2020 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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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.
EXAMINATION AND RELATED FEES

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

*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 is subject to a $105 withdrawal fee. The candidate will receive $105 of their $210 payment, minus any outstanding charges.

RETEST FEE
Retest candidates must pay full application and examination fees. There are no discounts and they must complete a 90-day wait period* before resubmitting an application for testing. (*see Retest Policy page 4). Certifications exams of the same specialty can only be taken TWICE in a calendar year for the same candidate.

SUBSTITUTION FEE
Candidate substitutions are not allowed for any reason.

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 FOR ANY CANDIDATE
- who has taken an examination
- who is not successful in achieving certification
- who failed to take the exam via computer within the 90-day testing window and did not submit a change request within stated time frames
- who is unable to schedule their exam and is beyond the first 30 days of their eligibility window

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.
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 NON-REFUNDABLE PAYMENT RELATED FEES

INCOMPLETE APPLICATION FEE
All incomplete applications (those applications submitted with missing information, containing incomplete or incorrect information, missing required licensure information and upload, or do not include full fee payment) are subject to a non-refundable $30 reprocessing fee upon the submission of proper documentation.

LICENSE VERIFICATION FEE
If licensure information is requested requiring an additional submission the candidate will have 2 weeks to provide the license with all the correct information and pay the non-refundable $30 reprocessing fee. If this is not provided within the two weeks, NCC will attempt to verify the license and a $50 verification fee will be added to your account as arrears. If the candidate is deemed eligible at that point, they may schedule and sit for the exam. However, the exam will not be scored until such arrears are resolved. If NCC is unable to verify the license, you will be found ineligible and you will be refunded your registration fee minus $100 ($50 non-refundable application fee and $50 non-refundable license verification fee).

RETURNED CHECKS AND CREDIT CARD CHARGEBACK FEE
A $30 fee will be assessed for any check or e-check returned or a credit card payment disputed for any reason. Remittance thereafter of all fees and applications must be in the form requested by NCC.

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.
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
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 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, the maximum number of times a candidate can take the same NCC test in a calendar year is two.

All retest candidates must complete a 90-day wait period before they can submit a new application to retest.
• computer examinees 90-day wait period starts from the date they took the exam.
• paper/pencil examinees 90-day wait period starts from the date they received their official results.

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 the application deadline because of the 90-day wait rule.

AMERICANS WITH DISABILITIES ACT
Special testing accommodations will be provided pursuant to the Americans with Disabilities Act. Download the special accommodations request form from the website. The request must be signed by a clinician, physician, or another qualified specialist with training and experience appropriate to diagnose and treat the specified disability. The completed form must be submitted with your online certification application.
**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.

**REVOCATION**
Your certification may be revoked for falsifying any information submitted to determine eligibility to take the certification examination or for maintaining certification, for losing your license to practice, 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 “Submit Hand Scoring Request” link can be found in your account under “failed certification”. You will be notified of the results by email.

**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**

**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 scored 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.
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.
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%)
- Physical, Gestational Age, Behavioral and Neurologic Assessment
- Delivery Room Management, Stabilization and Transition
- Transport/Transfer
- Thermoregulation
- Fluid and Electrolytes
- Nutrition and Feeding
- Respiratory Management/Oxygenation (e.g. Blood gases, Ventilation)
- Skin Care
- Infection Risks (immaturity, prevention, bundles)

11.00 Developmental Care (18%)
- Neurodevelopment (Structure, function, immaturity)
- Impact of NICU Environment
- Neuroprotective Intentional Caregiving and Promotion of Self-regulation
- Neurobehavioral Alterations and Responses (habituation, state and motor organization)
- Stress and Pain Assessment and Management
- Neuroprotection and Injury Prevention

12.00 Describe & Manage Pathophysiologic States (39%)
- Perinatal Management, Maternal Risk Factors During Pregnancy and Obstetric Emergencies that Impact the ELBW neonate
- Cardiac
- Respiratory
- GI/GU
- Hematopoietic
- Infectious Diseases
- Metabolic/Endocrine/Genetic
- Neurologic, Neuromuscular, Skin and Musculoskeletal
- Renal
- Head, Eyes, Ears, Nose and Throat
- 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%)
- Family Integration
- Trauma Informed Care/Parental Coping and Grieving Process
- End of Life Care/Palliative Care, Viability and legal/ethical issues
- Discharge Planning, Teaching and Follow up
- Risks for motor, cognitive, language delays and expected milestones
- Professional Practice and Team Communication along the continuum of care
- 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.
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
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 and 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: hydrocolloids, 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
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
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 real 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
- Parental 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/Parental 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
• Snell, et al., Care of the Well Newborn, Jones & Bartlett, 2017.
SAMPLE QUESTIONS

CARE OF THE EXTREMELY LOW BIRTH WEIGHT NEONATE

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

2. The major source of heat loss in the extremely low birth weight neonate is
   A. convection
   B. evaporation
   C. radiation

   Answer: B

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

4. Administration of surfactant in ELBW with respiratory distress syndrome results in decreased
   A. oxygenation
   B. lung compliance
   C. ventilation-perfusion mismatch

   Answer: C

5. A 10-day-old 26-week-gestational-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
HOW EXAMS ARE SCORED

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.

INTRODUCTORY PHASE
EXAM SCORING

Whenever a new certification is offered, all questions used on its exam(s) have no history by virtue of the fact the exam(s) has never been given before. To make valid and psychometric sound judgements on pass/fail determinations, NCC needs to gather and analyze the vital statistical information on item and total examination performance from the responses of actual test takers. Until this information is finalized, candidate pass/fail status cannot be reported.

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

Those in the Secondary examination phase will not be able to test until March 1 of 2020. The exam results will be held until there are enough candidates who have tested to statistically analyze the examination to insure both difficulty of the form and pass/fail are in line with the first form of the exam.
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.

<table>
<thead>
<tr>
<th>Content Area &amp; Percentage</th>
<th>Your Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range of Questions Asked:</strong></td>
<td></td>
</tr>
<tr>
<td>General Assessment and Management</td>
<td>VERY STRONG</td>
</tr>
<tr>
<td>(28%)</td>
<td></td>
</tr>
<tr>
<td>Developmental Care</td>
<td>WEAK</td>
</tr>
<tr>
<td>(18%)</td>
<td></td>
</tr>
<tr>
<td>Describe &amp; Manage Pathophysiologic States</td>
<td>AVERAGE</td>
</tr>
<tr>
<td>(39%)</td>
<td></td>
</tr>
<tr>
<td>Assess and Manage Psychosocial Behavioral States</td>
<td>AVERAGE</td>
</tr>
<tr>
<td>and Ethical Issues of the Family throughout Hospitalization and Discharge Utilizing Communication and Data to Improve Outcomes (15%)</td>
<td></td>
</tr>
</tbody>
</table>
**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.

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**Maintaining Your Certification**

- NCC certification must be maintained 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 submitting 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 submit 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 before 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 signing into your NCC account. Sign into 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.