

# Pennsylvania Trauma Nursing Core Curriculum PaTNCC

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# PREFACE

Care of the trauma patient has evolved since 1985, when the Pennsylvania Trauma Systems Foundation (PTSF) Board of Directors approved the initial Standards for Trauma Center Accreditation based upon the American College of Surgeons report *Hospital Resources for the Optimal Care of the Injured Patient*. The 1986 PTSF Standards included the Pennsylvania Trauma Nursing Core Curriculum (PaTNCC) that focused on education for registered nurses directly involved with trauma patient care. In 1991, the curriculum was expanded and clarified to include the educational needs and responsibilities of registered nurses in providing care to trauma patients across the continuum of the hospital admission. This included all phases of care from time of injury and pre-hospital care to acute in-hospital care, including in-hospital rehabilitation and discharge planning. Evidence-based course content revisions are led by the Pennsylvania Trauma Nurse Advisory Council (PATNAC) with the most recent revision occurring in 2018/2019.

Successful completion of the PaTNCC is one component of PTSF Standards for trauma nurse credentialing for Level I, II and III trauma centers. This curriculum, which is attached, establishes minimum content for the basic trauma nurse course. *Trauma Nursing: From Resuscitation Through Rehabilitation* by K.A. McQuillan, M.F. Makic & E. Whalen is a suggested resource that can be used as a reference for expanding course content. Additionally, each trauma center will need to consider their specific patient population, registered nurse audience, protocols and guidelines, teaching methodologies, time frame, and evaluation process when developing their own basic trauma course. The PaTNCC is considered one part of the Level I, II and III trauma center's overall competence plan which also includes hospital and unit-based orientation, ongoing competency skills, specialty nursing certification, periodic performance evaluation, etc.

## **NOTE TO LEVEL IV TRAUMA PROGRAMS:**

Completion of a basic trauma nurse course is a component of the PTSF Level IV Standards of Accreditation, however the PaTNCC is not required. Nationally accepted courses for the clinical aspects of the nurse's clinical area, augmented with an institution-specific module(s), is sufficient to meet this Standard. See the *Introduction* chapter in this document for guidance.

## **NOTE TO PEDIATRIC TRAUMA PROGRAMS:**

The PaTNCC is a component of the PTSF Pediatric Standards of Accreditation, however the Geriatric content is optional for pediatric trauma programs.

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## PURPOSE

To introduce registered nurses responsible for caring for trauma patients in Pennsylvania to:

- The PTSF
- The Standards of Accreditation
- Key areas of evidence-based nursing practice that support PTSF in its vision and mission of zero preventable deaths from injury in Pennsylvania, and optimal outcomes for every injured patient.

The PaTNCC facilitates a quality, evidence-based approach for trauma nursing credentialing and provides a common, baseline trauma education for all RNs in Pennsylvania. Standardizing trauma nursing education allows for transferability between trauma centers.

# INTRODUCTION

Nurses caring for trauma patients in Pennsylvania will be provided basic knowledge to deliver quality, evidence-based trauma care.

- Level I, II and III trauma centers will use the PaTNCC as minimum content for the basic trauma nurse course.
- Level IV trauma centers can utilize a nationally accepted course for the clinical aspects of the trauma nurse course requirement and augment that with an institution-specific module(s) combined with information about PTSE and the accreditation/verification process. The selection of a nationally accepted course must be appropriate for the RN's clinical area. Examples of acceptable courses:
  - The Rural Trauma Team Development Course (RTTDC) offered by the American College of Surgeons emphasizes a team approach to the initial evaluation and resuscitation of the trauma patient at a rural facility. Participation in this course is acceptable for emergency department nurses in rural institutions.
  - Trauma Nursing Core Course (TNCC) offered by the Emergency Nurses Association presents core-level knowledge, refines skills, and builds a firm foundation in trauma nursing. Participation in this course is acceptable for emergency department nurses and critical care nurses participating in trauma resuscitations.
  - Advanced Trauma Care for Nurses® (ATCN®) offered by the Society of Trauma Nurses is an advanced course designed for the registered nurse interested in increasing their knowledge in management of the multiple trauma patient. Participation in this course is acceptable for emergency and critical care nurses participating in trauma resuscitations.
  - Trauma Care After Resuscitation (TCAR) offered by TCAR Education Programs expands the knowledge base and clinical reasoning skills of nurses who work with injured patients anywhere along the trauma continuum of care, particularly in the post-resuscitation phase. Participation in this course is acceptable for acute care, critical care, and perioperative nurses.
- Trauma Certified Registered Nurse (TCRN) advanced certification is acceptable for all nurses in all trauma centers and exempts the need to complete a trauma nurse course and/or PaTNCC as it demonstrates mastery of trauma nursing content and skills.
- Completion of a PaTNCC is transferrable between trauma centers. Nurses transferring from a Level I, II and III adult trauma center to a Level I, II, III, and IV can transfer the PaTNCC credentialing, and must complete an institution-specific module(s) within one year of transfer. Nurses transferring from a Level I and II pediatric trauma center to another Level I and II pediatric trauma center can transfer the PaTNCC credentialing and must complete an institution-specific module(s) within one year of transfer. Nurses transferring from a Level IV trauma center to a Level I, II or III adult trauma center are required to complete the PaTNCC for the new institution. Nurses transferring from a pediatric trauma center to an adult trauma center must complete an institution-specific module(s) and a geriatric module(s) if not previously completed.
- It is an expectation that each trauma center will review their trauma nurse course content on a regular basis; at least every two years. The content should support evidence-based practice with the integration of data from the institution's trauma registry, national guidelines, current literature, and benchmarking efforts. The trauma nurse course must be accredited by a recognized professional nursing organization

that authorizes Continuing Education (CE), for example: PSNA, ENA, AACN, or AORN. PTSF is not a CE approval authority for institution-specific trauma nurse courses.

- Each Trauma Program will determine the best method for executing a trauma nurse course at their institution. This may be accomplished using the following methods:
  - An institution developed PaTNCC course that includes all of the PaTNCC curricula as outlined in this document.
  - Combination of a PaTNCC at an outside institution with the addition of an institution specific module. The module must be comprehensive and cover institution specific differences between the outside institution's content and the institution's own content. Several examples of institution specific content that should be included are:
    - Trauma Performance Improvement process
    - Clinical Management Guidelines
    - Trauma Program Staff
    - Trauma Alert Activation Criteria
    - Nursing and Physician education submission process
  - Combination of a national organization's course and institution developed module(s). Nationally accepted courses, such as the ENA's Trauma Nurse Core Course (TNCC), has some clinical aspects of the PaTNCC requirement and would need additional clinical content developed by the institution to align with the PaTNCC requirements, as well as institution specific module(s). Trauma Programs choosing to utilize a nationally accepted course would need to look at that course's content to determine the content gaps that must be covered by the institution developed course.
- The following course delivery formats are acceptable:
  - In-person course delivery in a classroom setting.
  - Electronic course delivery, such as live online courses and/or independent study modules.
  - It is recommended that some live instruction occurs and that the entire course not be self-study.
  - It is recommended that a hands-on skill instruction component occurs.
  - Please reach out to PTSF staff if you have questions about course content or delivery methods.

# CURRICULUM

## TRAUMA SYSTEMS

Objectives	Content
1. Describe the PTSF and its standards and accreditation process.	A. Accrediting Body—PTSF B. PTSF Standards of Accreditation C. Accreditation/Verification process D. Entry of patient into system E. Triage guidelines F. Performance improvement
2. Describe how institution-specific practices relate to the PTSF standards requirements.	A. Pa Trauma Outcome Study (PTOS) / National Trauma Data Bank (NTDB) patient population definition a. Pediatric patient population i. PTSF/NTDB definition ii. Institution-specific definition B. Credentialing C. Performance Improvement process D. Trauma Program Structure a. Clinical b. Administrative E. Trauma Registry F. Clinical Practice Guidelines G. Trauma Resuscitation Team H. Multidisciplinary Acute Care Team I. Plan of Care J. Outcome measurements

## PRE-HOSPITAL

Objectives	Content
1. Identify the purpose and role of Emergency Medical Services (EMS) and availability within the region.	A. Access EMS B. Purpose of EMS C. Scene Management D. Medical Command E. EMS Documentation F. Disaster preparedness/Mass Casualties



# SYSTEMATIC ASSESSMENT/MANAGEMENT

Content should be consistent with population of institution. Adult centers should include both adult and pediatric content. Pediatric centers must include pediatric content and can include adult/geriatric content.

## Resuscitative Phase

Objectives	Content
1. Define predictable clinical manifestations relative to mechanism of injury.	A. Mechanism of Injury/Kinematics <ul style="list-style-type: none"> <li>a. Blunt</li> <li>b. Penetrating</li> <li>c. Injuries due to burns/cold</li> <li>d. Hazardous environment</li> <li>e. Patterns of abuse</li> </ul>
2. Outline a basic trauma nursing assessment in collaboration with the ATLS® standardized approach.	A. Primary Survey <ul style="list-style-type: none"> <li>a. Airway</li> <li>b. Breathing</li> <li>c. Circulation</li> <li>d. Disability</li> <li>e. Exposure</li> </ul> B. Secondary Survey <ul style="list-style-type: none"> <li>a. <b>AMPLE</b> history with mechanism of injury: <b>Allergies, Medications, Past illnesses/Pregnancy, Last meal, Events/Environment</b></li> <li>b. Physical exam of:               <ul style="list-style-type: none"> <li>i. Head and Maxillofacial</li> <li>ii. Cervical Spine and Neck</li> <li>iii. Chest</li> <li>iv. Abdomen</li> <li>v. Peritoneum, Rectum, Vagina</li> <li>vi. Musculoskeletal                   <ul style="list-style-type: none"> <li>1. Extremities</li> <li>2. Pelvis</li> </ul> </li> <li>vii. Neurologic                   <ul style="list-style-type: none"> <li>1. Spine</li> <li>2. Cord</li> <li>3. Central Nervous System</li> </ul> </li> <li>viii. Skin integrity</li> </ul> </li> </ul> C. Tertiary Survey <ul style="list-style-type: none"> <li>a. Replication of primary and secondary surveys</li> <li>b. Ongoing evaluation of response to interventions</li> <li>c. Recognition of subtle signs and symptoms of decompensation</li> <li>d. End points of resuscitation</li> </ul> D. Evidence Preservation

## Perioperative Phase

Objectives	Content
1. Describe the perioperative phase as it relates to the operative management of traumatic injury and to predisposition of complications (occurrences).	<ul style="list-style-type: none"><li>A. Operative priorities</li><li>B. Potential complications from operative procedures</li><li>C. Evidence preservation</li></ul>

## Post-Anesthesia/Recovery Phase

Objectives	Content
1. Discuss the patient's response to anesthetic agents in relation to the injury and to operative management.	<ul style="list-style-type: none"><li>A. Anesthetics</li><li>B. Assessment and monitoring patient response</li></ul>

## Acute Care Phase

**Suggested Teaching Method:** Use a case study that demonstrates the use of data from the institution’s trauma registry, the performance improvement process, and patient outcomes.

Objectives	Content
<p>1. Recognize signs, symptoms, and management strategies of shock.</p>	<ul style="list-style-type: none"> <li>A. Classifications</li> <li>B. Signs and symptoms</li> <li>C. Management</li> <li>D. Massive transfusion concerns</li> <li>E. Normothermia</li> </ul>
<p>2. Describe the pathophysiology, clinical manifestations, and medical and nursing management of systems trauma during the acute phase of care, including issues for discharge planning. Identify significant performance improvement data that affects current practice in trauma care.</p>	<ul style="list-style-type: none"> <li>A. Head trauma               <ul style="list-style-type: none"> <li>a. Mechanism of injury</li> <li>b. Growth and development implications for pediatric patients</li> <li>c. Pathophysiology</li> <li>d. Clinical manifestations, assessment</li> <li>e. Treatment, interventions, nursing care</li> <li>f. Pain management                   <ul style="list-style-type: none"> <li>i. Pharmacologic and non-pharmacologic approaches</li> <li>ii. Age-specific interventions</li> <li>iii. Outcome evaluation</li> </ul> </li> <li>g. Signs and symptoms of potential decompensation—life threatening</li> <li>h. Complications (occurrences)—identify by using institution-specific data</li> <li>i. Nutrition</li> <li>j. Discharge planning</li> <li>k. Performance improvement</li> </ul> </li> <li>B. Maxillofacial trauma/Ocular trauma               <ul style="list-style-type: none"> <li>a. Mechanism of injury</li> <li>b. Growth and development implications for pediatric patients</li> <li>c. Pathophysiology</li> <li>d. Clinical manifestations and assessment</li> <li>e. Treatment, interventions, and nursing care</li> <li>f. Pain management                   <ul style="list-style-type: none"> <li>i. Pharmacologic and non-pharmacologic approaches</li> <li>ii. Age-specific interventions</li> <li>iii. Outcome evaluation</li> </ul> </li> <li>g. Signs and symptoms of potential decompensation—life threatening</li> <li>h. Complications (occurrences)—identify by using institution-specific data</li> <li>i. Nutrition</li> </ul> </li> </ul>

- j. Discharge planning
- k. Performance improvement
- C. Spinal cord injury
  - a. Mechanism of injury
  - b. Growth and development implications for pediatric patients
  - c. Pathophysiology
  - d. Clinical manifestations and assessment
  - e. Treatment, interventions, and nursing care
  - f. Pain management
    - i. Pharmacologic and non-pharmacologic approaches
    - ii. Age-specific interventions
    - iii. Outcome evaluation
  - g. Signs and symptoms of potential decompensation—life threatening
  - h. Complications (occurrences)—identify by using institution-specific data
  - i. Nutrition
  - j. Discharge planning
  - k. Performance improvement
- D. Thoracic trauma
  - a. Mechanism of injury
  - b. Growth and development implications for pediatric patients
  - c. Pathophysiology
  - d. Clinical manifestations and assessment
  - e. Treatment, interventions, and nursing care
  - f. Pain management
    - i. Pharmacologic and non-pharmacologic approaches
    - ii. Age-specific interventions
    - iii. Outcome evaluation
  - g. Signs and symptoms of potential decompensation—life threatening
  - h. Complications (occurrences)—identify by using institution-specific data
  - i. Nutrition
  - j. Discharge planning
  - k. Performance improvement
- E. Abdominal trauma
  - a. Mechanism of injury
  - b. Growth and development implications for pediatric patients
  - c. Pathophysiology
  - d. Clinical manifestations and assessment

	<ul style="list-style-type: none"> <li>e. Treatment, interventions, and nursing care</li> <li>f. Pain management <ul style="list-style-type: none"> <li>i. Pharmacologic and non-pharmacologic approaches</li> <li>ii. Age-specific interventions</li> <li>iii. Outcome evaluation</li> </ul> </li> <li>g. Signs and symptoms of potential decompensation—life threatening</li> <li>h. Complications (occurrences)—identify by using institution-specific data</li> <li>i. Nutrition</li> <li>j. Discharge planning</li> <li>k. Performance improvement</li> </ul> <p>F. Genitourinary trauma</p> <ul style="list-style-type: none"> <li>a. Mechanism of injury</li> <li>b. Growth and development implications for pediatric patients</li> <li>c. Pathophysiology</li> <li>d. Clinical manifestations and assessment</li> <li>e. Treatment, interventions, and nursing care</li> <li>f. Pain management <ul style="list-style-type: none"> <li>i. Pharmacologic and non-pharmacologic approaches</li> <li>ii. Age-specific interventions</li> <li>iii. Outcome evaluation</li> </ul> </li> <li>g. Signs and symptoms of potential decompensation</li> <li>h. Complications (occurrences)—identify by using institution-specific data</li> <li>i. Nutrition</li> <li>j. Discharge planning</li> <li>k. Performance improvement</li> </ul> <p>G. Musculoskeletal trauma</p> <ul style="list-style-type: none"> <li>a. Mechanism of injury</li> <li>b. Growth and development implications for pediatric patients</li> <li>c. Pathophysiology</li> <li>d. Clinical manifestations and assessment</li> <li>e. Treatment, interventions, and nursing care</li> <li>f. Pain management <ul style="list-style-type: none"> <li>i. Pharmacologic and non-pharmacologic approaches</li> <li>ii. Age-specific interventions</li> <li>iii. Outcome evaluation</li> </ul> </li> <li>g. Signs and symptoms of potential decompensation</li> </ul>
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	<ul style="list-style-type: none"> <li>h. Complications (occurrences)—identify by using of institution specific data</li> <li>i. Nutrition</li> <li>j. Discharge planning</li> <li>k. Performance improvement</li> </ul> <p>H. Injuries due to Burns and cold</p> <ul style="list-style-type: none"> <li>a. Mechanism of injury</li> <li>b. Growth and development implications for pediatric patients</li> <li>c. Pathophysiology</li> <li>d. Clinical manifestations and assessment</li> <li>e. Treatment, interventions, nursing care</li> <li>f. Pain management <ul style="list-style-type: none"> <li>i. Pharmacologic and non-pharmacologic approaches</li> <li>ii. Age-specific interventions</li> <li>iii. Outcome evaluation</li> </ul> </li> <li>g. Signs and symptoms of potential decompensation—life threatening</li> <li>h. Complications (occurrences)—identify by using of institution-specific data</li> <li>i. Nutrition</li> <li>j. Discharge planning</li> <li>k. Performance improvement</li> </ul>
<p>3. Discuss nursing interventions to meet the spiritual, cultural, and psychosocial needs of the trauma patient and family throughout the continuum of care</p>	<p>A. Assessment and plan for the patient and family</p> <ul style="list-style-type: none"> <li>a. Spiritual</li> <li>b. Cultural</li> <li>c. Psychosocial</li> <li>d. Child Life for pediatric patients</li> </ul>

## Rehabilitative Phase

Objectives	Content
<p>1. Discuss rehabilitation issues in relation to traumatic injuries.</p>	<ul style="list-style-type: none"> <li>A. Rehabilitation goals</li> <li>B. Strategies to reduce self-care deficits               <ul style="list-style-type: none"> <li>a. Positioning</li> <li>b. Therapies</li> <li>c. Pain management</li> </ul> </li> <li>C. Community and financial resources</li> <li>D. Equipment and assistive devices</li> <li>E. Discharge planning               <ul style="list-style-type: none"> <li>a. Interdisciplinary team members</li> <li>b. Begins on admission</li> <li>c. Goals</li> </ul> </li> <li>F. Americans with Disabilities Act</li> </ul>
<p>2. Analyze the standard approach to determine rehabilitation outcome measurements.</p>	<ul style="list-style-type: none"> <li>A. Functional Independence Measurement Score               <ul style="list-style-type: none"> <li>a. Meaning</li> <li>b. Importance</li> </ul> </li> <li>B. Post discharge outcomes</li> <li>C. Additional scoring methods</li> </ul>

## PREVENTION STRATEGIES

Objectives	Content
1. Identify strategies for trauma prevention	<ul style="list-style-type: none"><li>A. Pre-injury<ul style="list-style-type: none"><li>a. Community outreach</li><li>b. Education</li><li>c. Registry data</li></ul></li><li>B. Post-injury<ul style="list-style-type: none"><li>a. Patient/family education</li><li>b. Substance abuse counseling</li><li>c. Resources</li><li>d. Registry data</li></ul></li></ul>



# GERIATRIC CONSIDERATIONS\*

## OPTIONAL FOR PEDIATRIC CENTERS

**Suggested Teaching Method:** Use a case study that demonstrates the utilization of data from the trauma registry, the performance improvement process, and patient outcomes.

**\*Note:** This specific course content can be presented as a separate focus or integrated throughout the course curriculum

Objectives	Content
1. Define the geriatric trauma patient based on physiologic changes related to the aging process.	A. Definition of geriatric patient B. Systematic review of physiologic changes C. Pre-Injury Assessment a. Physiologic b. Social c. Environmental d. Mental status e. Polypharmacy
2. Describe the common causes of injury and prevention strategy in the geriatric trauma population.	A. Common mechanism of injury B. Prevention strategies
3. Define the legal issues related to geriatric trauma patients.	A. Guardianship B. Consent C. Advanced directives

## OBSTETRICAL CONSIDERATIONS

Objectives	Content
1. Describe the normal physiologic changes of pregnancy and how the changes relate to clinical management of traumatic injury.	A. Anatomic and physiologic changes of pregnancy B. Mechanism of injury during pregnancy C. Assessment, diagnosis, and management D. Common complications

## BARIATRIC CONSIDERATIONS\*

\***Note:** This specific course content can be presented as a separate focus or integrated throughout the course curriculum

Objectives	Content
1. Describe the care of bariatric patient based on the physiologic and emotional component.	A. Epidemiology B. Mechanism of injury C. Assessment, diagnosis, and management D. Common complications E. Injury Prevention

## ABUSE

Objectives	Content
1. Describe the patterns of injury that are suggestive of abuse.	<ul style="list-style-type: none"> <li>A. Common injuries</li> <li>B. Patterns of injury</li> </ul>
2. Identify screening and reporting responsibilities in abuse situations. Identify the nurse's role in the assessment and reporting of suspected abuse and neglect.	<ul style="list-style-type: none"> <li>A. Substance abuse</li> <li>B. Child Maltreatment               <ul style="list-style-type: none"> <li>a. Types</li> <li>b. Warning signs</li> <li>c. Legal responsibilities</li> </ul> </li> <li>C. Intimate Partner Violence               <ul style="list-style-type: none"> <li>a. Types</li> <li>b. Warning signs</li> <li>c. Legal responsibilities</li> </ul> </li> <li>D. Geriatric abuse/neglect</li> <li>E. Human Trafficking               <ul style="list-style-type: none"> <li>a. Epidemiology</li> <li>b. Warning Signs</li> <li>c. Legal responsibilities</li> </ul> </li> </ul>

## CRISIS INTERVENTION

Objectives	Content
1. Describe strategies of crisis intervention for the patient, family, and caregiver.	A. Stages of coping B. Interventions C. Stress management techniques D. Critical Incident Stress Management (CISM) E. Post-Traumatic Stress Disorder F. Opioid Crisis

## ETHICAL CONSIDERATIONS

Objectives	Content
1. Describe a decision-making process that may be used to address ethical issues.	A. Role of ethics committee B. Responsibility of caregivers C. End-of-life decisions
2. Define the legal issues related to pediatric trauma patients	A. Guardianship B. Consent C. Treatment of Minors D. Confidentiality

## ORGAN PROCUREMENT

Objectives	Content
1. Describe the role of the nurse in the care of and evaluation for organ and tissue donation.	<ul style="list-style-type: none"><li>A. Organ Procurement</li><li>B. Brain death criteria: institution-specific</li><li>C. Donation after cardiac death donors</li><li>D. Role of organ procurement organization</li></ul>

## INFECTION CONTROL

Objectives	Content
2. Describe infection control in the trauma patient.	A. Infection Prevention Strategies B. Surveillance and Identification C. Antimicrobial Stewardship



# RECOMMENDED TRAUMA-SPECIFIC SKILLS\*

**\*Note:** this is not a complete list but a suggested list of trauma-specific skills and should be tailored to meet the capability, equipment and care provided by the specific trauma unit / trauma center. Skills-related education may be provided during the PaTNCC course or with unit-specific orientation/competency evaluation.

- Use of the following equipment:
  - Airway management equipment including endotracheal tubes, rescue airway devices, bag-valve mask resuscitators, sources of oxygen and mechanical ventilator
  - Arterial pressure monitoring devices
  - Central venous pressure monitoring devices
  - Chest tubes
  - Continuous cardiac monitoring, electrocardiograph and defibrillator (both pediatric and adult paddles; both internal and external)
  - End-tidal CO<sub>2</sub>/Waveform capnography monitoring
  - High volume rapid infuser
  - Intra-compartmental pressure measuring device
  - Intracranial pressure monitoring
  - Intraosseous device
  - Naso/oro gastric tubes
  - Pulse oximetry
  - Skeletal immobilization devices
    - Cervical collar
    - Pelvic binder
    - Splints
    - Traction splints
    - Turning patients in spinal immobilization (3 person turn/logroll)
  - Suction devices
  - Tourniquet (commercial)
  - Vacuum-assisted wound closure device
  - Warming devices for the patient, parenteral fluids and blood

## SUGGESTED REFERENCES

- Pennsylvania Trauma Systems Foundation Standards of Accreditation
- McQuillan, K.A., Makic, M.F., & Whalen, E. *Trauma Nursing: From Resuscitation Through Rehabilitation*
- Advanced Trauma Care for Nurses®, Society of Trauma Nurses
- Advanced Trauma Life Support®, American College of Surgeons
- Trauma Nursing Core Course, Emergency Nurses Association
- Trauma Care After Resuscitation, TCAR Education Programs