I. Definition of Neonatal Therapy

II. Content of Neonatal Therapy National Certification Examination

III. Domain-Specific Content

IV. Self-Assessment of Domain-Specific Content

V. Sample Examination Questions

VI. Exam Preparation Tips
I. Definition of Neonatal Therapy

Neonatal therapy is the art and science of integrating typical development of the infant and family into the environment of the NICU. Neonatal therapy practice incorporates theories and scopes of practice from the respective disciplines of occupational therapy, physical therapy and speech-language pathology. Neonatal therapy promotes optimal long-term developmental outcomes and nurtures infant-parent relationships by addressing the following synergistic neurodevelopmental systems: neurobehavioral, neuromotor, neuroendocrine, musculoskeletal, sensory, and psychosocial. These systems provide the foundation for the development of functional skills.
II. Content of Examination

The Neonatal Therapy National Certification Examination assesses the basic skill and knowledge required for safe, efficacious, evidence-based, and independent practice in the NICU setting. The examination covers a broad range of knowledge and is broken down as follows:

![Exam Blueprint]

Descriptions of each area are provided below, along with a self-assessment to aid each applicant in determining areas he/she may need to focus on.
III. Domain-Specific Content

Domain 1: Foundations for Neonatal Therapy Practice

Knowledge required:

- Scientific knowledge - Degree/depth of knowledge required varies by component. Some topics require only conceptual understanding while others require full integration of the component – i.e. able to teach, analyze, and reflect upon.
- Atypical and typical preterm infant development including neurobehavioral, sensory, feeding and swallowing development
- Basic anatomy & physiology of the neonate
- Embryology
- Environment (including equipment)
- Fetal/Neonatal brain development
- Medical equipment/Commercial infant products (hospital and retail)
- Medical procedures
- Medical terminology and diagnoses
- Models of care and theory in the NICU: attachment theory, dynamic systems theory, synactive theory
- Neurodevelopment (motor, sensory, autonomic)
- Neurobehavior
- Typical neurodevelopmental outcomes of preterm infant
- NICU environment and culture
Knowledge Required:

- Acute and chronic pain
- Assessment/Evaluation – standardized, observational, non-standardized, continuous/ongoing
- High-risk infant outcomes
- Interpreting results
- Maternal risk factors & complications (medical, psychosocial)
- Medications – potential impact on infant
- Musculoskeletal assessment
- Neurobehavioral assessment
- Neuromotor assessment
- Oral feeding and swallowing (non-instrumental assessment)
- Pain assessment and management
- Pre-feeding skills
- Sensory
- States of arousal
- Synthesize information
- Treatment planning
  - Determine frequency and duration of treatment
  - Set discipline-specific goals
- Utilizing critical thinking skills
Knowledge Required:

- Evidence-based interventions
- Family-centered care
  - Educate/Guide/Promote parental participation and independence in early parenting skills through transition to home.
  - Provide psychological support.
  - Facilitate bonding and attachment.

- ADLs
  - Feeding
  - Facilitate/Support
    - Oral-sensory-motor development
    - Pre-feeding skills
    - Transition to oral feeding (not including instrumental assessment)
    - Breastfeeding support
  - Sleep
    - Protecting sleep
    - Facilitate/support
      - Transition to sleep
      - Safe sleep practices
  - Bathing
    - Facilitate
      - State regulation
      - Self-regulation
      - Neuromotor stability
  - Play/Interaction
    - Assist with attainment of age appropriate developmental skills through guided exploration of and interaction with the environment

- Environment
  - Modify and adapt the environment

- Neurobehavioral
  - Facilitate/Support
    - Autonomic regulation
    - Motor regulation
    - State transition/regulation
    - Attention/interaction
    - Self-regulation
• Neuromotor
  o Facilitate/Support
    ▪ Neurodevelopmental positioning
    ▪ Neurodevelopmental handling
    ▪ Development of normal movement patterns
    ▪ Normal reflex development
    ▪ Normal tone development and tonal changes
IV. Self-Assessment of Domain-Specific Content

Rate your current knowledge and experience of neonatal therapy topics below using the following scale.

Rating Scale:

0 = **No knowledge or skills** - Unfamiliar with concept or practice of the skill

1 = **General knowledge through observation and academic learning** - Familiar with general knowledge related to the skill through academic learning and observation but have not had an opportunity to apply this in the NICU

2 = **General clinical skills with mentorship** - Familiar with general clinical application of the skill and occasionally applied this with mentorship in the NICU

3 = **Neonatal Therapy practice competence** – Implemented the skill in the NICU setting and can begin to guide others in this practice

Areas that are assessed as a 0 or 1 may require additional education; those scored a 2 may require review; and those scored a 3 indicate good knowledge in that particular area. Refer to the reference guide for study materials related to domain-specific content that were scored 0, 1, or 2 for additional readings.
1: Foundations of Neonatal Therapy Practice

Knowledge of fetal physical, sensory, feeding and neurologic development

☐ 0 1 2 3

Knowledge of co-morbidities & sequela of preterm birth

☐ 0 1 2 3

Knowledge of medical diagnoses that may require NICU admission

☐ 0 1 2 3

Knowledge of cardio-pulmonary monitoring thresholds

☐ 0 1 2 3

Knowledge of and ability to interpret monitors used in the NICU

☐ 0 1 2 3

Knowledge of equipment & medical/nursing care in the NICU

☐ 0 1 2 3

Knowledge of synactive theory and other theories used in the NICU

☐ 0 1 2 3

Knowledge of common medications used in the NICU, impact on the premature/medically complex infant

☐ 0 1 2 3

Knowledge of common medical interventions used in the NICU and potential impact on the premature/medically complex infant such as phototherapy, head/body cooling, intubation, CPAP

☐ 0 1 2 3
Knowledge of medical/surgical procedures and the potential impact on the premature/medically complex infant such as PDA ligation, TEF/EA repair, chest tubes, gastroschisis/omphalocele closure, gastrostomy tube placement, Nissen fundoplication

〇 0〇 1〇 2〇 3

Knowledge of NICU “culture”

〇 0〇 1〇 2〇 3

Knowledge of common NICU terminology

〇 0〇 1〇 2〇 3
2: Neonatal Screening, Assessment, Evaluation and Diagnosis

Knowledge of pain assessment and management

○ 0 1 2 3

Knowledge of standardized and non-standardized assessments used in the NICU

○ 0 1 2 3

Knowledge of feeding/swallowing skills in typically developing term infant

○ 0 1 2 3

Knowledge of Co-morbidities & sequela of preterm birth on feeding/swallowing development, including difference between “healthy” premature/immature infant and extremely premature/low birth weight and/or medically complex infant

○ 0 1 2 3

Knowledge of common comorbidities, diagnoses and potential impact on outcome

○ 0 1 2 3

Knowledge of feeding interventions for extremely premature/medically fragile infants

○ 0 1 2 3

Knowledge of models of care used in the NICU

○ 0 1 2 3

Knowledge of the impact of NICU hospitalization on the family

○ 0 1 2 3

Knowledge of the states of arousal, behavioral development in the context of postmenstrual age

○ 0 1 2 3

Knowledge of neonatal reflexes

○ 0 1 2 3
3: Neonatal Therapy Interventions and Family-Centered Care

Knowledge of strategies to support oral feeding skill acquisition

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge of family experience of preterm birth

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge of evidenced based interventions in the NICU

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge of patterns of sleep and methods to protect sleep

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge of appropriate positioning for high risk infants

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge of methods and tools available to position high-risk infants in the NICU

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge of strategies to decrease or increase tone, facilitate feeding, improve state regulation, empower parents, foster reflex development, and ultimately improve outcomes

☐ 0 ☐ 1 ☐ 2 ☐ 3

Knowledge about methods to modify the environment

☐ 0 ☐ 1 ☐ 2 ☐ 3
V. Sample Examination Questions

Examination questions are multiple choice with 4 options. Read the question carefully and choose the option that best answers the question. Below are some sample examination questions, to assist you in becoming familiar with the format and style. Explanations for correct answers are provided for your reference after the sample questions.

1. In taking an infant out of his/her bed for therapy at 32 weeks postmenstrual age, which of the following issues should be considered to ensure safety during therapy?
   a. The infant’s ability to regulate his/her temperature.
   b. The infant’s ability to maintain the head in midline.
   c. The infant’s ability to maintain flexion of extremities.
   d. Whether or not the infant has been off a ventilator for 48 hours.

2. With developmental care provision for an infant who needs a new intravenous (IV) line, the neonatal therapist should recommend the following sequence:
   a. Complete routine cares and then proceed to insert the IV.
   b. Insert the IV, and then follow with a diaper change and routine care.
   c. Have parent hold the baby, insert the IV, and start therapy session.
   d. Insert the IV, and follow with sucrose to decrease pain.

The following case scenario is used in questions 3-5:
Susie was born at 33 weeks gestation with tracheal-esophageal fistula and esophageal atresia. She had surgical repair on day of life 3. She was extubated from conventional ventilation at day of life 5. She is supported by high flow nasal cannula at 4 liters of flow and 30% FiO2. She has an oral jejunal tube for small drip feedings. She is one week old today.

3. What is Susie’s postmenstrual age?
   a. 1 week
   b. 33 weeks
   c. 34 weeks
   d. 35 weeks
4. What are the indications for neonatal therapy for Susie?
   a. Oral motor dysfunction, motor dysfunction, potential swallowing dysfunction, breathing difficulties, and history of intubation.
   b. Prematurity, limited positioning post-surgery, ongoing noxious sensory input, and potential swallowing dysfunction.
   c. Neonatal therapy is not indicated for Susie because it can complicate post-operative recovery.
   d. Prematurity only, as infant’s oral and breathing issues were addressed and corrected by surgery.

5. What therapy services will most likely be needed for follow up post-discharge for this infant?
   a. NICU follow-up clinic, early intervention services to include speech and motor therapy, and feeding clinic.
   b. Speech therapy in surgery follow up clinic only.
   c. No therapy follow up is indicated, as long as the infant is able to complete all feedings by mouth at discharge.
   d. Outpatient occupational therapy services only.
Correct answers and rationale:

**Question 1**
Correct answer: A is the correct answer, as ability to regulate temperature would be a key consideration for infant safety when taking an infant out of his/her bed. B and C are incorrect because the infant may not be able to perform these two tasks, but this does not affect the safety of therapy. D is incorrect because time off the ventilator is not a guideline to determine therapeutic safety.

**Question 2:**
Correct answer: A is the correct answer because in order to decrease infant stress, the least noxious stimuli in the caregiving cluster should be introduced first, and the most noxious stimuli should be introduced last. B, C and D are incorrect because the most noxious stimulus is not introduced last. Also, in B and C, IV insertion can affect infant response to subsequent tactile handling. Finally, D is also incorrect because sucrose should be administered prior to the procedure to optimize pain control, not after the procedure.

**Question 3:**
Correct answer: C. Postmenstrual age is defined as the gestational age plus the chronological age. Answer A is the chronological age, answer B is the gestational age, and answer D is not relevant to the scenario.

**Question 4:**
Correct answer: B. The infant has all of the listed reasons identified by the American Academy of Pediatrics and the National Association of Neonatal Nurses to indicate therapy involvement to improve outcomes. A is incorrect because it is not noted that the infant has oral motor dysfunction or motor dysfunction, and this list does not include significant items such as prematurity. C is incorrect because prematurity, pain associated with current and past medical interventions, swallowing disorder, and ongoing noxious sensory input all indicate the need for therapy intervention. D is incorrect because documented outcomes of tracheal-esophageal fistula and esophageal atresia repair are noted to have ongoing swallowing and postural difficulties that can affect long term development.
Question 5:
Correct answer: A. Infants with tracheal-esophageal fistula (TEF) and esophageal atresia (EA) typically demonstrate ongoing swallowing difficulties and medical interventions for esophageal motility requiring feeding therapy. This infant’s prematurity plus potentially long NICU hospitalization, as well as postural limitations sometimes associated with EA/TEF repair, warrant NICU follow-up and early intervention evaluation. B is incorrect because most infants who have TEF and EA benefit from speech therapy services, however, their ongoing sensory/feeding needs and postural needs cannot be addressed by speech therapy alone. C is incorrect because most infants who have TEF and EA benefit from speech therapy services addressing transitioning to solid foods, even when they swallow liquids with ease. D is incorrect because most infants who have TEF and EA benefit from speech therapy services addressing transitioning to solid foods, even when they swallow liquids with ease, and most likely will also need OT to address any ongoing sensory needs associated with prematurity and noxious sensory exposure.
VI. Exam Preparation Tips

1. Review the reference list provided to you at the time you completed your application. Take NICU-related continuing education courses and/or review material related to neonatal therapy.
2. Use the self-assessment tools in this study guide, and the sample questions in the examination manual and the study guide, to help direct your study.
3. Plan ahead and pace yourself – make a schedule that helps you organize your study sessions and stick to it.
4. Don’t feel like you have to block large chunks of time for each study session. Studying for shorter periods but more frequently may work better in terms of sticking to a schedule, and it can help you better retain information.
5. Select an environment without distractions so you can focus on your studying.
6. Allow yourself breaks as needed, but if you feel like you are taking too many breaks, it may not be a good day for studying. It is ok to modify your schedule as long as you keep making progress.
7. Start with one or two topics that you feel most comfortable with, to reinforce what you know and to start on a positive note. Then move to a topic that is a bit more challenging.
8. Use the resource list to help you expand your knowledge in areas where you feel less comfortable.
9. Focus on relevant clinical knowledge – things every neonatal therapist who has several years of experience should know – rather than random facts.
10. As you study, think of possible questions related to the material. What are the nuggets of information that are critical in the material that you are reading? If you had to check if someone knows this topic, what would you ask them?
11. Make flashcards with important topics, or write questions related to the material – then come back after a few weeks and see if you can answer them.
12. Get support from others who are preparing for the exam! Group studying can help reinforce information when you quiz one another or you share what you know on a topic. You can also help keep each other on track.
13. Arrive early at the testing center so you don’t feel rushed. Get a full night’s sleep the night before so you are rested and focused.
14. Eat something before you come. No food or drinks are allowed at the testing center.