

# **Certified Coding Specialist (CCS) JOB ANALYSIS**

**Conducted on behalf of**



## **American Health Information Management Association**

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## Executive Summary

The American Health Information Management Association (AHIMA) commissioned the Certified Coding Specialist (CCS) Job Analysis from Thomson Prometric.

A job analysis is designed to obtain descriptive information about the tasks performed in a job and the knowledge needed to adequately perform those tasks. The purpose of the CCS job analysis was to:

- develop and validate the listing of the tasks and knowledge/skills related to work performed by Certified Coding Specialists;
- develop test specifications for the CCS Examination;
- obtain useful information that can guide professional development initiatives for Certified Coding Specialists; and,
- ensure that AHIMA has up-to-date information about expected changes in the CCS job role over the next few years.

### **Conduct of the Job Analysis.**

The job analysis consisted of several activities: survey development; survey dissemination; compilation of survey results; and test specifications development. The successful outcome of the job analysis was dependent on the excellent information provided by Certified Coding Specialists throughout the study.

### **Survey Development.**

Survey research is an efficient and effective way to identify the tasks and knowledge/skills that are important to the work performed by large numbers of Certified Coding Specialists. The 50 tasks and 100 knowledge/skills statements included on the survey covered the following domains:

1. Health Information Documentation
2. Diagnosis Coding
3. Procedure Coding
4. Regulatory Guidelines and Reporting Requirements for Acute Care Inpatient Service
5. Regulatory Guidelines and Reporting Requirements for Outpatient Services
6. Data Quality and Management

7. Revenue Cycle Management
8. Information and Communication Technologies
9. Privacy, Confidentiality, Legal and Ethical Issues
10. Compliance

The development of the survey was based on information from a number of sources:

- The previous CCS job analysis served as the primary resource for developing a preliminary listing of task and knowledge/skill statements.
- A Task Force Committee comprised of Certified Coding Specialists reviewed and revised: 1) the preliminary list of tasks and knowledge/skills and 2) the first draft of the CCS survey.
- Certified Coding Specialists reviewed a pilot version of the survey to ensure that the instrument was clearly written and comprehensive in content.

### **Survey Content.**

The survey consisted of five sections: Section 1, Background and General Information; Section 2, Tasks; Section 3, Knowledge/Skills; Section 4, Recommendations for Test Content; and Section 5, Comments.

### **Dissemination of the CCS Survey.**

Thomson Prometric staff produced and disseminated an online survey on June 7, 2006 by e-mail to 8,045 Certified Coding Specialists.

Two survey completion reminders were emailed prior to the close of the survey on July 5.

### **Results.**

#### **Survey Response Rate.**

A total of 2,805 or 34.87% of the Certified Coding Specialists who received invitations participated in the survey. Based on the analysis of survey responses, a representative group of Certified Coding Specialists completed the survey in sufficient numbers to meet the requirements for statistical analysis of the results.

**Profile of the Survey Respondents.**

The majority of respondents are female (95.15%). By education, 32.20% have completed an Associate’s Degree Program and 27.78% hold a Bachelor’s Degree. The majority, 62%, of participants have held the CCS credential for more than 5 years. Nearly 78% of the respondents spend more than 50 % of their time coding.

**Survey Ratings.**

Participants were asked to rate the tasks and knowledge/skills using the following rating scales:

In Section 2: Tasks, survey participants were asked to rate the statements using the following rating scales.

Tasks:

Importance: How important is competent performance of the task in your current position?

Response choices: 0=Of no importance, 1=Of little importance, 2=Of moderate importance, 3=Important, 4=Very important

Performance: Indicate whether you perform or supervise the work.

Response choices: 0=Neither perform or supervise the work, 1=Perform the work, 2= Supervise the work, 3= Both perform and supervise the work

Knowledge/Skills:

Importance: How important is the knowledge/skill for competent performance in your current position?

Response choices: 0=Of no importance, 1=Of little importance, 2=Of moderate importance, 3=Important, 4=Very important

A majority of tasks and knowledge/skills statements were rated as “very important” For performance ratings, a majority of the tasks statements were “both performed and supervised.

**Content Coverage.**

Evidence was provided in this job analysis on the comprehensiveness of the content coverage within the domains. If the tasks and knowledge/skills within a domain are adequately defined, then it should be judged as being well covered. Respondents indicated that the content was well covered, thus supporting the comprehensiveness of the defined domains.

**Write in Comments.**

Survey respondents answered two open-ended questions about their professional development needs and expected changes in their work role as a CCS.

**Test Specifications Development.**

On August 31, 2006, a Test Specifications Committee convened to review the job analysis findings and create the test content outline that will guide the development of future versions of the CCS Examination.

**Summary.**

In summary, this study took a multi-method approach to identifying the tasks and knowledge/skills that are important to the competent performance of Certified Coding Specialists. The job analysis process allowed for input from a representative group of Certified Coding Specialists and was conducted within the guidelines of professionally sound practice.

The results of the job analysis can be used by AHIMA to develop new versions of the CCS Examination and guide professional development initiatives.

# INTRODUCTION

## **About AHIMA**

AHIMA is the premier association of health information management (HIM) professionals. AHIMA's 50,000 members are dedicated to the effective management of personal health information needed to deliver quality healthcare to the public. Founded in 1928 to improve the quality of medical records, AHIMA is committed to advancing the HIM profession in an increasingly electronic and global environment through leadership in advocacy, education, certification, and lifelong learning.<sup>1</sup>

## **About the CCS Program**

Certified Coding Specialists (CCS) are professionals skilled in classifying medical data from patient records, generally in the hospital setting. These coding practitioners review patients' records and assign numeric codes for each diagnosis and procedure. To perform this task, they must possess expertise in the ICD-9-CM coding system and the surgery section within the CPT coding system. In addition, the CCS is knowledgeable of medical terminology, disease processes, and pharmacology. Hospitals or medical providers report coded data to insurance companies or the government, in the case of Medicare and Medicaid recipients, for reimbursement of their expenses. Researchers and public health officials also use coded medical data to monitor patterns and explore new interventions. Coding accuracy is thus highly important to healthcare organizations because of its impact on revenues and describing health outcomes. Accordingly, the CCS credential demonstrates tested data quality and integrity skills in a coding practitioner. The CCS exam assesses mastery or proficiency in coding rather than entry-level skills.

## **About the CCS Job Analysis**

The major purpose of the job analysis was to identify the tasks and knowledge/skills that are important for competent performance by Certified Coding Specialists. The development of content-valid CCS Examinations is based on validated tasks and knowledge/skills identified through the job

analysis process. Another purpose of the job analysis was to identify important professional development needs and future trends in the profession.

This report describes the job analysis including the:

- rationale for conducting the job analysis;
- methods used to define job-related tasks and knowledge/skills; and,
- types of data analysis conducted and their results.

## **Job Analysis and Adherence to Professional Standards.**

Job analysis refers to procedures designed to obtain descriptive information about the tasks performed on a job and/or the knowledge, skills, or abilities thought necessary to adequately perform those tasks. The specific type of job information collected for a job analysis is determined by the purpose for which the information will be used.

For purposes of developing licensure and certification examinations, a job analysis should identify important activities, knowledge, skills, and/or abilities.

The use of a job analysis (also known as practice analysis, role delineation, role and function study) to define the content domain is a critical component in establishing the content validity of licensure and certification examinations. Content validity refers to the extent to which the content covered by an examination overlaps with the important components of a job (tasks, knowledge, skills, or abilities).

A well-designed job analysis should include the participation of a representative group of subject-matter experts who reflect the diversity within the job. Diversity refers to regional or job context factors and to subject-matter expert factors such as experience, gender, and race/ethnicity. Demonstration of content validity is accomplished through the judgments of subject-matter experts. The process is enhanced by the inclusion of large numbers of subject-matter experts who represent the diversity of the relevant areas of expertise.

<sup>1</sup> AHIMA Web site, [www.ahima.org](http://www.ahima.org)

*The Standards for Educational and Psychological Testing*<sup>2</sup> (1999) (*The Standards*) is a comprehensive technical guide that provides criteria for the evaluation of tests, testing practices, and the effects of test use. It was developed jointly by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council on Measurement in Education (NCME). The guidelines presented in *The Standards*, by professional consensus, have come to define the necessary components of quality testing. As a consequence, a testing program that adheres to *The Standards* is more likely to be judged to be valid and defensible than one that does not.

As stated in Standard 14.14,

“The content domain to be covered by a credentialing test should be defined clearly and justified in terms of the importance of the content for credential-worthy performance in an occupation or profession. A rationale should be provided to support a claim that the knowledge or skills being assessed are required for credential-worthy performance in an occupation and are consistent with the purpose for which the licensing or certification program was instituted...Some form of job or job analysis provides the primary basis for defining the content domain... (p.161)

The CCS Job Analysis was designed to follow the guidelines presented in *The Standards* and to adhere to accepted professional practice.

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<sup>2</sup> American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (1999). *The Standards for Educational and Psychological Testing*. Washington, DC: American Psychological Association.

# Method

The CCS job analysis involved a multi-method approach that included meetings with subject-matter experts and a survey. This section of the report describes the activities conducted for the CCS Job Analysis.

First, subject-matter experts identified the tasks and knowledge/skills they believe are important to the work performed by Certified Coding Specialists. Then, a Web-based survey was developed and disseminated to Certified Coding Specialists. The purpose of the survey was to obtain verification (or refutation) from a large number of knowledgeable professionals that the tasks and knowledge/skills identified by the subject-matter experts are important to their work.

Survey research functions as a “check and balance” on the judgments of the subject-matter experts and reduces the likelihood that unimportant areas will be considered in the development of the test specifications. The use of a survey is also an efficient and cost-effective method of obtaining input from large numbers of subject-matter experts and makes it possible for ratings to be analyzed separately by appropriate respondent subgroups.

The survey results provide information to guide the development of test specifications and content-valid certification examinations. What matters most is that a certification examination covers important knowledge needed to perform job activities.

The methodology used to conduct the job analysis is described in detail below and included the following steps:

1. Development of the CCS survey.
2. Dissemination of the CCS survey.
3. Analysis of the CCS survey data.
4. Development of the test specifications for the CCS Examination.

## *1. Development of the CCS Survey*

### *Development of Draft Listing of Tasks and Knowledge*

A draft list of task and knowledge/skills statements was developed based on the previous job analysis results.

### *Conduct of the Job Analysis Task Force Meeting*

AHIMA convened a Task Force Committee comprised of a representative group of Certified Coding Specialists. (See Appendix A.) The Task Force meeting was conducted April 18-19, 2006, at AHIMA headquarters in Chicago, IL. The purpose of the meeting was to develop the survey content. Thomson Prometric staff facilitated the meeting.

Thomson Prometric staff sent a pre-meeting mailing to the Task Force that included a document consisting of the meeting agenda, procedures for reviewing and revising the task and knowledge/skill statements, the preliminary listing of tasks and knowledge/skills, and a list of Task Force participants,

Activities conducted during the meeting included reviewing and revising the major domains and tasks and knowledge/skills that are necessary for competent performance by Certified Coding Specialists. Survey rating scales also were approved.

### *Survey Construction and Review Activities.*

#### *Survey Construction*

After the Task Force Meeting, Thomson Prometric staff constructed the draft survey. The survey was designed for online delivery.

The following 10 task and knowledge/skill domains were covered on the survey:

1. Health Information Documentation
2. Diagnosis Coding
3. Procedure Coding
4. Regulatory Guidelines and Reporting Requirements for Acute Care Inpatient Service

- 5. Regulatory Guidelines and Reporting Requirements for Outpatient Services
- 6. Data Quality and Management
- 7. Revenue Cycle Management
- 8. Information and Communication Technologies
- 9. Privacy, Confidentiality, Legal and Ethical Issues
- 10. Compliance

***Survey Review by Task Force Committee***

Each Task Force member was asked to review the online draft survey. The purpose of the review was to provide the Committee with an opportunity to view their work and recommend any revisions.

Comments were compiled by Thomson Prometric staff and reviewed with the Task Force members. Recommended refinements were incorporated, as appropriate, into the survey in preparation for the conduct of a pilot test.

***Survey Pilot Test.***

The purpose of the small-scale pilot test was to have Certified Coding Specialists who had no previous involvement in the development of the survey review it online and offer suggestions for its improvement.

AHIMA nominated Certified Coding Specialists to participate in the survey pilot test. Pilot participants were asked to review the survey for clarity of wording, ease of use, and comprehensiveness of content coverage. Comments were compiled by Thomson Prometric and reviewed by Web conference with Task Force members. The survey was revised and finalized based on the review of the pilot test comments.

***Final Version of the CCS Survey***

The final version of the Internet-delivered survey consisted of five sections: Section 1: Background and General Information; Section 2: Tasks; Section 3: Knowledge/Skills; Section 4: Recommendations for Test Content; and Section 5: Comments.

In Section 1: Background and General Information, survey participants were asked to provide demographic and background information about themselves and their professional activities.

In Section 2: Tasks, survey participants were asked to rate the statements using the Importance and Performance scales shown below:

Importance: How important is competent performance of the task in your current position?

Response choices: 0=Of no importance, 1=Of little importance, 2=Of moderate importance, 3=Important, 4=Very important

Performance: Indicate whether you perform or supervise the work.

Response choices: 0=Neither perform or supervise the work, 1=Perform the work, 2= Supervise the work, 3= Both perform and supervise the work

In Section 3: Knowledge/skill, survey participants were asked to rate the statements using the Importance scale shown below:

Importance: How important is the knowledge/skill for competent performance in your current position?

Response choices: 0=Of no importance, 1=Of little importance, 2=Of moderate importance, 3=Important, 4=Very important

Survey participants were asked to indicate how well the statements covered the tasks and knowledge/skills within each domain. Respondents made their judgments using a five-point rating scale (1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well, 5=Very Well). A write-in area was provided for respondents to note any areas that were not covered within a specific domain.

In Section 4: Recommendation for Test Content, survey participants were asked to indicate the weight (emphasis) that each of the ten Domains should receive on the examination:

1. Health Information Documentation
2. Diagnosis Coding
3. Procedure Coding
4. Regulatory Guidelines and Reporting Requirements for Acute Care Inpatient Service

5. Regulatory Guidelines and Reporting Requirements for Outpatient Services
6. Data Quality and Management
7. Revenue Cycle Management
8. Information and Communication Technologies
9. Privacy, Confidentiality, Legal and Ethical Issues
10. Compliance

This was accomplished by distributing 100 percentage points across the ten areas. These distributions represented the allocation of examination items survey participants believed should be devoted to each knowledge/skill area. These responses were used to tabulate the recommended test content weights.

In Section 5: Comments, survey participants were provided the opportunity to comments on the following:

- What additional professional development and/or continuing education could you use to improve your performance in your current work role?
- How do you expect your work role to change over the next few years? What tasks will be performed and what knowledge will be needed to meet changing job demands?

### ***3. Dissemination of the CCS Survey.***

Thomson Prometric staff produced and disseminated a Web-based survey to 8,045 Certified Coding Specialists. The survey was released on June 7, 2006. Reminder emails were sent on June 23 and June 29. The survey was closed on July 5.

The invitation and the survey are provided in Appendix B. Response rates were calculated and communicated to AHIMA on an ongoing basis.

### ***4. Analysis of the CCS Survey Data.***

As previously noted, the purpose of the survey was to validate the tasks and knowledge/skills that relatively large numbers of Certified Coding Specialists judged to be relevant (verified as important) to their work.

These objectives are accomplished through an analysis of the mean importance ratings for tasks and knowledge/skills. The derivation of test specifications from those statements verified as important by the surveyed professionals provides a substantial evidential basis for the content validity (content relevance) of credentialing examinations.

The following quantitative data analyses were produced:

- Means, standard deviations, and frequency distributions for tasks and knowledge/skills importance ratings.
- Frequency percent distribution of the performance ratings.
- Means, standard deviations, and frequency distributions for tasks and knowledge/skills content coverage (domain) ratings.
- Means and standard deviations for test content recommendations.

Write-in comments were summarized regarding respondents' professional development needs and their expectations about how their work role will change over the next few years.

### ***Criterion for Interpretation of Mean Importance Ratings***

Since a major purpose of the survey is to ensure that only validated tasks and knowledge statements are included in the development of test specifications, a criterion (cut point) for inclusion needs to be established.

A criterion that has been used in similar studies is a mean importance rating that represents the midpoint between moderately important and important. For the importance rating scale used across many studies, the value of this criterion is 2.50.

It is believed that this criterion is consistent with the intent of content validity, which is to measure only important knowledge in the credentialing examination. Therefore, for the CCS Job Analysis, Thomson Prometric recommended the value of this criterion should be set at 2.50.

The task and knowledge statements were placed into one of three categories—Pass, Borderline, or Fail—based on their mean importance ratings:

<b>Definition of Pass, Borderline and Fail Categories for Task and Knowledge Mean Ratings</b>	
	<u>Means</u>
Pass:	At or above 2.50
Borderline:	2.40 to 2.49
Fail:	Less than 2.40

- The Pass Category contains those statements whose mean ratings are at or above 2.50, and are considered eligible for inclusion in the development of test specifications.
- The Borderline Category contains those statements whose mean ratings are between 2.40 and 2.49. The Borderline Category is included to provide a point of discussion for the Test Specifications Committee to determine if the statement(s) warrant(s) inclusion in the test specifications.
- The Fail Category contains those statements whose mean ratings are less than 2.40. It is recommended that statements in the Fail Category be excluded from consideration in the test specifications.

If the Test Specifications Committee believes that a statement rated below 2.50 should be included in the specifications and can provide compelling written rationales, those statements may be considered for inclusion. For example, although a task or knowledge/skill may have a mean rating of less than 2.50, more than 50.00% of the respondents may have rated the statement as important or very important. In this instance, the Test Specifications Committee might recommend the inclusion of the statement on the test specifications. The written rationale would note that a majority of the survey respondents rated the statement as important.

**5. Development of Test Specifications for the CCS Examination**

A meeting was facilitated by the Thomson Prometric staff to develop the CCS test plan based on the job analysis results. The meeting was conducted by Web conference on August 31.

The meetings focused on:

- identifying the tasks and knowledge/skill statements that are important for inclusion on the CCS Examination;
- establishing the percentage test weights for each knowledge/skill domain on the CCS Examination. These percentage test weights are used to guide examination development activities; and,
- linking task and knowledge/skill statements to verify that knowledge tested on the CCS Examination is related to the performance of important tasks; thereby further establishing the defensibility of CCS Examination content. Linking also provides items writers with useful information they can use to develop questions that test knowledge relevant to the performance of tasks.

# RESULTS

## ***Survey Response Rate.***

A total of 2,805 (34.87%) invited participants submitted surveys. Based on the analysis of survey responses, a representative group of Certified Coding Specialists completed the survey in sufficient numbers to well meet the requirements for statistical analysis of the results.

**Table 1. Response Rates for the CCS Job Analysis Survey**

No. of Surveys Disseminated	Number of Surveys Submitted	Percent of Surveys Submitted
8,045	2,805	34.87%

## ***Demographic Characteristics of Survey Respondents.***

Information provided by respondents to the background information section of the surveys is summarized below (See Appendix C for details).

**CCS Credentials:** Twenty-eight percent earned the CCS certification between 1992-1996; 33.54%, between 1997-2001; and 32.65% between 2002-2006.

**Primary Work Setting:** The top work setting reported by respondents was hospital with 77.22% response.

**Job Title:** The top two job titles were coder (49.06%) and coding manager (13.33%).

**Geographic Region:** All regions of the United States were represented among the survey respondents.

**Years Performing Coding:** The majority (63.62%) has been coding for more than 10 years.

**Percentage of Time Spent Coding:** The majority (68.88%) spends at least 70% of their time coding.

**Highest Academic Educational Attainment:** The majority of respondents reported that they have completed an Associate's Degree Program (32.20%) or hold a Bachelor's Degree (27.78%).

**Gender:** The majority of respondents are female (95.15%).

## ***Task and Knowledge Ratings by Overall Group of Respondents.***

The following provides a summary of survey respondents' ratings of the tasks and knowledge statements.

### ***Tasks***

Means and standard deviations for the tasks included on the survey are provided in Appendix D for the overall group of respondents. Table 2 provides a summary of the tasks that were placed in Pass, Borderline, and Fail categories by domain.

Forty-six of the 50 tasks (92%) achieved high means (at or above 2.50, the Pass Category). None of the tasks have means between 2.40 and 2.49 (Borderline Category). A total of four tasks (8%) achieved means of less than 2.40 (Fail Category). One of these tasks was in Domain 6: Data Quality and Management; three were in Domain 7: Revenue Cycle Management.

**Table 2. Task Statements by the Pass, Borderline and Fail Categories**

<b>Tasks</b>	<b>No. of Tasks</b>	<b>Pass (2.50 of Above)</b>	<b>Borderline (2.40 to 2.49)</b>	<b>Fail (Less than 2.40)</b>
1. Health Information Documentation	5	5		
2. Diagnosis Coding	5	5		
3. Procedure Coding	6	6		
4. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) Service	4	4		
5. Regulatory Guidelines and Reporting Requirements for Outpatient Services	6	6		
6. Data Quality and Management	7	6		1
7. Revenue Cycle Management	5	2		3
8. Information and Communication Technologies	3	3		
9. Privacy, Confidentiality, Legal and Ethical Issues	5	5		
10. Compliance	4	4		
<b>Total</b>	<b>50</b>	<b>46</b>	<b>0</b>	<b>3</b>
<b>Percent</b>		<b>92.00%</b>	<b>0.00%</b>	<b>8.00%</b>

**Knowledge/Skills**

Table 3 provides a summary of the knowledge/skills that were placed in Pass, Borderline, and Fail categories by domain for the overall group of respondents. Means and standard deviations for the knowledge/skills statements included on the survey are presented in Appendix E.

Seventy-five of the 100 knowledge/skills (75.00%) achieved high means (at or above 2.50, the Pass Category). One of the two knowledge/skills (2.00%) in the Borderline Category was in Domain 1: Health Information Documentation and the other in Domain 2: Diagnosis and Procedure Coding. Thirteen of the knowledge/skills in the Fail Category were in Domain 1: Health Information Documentation, one in Domain 3: Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) and Outpatient Services, three in Domain 4: Data Quality and Management, and six in Domain 5: Revenue Cycle Management for a total of 23 (23.00%).

**Table 3 Knowledge/Skill Statements by the Pass, Borderline, and Fail Categories**

<b>Knowledge/Skills</b>	<b>No. of Knowledge/Skills</b>	<b>Pass (2.50 of Above)</b>	<b>Borderline (2.40 to 2.49)</b>	<b>Fail (Less than 2.40)</b>
1. Health Information Documentation	30	16	1	13
2. Diagnosis and Procedure Coding	25	24	1	
3. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) and Outpatient Services	10	9		1
4. Data Quality and Management	10	7		3
5. Revenue Cycle Management	10	4		6
6. Information and Communication Technologies	5	5		
7. Privacy, Confidentiality, Legal and Ethical Issues	4	4		
8. Compliance	6	6		
<b>Total</b>	<b>100</b>	<b>75</b>	<b>2</b>	<b>23</b>
<b>Percentage</b>	<b>--</b>	<b>75%</b>	<b>2%</b>	<b>23%</b>

***Content Coverage Ratings***

The survey participants were asked to indicate how well the statements within each of the task and knowledge domains covered important aspects of that area. These responses provide an indication of the adequacy (comprehensiveness) of the survey content.

The five-point rating scale included 1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well and 5=Very Well. The means and standard deviations for the task and knowledge ratings are provided in Tables 4 and 5. For the task domains, the means ranged from 4.33 to 4.58. The means across the knowledge/skill domains ranged from 4.38 to 4.52. These means provide supportive evidence that the tasks and knowledge were comprehensive and well-covered on the survey.

In addition, survey respondents were offered the opportunity to add task or knowledge statements that they believed that had been omitted. The test specifications committee considered these comments and added one task to Domain 1: Health Information Documentation and one knowledge/skill to Domain 3: Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) and Outpatient Services.

**Table 4. Means and Standard Deviations of Task Content Coverage**

Task	Mean	SD
1. Health Information Documentation	4.48	0.66
2. Diagnosis Coding	4.58	0.63
3. Procedure Coding	4.56	0.62
4. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) Service	4.52	0.66
5. Regulatory Guidelines and Reporting Requirements for Outpatient Services	4.40	0.71
6. Data Quality and Management	4.39	0.71
7. Revenue Cycle Management	4.33	0.75
8. Information and Communication Technologies	4.40	0.71
9. Privacy, Confidentiality, Legal and Ethical Issues	4.44	0.69
10. Compliance	4.40	0.71

**Table 5. Means and Standard Deviations of Knowledge/Skills Content Coverage**

Knowledge/Skills	Mean	SD
1. Health Information Documentation	4.45	0.68
2. Diagnosis and Procedure Coding	4.52	0.64
3. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) and Outpatient Services	4.42	0.69
4. Data Quality and Management	4.42	0.68
5. Revenue Cycle Management	4.38	0.70
6. Information and Communication Technologies	4.44	0.68
7. Privacy, Confidentiality, Legal and Ethical Issues	4.52	0.65
8. Compliance	4.47	0.67

***CCS Examination Content***

In survey Section 4: Recommendations for Test Content, participants were asked the following question: “If a new examination contains 100 questions, how many questions should be indicated in each knowledge/skill area?” This information was used by the Test Specifications Committee as an aid in making decisions about how much emphasis the task domains should receive in the test content outline.

The mean weights across all survey respondents are presented in Table 6. On average, survey respondents gave the highest content weightings to Diagnostic Coding (23.99%) whereas Revenue Cycle Management (4.36%) received the lowest content weighting.

**Table 6. Survey Respondents' Test Content Recommendations by Mean Percentages and Standard Deviations**

Domain	Mean %	SD %
1. Health Information Documentation	10.49	5.55
2. Diagnostic Coding	23.99	9.41
3. Procedural Coding	22.16	7.80
4. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) Services	9.18	4.79
5. Regulatory Guidelines and Reporting Requirements for Outpatient Services	8.54	4.34
6. Data Quality and Management	5.51	3.21
7. Revenue Cycle Management	4.36	3.29
8. Information and Communication Technologies	4.42	2.95
9. Privacy, Confidentiality, Legal and Ethical Issues	5.75	3.34
10. Compliance	6.23	3.53

***Write-In Comments.***

Many survey respondents provided responses to the open-ended questions about their professional development needs and/or expected changes in their role as a practitioner over the next few years. The comments are presented in Appendix G and H.

# DEVELOPMENT OF TEST SPECIFICATIONS FOR THE CCS EXAMINATION

As previously noted, the CCS Test Specifications were developed in August 2006 using the survey results. Decisions made by the Test Specifications Committee regarding the knowledge/skill statements to be included in (or excluded) from the test specifications were based on a careful review of the survey results. (See Appendix I.)

## *Development of Test Content Weights for the CCS Examination.*

The Test Specifications Committee participated in an exercise that required each member to individually assign a percentage weight to each of the knowledge/skills domains. The Committee members were able to compare the test content weights derived from the survey responses to their own estimates. This resulted in a productive discussion among the Committee members regarding the optimal percentages for the multiple-choice and coding portions of the Examination.

Table 7 shows the: recommended percentage weights by domain; number of knowledge/skill areas included in each domain and the number of items in each domain.

**Table 7. CCS Test Content Weights Recommended by the CCS Test Specifications Committee**

Domains	Domain %	Multiple Choice	Coding Test	No. of Knowledge/Skills
1. Health Information Documentation	15	x		30
2. Diagnosis Coding	20	x	x	25**
3. Procedure Coding	20	x	x	25**
4. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) Service	10	x		10**
5. Regulatory Guidelines and Reporting Requirements for Outpatient Services	10	x		10**
6. Data Quality and Management	8	x		10
Revenue Cycle Management*	0	x		10
7. Information and Communication Technologies	5	x		5
8. Privacy, Confidentiality, Legal and Ethical Issues	6	x		4
9. Compliance	6	x		6
<b>Total</b>	<b>100</b>			<b>100</b>

\* This domain was dropped from the test specifications. The few knowledge topics that had been approved for inclusion in the test were reclassified to other domains.

\*\* For purposes of the test specifications, the domains were combined. The knowledge statements for Diagnosis Coding and Procedure Coding are the same. The knowledge statements for Regulatory Guidelines and Reporting Requirements for Acute Care and for Outpatient Services are the same.

Following is a listing of the tasks and knowledge/skills that the Test Specifications Committee recommended for inclusion in the CCS test specifications.

<b>Tasks Recommended for Inclusion in the CCS Test Specifications</b>
<b>Domain 1. Health Information Documentation</b>
1.1. Interpret health record documentation using knowledge of anatomy, physiology, clinical disease processes, pharmacology, and medical terminology to identify codeable diagnoses and/or procedures.
1.2. Determine when additional clinical documentation is needed to assign the diagnosis and/or procedure code(s).
1.3. Consult with physicians and other healthcare providers to obtain further clinical documentation to assist with code assignment.
1.4. Consult reference materials to facilitate code assignment.
1.5. Identify patient encounter type.
1.6. Identify and post charges for healthcare services based on documentation
<b>Domain 2. Diagnosis Coding</b>
2.1. Select the diagnoses that require coding according to current coding and reporting requirements for acute care (inpatient) services.
2.2. Select the diagnoses that require coding according to current coding and reporting requirements for outpatient services.
2.3. Interpret conventions, formats, instructional notations, tables and definitions of the classification system to select diagnoses, conditions, problems or other reasons for the encounter that require coding.
2.4. Sequence diagnoses and other reasons for encounter according to notations and conventions of the classification system and standard data set definitions [such as Uniform Hospital Discharge Data Set (UHDDS)].
2.5. Apply the official ICD-9-CM coding guidelines.
<b>Domain 3. Procedure Coding</b>
3.1. Select the procedures that require coding according to current coding and reporting requirements for acute care (inpatient) services.
3.2. Select the procedures that require coding according to current coding and reporting requirements for outpatient services.
3.3. Interpret conventions, formats, instructional notations, and definitions of the classification system and/or nomenclature to select procedures/services that require coding.
3.4. Sequence procedures according to notations and conventions of the classification system/nomenclature and standard data set definitions (such as UHDDS).
3.5. Apply the official ICD-9-CM coding guidelines.
3.6. Apply the official CPT/HCPCS Level II coding guidelines.
<b>4. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) Service</b>
4.1. Select the principal diagnosis, principal procedure, complications, comorbid conditions, other diagnoses and procedures that require coding according to UHDDS definitions and Coding Clinic for ICD-9-CM.
4.2. Evaluate the impact of code selection on Diagnosis Related Group (DRG) assignment.
4.3. Verify DRG assignment based on Inpatient Prospective Payment System (IPPS) definitions.
4.4. Assign the appropriate discharge disposition.
<b>5. Regulatory Guidelines and Reporting Requirements for Outpatient Services</b>

5.1. Select the reason for encounter, pertinent secondary conditions, primary procedure, and other procedures that require coding according to UHDDS definitions, CPT Assistant, Coding Clinics for ICD-9-CM and HCPCS.
5.2. Apply Outpatient Prospective Payment System (OPPS) reporting requirements:
5.2a. Modifiers
5.2b. CPT/ HCPCS Level II
5.2c. Medical necessity
5.2d. Evaluation and Management code assignment (facility reporting)
<b>6. Data Quality and Management</b>
6.1. Assess the quality of coded data.
6.2. Educate health care providers regarding reimbursement methodologies, documentation rules and regulations related to coding.
6.3. Analyze health record documentation for quality and completeness of coding.
6.4. Review the accuracy of abstracted data elements for data base integrity and claims processing.
6.5. Review and resolve coding edits (such as Correct Coding Initiative (CCI), Medicare Code Editor (MCE) and Outpatient Code Editor (OCE)).
<b>7. Information and Communication Technologies</b>
7.1 Use PC to ensure data collection, storage, analysis and reporting of information.
7.2. Use common software applications (e.g., word processing; spreadsheets; email; etc.) in the execution of work processes.
7.3. Use specialized software in the completion of HIM processes.
<b>8. Privacy, Confidentiality, Legal and Ethical Issues</b>
8.1. Apply policies and procedures for access and disclosure of personal health information.
8.2. Apply AHIMA Code of Ethics/Standards of Ethical Coding
8.3. Recognize/report privacy issues/problems.
8.5. Protect data integrity and validity using software or hardware technology.
<b>9. Compliance</b>
9.1. Participate in the development of institutional coding policies to ensure compliance with official coding rules and guidelines.
9.2. Evaluate the accuracy and completeness of the patient record as defined by organizational policy and external regulations and standards.
9.3. Monitor compliance with organization-wide health record documentation and coding guidelines.
9.4. Recognize/report compliance concerns/findings.

The CCS Examination consists of two parts. Part 1 is a multiple choice test. Part 2 is a case-based constructed response test in which candidates are required to input the appropriate codes based on the information provided in the cases. During the test specification meeting the task force identified those topics that should be included in Part 1 and in Part 2. The table below indicates whether it should be included in Part 1 and/or Part 2.

Knowledge/Skills Recommended for Inclusion in the CCS Test Specifications	Multiple Choice	CASE
<b>1. Health Information Documentation</b>		
1.1. Components of a record	X	
1.2. Contents of a record	X	
1.3. Clinical concepts:	<b>X</b>	
1.3a. Medical terminology and abbreviations	X	
1.3b. Anatomy and Physiology	X	
1.3c. Pharmacology	X	
1.3d. Clinical findings	X	
1.3e. Signs and symptoms	X	
1.3f. Pathophysiology	X	
1.4. Data Sets (e.g., demographics, identifiers, etc.)	X	
1.5. Roles and responsibilities of health care providers	X	
1.6. Documentation requirements in Inpatient type/place of service: Acute Care	X	
1.7. Documentation requirements in Outpatient type/place of service:	X	
1.7a. Observation stay	X	
1.7b. Recurring/Series Accounts	X	
1.7c. Emergency services	X	
1.7d. Same day surgery	X	
1.7e. Clinic	X	
1.7f. Ancillary	X	
1.8. HIM (soft coding) versus Chargemaster (hard coding)	X	
<b>2. Diagnosis and Procedure Coding</b>		
2.1. ICD-9-CM	X	X
2.2. CPT	X	X
2.3. HCPCS Level II	X	X
2.4. Coding references:	X	X
2.4a. AHA CodingClinics (ICD-9-CM and HCPCS Level II)	X	X
2.4b. AMA CPT Assistant	X	X
2.4c. Medical Dictionary	X	X
2.4d. Abbreviations/acronyms	X	X
2.4e. Pharmacology	X	X
2.4f. Diagnostic (test) values	X	X
2.5. Official coding and UHDDS guidelines for diagnoses and procedures:	X	X
2.5a. Definitions	X	X
2.5b. Sequencing	X	X
2.5c. Coding and reporting requirements for inpatient services	X	X
2.5d. Coding and reporting requirements for outpatient services	X	X
2.5e. Coding conventions:	X	X
2.5e1. Formats	X	X
2.5e2. Instructional notations	X	X
2.5e3. Tables	X	X
2.5e4. Symbols	X	X
2.5f. Signs, symptoms, or manifestations requiring separate code assignments	X	X

2.5g. Coding specificity (third, fourth, or fifth digit)	X	X
2.5h. V-Codes	X	X
2.5i. E-Codes	X	X
2.5j. Modifiers	X	X
2.5k. CPT/HCPCS Level II	X	X
2.5l. Evaluation and management code assignment (facility)	X	
<b>3. Regulatory Guidelines and Reporting Requirements for Acute Care (Inpatient) and Outpatient Services</b>		
3.1. Accrediting bodies (e.g., JCAHO; Medicare Conditions of Participation)	X	
3.2. Government agencies:	X	
3.2a. Centers for Medicare and Medicaid Services (CMS)	X	
3.2b. Office of Inspector General (OIG)	X	
3.2c. CMS Contractors (e.g., FI; Carrier; QIO)	X	
3.3. Prospective Payment Systems:	X	
3.3a. APC	X	
3.3b. DRG/Severity Adjusted (e.g., APR)	X	
3.4. Uniform billing data elements	X	
3.5. HIPAA designated code sets	X	
3.6. Medical necessity and coverage policies (e.g., NCD; LCD, ABN)	X	
3.7. Cost-based reimbursement systems (e.g., critical access hospitals, waived states)	X	
3.8 CMS 72 hour rule	X	
<b>4. Data Quality and Management</b>		
4.1. Case Mix Index (CMI)	X	
4.2. Correct Coding Initiative (CCI)	X	
4.3. Outpatient Code Editor (OCE)	X	
4.4. Medicare Code Editor (MCE)	X	
4.5. Physician Query	X	
4.6. Abstracted data	X	
4.7. Public data (e.g., Core Measures; Registries)	X	
4.8. Benchmarking, especially peer results	X	
4.9. Data Integrity	X	
4.10. Payor types	X	
4.11. Payor documentation requirements	X	
4.12. Unbilled accounts management, e.g., DNFB (discharge not final billing)	X	
4.13. Revenue Cycle Components (from registration to payment)	X	
<b>5. Information and Communication Technologies</b>		
5.1. Computer Concepts (e.g., hardware; software; firewall; encryption)	X	
5.2. Common software applications	X	
5.3. HIM specific software applications (e.g., Encoder; Grouper; Record Completion)	X	
5.4. Internet technology	X	
5.5. Electronic health records	X	
<b>6. Privacy, Confidentiality, Legal and Ethical Issues</b>		
6.1. Data security and password protection	X	

6.2. AHIMA Code of Ethics/Standards of Ethical Coding	X	
6.3. HIPAA:	X	
6.3a. Release of Information	X	
6.3b. Confidentiality	X	
<b>7. Compliance</b>	X	
7.1. Compliance Program Requirements	X	
7.2. OIG Work Plans	X	
7.3. Definition of fraud	X	
7.4. Definition of abuse	X	
7.5. Corporate Integrity Agreement (CIA)	X	
7.6. HIM/Coding Policies	X	

***Linkage of Task and Knowledge/Skill Statements.***

Task and knowledge/skills linking verifies that each knowledge/skill area included on an examination is related to the competent performance of important tasks. As such, linking documents the content validity of the tasks included in the test specifications. (See Appendix J.)

Linking does not require the production of an exhaustive listing; rather, task-knowledge/skill links are developed to ensure that each knowledge is identified as being related to the performance of at least one, or in most cases several, important tasks.

Linking also provides guidance for item-writing activities. When item writers develop questions for specific task domains, they have a listing of knowledge/skills that relate to the tasks. This provides context for developing examination questions, and assists the item writers in question design.

# SUMMARY AND CONCLUSIONS

The CCS Job Analysis was conducted to:

- ◆ identify and validate tasks and knowledge/skills important in the work performed by Certified Coding Specialists;
- ◆ create test specifications that may be used to develop new versions of the CCS Examination;
- ◆ identify important professional development needs and anticipated changes in the Certified Coding Specialists' work role.

The tasks and knowledge/skill statements were developed through an iterative process involving the combined efforts of CCI, subject-matter experts, and Thomson Prometric staff. The inventory was then put into survey format and subjected to verification/refutation through the dissemination of a survey to Certified Coding Specialists.

The survey participants were asked to rate the importance of performing specific tasks in their respective current positions, whether they perform and/or supervise the performance of the various tasks and the importance of specific knowledge/skill to perform their job tasks.

The results of the job analysis support the following:

- The tasks and knowledge/skill verified as important through the survey provided the foundation of empirically derived information from which to develop test specifications for the CCS Examination.
- Evidence was provided in this job analysis that the comprehensiveness of the content within the task and knowledge/skill domains was adequately covered.
- A variety of professional development needs was identified as well as expected changes in job activities over the next few years. CCI can use this information as it reviews and revises its continuing education initiatives.

In summary, the CCS Job Analysis took a multi-method approach to identifying the tasks and knowledge/skill important to the work performed by Certified Coding Specialists. The results of the study can be used to develop: 1) new versions of the CCS Examination and 2) professional development initiatives.