Role Delineation Study Report

National Cancer Registrars Association (NCRA)

Certified Tumor Registrar (CTR)

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Contents

Executive Summary

This report describes the methodology and procedures used to conduct a role delineation study and develop updated exam specifications for the National Cancer Registrars Association (NCRA) Certified Tumor Registrar (CTR) certification examination.

The three major activities that comprise the role delineation process described in this report are as follows:

1. **Role Delineation Study Project Task Force Meeting** – A gathering of subject matter experts (SMEs) to discuss and develop a description of the scope of practice
2. **Role Delineation Survey** – A large-scale survey of practitioners not involved with the SME panel to validate the task and knowledge statements developed by the task force
3. **Development of Examination Specifications** – The development of an Examination Content Outline by the task force based on the results of the survey

Several practitioners were assembled by NCRA to serve as subject matter experts (SMEs). The individuals selected represent a wide variety of work-related characteristics such as years of experience, work setting, geographic location, and areas of specialty. This helps in developing a scope of practice that is reflective of the roles and responsibilities of the job role and is relatively free from bias. By analyzing the experiences and expertise of current practitioners, the results from the role delineation study become the basis of a validated assessment that reflects the competencies required for competent job performance for professionals at the foundational level.

The role delineation study process utilized in this study yields exam specifications that accurately reflect the scope of practice, allowing for the development of fair, accurate, and realistic assessments of candidates' readiness for certification. The resultant Examination Content Outline (Appendix E) indicates a 180-item examination with content distribution requirements at the competency area (content domain) level which are:

1. Legal and Ethical Aspects in the Cancer Registry Profession
2. Cancer Registry Operations
3. Cancer Registry Data Identification
4. Cancer Registry Data Coding and Abstraction

Introduction

This report describes the methodology and procedures used to conduct a role delineation study and develop the exam specifications for the National Cancer Registrars Association (NCRA) Certified Tumor Registrar (CTR) certification examination.

The role delineation study was conducted in accordance with principles and practices outlined in the *Standards for Educational and Psychological Testing*[1], which describe principles and guidelines for all aspects of test development, including content validation.

A role delineation study (sometimes referred to as a practice analysis, job task analysis, work analysis, or competency profiling) is a scientific inquiry conducted to identify the tasks and work activities conducted, the context in which those tasks and activities are carried out, and the competencies (knowledge areas, skills, and abilities) required to perform a job role successfully[2]. Different methods can be used which may differ in the levels of specificity in analyzing and describing different work elements, with the choice of method largely dependent on the intended purpose and use of the results. The methodology of the current analysis was tailored to the creation of exam specifications for test development.

When completed, the role delineation study process utilized in this study yields exam specifications that accurately reflect the scope of practice, allowing for the development of fair, accurate, and realistic assessments of candidates' readiness for certification. The role delineation study is typically performed every 5 to 7 years so that the content outline represents the current scope of practice. Because it serves as the primary basis for content validity evidence, as required by the aforementioned standards, the role delineation study is a primary mechanism by which a certifying body or regulatory board can ensure the accuracy and defensibility of an exam. It serves as the foundation of the certification exam and is critical to the success of the entire exam development process. All necessary documentation verifying that the validation process has been implemented in accordance with professional standards is included in this report.

This report is divided into the major activities of the role delineation study process, which are:

1. **Role Delineation Study Project Task Force Meeting** – A gathering of subject matter experts (SMEs) to discuss and develop a description of the scope of practice
2. **Role Delineation Survey** – A large-scale survey of practitioners not involved with the SME panel to validate the task and knowledge statements developed by the task force
3. **Development of Examination Specifications** – The development of an Examination Content Outline by the task force based on the results of the survey

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

[2] Sackett, P.R., Walmsley, P.T., Laczo, R.M. (2012). *Job and work analysis: Industrial and Organizational Psychology.* In N. Schmitt, S. Highhouse (Eds.), Comprehensive Handbook of Psychology, Volume 12. New York, NY: John Wiley and Sons.

Role Delineation Study Project Task Force Meeting

NCRA selected subject matter experts (SMEs) to represent a wide variety of work-related characteristics such as years of experience, work setting, geographic location, and areas of specialty to develop a scope of practice that is reflective of the roles and responsibilities of the job and is relatively free from bias. See Appendix A for a complete list of the SMEs and their qualifications.

PSI Services LLC (PSI) conducted a role delineation study project task force meeting on April27, 2022 with SMEs to discuss the scope of practice and develop a list of tasks and knowledge areas that reflect the job role. PSI led the SMEs in refining task and knowledge statements and organizing them into a domain and subdomain structure. The outgoing exam content outline was used as a resource when developing the knowledge and tasks. See Appendix B for the presentation used to orient the role delineation study project task force at the beginning of the meeting.

The role delineation study project task force developed 63 task statements across 7 content domains, as follows:

CASEFINDING

1. Review source documents for potentially reportable cases to enter into a suspense file.
2. Determine single versus multiple primaries.

ABSTRACTING/CODING

3. Verify and enter demographic information at diagnosis.
4. Identify primary payor.
5. Collect information on secondary diagnoses.
6. Collect information on family history, and tobacco history.
7. Assign accession and sequence numbers.
8. Analyze medical record source documents to code primary cancer characteristics (e.g., primary site, histology)
9. Analyze medical record source documents to interpret and code facility-specific information (e.g., date of first contact, class of case, and managing physician).
10. Record pertinent information from source documents in text format to support all coded data items.
11. Clarify conflicting, ambiguous, or incomplete documentation.
12. Determine the TNM stage of primary cancer.
13. Determine the Summary stage of primary cancer.
14. Determine the Specialty stage of primary cancer.
15. Code other stage related elements (e.g., site specific data items, mets at diagnosis).
16. Use standard of care treatment guidelines to identify expected care.
17. Analyze source documents to interpret and code first course of treatment.
18. Determine first course treatment vs. subsequent treatment.
19. Interpret and resolve single-field, inter-field and inter-record edit errors.
20. Update or correct cases as necessary from a quality control review (e.g., internal or external review, including central registry).

FOLLOW-UP

21. Obtain follow-up information from physicians, patients, and/or other sources.
22. Enter follow-up information, such as: vital status, cancer status, date of last contact, and first recurrence.
23. Determine the need to submit additional information to central registries for previously reported patients.

DATA QUALITY ASSURANCE

24. Comply with the registry quality control plan.
25. Analyze the use of unknown and NOS data values.
26. Respond to inquiries from central registries
27. Participate in casefinding audits to assess completeness of case reporting.
28. Participate in audits to assess accuracy of data.
29. Review and edit reports from external sources (e.g., NCDB, central registries) to improve the quality of facility data.
30. Engage in education and training based on results of quality reviews.
31. Communicate results of quality assurance activities to appropriate entities.
32. Participate in quality assurance studies conducted by standard setters (e.g., reliability studies).

ANALYSIS AND DATA USAGE

33. Recommend data selection criteria for study requests.
34. Provide data for the evaluation of treatment, patient outcomes, and quality of life.
35. Prepare reports to document research results and satisfy requests for data.
36. Process data requests according to privacy standards and institutional policy.
37. Provide information to support strategic planning, education, research, and marketing.
38. Monitor program adherence to evidence-based clinical practice guidelines.
39. Generate data to identify the need for screening, prevention, or educational programs.

REGISTRY ORGANIZATION AND OPERATIONS

40. Maintain knowledge of current trends, standards, and developments in oncology, cancer registry, and cancer program management.
41. Establish liaisons with peer professionals and organizations
42. Increase awareness and encourage the utilization of data derived from the registry.
43. Ensure program compliance with state/provincial and national registry rules, regulations and standards.
44. Prepare and submit data to a central cancer registry.
45. Process registry software upgrades or data conversions.
46. Comply with applicable laws, regulations and policies regarding confidentiality, release of information, use of medical records, and research.
47. Maintain up-to-date policies and procedures.
48. Participate in the development of outcomes analyses and annual reports for dissemination.
49. Understand staff roles and responsibilities.
50. Comply with productivity standards and quality metrics.
51. Manage work assignments to meet project goals.
52. Define and document operational requirements.
53. Share information for reportable cases with other cancer registrars within the institutional confidentiality guidelines.

CANCER PROGRAM ACCREDITATIONS

54. Collaborate with committees (e.g., cancer committee, breast program leadership) to plan and schedule committee activities.
55. Coordinate and participate in committee meetings.
56. Prepare data and reports for presentation at committee meetings.
57. Document cancer program activities in committee meeting minutes.
58. Maintain supporting documentation necessary for accreditation.
59. Participate in accreditation site visits.
60. Coordinate resolution of deficiencies identified during accreditation surveys.
61. Coordinate cancer conference activities.
62. Document cancer conference activities.
63. Facilitate discussion of NCCN guidelines, prognostic indicators, and options for clinical trial participation.

The role delineation study project task force developed fifty-one knowledge statements across five content domains, as follows.

LEGAL AND ETHICAL ASPECTS OF CANCER REGISTRY DATA

1. Laws, regulations, and policies governing release of information, use of medical records, and research
2. Safeguards for maintaining the confidentiality of protected health information
3. Professional Ethics
4. Reporting requirements (e.g., state, provincial, territorial, federal)

REGISTRY OPERATIONS

5. CoC
6. NAACCR
7. NPCR
8. NCI/SEER
9. NCCN
10. CAP
11. NAPBC
12. Functions of the different types of cancer registries (e.g., facility, central, specialty)
13. Central registry-specific edits
14. Quality improvement principles
15. Benchmarking principles and methods
16. Geocoding
17. Evidence-based guidelines for cancer screening and prevention

DATA COLLECTION AND ABSTRACTION

18. Medical terminology and standard abbreviations
19. Human anatomy and physiology
20. Guidelines for reportable case identification
21. Types and characteristics of cancer
22. Solid Tumor Rules (STR)
23. Hematopoietic and lymphoid neoplasm rules
24. ICD-O-3 classification (topography, morphology, behavior)
25. Casefinding methods
26. Electronic pathology reporting
27. Data items required by standard setters (e.g., CoC, SEER)

28. Organization and content of source documents (e.g., medical records)
29. Staging systems and their use (e.g., Summary Stage, TNM, EOD)
30. Diagnostic and staging procedures (e.g., PET, MRI, endoscopy)
31. Prognostic indicators (e.g., HPV, KRAS, HER-2)
32. Specialty lab testing methods (e.g., RT-PCR, FISH)
33. Types of cancer treatment appropriate to diagnosis
34. Cancer treatment coding
35. Follow-up principles and processes

DATA MANAGEMENT AND QUALITY

36. Quality control plan elements, activities, and methods
37. Casefinding and quality assurance audit techniques
38. Database management concepts (e.g., updates, back-ups, relational databases, data extraction)
39. Electronic data transfer techniques
40. Record linkage purposes and methods (e.g., probabilistic, deterministic)
41. Records consolidation concepts and processes
42. Death clearance and follow-back principles and practices
43. Record layout formats (e.g., NAACCR, XML, HL7)

DATA ANALYSIS & INTERPRETATION

44. Basic statistics (e.g., frequency distributions, measures of central tendency, risk ratio, odds ratio, relative risk)
45. Basic parametric and nonparametric tests (e.g., chi-square, t-test, analysis of variance)
46. Statistical validity (e.g., p values, confidence intervals)
47. Survival analysis principles and methods (e.g., Life Table, Kaplan-Meier)
48. Principles of epidemiology (e.g., incidence and prevalence, study designs)
49. Data selection and database query techniques
50. Tabular and graphical data presentation techniques
51. Uses for facility cancer registry data

Role Delineation Survey

PSI developed, administered, and monitored a survey to validate the tasks and knowledge areas developed by the role delineation study project task force and to help determine content weighting. To this end, the survey collected respondents' ratings of the importance and frequency for each task and knowledge area. The importance and frequency scale were used to evaluate the appropriateness of the inclusion of each knowledge statement and task.

Importance

How important is this knowledge area to your practice as a cancer registry professional?

How important is this task to your practice as a cancer registry professional?

0 - Not applicable
1 - Minimally important
2 - Somewhat important
3 - Moderately important
4 - Very important
5 - Critically important

Frequency

How frequently do you apply this knowledge area to your practice as a cancer registry professional?

How frequently do you perform this task in your practice as a cancer registry professional?

0 - Never
1 - Very rarely
2 - Seldom
3 - Occasionally
4 - Frequently
5 - Very frequently

Between May 16, 2022, and May 20, 2022, a pilot survey was conducted with the role delineation study project task force to ensure that the survey was operating correctly, and any modifications or corrections were made addressed the pilot survey reviewers' comments. See Appendix C for a copy of the final role delineation survey.

The live survey was sent using online survey software to a list of 7,232 individuals that was obtained from NCRA. An additional group of potential respondents were emailed the survey link whereas 477 responded. The number of individuals that responded to the survey (tasks and knowledge statements) was 965 (12.5%). The survey was opened on May 31, 2022 and closed on July 1, 2022. See Appendix D for the email sent to potential respondents.

Following the close of the survey, the data were analyzed to identify any respondents who did not complete the survey or provided responses lacking any variance (i.e., "straight-lining" or providing the same response to every task or knowledge). Responses from one respondent was removed from the data set, yielding a usable number of 964 completed responses.

Table 1 shows the mean ratings provided for frequency and importance of the task statements. Table 2 shows the mean ratings provided for the frequency and importance of the knowledge statements.

Table 1.

Frequency and Importance Ratings for Task Statements.

Task Statements		Importance	Frequency
T1	Review source documents for potentially reportable cases to enter into a suspense file.	3.87	3.44
T2	Determine single versus multiple primaries.	4.23	3.85
T3	Verify and enter demographic information at diagnosis.	4.00	4.00
T4	Identify primary payor.	2.90	3.59
T5	Collect information on secondary diagnoses.	2.92	3.32
T6	Collect information on family history, and tobacco history.	3.34	3.69
T7	Assign accession and sequence numbers.	3.90	3.88
T8	Analyze medical record source documents to code primary cancer characteristics (e.g., primary site, histology).	4.40	4.21
T9	Analyze medical record source documents to interpret and code facility-specific information (e.g., date of first contact, class of case, and managing physician).	4.06	4.03
T10	Record pertinent information from source documents in text format to support all coded data items.	4.18	4.07
T11	Clarify conflicting, ambiguous, or incomplete documentation.	4.00	3.75
T12	Determine the TNM stage of primary cancer.	4.02	3.88
T13	Determine the Summary stage of primary cancer.	4.09	4.09
T14	Determine the Specialty stage of primary cancer.	3.73	3.58
T15	Code other stage related elements (e.g., site specific data items, mets at diagnosis).	4.17	4.10
T16	Use standard of care treatment guidelines to identify expected care.	3.52	3.43
T17	Analyze source documents to interpret and code first course of treatment.	4.20	4.07
T18	Determine first course treatment vs. subsequent treatment.	4.14	4.03
T19	Interpret and resolve single-field, inter-field and inter-record edit errors.	4.05	3.83
T20	Update or correct cases as necessary from a quality control review (e.g., internal or external review, including central registry).	3.88	3.45
T21	Obtain follow-up information from physicians, patients, and/or other sources.	3.20	2.85
T22	Enter follow-up information, such as: vital status, cancer status, date of last contact, and first recurrence.	3.77	3.62
T23	Determine the need to submit additional information to central registries for previously reported patients.	2.67	2.32
T24	Comply with the registry quality control plan.	3.78	3.82
T25	Analyze the use of unknown and NOS data values.	3.01	2.57
T26	Respond to inquiries from central registries.	2.69	2.09

Task Statements		Importance	Frequency
T27	Participate in casefinding audits to assess completeness of case reporting.	3.09	2.43
T28	Participate in audits to assess accuracy of data.	3.48	2.9
T29	Review and edit reports from external sources (e.g., NCDB, central registries) to improve the quality of facility data.	2.80	2.37
T30	Engage in education and training based on results of quality reviews.	3.55	3.1
T31	Communicate results of quality assurance activities to appropriate entities.	3.03	2.63
T32	Participate in quality assurance studies conducted by standard setters (e.g., reliability studies).	2.77	2.25
T33	Recommend data selection criteria for study requests.	2.37	1.89
T34	Provide data for the evaluation of treatment, patient outcomes, and quality of life.	2.54	2.07
T35	Prepare reports to document research results and satisfy requests for data.	2.52	2.03
T36	Process data requests according to privacy standards and institutional policy.	2.85	2.3
T37	Provide information to support strategic planning, education, research, and marketing.	2.42	2.00
T38	Monitor program adherence to evidence-based clinical practice guidelines.	2.42	1.95
T39	Generate data to identify the need for screening, prevention, or educational programs.	2.24	1.68
T40	Maintain knowledge of current trends, standards, and developments in oncology, cancer registry, and cancer program management.	3.89	3.89
T41	Establish liaisons with peer professionals and organizations	2.88	2.68
T42	Increase awareness and encourage the utilization of data derived from the registry.	2.67	2.27
T43	Ensure program compliance with state/provincial and national registry rules, regulations and standards.	3.56	3.43
T44	Prepare and submit data to a central cancer registry.	2.79	2.26
T45	Process registry software upgrades or data conversions.	2.74	1.87
T46	Comply with applicable laws, regulations and policies regarding confidentiality, release of information, use of medical records, and research.	4.29	4.08
T47	Maintain up-to-date policies and procedures.	3.14	2.78
T48	Participate in the development of outcomes analyses and annual reports for dissemination.	2.29	1.81
T49	Understand staff roles and responsibilities.	3.63	3.82
T50	Comply with productivity standards and quality metrics.	3.69	3.85
T51	Manage work assignments to meet project goals.	3.73	3.78
T52	Define and document operational requirements.	2.61	2.21
T53	Share information for reportable cases with other cancer registrars within the institutional confidentiality guidelines.	2.98	2.55

Task	Statements	Importance	Frequency
T54	Collaborate with committees (e.g., cancer committee, breast program leadership) to plan and schedule committee activities.	2.03	1.74
T55	Coordinate and participate in committee meetings.	2.35	2.16
T56	Prepare data and reports for presentation at committee meetings.	2.36	2.01
T57	Document cancer program activities in committee meeting minutes.	2.02	1.61
T58	Maintain supporting documentation necessary for accreditation.	2.41	2.09
T59	Participate in accreditation site visits.	2.34	1.89
T60	Coordinate resolution of deficiencies identified during accreditation surveys.	2.05	1.42
T61	Coordinate cancer conference activities.	1.94	1.53
T62	Document cancer conference activities.	2.13	1.81
T63	Facilitate discussion of NCCN guidelines, prognostic indicators, and options for clinical trial participation.	1.75	1.30

Table 2.

Frequency and Importance Ratings for Knowledge Statements.

Knowledge	Statements	Importance	Frequency
K1	Laws, regulations, and policies governing release of information, use of medical records, and research	3.99	3.45
K2	Safeguards for maintaining the confidentiality of protected health information	4.56	4.30
K3	Professional Ethics	4.35	4.15
K4	Reporting requirements (e.g., state, provincial, territorial, federal)	4.21	4.09
K5	CoC	3.39	3.31
K6	NAACCR	3.58	3.46
K7	NPCR	2.77	2.61
K8	NCI/SEER	3.63	3.65
K9	NCCN	3.13	3.01
K10	CAP	3.31	3.14
K11	NAPBC	2.22	2.02
K12	Functions of the different types of cancer registries (e.g., facility, central, specialty)	2.73	2.66
K13	Central registry-specific edits	3.40	3.30
K14	Quality improvement principles	3.63	3.53
K15	Benchmarking principles and methods	2.90	2.75
K16	Geocoding	1.75	1.46
K17	Evidence-based guidelines for cancer screening and prevention	2.47	2.30
K18	Medical terminology and standard abbreviations	4.37	4.54
K19	Human anatomy and physiology	4.46	4.54
K20	Guidelines for reportable case identification	4.49	4.50

Knowledge Statements		Importance	Frequency
K21	Types and characteristics of cancer	4.42	4.46
K22	Solid Tumor Rules (STR)	4.47	4.45
K23	Hematopoietic and lymphoid neoplasm rules	4.38	4.25
K24	ICD-O-3 classification (topography, morphology, behavior)	4.57	4.59
K25	Casefinding methods	4.09	3.95
K26	Electronic pathology reporting	3.47	3.27
K27	Data items required by standard setters (e.g., CoC, SEER)	4.31	4.38
K28	Organization and content of source documents (e.g., medical records)	3.98	3.99
K29	Staging systems and their use (e.g., Summary Stage, TNM, EOD)	4.46	4.47
K30	Diagnostic and staging procedures (e.g., PET, MRI, endoscopy)	4.26	4.33
K31	Prognostic indicators (e.g., HPV, KRAS, HER-2)	4.08	4.18
K32	Specialty lab testing methods (e.g., RT-PCR, FISH)	3.98	4.03
K33	Types of cancer treatment appropriate to diagnosis	4.20	4.23
K34	Cancer treatment coding	4.33	4.32
K35	Follow-up principles and processes	3.65	3.63
K36	Quality control plan elements, activities, and methods	3.44	3.23
K37	Casefinding and quality assurance audit techniques	3.51	3.20
K38	Database management concepts (e.g., updates, back-ups, relational databases, data extraction)	3.03	2.71
K39	Electronic data transfer techniques	2.98	2.65
K40	Record linkage purposes and methods (e.g., probabilistic, deterministic)	2.16	1.82
K41	Records consolidation concepts and processes	2.36	2.02
K42	Death clearance and follow-back principles and practices	3.01	2.66
K43	Record layout formats (e.g., NAACCR, XML, HL7)	2.49	2.21
K44	Basic statistics (e.g., frequency distributions, measures of central tendency, risk ratio, odds ratio, relative risk)	3.16	2.96
K45	Basic parametric and nonparametric tests (e.g., chi-square, t-test, analysis of variance)	3.14	2.99
K46	Statistical validity (e.g., p values, confidence intervals)	2.50	2.26
K47	Survival analysis principles and methods (e.g., Life Table, Kaplan-Meier)	2.21	1.96
K48	Principles of epidemiology (e.g., incidence and prevalence, study designs)	1.43	1.06
K49	Data selection and database query techniques	1.71	1.38
K50	Tabular and graphical data presentation techniques	1.70	1.34
K51	Uses for facility cancer registry data	1.97	1.65

The survey included demographic questions regarding professional characteristics relevant to the job role. Tables 3 through 18 show a summary of the demographic questions in the survey.

Table 3.

Location.

What country do you primarily work in?	*n*	%
US	937	97.2
Canada	12	1.2
Other	15	1.6
Total	964	100

Note: Other stated countries include Taylor, Singapore, Guam (Pacific Region), Cuba, Colombia, Trinidad and Tobago, Iran, Sudan, Kenya, Australia, Saudi Arabia, Antigua and Barbuda, Nigeria, Indonesia, Russia

Table 4.

American Location.

What US state/territory do you primarily work in?	*n*	%
Alabama	9	0.9
Alaska	5	0.5
American Samoa	1	0.1
Arizona	14	1.5
Arkansas	9	0.9
California	83	8.6
Colorado	25	2.6
Connecticut	9	0.9
Delaware	4	0.4
District of Columbia	3	0.3
Florida	36	3.7
Georgia	37	3.8
Guam	2	0.2
Hawaii	3	0.3
Idaho	6	0.6
Illinois	26	2.7
Indiana	32	3.3
Iowa	15	1.6
Kansas	9	0.9
Kentucky	15	1.6
Louisiana	11	1.1
Maine	8	0.8
Maryland	19	2
Massachusetts	25	2.6
Michigan	21	2.2
Minnesota	28	2.9
Mississippi	7	0.7
Missouri	30	3.1
Montana	8	0.8
Nebraska	6	0.6

What US state/territory do you primarily work in?	*n*	%
Nevada	4	0.4
New Hampshire	11	1.1
New Jersey	26	2.7
New Mexico	11	1.1
New York	40	4.1
North Carolina	28	2.9
North Dakota	3	0.3
Ohio	31	3.2
Oklahoma	7	0.7
Oregon	13	1.3
Pennsylvania	51	5.3
Puerto Rico	3	0.3
Rhode Island	2	0.2
South Carolina	18	1.9
South Dakota	7	0.7
Tennessee	19	2
Texas	53	5.5
U.S. Virgin Islands	1	0.1
Utah	15	1.6
Vermont	1	0.1
Virginia	23	2.4
Washington	30	3.1
West Virginia	6	0.6
Wisconsin	24	2.5
Wyoming	4	0.4

Table 5.

Canadian Location.

What Canadian province do you primarily work in?	*n*	%
Alberta	2	0.2
Newfoundland and Labrador	1	0.1
Northwest Territories	1	0.1
Nova Scotia	1	0.1
Ontario	3	0.3
Prince Edward Island	1	0.1
Saskatchewan	3	0.3

Table 6.

Education.

What is your highest level of education?	*n*	%
High School	30	3.1
Some college, No degree	112	11.6
Associate Degree	318	33
Bachelor's Degree	318	33
Master's Degree	135	14
Doctorate Degree	33	3.4
Other	18	1.9
Total	964	100

Note: Other stated levels of are education are RN Diploma; Associate's degree, LVN, CCS; MD Master; MD PhD; LPN; CTR (2); diploma registered nurse; Technical training; Business School; Dental Hygiene; Diploma; Certification programs; CTR cert, management cert, 600-hr Ayurveda cert.; Associates and Cancer Registry Management Program; technical school; Higher National Diploma in Statistics; some college, No degree and one year of technical school

Table 7.

CTR Status.

Are you currently a Certified Tumor Registrar?	*n*	%
Yes	859	89.1
No	105	10.9
Total	964	100

Table 8.

Job Placement.

For which type of facility do you perform the majority of your registry activities?	*n*	%
Cancer Registry Educational Program/College	12	1.2
Cancer Registry Services/Contractor	73	7.6
Central/State/Provincial Registry	206	21.4
Federal/National Registry	18	1.9
Freestanding Outpatient Facility	6	0.6
Hospital/Healthcare System	615	63.8
Software Vendor	5	0.5
Not currently employed	8	0.8
Other (please specify)	21	2.2
Total	964	100

Note: Other stated facilities are research & precision medicine company, State Registry, VA MEDICAL CENTER, RWD company, Contract NPCR SME, NAACCR, Saskatchewan Cancer Agency, health care data management company, Cancer Research, standard-setter agency, Technology Company, Contractor and BioTech company, Regional Central Cancer Registry, non-profit, VA hospital, RWD, Central and Hospital, Gov contractor for public health studies, Population Base Cancer Registry, Federal VA Contractor - work at many VA's remotely, Standard Setter

Table 9.

Job Descriptions.

For which of the following most closely approximates your job title?	*n*	%
Abstractor	146	15.1
Analyst	54	5.6
Cancer Registrar	373	38.7
Consultant	9	0.9
Coordinator	67	7
Director	53	5.5
Manager	120	12.4
Quality Specialist	74	7.7
Supervisor	57	5.9
Student	3	0.3
Unemployed/Currently not working	8	0.8
Total	964	100

Table 10.

Accrediting Body.

Who is your program accredited by?	*n*
Commission on Cancer (CoC)	652
National Accreditation Program for Breast Centers (NAPBC)	356
National Accreditation Program for Rectal Cancer (NAPRC)	102
My program is not ACoS accredited.	318

Table 11.

Time in Cancer Registry.

How many years of experience do you have working in Cancer Registry?
Mean = 15.46 | Standard Deviation = 11.04 | Minimum = 0 | Maximum = 50

Table 12.

Supervision.

How many staff do you manage?
Mean = 3.54 | Standard Deviation = 9.50 | Minimum = 0 | Maximum = 100

Table 13.

Remote Working.

What percentage of your work is conducted remotely?
Mean = 78.84 | Standard Deviation = 34.85 | Minimum = 0 | Maximum = 100

Table 14.

Workload.

Approximately how many total cases are accessioned annually at your registry?
Mean = 15,583.41 | Standard Deviation = 71,876.77 | Minimum = 0 | Maximum = 1,000,000

Note: The median number of total cases is 2,400.

Table 15.

Personnel.

What are the number of full-time equivalent (FTE) positions in your registry?
Mean = 192.94 | Standard Deviation = 3,627.01 | Minimum = 0 | Maximum = 99,999

Note: The median number of FTEs is 6.

Following the creation of the task and knowledge lists, the task force members were tasked with identifying linkages between the task and knowledge statements. This was done to provide evidence that the knowledge areas were indeed required to perform the tasks identified. This was also done to ensure that each task was covered by at least one relevant knowledge area and that each knowledge area had at least one relevant task identified. Table 19 shows a matrix of knowledge-task linkages identified.

Table 19.

Linkages Among Knowledge and Task Statements.

	T1	T2	T3	T4	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T22	T24	T28	T40	T43	T46	T49	T50	T51
K1																							X	X				
K2																									X			
K3																									X	X	X	
K4							X	X	X							X	X							X	X			
K5																							X					
K6																							X					
K7																							X					
K8																							X					
K9															X								X					
K10																							X					
K12																										X		
K13																		X										
K14																			X		X						X	
K36										X									X		X	X					X	
K37	X					X													X									
K44																											X	X
K18										X																		
K19										X	X																	
K20	X																											
K21										X	X																	
K24							X																					
K25	X					X																						
K26	X																											
K27			X	X	X	X		X									X											
K28							X	X	X																			
K30														X														
K31											X																	
K32							X																					
K33														X	X	X	X											
K35														X						X								
K22		X																										
K23													X	X														
K29											X	X	X	X														
K34															X	X												

Development of Exam Specifications

The role delineation study project task force met on July 22, 2022 and August 4, 2022 to review the results of the survey, finalize the tasks and knowledge that would comprise the next Examination Content Outline, and finalize the content weighting for the examination.

The task force reviewed the demographic results and confirmed that the results matched expectations and impressions of the practitioner population, suggesting that the respondent sample is reflective of the target population.

Based on the mean frequency and importance values, some of the tasks and knowledge statements were viewed as potentially too low for further consideration. The task force then came to consensus on which of the underperforming tasks and knowledge statements should remain. This led to the removal of thirty-five tasks (T5, T21, T23, T25 - T27, T29 – T39, T41, T42, T44, T45, T47, T48, T52 – T63) and seventeen knowledge statements (K11, K15 – K17, K38 – K43, K45 – K51).

The task force then reviewed the draft content weighting, discussing any adjustments necessary to align the number of items per content area for adequate content coverage on the assessment. The draft content weighting was developed by calculating the criticality value (mean importance rating multiplied by the mean frequency rating) and then determining a percentage weight based on the relative weight of the criticality value for each content area.

Since so many knowledge statements were removed from domains 4) Data Management and Quality and 5) Data Analysis and Interpretation; they were removed, and Data Collection and Abstraction was separated into two domains: Data Identification; and Coding and Abstraction. This led to a divergence from the survey data in the suggested weightings.

It was also decided that name changes to the domains should be made that were more descriptive. Legal and Ethical Aspects of Cancer Registry Data became Legal and Ethical Aspects in the Cancer Registry Profession; Registry Operations is now Cancer Registry Operations; Data Identification turned into Cancer Registry Data Identification; and similarly, Coding and Abstraction turned into Cancer Registry Data Coding and Abstraction. Lastly, the previous secondary classification that separated the exam into open book and closed book sections across domains was simplified to add utility to the score report as well as improve the studying and testing experience. Only Coding and Abstraction is in the open book section while the other three domains are in the closed book section.

See Table 20 for a summary of the content weighting determination. The final Examination Content Outline can be found in Appendix E.

Table 20.

Content Weighting Determination.

Knowledge Statements		Criticality	Percentage	Draft # Items	Final # Items
Legal and Ethical Aspects in the Cancer Registry Profession		**17.16**	**26.57%**	**48**	**30**
K1	Laws, regulations, and policies governing release of information, use of medical records, and research				
K2	Safeguards for maintaining the confidentiality of protected health information				
K3	Professional Ethics				
K4	Reporting requirements (e.g., state, provincial, territorial, federal)				
Cancer Registry Operations		**10.57**	**16.37%**	**29**	**45**
K5	CoC				
K6	NAACCR				
K7	NPCR				
K8	NCI/SEER				
K9	NCCN				
K10	CAP				
K12	Functions of the different types of cancer registries (e.g., facility, central, specialty)				
K13	Central registry-specific edits				
K14	Quality improvement principles				
K36	Quality control plan elements, activities, and methods				
K37	Casefinding and quality assurance audit techniques				
K44	Basic statistics (e.g., frequency distributions, measures of central tendency, risk ratio, odds ratio, relative risk)				
Cancer Registry Data Identification		**17.56**	**27.19%**	**49**	**45**
K18	Medical terminology and standard abbreviations				
K19	Human anatomy and physiology				
K20	Guidelines for reportable case identification				
K21	Types and characteristics of cancer				
K24	ICD-O-3 classification (topography, morphology, behavior)				
K25	Casefinding methods				
K26	Electronic pathology reporting				
K27	Data items required by standard setters (e.g., CoC, SEER)				
K28	Organization and content of source documents (e.g., medical records)				
K30	Diagnostic and staging procedures (e.g., PET, MRI, endoscopy)				

Knowledge Statements		Criticality	Percentage	Draft # Items	Final # Items
K31	Prognostic indicators (e.g., HPV, KRAS, HER-2)				
K32	Specialty lab testing methods (e.g., RT-PCR, FISH)				
K33	Types of cancer treatment appropriate to diagnosis				
K35	Follow-up principles and processes				
Cancer Registry Data Coding and Abstraction		**19.29**	**29.87%**	**54**	**60**
K22	Solid Tumor Rules (STR)				
K23	Hematopoietic and lymphoid neoplasm rules				
K29	Staging systems and their use (e.g., Summary Stage, TNM, EOD)				
K34	Cancer treatment coding				

Appendix A

Subject Matter Experts

Role Delineation Study Project Task Force [3]

NAME	RELEVANT CREDENTIALS	YEARS OF EXPERIENCE	EMPLOYER/ AFFILIATION	JOB TITLE	GEOGRAPHIC LOCATION
Constance Boone	CTR	5	South Carolina Central Cancer Registry	Quality Control/Education Manager	SC
Danette Clark	BS, RMA, AAS, CTR	12	Atlantic Health System New Jersey	Program Manager	NJ
Jackie Halsey	CTR, CNMT	14	Rochester Community and Technical College	Cancer Registry Management Program Director and Instructor	MN
Jennie Jones	MHSI-HA, CHDA, CTR	14	Moffitt Cancer Center	Director, Cancer Registry	FL
Kate Palmer	MPH, CTR	3	University of Pennsylvania Health System	Certified Tumor Registrar	PA
Leslie Stroud	RHIA, CTR	15	Regional One Health	Oncology Accreditation Manager	TN
Leslie Woodard	CHCM, CTR	8.5	Franciscan Health Indianapolis	Tumor Registry Quality Supervisor	IN
Noah Reid	CTR	15	OncoTeam Consulting	Cancer Program Consultant	CA
Peggy Wight	BA, CTR	19	Jefferson Health New Jersey	Director Oncology Data Services	NJ
Tricia Obrecht	CTR	25	Mercyhealth	Cancer Registry Supervisor	WI

[3] NCRA staff (Leah Kiesow, MBA, BS, CTR and Michael Hechter, BS) supported the task force.

Appendix B Exam Content Outline (180 items)

1. Legal and Ethical Aspects in the Cancer Registry Profession..... 30 [Closed book]

Laws, regulations, and policies governing release of information, use of medical records, and research

Safeguards for maintaining the confidentiality of protected health information

Professional Ethics

Reporting requirements (e.g., state, provincial, territorial, federal)

2. Cancer Registry Operations..... 45 [Closed book]

CAP; CoC; NAACCR; NCCN; NPCR; SEER

Functions of the different types of cancer registries (e.g., facility, central, specialty)

Central registry-specific edits

Quality improvement principles

Quality control plan elements, activities, and methods

Casefinding and quality assurance audit techniques

Basic statistics (e.g., frequency distributions, measures of central tendency, risk ratio, odds ratio, relative risk)

3. Cancer Registry Data Identification..... 45 [Closed book]

Medical terminology and standard abbreviations

Human anatomy and physiology

Guidelines for reportable case identification

Types and characteristics of cancer

Primary site and histology

Casefinding methods

Hematopoietic and lymphoid neoplasm rules

Pathology reporting

Data items required by standard setters (e.g., CoC, SEER)

Organization and content of source documents (e.g., medical records)

Diagnostic and staging procedures (e.g., PET, MRI, endoscopy)

Prognostic indicators (e.g., HPV, KRAS, HER-2)

Specialty lab testing methods (e.g., RT-PCR, FISH)

Types of cancer treatment appropriate to diagnosis

Follow-up principles and processes

4. Cancer Registry Coding and Abstraction..... 60 [Open-book]

Solid Tumor Rules (STR)

Staging systems and their use (e.g., Summary Stage, TNM)

Cancer treatment coding