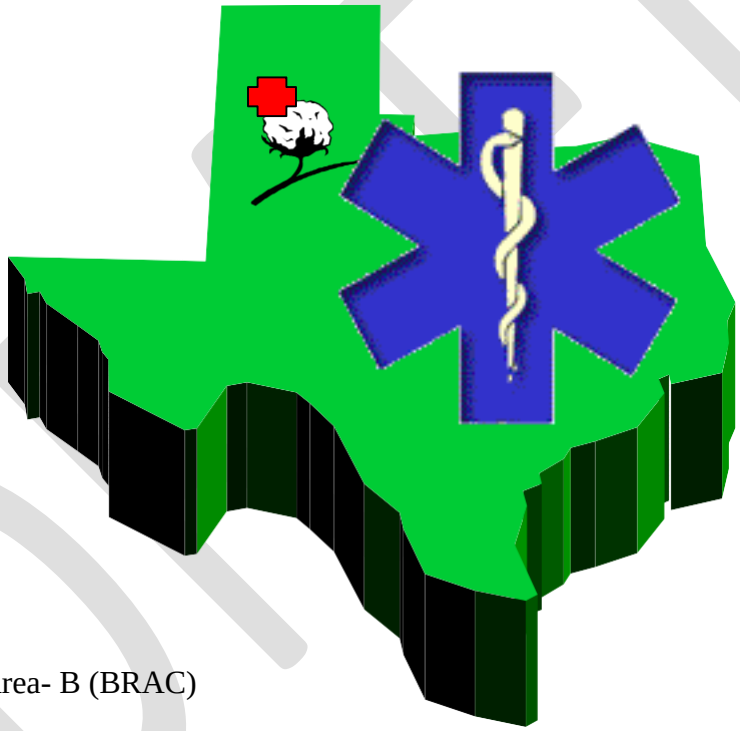
Trauma Service Area - B (BRAC)

Regional Pediatric Plan



Trauma Service Area- B (BRAC)
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BRAC serves the counties of Bailey, Borden, Castro, Cochran, Cottle, Crosby, Dawson, Dickens, Floyd, Gaines, Garza, Hale, Hockley, Kent, King, Lamb, Lubbock, Lynn, Motley, Scurry, Terry, Yoakum

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DEFINITION OF TERMS:

AAP:	**American Academy of Pediatrics**
ACS:	**American College of Surgeons**
BLS:	**Basic Life Support**
CT:	**Computerized Tomography**
DSHS:	**Texas Department of State Health Services**
EMT:	**Emergency Medical Technician**
ENPC:	**Emergency Nursing Pediatric Course**
GCS:	**Glasgow Coma Score**
GETAC:	**Governor's EMS and Trauma Advisory Council**
MICU:	**Medical Intensive Care Unit**
MOI:	**Mechanism of Injury**
NHTSA:	**National Highway and Transportation Safety Administration**
NRP:	**Neonatal Resuscitation Program**
PICU:	**Pediatric Intensive Care Unit**
STABLE:	**S.T.A.B.L.E. Neonatal Education Program**
TNCC:	**Trauma Nursing Core Course**
TPATC:	**Transport Professional Advanced Trauma Course**

INTRODUCTION

Texas Trauma Service Area (TSA) B consists of 22 counties with a population of over 400,000 people. Lubbock is the largest of these counties and serves as the geographic "hub" for the area. Nineteen hospitals currently exist within the TSA-B, and each hospital is represented in the Trauma Service Area – B Regional Advisory Council (BRAC). With a bed capacity greater than 100, University Medical Center (UMC), Covenant Health System (CHS), and Grace Medical Center provide medical care within the city of Lubbock. The city of Lubbock also has one specialty hospital, Lubbock Heart Hospital. University Medical Center is the only Level I trauma facility and Covenant Medical Center (CMC) and Covenant Children's Hospital (CCH) are the only designated Level II trauma facilities within region TSA-B. Fourteen other TSA-B hospitals have received Level IV trauma designation.

There are 53 emergency medical service (EMS) providers within TSA-B, and each provider is also represented in the BRAC. The majority of the above stated providers function under protocols and standards developed and implemented by the South Plains Emergency Medical Services (SPEMS) organization, while others act as independent licensed services. The services provided by EMS range from first responders to paramedic and are a mixture of paid and volunteer services. (See pg 15 for list of EMS services)

Referral patterns exist between the rural facilities and EMS providers to the tertiary care centers located in Lubbock. Patient flow is accomplished through ground or air medical services. The region has multiple air medical services. Patient referrals to tertiary care centers are through direct referrals and/or scene transports. The coordination of care and services is instrumental in the provision of safe and efficient trauma care. Rural facilities, EMS providers, tertiary care centers, SPEMS, and other interested agencies work in a coordinated effort to provide optimal care. Inter-state communication and care provisions are coordinated with New Mexico.

A network has been developed through the implementation of coordinated trauma care in the TSA-B. The established network allows for beneficial idea sharing and improved patient care. The network enables tertiary care centers to provide assistance to regional facilities and trauma coordinators with issues regarding patient care and the education and preparation necessary for seeking specific facility designation. Additionally, resource assistance is provided to EMS services when needed. A Regional Advisory Council (RAC) executive director oversees daily operations, committees, documentation, financial aspects, and general duties for the TSA-B. This director works with EMS services, the community, and hospitals in providing guidance and oversight on the RAC.

MISSION

The mission of the BRAC is to ensure coordinated pediatric care is provided in a fiscally responsible manner to improve the health of persons in the region and reduce pediatric related mortality and morbidity.

VISION

BRAC will provide leadership within our region and state regarding the care of pediatric patients to minimize mortality and morbidity associated with pediatric illnesses/injuries.

ORGANIZATION

The BRAC strives to provide the infrastructure and leadership necessary to sustain a treatment and transfer system for the pediatric patient within the designated 22 county region and to improve the level of care provided to persons living or traveling through the region. BRAC member organizations (hospitals, first responder organizations, EMS providers, air medical providers, emergency management, public health, etc.) work cooperatively to ensure that quality care is provided to pediatric patients by pre-hospital and hospital care professionals. The BRAC will provide pediatric education to the public and pediatric education to health care providers for each of the 22 counties.

REGIONAL PLAN

The regional plan has been developed in accordance with published standards across the nation at other trauma centers, a publication from the AAP (American Academy of Pediatrics) as well as published NHTSA (National Highway and Transportation Safety Administration) standards in regards to mode of transport. The BRAC is a unique organization representing members from a vast 22 counties. With this unique representation, the expansive rural areas must be considered by the medical team when making health care decisions. Patient centered care and safety must be the priority.

OBJECTIVES

1. Provide pre-hospital and hospital providers within the region standardized procedures for the treatment of pediatric patients
2. Outline the regulatory agencies related to administering pediatric care
3. Describe educational recommendations for health providers associated in pediatric care
4. Provide pediatric education to the public

NEEDS ANALYSIS

Children who require emergency care have unique needs, especially when emergencies are serious or life-threatening. The majority of ill and injured children are brought to community hospitals by virtue of their geography within communities. Similarly, emergency medical services (EMS) agencies provide the bulk of out-of-hospital emergency care to children.
It is imperative; therefore, that EMS agencies and hospitals have appropriate resources (medications, equipment, policies, and education) and staff to provide effective emergency care for children of all ages. Each EMS agency and hospital should also adopt guidelines to facilitate the delivery of emergency care for children of all ages and, when appropriate, timely transfer to a

facility with specialized pediatric services. In 2002–2003 the National Hospital Ambulatory Medical Care Survey, reported that only 6% of US EDs have all of the recommended pediatric supplies and equipment as outlined in previously published national guidelines and reported a relative lack of pediatric experience among the workforce, with limited exposure to critically ill or injured pediatric patients at many US hospitals. In fact, 50% of EDs care for fewer than 10 pediatric patients per day; therefore, pediatric planning by these facilities is crucial. They have found that improved awareness of pediatric resources available and development of regionalized and coordinated emergency and trauma care systems, may optimize access and outcomes for many acutely ill and injured children. The Health Resources and Services Administration-EMSC program in 2009 calls for the existence of a statewide, territorial, or regional standardized system that recognizes hospitals that is able to stabilize and/or manage pediatric medical emergencies and trauma.

GOALS

1. Identify and integrate resources as a means to obtain commitment and cooperation.
2. Establish system coordination and education relating to protocols/procedures, and referrals.
3. Establish continuity and uniformity of care among the providers of pediatric care.
4. Promote internal communication as the mechanism for system coordination which will include the pre-hospital and hospital members of the BRAC Pediatric Subcommittee.
5. Develop and support continuous quality improvement programs which will aid in the identification of patient needs, outcome data, and uniform standards.
6. Recognize each facility's capability to treat pediatric patients within BRAC guidelines in compliance with the regulatory agencies related to pediatric care.

REGULATORY AGENCIES AND GUIDELINE RESOURCES FOR PEDIATRIC CARE

1. Joint Commission http://www.jointcommission.org/
2. Centers for Medicare/Medicaid Services (CMS)
    a. Core Measure tracking
3. American College of Surgeons (ACS) https://www.facs.org
4. American Heart Association http://www.americanheart.org
    a. Guidelines and education
5. Texas Department of State Health Services http://www.dshs.state.tx.us
    a. Regulatory

*See BRAC website (www.b-rac.org) for current designated centers/facility capabilities and EMS services

PRE-HOSPITAL TRIAGE

GOAL: Critically ill or injured pediatric patient should receive expeditious EMS dispatch and response. EMS personnel should be knowledgeable in the assessment, management, and triage of pediatric patients. EMS personnel should communicate with the receiving facilities as soon as

possible and transport the patient to the nearest appropriate facility based on System Triage Guidelines listed below. Follow protocols for requesting a 211 with advanced personnel.

PURPOSE: To ensure the prompt availability of medical resources needed for optimal patient care.

SYSTEM TRIAGE

GOAL: Unless immediate intervention (ABC's, cardiac arrest, etc.) is required, critically ill or injured pediatric patients should be taken to the closest verified Pediatric Trauma Center or and if unavailable the closest appropriate Adult Trauma Center with Pediatric capabilities for evaluation and intervention. If immediate interventions are required, transport to the closest appropriate acute care facility.

This plan is based on accepted best practice guidelines, but does allow for patient or physician preference.

HELICOPTER ACTIVATION

GOAL: Air transport resources will be appropriately utilized in order to reduce delays in providing optimal care.

DECISION CRITERIA TO ACTIVATE:

1. If expected transport time is excessive (>25 minutes), activation of air transport resources should be considered.
2. If dispatch information indicates additional medical resources are needed.
3. Capability of closest appropriate facility
4. If air transport is not available, request a 211.

HOSPITAL TRIAGE CRITERIA

GOAL: Facilities rapidly identify pediatric patients and deliver evidence based care.

OBJECTIVES:

1. Ensure each pediatric patient is rapidly identified and accurately assessed based on the actual or suspected onset of symptoms or mechanism of injury. The patient will be treated appropriately or transferred to the nearest acute care facility for appropriate intervention. (See pgs 10-12 for Pediatric Triage/Transfer Decision Scheme - Hospital)
2. Ensure prompt availability of medical resources for optimal patient care.

INTER-HOSPITAL TRANSFERS

GOAL: Inter-hospital transfer plans within the BRAC ensure pediatric patients requiring additional or specialized care and treatment beyond a facility's capability are rapidly identified and transferred to appropriate facilities.

OBJECTIVES:

1. Ensure all regional hospitals make transfer decisions based on the Triage/Transfer Decision Scheme – Hospital (See pgs 10-12).
2. Identify pediatric treatment (see www.b-rac.org for facility capabilities.)
3. Ensure facilities follow established treatment and stabilization criteria and time guidelines for care of the pediatric patient through the Performance Improvement Patient Safety (PIPS) Committee.
4. Consider early air medical activation and/or specialty resources for inter-hospital transfers.

TRANSFER DISCUSSION

1. Identification of Pediatric patients and those pediatric patients requiring transfer – Treatment requirements for optimal pediatric care are identified in the Hospital Triage Criteria and Pre-Hospital Triage Criteria sections. When resources beyond a hospital's capability are needed, transfer to a higher level acute care facility should be expedited.
2. Pediatric Patient Transport –Pediatric patients in BRAC are transported according to patient need, availability of air transport resources, and environmental conditions. Ground transport via BLS, ALS or MICU ground ambulance is available throughout the region. Air medical transport (fixed and rotor wing) is also available in the region.

3. Use of Pediatric Transport Team highly encouraged when available in the following patient situation:

    - advanced airway management required; secured airways, intubated, on ventilator,
    - multiple vasoactive medication drips,
    - condition has been initially stabilized, but has likelihood of deterioration, based on assessment or knowledge of provider regarding specific illness/injury,
    - condition deteriorating or likely to deteriorate, such as patents who required invasive monitoring,
    - post-resuscitation, or who have sustained multiple trauma.

4. Strong consideration for air medical transport or critical care ground transport is recommended when pediatric transport team is unavailable. Strong consideration of sending hospital staff (RN, RT, MD) on transport if needed.

PERFORMANCE IMPROVEMENT PATIENT SAFETY

Pre-hospital and hospital organizations must have a process in place to review pediatric cases for performance improvement. Additionally, each organization must participate in the BRAC PIPS Committee.

GOAL: The goal for performance improvement in BRAC is to establish a method for monitoring and evaluating system performance over time and to assess the impact of pediatric system development.

OBJECTIVES:

1. Identify regional pediatric data indicators which reflect the process and outcome of pediatric care in BRAC.
2. Provide a multidisciplinary forum for pediatric care providers to evaluate pediatric patient outcomes from a system perspective and to assure the optimal delivery of pediatric care. Facilitate the sharing of information, knowledge, and scientific data.
3. Provide a process for medical oversight of regional pediatric operations.

DISCUSSION:

1. Pediatric outcomes must be monitored and evaluated to determine the effectiveness of regional pediatric system performance.
2. The authority and responsibility for regional performance improvement rests with the Regional Advisory Council. This will be accomplished in a comprehensive, integrated manner through the work of the Pediatric Subcommittee and Performance Improvement Patient Safety (PIPS) committee.
3. The Pediatric Subcommittee and PIPS committee will oversee regional pediatric performance improvement. Follow-up and feedback ensures system-wide multidisciplinary performance improvement.
4. The Pediatric Subcommittee will determine the type of pediatric data indicators (see page 13) to be evaluated and monitored. Indicator identification will be based on high risk, high volume, and problem prone parameters. Indicators will be objective, measurable markers reflecting pediatric resources, patient care techniques, and system/process outcomes.
5. The Pediatric Subcommittee will perform case reviews on a quarterly basis and forward performance improvement opportunity cases to the PIPS committee as needed.
6. Data collected from individual hospitals will be presented at the Pediatric Subcommittee. Pediatric care will be evaluated from a system outcomes perspective. Case presentations or other appropriate mediums will be designed to address system and behavioral problems. Sentinel events will be evaluated, discussed at the Pediatric Subcommittee and forwarded to the PIPS Committee as needed. The results from committee activities will be summarized for follow-up and loop closure. Activities and educational offerings will be presented to address knowledge deficits. All actions will focus on the opportunity to improve system wide patient care.

HEALTH CARE PROVIDER EDUCATION

Pre-hospital and hospital organizations must comply with the educational requirements set in place by the organization's designating agency. All health care providers will have BLS. Emergency Department and PICU staff should have PALS, TNCC and ENPC. EMT-Paramedics should have PALS and the Pediatric Transport Team should have PALS, ENPC, NRP and TNCC or TPATC. Labor & Delivery and Nursery Personnel should have NRP and STABLE. Pre-hospital and hospital organizations must participate in BRAC PIPS committee meetings to ensure high quality system-wide pediatric care is delivered. Outreach education is required by the Level I and Level II facilities.

PUBLIC AWARENESS/EDUCATION

Pre-hospital and hospital organizations must participate in regional pediatric awareness campaigns and other public education activities regarding pediatric care.

PEDIATRIC TRAUMA TRIAGE/TRANSFER DECISION SCHEME

Physiologic Criteria:

1. Depressed or deteriorating neurologic status (GCS ≤14) with focus on changes in the motor function
2. Respiratory distress or failure
3. Children requiring endotracheal intubation and/or ventilatory support
4. Shock, uncompensated or compensated
5. Injuries requiring any blood transfusion
6. Children requiring any one of the following:
   a. Invasive monitoring (arterial and/or central venous pressure)
   b. Intracranial pressure monitoring
   c. Vasoactive medications

Anatomic Criteria:

1. Fractures and deep penetrating wounds to an extremity complicated by neurovascular or compartment injury
2. Fracture of two or more major long bones (such as femur, humerus)
3. Fracture of the axial skeleton
4. Spinal cord or column injuries
5. Traumatic amputation of an extremity with potential for replantation
6. Head injury when accompanied by any of the following:
   a. Cerebrospinal fluid leaks
   b. Open head injuries (excluding simple scalp injuries)
   c. Depressed skull fractures
   d. Sustained decreased level of consciousness (GCS ≤14)
   e. Intracranial hemorrhage
7. Significant penetrating wounds to the head, neck, thorax, abdomen or pelvis including the groin
8. Pelvic fracture
9. Significant blunt injury to the chest, abdomen or neck (e.g. hanging or clothesline MOI's)

Other Criteria:

1. Suspicion for Child Maltreatment as evidenced by:
   a. Injuries sustained with no reported explanation
   b. Injuries sustained that do not match the developmental capability of the patient
   c. History of apparent life threatening event
   d. Upper extremity fractures in a non-ambulatory child

Pediatric patients with burn injuries should be transferred to a Burn Center per the following burn criteria:

American Burn Association Transfer Criteria:

A burn center may treat adults, children, or both. Burn injuries that should be referred to a burn center include the following:

1. Partial-thickness burns of greater than 10 percent of the total body surface area.
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
3. Third-degree burns in any age group.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Inhalation injury.
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality.
8. Burns and concomitant trauma (such as fractures) when the burn injury poses the greatest risk of morbidity or mortality. If the trauma poses the greater immediate risk, the patient's condition may be stabilized initially in a trauma center before transfer to a burn center.
9. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention.

Burns in children

Children with burns should be transferred to a burn center verified to treat children. In the absence of a regional pediatric burn center, an adult burn center may serve as a second option for the management of pediatric burns.

Other criteria for transfer:

1. Children requiring pediatric intensive care other than for close observation.
2. Any child who may benefit from consultation with, or transfer to, a Pediatric Trauma Center or a Pediatric Intensive Care Unit.
3. Children with injuries suspicious of child maltreatment e.g. inflicted burn injury

Reference: *Resources for the Optimal Care of the Injured Patient: 2014*

PEDIATRIC NON-TRAUMA TRIAGE/TRANSFER DECISION SCHEME

Physiologic Criteria

1. Depressed or deteriorating neurologic status (GCS≤14).
2. Severe respiratory distress and/or respiratory failure
3. Children requiring endotracheal intubation and/or ventilatory support.
4. Serious cardiac rhythm disturbances,
5. Status post cardiopulmonary arrest.
6. Heart failure.
7. Shock responding inadequately to fluid resuscitation.
8. Children requiring any one of the following

    a. Arterial pressure monitoring.
    b. Central venous pressure or pulmonary artery monitoring.
    c. Intracranial pressure monitoring.
    d. Vasoactive medications.
    e. Treatment for severe hypothermia or hyperthermia
    f. Treatment for hepatic failure.
    g. Treatment for renal failure, acute or chronic requiring immediate dialysis.

Other Criteria

1. Near drowning with any history of loss of consciousness, unstable vital signs or respiratory problems.
2. Status epilepticus.
3. Potentially dangerous envenomation. Use of a snakebite protocol is encouraged
4. Potentially life threatening ingestion of, or exposure to, a toxic substance.
5. Severe electrolyte imbalances.
6. Severe metabolic disturbances.
7. Severe dehydration.
8. Potentially life-threatening infections, including sepsis.
9. Children requiring intensive care other than for close observation.
10. Any child who may benefit from consultation with, or transfer to, a Pediatric Intensive Care Unit
11. Suspicion for child maltreatment. e.g. found “down” for no apparent reason
12. Any condition that exceeds the capability of the facility

PEDIATRIC DATA INDICATORS

1. Missed injury (any injury related to the initial traumatic event diagnosed more than 24 hours after admission)
2. Missed intubation (more than one attempt to place endotracheal tube appropriately)
3. Vascular access problems (Any successful vascular access that takes longer than 5 minutes to accomplish, especially if intraosseous is not used)
4. Resuscitation volume problems (infusion more than 50ml/kg during first 2 hours in a child with normal vital signs)
5. Unplanned hypothermia (core temperature < 95.0 F (35.0 C) for > 2 hours)