



2019 CANDIDATE GUIDE

CARE OF THE EXTREMELY LOW BIRTH WEIGHT NEONATE

*Congratulations on taking the next step in your career
– earning your certification and C-ELBW certification!*

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THIS EXAM’S PURPOSE

The purpose of the Care of the Extremely Low Birth Weight Neonate Subspecialty Certification is to provide a competency-based examination that tests specialty knowledge and the application of that knowledge for licensed health care professionals in the US and Canada, who provide care to acutely and critical ill extremely low birth weight neonates and their families within an intensive care environment to improve overall outcomes.

IT IS IMPORTANT TO READ THE INFORMATION IN THIS GUIDE. IT WILL ANSWER YOUR QUESTIONS AND WILL EXPLAIN ALL POLICIES TO WHICH YOU WILL BE SUBJECT.

ABOUT THIS GUIDE

This guide lists fees, general policies and provides information that will help you prepare for the examination including sample questions to familiarize you with question format, competency statements and examination content in outline form. Study resources are also suggested for your review. It is recommended that you familiarize yourself with the information in this guide.

NCC examinations are offered in several different test administrations options. The NCC publication **Guide to Testing Methods** will explain the different rules and policies based on how you are taking the examination. Please download this publication from the NCC website and review the exam administration options. It should answer your questions about the NCC examination process.

If you have other questions, please feel free to contact NCC through the NCC website at NCCwebsite.org.

NCC’S PHILOSOPHY OF TESTING

Certification is an evaluative process that provides the opportunity for health care professionals in the obstetric, gynecologic and/or neonatal specialty to demonstrate publicly what they know and to be recognized for the special knowledge they possess. The NCC certification carries no licensing authority. The ability to practice as a health care professional is regulated by the state, and while certification may be required in some states for specific health care roles, NCC has no regulatory power to require states to recognize NCC certification for this purpose. Practice and educational standards are reflected in the certification process, but the responsibility for development of such standards rests with the professional specialty organizations and the educational community. NCC encourages individual to seek out information about how certification relates to licensure requirements, program accreditation of the educational institutions attended, the educational and practice standards of national specialty organizations, and employment expectations.

NCC core and subspecialty programs are accredited by the National Commission for Certifying Agencies

FEES & GENERAL POLICIES

EXAMINATION AND RELATED FEES

EXAMINATION FEES*

Computer Exam Fees are \$210 which includes the non-refundable \$50 application fee.

Institutional Certification Program (ICP) Exam Fees are pre-paid by your institution.

**Examination fees are subject to change.*

CHANGE REQUEST

Candidates who cannot take their currently scheduled examination, have missed their testing date or need to take a different exam - can request a change for a fee of \$125. Details are on the NCC website.

WITHDRAWAL FEE

A computer testing candidate who withdraws from testing will receive \$105 of their \$210 payment. ICP candidates cannot withdraw.

RETEST FEE

Retest candidates must pay full application and examination fees. There are no discounts and they must wait at least 90 days after receiving the official test results before resubmitting an application for testing.

SUBSTITUTION FEE

Candidate substitutions are not allowed for ineligible, withdrawal, or candidates who filed a change request.

THIRD PARTY PAYMENTS

Applicant fees paid by third parties will be reimbursed to the third party in the event the applicant is determined ineligible or withdraws within the specified time. Reimbursement will be in accordance with stated refund policies.

NO REFUNDS WILL BE CONSIDERED

- after the candidate has taken an examination
- for any candidate that is not successful in achieving certification
- for candidates who failed to take the exam via computer within their 90 day testing window and did not submit a change request within stated time frames

Computer exam candidates can change their scheduled testing date to another date within their window *once for free*.

Candidates must handle this directly with PSI/AMP.

Refer to the NCC testing guide for details.

FEES & GENERAL POLICIES

PAYMENT INFORMATION

- All applications are subject to a nonrefundable application fee.
- All fees are nonrefundable except where otherwise noted.
- Payments can be made by credit card (Visa, American Express and MasterCard only).
- Payments can be made by check: bank routing number and account number required.
- For payments made by third parties, any refund reimbursement will be issued to the third party and not to the applicant.
- All payments must be in US funds.
- NCC does not accept debit cards or split payments (part check and part credit card).
- Exam fees can only be submitted online at the NCC website. Applications will not be accepted by mail, phone or fax.
- NCC will accept group payments for certification exams from institutions. Details are on the NCC website.

OTHER PAYMENT RELATED FEES

INCOMPLETE APPLICATION FEE

Incomplete applications are those missing any requested information or documentation, contain wrong or no fees, or for any other reason results in an inability to determine applicant eligibility status. Such applications are subject to a **\$30 re-processing fee** and all documents and fees must be reconciled in full no later than 21 days prior to the exam.

INELIGIBLE FEE

Any applicant determined ineligible (for any reason) will be assessed the **\$50 nonrefundable application fee**. The examination fee will be refunded.

RETURNED CHECK FEE

A **\$30 fee** will be assessed to any applicant whose check or e-check is returned to NCC for any reason. Remittance thereafter of all fees and applications must be in the form requested by NCC. Contact NCC for requirements.

CREDIT CARD CHARGEBACK

A **\$30 fee** will be assessed if an applicant's credit card company issues a notice of retrieval or a chargeback in response to the cardholder's dispute of the credit card charge. Remittance thereafter of all fees and applications must be in the form requested by NCC. Contact NCC for requirements.

THIRD PARTY PAYMENTS

Applicant fees paid by third parties will be reimbursed to the third party in the event the applicant is determined ineligible or withdraws within the specified time. Reimbursement will be in accordance with stated refund policies.

Certification will be revoked or withheld if a returned check or a chargeback request on a credit card payment results in loss of income to NCC and the monies are not recovered in an alternate payment. Fees received at any time will first be applied to any unpaid prior certification/special fees.

FEES & GENERAL POLICIES

VERIFICATION OF CERTIFICATION

Third party notification of status will not be released without authorization from the Certified Professional. A \$30 fee is required for any third party notification or issuance of duplicates of test results reports. Verification requests can only be submitted after official written results have been received in the mail.

Verification requests can only be made via the online verification system on the NCC website. NCC does not issue verifications via the mail or fax.

GENERAL POLICIES

UNSUCCESSFUL CANDIDATES

A candidate who sits for the examination and does not receive a passing score is not eligible for any refund nor for any credit on any later NCC exam.

EXAM CATEGORY CHANGES

Requests to change examination category must be made prior to making an appointment to take the test. You can only request an exam category change by completing a **Change Request Form** on the NCC website and submitting with non-refundable payment of \$125. **Candidates are only allowed one change option** (e.g. if you reschedule your exam date, you will not be able to change your exam category). All change requests must be approved by NCC. **There will be no refund of original or Change Request Form fees.** Eligibility must be re-established for the new exam category, and additional documentation and fees may be required. The time to consider eligibility for the new category will count toward the original 90 day window assigned to take the examination. Examinees must take the exam for which they have been determined eligible. No changes will be permitted on examination day. If a candidate knowingly or unknowingly takes an examination other than the one she/he was found eligible to take, the examination will not be scored. No refunds will be allowed, and all fee policies will apply if the candidate reapplies for an examination.

RETEST POLICY

You may retake the examination if you do not pass. You must reapply, submit all applicable fees and documentation, and re-establish eligibility according to the appropriate deadlines. There is no limit to the number of times you may retake the examination however candidates must wait at least **90 days after receiving the official test results before making application to retake the examination** by computer or paper and pencil. All submission deadlines for application for paper and pencil testing must be met. No accommodation will be given to those who are retesting via paper and pencil mode if they cannot meet application deadline because of the 90 day wait rule. **The maximum number of times a candidate can take the same NCC test in a calendar year is two.**

AMERICANS WITH DISABILITIES ACT

Special testing accommodations will be provided pursuant to the Americans with Disabilities Act. Contact the NCC office for further information before submitting your application.

FEES & GENERAL POLICIES

REVIEW COURSES AND MATERIALS

NCC does not offer or sponsor review courses or review materials for its certification examinations. Examination candidates should review any purported course of study as being independent of NCC. You should carefully examine the merits of any individual exam preparation offering before you participate.

**POLICIES ARE SUBJECT
TO CHANGE
WITHOUT NOTICE.**

GENERAL POLICIES (CONTINUED)

TEST DISCLOSURE

NCC does not make test questions available for review. Because test questions may be used for more than one examination administration, distributing this information would compromise the security of the test questions and would increase the cost of certification if the questions had to be replaced each year.

APPEALS PROCEDURE

Any request to waive any policy of the NCC Board of Directors relative to eligibility, administration, examination content issues, or certification maintenance must be received in writing within 60 days of the dispute. All requests should be sent to the attention of the NCC President at nccpresident@nccnet.org. The correspondence should contain a detailed account as to why the NCC policy should be waived or the candidate's status should be changed. Such requests are referred to the NCC Policy Review Committee of the Board of Directors. All decisions will be provided in writing. Cases not resolved by the Policy Review Committee will be referred to the full Board of Directors.

NONDISCRIMINATION

It is the policy of NCC that no individual will be excluded from the examinations as a result of age, sex, race, religion, national origin, ethnicity, disability, marital status, sexual orientation, military status or gender identity.

REVOCAION

Your certification may be revoked for falsifying any information submitted relative to eligibility to take the certification examination or for maintaining certification, for losing your license to practice nursing, or for failing to pay designated certification or maintenance fees.

ANSWER SHEET REVIEW OF PAPER AND PENCIL EXAMINATIONS

All answer sheets are scored electronically. If you believe there might be a discrepancy in your results, you may request a Hand Score (a review of your answer sheet) for a fee of \$55. This request must be submitted online at the NCC website within 60 days of the exam date. The online request form is under "Other helpful information" in the Certification Exam section of the "Get Certified" tab. You will be notified of the results by mail.

RETENTION OF ANSWER SHEETS AND EXAMINATION BOOKLETS

All answer sheets are kept for one year from the date of the examination. Examination booklets used by the candidates are kept for six months from the date of the examination. Computer answer strings are kept for at least one year from the date of the examination.

ABOUT THE EXAM

ABOUT THE EXAM

TIMED EXAMINATION

Two (2) hours are allotted to complete the examination.

EXAM FORMAT

The Care of the Extremely Low Birth Weight Neonate examination consists of up to 125 test questions. 100 are counted for scoring and the remainder are embedded in the exam as pretest items. The pretest items do not count toward the examinee's final results.

- There is one question format used for all NCC examinations.
- Each question has a premise (stem) and three alternative answers.
- The answer options are alphabetized by the first word in each answer option to randomize the answers.
- Computer tests are delivered in a different random order for each candidate.
- Questions will test both basic knowledge and application of knowledge.
- Questions that contain laboratory data will show results in conventional units of measure with international units in parentheses.
- Drugs are listed in both generic and trade names where appropriate.

EXAMINATION CONTENT DEVELOPMENT

The development of NCC certification involves many individuals and involves a meticulous process of review. There are three major groups that contribute to the test development process:

ITEM WRITERS:

MDs, RNCs, APRNs (NNP CNS), Neonatal Therapists (PT, OT, SLP), Neonatal Dietitians, Pharm-D, Respiratory Therapists and others identified with special expertise have the responsibility of drafting test items per designated assignment for review by the content team and expert reviewers. Item writers are solicited from the NCC certified population, by recommendations or through the volunteer portal.

REVIEWERS:

Reviewers are MDs, RNCs, APRNs (NNP CNS), Neonatal Therapists (PT, OT, SLP), Neonatal Dietitians, Pharm-D, Respiratory Therapists or other designated experts who assist the content teams in review of test items developed by the item writers. Reviewers are responsible for reviewing items for content relevance and confirming that references cited for the questions support the items as written.

CONTENT TEAMS:

Content team members are experienced practitioners and are appointed on an annual basis by the NCC President. Content teams are solicited from the NCC certified population, by recommendations or through the volunteer portal. To see the current membership composition of the Content Team responsible for the Care of the Extremely Low Birth Weight Neonate examination, please visit the NCC website under the section on NCC Leadership.

Content team members are MDs, RNCs, APRNs (NNP CNS), Neonatal Therapists (PT, OT, SLP), Neonatal Dietitians, Pharm-D, Respiratory Therapists or other identified experts who:

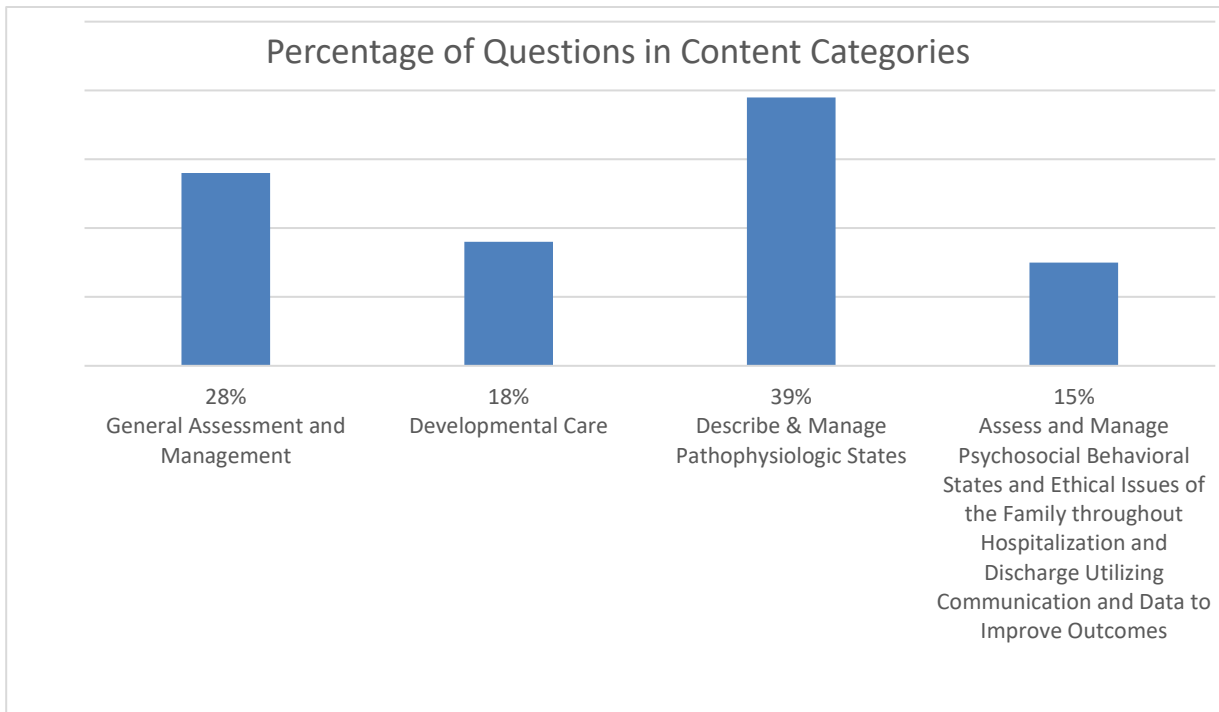
- develop and update the test outline and competency statements
- review test items developed by item writers
- review item statistics from exam administrations and pretest examinations
- approve the exam forms to be administered
- review item banks

In addition, NCC uses volunteers for standard setting and content validation studies.

EXAMINATION CONTENT



Care of the Extremely Low Birth Weight Neonate



The chart shows the percentage distribution of questions on the Care of the Extremely Low Birth Weight Neonate exam across the major content categories covered on the examination.

EXAMINATION CONTENT

EXAM OUTLINE

Areas of knowledge to be tested on the Care of the Extremely Low Birth Weight Neonate examination are listed in the following outline. This list is not intended as an all-inclusive review. It is provided only to help candidates evaluate their own practice.

Percentages identified for the topic areas represent the number of test questions assigned to each content area. These percentages do not necessarily reflect the content of future examinations.

- 10.00 General Assessment and Management (28%)

- 10.01 Physical, Gestational Age, Behavioral and Neurologic Assessment
- 10.02 Delivery Room Management, Stabilization and Transition
- 10.03 Transport/Transfer
- 10.04 Thermoregulation
- 10.05 Fluid and Electrolytes
- 10.06 Nutrition and Feeding
- 10.07 Respiratory Management/Oxygenation (e.g. Blood gases, Ventilation)
- 10.08 Skin Care
- 10.09 Infection Risks (immaturity, prevention, bundles)

- 11.00 Developmental Care (18%)

- 11.01 Neurodevelopment (Structure, function, immaturity)
- 11.02 Impact of NICU Environment
- 11.03 Neuroprotective Intentional Caregiving and Promotion of Self-regulation
- 11.04 Neurobehavioral Alterations and Responses (habituation, state and motor organization)
- 11.05 Stress and Pain Assessment and Management
- 11.06 Neuroprotection and Injury Prevention

- 12.00 Describe & Manage Pathophysiologic States (39%)

- 12.01 Perinatal Management, Maternal Risk Factors During Pregnancy and Obstetric Emergencies that Impact the ELBW neonate
- 12.02 Cardiac
- 12.03 Respiratory
- 12.04 GI/GU
- 12.05 Hematopoietic
- 12.06 Infectious Diseases
- 12.07 Metabolic/Endocrine/Genetic
- 12.08 Neurologic, Neuromuscular, Skin and Musculoskeletal
- 12.09 Renal
- 12.10 Head, Eyes, Ears, Nose and Throat
- 12.11 Pharmacology

- 13.00 Assess and Manage Psychosocial Behavioral States and Ethical Issues of the Family throughout Hospitalization and Discharge Utilizing Communication and Data to Improve Outcomes (15%)

- 13.01 Family Integration
- 13.02 Trauma Informed Care/Parental Coping and Grieving Process
- 13.03 End of Life Care/Palliative Care, Viability and legal/ethical issues
- 13.05 Discharge Planning, Teaching and Follow up
- 13.06 Risks for motor, cognitive, language delays and expected milestones
- 13.07 Professional Practice and Team Communication along the continuum of care
- 13.08 EBP, QI, Research, Data Outcomes, Benchmarking

EXAMINATION CONTENT

ASSOCIATED COMPETENCIES

- Identify maternal risk factors during pregnancy and the potential implications for the ELBW neonate.
- Systematically assess all body systems of the ELBW neonate utilizing physical examination, gestational age assessment and neurobehavioral assessment.
- Apply knowledge of anatomy and physiology (fetal, transitional, neonatal), pathophysiology, pharmacology, and behavioral psychology to assess the ELBW neonate and differentiate abnormal from normal.
- Recognize normal values and deviations in clinical laboratory and diagnostic data and identify potential significance for the ELBW neonate.
- Identify life-threatening states in the ELBW neonate and initiate appropriate, early intervention.
- Develop an individualized plan of care for the restoration, maintenance and promotion of health for the ELBW neonate and family unit during hospitalization and following discharge.
- Implement diagnostic, therapeutic and educational plans in collaboration with other health care providers to provide care for the ELBW neonate and family.
- Identify the vulnerabilities of the ELBW neonate across the continuum and implement strategies to reduce risks and optimize outcomes.
- Apply knowledge of local, state and national outcome data to guide families and direct clinical practice and quality improvement processes to optimize outcomes.
- Recognize the psychosocial impact and stressors related to the birth of an ELBW neonate in collaboration with the family.
- Identify professional, legal and ethical issues which impact the role of the health care provider in the care of ELBW neonate.

STUDY GUIDE

GENERAL ASSESSMENT AND MANAGEMENT

I. Physical, Gestational Age, Behavioral and Neurologic Assessment

- Normal/abnormal findings regarding:
 - general appearance
 - head, eyes, ears, neck (cartilage, recoil, fused eyes, eye prophylaxis, vitamin K)
 - respiratory/Chest
 - cardiovascular
 - skin (immaturity, fragility)
 - abdomen
 - genitalia
- Physical and neuromuscular characteristics
- Associated risks
- Posture/Tone
- Movement
- Reflexes

II Delivery Room Management, Stabilization and Transition

- Resuscitation (NRP)
 - initial evaluation
 - indications for ventilation and cardiac compressions
 - use of medications and volume expanders
- Timing of umbilical cord clamping
- Transition
 - during umbilical cord clamping
 - initial resuscitation
- Thermoregulation
 - trans-epidural water loss
 - plastic wrap and hat
 - heat mattress
 - delivery room/OR temperature
- Ventilation strategies
 - CPAP
 - FiO₂
 - target oxygen saturation
- Surfactant
- Access
 - UVC
 - UAC
 - PIV
 - cleansing agents

- Fluid and electrolytes requirements at birth
 - dextrose and amino acid solution
 - total fluid goals
 - insensible water loss
 - weight
- Transport/transfer
 - positioning and handling

III. Transport

- Thermoregulation
- Transfer

IV. Thermoregulation

- Mechanisms and management of heat loss/production
 - conduction
 - convection
 - evaporation
 - radiation
 - response to hypothermia and cold stress
 - response to hyperthermia
- Physiology of heat production
- Neutral thermal environment of the ELBW
 - humidification
 - environment
 - equipment

V. Fluid and Electrolytes

- Fluid status
 - normal body water composition
 - physiologic transition
 - renal function of the ELBW
 - urine output
 - acid base homeostasis
 - fluid overload/dehydration
- Parenteral nutrition
 - indications
 - electrolyte needs in first week of life
 - intralipid
- Electrolyte monitoring
 - timing and frequency
- Effects of humidity, maturity, temperature

STUDY GUIDE

VI. Nutrition and Feeding

- GI development and immaturity
- Bone mineralization
- Nutritional requirements
 - calories
 - macro/micronutrients
- Pre-feeding foundations and strategies for positive
 - oral feeds
 - non nutritive suckling
 - oral care
- Prevention of growth failure
 - monitoring anthropometric measurements
- Interpretation of lab values to evaluate nutritional status
- Enteral substrates
 - benefits of human milk
 - composition
 - fortifiers
 - supporting lactogenesis
 - education about value of breast milk and lactogenesis
 - breastfeeding
 - donor milk
- Formula composition and indications
- Nutritional supplements

VII. Respiratory Management/Oxygenation

- Structural and functional immaturity of the ELBW lung
- Ventilation strategies
 - ventilation modes (volume targeted, high frequency
 - non-invasive ventilation
- Blood gas interpretation and management
 - acid-base homeostasis
- Oxygen delivery and management
 - oxyhemoglobin saturation curve
 - pulse oximetry
 - oxygen saturations
- Prevention of neonatal morbidities
 - BPD (ventilation strategies, surfactant use, caffeine)
 - ROP (FiO₂)
 - IVH (role of CO₂)

VIII. Skin Care

- Structural and functional immaturity
 - epidermal barrier function
 - permeability
 - role in thermoregulation
 - sensory
- Prevention of skin breakdown
 - use of adhesives
 - repositioning
 - medical devices
 - bedding
 - cleansing agents
 - hydrocolliods
 - hydrogels

IX. Infection Risks

- Immaturity of the ELBW immune system and function
 - environment (lines, tubes)
- Prevention and management of infection
 - catheter-associated infection (best practice bundles)
 - ventilator associated pneumonia
 - oral immune therapy (maternal milk, colostrum)

STUDY GUIDE

DEVELOPMENTAL CARE

I. Neurodevelopment

- Structural and functional immaturity
stages of brain development at time of delivery
organization
myelination
- Brain and neurosensory development

II. Impact of NICU environment

- Neurosensory
- Limbic
sensory capabilities
role of smell and taste
impact of light, noise, sound, vestibular, touch

III. Neuro-protective Intentional Caregiving and Promotion of Self-regulation

- Cue-based care
- Handling and positioning
Containment
- Circadian rhythms
- Kangaroo Care

IV. Neurobehavioral Alterations and Responses

- Habituation
- Motor organization
- State organization
- Sensory/interaction capabilities
- Neurodevelopmental risks and outcomes

V. Stress and Pain Assessment and Management

- Self regulation
stability
- Stress response
autonomic
motoric
state/sleep cycle
- Pharmacological and non- pharmacological
management
- Effects on the developing brain

VI. Neuroprotection and Injury Prevention

- IVH and white matter injury prevention
strategies/bundles

STUDY GUIDE

DESCRIBE AND MANAGE PATHOPHYSIOLOGIC STATES

I. Maternal Risk Factors During Pregnancy that Impact the ELBW Neonate

- Perinatal management
maternal transport to high risk perinatal referral center
consultation
- Maternal factors
Gestational/ chronic hypertension
HELLP
antenatal corticosteroids
magnesium sulfate
maternal analgesia/anesthesia
maternal medications
PROM
Diabetes
Multiple gestation
- Mode of Delivery
- Obstetric emergencies

II. Cardiac

For specific problems: presentation/assessment, labs, diagnostic imaging, causes, management, complications, outcome

- Patent ductus arteriosus
- Pulmonary hypertension
Cor pulmonale
- Hypotension
Shock

III. Respiratory

For specific problems: presentation/assessment, labs, diagnostic imaging, causes, management, complications, outcome

- Apnea of prematurity
- Pulmonary hypoplasia
- Respiratory distress syndrome
- Pulmonary air leaks
Pneumothorax
PIE
- Pulmonary hemorrhage
- Respiratory distress
- Bronchopulmonary dysplasia/chronic lung disease

IV. GI/GU

For specific problems: presentation/assessment, labs, diagnostic imaging, causes, management, complications, outcome

- Perforations/Peritonitis
- Disorders of motility related to immaturity
- Necrotizing enterocolitis
- Disorders of suck and swallow
- GE reflux
- Inguinal hernia
- Short gut syndrome

V. Hematopoietic

For specific problems: presentation/assessment, labs, diagnostic imaging, causes, management, complications, outcome

- Anemia
blood and blood products
- Neutropenia/Neutrophilia
- Thrombocytopenia
- Hyperbilirubinemia
direct and indirect
red blood cell turnover
immature impaired conjugation and elimination
enterohepatic circulation

VI. Infectious Disease

For specific problems: presentation/assessment, labs, diagnostic imaging, causes, management, complications, outcome

- Sepsis evaluation
- Septic shock
- Viral and fungal infections
candidiasis
- Late onset sepsis
hospital acquired infection
UTI
osteomyelitis
meningitis
MRSA

STUDY GUIDE

VII. Metabolic/Endocrine/Genetics

For specific problems: presentation/assessment, labs, diagnostic imaging, causes, management, complications, outcome

- Thyroid disorders
- Adrenal insufficiency
- Glucose homeostasis
- Metabolic bone disease
 - osteopenia
 - rickets
 - fractures
- Metabolic screen interpretation

VIII. Neurologic, Neuromuscular, skin and Musculoskeletal

For specific problems: presentation/assessment, labs, causes, management, complications, outcome

- Skin injuries
 - burns
 - pressure injuries
 - tears
- Periventricular/Intraventricular hemorrhage
- Post-hemorrhagic hydrocephalus
- Periventricular leukomalacia
- Seizures
- Hemangiomas
- Dislocation of the hip

IX. Renal

For specific problems: presentation/assessment, labs, causes, management, complications, outcome

- Acute renal failure
 - SIADH
- High output renal failure
- Renal vein/artery thrombosis
- Renal insufficiency
 - Hypertension

X. Head, Eyes, Ears, Nose and Throat

For specific problems: presentation/assessment, labs, diagnostic imaging causes, management, complications, outcome

- Retinopathy of prematurity
 - target O2 saturations
- Airway malacia/stenosis
- Vocal cord paralysis
- Hearing loss

XI. Pharmacology

- Pharmacokinetics and pharmacotherapeutics
 - drug use and precautions
 - distribution
 - absorption
 - metabolism
 - excretion
 - drug levels
 - drug effects
- Common drugs
 - antibiotics/antifungals
 - anesthesia/analgesia concurrent use with non-pharmacological management
 - bronchodilators
 - cardiovascular agents
 - inotropes and vasopressors
 - PDA treatments
 - caffeine
 - diuretics
 - steroids
 - surfactant
 - ROP treatment
- Antibiotic Stewardship
 - risk with exposure and developing intestinal mucosa
 - risk for repeated courses secondary to multiple sepsis evaluations

STUDY GUIDE

ASSESS AND MANAGE PSYCHOSOCIAL BEHAVIORAL STATES

I. Family Integration

- Prenatal consultation
- Family partnered care
- Parenteral role attainment
 - Barriers
 - bonding
- Special circumstances
 - adolescent parents
 - extended family
- Parent teaching
- Shared decision making
 - parent/staff disagreements
- Breastfeeding support
- Family support and education

II. Discharge Planning, Teaching and Follow Up

- General discharge planning
- Newborn screening
 - car seats
 - metabolic
 - hearing
 - CCHD screening
 - ROP exam
- Parent education/training
 - Feeding/nutrition
 - safe sleep
 - immunizations
 - importance of follow up
 - special equipment
 - parent readiness
- Follow up
 - clinics
 - nursing care
 - community resources
 - equipment
 - early interventions/development follow up

III. Trauma Informed Care/Parenteral Coping and Grieving Process

- Stages of grief and common behaviors and interventions
- Specific circumstances
 - chronic sorrow
 - death of twin
 - repeated obstetric loss or preterm deliveries
 - sibling responses

- Parent mental health
 - post traumatic stress disorder
 - post-partum depression
 - incongruent grieving
- Support systems
- Parental stress responses

IV. End of Life Care/Palliative Care/Viability and Legal/Ethic Issues

- Non-initiation
- Withdrawal
- Comfort care
- Parental desire for futile care
- Outcomes
- Cultural sensitivity
- Ethical principles
 - autonomy
 - beneficence
 - non-maleficence
 - justice

V. Professional Practice

- Communication tools
- Inter-professional teamwork
- Continuity/Continuum of care
- Compassion fatigue

VI. EBP, QI, Research, Data Outcomes, Benchmarking

- Small baby risks
 - data
 - outcomes
- Benchmarking
- QI
- Process Improvement

VII. Communication of outcomes

- Motor
- Cognitive
- Language delays
- Expected milestones

STUDY RESOURCES

- Bissinger, et al. Golden Hours, 2nd ed., NCC, 2019
- Blackburn, Maternal, Fetal, & Neonatal Physiology, Elsevier, 2018
- Resnik, et al., Creasy & Resnik's Maternal Fetal Medicine Principles and Practice, Elsevier, 2019.
- Fanaroff, et al., Klaus & Fanaroff's Care of the High-Risk Neonate, Elsevier-Saunders, 2015.
- Gardner, et al., Handbook of Neonatal Intensive Care, Mosby Elsevier, 2016.
- Gleason, et al., Avery's Diseases of the Newborn, Elsevier, 2018.
- Goldsmith, et al., Assisted Ventilation of the Neonate, 6th ed., Saunders Elsevier, 2017.
- Martin, et al. Fanaroff and Martin's Neonatal-Perinatal Medicine, 11th ed., Elsevier, 2018
- Orkin, et al., Hematology of Infancy and Childhood, Saunders, Elsevier, 2015.
- Polit, et al., Essentials of Nursing Research: Appraising Evidence for Nursing Practice, Wolters Kluwer, 2018.
- Remington, et al., Infectious Diseases of the Fetus and Newborn Infant, Saunders, Elsevier, 2016.
- Snell, et al., Care of the Well Newborn, Jones & Barlett, Burlington, 2017
- Stark, et al., Cloherty and Stark's Manual of Neonatal Care 8th ed., Wolters Kluwer, 2017.
- Taketomo, Pediatric and Neonatal Dosage Handbook, Lexi-comp, 2018.
- Tappero, et al., Physical Assessment of the Newborn, Springer, 2019.
- Verklan, et al., Core Curriculum for Neonatal Intensive Care Nursing, Elsevier, 2015.
- Volpe, et. al., Neurology of the Newborn, Elsevier, 2018.
- Walsh, et al., Neonatal and Pediatric Respiratory Care, Elsevier, 2019.

SAMPLE QUESTIONS

CARE OF THE EXTREMELY LOW BIRTH WEIGHT NEONATE

SAMPLE QUESTIONS

Listed below are five sample questions to acquaint you with the test question format. These questions do not reflect the scope or the difficulty level of the questions on the actual examination. The reference from which each question is derived is also cited. However, other references might substantiate a different answer, and the answer shown here might be substantiated by other references.

The rigorous review to which actual test questions are subject is not applied to these sample questions. The focus that should be attended to in reviewing these items is format, not content.

1. An extremely low birth weight neonate is at increased risk for germinal matrix hemorrhage due to

- A. decreased cerebral arterial blood flow
- B. fragility of the germinal matrix
- C. increased blood-brain barrier

Answer: B

Bissinger, et al. Golden Hours, 2nd ed., NCC, 2019, p. 318

2. The major source of heat loss in the extremely low birth weight neonate is

- A. convection
- B. evaporation
- C. radiation

Answer: B

Bissinger, et al. Golden Hours, 2nd ed., NCC, 2019, p. 170

3. An ELBW neonate requires chest physiotherapy and suctioning but becomes mottled and flaccid during the procedure. An appropriate intervention would be to

- A. contain in flexion
- B. play soft music
- C. stroke the neonate

Answer: A

Gardner, et al., Handbook of Neonatal Intensive Care, Mosby Elsevier, 2016, p. 221

4. Administration of surfactant in ELBW with respiratory distress syndrome results in decreased

- A. oxygenation
- B. lung compliance
- C. ventilation-perfusion mismatch

Answer: C

Verklan, et al., Core Curriculum for Neonatal Intensive Care Nursing, Saunders Elsevier, 2015, p. 452

5. A 10-day-old 26-week-gestaional-age neonate has had repeated heel sticks for labs, and now demonstrates pain behavior when the heel is being touched gently by the mother. The explanation for this response is

- A. conditioning
- B. habituation
- C. hyperalgesia

Answer: C

Gardner, et al., Handbook of Neonatal Intensive Care, Mosby Elsevier, 2016, p. 226.

SCORING & TEST REPORT

HOW EXAMS ARE SCORED

SCORING FOR EXAMS TAKEN DURING THE INTRODUCTORY TESTING PERIOD

Whenever a new exam is offered, all questions used have no history by virtue of the fact the exam has never been given before. In order to gather the vital statistical information on item and total examination performance to make valid and psychometric judgements on pass/fail determinations, statistics from actual test takers must be ascertained. Until this information is finalized, pass/fail status will not be reported upon the completion of your examination.

All information is held until all candidates who registered during the introductory period have tested. After statistical analysis and review is completed, results will be mailed to all those who took the test during this introductory period. **These are expected to occur no later than March 1, 2020.** Results will also be posted to your online accounts. ***You will be sent updates on the expected release dates for the pass/fail results.***

NCC examinations are criterion-referenced. This means the passing score is based on a predetermined criterion. This criterion is a statistical ability level established by the Content Team based on evaluation of criticality of content and the test questions' past statistical performance. Questions used to determine pass/fail have proven statistical history that demonstrates the question is appropriate for use to measure an individual's ability level.

There is no set percentage passing level. **An ability level for each candidate is calculated based on the number of questions they answer correctly (there is no penalty for wrong answers).** Pass/fail is determined based on this ability level as compared to pass/fail standard which is a predetermined ability criterion. When different forms of the examination are used, a process called equating is initiated. This procedure converts all results to a common scale. So someone who takes a slightly more difficult form of the exam will need to answer fewer questions correctly than someone who takes a slightly easier form of the exam.

NCC utilizes the item response theory of psychometrics for the analysis of its examinations. Item response theory (Rasch analysis) is the study of test and item scores based on assumptions concerning the mathematical relationship between abilities and item responses. This is a commonly used system, and such examinations as the NCLEX and other health related certification examinations utilize this type of psychometric analysis.

Test reports identify pass/fail status, and they give feedback on the various content areas of the examination in the form of word descriptors: very weak, weak, average, strong and very strong. No percentages or standard scores are given. These descriptors are based on the items within a given subtest. The overall pass/fail decisions are based on the full test, and the verbal descriptors are intended to provide suggested feedback on strengths and weaknesses in various content areas. Since this feedback is based on relatively few items, general verbal descriptions are given instead of subtest scores. These word descriptors are for information only, and they should be interpreted cautiously due to the small number of items included in each content area.

SCORING & TEST REPORT

SAMPLE TEST REPORT

Whether you take the computer or paper and pencil version of the examination, you will receive an official test results report from NCC. Shown below is a sample test result report for a candidate who has passed the examination.

CARE OF THE EXTREMELY LOW BIRTH WEIGHT NEONATE EXAMINATION

Test Results

NAME

DATE

ADDRESS

Pass/Fail:

PASS

EXAM CONTENT REPORT

The following provides information regarding your performance on the different content areas tested on the examination.

Test reports identify pass/fail status, and they give feedback on the various content areas of the examination in the form of word descriptors: Very weak, weak, average, strong and very strong. No percentages or standard scores are given. These descriptors are based on the items within a given subtest. The overall pass/fail decisions are based on the full test, and the verbal descriptors are intended to provide suggested feedback on strengths and weaknesses in various content areas. Since this feedback is based on relatively few items, general verbal descriptions are given instead of subtest scores. These word descriptors are for information only, and they should be interpreted cautiously due to the small number of items included in each content area.

Content Area & Percentage

Your Results:

Range of Questions Asked:

General Assessment and Management
(28%)

VERY STRONG

Developmental Care
(18%)

WEAK

Describe & Manage Pathophysiologic States
(39%)

AVERAGE

Assess and Manage Psychosocial Behavioral States and Ethical
Issues of the Family throughout Hospitalization and Discharge
Utilizing Communication and Data to Improve Outcomes
(15%)

AVERAGE

TERMS OF CERTIFICATION AND CERTIFICATION MAINTENANCE

WHEN YOU PASS THE EXAM

CREDENTIAL

Your NCC certification status entitles you to use the credential C- ELBW (Certified – Care of the Extremely Low Birth Weight Neonate).

TERMS OF CERTIFICATION

NCC certification is awarded for a period of three years.

The effective date for certification is the date on the official NCC letter that tells you that you have successfully completed the certification process.

**NO CONTINUING
EDUCATION IS ISSUED FOR
TAKING THE
CARE OF THE EXTREMELY
LOW BIRTH WEIGHT
NEONATE EXAM.**

MAINTAINING YOUR CERTIFICATION

- NCC certification must be maintained on an ongoing basis every three years.
- Certification that is not maintained will expire
- The NCC certification maintenance program allows you to continue your certification status by obtaining 15 hours of continuing education credit
- For continuing education credit to be used for certification maintenance it must be earned between the date of your notification of certification and the date your maintenance is due.
- The maintenance process includes filing a maintenance application prior to your maintenance due date with appropriate fees and requested documentation. All CE must be in Care of the Extremely Low Birth Weight Neonate. Using NCC CE modules does NOT automatically maintain your certification. You must file a maintenance application and pay a maintenance fee in addition to any CE fees.
- Maintenance applications are subject to random audit. If you are chosen for audit, you will be required to upload CE certificates and course descriptions. These records should be maintained during each maintenance cycle, until your maintenance application has been approved. You can upload these documents in your maintenance application throughout your maintenance cycle.

You may apply for maintenance up to 1 year prior of your maintenance date. As long as you have obtained the required contact hours of continuing education credit—***you do not need to wait until your maintenance deadline to apply.*** Maintenance will be due in the quarter in which you were notified of your certification (*not the date on which you took the examination*). Your maintenance due date can be found by logging into your NCC account. Login to your account using your email and password.

The NCC website has more detailed information

For more information about the certification maintenance program, click the purple "Maintain your Certification" box.