



## JOB ANALYSIS REPORT

### NATIONAL CERTIFICATION CORPORATION

### NEONATAL INTENSIVE CARE NURSING

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#### PSI SERVICES

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#### SUBMITTED TO



## EXECUTIVE SUMMARY

This report describes the methodology and procedure used to conduct a job analysis and develop the exam specifications for the National Certification Corporation (NCC) Neonatal Intensive Care Nursing certification examination.

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

1. **Job Analysis Committee Meeting** – A gathering of subject matter experts (SMEs) to discuss and develop a description of the scope of practice
2. **Job Analysis Survey** – A large-scale survey of practitioners not involved with the SME panel to validate the task and knowledge statements developed by the panel
3. **Development of Examination Specifications** – The development of Examination Specifications by the panel based on the results of the survey

Several practitioners were assembled by NCC to serve as 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 job analysis become the basis of a validated assessment that reflects the competencies required for competent job performance.

The job analysis 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 Specifications document (Appendix C) indicates a 150-item examination with content distribution requirements at the competency area (content domain) level as well as topic (content subdomain) level. The five competency areas are:

1. General Assessment
2. General Management
3. Assessment and Management of Pathophysiologic Conditions
4. Psychosocial Support
5. Professional Practice Issues

## INTRODUCTION

This report describes the methodology and procedure used to conduct a job analysis and develop the exam specifications for the National Certification Corporation (NCC) Neonatal Intensive Care Nursing (NIC) certification examination.

The procedure was conducted in accordance with principles and practices outlined in the *Standards for Educational and Psychological Testing*<sup>1</sup>, which describe principles and guidelines for all aspects of test development, including content validation.

A job analysis (sometimes referred to as a practice analysis, job task analysis, or work analysis) is a scientific inquiry conducted in order 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<sup>2</sup>. 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 job analysis 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 job analysis 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 job analysis 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 three major activities of the job analysis process, which are:

1. **Job Analysis Committee Meeting** – A gathering of subject matter experts (SMEs) to discuss and develop a description of the scope of practice
2. **Job Analysis Survey** – A large-scale survey of practitioners not involved with the SME panel to validate the task and knowledge statements developed by the panel
3. **Development of Examination Specifications** – The development of Examination Specifications by the panel based on the results of the survey

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

<sup>2</sup> Sackett, P. R. & Laczko, R. M. (2003). *Job and Work Analysis*. Handbook of Psychology. One: 2: 19–37.

## JOB ANALYSIS COMMITTEE MEETING

NCC 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 conducted a job analysis committee meeting on March 12, 2019 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 NCC NIC exam content outline and candidate handbook were used as resources when developing the knowledge areas and tasks.

The job analysis committee developed 27 task statements.

1. Administer medications
2. Assess gestational age
3. Develop individualized plan of care
4. Evaluate neurobehavioral cues
5. Evaluate and modify plan of care
6. Facilitate discharge
7. Facilitate interdisciplinary care
8. Identify and address change in neonatal status
9. Identify and address ethical issues
10. Identify and address legal issues
11. Identify antepartum and intrapartum neonatal risk factors
12. Interpret clinical laboratory results
13. Manage fluid balance
14. Manage indwelling devices
15. Manage monitors and equipment
16. Manage neonatal environment
17. Perform comprehensive assessment
18. Perform or assist with procedures
19. Provide bereavement care
20. Provide cardiovascular support
21. Provide education
22. Provide nutritional support
23. Provide palliative care
24. Provide psychosocial support
25. Provide respiratory support
26. Provide transfer of care communication
27. Review diagnostic findings

The job analysis committee developed 19 knowledge statements across five content domains.

1. General Assessment
  - A. Maternal Risk Factors and Birth History
  - B. Physical and Gestational Age Assessment
2. General Management
  - A. Resuscitation and Stabilization
  - B. Fluids, Electrolytes, and Glucose Homeostasis
  - C. Nutrition and Feeding
  - D. Oxygenation, Ventilation, and Acid-Base Homeostasis
  - E. Thermoregulation and Integumentary
  - F. Pharmacology, Pharmacokinetics, and Pharmacodynamics
  - G. Neuroprotective and Neurodevelopmental Care
  - H. Infection and Immunology
3. Assessment and Management of Pathophysiologic Conditions
  - A. Cardiovascular
  - B. Respiratory
  - C. Gastrointestinal and Genitourinary
  - D. Hematology
  - E. Neurological and Neuromuscular
  - F. Genetic, Metabolic and Endocrine
  - G. Head, Eyes, Ears, Nose and Throat
4. Psychosocial Support
  - A. Psychosocial Support (e.g., discharge management, family centered care, grieving, palliative care, mental health)
5. Professional Practice Issues
  - A. Professional Practice Issues (e.g., legal, ethics, safety, quality improvement)

The committee identified linkages between the task and knowledge statements 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. See Table 1 for a summary of the knowledge-task linkages identified.

**Table 1.**  
*Linkages Among Knowledge and Task Statements.*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>1</b>														
1A			X	X							X			
1B	X	X	X	X	X		X	X					X	X
<b>2</b>														
2A								X						
2B	X		X		X			X				X	X	X
2C			X		X	X						X	X	X
2D					X			X				X		X
2E					X	X		X					X	
2F	X											X	X	X
2G			X	X	X									
2H								X				X		X
<b>3</b>														
3A								X						X
3B								X						X
3C								X					X	X
3D								X				X		
3E				X				X						X
3F								X				X		
3G								X						X
<b>4</b>														
4A			X		X	X	X		X	X				
<b>5</b>														
5A							X		X	X				

	15	16	17	18	19	20	21	22	23	24	25	26	27
<b>1</b>													
1A			X										
1B	X	X	X	X		X		X	X	X	X	X	X
<b>2</b>													
2A						X					X		
2B						X		X					X
2C								X					X
2D				X		X			X		X		X
2E	X	X		X									
2F						X			X		X		
2G		X		X									
2H				X									
<b>3</b>													
3A						X							X
3B											X		X
3C								X					X
3D				X									
3E													X
3F													
3G								X			X		X
<b>4</b>													
4A		X	X		X		X		X	X			
<b>5</b>													
5A	X	X		X	X		X		X	X		X	

## JOB ANALYSIS SURVEY

PSI developed, administered, and monitored a survey to validate the tasks and knowledge areas developed by the job analysis committee 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. Below are the prompts for each rating scale.

What are the importance and performance frequency of each task *in your practice* as an NIC nurse?

What are the importance and frequency of application of these knowledge areas *in your practice* as an NIC nurse?

**Importance**

- 0 – Not Applicable
- 1 - Not Important
- 2 - Minimally Important
- 3 - Moderately Important
- 4 - Very Important
- 5 - Critically Important

**Frequency**

- 0 - Never
- 1 - Annually
- 2 - Quarterly
- 3 - Monthly
- 4 - Weekly
- 5 - Daily

Between March 25 and 29, 2019, a pilot survey was conducted with the job analysis committee and NCC staff members to ensure that the survey was operating correctly. No modifications were made following the pilot survey.

The live survey was sent using online survey software to a list of 15,816 individuals which was obtained from NCC. The list included all individuals who currently hold the NCC Neonatal Intensive Care Nursing credential. The number of individuals that provided acceptable responses (selected 'Yes' to the first two questions described below, completed at least 50% of the task ratings, worked between 8 and 60 hours per week, and had between 2 and 50 years of experience) was 1,821 (12%). The survey was opened on April 25, 2019 and closed on May 3, 2019. See Appendix B for the email sent to potential respondents.

The first question of the survey read: *Do you agree to take part in this survey?* The second question read: *Are you currently providing direct patient care as a neonatal clinical nurse?* These questions served as filters to allow only those who indicated "yes" to move forward with the rest of the survey.

Table 2 shows the mean ratings provided by the 1,821 respondents for the task statements. Table 3 shows the mean ratings provided by 1,521 respondents for the knowledge statements.



**Table 2.**  
*Task Statement Ratings.*

Task Statements	Importance	Frequency
1 Administer medications	4.78	4.94
2 Assess gestational age	3.62	3.98
3 Develop individualized plan of care	3.91	4.77
4 Evaluate neurobehavioral cues	4.37	4.91
5 Evaluate and modify plan of care	3.87	4.85
6 Facilitate discharge	3.89	4.04
7 Facilitate interdisciplinary care	4.15	4.67
8 Identify and address change in neonatal status	4.90	4.94
9 Identify and address ethical issues	3.95	3.67
10 Identify and address legal issues	3.53	2.96
11 Identify antepartum and intrapartum neonatal risk factors	3.92	4.13
12 Interpret clinical laboratory results	4.63	4.88
13 Manage fluid balance	4.58	4.81
14 Manage indwelling devices	4.67	4.71
15 Manage monitors and equipment	4.49	4.95
16 Manage neonatal environment	4.34	4.94
17 Perform comprehensive assessment	4.79	4.96
18 Perform or assist with procedures	4.23	4.35
19 Provide bereavement care	4.13	2.19
20 Provide cardiovascular support	4.67	4.18
21 Provide education	4.25	4.82
22 Provide nutritional support	4.47	4.91
23 Provide palliative care	3.96	2.38
24 Provide psychosocial support	4.12	4.66
25 Provide respiratory support	4.86	4.89
26 Provide transfer of care communication	4.33	4.16
27 Review diagnostic findings	4.34	4.65

**Table 3.**  
*Knowledge Statement Ratings.*

Knowledge Statements	Importance	Frequency
<b>1A</b> Maternal risk factors and birth history	4.02	4.59
<b>1B</b> Physical and gestational age assessment	4.11	4.51
<b>2A</b> Resuscitation and stabilization	4.91	4.32
<b>2B</b> Fluids, electrolytes and glucose homeostasis	4.73	4.84
<b>2C</b> Nutrition and feeding	4.50	4.94
<b>2D</b> Oxygenation, ventilation and acid-base homeostasis	4.84	4.84
<b>2E</b> Thermoregulation and integumentary	4.63	4.95
<b>2F</b> Pharmacology, pharmacokinetics and pharmacodynamics	4.54	4.76
<b>2G</b> Neuroprotective and neurodevelopmental care	4.58	4.86
<b>2H</b> Infection and immunology	4.62	4.79
<b>3A</b> Cardiovascular	4.68	4.82
<b>3B</b> Respiratory	4.83	4.96
<b>3C</b> Gastrointestinal and Genitourinary	4.56	4.90
<b>3D</b> Hematology	4.41	4.67
<b>3E</b> Neurological and Neuromuscular	4.46	4.76
<b>3F</b> Genetic, Metabolic and Endocrine	4.17	4.34
<b>3G</b> Head, Eyes, Ears, Nose and Throat	4.09	4.57
<b>4A</b> Psychosocial support (e.g., discharge management, family centered care, grieving, palliative care, mental health)	4.22	4.65
<b>5A</b> Professional Practice Issues (e.g., legal, ethics, safety, quality improvement)	3.99	4.18

The survey included demographic questions regarding professional characteristics relevant to the job role. See Table 4 for a summary of the demographic questions in the survey.

**Table 4.**  
*Results of the Demographic Questions in the Job Analysis Survey.*

1. Do you agree to take part in this survey?	n	%
Yes	2542	99.45
No	14	0.55

2. Are you currently providing direct patient care as a neonatal clinical nurse?	n	%
Yes	2110	83.10
No	429	16.90

3. Are you currently certified by NCC as a Neonatal Intensive Care (NIC) nurse?	n	%
Yes	1811	99.67
No	6	0.33

4. What is the highest level unit designation in which you practice as a neonatal clinical nurse?	n	%
Level I (Basic Care)	1	0.05
Level II (Specialty care for newborns at 32 weeks gestation or more, weighing 1500 g or more with problems expected to resolve rapidly or who are convalescing from higher level care)	78	4.29
Level III (Subspecialty care of high-risk newborns needing continuous life support and comprehensive care for critical illness. Includes infants weighing less than 1500 g or less than 32 weeks gestation at birth)	963	52.94
Level IV (Includes level III care as well as on-site pediatric medical and surgical subspecialties to care for infants with complex congenital or acquired conditions, coordinate transport systems and outreach education)	775	42.61
Do not know	0	0.00
Not applicable	2	0.11

5. What is your highest level of nursing education?	n	%
Diploma or Certificate	105	5.77
Associate	237	13.02
Baccalaureate	1232	67.69
Masters	224	12.31
Post Masters	11	0.60
Doctorate - DNP	11	0.60
Doctorate - PhD	0	0.00

**6. On average, how many hours per week do you provide direct patient care to neonates? (Enter a whole number)**

Mean = 32.40	Standard Deviation = 8.22	Minimum = 8.00	Maximum = 60.00
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**7. How many years of experience do you have providing direct care to neonates? (Enter a whole number)**

Mean = 19.25	Standard Deviation = 11.39	Minimum = 2.00	Maximum = 46.00
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**8. Which of the following best describes your PRIMARY workplace location?**

	<i>n</i>	%
Northeast	286	15.82
Midwest	408	22.57
South	624	34.51
West	487	26.94
Territories	0	0.00
Canada	3	0.17

## DEVELOPMENT OF EXAMINATION SPECIFICATIONS

The Job Analysis Committee met on July 9, 2019 to review the results of the survey, finalize the tasks and knowledge that would comprise the next exam content outline, establish linkages among the tasks and knowledge areas, and finalize the content weighting for the examination.

The committee 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 those currently working as Neonatal Intensive Care Nurses.

All tasks and knowledge statements were retained by the committee. They noted that the survey results conformed to their expectations.

The committee then reviewed the draft content weighting, discussing any adjustments necessary to align the number of items per content area with adequate content coverage on the examination. The draft content weighting was developed by determining a percentage weight based on the relative weight of the mean importance value for each content area.

The committee agreed to make the following adjustments at the domain level:

- III – Assessment and Management of Pathophysiologic Conditions was increased from 56 to 58.
- V – Professional Practice Issues was decreased from 7 to 5.

At the subdomain level, adjustments were made to reflect the range in scope of each content area. See Table 5 for a summary of the content weighting determination. The final examination specifications can be found in Appendix C.

**Table 5.**  
*Content Weighting Determination.*

		Final	Survey
<b>1</b>	<b>General Assessment</b>	<b>14</b>	<b>14.37</b>
1A	Maternal Risk Factors and Birth History	7	7.10
1B	Physical and Gestational Age Assessment	7	7.26
<b>2</b>	<b>General Management</b>	<b>66</b>	<b>66.00</b>
2A	Resuscitation and Stabilization	9	8.68
2B	Fluids, Electrolytes, and Glucose Homeostasis	8	8.36
2C	Nutrition and Feeding	8	7.95
2D	Oxygenation, Ventilation and Acid-Base Homeostasis	9	8.55
2E	Thermoregulation and Integumentary	8	8.18
2F	Pharmacology, Pharmacokinetics, and Pharmacodynamics	8	8.02
2G	Neuroprotective and Neurodevelopmental Care	7	8.09
2H	Infection and Immunology	9	8.16
<b>3</b>	<b>Assessment and Management of Pathophysiologic Conditions</b>	<b>58</b>	<b>55.13</b>
3A	Cardiovascular	8	8.27
3B	Respiratory	12	8.53
3C	Gastrointestinal and Genitourinary	9	8.06
3D	Hematology	9	7.79
3E	Neurological and Neuromuscular	6	7.88
3F	Genetic, Metabolic and Endocrine	7	7.37
3G	Head, Eyes, Ears, Nose and Throat	7	7.23
<b>4</b>	<b>Psychosocial Support</b>	<b>7</b>	<b>7.46</b>
4A	Psychosocial Support (e.g., discharge management, family centered care, grieving, palliative care, mental health)	7	7.46
<b>5</b>	<b>Professional Practice Issues</b>	<b>5</b>	<b>7.05</b>
5A	Professional Practice Issues (e.g., legal, ethics, safety, quality improvement)	5	7.05

## APPENDIX A

### SUBJECT MATTER EXPERTS

Name	Job Title	Employer	Years Exp.	State
Ashley Novotny (Wilkinson)	Neonatal Transport RN; RN level IIIB NICU	Lifeline Transport; Colorado Memorial Hospital	6	CO
Jill Alden (Donovan)	Clinical Nurse Specialist	Northwestern Medicine Lake Forest Hospital	13	IL
Caitlin Yeager	RN Level IV NICU	Rainbow Babies and Children's Hospital	13	OH
Meagan Hostetter	Director, NICU	St Vincent Hospital Evansville	16	IN
Jona Sager (Wilson)	RN Level IV NICU	Yale New Haven Hospital	30	CT
Tracy Hoffstetter	Staff Nurse	Gwinnett Medical Center	26	GA
Ashely Williams	RN NIC Nurse	Seattle Children's Hospital NIC Nurse	5	WA
Sara Mayse	Staff Nurse	Novant Health Matthews Medical Center	19	NC

## APPENDIX B

### SURVEY EMAIL

Date: April 5, 2019  
From: info@nccnet.org via surveymonkey.com  
Subject: NCC NIC 2019 Job Analysis Survey

Body: The National Certification Corporation (NCC) invites you to participate in the Neonatal Intensive Care (NIC) Job Analysis Survey. This survey will be used to identify tasks and knowledge reflective of the professional role of a neonatal nurse.

The results of the survey will help develop the specifications for the NCC NIC certification exam. This is a great way to contribute to the industry and ensure that a high standard is maintained.

The survey will likely require 15 to 20 minutes to complete. Your individual responses will be kept confidential and will be combined with those of other respondents. The deadline to complete the survey is **May 3, 2019**.

Please note that participation in this survey is voluntary. At the end of the survey you can choose to provide your name and email for a chance to **win a \$100.00 Amazon gift card**.

Please read all questions carefully and select responses that best represent ***your direct patient care practice*** as a ***neonatal nurse***.

Thank you for your participation. Please direct all inquiries to info@nccnet.org.



## APPENDIX C

### FINAL EXAMINATION SPECIFICATION

Content Area	# of Questions
<b>1 General Assessment</b>	<b>14</b>
1A Maternal Risk Factors and Birth History	7
1B Physical and Gestational Age Assessment	7
<b>2 General Management</b>	<b>66</b>
2A Resuscitation and Stabilization	9
2B Fluids, Electrolytes, and Glucose Homeostasis	8
2C Nutrition and Feeding	8
2D Oxygenation, Ventilation and Acid-Base Homeostasis	9
2E Thermoregulation and Integumentary	8
2F Pharmacology, Pharmacokinetics, and Pharmacodynamics	8
2G Neuroprotective and Neurodevelopmental Care	7
2H Infection and Immunology	9
<b>3 Assessment and Management of Pathophysiologic Conditions</b>	<b>58</b>
3A Cardiovascular	8
3B Respiratory	12
3C Gastrointestinal and Genitourinary	9
3D Hematology	9
3E Neurological and Neuromuscular	6
3F Genetic, Metabolic and Endocrine	7
3G Head, Eyes, Ears, Nose and Throat	7
<b>4 Psychosocial Support</b>	<b>7</b>
4A Psychosocial Support (e.g., discharge management, family centered care, grieving, palliative care, mental health)	7
<b>5 Professional Practice Issues</b>	<b>5</b>
5A Professional Practice Issues (e.g., legal, ethics, safety, quality improvement)	5

**Notes:** Each examination form will include one set of 25 unscored pretest items in addition to the 150 scored items. Three hours of testing time. Initial base form passing point will be determined by Angoff method in Q4 of 2019. Future passing points established through pre-equating.