



## Combined CFRN and CTRN Detailed Content Outline



	# of Items	
	CTRN <sup>1</sup>	CFRN <sup>2</sup>
<b>1. General principles of transport nursing practice</b>	<b>19</b>	<b>31</b>
A. Transport physiology <ul style="list-style-type: none"> <li>1. Physiologic stressors of transport</li> <li>2. Effects of altitude on patients</li> </ul>	X	
B. Scene operations <ul style="list-style-type: none"> <li>1. Secure landing zone</li> <li>2. Incident Command System</li> </ul>	X X	
C. Communications <ul style="list-style-type: none"> <li>1. Radio operations</li> <li>2. Patient handoff (e.g., history from referring provider, updates for receiving provider, SBAR)</li> <li>3. Crew resource management</li> </ul>		
D. Safety and survival <ul style="list-style-type: none"> <li>1. ELT</li> <li>2. Navigation (e.g., maps, GPS, night-vision goggles)</li> <li>3. Transponder codes</li> <li>4. Survival principles (post-crash)</li> <li>5. Transport vehicle emergencies</li> <li>6. Pre-mission preparation (e.g., shift preparedness, risk assessment, crew briefings, weather limitations, AMRM)</li> </ul>	X  X X	
E. Management of man-made disasters (e.g., terrorism, industrial accident, transportation accident, mass casualties)		
F. Professional issues <ul style="list-style-type: none"> <li>1. Evidence-based practice and research</li> <li>2. Legal issues               <ul style="list-style-type: none"> <li>a. HIPAA</li> <li>b. EMTALA</li> <li>c. Consent</li> <li>d. Mandatory reporting (e.g., abuse, neglect, diversion, non-accidental trauma)</li> <li>e. Legal concepts in patient care (e.g., negligence, assault, battery, abandonment)</li> </ul> </li> <li>3. Ethical issues</li> <li>4. Psychosocial issues in transport, including families</li> </ul>		
G. Management <ul style="list-style-type: none"> <li>1. Quality management and fair work environment</li> <li>2. Outreach and community education</li> <li>3. Stress management (e.g., self-care, post-traumatic critical incident)</li> </ul>		



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	CTRN <sup>1</sup>	CFRN <sup>2</sup>
<b>2. Resuscitation principles</b>	<b>27</b>	<b>31</b>
<ul style="list-style-type: none"> <li>A. Principles of assessment and patient preparation               <ul style="list-style-type: none"> <li>1. Physical assessment</li> <li>2. Pain and comfort assessment</li> <li>3. Preparing the patient for transport (i.e., packaging)</li> </ul> </li> <li>B. Airway management               <ul style="list-style-type: none"> <li>1. Airway assessment</li> <li>2. Airway management</li> <li>3. Difficulties encountered with airway</li> <li>4. Rapid Sequence Induction for Intubation (RSI), including pharmacology</li> </ul> </li> <li>C. Mechanical ventilation               <ul style="list-style-type: none"> <li>1. Invasive ventilation</li> <li>2. Non-invasive ventilation</li> </ul> </li> <li>D. Perfusion               <ul style="list-style-type: none"> <li>1. Components of oxygen delivery</li> <li>2. Shock pathophysiology</li> <li>3. Trauma triad (hypothermia, acidosis, coagulopathies)</li> <li>4. Acid base imbalances</li> </ul> </li> </ul>		
<b>3. Trauma</b>	<b>26</b>	<b>31</b>
<ul style="list-style-type: none"> <li>A. Principles of management               <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Shock                   <ul style="list-style-type: none"> <li>a. Hypovolemic</li> <li>b. Obstructive</li> <li>c. Distributive (including neurogenic)</li> <li>d. Cardiogenic</li> </ul> </li> <li>3. Immobilization</li> </ul> </li> <li>B. Neurologic               <ul style="list-style-type: none"> <li>1. Traumatic brain injuries</li> <li>2. Spinal cord injuries</li> <li>3. Post-traumatic seizures</li> </ul> </li> <li>C. Thoracic               <ul style="list-style-type: none"> <li>1. Chest wall injuries</li> <li>2. Pulmonary injuries</li> <li>3. Cardiac injuries</li> <li>4. Great vessel injuries</li> </ul> </li> <li>D. Abdominal               <ul style="list-style-type: none"> <li>1. Hollow organ injuries</li> <li>2. Solid organ injuries</li> </ul> </li> </ul>		



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<ul style="list-style-type: none"> <li>3. Diaphragmatic injuries</li> <li>4. Retroperitoneal injuries</li> <li>5. Abdominal compartment syndrome</li> <li>E. Orthopedic               <ul style="list-style-type: none"> <li>1. Vertebral injuries</li> <li>2. Pelvic injuries</li> <li>3. Compartment syndrome</li> <li>4. Amputations</li> <li>5. Extremity fractures</li> <li>6. Soft-tissue injuries</li> </ul> </li> <li>F. Burn               <ul style="list-style-type: none"> <li>1. Chemical burns</li> <li>2. Electrical burns</li> <li>3. Thermal burns</li> <li>4. Radiological burns</li> <li>5. Inhalation injuries</li> </ul> </li> <li>G. Maxillofacial and neck               <ul style="list-style-type: none"> <li>1. Facial injuries, including fractures</li> <li>2. Ocular injuries</li> <li>3. Blunt and penetrating neck injuries</li> </ul> </li> </ul>		
<b>4. Medical emergencies</b>	<b>44</b>	<b>44</b>
<ul style="list-style-type: none"> <li>A. Neurologic               <ul style="list-style-type: none"> <li>1. Seizure disorders</li> <li>2. Stroke</li> <li>3. Neuromuscular disorders</li> <li>4. Space occupying lesions                   <ul style="list-style-type: none"> <li>a. Blood</li> <li>b. Tumors</li> <li>c. Abscesses</li> <li>d. Hydrocephalus</li> <li>e. Encephalopathies</li> </ul> </li> </ul> </li> <li>B. Cardiovascular               <ul style="list-style-type: none"> <li>1. Acute coronary syndrome</li> <li>2. Congestive heart failure</li> <li>3. Pulmonary edema</li> <li>4. Dysrhythmias</li> <li>5. Aortic abnormalities</li> <li>6. Hypertension</li> <li>7. Mechanical/circulatory support (e.g., IABP, VAD, pacing)</li> </ul> </li> </ul>		



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<ul style="list-style-type: none"> <li>C. Pulmonary               <ul style="list-style-type: none"> <li>1. COPD</li> <li>2. Acute lung injury/ARDS</li> <li>3. Pulmonary infections</li> <li>4. Asthma</li> <li>5. Pulmonary embolism</li> </ul> </li> <li>D. Abdominal               <ul style="list-style-type: none"> <li>1. Abdominal compartment syndrome</li> <li>2. GI bleed</li> <li>3. Conditions of the hollow organs (e.g., obstruction, rupture)</li> <li>4. Conditions of the solid organs (e.g., pancreatitis, hepatitis)</li> </ul> </li> <li>E. Electrolyte disturbances</li> <li>F. Metabolic and endocrine               <ul style="list-style-type: none"> <li>1. Diabetic emergencies</li> <li>2. Neuroendocrine disorders (e.g., diabetes insipidus, SIADH, HHNK)</li> <li>3. Thyroid conditions</li> <li>4. Adrenal disorders</li> </ul> </li> <li>G. Hematology               <ul style="list-style-type: none"> <li>1. Coagulopathies (including platelet disorders)</li> <li>2. Anemias</li> </ul> </li> <li>H. Renal               <ul style="list-style-type: none"> <li>1. Acute kidney injury (i.e., acute renal failure)</li> <li>2. Chronic renal failure</li> </ul> </li> <li>I. Infectious and communicable diseases               <ul style="list-style-type: none"> <li>1. SIRS and sepsis</li> <li>2. Isolation precautions (e.g., MRSA, influenza-like illness, highly-infectious diseases)</li> </ul> </li> <li>J. Shock               <ul style="list-style-type: none"> <li>1. Hypovolemic</li> <li>2. Obstructive</li> <li>3. Distributive (including neurogenic and anaphylaxis)</li> <li>4. Cardiogenic</li> </ul> </li> <li>K. Environmental and toxicological emergencies               <ul style="list-style-type: none"> <li>1. Environment                   <ul style="list-style-type: none"> <li>a. Allergic reactions</li> <li>b. Cold related (e.g., hypothermia, frostbite)</li> <li>c. Heat related (e.g., heatstroke, heat exhaustion)</li> <li>d. Submersion injuries (i.e., diving injuries, drowning, near drowning)</li> <li>e. Bites and envenomation</li> </ul> </li> <li>2. Toxicology</li> </ul> </li> </ul>		



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<b>5. Special populations</b>	<b>14</b>	<b>13</b>
<ul style="list-style-type: none"> <li>A. Obstetrical patients               <ul style="list-style-type: none"> <li>1. Complications of pregnancy</li> <li>2. Delivery and post-partum care of mother and infant</li> <li>3. Trauma</li> </ul> </li> <li>B. Pediatric               <ul style="list-style-type: none"> <li>1. Trauma</li> <li>2. Medical (e.g., respiratory, cardiac, and neurological emergencies, metabolic disturbances)</li> </ul> </li> <li>C. Geriatric               <ul style="list-style-type: none"> <li>1. Trauma (e.g., falls, immobilization)</li> <li>2. Medical (e.g., drug interactions and comorbidities, dementia)</li> </ul> </li> <li>D. Bariatric (e.g., logistical issues, drug dosage, skin issues, airway management)</li> </ul>		
<b>Total scored items</b>	<b>130</b>	<b>150</b>

*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

<sup>1</sup> CTRN Examination: 130 scored plus 25 Pretest Items

<sup>2</sup> 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. Endotracheal 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