appendix G. Mean Significance Ratings for Tasks by Years of Work Experience

Task Ratings by Years of Work Experience

**The "C" column shows the count of subclasses with mean significance less than 1.90.*

	0 – 5 years			6 – 14 years			15 years or more			
No.	**N**	**Mean**	**SE**	**N**	**Mean**	**SE**	**N**	**Mean**	**SE**	**C***
R1	30	2.50	0.115	28	2.39	0.130	28	2.61	0.119	0
R2	33	2.36	0.122	27	2.48	0.124	28	2.54	0.120	0
R3	30	2.07	0.135	26	2.00	0.157	25	2.36	0.151	0
R4	31	2.42	0.101	28	2.36	0.117	26	2.58	0.138	0
R5	33	2.33	0.135	26	2.23	0.115	25	2.80	0.082	0
R6	31	2.23	0.137	28	2.25	0.122	26	2.38	0.148	0
R7	32	2.41	0.118	28	2.29	0.113	26	2.50	0.139	0
R8	32	2.28	0.121	28	2.21	0.107	26	2.42	0.149	0
R9	32	2.44	0.100	28	2.54	0.096	27	2.52	0.135	0
R10	31	2.13	0.145	27	2.22	0.154	27	2.33	0.151	0
R11	30	2.17	0.145	22	2.36	0.155	24	2.29	0.165	0
R12	32	2.25	0.127	25	2.36	0.140	25	2.56	0.130	0
R13	33	2.30	0.127	25	2.52	0.117	26	2.54	0.127	0
R14	33	2.36	0.114	27	2.52	0.112	28	2.61	0.119	0
R15	31	2.32	0.134	27	2.37	0.132	27	2.48	0.145	0
R16	29	2.45	0.127	27	2.41	0.134	27	2.44	0.163	0
R17	31	2.42	0.137	27	2.41	0.122	26	2.62	0.125	0
R18	31	2.45	0.130	27	2.41	0.122	26	2.62	0.125	0
R19	30	2.47	0.115	27	2.44	0.123	26	2.62	0.125	0
R20	31	2.35	0.143	27	2.44	0.123	27	2.63	0.121	0
R21	32	2.25	0.135	27	2.33	0.141	26	2.62	0.125	0
R22	27	2.33	0.151	23	2.13	0.170	24	2.21	0.170	0
R23	30	2.33	0.130	26	2.27	0.142	22	2.41	0.170	0
R24	31	2.65	0.109	27	2.48	0.124	26	2.46	0.149	0
R25	31	2.65	0.087	26	2.50	0.114	25	2.60	0.129	0
R26	32	2.63	0.108	27	2.56	0.123	27	2.63	0.095	0
R27	28	2.11	0.157	24	2.08	0.169	24	2.38	0.145	0
R28	28	2.14	0.160	25	2.20	0.153	25	2.24	0.145	0
R29	30	2.27	0.143	25	2.36	0.128	25	2.36	0.128	0
R30	29	2.24	0.154	26	2.12	0.160	25	2.32	0.138	0
R31	26	2.35	0.146	26	2.35	0.135	24	2.42	0.146	0
R32	29	2.34	0.143	26	2.08	0.166	24	2.29	0.153	0
R33	31	2.42	0.129	26	2.50	0.114	27	2.41	0.153	0
R34	28	2.04	0.167	23	2.04	0.183	23	2.26	0.169	0
R35	27	1.85	0.166	23	2.09	0.165	22	2.14	0.178	0

	0 – 5 years			6 – 14 years			15 years or more			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R36	23	2.13	0.181	23	1.96	0.172	24	2.00	0.181	0
R37	18	2.22	0.207	20	2.10	0.191	20	1.90	0.204	0
R38	24	2.13	0.163	25	2.20	0.153	23	2.00	0.178	0
R39	31	2.48	0.138	25	2.56	0.117	27	2.67	0.107	0
R40	27	2.52	0.124	26	2.54	0.100	27	2.30	0.158	0
R41	28	2.43	0.140	25	2.40	0.153	27	2.30	0.149	0
R42	29	1.97	0.153	23	2.48	0.152	21	2.48	0.164	0
R43	29	2.14	0.138	24	2.54	0.104	27	2.48	0.135	0
R44	27	2.15	0.157	24	2.54	0.134	27	2.44	0.145	0
R45	27	2.22	0.163	24	2.33	0.155	25	2.24	0.156	0
R46	29	2.17	0.132	25	2.48	0.131	28	2.50	0.131	0
R47	27	2.22	0.145	23	2.35	0.135	26	2.54	0.114	0
R48	28	2.21	0.157	23	2.35	0.149	26	2.50	0.127	0
R49	28	2.39	0.139	24	2.46	0.147	26	2.42	0.149	0

Appendix H. Mean Significance Ratings for Tasks by Highest Level of Education

Task Ratings by Highest Level of Education

**The "C" column shows the count of subclasses with mean significance less than 1.90.*

	HS - Associate			Baccalaureate			Masters or above			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R1	30	2.50	0.115	31	2.39	0.12	25	2.64	0.13	0
R2	33	2.36	0.122	30	2.50	0.11	25	2.52	0.13	0
R3	30	2.07	0.135	28	2.00	0.15	23	2.39	0.15	0
R4	31	2.42	0.101	31	2.32	0.12	23	2.65	0.13	0
R5	33	2.33	0.135	29	2.28	0.11	22	2.82	0.08	0
R6	31	2.23	0.137	31	2.23	0.12	23	2.43	0.15	0
R7	32	2.41	0.118	31	2.26	0.11	23	2.57	0.14	0
R8	32	2.28	0.121	31	2.23	0.11	23	2.43	0.15	0
R9	32	2.44	0.100	31	2.52	0.10	24	2.54	0.13	0
R10	31	2.13	0.145	30	2.23	0.15	24	2.33	0.16	0
R11	30	2.17	0.145	25	2.32	0.15	21	2.33	0.17	0
R12	32	2.25	0.127	28	2.36	0.13	22	2.59	0.14	0
R13	33	2.30	0.127	28	2.54	0.11	23	2.52	0.14	0
R14	33	2.36	0.114	30	2.57	0.10	25	2.56	0.13	0
R15	31	2.32	0.134	30	2.37	0.12	24	2.50	0.16	0
R16	29	2.45	0.127	30	2.37	0.13	24	2.50	0.17	0
R17	31	2.42	0.137	30	2.40	0.11	23	2.65	0.13	0
R18	31	2.45	0.130	30	2.40	0.11	23	2.65	0.13	0
R19	30	2.47	0.115	30	2.43	0.11	23	2.65	0.13	0
R20	31	2.35	0.143	30	2.47	0.11	24	2.63	0.13	0
R21	32	2.25	0.135	30	2.37	0.13	23	2.61	0.14	0
R22	27	2.33	0.151	26	2.15	0.15	21	2.19	0.19	0
R23	30	2.33	0.130	28	2.25	0.14	20	2.45	0.17	0
R24	31	2.65	0.109	30	2.40	0.13	23	2.57	0.14	0
R25	31	2.65	0.087	29	2.52	0.11	22	2.59	0.14	0
R26	32	2.63	0.108	30	2.53	0.11	24	2.67	0.10	0
R27	28	2.11	0.157	27	2.07	0.16	21	2.43	0.15	0
R28	28	2.14	0.160	28	2.14	0.15	22	2.32	0.14	0
R29	30	2.27	0.143	28	2.36	0.12	22	2.36	0.14	0
R30	29	2.24	0.154	29	2.10	0.15	22	2.36	0.14	0
R31	26	2.35	0.146	29	2.31	0.13	21	2.48	0.15	0
R32	29	2.34	0.143	29	2.14	0.15	21	2.24	0.17	0
R33	31	2.42	0.129	29	2.52	0.11	24	2.38	0.17	0
R34	28	2.04	0.167	26	2.04	0.17	20	2.30	0.18	0
R35	27	1.85	0.166	26	2.12	0.15	19	2.11	0.20	1

	HS - Associate			Baccalaureate			Masters or above			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R36	23	2.13	0.181	26	2.00	0.17	21	1.95	0.19	0
R37	18	2.22	0.207	23	2.09	0.18	17	1.88	0.22	1
R38	24	2.13	0.163	28	2.18	0.15	20	2.00	0.19	0
R39	31	2.48	0.138	28	2.50	0.12	24	2.75	0.09	0
R40	27	2.52	0.124	29	2.48	0.11	24	2.33	0.17	0
R41	28	2.43	0.140	28	2.36	0.15	24	2.33	0.16	0
R42	29	1.97	0.153	24	2.50	0.15	20	2.45	0.17	0
R43	29	2.14	0.138	27	2.52	0.10	24	2.50	0.15	0
R44	27	2.15	0.157	27	2.48	0.13	24	2.50	0.15	0
R45	27	2.22	0.163	27	2.33	0.14	22	2.23	0.17	0
R46	29	2.17	0.132	28	2.54	0.12	25	2.44	0.14	0
R47	27	2.22	0.145	26	2.38	0.12	23	2.52	0.12	0
R48	28	2.21	0.157	26	2.38	0.14	23	2.48	0.14	0
R49	28	2.39	0.139	27	2.44	0.13	23	2.43	0.16	0

Appendix I. Mean Significance Ratings for Tasks by Certifications Held

Task Ratings by Certifications Held

**The "C" column shows the count of subclasses with mean significance less than 1.90.*

	CP			IM			IS			PW			TR			TS			
No.	N	Mean	SE	N	Mean	SE	N	Mean	C*	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R1	21	2.38	0.146	30	2.60	0.103	12	2.75	0.131	28	2.46	0.131	40	2.63	0.093	9	2.33	0.236	0
R2	21	2.24	0.153	29	2.52	0.118	14	2.50	0.174	28	2.39	0.130	41	2.66	0.090	10	2.30	0.213	0
R3	17	2.00	0.192	29	2.24	0.118	13	2.54	0.144	28	2.11	0.157	37	2.32	0.123	10	1.90	0.277	1
R4	18	2.28	0.158	29	2.41	0.117	13	2.62	0.140	28	2.29	0.135	40	2.65	0.084	10	2.20	0.200	0
R5	16	2.19	0.209	29	2.41	0.136	14	2.64	0.133	27	2.44	0.123	40	2.45	0.094	10	2.50	0.167	0
R6	17	2.18	0.176	30	2.33	0.130	14	2.57	0.137	27	2.15	0.148	40	2.50	0.107	10	2.00	0.258	0
R7	18	2.39	0.143	30	2.43	0.114	14	2.57	0.137	28	2.21	0.130	40	2.58	0.101	10	2.20	0.200	0
R8	18	2.28	0.158	30	2.33	0.130	14	2.50	0.174	28	2.21	0.130	40	2.33	0.115	10	2.20	0.249	0
R9	20	2.40	0.134	30	2.57	0.104	14	2.57	0.137	28	2.32	0.116	40	2.68	0.083	10	2.30	0.213	0
R10	19	1.95	0.195	29	2.24	0.154	13	2.38	0.213	27	1.96	0.164	40	2.50	0.113	10	1.90	0.277	1
R11	17	2.29	0.187	27	2.30	0.149	14	2.50	0.174	25	2.16	0.160	37	2.35	0.118	9	2.00	0.289	0
R12	17	2.35	0.170	29	2.24	0.128	14	2.43	0.173	26	2.31	0.121	41	2.56	0.099	9	2.00	0.236	0
R13	18	2.11	0.196	30	2.43	0.124	14	2.43	0.173	27	2.30	0.129	41	2.59	0.085	9	2.22	0.222	0
R14	21	2.33	0.126	30	2.57	0.124	14	2.57	0.137	27	2.30	0.139	41	2.61	0.092	10	2.50	0.167	0
R15	19	2.32	0.172	30	2.43	0.141	14	2.64	0.169	27	2.26	0.147	40	2.53	0.095	10	2.20	0.291	0
R16	18	2.39	0.183	30	2.43	0.141	14	2.64	0.169	26	2.35	0.146	39	2.62	0.094	10	2.10	0.314	0
R17	18	2.50	0.167	30	2.57	0.114	14	2.64	0.169	26	2.42	0.126	41	2.59	0.099	9	2.33	0.236	0
R18	18	2.50	0.167	30	2.60	0.103	14	2.64	0.169	26	2.42	0.126	41	2.59	0.099	9	2.33	0.236	0
R19	18	2.39	0.164	30	2.57	0.114	14	2.64	0.169	26	2.38	0.137	40	2.60	0.086	9	2.56	0.176	0
R20	20	2.35	0.182	29	2.66	0.103	13	2.69	0.175	27	2.33	0.131	41	2.54	0.105	9	2.67	0.167	0
R21	19	2.47	0.160	30	2.53	0.115	14	2.64	0.169	27	2.22	0.145	41	2.44	0.111	9	2.56	0.176	0
R22	16	2.25	0.194	29	2.21	0.152	12	2.67	0.142	24	2.13	0.163	37	2.41	0.119	9	1.89	0.309	1
R23	19	2.16	0.191	28	2.29	0.144	13	2.46	0.183	27	2.22	0.134	37	2.49	0.107	8	2.00	0.327	0
R24	20	2.50	0.154	29	2.48	0.118	13	2.77	0.122	26	2.42	0.126	41	2.63	0.097	9	2.22	0.278	0
R25	20	2.45	0.153	28	2.61	0.107	13	2.77	0.122	26	2.38	0.137	40	2.65	0.076	8	2.63	0.183	0
R26	21	2.43	0.148	30	2.70	0.098	13	2.77	0.122	27	2.52	0.124	41	2.73	0.070	9	2.44	0.242	0
R27	16	2.19	0.209	28	2.04	0.150	12	2.58	0.149	23	1.96	0.172	38	2.50	0.105	7	2.00	0.378	0
R28	16	2.13	0.221	29	2.03	0.161	12	2.50	0.195	24	2.00	0.147	37	2.46	0.107	8	2.13	0.350	0
R29	17	2.18	0.196	27	2.33	0.131	12	2.58	0.149	25	2.16	0.138	40	2.55	0.101	8	2.25	0.313	0
R30	17	2.06	0.201	27	2.19	0.160	12	2.50	0.195	25	2.00	0.163	40	2.50	0.107	8	2.38	0.263	0
R31	18	2.33	0.181	24	2.33	0.167	11	2.55	0.207	23	2.35	0.135	38	2.55	0.098	8	2.25	0.313	0
R32	16	2.19	0.188	28	2.04	0.174	12	2.42	0.193	24	2.04	0.165	39	2.51	0.109	8	2.00	0.327	0
R33	19	2.26	0.200	29	2.45	0.127	13	2.54	0.183	25	2.36	0.151	39	2.69	0.083	8	2.50	0.267	0
R34	16	1.81	0.228	25	2.16	0.160	11	2.36	0.244	21	2.14	0.199	38	2.37	0.127	8	1.75	0.313	2
R35	15	1.87	0.236	26	2.08	0.156	12	2.17	0.207	24	1.79	0.170	37	2.14	0.135	7	1.86	0.340	3
R36	13	2.00	0.253	26	1.77	0.169	11	2.00	0.270	20	1.70	0.193	33	2.27	0.133	7	1.29	0.286	3
R37	10	2.10	0.314	18	2.06	0.189	8	2.50	0.189	18	1.78	0.191	32	2.22	0.147	5	2.00	0.316	1

	CP			IM			IS			PW			TR			TS			
No.	N	Mean	SE	N	Mean	SE	N	Mean	C*	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R38	13	2.23	0.231	25	2.20	0.153	10	2.50	0.167	23	1.96	0.172	38	2.24	0.128	7	1.86	0.340	1
R39	18	2.67	0.140	27	2.63	0.121	13	2.62	0.213	26	2.54	0.138	40	2.55	0.101	8	2.75	0.164	0
R40	17	2.47	0.151	27	2.56	0.123	12	2.75	0.179	25	2.28	0.147	39	2.51	0.109	8	2.50	0.267	0
R41	16	2.44	0.182	28	2.36	0.156	13	2.38	0.241	24	2.25	0.162	37	2.27	0.132	8	2.50	0.267	0
R42	16	2.19	0.228	26	2.19	0.176	12	2.58	0.229	24	2.33	0.167	37	2.43	0.106	7	2.43	0.297	0
R43	19	2.26	0.168	28	2.39	0.130	13	2.15	0.249	24	2.08	0.158	36	2.33	0.113	8	1.75	0.164	1
R44	19	2.32	0.188	26	2.42	0.138	11	2.55	0.207	25	2.36	0.140	36	2.31	0.131	6	2.17	0.307	0
R45	19	2.00	0.202	27	2.26	0.137	12	2.17	0.271	24	2.00	0.170	34	2.26	0.129	6	1.50	0.224	1
R46	19	2.16	0.158	29	2.41	0.105	11	2.45	0.207	25	2.36	0.140	39	2.21	0.128	8	1.88	0.227	1
R47	17	2.29	0.143	27	2.44	0.111	11	2.64	0.152	23	2.43	0.123	35	2.23	0.124	7	2.14	0.261	0
R48	18	2.33	0.140	27	2.48	0.124	11	2.64	0.152	23	2.52	0.106	36	2.19	0.137	7	2.14	0.261	0
R49	19	2.42	0.159	26	2.54	0.127	11	2.64	0.152	23	2.52	0.139	36	2.39	0.128	8	2.13	0.227	0

Appendix J. Mean Significance Ratings for Tasks by Job Title

Task Ratings by Job Title

**The "C" column shows the count of subclasses with mean significance less than 1.90.*

	Director/Executive			Manager			Technical			Other			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R1	16	2.38	0.125	15	2.40	0.190	16	2.38	0.202	55	2.51	0.089	0
R2	16	2.38	0.125	15	2.33	0.187	19	2.32	0.154	55	2.51	0.093	0
R3	13	1.92	0.211	14	2.29	0.194	18	2.00	0.198	52	2.08	0.102	0
R4	16	2.31	0.151	14	2.29	0.194	19	2.21	0.164	52	2.52	0.085	0
R5	15	2.40	0.131	15	2.33	0.211	19	2.53	0.140	50	2.28	0.103	0
R6	16	2.13	0.155	13	2.15	0.222	19	2.21	0.196	53	2.36	0.094	0
R7	16	2.25	0.171	14	2.21	0.187	19	2.21	0.181	53	2.49	0.084	0
R8	16	2.38	0.155	14	2.29	0.194	19	2.26	0.185	53	2.21	0.091	0
R9	16	2.38	0.155	15	2.33	0.126	19	2.26	0.168	54	2.57	0.078	0
R10	14	2.07	0.165	14	2.21	0.187	19	2.05	0.209	54	2.30	0.114	0
R11	14	2.00	0.182	12	2.33	0.225	17	2.12	0.225	50	2.22	0.108	0
R12	15	2.40	0.131	14	2.07	0.221	18	2.11	0.196	52	2.46	0.084	0
R13	15	2.33	0.159	15	2.13	0.192	18	2.22	0.207	53	2.45	0.092	0
R14	16	2.38	0.155	15	2.40	0.131	19	2.26	0.168	55	2.49	0.093	0
R15	16	2.38	0.125	13	2.15	0.222	18	2.33	0.198	54	2.46	0.094	0
R16	16	2.44	0.128	11	2.45	0.207	18	2.33	0.198	54	2.44	0.101	0
R17	16	2.44	0.128	12	2.33	0.225	18	2.33	0.198	54	2.56	0.086	0
R18	16	2.44	0.128	12	2.33	0.225	18	2.39	0.183	54	2.56	0.086	0
R19	16	2.38	0.125	11	2.55	0.157	18	2.44	0.166	54	2.52	0.091	0
R20	16	2.44	0.128	13	2.31	0.208	18	2.44	0.166	54	2.52	0.098	0
R21	16	2.38	0.155	13	2.15	0.191	18	2.44	0.145	54	2.43	0.104	0
R22	14	2.00	0.210	12	2.25	0.250	17	2.12	0.225	47	2.26	0.107	0
R23	15	2.27	0.153	13	2.23	0.201	17	2.24	0.219	49	2.33	0.103	0
R24	16	2.38	0.155	13	2.46	0.183	18	2.28	0.177	54	2.59	0.090	0
R25	16	2.44	0.128	13	2.46	0.144	17	2.53	0.151	52	2.58	0.088	0
R26	16	2.44	0.128	14	2.43	0.202	18	2.56	0.166	55	2.64	0.075	0
R27	13	1.85	0.222	11	2.09	0.211	16	1.94	0.213	50	2.36	0.102	1
R28	14	1.71	0.194	12	2.08	0.229	17	2.12	0.189	49	2.35	0.103	1
R29	15	1.93	0.153	12	2.17	0.207	17	2.41	0.150	51	2.45	0.094	0
R30	15	2.07	0.153	12	2.00	0.275	16	2.25	0.171	52	2.27	0.110	0
R31	15	2.13	0.165	13	2.31	0.208	16	2.50	0.183	46	2.39	0.105	0
R32	14	2.14	0.177	12	2.25	0.250	17	2.18	0.196	50	2.30	0.108	0
R33	15	2.33	0.159	12	2.33	0.188	19	2.21	0.181	53	2.53	0.096	0
R34	12	1.83	0.241	13	2.15	0.222	17	2.06	0.234	46	2.20	0.119	1
R35	13	2.08	0.178	11	2.00	0.234	15	2.00	0.239	49	1.96	0.124	0
R36	12	1.92	0.193	9	2.00	0.289	17	1.94	0.234	45	2.09	0.122	0

	Director/Executive			Manager			Technical			Other			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R37	10	1.80	0.249	8	2.13	0.295	13	2.00	0.253	40	2.13	0.135	1
R38	13	1.77	0.201	12	1.83	0.241	15	2.13	0.236	47	2.23	0.106	2
R39	16	2.25	0.171	12	2.50	0.195	19	2.47	0.177	51	2.61	0.093	0
R40	16	2.25	0.144	11	2.27	0.237	17	2.41	0.211	51	2.45	0.094	0
R41	15	2.07	0.206	10	2.20	0.249	19	2.47	0.160	49	2.33	0.114	0
R42	11	2.18	0.226	12	2.25	0.218	17	2.06	0.218	50	2.30	0.112	0
R43	14	2.43	0.137	11	2.27	0.195	18	2.28	0.177	51	2.31	0.103	0
R44	16	2.31	0.151	11	2.09	0.211	16	2.31	0.176	49	2.35	0.119	0
R45	15	2.20	0.200	10	2.20	0.249	16	2.19	0.209	50	2.20	0.111	0
R46	15	2.47	0.133	11	2.18	0.226	17	2.35	0.170	53	2.32	0.104	0
R47	13	2.38	0.140	11	2.09	0.251	16	2.25	0.171	47	2.45	0.095	0
R48	14	2.29	0.163	12	2.08	0.229	16	2.38	0.180	46	2.43	0.106	0
R49	14	2.36	0.169	12	2.17	0.207	17	2.47	0.174	46	2.50	0.111	0

Appendix K. Mean Significance Ratings for Number of Employees

Task Ratings by Number of Employees

**The "C" column shows the count of subclasses with mean significance less than 1.90.*

	Less than 100			101 – 1,000			1,000 or more			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R1	14	2.71	0.163	45	2.42	0.093	43	2.40	0.111	0
R2	16	2.69	0.151	47	2.40	0.099	42	2.36	0.101	0
R3	16	2.06	0.193	41	2.12	0.117	40	2.03	0.121	0
R4	16	2.50	0.129	44	2.41	0.104	41	2.34	0.102	0
R5	16	2.69	0.120	43	2.28	0.107	40	2.30	0.114	0
R6	16	2.50	0.158	45	2.24	0.106	40	2.20	0.120	0
R7	16	2.31	0.176	45	2.44	0.087	41	2.29	0.117	0
R8	16	2.56	0.157	45	2.27	0.086	41	2.12	0.122	0
R9	16	2.50	0.129	47	2.45	0.085	41	2.44	0.105	0
R10	15	2.40	0.214	44	2.18	0.123	42	2.17	0.122	0
R11	16	2.38	0.180	45	2.11	0.116	32	2.19	0.145	0
R12	16	2.50	0.129	45	2.36	0.106	38	2.24	0.116	0
R13	16	2.44	0.157	45	2.40	0.102	40	2.25	0.123	0
R14	16	2.63	0.125	47	2.43	0.095	42	2.33	0.111	0
R15	16	2.44	0.182	45	2.33	0.105	40	2.43	0.113	0
R16	16	2.38	0.202	46	2.39	0.105	37	2.49	0.114	0
R17	16	2.44	0.182	45	2.53	0.088	39	2.41	0.120	0
R18	16	2.44	0.182	45	2.53	0.088	39	2.44	0.115	0
R19	16	2.44	0.182	44	2.45	0.095	39	2.54	0.096	0
R20	16	2.50	0.183	44	2.50	0.095	41	2.41	0.116	0
R21	16	2.63	0.155	44	2.45	0.100	41	2.22	0.118	0
R22	14	2.21	0.214	40	2.18	0.129	36	2.19	0.131	0
R23	15	2.33	0.187	42	2.36	0.101	37	2.19	0.133	0
R24	15	2.53	0.192	46	2.57	0.091	40	2.38	0.111	0
R25	15	2.73	0.118	45	2.49	0.093	38	2.50	0.098	0
R26	15	2.67	0.126	46	2.52	0.092	42	2.57	0.097	0
R27	13	2.46	0.215	40	2.15	0.127	37	2.11	0.121	0
R28	13	2.38	0.213	40	2.10	0.128	39	2.18	0.115	0
R29	14	2.57	0.137	42	2.29	0.109	39	2.28	0.110	0
R30	14	2.00	0.210	43	2.23	0.114	38	2.24	0.128	0
R31	14	2.36	0.199	41	2.29	0.117	35	2.43	0.111	0
R32	13	2.46	0.183	42	2.24	0.122	38	2.18	0.124	0
R33	15	2.47	0.165	44	2.45	0.105	40	2.35	0.116	0
R34	14	2.21	0.239	37	2.16	0.131	37	2.03	0.142	0
R35	15	1.93	0.206	39	1.97	0.135	34	2.03	0.143	0
R36	13	2.23	0.257	37	1.92	0.131	33	2.06	0.144	0

	Less than 100			101 – 1,000			1,000 or more			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
R37	14	2.07	0.195	29	2.10	0.160	28	2.00	0.171	0
R38	14	2.29	0.194	37	2.14	0.129	36	1.97	0.135	0
R39	15	2.40	0.190	42	2.55	0.103	41	2.51	0.111	0
R40	14	2.64	0.133	42	2.45	0.103	39	2.23	0.124	0
R41	14	2.57	0.137	40	2.38	0.117	39	2.13	0.138	0
R42	13	2.69	0.133	40	2.23	0.131	37	2.08	0.131	0
R43	14	2.36	0.199	45	2.38	0.092	35	2.23	0.130	0
R44	14	2.57	0.173	44	2.30	0.111	34	2.21	0.139	0
R45	14	2.43	0.202	44	2.14	0.115	33	2.18	0.141	0
R46	13	2.62	0.213	45	2.31	0.100	38	2.26	0.117	0
R47	13	2.62	0.180	41	2.27	0.099	33	2.36	0.122	0
R48	13	2.77	0.122	41	2.29	0.106	34	2.26	0.136	0
R49	13	2.62	0.140	41	2.49	0.100	35	2.29	0.145	0

Appendix L. Mean Significance Ratings for Knowledge Statements

Knowledge Ratings by CHTS Role

**The "C" column shows the count of subclasses with mean significance less than 1.70.*

	Management			Technical			Trainer			Consultant			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
K1	151	2.25	0.059	82	2.34	0.082	86	2.26	0.076	71	2.21	0.094	0
K2	149	2.14	0.060	80	2.24	0.082	81	2.12	0.077	71	2.17	0.090	0
K3	149	2.36	0.059	81	2.35	0.081	87	2.25	0.077	69	2.41	0.088	0
K4	133	1.94	0.068	69	1.96	0.098	77	2.03	0.092	58	1.86	0.106	0
K5	149	2.26	0.057	80	2.35	0.078	87	2.18	0.079	71	2.24	0.084	0
K6	151	2.38	0.056	80	2.53	0.069	89	2.42	0.067	70	2.39	0.085	0
K7	138	1.94	0.067	76	1.89	0.093	84	2.06	0.085	66	1.92	0.095	0
K8	148	2.04	0.061	80	2.09	0.080	87	2.06	0.084	69	2.04	0.096	0
K9	143	2.37	0.059	81	2.43	0.080	81	2.44	0.077	69	2.42	0.084	0
K10	130	1.85	0.070	71	1.87	0.096	78	1.99	0.088	61	1.97	0.104	0
K11	149	2.11	0.067	82	2.12	0.091	87	2.28	0.078	69	2.25	0.096	0
K12	148	2.07	0.065	83	2.11	0.092	92	2.22	0.082	66	2.05	0.095	0
K13	156	2.53	0.051	85	2.60	0.063	92	2.52	0.066	71	2.49	0.077	0
K14	135	1.96	0.070	76	2.21	0.090	81	1.99	0.087	60	2.00	0.111	0
K15	159	2.53	0.052	86	2.60	0.067	94	2.51	0.067	72	2.67	0.066	0
K16	153	2.16	0.061	84	2.20	0.084	89	2.17	0.086	67	2.25	0.091	0
K17	112	1.69	0.074	65	1.80	0.106	67	1.82	0.102	50	1.50	0.104	2
K18	144	2.17	0.063	81	2.15	0.086	88	2.18	0.083	70	2.10	0.094	0
K19	155	2.38	0.056	86	2.49	0.070	90	2.41	0.067	72	2.38	0.078	0
K20	154	2.32	0.060	84	2.46	0.075	90	2.30	0.080	70	2.34	0.088	0
K21	133	1.91	0.071	77	2.00	0.094	78	1.90	0.092	61	1.89	0.102	0
K22	143	2.15	0.066	79	2.25	0.087	83	2.16	0.079	66	2.14	0.089	0
K23	134	1.94	0.068	75	2.11	0.092	76	1.96	0.089	59	1.86	0.101	0
K24	145	2.15	0.063	82	2.28	0.078	86	2.06	0.083	68	2.06	0.093	0
K25	145	2.27	0.061	83	2.33	0.077	83	2.18	0.081	68	2.24	0.094	0
K26	143	2.27	0.056	81	2.28	0.075	86	2.24	0.077	69	2.25	0.076	0
K27	141	1.85	0.059	80	1.96	0.082	79	1.84	0.085	63	1.71	0.092	0
K28	138	1.91	0.065	79	1.95	0.092	77	1.99	0.093	60	1.80	0.103	0
K29	156	2.56	0.049	85	2.56	0.070	91	2.49	0.067	71	2.45	0.080	0
K30	157	2.40	0.054	85	2.46	0.068	91	2.40	0.073	72	2.56	0.068	0
K31	144	1.88	0.064	78	1.96	0.090	84	1.96	0.085	60	1.68	0.090	1
K32	121	1.67	0.067	68	1.79	0.095	67	1.70	0.097	50	1.58	0.103	2
K33	113	1.97	0.077	70	2.14	0.098	67	2.01	0.103	48	1.88	0.125	0
K34	128	1.98	0.066	76	2.11	0.085	69	2.04	0.091	56	1.98	0.107	0
K35	129	1.77	0.067	76	1.91	0.090	69	1.83	0.099	56	1.75	0.103	0
K36	104	1.78	0.076	66	1.88	0.093	62	1.76	0.094	45	1.73	0.116	0
K37	136	2.18	0.066	74	2.12	0.088	83	2.28	0.083	64	2.27	0.100	0
K38	149	2.10	0.064	78	1.99	0.092	91	2.34	0.075	69	2.26	0.089	0
K39	143	1.98	0.064	76	1.99	0.087	89	2.07	0.084	69	2.04	0.098	0
K40	152	2.36	0.056	83	2.34	0.077	92	2.41	0.068	72	2.42	0.076	0
K41	124	1.88	0.070	58	1.79	0.104	74	1.80	0.096	61	1.82	0.106	0
K42	149	2.28	0.059	78	2.28	0.081	84	2.19	0.080	70	2.31	0.088	0
K43	153	2.36	0.056	82	2.49	0.070	86	2.42	0.073	72	2.54	0.074	0
K44	108	1.57	0.069	51	1.63	0.105	63	1.70	0.100	53	1.53	0.096	4
K45	114	1.61	0.071	60	1.65	0.097	75	1.77	0.092	54	1.59	0.101	3
K46	144	2.24	0.062	78	2.19	0.082	87	2.33	0.080	66	2.32	0.092	0

	Management			Technical			Trainer			Consultant			
No.	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE	C*
K47	149	2.23	0.063	79	2.14	0.090	88	2.28	0.074	72	2.38	0.078	0
K48	120	1.83	0.076	56	1.70	0.102	74	1.78	0.095	58	1.83	0.105	1
K49	149	2.17	0.065	82	2.02	0.090	87	2.22	0.081	70	2.23	0.089	0
K50	117	1.63	0.069	64	1.73	0.098	73	1.73	0.096	57	1.63	0.099	2
K51	151	2.09	0.064	80	1.98	0.091	90	2.22	0.077	69	2.07	0.093	0
K52	141	2.03	0.064	75	1.99	0.086	85	2.05	0.084	67	1.90	0.093	0
K53	150	2.05	0.063	82	2.11	0.085	86	2.10	0.083	70	1.99	0.090	0
K54	151	2.12	0.061	80	2.14	0.085	87	2.18	0.078	69	2.16	0.087	0
K55	155	2.46	0.050	85	2.45	0.064	91	2.46	0.069	73	2.62	0.061	0
K56	156	2.37	0.059	85	2.29	0.082	94	2.30	0.078	70	2.46	0.083	0
K57	143	1.83	0.064	74	1.88	0.092	82	1.96	0.086	69	1.99	0.089	0
K58	149	2.15	0.060	79	2.16	0.079	89	2.26	0.072	70	2.29	0.079	0
K59	152	2.34	0.056	81	2.30	0.075	92	2.36	0.068	73	2.49	0.068	0
K60	144	2.25	0.064	80	2.26	0.085	84	2.29	0.082	73	2.44	0.080	0
K61	139	1.99	0.065	75	1.96	0.088	86	2.03	0.087	65	1.98	0.102	0
K62	141	2.01	0.065	71	1.99	0.095	81	2.05	0.088	65	2.02	0.092	0
K63	143	2.00	0.064	75	2.04	0.088	83	2.11	0.086	67	2.04	0.089	0
K64	108	1.67	0.072	63	1.71	0.097	71	1.82	0.097	50	1.68	0.105	2
K65	122	1.69	0.068	63	1.76	0.100	75	1.79	0.094	60	1.70	0.096	2
K66	142	2.11	0.062	74	2.07	0.087	93	2.37	0.075	67	2.12	0.096	0
K67	147	2.16	0.063	77	2.17	0.088	93	2.27	0.080	68	2.09	0.095	0
K68	156	2.42	0.054	82	2.45	0.065	90	2.43	0.071	72	2.57	0.071	0
K69	154	2.51	0.053	84	2.58	0.068	93	2.52	0.069	73	2.48	0.085	0
K70	157	2.71	0.038	84	2.73	0.049	94	2.71	0.049	73	2.74	0.055	0
K71	153	2.37	0.057	82	2.33	0.080	91	2.42	0.072	70	2.46	0.090	0
K72	154	2.27	0.061	82	2.20	0.089	90	2.39	0.077	72	2.33	0.095	0
K73	154	2.39	0.056	82	2.40	0.079	89	2.44	0.075	73	2.38	0.084	0
K74	149	2.44	0.055	82	2.51	0.072	89	2.45	0.073	71	2.37	0.086	0
K75	156	2.49	0.051	82	2.50	0.070	93	2.57	0.066	73	2.53	0.081	0
K76	142	1.99	0.065	78	2.06	0.086	87	2.05	0.086	67	1.99	0.094	0
K77	153	2.30	0.060	82	2.28	0.084	92	2.34	0.082	72	2.29	0.092	0
K78	156	2.58	0.050	85	2.51	0.072	94	2.73	0.055	72	2.64	0.069	0
K79	156	2.62	0.045	85	2.58	0.068	93	2.68	0.055	72	2.67	0.069	0
K80	157	2.71	0.042	86	2.73	0.058	95	2.74	0.052	73	2.68	0.070	0

Appendix M. Detailed Content Outline

American Health Information Management Association Certified Healthcare Technology Specialist (CHTS) *Trainer Role* Detailed Content Outline	Cognitive Level			Total
	Recall	Application	Analysis	
1. Training Assessment	**2**	**6**	**3**	**11**
A. Identify audience B. Describe learning outcomes C. Define learning environment D. Identify training methodologies E. Define scope of project				
2. Training Program Development	**4**	**5**	**10**	**19**
A. Write objectives B. Design learning activities to support objectives C. Suggest timeframes for objectives D. Apply teaching/learning principles E. Develop evaluation tools F. Design materials to meet evidence-based healthcare practices G. Design materials to meet training quality standards H. Design materials appropriate to the planned delivery mode I. Utilize resources				
3. Learning Modules	**2**	**8**	**2**	**12**
A. Create training activities B. Create content C. Organize content D. Sequence content E. Create training materials F. Create presentation G. Test the presentation				
4. Training Implementation	**4**	**10**	**4**	**18**
A. Create training environment B. Coordinate training schedule C. Deliver training D. Adjust training delivery as needed E. Engage audience				

American Health Information Management Association Certified Healthcare Technology Specialist (CHTS) *Trainer Role* Detailed Content Outline	Cognitive Level			Total
	Recall	Application	Analysis	
5. Training Evaluation	**2**	**5**	**3**	**10**
A. Initiate evaluation tools for formative and summative assessment B. Analyze results C. Solicit feedback D. Suggest alternative learning methods E. Address users who lack competency F. Review and report evaluation results G. Revise training if needed				
6. Training Tracking	**1**	**4**	**1**	**6**
A. Maintain training records B. Use software to support training (e.g., learning management systems, virtual platforms, simulations) C. Generate outcome (results) reports				
7. User Support	**3**	**5**	**2**	**10**
A. Answer end-user questions B. Conduct follow-up training C. Troubleshoot user application and technical issues D. Advise users about continuing education				
8. Change Management	**2**	**8**	**4**	**14**
A. Participate on committees B. Serve in advisory roles C. Participate in strategic planning D. Support change management E. Identify and engage champions F. Identify and engage stakeholders G. Address stakeholders' needs				
Total	**20**	**51**	**29**	**100**

Testable Knowledge

High Priority

- Accreditation standards
- Adult learning principles
- Analytical skills
- Audio/visual skills (e.g., LCD projector)
- Basic statistics
- Best practices
- Change management
- Clinical and operations workflow
- Communication skills (written & oral)
- Computer systems
- Conflict resolution
- Cultural competency
- Culture of health care
- Data analysis
- Diagnostic and procedural coding (e.g., ICD-CM/PCS, CPT, HCPCS)
- EHR/EMR/PHR principles
- Facilitation skills
- Flowchart applications
- Gov't agencies associated with healthcare
- Health care delivery systems
- Health care regulation
- Health care revenue cycle
- Health informatics
- Health information exchange
- Health information management concepts & principles
- Health information systems
- Health IT applications
- Implementation life cycle
- Industry trends
- Information governance
- Interoperability
- Issue management
- IT fundamentals
- IT security principles
- Leadership
- Legal and ethical issues
- Linguistic competency
- Meaningful use
- Medical terminology
- Nomenclatures
- Operations management
- Organizational culture
- Organizational structure
- PC skills (e.g., Microsoft Office, internet)
- Performance improvement
- Presentation skills
- Process improvement
- Project management
- Quality control
- Quality improvement
- Quality of patient care
- Report writing principles
- Resource management
- Risk management
- Software development life cycle
- Standard technical language
- Time management
- Training methodologies
- Virtual training or meeting tools
- Work flow improvement & management
- Working with teams

Medium Priority

- Database structures (e.g., SQL)
- Interface integration
- Medical sciences
- Peripheral devices (e.g., printers)
- Platforms and operating systems (e.g., Windows, Mac, Linux, Mobile devices)
- Public health

Low Priority

- Budget management
- Consumerism and patient engagement
- Ergonomics
- General hardware maintenance
- HL7
- Human resource management
- Network technology (e.g., VPN, cloud-based)
- Servers
- Simulation technology
- Technical specs (hardware, software)
- Telehealth and telemedicine
- Writing test scripts

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