CANDIDATE HANDBOOK

www.BCEN.org

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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 Nursing
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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.BCEN.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 or trauma 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.BCEN.org**.

Eligibility Requirements

Required:
To qualify for a BCEN certification exam, you must hold a current, unrestricted Registered Nurse license in the United States or its Territories. A nursing certificate that is equivalent to a Registered Nurse in the United States is also acceptable.

Recommended:
- CEN - 2 years' experience in the ED
- CFRN - 2 years' experience as a flight nurse
- CTRN - 2 years' experience as a ground transport nurse

TCRN Exam
- 2 years of trauma nursing experience at an average of 1,000 practice hours per year across the trauma care continuum (trauma nursing practice defined as providing direct care, supervision, education, and advocacy for trauma patients and their families).
- Twenty (20) to thirty (30) hours of trauma specific coursework across the trauma continuum.

CPEN Exam Recommended:
Two years of full-time experience in pediatric emergency nursing care. Pediatric emergency nursing care as defined by BCEN includes providing direct care, health care facilitation, education, and advocacy for pediatric emergency patients and their families.

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.

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@bcen.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

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.

To Schedule online:

- After your exam eligibility e-mail is received, log into your BCEN Account.
- Click on *Schedule Exam* found in the left-hand sidebar.
- You will be redirected to Pearson VUE's website.
- Under *Pre-approved* Exams, click on the applicable exam link to select your testing center, exam date and time.

To Schedule by phone:

- Contact Pearson VUE customer service at 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 TestingCenter.

Rescheduling

If you are **within your 90-day testing window AND still have at least one business day before the exam** (based on the time zone of the testing center where you have an exam scheduled), you will be able to reschedule with Pearson VUE with no reschedule/cancellation fees.

When rescheduling, **you must pick a new exam time that also falls within your 90-day window.**

You can contact Pearson VUE online at www.pearsonvue.com/bcen, or speak to a customer service representative at 866-751-6589, Monday – Friday, 7am-7pm CST.

Candidates who fail to reschedule within these guidelines or do not show for their exam appointment will forfeit the full exam fee. Fees are applicable for new testing windows.

We strongly recommend scheduling your new test day promptly, as test center seat availability is on a first-come, first-served basis.

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.

Exam Refunds

A written request for a refund of an exam fee can be submitted to BCEN prior to scheduling an appointment with a BCEN test delivery provider 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@bcen.org for more information.

Testing 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**. 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.

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**

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

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.

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.BCEN.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.

Maintenance of Records

Candidate and certificant information is maintained within your secure BCEN Account. Within your account you can edit your profile to update your address, phone number, email address, opt in or out of the BCEN Registry, publish your credential, change your account

password and update your security questions. Candidates and certificants can also view their detailed account history which includes information about certification status, exam application status, recertification activities, and demographic changes.

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 with in 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: 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.BCEN.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.

In the event of an error on the part of BCEN or its agents which results in an incorrect pass or fail score, BCEN reserves the right to correct any score.

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.BCEN.org**.

		Total # ITEMS
	Certified Emergency Nurse **Detailed Content Outline**	
1. Cardiovascular Emergencies		**20**
	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 (e.g., deep vein thrombosis [DVT])	
	L. Trauma	
	M. Shock (cardiogenic and obstructive)	
2. Respiratory Emergencies		**16**
	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. Trauma	
3. Neurological Emergencies		**16**
	A. Alzheimer's disease/dementia	
	B. Chronic neurological disorders (e.g., multiple sclerosis, myasthenia gravis)	
	C. Guillain-Barré syndrome	
	D. Headache (e.g., temporal arteritis, migraine)	
	E. Increased intracranial pressure (ICP)	
	F. Meningitis	
	G. Seizure disorders	
	H. Shunt dysfunctions	
	I. Spinal cord injuries, including neurogenic shock	
	J. Stroke (ischemic or hemorrhagic)	
	K. Transient ischemic attack (TIA)	
	L. Trauma	

	Total # ITEMS
Certified Emergency Nurse **Detailed Content Outline**	
4. Gastrointestinal, Genitourinary, Gynecology, and Obstetrical Emergencies	**21**
A. Gastrointestinal	
1. Acute abdomen (e.g., peritonitis, appendicitis)	
2. Bleeding	
3. Cholecystitis	
4. Cirrhosis	
5. Diverticulitis	
6. Esophageal varices	
7. Esophagitis	
8. Foreign bodies	
9. Gastritis	
10. Gastroenteritis	
11. Hepatitis	
12. Hernia	
13. Inflammatory bowel disease	
14. Intussusception	
15. Obstructions	
16. Pancreatitis	
17. Trauma	
18. Ulcers	
B. Genitourinary	
1. Foreign bodies	
2. Infection (e.g., urinary tract infection,pyelonephritis, epididymitis, orchiitis, STDs)	
3. Priapism	
4. Renal calculi	
5. Testicular torsion	
6. Trauma	
7. Urinary retention	
C. Gynecology	
1. Bleeding/dysfunction (vaginal)	
2. Foreign bodies	
3. Hemorrhage	
4. Infection (e.g., discharge, pelvic inflammatory disease, STDs)	
5. Ovarian cyst	
6. Sexual assault/battery	
7. Trauma	
D. Obstetrical	
1. Abruptio placenta	
2. Ectopic pregnancy	
3. Emergent delivery	
4. Hemorrhage (e.g., postpartumbleeding)	
5. Hyperemesis gravidarum	

	Total # ITEMS
6. Neonatal resuscitation	
7. Placenta previa	
8. Postpartum infection	
9. Preeclampsia, eclampsia, HELLP syndrome	
10. Preterm labor	
11. Threatened/spontaneous abortion	
12. Trauma	
5. Psychosocial and Medical Emergencies	**25**
A. Psychosocial	
1. Abuse and neglect	
2. Aggressive/violent behavior	
3. Anxiety/panic	
4. Bipolar disorder	
5. Depression	
6. Homicidal ideation	
7. Psychosis	
8. Situational crisis (e.g., job loss, relationship issues, unexpected death)	
9. Suicidal ideation	
B. Medical	
1. Allergic reactions and anaphylaxis	
2. Blood dyscrasias	
a. Hemophilia	
b. Other coagulopathies (e.g., anticoagulant medications, thrombocytopenia)	
c. Leukemia	
d. Sickle cell crisis	
3. Disseminated intravascular coagulation (DIC)	
4. Electrolyte/fluid imbalance	
5. Endocrine conditions:	
a. Adrenal	
b. Glucose related conditions	
c. Thyroid	
6. Fever	
7. Immunocompromise (e.g., HIV/AIDS, patients receiving chemotherapy)	
8. Renal failure	
9. Sepsis and septic shock	

Certified Emergency Nurse **Detailed Content Outline**	

6. Maxillofacial, Ocular, Orthopedic and Wound Emergencies	**21**
A. Maxillofacial	
1. Abscess (i.e., peritonsillar)	
2. Dental conditions	
3. Epistaxis	
4. Facial nerve disorders (e.g., Bell's palsy, trigeminal neuralgia)	
5. Foreign bodies	
6. Infections (e.g., Ludwig's angina, otitis, sinusitis, mastoiditis)	
7. Acute vestibular dysfunction (e.g., labrinthitis, Ménière's disease)	
8. Ruptured tympanic membrane	
9. Temporomandibular joint (TMJ) dislocation	
10. Trauma	
B. Ocular	
1. Abrasions	
2. Burns	
3. Foreign bodies	
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	
C. 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. Strains/sprains	
12. Trauma (e.g., Achilles tendon rupture, blast injuries)	
D. Wound	
1. Abrasions	
2. Avulsions	
3. Foreign bodies	
4. Infections	
5. Injection injuries (e.g., grease gun, paint gun)	
6. Lacerations	
7. Missile injuries (e.g., guns, nail guns)	

		Total # ITEMS
8. Pressure ulcers		
9. Puncture wounds		
10. Trauma (i.e., including degloving injuries)		
7. Environment and Toxicology Emergencies, and Communicable Diseases		**15**
A. Environment		
1. Burns		
2. Chemical exposure (e.g., organophosphates, cleaning agents)		
3. Electrical injuries		
4. Envenomation emergencies (e.g., spiders, snakes, aquatic organisms)		
5. Food poisoning		
6. Parasite and fungal infestations (e.g., giardia, ringworm, scabies)		
7. Radiation exposure		
8. Submersion injury		
9. Temperature-related emergencies (e.g., heat, cold, and systemic)		
10. Vector borne illnesses:		
a. Rabies		
b. Tick-borne illness (e.g., Lyme disease, Rocky Mountain spotted fever)		
B. Toxicology		
1. Acids and alkalis		
2. Carbon monoxide		
3. Cyanide		
4. Drug interactions (including alternative therapies)		
5. Overdose and ingestions		
6. Substance abuse		
7. Withdrawal syndrome		
C. Communicable Diseases		
1. *C. Difficile*		
2. Childhood diseases (e.g., measles, mumps, pertussis, chicken pox, diphtheria)		
3. Herpes zoster		
4. Mononucleosis		
5. Multi-drug resistant organisms (e.g., MRSA, VRE)		
6. Tuberculosis		

	Total # ITEMS
Certified Emergency Nurse **Detailed ContentOutline**	
8. Professional Issues	**16**
A. Nurse	
1. Critical Incident Stress Management	
2. Ethical dilemmas	
3. Evidence-based practice	
4. Lifelong learning	
5. Research	
B. Patient	
1. Discharge planning	
2. End of life issues:	
a. Organ and tissue donation	
b. Advance directives	
c. Family presence	
d. Withholding, withdrawing, and palliative care	
3. Forensic evidence collection	
4. Pain management and procedural sedation	
5. Patient safety	
6. Patient satisfaction	
7. Transfer and stabilization	
8. Transitions of care	
a. external handoffs	
b. internal handoffs	
c. patient boarding	
d. shift reporting	
9. cultural considerations (e.g., interpretive services, privacy, decision making)	
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	
Performance improvement	
6. Risk management	
7. Symptom surveillance	
a. recognizing symptom clusters	
b. mandatory reporting of diseases	
D. Triage	
Total	**150**

NOTE: The 134 clinical items in categories 1 through 7 will be classified according to the nursing process as follows: 32 Assessment, 34 Analysis, 43 Intervention, and 25 Evaluation. The 16 professional issues items in category 8 will be classified by cognitive level: 3 Recall, 10 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 boldfacetype.

1. Results of a lumbar puncture reveal a white blood cell count of 15,000 cells/µL and positive for increased protein and decreased glucose. The nurse should anticipate implementing which of the following precautions?

    A. negative pressure
    B. droplet
    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. Resultsof 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 procedureis

    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 nursesuspects

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 isnecessary?

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) asprescribed.

7.   A patient has feelings of being overwhelmed and inability to cope. Duringtriage, the nurse should focus on assessing the patient's

A. problem.
B. supportsystem.
C. usualcopingmechanisms.
D. **potential for self-directed violence.**

8.   The most appropriate course of action for a 2-year-old patient with a partial airway obstruction isto

A. initiatecardiaccompressions.
B. preparefor immediatecricothyrotomy.
C. perform a blindfingersweep.
D. **deliver abdominalthrusts.**

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 programinclude

A. **using clinical indicators reflecting high-risk careactivities**.
B. setting thresholds of 75% compliance on monitoreditems.
C. changing clinical indicators on a monthlybasis.
D. separating medical and nursingissues.

Combined CFRN and CTRN
Detailed Content Outline

	# of Items	
Clinical items (primarily category 2 through 5), distribution by Nursing Process: Assessment (15-20%), Analysis (25-30%), Intervention (30-35%), Evaluation (20-25%) *Non-Clinical items (primarily category 1), distribution by Cognitive Level:* Approximately equal for Recall, Application, Analysis	**CTRN[1]**	**CFRN[2]**
1. General principles of transport nursing practice	**19**	**31**

- A. Transport physiology
    - 1. Physiologic stressors of transport
    - 2. Effects of altitude on patients   X
- B. Scene operations
    - 1. Secure landing zone   X
    - 2. Incident Command System   X
- C. Communications
    - 1. Radio operations
    - 2. Patient handoff (e.g., history from referring provider, updates for receiving provider, SBAR)
    - 3. Crew resource management
- D. Safety and survival
    - 1. ELT   X
    - 2. Navigation (e.g., maps, GPS, night-vision goggles)
    - 3. Transponder codes   X
    - 4. Survival principles (post-crash)   X
    - 5. Transport vehicle emergencies
    - 6. Pre-mission preparation (e.g., shift preparedness, risk assessment, crew briefings, weather limitations, AMRM)
- E. Management of man-made disasters (e.g., terrorism, industrial accident, transportation accident, mass casualties)
- F. Professional issues
    - 1. Evidence-based practice and research
    - 2. Legal issues
        - a. HIPAA
        - b. EMTALA
        - c. Consent
        - d. Mandatory reporting (e.g., abuse, neglect, diversion, non-accidental trauma)
        - e. Legal concepts in patient care (e.g., negligence, assault, battery, abandonment)
    - 3. Ethical issues
    - 4. Psychosocial issues in transport, including families
- G. Management
    - 1. Quality management and fair work environment
    - 2. Outreach and community education
    - 3. Stress management (e.g., self-care, post-traumatic critical incident)

Combined CFRN and CTRN Detailed Content Outline	# of Items	

Clinical items (primarily category 2 through 5), distribution by Nursing Process: Assessment (15-20%), Analysis (25-30%), Intervention (30-35%), Evaluation (20-25%) *Non-Clinical items (primarily category 1), distribution by Cognitive Level:* Approximately equal for Recall, Application, Analysis	CTRN[1]	CFRN[2]
2. Resuscitation principles	**27**	**31**

A. Principles of assessment and patientpreparation
  1. Physical assessment
  2. Pain and comfort assessment
  3. Preparing the patient for transport (i.e.,packaging)
B. Airway management
  1. Airway assessment
  2. Airway management
  3. Difficulties encountered withairway
  4. Rapid Sequence Induction for Intubation (RSI),including pharmacology
C. Mechanical ventilation
  1. Invasive ventilation
  2. Non-invasiveventilation
D. Perfusion
  1. Components of oxygen delivery
  2. Shock pathophysiology
  3. Trauma triad (hypothermia, acidosis,coagulopathies)
  4. Acid base imbalances		

3. Trauma	**26**	**31**

A. Principles of management
  1. Mechanism of injury
  2. Shock
    a. Hypovolemic
    b. Obstructive
    c. Distributive (includingneurogenic)
    d. Cardiogenic
  3. Immobilization
B. Neurologic
  1. Traumatic brain injuries
  2. Spinal cord injuries
  3. Post-traumatic seizures
C. Thoracic
  1. Chest wall injuries
  2. Pulmonary injuries
  3. Cardiac injuries
  4. Great vessel injuries
D. Abdominal
  1. Hollow organ injuries
  2. Solid organ injuries		

	# of Items	
Clinical items (primarily category 2 through 5), distribution by Nursing Process: Assessment (15-20%), Analysis (25-30%), Intervention (30-35%), Evaluation (20-25%) *Non-Clinical items (primarily category 1), distribution by Cognitive Level:* Approximately equal for Recall, Application, Analysis	**CTRN[1]**	**CFRN[2]**

3. Diaphragmatic injuries
      4. Retroperitoneal injuries
      5. Abdominal compartment syndrome
  E. Orthopedic
      1. Vertebral injuries
      2. Pelvic injuries
      3. Compartment syndrome
      4. Amputations
      5. Extremity fractures
      6. Soft-tissue injuries
  F. Burn
      1. Chemical burns
      2. Electrical burns
      3. Thermal burns
      4. Radiological burns
      5. Inhalation injuries
  G. Maxillofacial and neck
      1. Facial injuries, including fractures
      2. Ocular injuries
      3. Blunt and penetrating neck injuries		

4. Medical emergencies	**44**	**44**

A. Neurologic
      1. Seizure disorders
      2. Stroke
      3. Neuromuscular disorders
      4. Space occupying lesions
          a. Blood
          b. Tumors
          c. Abscesses
          d. Hydrocephalus
          e. Encephalopathies
  B. Cardiovascular
      1. Acute coronary syndrome
      2. Congestive heart failure
      3. Pulmonary edema
      4. Dysrhythmias
      5. Aortic abnormalities
      6. Hypertension
      7. Mechanical/circulatory support (e.g., IABP, VAD, pacing)		

	# of Items	
Clinical items (primarily category 2 through 5), distribution by Nursing Process: Assessment (15-20%), Analysis (25-30%), Intervention (30-35%), Evaluation (20-25%) *Non-Clinical items (primarily category 1), distribution by Cognitive Level:* Approximately equal for Recall, Application, Analysis	**CTRN[1]**	**CFRN[2]**

   C. Pulmonary
      1. COPD
      2. Acute lung injury/ARDS
      3. Pulmonary infections
      4. Asthma
      5. Pulmonary embolism
   D. Abdominal
      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 disturbances
   F. Metabolic and endocrine
      1. Diabetic emergencies
      2. Neuroendocrine disorders (e.g., diabetes insipidus, SIADH, HHNK)
      3. Thyroid conditions
      4. Adrenal disorders
   G. Hematology
      1. Coagulopathies (including platelet disorders)
      2. Anemias
   H. Renal
      1. Acute kidney injury (i.e., acute renal failure)
      2. Chronic renal failure
   I. Infectious and communicable diseases
      1. SIRS and sepsis
      2. Isolation precautions (e.g., MRSA, influenza-like illness, highly-infectious diseases)
   J. Shock
      1. Hypovolemic
      2. Obstructive
      3. Distributive (including neurogenic and anaphylaxis)
      4. Cardiogenic
   K. Environmental and toxicological emergencies
      1. Environment
         a. Allergic reactions
         b. Cold related (e.g., hypothermia, frostbite)
         c. Heat related (e.g., heatstroke, heat exhaustion)
         d. Submersion injuries (i.e., diving injuries, drowning, near drowning)
         e. Bites and envenomation
      2. Toxicology

Combined CFRN and CTRN
Detailed Content Outline

Clinical items (primarily category 2 through 5), distribution by Nursing Process:
  Assessment (15-20%), Analysis (25-30%), Intervention (30-35%), Evaluation (20-25%)
Non-Clinical items (primarily category 1), distribution by Cognitive Level:
  Approximately equal for Recall, Application, Analysis

	# of Items	
	CTRN[1]	CFRN[2]
5. Special populations	**14**	**13**

A. Obstetrical patients
    1. Complications of pregnancy
    2. Delivery and post-partum care of mother and infant
    3. Trauma
  B. Pediatric
    1. Trauma
    2. Medical (e.g., respiratory, cardiac, and neurological emergencies, metabolic disturbances)
  C. Geriatric
    1. Trauma(e.g., falls, immobilization)
    2. Medical (e.g., drug interactions and comorbidities, dementia)
  D. Bariatric (e.g., logistical issues, drug dosage, skin issues, airway management)		

Total scored items	**130**	**150**

[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)

Procedures

1. PA catheter
2. Point-of-care testing
3. Video laryngoscopy
4. Chest radiographs
5. Transvenous pacing
6. Capnography for non-intubated patients
7. Surgical cricothyrotomy
8. Therapeutic hypothermia
9. Central venous pressure measurement
10. Arterial line
11. Needle cricothyrotomy
12. Needle thoracostomy
13. Tourniquet application
14. Central line
15. Chest tube
16. Pelvic stabilization
17. Non-invasive mechanical ventilation
18. Traction splint
19. 12-lead ECG
20. Invasive mechanical ventilation
21. Transcutaneous pacing
22. Blood product administration
23. Capnography for intubated patients
24. Endotrachael intubation
25. Initiate/titrate medications
26. Intraosseous catheter
27. IABP operation
28. Escharotomy
29. CT scans
30. Medical circulatory devices (VAD, Impella®)
31. Fracture/dislocation reduction
32. ICP monitoring
33. Pericardiocentesis
34. Neck radiographs
35. Ventriculostomy monitoring

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 inboldface type.

1. An aircraft has completed a hard landing after mechanical difficulties. Aftersafe contact with the ground, the crew knows to

   A. stay in the aircraft until the pilot states it is safe toexit.
   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 bi-level 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_2O)?

   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 ahead-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 evaluatinga transport team memberforfatigue?

        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 withhis 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, otorrrhea, 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$_2$ 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.

Certified Pediatric Emergency Nurse
Examination Specifications

A CPEN® is a registered nurse who possesses advanced critical thinking and highly developed skills in providing emergency care to pediatric patients and their families. The CPEN® is able to apply these skills autonomously, demonstrating the ability to assess, analyze, intervene, and evaluate ill or injured pediatric patients in the emergency setting.

The following concepts are integrated throughout the examination, appropriate to the stated task:

- Collaboration with other health care providers

- Communication

- Conflict management

- Critical incident stress management (debriefing)

- Discharge planning

- Diversity

- Ethical Considerations

- Evidence-based practice

- Family-centered care

- Growth and development

- Health promotion and injury prevention

- Medication administration

- Pain management

- Patient safety

- Pharmacology

	Total # ITEMS
![CPEN logo] **Certified Pediatric Emergency Nurse Detailed Content Outline**	

1. Triage Process and Assessment	**31**

A. Emergency Intake
1. Visual assessment (sick vs. not sick)
2. Pediatric Assessment Triangle (PAT)
3. Triage priority based on acuity and resources
4. Isolation

B. Emergency preparedness
1. Decontamination (e.g., chemical or biological agents)
2. Mass casualty

C. History and Physical
1. Primary survey
2. Secondary survey
3. Behavioral status and risk for harm (e.g., risk-taking behaviors, self-harm, violence)
4. Developmental milestones
5. Children with special needs
6. Sexual orientation and gender identity
7. Caregivers' perception of child's baseline and current status

D. Pain
1. Developmentally appropriate assessment and reassessment of pain
2. Non-pharmacological and pharmacological interventions
3. Procedural sedation

E. Family
1. Family functioning and dynamics (e.g., coping strategies, support systems, parenting skills, learning style)

F. Legal Issues
1. Consent for treatment
2. Preservation of forensic evidence
3. Chain of custody
4. Government regulations
   a. EMTALA
   b. HIPAA
   c. Mandatory reportable situations (e.g., child abuse/neglect, infectious diseases)

2. Medical Emergencies: Respiratory, Cardiovascular, and Neurological	**32**

A. Respiratory
1. Upper Airway
   a. Foreign body
   b. Infections (e.g., croup, epiglottitis)
   c. Inhalation injuries

        d.   Congenital conditions (e.g., stenosis, malacia)
        e.   Artificial airway (e.g., tracheostomy)
    2.   Lower Airway
        a.   Foreign body
        b.   Infections (e.g., bronchiolitis, pneumonia)
        c.   Reactive airway disease/asthma
        d.   Congenital conditions (e.g., cystic fibrosis, chronic lung disease)

B.   Cardiovascular
    1.   Shock (i.e., hypovolemic, cardiogenic, distributive, obstructive)
    2.   Rhythm disturbances
    3.   Infections (e.g., myocarditis)

C.   Neurological
    1.   Infections (e.g., meningitis)
    2.   Seizure
    3.   Shunt dysfunction
    4.   Headache, migraine, and tumor
    5.   Stroke
    6.   Congenital conditions (e.g., hydrocephalus, arteriovenous malformation)

D.   Post-resuscitative care

3.	**Additional Medical Emergencies**	35

A.   Gastrointestinal
    1.   Foreign body
    2.   Obstructions (e.g., pyloric stenosis, intussusception, volvulus, constipation)
    3.   Infections (e.g., gastroenteritis, appendicitis, pancreatitis)
    4.   Inflammatory bowel disease (e.g., Crohn's disease, ulcerative colitis)
    5.   Gastrointestinal bleeding
    6.   Nutrition (e.g., failure to thrive, formula intolerance, obesity, fluid-electrolyte imbalance, GERD)
    7.   Congenital conditions (e.g., tracheoesophageal fistula)

B.   Genitourinary
    1.   Infections (e.g., UTI, STI, PID, epididymitis, pyelonephritis)
    2.   Male genitourinary emergencies (e.g., testicular torsion, priapism, phimosis)
    3.   OB/GYN emergencies (e.g., ectopic pregnancy, vaginal bleeding, emergent delivery, ovarian cysts, ovarian torsion)

C.   Maxillofacial
    1.   Foreign body
    2.   Infections (e.g., peritonsillar, abscess, strep throat, mastoiditis)
    3.   Hemorrhage (e.g., epistaxis, post-T&A bleed)

D.   Ocular
    1.   Foreign body
    2.   Infections (e.g., periorbital cellulitis, conjunctivitis)

    E.   Musculoskeletal
1. Foreign body (e.g., impalements)
2. Infections (e.g., osteomyelitis, septic arthritis)
3. Congenital conditions (e.g., osteogenesis imperfecta)

    F.   Integumentary
1. Foreign body
2. Infections (e.g., cellulitis)
3. Rash (e.g., hives, petechiae, infestations)

    G.   Hematology/Oncology
1. Hematology (e.g., sickle cell, bleeding or clotting disorders, ITP)
2. Oncology (e.g., fever and neutropenia, tumor lysis syndrome)

    H.   Endocrine/metabolic (e.g., congenital adrenal disorders, glucose disturbance)

    I.   Sepsis

    J.   Allergic reactions and anaphylaxis

4.	Special Considerations	27

    A.   Neonatal Emergencies
1. Infections (e.g., neonatal sepsis)
2. Hyperbilirubinemia
3. Thermoregulation
4. Fluid-electrolyte imbalance
5. Newborn resuscitation
6. Congenital conditions (e.g., ductal dependent lesions)

    B.   Behavioral Emergencies
1. Self-injury (e.g., cutting, eating disorders)
2. Mood disorders (e.g., depression, anxiety)
3. Suicidal ideations/attempts
4. Homicidal ideations
5. Acute psychosis
6. Aggressive behavior
7. Substance abuse
8. Post-traumatic stress disorder
9. Pervasive developmental disorders

    C.   Maltreatment Emergencies
1. Emotional abuse
2. Physical abuse
3. Sexual abuse or assault
4. Neglect
5. Human trafficking

		Total # ITEMS
Certified Pediatric Emergency Nurse Detailed Content Outline		
D. Environmental		
1. Temperature-related emergencies (e.g., heat, cold)		
2. Envenomation emergencies (e.g., bites, stings)		
3. Chemical exposures (e.g., cleaning agents, organophosphates)		
4. Vector borne illnesses (e.g., rabies, ticks)		
E. Toxicology		
1. Ingestion and poisoning (e.g., medications, alcohol)		
2. Carbon monoxide poisoning		
3. Drug interactions/withdrawal		
F. Communicable diseases		
1. Childhood diseases (e.g., measles, mumps, pertussis, chicken pox)		
2. Multi-drug resistant organisms (e.g., MRSA, VRE)		
3. C. Difficile		
5. Trauma Emergencies		**25**
A. Respiratory		
1. Upper airway trauma (e.g., tracheal disruption)		
2. Lower airway trauma (e.g., pneumothorax, hemothorax, pulmonary contusion)		
B. Cardiovascular (e.g., tamponade, blunt cardiac injury)		
C. Neurological (e.g., traumatic brain injury, intracranial bleeds, herniation syndrome, spinal cord injury)		
D. Gastrointestinal (e.g., liver injury, spleen injury, bowel injury)		
E. Genitourinary (e.g., straddle injury, renal contusion)		
F. Environmental (e.g., submersion injuries, burns, electric injuries)		
G. Maxillofacial (e.g., tooth avulsion, facial fracture)		
H. Ocular (e.g., hyphema, corneal abrasions, globe rupture, ocular burns)		
I. Musculoskeletal (e.g., fractures, joint dislocations, sprains, strains, amputations, compartment syndrome)		
J. Integumentary (e.g., avulsions, abrasions, lacerations, degloving)		
Total		**150**

_____

* In addition to the 150 scored items, 25 unscored pretest items will be administered to each candidate.

Sample Items

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

1. In addition to work of breathing, which of the following are components of the Pediatric Assessment Triangle (PAT)?

    A. general appearance and circulation to the skin
    B. patency of airway and circulation to the skin
    C. general appearance and developmental level
    D. patency of airway and developmental level

2. A 12 year old arrives in the emergency department with a history of infrequent but unusual activity consisting of facial grimacing, picking at her clothes, and not responding to her teacher's questions. This behavior is most suggestive of

    A. absence seizure
    B. pseudoseizure
    C. complex partial seizure
    D. simple partial seizure.

3. An 8 year old presents to triage with nausea, left shoulder pain of 8/10, and diffuse abdominal pain of 2/10. The history is unremarkable except for fall from tree one day prior to arrival. Vital signs are as follows:

    Blood pressure: 90/50 mm Hg
    Heart rate: 120 beats per minute
    Respirations: 28 breaths per minute
    Temperature: 98.6° F (37° C)

    Which of the following injuries should the nurse suspect?

    A. clavicle fracture
    B. humerus fracture
    C. liver laceration
    D. splenic laceration

TCRN ContentOutline

The TCRN exam is based on trauma nursing practice in the United States and consistsof 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.

Trauma Certified Nurse Examination Content Outline	# of Items
I. Clinical Practice: Head andNeck	**29**

A.   Neurologic trauma
         1.   Traumatic brain injuries
         2.   Spinal injuries
    B.   Maxillofacial and neck trauma
         1.   Facial fractures
         2.   Ocular trauma
         3. Neck trauma	

II. Clinical Practice: Trunk	**36**

A.   Thoracic trauma
         1.   Chest wall injuries
         2.   Pulmonary injuries
         3.   Cardiac injuries
         4.   Great vessel injuries
    B.   Abdominal trauma
         1.   Hollow organ injuries
         2.   Solid organ injuries
         3.   Diaphragmatic injuries
         4.   Retroperitoneal injuries
    C.   Genitourinary trauma
    D. Obstetrical trauma (pregnant patients)	

III. Clinical Practice: Extremity and Wound	**25**

A.   Musculoskeletal trauma
         1.   Vertebral injuries
         2.   Pelvic injuries
         3.   Compartment syndrome
         4.   Amputations
         5.   Extremity fractures
         6.   Soft-tissue injuries
    B.   Surface and burn trauma
         1.   Chemical burns
         2.   Electrical burns
         3.   Thermal burns
         4. Inhalation injuries	

IV.	Clinical Practice: Special Considerations	22

A. Psychosocial issues related to trauma
B. Shock
   1. Hypovolemic
   2. Obstructive (e.g., tamponade, tension pneumothorax)
   3. Distributive (e.g., neurogenic, septic)
   4. Cardiogenic
C. Systemic inflammatory response syndrome (SIRS) and multiple-organ dysfunction syndrome (MODS)

V.	Continuum of Care for Trauma	21

A. Injury prevention
B. Pre-hospital care
C. Patient safety (e.g., fall prevention)
D. Patient transfer
   1. Intrafacility (within a facility, across departments)
   2. Interfaculty (from one facility to another)
E. Forensic issues
   1. Evidence collection
   2. Chain of custody
F. End-of-life issues
   1. Organ/tissue donation
   2. Advanced directives
   3. Family presence
   4. Palliative care
G. Rehabilitation (dischargeplanning)

VI.	Professional Issues	17

A. Trauma quality management
   1. Performance improvement
   2. Outcomes follow-up and feedback (e.g., referring facilities, EMS)
   3. Evidence-based practice
   4. Research
   5. Mortality/morbidity reviews
B. Staff safety (e.g., standard precautions, workplace violence)
C. Disaster management (i.e., preparedness, mitigation, response, and recovery)
D. Critical incident stress management
E. Regulations and standards
   1. HIPAA
   2. EMTALA
   3. Designation/verification (e.g., trauma center/trauma systems)
F. Education and outreach for interprofessional trauma teams, and the public
G. Trauma registry (e.g., datacollection)
H. Ethical issues

	Total Scored Items	**150**

For Categories I through IV, items will also be classified according to Nursing Process, distributed approximately as follows: 18% Assessment, 31% Analysis, 31% Implementation, 20% Evaluation.

For Categories V and VI, items will also be classified according to the Cognitive Level expected to be used by candidates, distributed approximately as follows: 21% Recall, 61% Application, 18% Analysis.

Testable Tasks

I. *Assessment*
1. Establish mechanism of injury
2. Assess, intervene and stabilize patients with immediate life-threatening conditions
3. Assess pain
4. Assess for adverse drug and blood reactions
5. Obtain complete patient history
6. Obtain a complete physical evaluation
7. Use Glasgow Coma Scale to evaluate patient status
8. Assist with Focused Abdominal Sonography for Trauma (FAST) examination
9. Calculate burn surface area
10. Assessment not otherwise specified

II. *Analysis*
1. Provide appropriate response to diagnostic test results
2. Prepare equipment that might be needed by the team
3. Identify the need for diagnostic tests
4. Determine the plan of care
5. Identify desired patient outcomes
6. Determine the need to transfer to a higher level of care
7. Determine the need for emotional or psychosocial support
8. Analysis not otherwise specified

III. *Implementation*
1. Incorporate age-specific needs for patient population served
2. Respond with decisiveness and clarity to unexpected events
3. Demonstrate knowledge of pharmacology
4. Assist with or perform the following procedures:
   a. Chest tube insertion
   b. Arterial line insertion
   c. Central line insertion
   d. Compartment syndrome monitoring devices
      i. Abdominal
      ii. Extremity
   e. Doppler
   f. End-tidal CO_2
   g. Temperature control devices (e.g., warming and cooling)
   h. Pelvic stabilizer
   i. Immobilization devices
   j. Tourniquets
   k. Surgical airway insertion
   l. Intraosseous needles
   m. ICP monitoring devices
   n. Infusers:
      i. Autotransfusion
      ii. Fluid
      iii. Blood and blood products
   o. Needle decompression

       p. Fluid resuscitation
- i. Burn fluid resuscitation
- ii. Hypertonic solution
- iii. Permissive hypotension
- iv. Massive transfusion protocol(MTP)

       q. Pericardiocentesis
       r. Bedside open thoracotomy

5. Manage patients who have had the following procedures
   a. Chest tube
   b. Arterial lines
   c. Central lines
   d. Compartment syndrome monitoring devices:
      - i. Abdominal
      - ii. Extremity
   e. End-tidal CO_2
   f. Temperature control devices (e.g., warming and cooling)
   g. Pelvic stabilizer
   h. Immobilization devices
   i. Tourniquets
   j. Surgical airway
   k. Intraosseous needles
   l. ICP monitoring devices
   m. Infusers:
      - i. Fluid
      - ii. Blood and blood products
   n. Needle decompression
   o. Fluid resuscitation:
      - i. Burn fluid resuscitation
      - ii. Hypertonic solution
      - iii. Permissive hypotension
      - iv. Massive transfusion protocol(MTP)
   p. Pericardiocentesis

6. Manage patients' pain relief by providing
   a. pharmacologic interventions
   b. non-pharmacologic interventions

7. Manage patient sedation and analgesia
8. Manage tension pneumothorax
9. Manage burn resuscitation
10. Manage Increased abdominal pressure
11. Provide complex wound management (e.g. , ostomies, drains, wound VAC, open abdomen)
12. Implementation not otherwise specified

IV. *Evaluation*
1. Evaluate patients' response to interventions
2. Monitor patient status and report findings to the team
3. Adapt the plan of care as indicated
4. Evaluation not otherwise specified

V. Continuum of Care
1. Monitor or evaluate for opportunities for program or system improvement
2. Ensure proper placement of patients
3. Restore patient to optimal health
4. Collect, analyze, and use data:
   a. to improve patient outcomes
   b. for benchmarking
   c. to decrease incidence of trauma
5. Coordinate the multidisciplinary plan of care
6. Continuum of Care not otherwise specified

VI. Professional Issues
1. Adhere to regulatory requirements related to:
   a. Infectious diseases
   b. Hazardous materials
   c. Verification/designation
   d. Confidentiality
2. Follow standards of practice
3. Involve family in:
   a. Patient care
   b. Teaching/discharging planning
4. Recognize need for social/protective service consults
5. Provide information to patient and family regarding community resources
6. Address language and cultural barriers
7. Participate in and promote lifelong learning related to new developments and clinical advances
8. Act as an advocate (e.g., for patients, families, and colleagues) related to ethical, legal, and psychosocial issues
9. Provide trauma patients and their families with psychosocial support
10. Assess methods continuously to improve patient outcomes
11. Assist in maintaining the performance improvement programs
12. Participate in multi-disciplinary rounds
13. Professional Issues not otherwise specified

TCRN Sample Questions

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

1. What is the target intracranial pressure reading for a patient with a severe brain injury who is being given pentobarbital(Nembutal)?

   A. 5 mm Hg
   B. 10 mm Hg
   C. 15 mm Hg
   D. 20 mm Hg

2. A patient with extensive facial fractures presents with copious bleeding from the oropharynx and is unable to maintain a patent airway. Endotracheal intubation has been unsuccessful. A nurse should anticipate a bedside

   A. needlecricothyrotomy.
   B. surgicaltracheostomy.
   C. videolaryngoscopy.
   D. **surgicalcricothyrotomy**.

3. An intubated patient is being transferred to the ICU after a motor vehicle crash. He received aggressive fluid resuscitation. Results of a FAST exam in the emergency department were negative. Assessment at this time reveals marked abdominal distention, oliguria, and significant tachycardia with hypotension. In investigating the most likely etiology, the nurse would expect toobtain

   A. chest radiograph.
   B. **bladder pressuremeasurement**.
   C. abdominalradiograph.
   D. renalultrasound.

4. The decrease of venous return and cardiac output in neurogenic shock is caused by

   A. loss of deep tendon reflexes.
   B. massivevasoconstriction.
   C. release ofnorepinephrine.
   D. **inhibition of sympatheticinnervation**.

5.   A patient presents with pelvic instability and a Glasgow Coma
     Scale score of 14 (E4, V4, M6) after being hit by a car. Vital signs
     are asfollows:

     BP   88/57 mm Hg
     HR   127 beats/min
     RR   12 breaths/min
     Temperature   97.0°F (36.1°C)

     The patient remains hypotensive and tachycardic despiteinitiation
     of the massive transfusion protocol. A chest radiograph is normal
     and results of a FAST exam are negative. The nurse should
     anticipate an order for transfer to

     A. surgery.
     B. ICU.
     C. interventional radiology.
     D. CT.

6.   Which of the following best describes the focus of secondaryinjury
     prevention?

     A. enhancement of outcomes related to the traumatic injury
     B. reduction in the severity of the injury that has occurred
     C. prevention of the occurrence of the injury
     D. improvement of outcomes related to non traumaticinjuries

7.   Compared to a patient who is exposed to a highly acidic liquid, a
     patient who is exposed to a highly alkaline liquid requires

     A. decontamination before treatment is initiated.
     B. the nurse to don safety equipment before treating the patient.
     C. application of a neutralizing agent.
     D. continuous irrigation for more than 20 minutes.

8. A child is admitted for upper respiratory symptoms. The nurse notes circumferential bruising around the ankle. The parents say it was caused by jumping rope with a sibling. The nurse's most appropriate course of action is to

   A. **contact child protective services**.
   B. document findings in the nursing notes.
   C. separate the parents from the child immediately.
   D. notify hospital security to monitor the child's safety.

9. Administering IV crystalloids and vasopressin (Pitressin) to a patient who has been declared brain dead is to

   A. stabilize body temperature.
   B. stop cerebral salt wasting.
   C. **reverse diabetes insipidus**.
   D. increase circulating glucose.

10. Which of the following findings on initial assessment is a late manifestation of a tension pneumothorax?

    A. **cyanosis**.
    B. chest pain.
    C. respiratory distress.
    D. unilateral absence of breath sounds