



PROMETRIC



Test Development Solutions



2025 COMPUTED TOMOGRAPHY CERTIFICATION - NMTCB(CT): JOB ANALYSIS REPORT

Date:

September 29, 2025

Prepared by:

Colvin Franklin M.S.
Assessment Solutions

ACKNOWLEDGEMENTS

We would like to thank the many individuals who provided invaluable assistance throughout the conduct of the Nuclear Medicine Technology Certification Board (NMTCB) Job Analysis Study for their Computed Tomography (CT) Certification - NMTCB(CT).

Above all, we thank the many dedicated professionals who generously contributed their time and expertise. Over 2,500 individuals participated in different phases of the job analysis: including Task Force members, survey respondents, and Test Specifications members.

At NMTCB, Katie Neal, Executive Director, provided excellent support throughout the project.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	ii
LIST OF FIGURES	iii
LIST OF TABLES	iv
LIST OF APPENDICES	v
EXECUTIVE SUMMARY	vi
INTRODUCTION	1
JOB ANALYSIS STUDY AND ADHERENCE TO PROFESSIONAL STANDARDS.....	1
METHOD	3
1. COMPLETION OF THE PLANNING MEETING	3
2. DEVELOPMENT OF THE SURVEY	4
3. DISSEMINATION OF THE SURVEY	6
4. ANALYSIS OF THE SURVEY DATA.....	6
5. DEVELOPMENT OF THE TEST SPECIFICATIONS.....	8
RESULTS	9
SURVEY RESPONSES	9
DEMOGRAPHIC CHARACTERISTICS OF SURVEY RESPONDENTS.....	9
DEMOGRAPHIC FIGURES	10
TASK, KNOWLEDGE, AND SKILLS OVERALL RATINGS	16
TASKS	17
KNOWLEDGE & SKILLS	17
SUBGROUP ANALYSIS OF TASK, KNOWLEDGE, AND SKILLS RATINGS.....	18
CONTENT COVERAGE RATINGS.....	19
TEST CONTENT RECOMMENDATIONS.....	19
WRITE-IN COMMENTS.....	19
DEVELOPMENT OF TEST SPECIFICATIONS FOR THE CT EXAM	20
PRESENTATION OF THE JOB ANALYSIS PROJECT AND RESULTS TO THE TEST SPECIFICATIONS COMMITTEE.....	20
IDENTIFICATION OF THE TASK, KNOWLEDGE, AND SKILL STATEMENTS TO BE INCLUDED ON THE CT EXAM.....	20
TASKS RECOMMENDED FOR INCLUSION	20
KNOWLEDGE AND SKILLS RECOMMENDED FOR INCLUSION.....	20
DEVELOPMENT OF TEST CONTENT WEIGHTS	21
SUMMARY AND CONCLUSIONS	22

LIST OF FIGURES

Figure	Page
1. <i>Demographic Question 1. In what type of department did you complete the majority of your CT clinical hours?</i>	10
2. <i>Demographic Question 2. What is your highest level of education?</i>	10
3. <i>Demographic Question 3. How many years have you been practicing as a Computed Tomography technologist?</i>	11
4. <i>Demographic Question 4. What PRIMARY certification do you hold?</i>	11
5. <i>Demographic Question 6. In what capacity are you currently employed as a Computed Tomography technologist?</i>	12
6. <i>Demographic Question 7. What percentage of your time is spent performing Computed Tomography procedures?</i>	12
7. <i>Demographic Question 8. What is your PRIMARY work setting?</i>	13
8. <i>Demographic Question 9. Which of the following BEST describes the PRIMARY focus of your current practice?</i>	13
9. <i>Demographic Question 10b. In which state, province, or territory is your primary practice?</i>	14
10. <i>Demographic Question 11. Which of the following describes your age?</i>	15
11. <i>Demographic Question 12. Which of the following describes your gender?</i>	15
12. <i>Demographic Question 13. Which of the following BEST describes your race/ethnicity?</i>	16

LIST OF TABLES

	Page
Table 1. <i>Tasks by Pass, Borderline, and Fail categories</i>	17
Table 2. <i>Knowledge & Skill Importance by Pass, Borderline, and Fail categories</i>	17
Table 3. <i>Survey Respondents' Test Content Recommendations by Mean Percentages and Standard Deviations</i>	19
Table 4. <i>CT Test Content Weights Recommended by the Test Specifications Committee</i>	21

LIST OF APPENDICES

Appendix A. Participants and Pre-Meeting Information

Appendix B. Survey

Appendix C. Background and General Information Questions

Appendix D. Tasks

Appendix E. Knowledge and Skills

Appendix F. Indices of Agreement

Appendix G. Content Coverage

Appendix H. Content Coverage Comments

Appendix I. Additional Survey Questions

Appendix J. Test Specifications Approvals

Appendix K. Test Specifications

EXECUTIVE SUMMARY

The Nuclear Medicine Technology Certification Board (NMTCB) requested a Job Analysis Study from Prometric for the Computed Tomography (CT) Certification - NMTCB(CT).

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

- Validate the tasks, knowledge, and skills important for CT technologists; and,
- Revise the test specifications for the CT exam.

Conduct of the Job Analysis Study

The job analysis study consisted of several activities completed in collaboration with subject-matter experts. These activities included: the creation and refinement of task, knowledge, and skill statements; the development of a survey; the dissemination of that survey; the compilation of survey results; and ultimately the development of test specifications. The successful completion of the job analysis study was made possible by in-depth information provided by industry professionals.

Survey Development

Survey research is an effective way to identify the tasks, knowledge, and skills important for CT technologists. The task, knowledge, and skill statements were split into domains based on distinctions in the industry. The statements included in the survey were all grouped into seven domains of practice and were based on updated information from the previous job analysis study conducted in 2020.

Survey Content

The survey, disseminated in May 2025, consisted of five sections. Prometric and NMTCB worked together to distribute the survey to CT technologists and other related professionals.

Survey Sections
Section 1: Background and General Information
Section 2: Tasks
Section 3: Knowledge and Skills
Section 4: Recommendations for Test Content
Section 5: Additional Feedback

Results

Survey Response

A total of 917 CT technologists and related professionals submitted surveys sufficiently complete for data analysis. Based on the analysis of survey responses, a representative group completed the survey in appropriate numbers to meet the requirements for statistical analysis of the results. This is evidenced by the review of the responses for each of the background and general information questions, along with validation by a group of subject matter experts.

Survey Ratings

Participants were asked to rate the task, knowledge, and skill statements on their importance for an entry-level CT technologist using a five-point scale (0 = Of no importance to 4 = Very Important). Some knowledge and skill statements were also rated based on their frequency used/performed (0 = Never to 5 = Daily).

Content Coverage

Evidence was provided for the comprehensiveness of the content covered within the domains. If the task, knowledge, and skill statements within a domain are adequately defined, then it should be judged as being well covered. Respondents indicated the content within each task and knowledge and skill domain was well covered, thus supporting the comprehensiveness of the defined domains.

Test Specifications Development

In August 2025 a Test Specifications Committee was convened to review the results of the job analysis and to revise the test content outline that guides the CT exam.

Summary

This study used a multi-method approach to identify the tasks, knowledge, and skills that are important to the competent performance of a CT technologist. The job analysis process allowed for input from a representative group of industry professionals and was conducted within the guidelines of professionally sound practice. The results of this job analysis can be used by NMTCB as a blueprint for the CT exam.

RESULTS AT A GLANCE

WHO COMPLETED THE SURVEY

A total of 917 responses were used in analysis. The majority of these respondents reported working in a hospital setting.

TASK IMPORTANCE RATINGS

A total of 45 out of 45 task statements achieved high importance ratings for the overall group.

KNOWLEDGE & SKILL IMPORTANCE RATINGS

141 out of 141 knowledge and skill statements achieved high importance ratings for the overall group.

INTRODUCTION

“The Nuclear Medicine Technology Certification Board, Inc. (NMTCB) was founded in 1977 to establish and maintain a voluntary program for certification of nuclear medicine technologists by nuclear medicine technologists. The standards established by the NMTCB include educational requirements, practical experience, and successful completion of an appropriate competency-based examination. The NMTCB certifies individuals who have developed the requisite body of knowledge to practice nuclear medicine technology, and registers those individuals who meet these criteria.”¹

This report describes the job analysis study for the NMTCB Computed Tomography (CT) Certification – NMTCB(CT) Examination including the:

- Rationale for conducting the job analysis study;
- Methods used to define tasks, knowledge, and skills;
- Types of data analyses conducted and their results; and
- Finalization of the test specifications.

Job Analysis Study and Adherence to Professional Standards

A job analysis study refers to procedures designed to obtain descriptive information about the tasks performed on a job and the knowledge, skills, or abilities requisite to the performance of those tasks. The specific type of information collected during a job analysis study is determined by the purpose for which the information will be used.

For the purpose of developing credentialing examinations, a job analysis study should identify tasks, knowledge, skills, or abilities relevant to the field being studied. For the CT exam, tasks, knowledge, and skills deemed important for CT technologists were identified.

The use of a job analysis study (also known as practice analysis, role and function study, or role delineation) to define content domain(s) is a critical component in establishing content validity for a certification. Content validity refers to the extent to which the content covered by an examination is representative of the tasks, knowledge, skills, or abilities required for a job. This is demonstrated through verification activities performed by subject-matter experts.

A well-designed job analysis study should include participation from a representative group of subject-matter experts who reflect diversity within the profession. Here, diversity refers to both regional or job context factors and individual demographics, such as, gender and race/ethnicity. By including a large number of experts who represent diversity in relevant areas of expertise the content validation process is enhanced.

¹ <https://nmtcb.org/about> retrieved September 29, 2025

*The Standards for Educational and Psychological Testing*² (2014) (*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. Consequently, a testing program that adheres to *The Standards* is more likely to be judged as valid and defensible than one that does not.

As stated in Standard 11.13,

“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 and evidence should be provided to support the claim that the knowledge or skills being assessed are required for credential-worthy performance in that occupation and are consistent with the purpose for which the credentialing program was instituted...Typically, some form of job or practice analysis provides the primary basis for defining the content domain...” (p.181-182)

The job analysis study for the CT exam was designed to follow the guidelines presented in *The Standards* and to adhere to accepted professional practice.

² American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (2014). *The Standards for Educational and Psychological Testing*. Washington, DC: American Psychological Association.

METHOD

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

First, experts identified the tasks, knowledge, and skills they believed were important to practice as a CT technologist. Then, a survey was developed and disseminated to individuals within the field. The purpose of the survey was to obtain verification (or refutation) that the tasks, knowledge, and skills identified by the initial group of experts are important to the work of CT technologists.

STEPS OF A JOB ANALYSIS STUDY

1. Conduct of a planning meeting
2. Development of the survey instrument
3. Dissemination of the survey
4. Analysis of the survey data
5. Development of the test specifications

Survey research functions as a “check and balance” for the judgments of the 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 experts and makes it possible for analysis of ratings by appropriate subgroups of respondents.

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

The steps of the job analysis study are described in detail below:

1. Completion of the Planning Meeting

In January 2025, NMTCB representatives and the Prometric staff responsible for the conduct of the job analysis began planning the study. The selection of the Task Force Committee members and Test Specifications Committee members, meeting dates and logistics, and survey delivery were topics of discussion.

2. Development of the Survey

Task Force Meeting

The Task Force Committee was comprised of a representative group of CT technologists and related professionals. In total, the committee consisted of seven subject-matter experts. A list of the Task Force Committee members appears in Appendix A. The Task Force meeting was conducted on February 28th and March 1st, 2025, in Atlanta, Georgia. The purpose of the meeting was to develop survey content. Prometric staff facilitated the meeting.

A pre-meeting document was provided to the Task Force. This document included the meeting agenda and expectations for the meeting. The pre-meeting document is also included in Appendix A.

Activities conducted during the meeting included reviewing and, as needed, revising the major domains, tasks, knowledge, and skills necessary for competent performance as a CT technologist. The draft list of tasks, knowledge, and skills, presented to the Task Force, was developed from the results of the 2020 Job Analysis Study. Survey rating scales as well as background and general information questions were also presented, discussed, and revised as needed.

Survey Construction

Upon the completion of the Task Force Meeting, Prometric staff constructed a draft survey. The survey covered the following task and knowledge and skill domains:

- I. System Operations and Instrumentation
- II. Data Acquisition and Post Processing
- III. Image Quality and Quality Assurance
- IV. Patient Management
- V. Medications and Contrast Agents
- VI. CT Procedures: Anatomy, Elements, Indications, and Pathology
- VII. Radiation Safety

Survey Review by Task Force Committee

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

Comments provided by the Task Force Committee for the online survey were compiled by Prometric staff and reviewed during the Task Force Meeting on March 1, 2025, with the Task Force members. Refinements recommended by the Task Force were incorporated into the survey in preparation for final survey distribution.

Final Version of the Survey

The final version of the online survey consisted of five sections: Section 1: Background and General Information; Section 2: Tasks; Section 3: Knowledge and Skills; Section 4: Recommendations for Test Content; and, Section 5: Additional Feedback.

In Section 1: Background and General Information, survey participants responded to general and background information questions about themselves and their professional activities.

In Section 2: Tasks, survey participants rated each task using the importance scale shown below.

Importance: How important is this Task in relation to ethical, effective, and competent performance of an entry-level NMTCB(CT)?
0 = Of no importance
1 = Of little importance
2 = Of moderate importance
3 = Important
4 = Very important

In Section 3: Knowledge and Skills, survey participants rated each knowledge and skill statement using the importance scale shown below.

Importance: How important is this Knowledge in relation to ethical, effective, and competent performance of an entry-level NMTCB(CT)?
0 = Of no importance
1 = Of little importance
2 = Of moderate importance
3 = Important
4 = Very important

For the knowledge and skills in domain VI. CT Procedures, participants were also asked to rate each knowledge and skill using the following frequency scale.

Frequency: How often do you perform this procedure as a Certified Computed Tomography (CT) technologist?
0 = Never
1 = Annually
2 = Quarterly
3 = Monthly
4 = Weekly
5 = Daily

Survey participants were asked to provide a rating measuring the representativeness of each task and knowledge and skill domain. Respondents made their judgments using a five-point rating scale (1 = Very Poorly; 2 = Poorly; 3 = Adequately; 4 = Well; 5 = Very Well). Respondents could note any topics that were not covered within a specific domain in an open response field.

In Section 4: Recommendations for Test Content, survey participants indicated the content weights that the knowledge and skill areas below should receive on the exam:

- I. System Operations and Instrumentation
- II. Data Acquisition and Post Processing
- III. Image Quality and Quality Assurance
- IV. Patient Management
- V. Medications and Contrast Agents
- VI. CT Procedures: Anatomy, Elements, Indications, and Pathology
- VII. Radiation Safety

This was accomplished by distributing 100 percentage points across the seven knowledge and skill areas. These distributions represented the allocation of examination items survey participants believed should be devoted to each knowledge and skill area.

In Section 5: Additional Feedback, survey respondents were given the opportunity to answer the following open-ended questions: “What additional professional development and/or continuing education could you use to improve your performance in your current work role?” and “How do you expect your work role to change over the next 5 years? What tasks will be performed and what knowledge will be needed to meet changing practice demands?”

3. Dissemination of the Survey

On May 9, 2025, NMTCB and Prometric distributed the survey via direct email invitation and anonymous survey link.

Appendix B contains the online survey.

4. Analysis of the Survey Data

As previously noted, the purpose of the survey was to have a relatively large number of professionals validate the tasks, knowledge, and skills initially determined to be important to their work. This objective was accomplished through an analysis of the mean importance ratings for task, knowledge, and skill statements. The derivation of test specifications from those statements verified as important by the surveyed professionals provides a substantial evidential basis for the content validity of the CT exam.

Based on information obtained from the survey, data analyses by respondent subgroups (e.g., level of education) are possible when sample size permits. A subgroup category is required to have at least 30 respondents to be included in the mean analyses. This is a necessary condition to ensure the mean value based upon the sample of respondents is an accurate estimate of the corresponding population mean value.

The following quantitative data analyses were produced:

- Means, standard deviations, and frequency (percentage) distributions for task and content coverage ratings
- Means, standard deviations, and frequency (percentage) distributions for knowledge and skill statements and content coverage ratings
- Means and standard deviations for test content recommendations
- Index of agreement values for designated subgroups

Criterion for the Interpretation of Mean Importance Ratings

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

A criterion 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.

This criterion is consistent with the intent of creating content validity. Therefore, for this job analysis, Prometric recommended the value of this criterion should be set at 2.50.

Accordingly, the task, knowledge, and skill statements were each grouped into one of three categories: Pass, Borderline, or Fail as determined by their mean importance ratings.

<i>Definition of Pass, Borderline and Fail Categories for Task and Knowledge Importance Mean Ratings</i>	
	<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 eligible for inclusion in the development of test specifications.
- The Borderline Category contains those statements whose mean ratings are from 2.40 to 2.49. The Borderline Category is included to provide a point of discussion for the Task Force 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.

5. Development of the Test Specifications

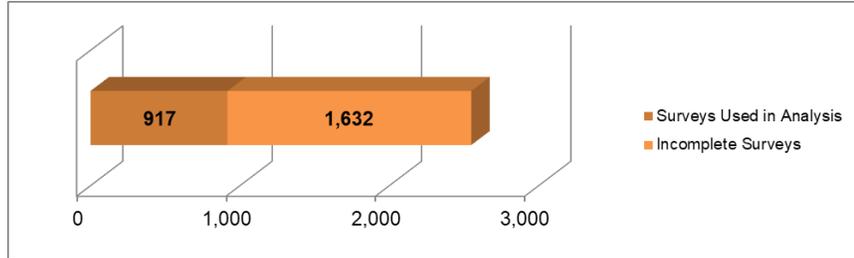
On August 22, 2025, Prometric staff facilitated a remote meeting to finalize new test specifications for the CT exam. The meeting focused on:

- Finalizing the task statements for inclusion based on the survey results;
- Finalizing the knowledge and skills that are important for inclusion based on the survey results; and,
- Establishing the test content weights for each area on the examination.

RESULTS

Survey Responses

A total of 2,549 surveys were submitted. Of these submissions 1,632 were excluded from analysis due to insufficient response. The remaining 917 submissions were determined to be complete enough (at least 55% of the questions answered) to be used in analysis.



Based on the analysis of survey responses, a representative group of CT technologists and related professionals completed the survey in sufficient numbers to meet the requirements to conduct statistical analysis. This was evidenced by the distribution of responses for each of the background information questions and was confirmed through discussion with the Test Specifications Committee.

Demographic Characteristics of Survey Respondents

The profile of survey respondents is below. All responses to the background and general information section of the survey are provided in Appendix C. Write-in responses to “Other, please specify” options are also provided in Appendix C. The results in the figures below reflect the sample size used for analysis of 917 participants.

Demographic Figures

Figure 1. Demographic Question 1. In what type of department did you complete the majority of your CT clinical hours?

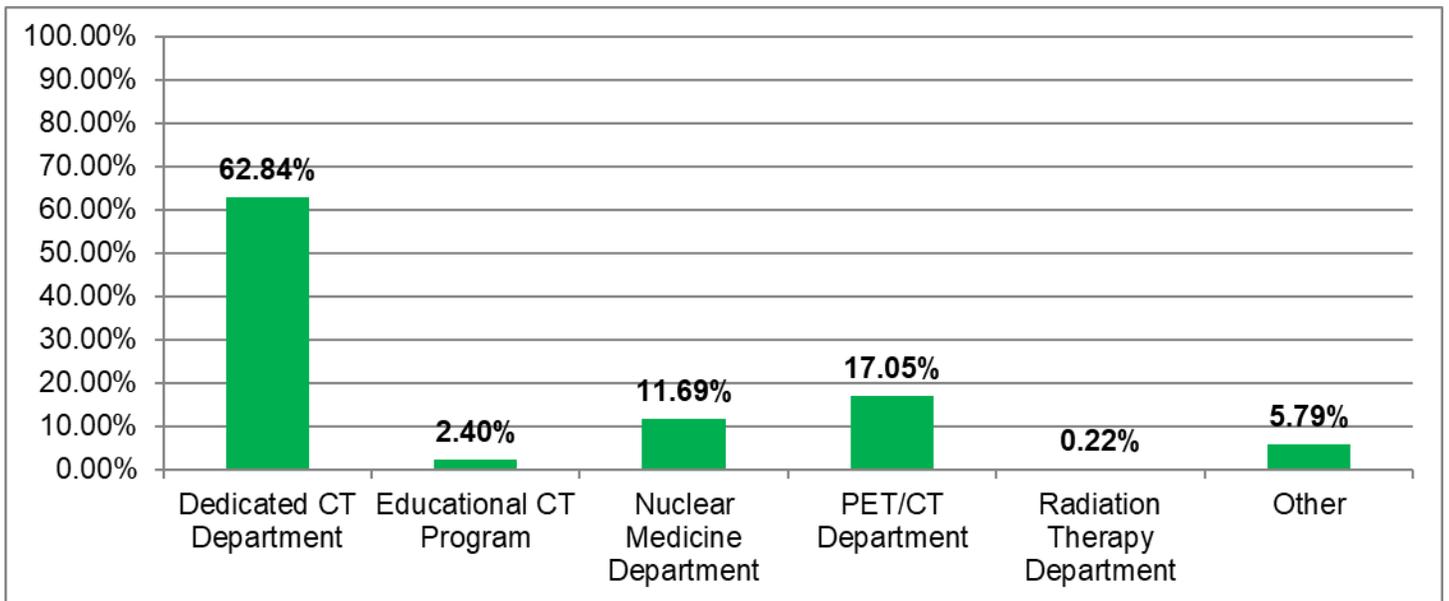


Figure 2. Demographic Question 2. What is your highest level of education?

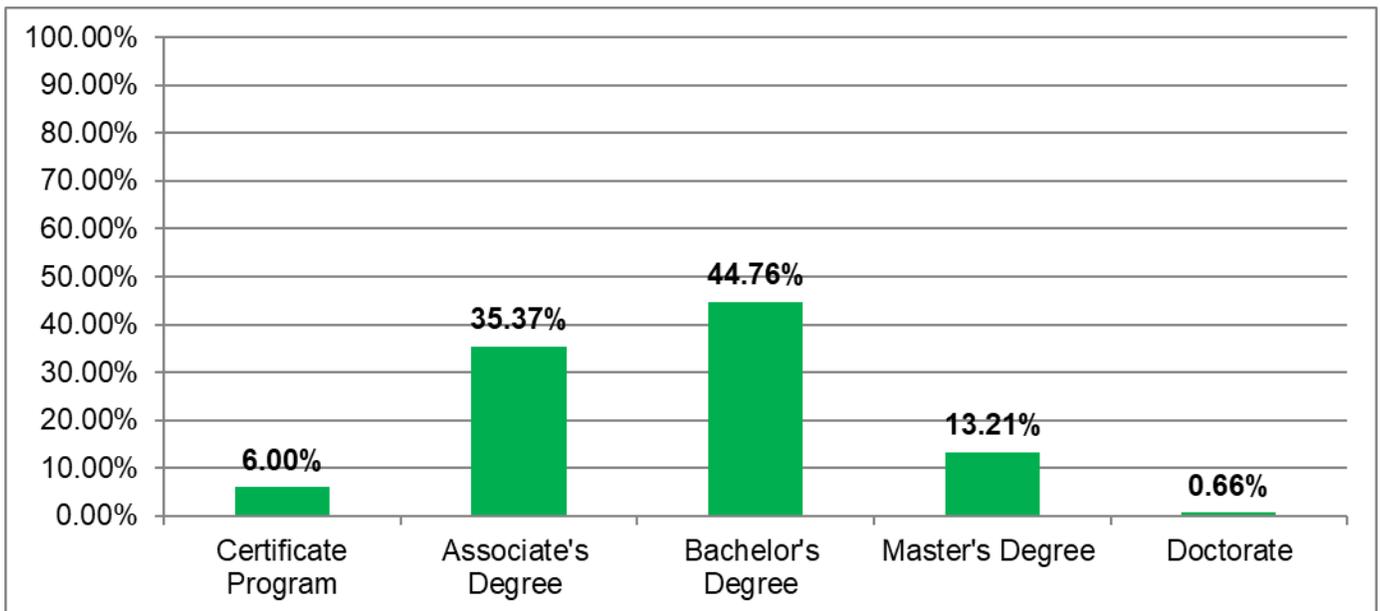


Figure 3. Demographic Question 3. How many years have you been practicing as a Computed Tomography technologist?

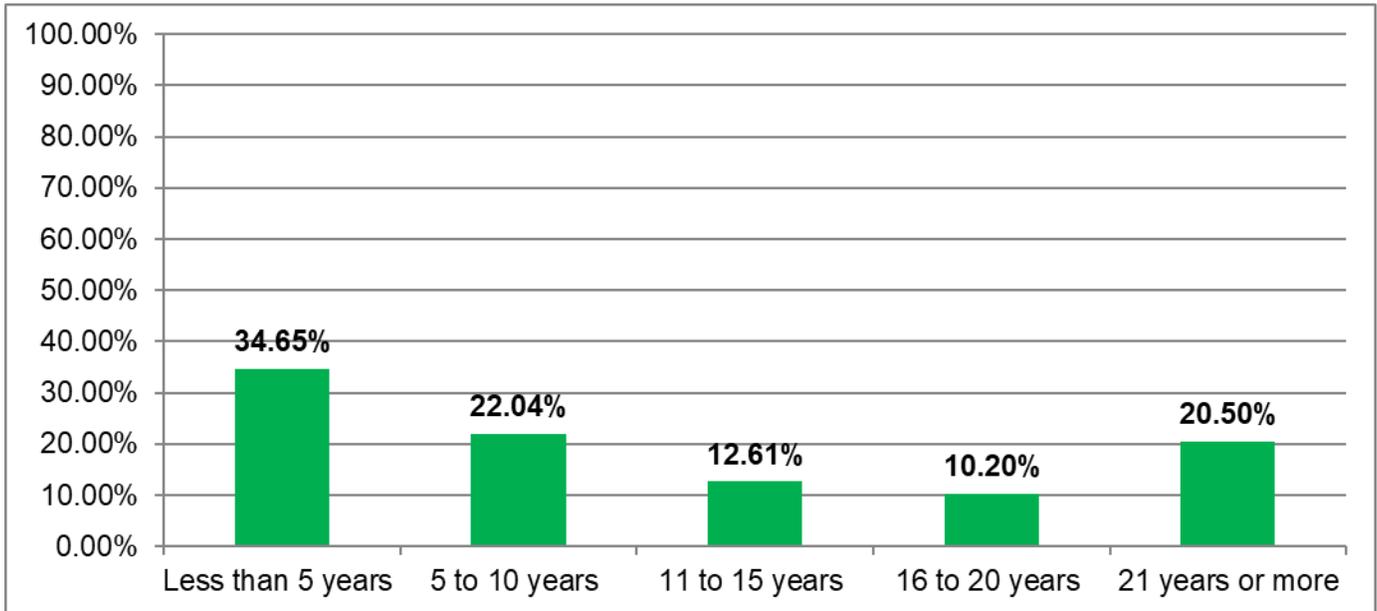


Figure 4. Demographic Question 4. What PRIMARY certification do you hold?

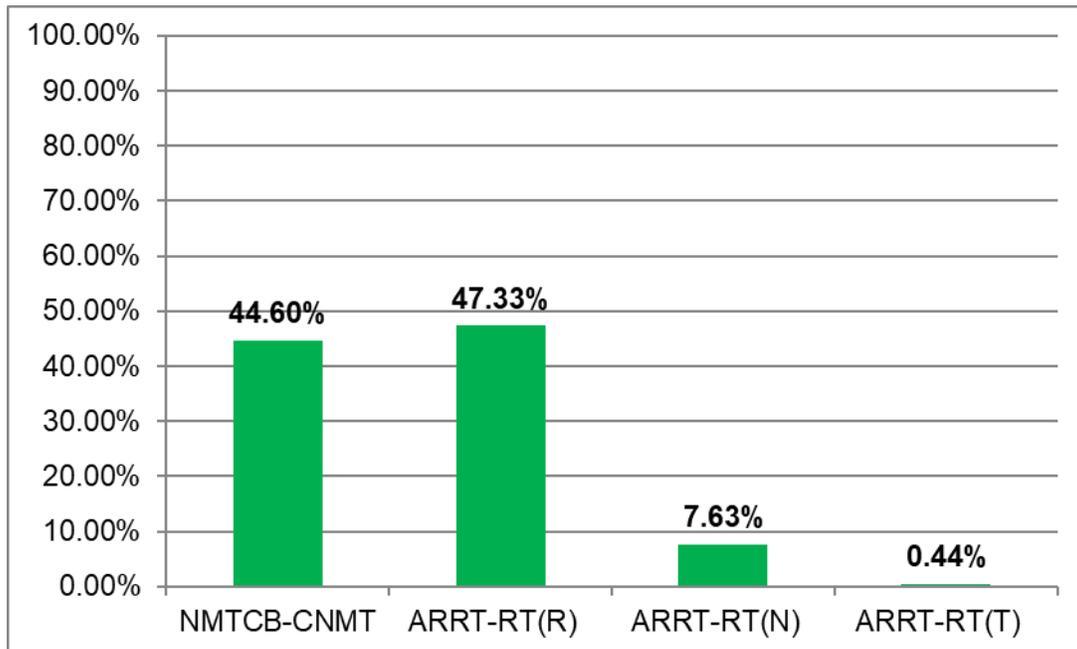


Figure 5. Demographic Question 6. In what capacity are you currently employed as a Computed Tomography technologist?

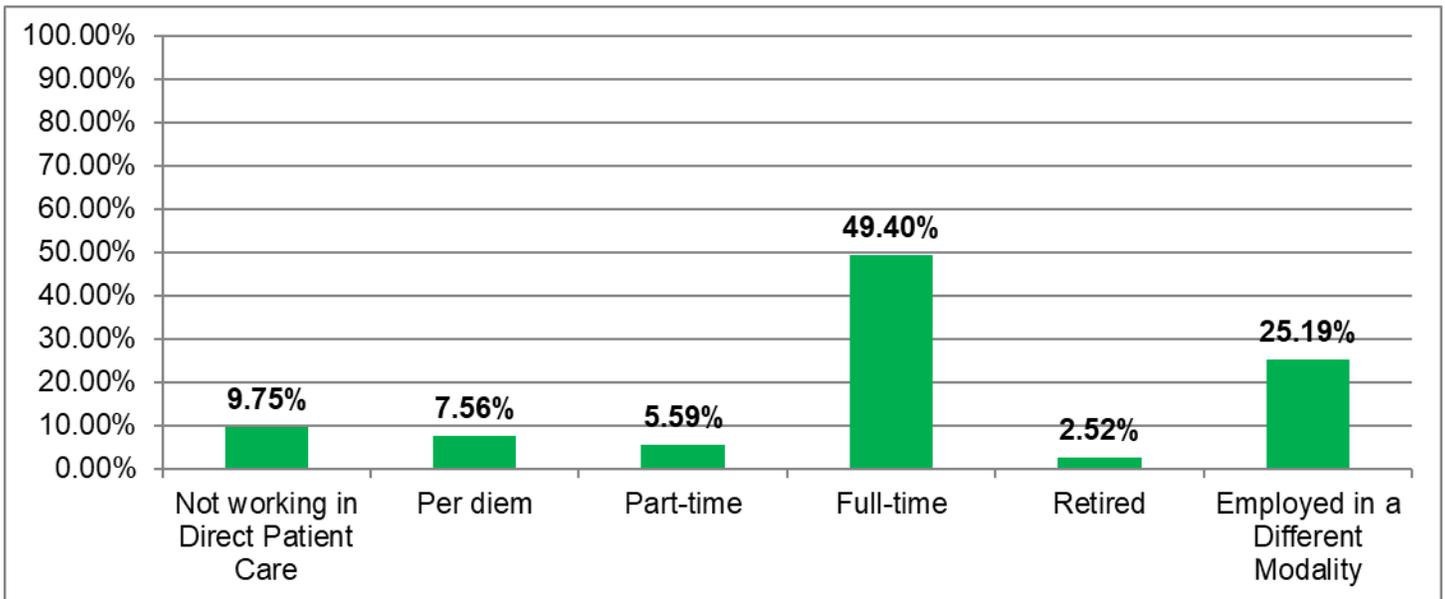


Figure 6. Demographic Question 7. What percentage of your time is spent performing Computed Tomography procedures?

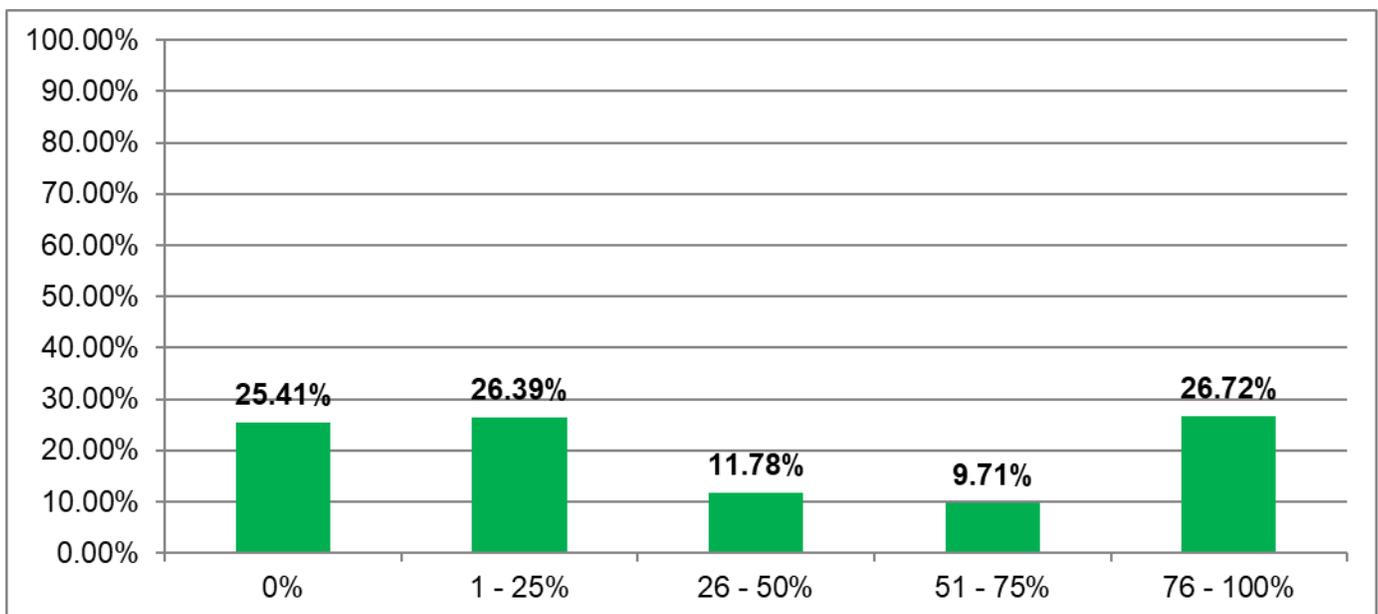


Figure 7. Demographic Question 8. What is your PRIMARY work setting?

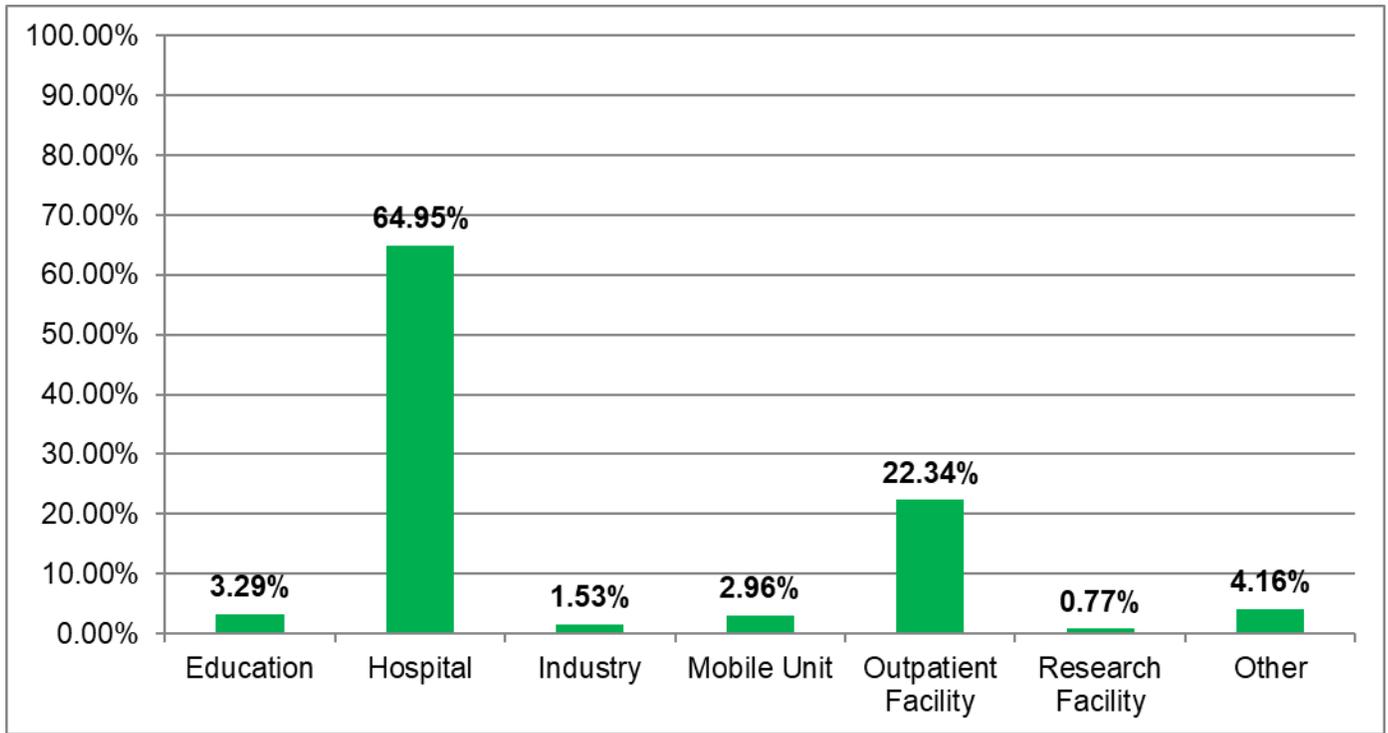


Figure 8. Demographic Question 9. Which of the following BEST describes the PRIMARY focus of your current practice?

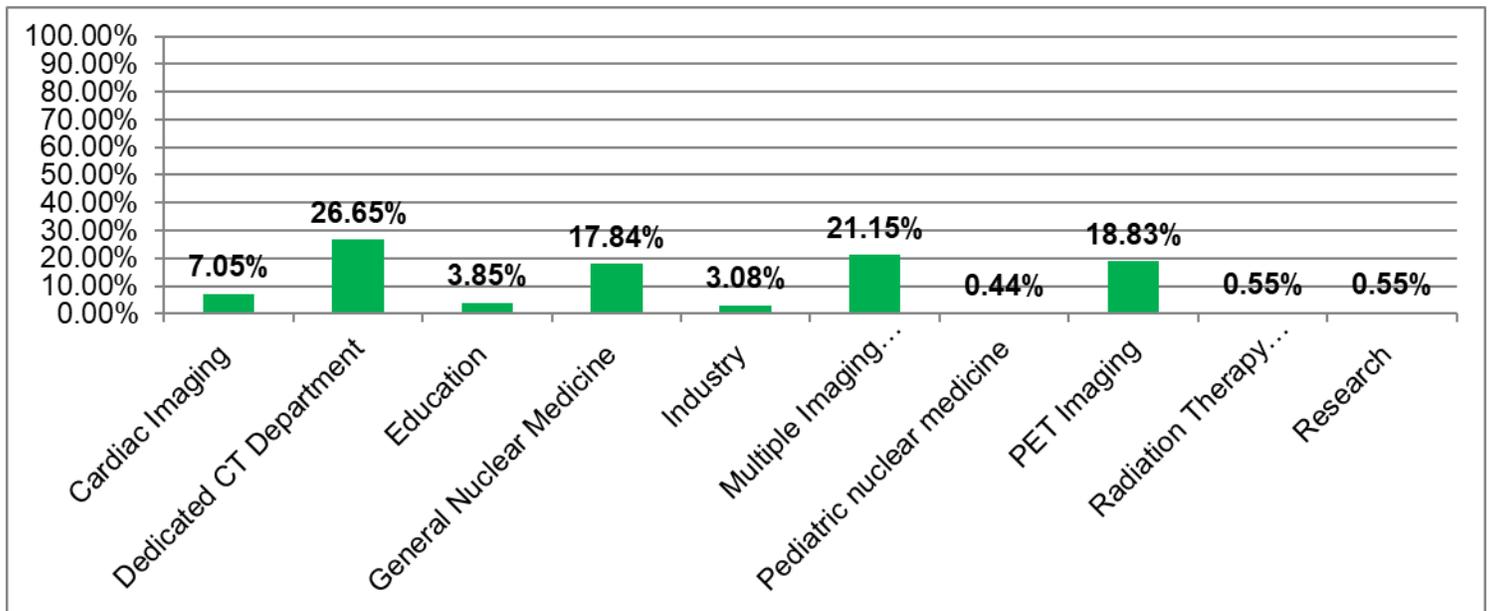


Figure 9. Demographic Question 10b. In which state, province, or territory is your primary practice?

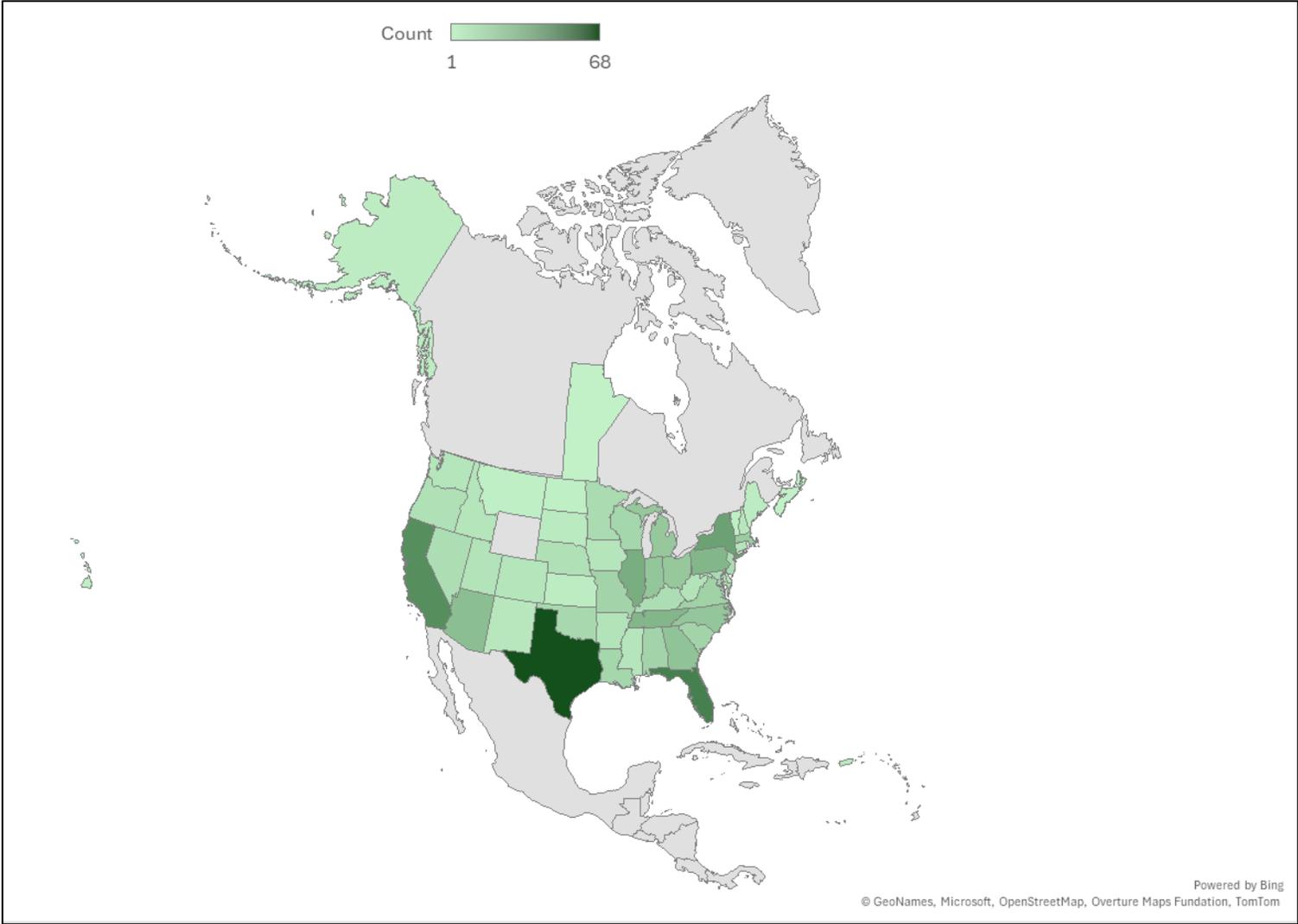


Figure 10. Demographic Question 11. Which of the following describes your age?

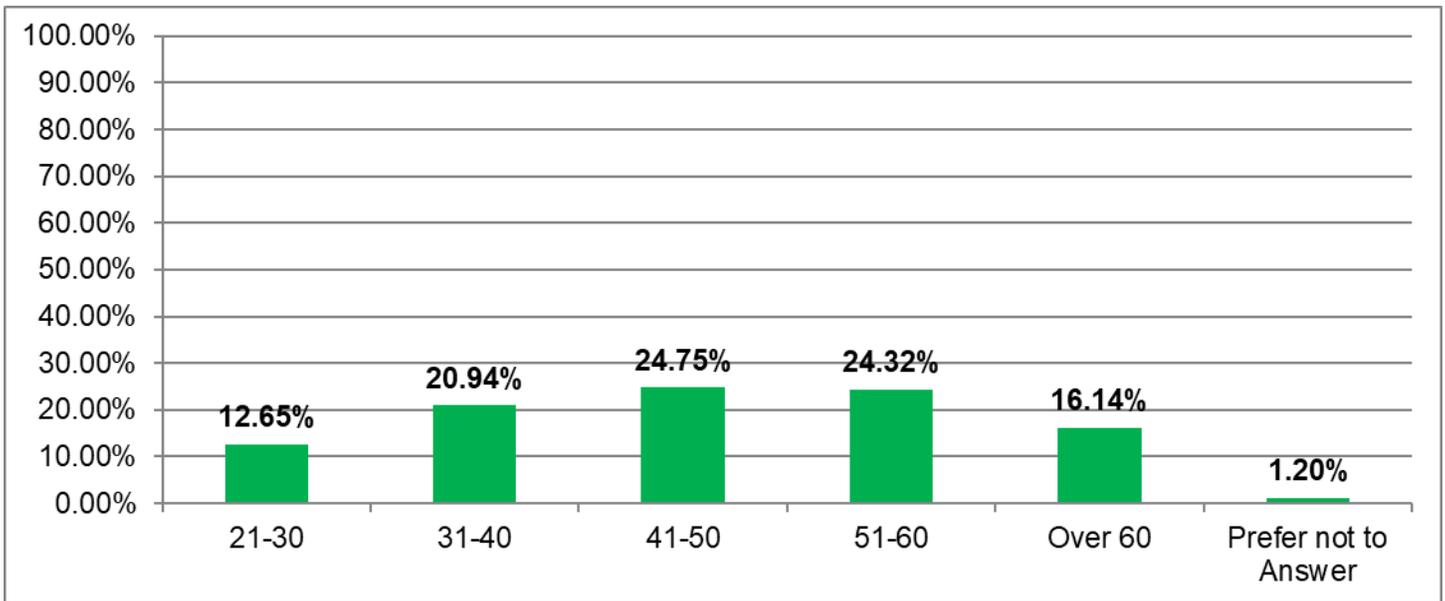


Figure 11. Demographic Question 12. Which of the following describes your gender?

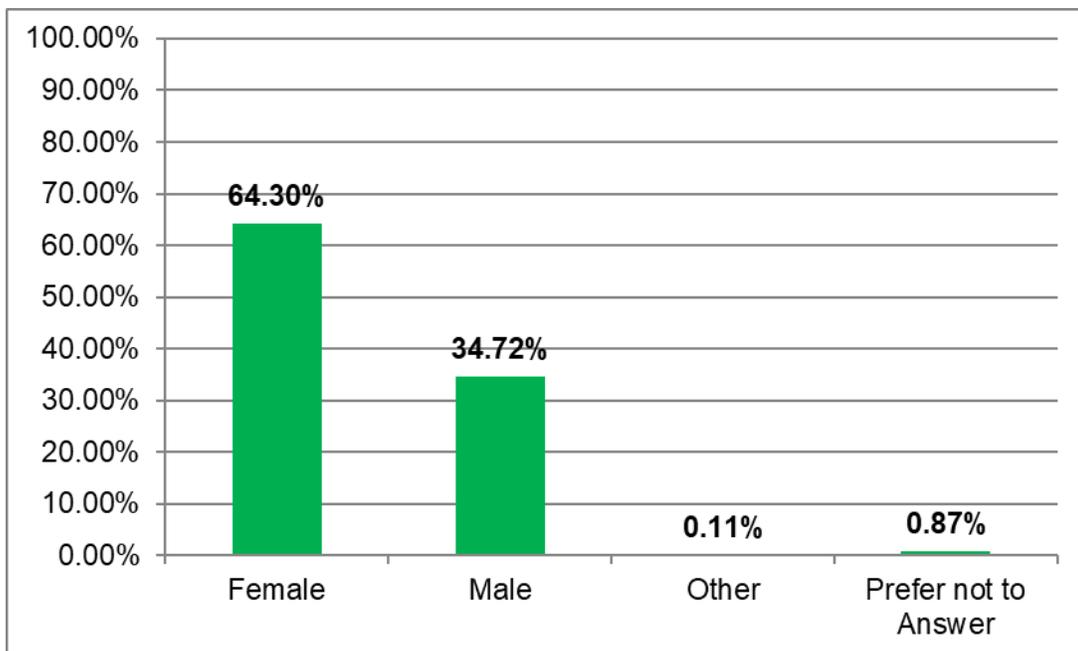
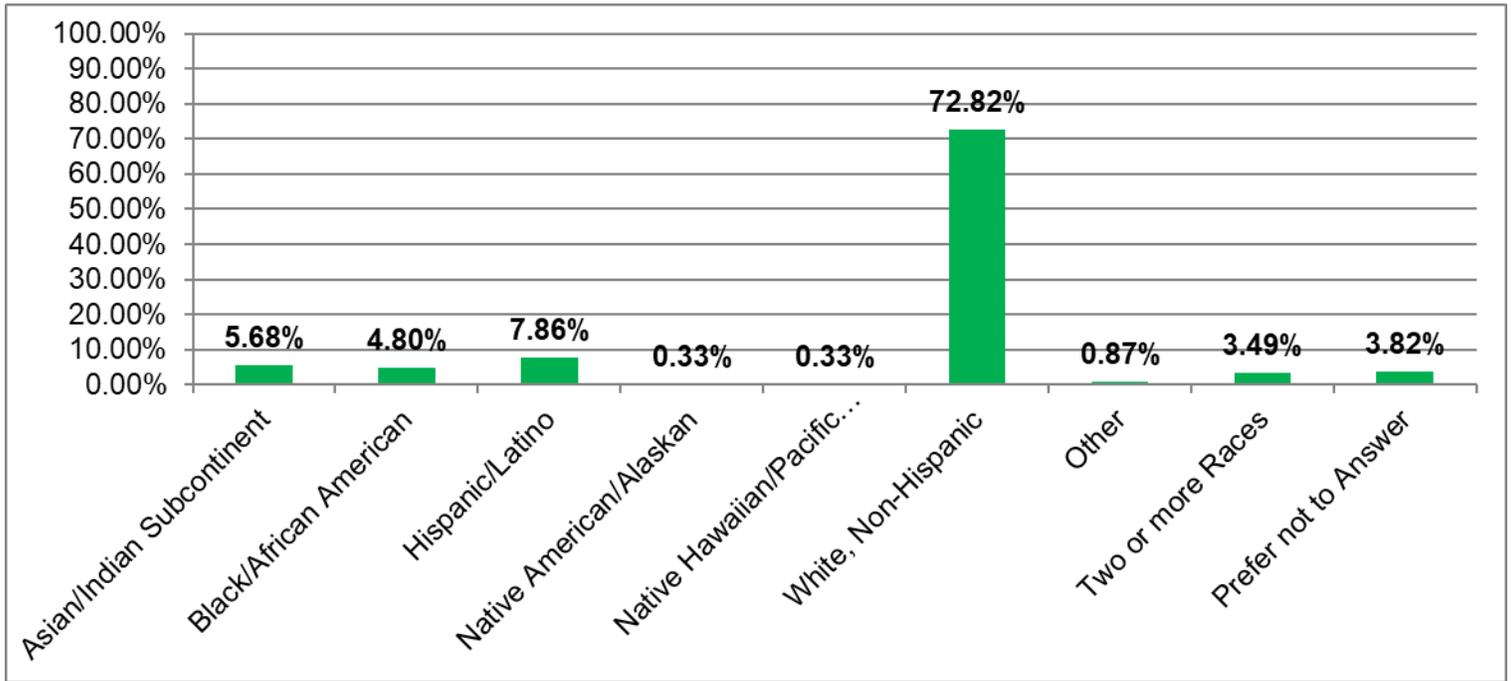


Figure 12. Demographic Question 13. Which of the following BEST describes your race/ethnicity?



Task, Knowledge, and Skill Overall Ratings

The following provides a summary of survey respondents’ ratings of the task, knowledge, and skill statements. The survey respondents passed all 186 of the 186 task, knowledge, and skill statements.

Tasks

Means and standard deviations for the tasks included on the survey are in Appendix D. All 45 (100%) of the 45 tasks achieved high importance means. Table 1 shows the delineation of tasks in Pass, Borderline, and Fail categories by domain.

Table 1. *Tasks by Pass, Borderline, and Fail categories*

Domains	Number of Task Statements	Pass (Mean 2.50 or Above)	Borderline (Mean 2.40 to 2.49)	Fail (Mean Less than 2.40)
I. System Operations and Instrumentation	6	6	0	0
II. Data Acquisition and Post Processing	6	6	0	0
III. Image Quality and Quality Assurance	4	4	0	0
IV. Patient Management	8	8	0	0
V. Medications and Contrast Agents	5	5	0	0
VI. CT Procedures: Anatomy, Elements, Indications, and Pathology	11	11	0	0
VII. Radiation Safety	5	5	0	0
Total	45	45	0	0
Percentage		100.00%	0.00%	0.00%

Knowledge & Skills

Analysis of the knowledge and skill statements included on the survey are in Appendix E. A total of 141 (100%) of the 141 knowledge and skill statements achieved high importance means. Table 2 shows the knowledge and skill statements placed in Pass, Borderline, and Fail categories.

Table 2. *Knowledge & Skill Importance by Pass, Borderline, and Fail categories*

Domains	Number of Task Statements	Pass (Mean 2.50 or Above)	Borderline (Mean 2.40 to 2.49)	Fail (Mean Less than 2.40)
I. System Operations and Instrumentation	10	10	0	0
II. Data Acquisition and Post Processing	23	23	0	0
III. Image Quality and Quality Assurance	24	24	0	0
IV. Patient Management	2	2	0	0
V. Medications and Contrast Agents	12	12	0	0
VI. CT Procedures: Anatomy, Elements, Indications, and Pathology	59	59	0	0
VII. Radiation Safety	11	11	0	0
Total	141	141	0	0
Percentage		100.00%	0.00%	0.00%

Subgroup Analysis of Task, Knowledge, and Skill Ratings

The index of agreement (IOA) is a measure of the extent to which subgroups of respondents agree on which tasks, knowledge, and skills are important. Using the mean importance ratings for tasks, knowledge, and skills, indices of agreement were computed:

- If the individual subgroup means are above the critical importance value (mean ratings at or above 2.50), then they agree that the content is important.
- If the individual subgroup means are below the critical importance value (mean ratings less than 2.50), then the subgroups agree that the content is considered less important.
- By contrast, if one subgroup's (for example, female) mean ratings are above the critical importance value and another subgroup's (for example, male) means are below the critical importance value then the subgroups are in disagreement as to whether the content is important.

The index of agreement provides a method of computing the similarity in judgments between groups and is tailored to the purpose of a job analysis study. As one of the major purposes of this job analysis study is to identify appropriate test content, the agreement index provides a statistical method to address this question at the subgroup level. Furthermore, the agreement index requires only 30 respondents per subgroup for computation, thus allowing for numerous comparisons to be made.

An illustrative example for two groups on a survey with 100 knowledge areas shows how to compute the index. If two groups passed the same 96 knowledge areas and failed the same 2 knowledge areas (out of the 100 total knowledge areas in the survey), the consistency index would be computed as $Agreement = (96 + 2)/100 = 0.98$. Values of 0.80 or less indicate less than optimal agreement and therefore additional mean analyses are required.

The index of agreement coefficients for tasks, knowledge, and skills are in Appendix F. Agreement coefficients were produced on the following background questions:

- *How many years have you been practicing as a Computed Tomography technologist?*
- *What percentage of your time is spent performing Computed Tomography procedures?*
- *Which of the following BEST describes the PRIMARY focus of your current practice?*
- *Which of the following BEST describes the PRIMARY focus of your current practice?*
- *In which state, province, or territory is your primary practice?*

The computed agreement coefficients for tasks ranged from 0.98 to 1.00. For knowledge and skill statements the agreement coefficients ranged from 0.95 to 1.00. As all items had an agreement coefficient greater than 0.80, no additional mean analysis was required.

Content Coverage Ratings

The survey participants indicated how well the statements within each of the task and knowledge and skill domains covered important aspects of that area. These responses provide an indication of the 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, knowledge, and skill ratings are provided in Appendix G. For the task domains, the means ranged from 4.15 to 4.48 and for the knowledge and skill domains means ranged from 4.31 to 4.41. These means provide evidence that tasks, knowledge, and skills were “well” covered on the survey.

Survey respondents could write in tasks or knowledge and skills that they believed should be included in the listing of important task, knowledge, and skills. See Appendix H for the content coverage write-in comments. The Test Specifications Committee reviewed the comments to determine whether there were important statements not covered in the survey that should be included in the test specifications.

Test Content Recommendations

In survey Section 4: Recommendations for Test Content, participants were asked to assign a percentage weight to each knowledge and skill domain. The sum of percentage weights was required to equal 100. This information guided the Test Specifications Committee in making decisions about how much emphasis the domains should receive on the test content outline. The mean weights across survey respondents are in Table 3.

Table 3. *Survey Respondents’ Test Content Recommendations by Mean Percentages and Standard Deviations*

Domain	Mean (%)	SD (%)
I. System Operations and Instrumentation	11.98%	7.3%
II. Data Acquisition and Post Processing	12.17%	5.8%
III. Image Quality and Quality Assurance	13.35%	6.0%
IV. Patient Management	12.00%	6.4%
V. Medications and Contrast Agents	12.79%	5.7%
VI. CT Procedures: Anatomy, Elements, Indications, and Pathology	22.60%	10.9%
VII. Radiation Safety	15.13%	9.2%

Write-In Comments

Many survey respondents provided responses to the open-ended questions in Section 5: Comments, about expected changes in their job role over the next few years. See Appendix I for these comments.

DEVELOPMENT OF TEST SPECIFICATIONS FOR THE CT EXAM

The test specification meeting for the CT exam occurred August 22, 2025, via web conference. The steps involved in the development of test specifications included the following:

- Presentation of the job analysis project and results to the Test Specifications Committee;
- Identification of the task, knowledge, and skill statements to be included on the CT test specifications; and,
- Development of the test content weights for the exam.

Presentation of the Job Analysis Project and Results to the Test Specifications Committee

The first activity involved in the test specifications development was to provide the Test Specifications Committee with an overview of the job analysis activities that were conducted. This was followed by a presentation of the results of the study.

Identification of the Task, Knowledge, and Skill Statements to be Included on the CT Exam

The Test Specifications Committee reviewed the task, knowledge, and skills results to make final recommendations about the areas that should be included on the exam.

The survey results served as the primary source of information used by the Test Specification Committee members to make test content decisions. Recommendations were based on the following criteria:

- Mean task, knowledge, and skill ratings for all respondents;
- Frequency distribution of ratings for all respondents; and,
- Appropriateness of the content for the examination.

Appendix J outlines the task, knowledge, and skill approval decisions.

Tasks Recommended for Inclusion

- A total of 45 of the 45 tasks achieved mean ratings at or above 2.50 (Pass category) and all were included in the test specifications. None of the statements required modification from the survey.

Knowledge and Skills Recommended for Inclusion

- All 141 of the 141 knowledge and skill statements achieved mean ratings at or above 2.50 (Pass category) and were included in the test specifications. One additional knowledge/skill statement was added based on survey comments.

The final version of the task, knowledge, and skill statements can be found in Appendix J.

Development of Test Content Weights

The Test Specifications Committee participated in an exercise that required each member to assign a percentage weight to each of the knowledge and skill domains. Weights were then entered into a spreadsheet and shown to the committee. The committee members were able to compare the test content weights derived from the survey responses, the current exam weights, and their own independent estimates. This resulted in a productive discussion among the committee members regarding the optimal percentages for the exam.

Table 4 shows the test specifications recommendation including the agreed upon percentages.

Table 4. CT Test Content Weights Recommended by the Test Specifications Committee

Knowledge and Skill Domains	No. of Statements	% Weight
I. System Operations and Instrumentation	10	13%
II. Data Acquisition and Post Processing	23	12%
III. Image Quality and Quality Assurance	24	13%
IV. Patient Management	2	8%
V. Medications and Contrast Agents	12	14%
VI. CT Procedures: Anatomy, Elements, Indications, and Pathology	59	25%
VII. Radiation Safety	11	15%

The final CT test specifications are located in Appendix K.

SUMMARY AND CONCLUSIONS

The job analysis study for NMTCB identified tasks, knowledge, and skills that are important to the work performed by CT technologists. Furthermore, the data collected can be used to guide the development of the test specifications used for the CT exam.

The task, knowledge, and skill statements were developed through an iterative process involving the combined efforts of NMTCB, subject-matter experts, and Prometric staff. These statements were assembled into a survey and disseminated to individuals in the CT field for verification/refutation. Survey participants were asked to rate the importance of task, knowledge, and skill statements.

The result of the study supports the following:

- Task, knowledge, and skill statements that were verified as important through the survey provide a foundation of empirically derived information from which to develop test specifications for the CT exam.
- Evidence was provided in this study that the comprehensiveness of the content within the task and knowledge and skill domains was “well” covered.
- Both the process utilized, and survey results support the development of content-valid test specifications.

In summary, the job analysis study used a multi-method approach to identify the tasks, knowledge, and skills that are important to the work performed by CT technologists. The results of the study were used to develop the test specifications for NMTCB’s CT exam.