

# CANDIDATE HANDBOOK

[www.BCENcertifications.org](http://www.BCENcertifications.org)



**Board of Certification for Emergency Nursing**

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# BCEN Candidate Handbook

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This *Candidate Handbook* will describe the examination process as well as give you other important information regarding Board of Certification for Emergency Nursing (BCEN®) certification exams. Please familiarize yourself with the information in this booklet.

All general questions and requests for information regarding BCEN exams should be directed to:

Board of Certification for Emergency  
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55 Shuman Blvd, Suite 300  
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Phone: 877-302-BCEN (2236)  
Fax: 630-596-8250  
E-mail: [bcen@bcencertifications.org](mailto:bcen@bcencertifications.org)  
Website: [www.BCENcertifications.org](http://www.BCENcertifications.org)

## **Nondiscrimination Policy**

BCEN and its test development and test administration vendors endorse the principles of equal opportunity and comply with the Americans with Disabilities Act (ADA) as Amended. Eligibility criteria for BCEN examinations are applied equally to all applicants regardless of race, color, creed, gender, religion, national origin, disability, sexual orientation, veteran status, age, marital status, or gender identity. All testing sites comply with all federal, state, and local laws regarding use of public buildings, ensure accessibility required under the ADA, and accommodate applicants with disabilities on an individual basis without additional cost. For the complete text of BCEN's nondiscrimination policy, consult the BCEN website at [www.BCENcertifications.org](http://www.BCENcertifications.org).

## **How BCEN Exams Are Developed**

BCEN recognizes the importance of producing psychometrically sound examinations, emphasizing three principal processes: test construction based on a content outline that has been developed from data on a role delineation study (RDS), sound item development practices, and post-administration analysis.

BCEN exams are based on data from an RDS, also known as a practice analysis or job analysis study. BCEN conducts these studies every 4 to 5 years to ensure that the content on its exams reflects current practice. As part of an RDS, survey instruments are distributed to emergency nursing professionals (or flight registered nurses or ground transport registered nurses) throughout the United States. The data gathered from the survey responses guide BCEN exam committees in identifying tasks and knowledge areas on which to base the content outlines for specific BCEN exam programs. The integrated concepts, cognitive level distribution, and the number of questions specified within each content area for each BCEN exam program are developed via an iterative process resulting in unanimous agreement from the exam committee.

Items (i.e., test questions) are written by content experts who represent various aspects of emergency nursing. BCEN strives to screen applicants to ensure geographic, demographic, and practice diversity. Qualifications of individuals involved in item development are documented, consistent with the stated level and purpose of BCEN examination(s), and representative of the clinical practice skills and amount of experience representative of the certificant population.

Item writers are trained in the fundamentals of sound item writing and are advised about the purpose and identified structure of BCEN examinations, including their intended audience.

Items are examined for bias and sensitivity issues at several points prior to use. Items are reviewed for terminology, phrases, idioms, and language that may be sexist, discriminatory.

During item-writing training, editorial review of individual items, and review of exam forms, documentation on how to prevent bias and stereotyping is provided to BCEN exam committees in either written or verbal form.

All examination questions and test forms are the copyrighted property of BCEN. It is forbidden under federal copyright law to copy, reproduce, record, distribute or display these examination questions by any means, in whole or in part. Doing so may subject you to disciplinary action by BCEN and/or severe civil and criminal penalties.

For more information about BCEN's policies regarding test development, consult the BCEN website at [www.BCENcertifications.org](http://www.BCENcertifications.org).

## How to Apply for a BCEN Exam

Your online exam application form is located within your BCEN Account. [Click here for step-by-step instructions](#) on how to access, complete and submit your exam application form. Once your exam application is processed along with payment in full, an exam eligibility e-mail is immediately sent containing your 90-day testing window and instructions on how to schedule your exam at a Pearson VUE testing center.

*Note:* When paying your exam application fee by credit card, your application will be processed immediately and your exam eligibility e-mail also will be immediately sent to you. If you do not receive your exam eligibility e-mail from BCEN within 24 hours, contact BCEN at [bcen@bcencertifications.org](mailto:bcen@bcencertifications.org). When paying by check, please allow up to 4 weeks for processing of your exam application. Once your check has been received by BCEN and payment processed, your eligibility e-mail will be sent to you.

## How to Schedule a BCEN Exam

In order to be eligible to schedule a BCEN exam, an exam application along with payment in full must be submitted and processed online via your BCEN Account. Please see "How to Apply for a BCEN Exam."

Scheduling an exam online:

- First-time test takers must create a Pearson VUE web account by clicking on 'Sign In/Create an Account' icon found in the right-hand sidebar.
- When creating your account and scheduling your exam, you will need your BCEN candidate ID number. This ID number is located in the eligibility e-mail sent by BCEN after your exam application was processed.

Scheduling an exam by phone:

- Contact Pearson VUE customer service 866-751-6589. For International candidates, please [click here](#) for the list of international phone numbers.

After you schedule your exam, Pearson VUE will send a confirmation e-mail listing your exam date, exam time, along with the address and directions to the Pearson VUE Testing Center.

### **Rescheduling an Exam**

You are allowed to reschedule your exam date one time only. You must reschedule a minimum of 24 hours prior to the canceled exam date and within your 90-day eligibility window.

Candidates who do not schedule within their 90-day eligibility window or who need to reschedule more than once need to request a new eligibility from BCEN.

### **Failing to Report for a Scheduled Exam**

If you do not report for a scheduled exam appointment, you will forfeit all paid fees. A new application and payment are required.

### **Refunds**

A written request for a refund of the exam fee can be submitted to BCEN prior to scheduling an appointment with Pearson VUE and prior to the close of your 90-day testing window date as outlined in your eligibility notification from BCEN. Once an exam appointment has been scheduled, refund requests will not be accepted.

### **Testing Accommodations**

If you require accommodations in order to sit for your exam, please contact BCEN at [bcen@bcencertifications.org](mailto:bcen@bcencertifications.org) for more information.

## **Testing Center Locations and Facilities**

Testing centers have been selected to provide accessibility to the largest number of candidates in all states and major metropolitan areas. Exams are delivered by computer at Pearson VUE testing centers. A current listing of testing centers, including addresses and driving directions, appears at [www.pearsonvue.com/bcen](http://www.pearsonvue.com/bcen). If you cannot find a Pearson VUE testing center in your area, contact the BCEN office.

In the event of inclement weather or unforeseen emergencies on the day of an examination, Pearson VUE will determine whether circumstances warrant cancellation and subsequent rescheduling of an exam. On the day a testing site is closed, Pearson VUE will send one e-mail and make one telephone call (if testing center workload allows) to notify you of the site closure. On the day after the site closure, Pearson VUE will send a follow-up e-mail verifying that the site was closed and that your exam will need to be rescheduled. Exams usually are not rescheduled if testing center personnel are able to open the testing center.

If power to a testing center is temporarily interrupted during exam administration, testing center staff will attempt to restart the exam so that you may continue.

## Admission to the Testing Center

### Identification Requirements

To gain admission to the testing center, you must present two forms of original (not photocopies), valid (unexpired) IDs, one form as a primary ID (government issued with name, photo, and signature) one form as a secondary ID (with name and signature or name and photo). The first and last names you use to register must match exactly with the first and last names on the ID you present at the testing center. Failure to supply proper ID at the time of the examination is considered a missed appointment. There will be no refund of your exam fee.

All IDs must be issued by the country in which you are testing. If you do not have the qualifying ID issued from the country in which you are testing, a passport from your country of citizenship is required, along with a secondary ID.

Acceptable forms of primary ID include the following:

- Current driver's license with photo
- Current state/national/province ID card with photo
- Current passport with photo
- Current military ID with photo
- Alien registration card (green card, permanent resident, visa), or
- Local language ID (accepted only if issued from the country you are testing in)

The following forms of ID are not acceptable as the primary form but are accepted as secondary forms:

- Any ID containing at least your name and signature, or name and photo that meets above-mentioned ID requirements

Any type of temporary ID, or expired is **NOT** acceptable.

*Note:* Additional information regarding acceptable forms of ID appears at [www.pearsonvue.com/policies/1S.pdf](http://www.pearsonvue.com/policies/1S.pdf)

### Admission Procedures

You should arrive at the test center 30 minutes before your scheduled appointment time. This will give you adequate time to complete the necessary sign-in procedures.

*Note:* If you arrive more than 15 minutes after the scheduled testing time, you may not be admitted. If you are not admitted because you are late and the testing center cannot accommodate your appointment, contact BCEN during regular business hours 8:00 am to 4:30 pm Central Time.

Upon arrival and before you can sit for your exam, you will be asked to do the following:

- Review and accept the Examination Rules and Regulations agreement
- Submit two valid, correct forms of ID
- Create a digital signature to verify that it matches the signature on your IDs
- Have your palm vein pattern captured (at most testing centers)
- Have your photograph taken\*
- Store your belongings

\*You must agree to have your photograph taken as part of the admission procedure; if you don't agree, you will not be admitted for the exam.

You will be provided with an erasable note board to use as scratch paper during the examination. You must return the note board to the testing center staff at the completion of the exam.

### **Security Procedures During Admission**

BCEN and its test delivery partner maintain strict examination administration and security standards designed to ensure candidate safety and that all candidates are provided the same opportunity to demonstrate their abilities. The testing center is continuously monitored by audio and video surveillance equipment for test security purposes.

Testing center staff will monitor you on admission to ensure no unauthorized materials are taken into the testing room. The integrity of the test and BCEN's copyright require that candidates be precluded from duplicating or recording any part of the examination by any means, including copying or photographing. Randomly assigning seating, separating candidates, and using table dividers decreases the chance of any irregular behavior. Failure to comply with the following regulations will result in dismissal from the testing center and forfeiture of all fees:

- No personal belongings, including but not limited to cell phones, PDAs, watches, wallets, purses, firearms or other weapons, hats (and other non-religious head coverings), bags, coats, books, and or notes, pens or pencils are allowed in the testing center.
- Use of a cell phone, or other electronic devices is strictly prohibited and will result in dismissal from the examination.

- No questions concerning exam content may be asked during the examination.
- Eating, drinking, chewing gum, or smoking is not permitted in the testing center.
- No documents or notes of any kind may be removed from the examination room.
- No guests, visitors, or family members are allowed in the testing room, or reception areas.

### **What to Expect When Taking BCEN Exams**

Before you begin taking your BCEN exam, you will be asked to confirm the name of the exam you are taking and then asked to agree to the BCEN Examination Rules and Regulations agreement regarding exam confidentiality. Total seat time for the exam is 180 minutes (3 hours). Seat time begins when you are presented with the BCEN Examination Rules and Regulations agreement screen. You will have a total of 180 minutes to (1) review and agree to the examination rules and regulations and (2) take and complete the exam.

### **Security Procedures During the Exam**

Testing areas are monitored by testing center staff during the exam. Individuals who engage in any of the following behaviors during the exam will be dismissed from the testing area and asked to leave the testing center. Their scores will not be reported and all exam fees will be forfeited without a refund.

Examples of misconduct include when a candidate:

- Creates a disturbance, is abusive, or otherwise uncooperative



- Displays and/or uses electronic communications equipment such as pagers, cell phones, PDAs
- Gives or receives help or is suspected of doing so
- Attempts to record exam questions or make notes
- Attempts to take the exam for someone else
- Is observed with notes, books, or other aids

### **Computer-based Testing Instructions**

You are allowed 180 minutes (3 hours) to complete all exam components, including the BCEN Examination Rules and Regulations agreement. The computer will monitor the time you spend on the exam, and the exam will end if you exceed the time allowed. A digital clock in the upper right corner of the screen will indicate the time remaining for you to complete the exam.

During the exam, only one item will be presented on the screen at a time. The item number appears in the upper right corner of the screen. After you have reviewed the item, indicate your choice by entering the letter of the option you think is the correct answer (A, B, C, or D) or click on the option. To change your answer, simply enter a different option by clicking on the option or by pressing the A, B, C, or D key. You may change your answers as many times as you wish during the timed testing period.

You can end your testing session by clicking on the End Exam button on the item review screen. This procedure is designed to ensure that you are truly finished testing before exiting the exam session. To end the exam, you will be

required to confirm your desire to end your testing session.

A tutorial showing features of the computerized exam screens can be accessed at Pearson VUE's website [www.pearsonvue.com/athena/athena.asp](http://www.pearsonvue.com/athena/athena.asp).

### **Taking Breaks During the Exam**

You may take a break whenever you wish, but you will not be given additional time to make up for time lost during breaks. During any break you are not permitted to access personal items other than medication required at a specific time unless you receive prior permission. You must receive permission from the testing center staff prior to accessing personal items that have been stored.

You will need to show ID and/or have your palm vein captured when leaving and entering the testing room. Testing center staff will escort you to your assigned workstation when you return to the testing room.

### **Candidate Comments**

During the examination, you may make comments about specific questions by clicking on the Comment button on the screen. Comments will be reviewed by the BCEN Exam Construction and Review Committee, but individual responses will not be provided.

### **Exam Results and Personal Information**

#### **Confidentiality**

Maintaining candidate and certificant confidentiality is of primary importance to BCEN. Individual scores and personal information are not released to anyone

other than the candidate/certificant. For the complete text of BCEN's confidentiality policy, consult the BCEN website at [www.BCENcertifications.org](http://www.BCENcertifications.org).

BCEN publishes aggregate information about the performance of candidate groups on the BCEN website on at least an annual basis to comply with American Board of Specialty Nursing Certification (ABSNC) accreditation requirements, which may include but not be limited to pass/fail data and examination performance data. Any data published are based on a sufficient number of candidates to ensure that the data are meaningful to report but do not compromise individual candidate confidentiality, as determined by the BCEN Board in collaboration with its test development vendor. Studies and reports that include test scores and other examination data do not contain information identifiable with any candidate or certificant, unless authorized by the candidate or certificant.

### **Cancellation of Candidate Scores**

Candidate misconduct occasionally may cause a score to be suspect, at which time BCEN's test delivery partner would report the incident to BCEN. BCEN reserves the right to void or withhold exam results if upon investigation; violation of testing regulations is discovered.

Any of the following actions can void an exam score or result in the denial, suspension, or revocation of BCEN certification:

- Falsification of information on the certification application
- Falsification of any material information requested by BCEN

- Any restrictions such as revocation, suspension, probation or other sanctions of professional RN license by a nursing license authority that limits a nurse's ability to function in an emergency care setting and perform those tasks normally associated within emergency nursing specialty practice.
- Misrepresentation of certification status
- Cheating or collusion with others to cheat, including distributing exam content orally, digitally, or in writing on the certification exam

Note that BCEN investigates all instances of alleged misconduct, misrepresentation, and/or noncompliance to ensure due process and to protect candidates' rights. BCEN policies on misconduct, the disciplinary process, and candidate appeals process appear in full on the BCEN website at [www.BCENcertifications.org](http://www.BCENcertifications.org).

### **How Exam Results Are Reported**

Once you have completed the exam, you will be instructed to report to test center staff to receive your score report. Scores are reported in written form in person at the testing center, or by e-mail on request.

The score report will indicate your test results as pass or fail, which is determined by your raw score. A raw score is the number of questions you answered correctly. There is a specific breakdown of the major content areas of the exam and how you scored within each area.

### **Pass/Fail Result Determination**

BCEN uses the Angoff technique as the procedure for estimating pass/fail decisions for its exams. The underlying philosophy of the Angoff technique is that the standard

set should be related to item difficulty. The intent of this process is to establish an objectively applied classification decision that is criterion-referenced and consistent with the intent of the exam. Your ability to pass the exam depends on the knowledge and skill you display, not on the performance of other candidates.

Passing scores may vary slightly for each form of the exam. To ensure fairness to all candidates, a process called statistical equating is used. This involves selecting an appropriate mix of individual questions for each form of the exam that meets the content distribution requirements of the exam's content outline. Because each question has been pretested (i.e., used on a previous form of the exam but not scored), a difficulty level can be assigned. The equating process then considers the difficulty level of each question selected for each form of the examination, attempting to match the difficulty level of each form as closely as possible. To ensure fairness, slight variations in difficulty level are addressed by adjusting the passing score up or down, depending on the overall difficulty level statistics for the group of scored questions that appear on a particular version of the exam.

### **If You Pass the Exam**

If you pass the exam, you are certified for four (4) years and can use the designated credential after your licensing title with no punctuations. A certificate and wallet card

will be delivered within 15 business days after passing the exam. Contact BCEN if your certificate or wallet card is not received within this timeframe.

### **If You Do Not Pass the Exam**

If you do not pass the exam, you will be given your raw scores (i.e., number correct) in each area of the content outline. You must reapply and submit all applicable fees and documentation to retake the exam. There is a 90-day waiting period between exam attempts.

### **Recertification**


BCEN recognizes the importance of continuing competence in the profession and supports the definition that continuing competence is the ongoing ability to integrate and apply the knowledge, skills, judgment with the attitudes, values, and beliefs required to practice safely, effectively, and ethically in a designated role and setting.

BCEN supports recertification as a means of encouraging certificants to continue activities essential to the maintenance of knowledge and continuing competence required for their level of practice and certification in emergency nursing. Certificants must recertify every four (4) years.

For more information on recertification, visit [www.BCENcertifications.org](http://www.BCENcertifications.org).

## CEN Content Outline

The CEN exam is based on emergency nursing practice in the United States and consists of 175 items of which 150 items are scored. The remaining 25 items are pretest items for use in future forms of the exam. Pretest items are not identified and are distributed throughout the exam; your answer to these items will not affect your test score in any way. Note that patient populations such as pediatrics and geriatrics do not have specific categories on the CEN content outline; questions focusing on these patients are integrated throughout the content areas.

 <b>Certified Emergency Nurse Examination Content Outline</b>	<b>No. of Items</b>
<b>1. Cardiovascular Emergencies</b>	<b>20</b>
A. Acute coronary syndrome	
B. Aneurysm/Dissection	
C. Cardiopulmonary arrest	
D. Dysrhythmias	
E. Endocarditis	
F. Heart failure	
G. Hypertension	
H. Pericardial tamponade	
I. Pericarditis	
J. Peripheral vascular disease (e.g., arterial, venous)	
K. Thromboembolic disease (DVT, or deep vein thrombosis)	
L. Trauma	
<b>2. Gastrointestinal Emergencies</b>	<b>10</b>
A. Acute abdomen (e.g., peritonitis, appendicitis)	
B. Bleeding	
C. Cholecystitis	
D. Cirrhosis	
E. Diverticulitis	
F. Esophageal varices	
G. Esophagitis	
H. Foreign bodies	
I. Gastritis	
J. Gastroenteritis	
K. Hepatitis	
L. Hernia	
M. Inflammatory bowel disease	
N. Intussusception	



**Certified Emergency Nurse Examination  
Content Outline**

**No. of  
Items**

O. Obstructions	
P. Pancreatitis	
Q. Trauma	
R. Ulcers	
<b>3. Genitourinary, Gynecology, and Obstetrical Emergencies</b>	<b>10</b>
A. Genitourinary	
1. Foreign bodies	
2. Infection (e.g., urinary tract infection, pyelonephritis, epididymitis, orchitis, STDs)	
3. Phimosis	
4. Priapism	
5. Prostate conditions	
6. Renal calculi	
7. Testicular torsion	
8. Trauma	
9. Urinary retention (e.g., caused by trauma or neurological disorders)	
B. Gynecology	
1. Bartholin's cyst	
2. Bleeding/dysfunctional (vaginal)	
3. Foreign bodies	
4. Hemorrhage	
5. Infection (e.g., discharge, pelvic inflammatory disease, STDs)	
6. Ovarian cyst	
7. Sexual assault/battery	
8. Trauma	
C. Obstetrical	
1. Threatened/spontaneous abortion	
2. Ectopic pregnancy	
3. Emergent delivery	
4. Antepartum bleeding	
5. Hyperemesis gravidarum	
6. Neonatal resuscitation	
7. Preeclampsia, eclampsia, HELLP syndrome	
8. Preterm labor	
9. Trauma	
<b>4. Maxillofacial and Ocular Emergencies</b>	<b>9</b>
A. Maxillofacial	
1. Abscess (i.e., peritonsillar)	



**Certified Emergency Nurse Examination  
Content Outline**

**No. of  
Items**

2. Dental conditions	
3. Epistaxis	
4. Facial nerve disorders	
5. Foreign body	
6. Infection (e.g., Ludwig's angina, otitis, sinusitis)	
7. Labyrinthitis	
8. Meniere's disease	
9. Ruptured tympanic membrane	
10. Temporomandibular joint (TMJ) dislocation	
11. Trauma	
<b>B. Ocular</b>	
1. Abrasion	
2. Burns	
3. Foreign body	
4. Glaucoma	
5. Infections (e.g., conjunctivitis, iritis)	
6. Retinal artery occlusion	
7. Retinal detachment	
8. Trauma (e.g., hyphema, laceration, globe rupture)	
9. Ulcerations/keratitis	
<b>5. Neurological Emergencies</b>	<b>15</b>
A. Alzheimer's disease/dementia	
B. Chronic neurological disorders (i.e., multiple sclerosis, myasthenia gravis)	
C. Guillain-Barré syndrome	
D. Headache (i.e., including temporal arteritis, migraine)	
E. Increased intracranial pressure (ICP)	
F. Meningitis	
G. Seizure disorders	
H. Shunt dysfunctions	
I. Spinal cord injuries	
J. Stroke (e.g., ischemic or hemorrhagic)	
K. Transient ischemic attack (TIA)	
L. Trauma	



**Certified Emergency Nurse Examination  
Content Outline**

**No. of  
Items**

<b>6. Orthopedic and Wound Emergencies</b>	<b>14</b>
A. Orthopedic	
1. Amputation	
2. Compartment syndrome	
3. Contusions	
4. Costochondritis	
5. Foreign bodies	
6. Fractures/dislocations	
7. Inflammatory conditions	
8. Joint effusion	
9. Low back pain	
10. Osteomyelitis	
11. Other orthopedic trauma (e.g., Achilles tendon rupture, blast injuries)	
12. Strains/sprains	
B. Wound	
1. Abrasions	
2. Avulsions	
3. Foreign bodies	
4. Infections	
5. Lacerations	
6. Missile injuries (e.g., guns, paint gun, nail gun)	
7. Pressure ulcers	
8. Puncture wounds	
9. Trauma (e.g., including degloving injuries)	
<b>7. Psycho/Social Emergencies</b>	<b>7</b>
A. Abuse and neglect	
B. Anxiety/panic	
C. Bereavement	
D. Bipolar disorder	
E. Depression	
F. Eating disorders	
G. Homicidal/violent	
H. Psychosis	
I. Situational crisis (e.g., job loss, divorce, sudden unexpected infant death)	
J. Suicide	



**Certified Emergency Nurse Examination  
Content Outline**

**No. of  
Items**

<b>8. Respiratory Emergencies</b>	<b>18</b>
A. Aspiration	
B. Asthma	
C. Chronic obstructive pulmonary disease (COPD)	
D. Infections	
E. Inhalation injuries	
F. Obstruction	
G. Pleural effusion	
H. Pneumothorax	
I. Pulmonary edema, noncardiac	
J. Pulmonary embolus	
K. Respiratory distress syndrome	
L. Tension pneumothorax	
M. Trauma	
<b>9. Environment and Toxicology Emergencies</b>	<b>10</b>
A. Environment	
1. Burns	
2. Envenomation emergencies (e.g., spiders, snakes, aquatic organisms)	
3. Food poisoning	
4. Organophosphates and insecticides	
5. Parasite and Fungal Infestations (e.g., giardia, ringworm, tineas, tape worms, pin worms, lice, maggots, scabies)	
6. Plants (e.g., contact dermatitis, ingestion)	
7. Radiation/hazardous material exposure	
8. Submersion injury	
9. Temperature-related emergencies (e.g., heat, cold, systemic)	
10. Rabies	
B. Toxicology	
1. Acids and alkalis	
2. Carbon monoxide	
3. Cyanide	
4. Drug interactions (including alternative therapies)	
5. Overdose and ingestions	
6. Substance abuse	





**Certified Emergency Nurse Examination  
Content Outline**

**No. of  
Items**

**10. Shock**

**9**

- A. Cardiogenic
- B. Distributive (e.g., anaphylactic, septic, neurogenic)
- C. Hypovolemic
- D. Obstructive (e.g., pericardial tamponade, tension pneumothorax)
- E. Shock (not specific)

**11. Medical Emergencies and Communicable Diseases**


**17**

- A. Medical Emergencies
  - 1. Allergic reactions
  - 2. Blood dyscrasia
  - 3. Disseminated intravascular coagulation (DIC)
  - 4. Electrolyte/fluid imbalance
  - 5. Endocrine conditions:
    - a. Adrenal
    - b. Glucose-related conditions
    - c. Thyroid
  - 6. Fever
  - 7. Hemophilia
  - 8. Immunocompromise/oncologic (e.g., HIV, AIDS)
  - 9. Renal failure
  - 10. Sepsis
  - 11. Sickle cell crisis
- B. Communicable Diseases
  - 1. C. difficile
  - 2. Childhood diseases (e.g., measles, mumps, pertussis, chickenpox, diphtheria)
  - 3. Herpes zoster
  - 4. Mononucleosis
  - 5. Multi-drug resistant organisms (e.g., MRSA, VRE)
  - 6. Tuberculosis

**12. Professional Issues**

**11**

- A. Nurse
  - 1. Critical incident stress management
  - 2. Ethical dilemmas
  - 3. Evidence-based practice
  - 4. Lifelong learning
  - 5. Research

 <p style="text-align: center;"><b>Certified Emergency Nurse Examination Content Outline</b></p>	<b>No. of Items</b>
B. Patient	
1. Pain management	
2. Discharge planning	
3. End-of-life issues:	
a. Organ and tissue donation	
b. Advance directive	
c. Family presence	
d. Withholding, withdrawing, palliative care	
4. Forensic evidence collection	
5. Patient safety	
6. Transfer and stabilization	
7. Triage	
C. System	
1. Delegation of tasks to assistive personnel	
2. Disaster management (i.e., preparedness, mitigation, response, and recovery)	
3. Federal regulations (e.g., HIPAA, EMTALA)	
4. Patient consent for treatment	
5. Performance improvement	
6. Risk management	
7. Stabilization and transfer	
<b>Totals</b>	<b>150</b>

*NOTE:* The 139 clinical items in categories 1 through 11 are classified according to the nursing process as follows: 37 Assessment, 32 Analysis, 42 Intervention, and 28 Evaluation. The 11 professional issues items in category 12 are classified by cognitive level: 2 Recall, 6 Application, and 3 Analysis. In addition to the 150 items used to compute candidates' scores, 25 unscored pretest items will be administered.

## CEN Sample Questions


The following 10 sample questions are presented to demonstrate the format used on the CEN exam and how questions reflect the nursing process. These sample items are not intended to reflect the difficulty of the actual questions on the CEN exam. The preferred response is indicated in boldface type.

1. Results of a lumbar puncture reveal a white blood cell count of 15,000 cells/ $\mu$ L and positive for increased protein and decreased glucose. The nurse should anticipate implementing which of the following precautions?  
  
A. **negative pressure**  
B. positive pressure  
C. neutropenic  
D. contact
2. A patient who presents with blunt trauma to the upper abdomen reports sharp, "boring" abdominal pain with radiation to the back. Assessment reveals a firm abdomen, 4+ pitting edema in the lower extremities, and hypotension. Results of laboratory studies reveal hypocalcemia. The nurse should suspect trauma to the  
  
A. **pancreas.**  
B. spleen.  
C. gallbladder.  
D. liver.
3. A woman with a history of pelvic inflammatory disease presents with a fever, abdominal pain, and vaginal discharge. She states that her last menses was 8 weeks ago. The most appropriate diagnostic procedure is  
  
A. pelvic ultrasound  
B. **pregnancy screening.**  
C. vaginal cultures.  
D. abdominal CT with contrast.
4. A patient presents with injuries to the face and eyes after a bottle of crystal drain cleaner and water explodes in his face. Irrigation with normal saline solution should be performed  
  
A. until the pH in the eye is 6.0.  
B. after visual acuity is assessed.  
C. **for a minimum of 30 minutes.**  
D. with a maximum of 500 mL of solution used.

5. A patient presents with a foreign body sensation in the left eye after exposure to an ultraviolet lamp in a suntan bed. Assessment reveals photophobia, tearing, and sharp, stabbing pain. The nurse suspects
- A. conjunctivitis.
  - B. corneal abrasion.**
  - C. chemical burn to the eye.
  - D. subconjunctival hemorrhage.
6. A patient with deep vein thrombosis is being discharged home. Which of the following statements by the patient indicates that further teaching is necessary?
- A. I will elevate my leg on a pillow
  - B. I will use cool, dry compresses on my leg.**
  - C. I will try to stay in bed to avoid complications.
  - D. I will take my warfarin (Coumadin) as prescribed.
7. A patient has feelings of being overwhelmed and inability to cope. During triage, the nurse should focus on assessing the patient's
- A. problem.
  - B. support system.
  - C. usual coping mechanisms.
  - D. potential for self-directed violence.**
8. The most appropriate course of action for a 2-year-old patient with a partial airway obstruction is to
- A. initiate cardiac compressions.
  - B. prepare for immediate cricothyrotomy.
  - C. perform a blind finger sweep.
  - D. deliver abdominal thrusts.**
9. A 36-year-old construction worker is stuporous, has a rectal temperature of 105.2°F (40.7°C), and has hot, dry skin. The nurse anticipates administering
- A. oral hypotonic fluids.
  - B. IV fluid resuscitation.**
  - C. IV sodium bicarbonate.
  - D. acetaminophen.
10. Characteristics of an effective quality improvement program include
- A. using clinical indicators reflecting high-risk care activities.**
  - B. setting thresholds of 75% compliance on monitored items.
  - C. changing clinical indicators on a monthly basis.
  - D. separating medical and nursing issues.

## Combined CFRN and CTRN Content Outline

The CFRN and CTRN exams are based on flight nursing and ground transport nursing practice in the United States. The CFRN exam consists of 180 items of which 150 items are scored and 30 are unscored pretest items. The CTRN exam consists of 155 items of which 130 are scored and 25 are unscored pretest items. Pretest items are not identified and are distributed throughout the exam; your answer to these items will not affect your test score in any way.

	# of Items	
	CTRN <sup>1</sup>	CFRN <sup>2</sup>
 <div style="display: inline-block; vertical-align: middle; margin-left: 20px;"> <p style="text-align: center;"><b>Combined CFRN and CTRN Examination Content Outline</b></p> </div>		
<p><i>Clinical items, distribution by Nursing Process:</i> Assessment (15-20%), Analysis (20-25%), Intervention (30-35%), Evaluation (25-30%)</p> <p><i>Non-Clinical items, distribution by Cognitive Level:</i> Approximately equal for Recall, Application, Analysis</p>		
<b>1. General Principles of Practice</b>	<b>15</b>	<b>22</b>
A. Transport Physiology		
1. Physiologic stressors of transport		
2. Effects of altitude on patients	<b>X</b>	
B. Scene Operations		
1. Secure landing zone		
C. Communications		
1. Radio operations		
2. Patient handoff		
3. Crew resource management (including AMRM)		
D. Safety and Survival		
1. ELT	<b>X</b>	
2. Navigation	<b>X</b>	
3. Transponder codes	<b>X</b>	
4. Survival principles (postcrash)	<b>X</b>	
5. Transport vehicle emergencies		
<b>2. Patient Care Principles</b>	<b>23</b>	<b>25</b>
A. Principles of Assessment and Patient Preparation		
1. History taking, physical assessment, and data-gathering principles		
2. Pain management		
3. Preparing the patient for transport (i.e., packaging)		
B. Airway Management		
1. Airway assessment		
2. Airway management techniques and procedures		
3. Difficulties encountered with airway		
4. Rapid sequence intubation (RSI), including pharmacology		
C. Mechanical Ventilation		
1. Invasive ventilation		



## Combined CFRN and CTRN Examination Content Outline

*Clinical items, distribution by Nursing Process:*

Assessment (15-20%), Analysis (20-25%), Intervention (30-35%), Evaluation (25-30%)

*Non-Clinical items, distribution by Cognitive Level:*

Approximately equal for Recall, Application, Analysis

	# of Items	
	CTRN <sup>1</sup>	CFRN <sup>2</sup>
2. Noninvasive ventilation		
<b>3. Trauma</b>	<b>30</b>	<b>38</b>
A. General Principles of Management		
1. Mechanism of injury		
2. Hypovolemic shock		
3. Immobilization		
4. Trauma triad (hypothermia, acidosis, coagulopathies)		
5. Scoring	<b>X</b>	
B. Neurologic Trauma		
1. Neurogenic shock		
2. Traumatic brain injuries		
3. Spinal cord injuries		
4. Post-traumatic seizures		
C. Thoracic Trauma		
1. Chest wall injuries		
2. Pulmonary injuries		
3. Cardiac injuries		
4. Great vessel injuries		
D. Abdominal Trauma		
1. Hollow organ injuries		
2. Solid organ injuries		
3. Diaphragmatic injuries		
4. Retroperitoneal injuries		
E. Orthopedic Trauma		
1. Vertebral injuries		
2. Pelvic injuries		
3. Compartment syndrome		
4. Amputations		
5. Extremity fractures		
6. Soft-tissue injuries		
F. Burn Trauma		
1. Chemical burns		
2. Electrical burns		
3. Thermal burns		
4. Radiological burns	<b>X</b>	
5. Inhalation injuries		
G. Maxillofacial and Neck Trauma		
1. Facial fractures		
2. Ocular trauma		



## Combined CFRN and CTRN Examination Content Outline

*Clinical items, distribution by Nursing Process:*

Assessment (15-20%), Analysis (20-25%), Intervention (30-35%), Evaluation (25-30%)

*Non-Clinical items, distribution by Cognitive Level:*

Approximately equal for Recall, Application, Analysis

	# of Items	
	CTRN <sup>1</sup>	CFRN <sup>2</sup>
3. Blunt and penetrating neck trauma		
<b>4. Medical Problems</b>	<b>38</b>	<b>39</b>
A. Neurologic Emergencies		
1. Seizure disorders		
2. Stroke		
3. Neuromuscular disorders		
4. Space occupying lesions		
5. Encephalopathies (infectious and noninfectious)		
B. Cardiovascular Emergencies		
1. Obstructive shock (e.g., pericardial tamponade, pulmonary embolism)		
2. Acute coronary syndrome		
3. Congestive heart failure/pulmonary edema		
4. Dysrhythmias		
5. Cardiogenic shock		
6. Aortic diseases		
7. Hypertension		
8. Mechanical/circulatory support (e.g., IABP, VAD)		
C. Pulmonary Emergencies		
1. COPD, including asthma		
2. Acute lung injury/ARDS		
3. Pulmonary infections (e.g., pneumonia, tuberculosis)		
D. Abdominal Emergencies		
1. Abdominal compartment syndrome		
2. GI bleed		
3. Conditions of the hollow organs (e.g., obstruction, rupture)		
4. Conditions of the solid organs (e.g., pancreatitis, hepatitis)		
E. Electrolyte and Acid Base Imbalances		
F. Metabolic and Endocrine Emergencies		
1. Diabetic emergencies		
2. Neuroendocrine disorders (e.g., diabetes insipidus, SIADH)		
3. Thyroid conditions		
4. Adrenal disorders		
G. Hematology and Oncology Emergencies		
1. Coagulopathies (including platelet disorders)		
2. Anemias		
H. Renal Emergencies		
1. Acute kidney injury (i.e., acute renal failure)		
2. Chronic renal failure		



## Combined CFRN and CTRN Examination Content Outline

	# of Items	
	CTRN <sup>1</sup>	CFRN <sup>2</sup>
<i>Clinical items, distribution by Nursing Process:</i> Assessment (15-20%), Analysis (20-25%), Intervention (30-35%), Evaluation (25-30%)		
<i>Non-Clinical items, distribution by Cognitive Level:</i> Approximately equal for Recall, Application, Analysis		
I. Infectious and Communicable Diseases		
1. Sepsis and septic shock		
2. Isolation precautions (e.g., MRSA, influenza-like illness)		
J. Transport Considerations for Psychiatric Patients		
<b>5. Environmental Emergencies and Toxicology</b>	<b>7</b>	<b>8</b>
A. Environmental Emergencies		
1. Anaphylaxis		
2. Cold-related (e.g., hypothermia, frostbite)		
3. Heat-related (e.g., heatstroke, heat exhaustion)		
4. Submersion injuries (i.e., diving injuries, drowning, near drowning)		
B. Toxicology		
<b>6. Obstetrical Patients</b>	<b>7</b>	<b>8</b>
A. Complications of Pregnancy (e.g., ectopic, gestational hypertension, preterm labor)		
B. Delivery and Postpartum care		
C. Neonatal Resuscitation		
D. Trauma		
<b>7. Patient Care Issues and Management</b>	<b>10</b>	<b>10</b>
A. Patient Care Issues		
1. Evidence-based practice and research		
2. Legal issues (e.g., HIPAA, EMTALA, malpractice, consent, scope of practice)		
3. Abuse and neglect (e.g., pediatric, geriatric, intimate partner)		
4. Ethical issues		
5. Psychosocial issues in transport (including families)		
B. Management		
1. Quality management		
2. Outreach and community education		
3. Stress management (e.g., self-care, post-traumatic critical incident)		
<b>Totals</b>	<b>130</b>	<b>150</b>

1 CTRN Examination: 130 scored plus 25 Pretest Items

2 CFRN Examination: Additional 20 scored + 5 Pretest Items (Total of 150 scored + 30 Pretest Items)



## CFRN Sample Questions

The following 10 sample questions are presented to demonstrate the format used on the CFRN exam and how questions reflect the nursing process. These sample items are not intended to reflect the difficulty of the actual questions on the CFRN exam. The preferred response is indicated in boldface type.

1. An aircraft has completed a hard landing after mechanical difficulties. After safe contact with the ground, the crew knows to
  - A. stay in the aircraft until the pilot states it is safe to exit.
  - B. exit the aircraft immediately and meet other crew members downwind from the aircraft.
  - C. exit the aircraft after all moving parts have stopped and then meet other crew members at 12 o'clock.**
  - D. exit the aircraft after moving the patient out and secure shelter in the shade of the aircraft.
  
2. A patient with pulmonary edema is being transported via long-distance, high-altitude, fixed-wing transport. The patient's respiratory status has deteriorated, and bilevel positive airway pressure (BiPAP) therapy is initiated. Initial pressure settings for inspiratory positive airway pressure/expiratory positive airway pressure (IPAP/EPAP) should be set at how many centimeters of water (cm H<sub>2</sub>O)?
  - A. 6/3
  - B. 10/5**
  - C. 25/15
  - D. 40/20
  
3. Noninvasive ventilation is initiated during air transport of a patient with asthma. A short time into the flight, the patient becomes significantly hypotensive, but the oxygen saturation remains 95%. The most likely cause of this deterioration is
  - A. hyperinflation.**
  - B. pneumothorax.
  - C. hypovolemia.
  - D. hypercapnia.

4. The flight team is transporting a 50-year-old man who has chest pain following a motor vehicle collision. A chest radiograph shows air space consolidation in the midlung field on the right side. This finding is an indication of
- A. pulmonary contusion.**
  - B. cardiac tamponade.
  - C. pneumothorax.
  - D. hemothorax.
5. A patient develops barotitis media during descent in a fixed-wing aircraft. A slower rate of descent does not relieve the pain. Another option for treatment is
- A. providing hearing protection.
  - B. advising the patient to maintain a head-down position.
  - C. instructing the patient to perform the Valsalva maneuver.**
  - D. applying supplemental oxygen.
6. A patient is being transported from the ICU to another facility. Assessment en route reveals an acute change in mental status postoperatively, and the patient now has difficulty answering questions and reports having visual hallucinations. The nurse prepares to administer
- A. lorazepam (Ativan), 1 to 2 mg IV.
  - B. haloperidol (Haldol), 0.5 to 2 mg IV.**
  - C. clonidine (Duraclon), .0.1 mg PO.
  - D. midazolam (Versed) 0.5 to 1 mg IV.
7. Distress signals transmitted by an aircraft's emergency locator transmitter (ELT) on the 121.5 MHz frequency are received by
- A. digital duplex radios.
  - B. search and rescue satellite systems.
  - C. ground-based receivers only.**
  - D. emergency position indicating radio beacons.

8. A patient who was scuba diving about 90 minutes ago and reported a depth of 43 feet now has a headache, states that he cannot hear, has a headache, and has bilateral knee pain., Assessment reveals a diffuse petechial rash over the upper chest and back. Oxygen therapy is initiated without much improvement. The nurse anticipates
- A. administering a 500-mL IV fluid bolus.
  - B. placing the patient in Trendelenburg position.
  - C. initiating noninvasive positive pressure ventilation.
  - D. transport via low-altitude flight to the nearest facility with a decompression chamber.**
9. After liftoff, an intubated patient with multiple stab wounds becomes agitated, has decreasing blood pressure, and develops increased respirations. After a needle thoracostomy is performed, the nurse would expect to see
- A. decreasing peak airway pressures.**
  - B. decreasing forced expiratory volume.
  - C. increasing peak airway pressures.
  - D. increasing plateau pressures.
10. Which of the following steps represents the proper sequence of a critical incident stress debriefing?
- A. Inform, consult, exploration, reaction, decompression, and referral
  - B. Pre-crisis education, informational briefings, defusing, debriefing, individual support, family support, and referral
  - C. Pre-crisis education, verbalization, exploration of feelings, symptom mitigation, psychological closure
  - D. Introduction, facts, thoughts, reactions, symptoms, teaching, and reentry.**

## CTRN Sample Questions

The following 10 sample questions are presented to demonstrate the format used on the CTRN exam and how questions reflect the nursing process. These sample items are not intended to reflect the difficulty of the actual questions on the CTRN exam. The preferred response is indicated in boldface type.

1. Which of the following attributes is likely to be noted by a nurse in evaluating a transport team member for fatigue?  
**A. irritability**  
B. nervousness  
C. vomiting  
D. pallor
  
2. Which of the following is the most accurate and available way to verify correct positioning of an endotracheal tube?  
**A. capnography**  
B. pulse oximetry  
C. auscultation of breath sounds  
D. visualization of the endotracheal tube passing through the vocal cords
  
3. The transport nurse is assessing the airway of a patient who is sitting up with his mouth wide open. The nurse can see the soft palate, uvula, and fauces but not the tonsillar pillars. What is the Mallampati score associated with this oropharyngeal view?  
A. I  
**B. II**  
C. III  
D. IV
  
4. In what position should a patient with extensive facial fractures be transported?  
A. supine with cervical and complete spinal immobilization  
B. supine with cervical spine immobilization  
**C. high Fowler's position with cervical spine immobilization**  
D. low Fowler's position with cervical spine immobilization

5. A patient who was ejected from a motor vehicle presents with retroauricular hematoma, otorrhea, and periorbital ecchymosis. The nurse suspects
- A. cerebral herniation.
  - B. orbital blow-out fracture.
  - C. subdural hematoma.
  - D. basilar skull fracture.**
6. A patient taking warfarin (Coumadin) for anticoagulation has an intracerebral hemorrhage and an INR of 2.7. The transport nurse should anticipate administering
- A. calcium chloride.
  - B. protamine sulfate.
  - C. tranexamic acid (Cyklokapron).
  - D. fresh-frozen plasma.**
7. A patient involved in a motor vehicle crash 24 hours ago sustained chest injuries that required a massive blood transfusion. The nurse is now preparing the patient for transport. Assessment reveals worsening dyspnea and cyanosis that requires intubation and mechanical ventilation with high levels of positive end-expiratory pressure (PEEP) to maintain oxygen saturation levels. The nurse recognizes that the patient has
- A. acute respiratory distress syndrome.**
  - B. an acute pulmonary embolism.
  - C. ventilator-acquired pneumonia.
  - D. tension pneumothorax.
8. Follow-up and feedback programs for user agencies should be constructed so that the main focus is
- A. quality improvement.**
  - B. training and education.
  - C. system collaboration.
  - D. expansion of services.

9. A transport nurse is assisting with rapid sequence intubation of a 21-year-old man prior to transport. During administration of succinylcholine (Anectine), masseter muscle spasms develop and the cardiac monitor shows ventricular tachycardia. Vital signs are as follows: RR 46 breaths/min, ETCO<sub>2</sub> 60 mm Hg, and oxygen saturation 84%. The nurse prepares to administer dantrolene sodium (Dantrium) while simultaneously treating the life-threatening dysrhythmia with which of the following medications?
- A. procainamide (Pronestyl)**
  - B. lidocaine (Xylocaine)
  - C. digoxin (Lanoxin)
  - D. verapamil (Cardizem)
10. A high-risk obstetrics team is sent to a small community hospital for a precipitous delivery in the emergency department. The patient is now being transported for a retained placenta. En route, the nurse should expect to continue to
- A. maintain the patient in the left lateral position.
  - B. perform fundal massage every 5 to 10 minutes.**
  - C. initiate an infusion of magnesium sulfate.
  - D. administer tebutaline (Brethine) every 15 minutes.