

Level IV Trauma Center

Trauma Performance Improvement: Patient Safety

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Objectives

- Review the Organizational Structure To Support the PI Program in a LEVEL IV Facility
- Identify the Authority For the Program
- Review The Processes of Review
- Review Standard Indicators, Audit Filters, Variances = Event Review
- Review the Change in Terminology
- Review Event Resolution “Loop Closure”
- Review Strategies Getting Started

TPIPS: Organizational Culture

- Board Resolution
- Medical Staff Resolution
- Job Description For Trauma Medical Director
- Job Description for Trauma Program Manager
- Scope of Responsibility / Authority
- Organizational Plan & Organizational Chart
- Budget To Support Trauma Program
- Definition of a Trauma Patient
- Trauma Activation Guidelines
- Trauma Admission / Transfer Guidelines
- Trauma Standards of Care
- **Trauma Performance Improvement: PS Plan**

Organizational Structure

- Job Descriptions – Authority and Oversight of Care From EMS Notification To Patient Discharge
 - Responsible for Trauma Standard of Care
 - Responsible for Trauma Performance Improvement
 - Responsible for Trauma Registry
 - Responsible for Physician Performance Related To Trauma Protocol
 - System Performance – Resource Management

Organizational Structure

- Budget
 - FTE Trauma Program Manager
 - Trauma Medical Director
 - Trauma Registrar – Based on Volume
 - Performance Improvement
 - One Hour / Day Each Trauma Admission
 - Review Continuum of Care – Note Activities – Registry
 - 4 Hours To Prepare Cases For Review
 - 4 Hours To Prepare Statistical Data For Review
 - 4 Hours / Month Meet with Medical Director
 - 2 Hours / Month PI Meetings
 - Injury Prevention – 1 Day / Month
 - Out Reach Education: 1 Day / Month
 - Regional Participation: 1 Day / Month

Trauma Performance Improvement

- Review the Trauma Center's Performance in Managing Critical, Serious and Moderately Injured Patients From Admission to Discharge
- Identify Opportunities To Streamline Care and Services
- Ensure Timely, Effective, Efficient & Accountable Care
- Identify Patient Populations with Needed Variations in Care
- Monitor Compliance To Evidence Based Practice

Patient Safety Goals

- Incorporate Joint Commission Standards
 - Patient Identification
 - Handoff
 - Time Out
 - Mark the Site
 - Hand Hygiene
 - Skin Breakdown
 - Anticoagulation Therapy
 - Hospital Acquired Infection
 - Falls
 - Surgical Site Infection

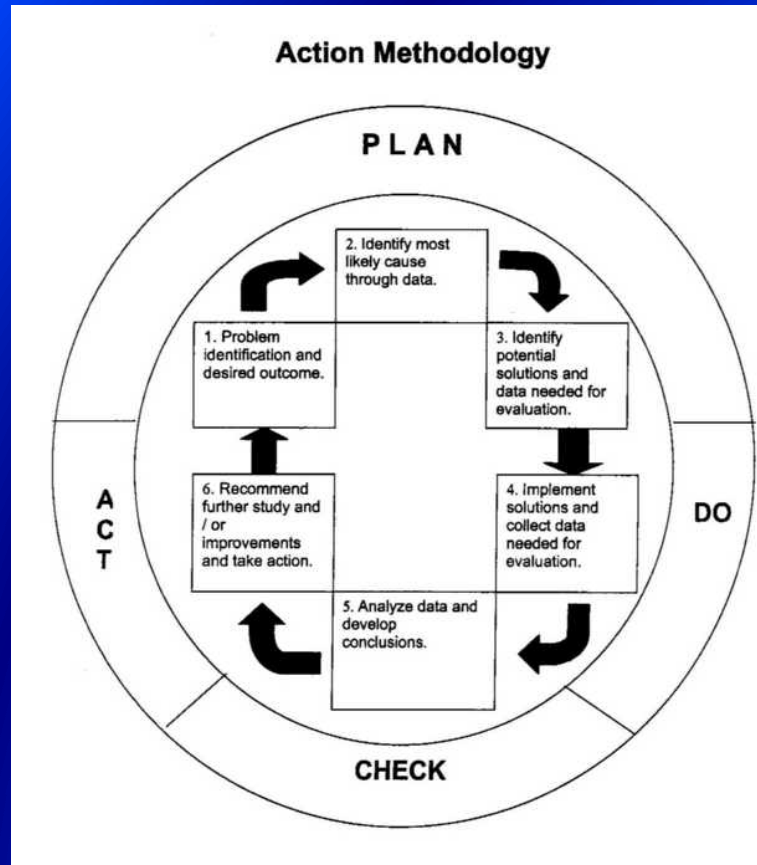
TPIPS Progression of Care

- Continuum of Care
 - Pre Hospital
 - Trauma Resuscitation Bays
 - Radiology
 - OR
 - ICU
 - Specialty Services
 - General Unit
 - Rehabilitation

TPIPS: Plan

- Defines the Structure of the TPIPS
- TMD Authority To Manage Process
- TMD Authority For Defining Action Plans / Prevention
- TMD Authority for Defining Loop Closure
- TMD Authority For Medical Staff Peer Review
- Collaborative Team
 - TMD
 - Trauma Program Manager / Trauma Program Director
 - Administrator
 - Open Line of Communication with Hospital PI

Methodology



TPIPS: LEVEL OF REVIEW

- First Level of Review
 - Identification, Validation, Documentation
 - Trauma Program Manager, Department Issue
- Second Level Of Review
 - Trauma Program Manager
 - Trauma Medical Director
- Third Level of Review
 - Trauma Peer Review

TPIPS: Committee Structure

- Defined Committee Structure
 - System / Trauma Operations
 - Trauma Multidisciplinary Peer Review
 - Challenges of Level IV Trauma Facilities
- Recognized in Medical Staff Resolution
- Recognized in Board Resolution
- Defined in the PI Plan
 - Meeting Structure
 - Organizational Reporting Structure
 - Membership
 - Membership Responsibilities

TPIPS: Process

- PI Data Definitions (Create Consistency) (ADOPT NTDB)
- Defined Events – Replaces Indicators / Audit Filters
 - System: Pre-hospital, Transfers, Med Errors, Delays, Resource Limitations, Communication
 - Process: Coordination, Timeliness
 - Complications: NTDB, Custom, Adverse Drug Events
 - Compliance to Protocols / SOC
 - Patient Safety
 - Population Specific
 - Finance
- Process For Identifying Variations In Care Or EVENT
- Defined Validation, EVENT Investigation Process
- Documentation

Event Review

- Absent or Incomplete EMS Patient Report
- EMS Scene Times Greater 20 Minutes
- Absence of MOT or Transfer Facility's Essential Data
- Delayed, Missed or Wrong Level of TTA – Criteria Met
- Delayed Trauma Team Response
- Absence of Trauma Flow Sheet
- Incomplete Trauma Flow Sheet
- Absence of Hourly Vital Signs / I&O

Event Review

- Absence of Temperature Assessment
- Standard of Care Protocols Not Followed: Activation, Resuscitation, Admission, Transfer, Treatment
- GCS 14 – No CT Scan
- GCS 8 or Less Without Definitive Airway
- TC Essential Equipment/Service Not Available
- Absence of Physician Notes
- Admission When Meets Transfer Criteria
- Transfer When Admission Is Within Standards
- Level IV – Admit to OR, ICU, Transfer After Admission / Transfer In

Event Review

- Delayed Dx of Injury
- Missed Injury
- Transfer After 2 Hours / Injuries Identified
- Denial of Acceptance By Higher Level Of Trauma Facility
- Transferred to Non-Designated Trauma Facility Or Lower Level Of Designation

Event Review

- Call More Than Two Facilities For Transfer Acceptance
- Greater Than 15 Minute Delay in Moving Patient From EMS Stretcher to Hospital Stretcher / Bed
- Diversion of Major or Severe Trauma Patients
- All Trauma Deaths (DOAs)
- Patient Admitted Without Being Examined by Specialty Physician
- Radiology Overreads
- Delay in Blood Availability
- Delay in OR Availability
- Greater 2 Hour In-Patient Bed Availability

Event Review

- Major or Severe Trauma Patient Admitted to Non-Surgeon
- GSW Abdomen Managed Non-Operatively
- Patient With Abdominal Trauma That Is Hypotensive (BP less than 90) Who Does Not Have Operative or IR Intervention Within 1 Hour of Arrival (Excluding Expirations / Planned Donor or Futile Care)
- Operative Intervention 4 Hours After Arrival in ED
- EDH or SDH Craniotomy Greater Than 4 Hours / Or ICP Monitoring

Event Review

- Definitive Management of Open Long Bone Fx / Joint Greater Than 8 Hours
- Antibiotics Not Administered Within 60 Minutes of Arrival for Open Fractures
- Abdominal, Thoracic, Vascular or Cranial Surgery Performed Greater Than 24 Hours After Arrival
- Non-Fixation of Femoral Diaphyseal Fracture in Adult
- Unplanned Reintubation Within 48 Hrs of Extubation
- Trauma Team Activation Not Charged Within 24 Hrs.
- LOS Exceeds 6 Days
- Financial Status Not Defined Within 48 Hours of Admission

Complications - Examples

- Surgical Site Infections
- DVT / PE
- VAP
- ARDS
- Sepsis
- Skin Breakdown
- Failure In Non-Operative Management
- Shock, Coagulopathy, Hypothermia in Hospital

System PI – Events

- Field Triage Not Followed
- Transfer Process Delayed
- Transfer Method Delayed
- Transfer Documents Incomplete
- Care Prior To Arrival Does Not Meet SOC
- Facility Overload
- Lack of TC Essential Criteria
- RSI in Field Without Definitive Airway Prior To Arrival
- GCS of 8 Without Appropriate Airway
- Backboard Time Greater Than 60 Minutes

System PI - Events

- GCS 12 or Less Without Head CT Scan Within 30 Minutes or TNSF
- Patient TNSF More Than Once
- Pediatric Events
- Geriatric Events
- Multiple Casualty Events
- Mass Casualty Events

TPIPS: Review Structure

- Defined, Structured Review Process
 - Initial Review (TPM / TPD identification, validation and documentation of issue) FACT BASED NO EMOTION
 - Secondary Review (TPM / TPD and TMD)
 - Tertiary Review (System Committee / Trauma Peer Review)
- Prepare Cases To Be Reviewed By Medical Director
- Define Cases For Tertiary Review
- What Cases Should Go To Tertiary Review?
 - PI Plan

TPIS: Trauma Registry Integration

- Defined Issue – *EVENT*
- Review Registry Historical Perspective
- Data Trends

TPIPS: Confidentiality

- Confidentiality
- Data Management
- Data Integrity
- Integrity / Respect

TPIPS: Determination / Judgment

- System Process – Injury to Activation Through Discharge
- Patient Disease – Patient Cooperation / Expected Sequealae of a Disease, Illness or Injury / Pre – Existing Disease
- Provider/Hospital Staff – Related To Care Given Physician, Mid Level or Other Staff

TPIPS: Judgment of SOC

- Rating 0: Exceptional Management
- Rating 1: Acceptable Management / NFA
- Rating 2: Acceptable Management / Minor Deviations to Standards / After Peer Discussion
- Rating 3: Not Optimal / Outside of Accepted Practice
- Rating 4: Not Acceptable Management / Gross Departure From Accepted Practice

Mortality Judgment Transition

- Past
 - Non Preventable
 - Potentially Preventable
 - Preventable
 - Opportunities
- ACS January 2012
 - Mortality Without Opportunities
 - Mortality With Opportunities

TEXAS

Mortality without Opportunity

Mortality with Trauma Center Opportunities

Mortality With Regional System Opportunities

TPIPS: Determination / Cause / Contributing Factors

- Provider Error
 - Diagnosis
 - Judgment
 - Technique
 - Communication
 - Hand-off
 - Patient Identification
 - Supervision
 - Protocol Compliance

TPIPS: Determination / Cause / Contributing Factors

- System Delays
 - Diagnosis
 - Activation
 - System Response
 - Technical
- Language
- Patient Cooperation

TPIPS: Prevention / Action Plan

- SMART GOALS
 - Specific
 - Measureable
 - Achievable
 - Relevant
 - Time-Bound

TPIPS: Prevention / Action Plan

- Monitor and Trend
- Corrective Actions
 - Guideline / Protocol Development or Revision
 - Process Improvement Team
 - Education
 - System Enhancement
 - Remediation / Counseling
 - System Root Cause Analysis
 - External Review

TPIPS: Multidisciplinary Peer Review

- Focus
 - Constructive
 - Education
 - Non Punitive
- Documentation
- Next Step
- Trauma Medical Director - LEADER

TPIPS: Case Reviews

- Leadership
- Professionalism
- Agent For Change
- Focus on Patient Care / Outcomes
- Fair Process
- Core Faculty / Liaisons

TPIPS: Loop Closure

- TPIPS Process Changed Outcomes
- Desired Measureable Difference Occurred
- Desired Effect Was Reached
- Rate of Occurrence Changed
- Compliance Achieved

- Defined By TMD / Committee

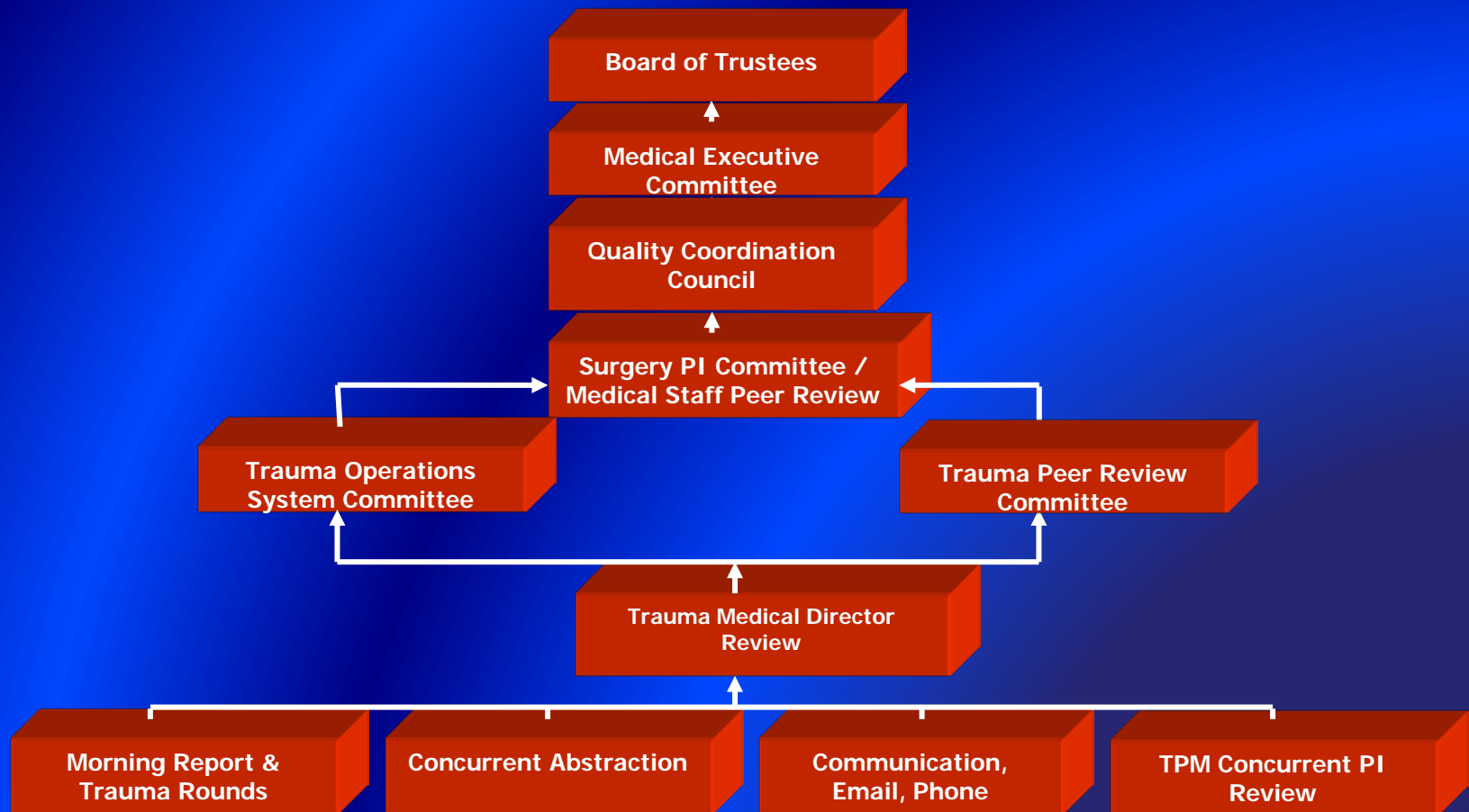
TPIPS: Reporting

- Reports To
- When
- Purpose
- Agenda / Timelines
- Confidentiality
- Hospital Integration
 - Automatic Referrals
 - Scheduled Reports
- Organizational Structure

TPIPS: Committee Structure

- Executive or Leadership Committee (System / Trauma Operations)
 - Aggregate Data
 - Trauma Center Criteria Compliance
 - Goals / Priorities
 - Updates
- Trauma Multidisciplinary Peer Review
 - Case Discussion
 - Notification
 - Documentation
 - Attendance
 - Confidentiality

Institutional Structure



Challenge

- Texas Level IV
 - May be a 12 Critical Access Hospital
 - May be a 700 Bed Facility In Downtown San Antonio / El Paso / Dallas
 - Structure Needs To Meets Goals of TPIPS
- May Be Two Meeting / **BACK to BACK**
 - Multidisciplinary
 - Peer Review

Reports – Multidisciplinary / System Trauma Operations

- Agenda
 - Welcome / Introduction
 - Minutes / Attendance
 - Statistical Report
 - Number of Activations (Activations Billed)
 - Number of Admissions
 - Number of Transfers
 - Distribution of Admissions
 - ISS Breakdown
 - Age Breakdown
 - Mechanism Breakdown
 - Dashboard
 - Trauma Center Criteria
 - Potential Criteria Deficiencies
 - Performance Improvement
 - Documentation
 - Activation Response Times
 - OR Response Times
 - Expiration Reviews
 - PI Summary - # cases reviewed, complication review,
 - Trauma Registry (number of registry inclusions, number cases completed within 60 days)
 - Trauma Outreach Education
 - Injury Prevention
 - Educational Requirements Met (TNCC/ATCN, ACLS, ENPC/PALS, TOPIC, AAIM, ATLS)
 - Continuing Educational Requirements Met
 - RAC Participation
 - Disaster Preparedness Activities
 - Reimbursement Grants

Agenda Continued

- Action Item Follow Up
- New Business
- Department Updates / Reports
- Celebrations
- Action Items
- Adjourn

TPIPS: System

- Local / Regional System
- Participation
- Trauma Center Designation Criteria
- EMS / Air-medical Communication
- Transfers / Diversions
- Registry Data or Statistical Information
- Emergency Preparedness & Planning
- HRSA Model Trauma System Plan

TPIPS: Summary

- Each PIPS Process Builds On The Other
- Breaks In System – Open Issues
- No Follow Through – Loops Not Closed
- PI Opportunity To Demonstrate Excellence in Care
 - Service Excellence
 - Financial Sound
 - Timely, Coordinated
- ACCOUNTABLE CARE
- The Way You Would Want To Be Treated

Where Do We Start

- Status of Facility
- State Trauma Facility Criteria
- What Must Be Met
 - Documented Consistent Evidence of Compliance to Essential Criteria
- Define Patient Population
 - All Trauma Admits
 - ED to OR, ICU, 72 hr LOS
 - ICD.9 800-959
 - Activity in ED, OR, ICU
 - EMS

Starting Process

- PI Plan – Tools / Forms (TOPIC)
- How Will Issues Be Identified / Investigated?
 - Rounding
 - Trauma Program Manger
 - Success Programs 1 FTE / 500 Admissions
- How Will Issues Be Prepared For Review? WHO
- What System Will Be Used For Closure, Action Plans, Tracking?
- What Structures Are In Place To Support Process?
- Who Defines When The Loops Are Closed?

TPIPS: Case Discussion

QUESTIONS

TPIPS LEVEL IV

- 1905: An 18 Y M arrives after being thrown from a horse. His family transports him. GCS is 9, BP is 102/62, HR is 120. He has an major laceration to his occipital area and his right leg is deformed and rotated.
- 1920: His head laceration is bleeding profusely.
- He states the horse stepped on his chest and abdomen.
- 1922: Trauma Activation is Initiated. ED Physician Present
- 1926 He drops his BP to 90/palp and HR increases to 128

TPIPS Level IV Trauma Center

- 1932: ED Physician Orders CT of head, chest, abdomen, pelvis and c-spine, plain films of femur
- 2015: Patient is Transported to CT
- 2020: Trauma Medical Arrives and recommends Patient be Transferred
- 2050 Injuries defined are a SDH, Rib Fx 4-8 on the left, HTX, Grade III Spleen, and distal fracture of the femur, which was defined as open
- 2055: Left Chest Tube Placed ED sutures the head laceration
- 2120: Splint Applied To Femur
- 2140: ED Physician Orders Two Units of Blood

Level IV Trauma Center

- 2130: Pain Medication Given
- 2150: Antibiotics Given
- Trauma Flow Sheet Not Used – Difficult to Trend Vital Signs
- 2218: Urinary Output Now Red – Blood Streaks
- 2220: Call To Transfer Patient
- 2230: Transfer Denied At First Facility – On Divert
- 2240: Call To Transfer
- 2245: Transfer Accepted
- 2320: Air Medical Present For Transfer

TPIPS LEVEL IV TRAUMACENTER

- What Issues Do You Define?
- What Are the Levels Of Review?
- How Do You Begin?

Practice Case #1

- Initial review of 30y old male hunting with friends sustained a GSW to the abdomen. He arrived with a BP of 60/palp, HR of 126 (faint) and a distended abdomen. He was moved emergently to the OR. Total time in ED was 25 minutes.
- TPI Findings:
 - Trauma Flow Sheet not used – Temp Not recorded
 - RTS / GCS not documented
 - Physician H&P not completed
- How is this processed?
 - TPM/TC TMD Full Meeting

Practice Case #2

- At 0010, An eighteen year old male arrives to the ED by private vehicle stating he was shot in the abdomen by an unknown assailant – weapon unknown. He is awake, alert, oriented. BP 100/54, HR 82, R 18. He has a small circular penetrating injury to the mid-abdomen. The ED completes a trauma activation. The ED physician orders a Chest X-Ray, Pelvis X-Ray and Cross-Type, to be followed with a CT scan of the abdomen.
- The patient becomes unstable in CT scan. The Trauma Surgeon arrives 0045. His V/S: HR 128, BP 90/50, T:36
- Trauma Surgeon asks for STAT blood in the resuscitation area 0050, blood is hung at 0115.
- The Trauma Surgeon states the patient needs to go to OR STAT. OR is notified. Patient is moved to the OR and skin is cut at 0200.
- OR defines a major liver injury, spleen injury and small bowel injury.

Continued

- Patient is admitted to the ICU. He received a total of six units of blood.
- He stabilizes on HD#3.
- Transferred to the floor on HD#4.
- Discharged on HD# 7.

- You review the case. What issues do you define?

Continued

- What levels of review are recommended?
- Standard of Care Met?
- Potential Actions?
- How do you know loop is closed?

Practice Case #3

- At 2140 you are notified the following patient is enroute to your facility, ETA 15 minutes. A twenty year old female from a MVC in which she was ejected. EMS found her unconscious, with multiple injuries to her head, chest, pelvic and lower extremities. She arrives at 2158. Level I activation is initiated on arrival. She is intubated, BP 60/palp, HR 136, R – BVM. She has a head injury and an unstable pelvis. You are 80 miles from the closest Level I /II trauma center. Two units of blood are ordered. She is sent for CT for head, chest, abdomen, pelvis. She continues to be unstable through scanning. Prior to completing the pelvis scan she drops her pressure. Request for transfer is initiated at 2350. She is hypothermic. Air medical crew is enroute with ETA of 35 minutes. Injuries identified on scan include subdural, HTX, spleen laceration, liver injury, questionable C3 fx, pelvic fx and bilateral femur fractures. Two units of blood are given. Two additional units are ordered. Chest tube is placed with 800 cc output.

Continued

- Air medical arrives at 0030. The patient has received 4 units of blood. BP remains 90/50. HR is 130. Two additional units of blood are ordered for transport. She is transferred at 0050.
- You review the case. What issues do you find?

Continued

- What levels of review should occur?
- Is The Standard of Care Met?
- Documentation – You find temp is not recorded during resuscitation, GCS, RTS not recorded. Only 5 sets of vital signs recorded. How is this processed.
- Action Plans?

Continued

- How do you define issues are closed?

CASE #4

- 0745, your ED is notified that a 7 year old male was struck by a car as he ran for the school bus. EMS states he was unresponsive at the scene. He is intubated, immobilized with one PIV. His BP is 110/74, HR is 112. EMS states he has obvious head, chest, and lower extremity injuries. They are approximately 20 minutes out.
- 0745, The ED physician on-call request an activation and notification of the air medical crew for the need to transfer. ETA is 20 minutes.

Continued

- 0746, ED Physician calls transfer line to initiate the request for transfer due to pediatric and multiple trauma.
- 0803, Patient arrives, intubated, pale, decreased breath sounds on the right, bleeding from significant scalp laceration, HR 120.
- 0810, ED confirms airway, places chest tube on right with 150 cc output. Requests blood and call to receiving trauma center.

Continued

- 0811, air medical crew arrives.
- 0812, receiving trauma center confirms transfer acceptance.
- 0830, patient is transferred after receiving blood, additional blood requested for transfer.
- You review case: findings:

Continued

- What are the levels of review?
- Was Standard of Care Met?
- Documentation – Trauma flow sheet complete, physician notes exceptional.
- Action Plan

QUESTIONS

- Resources ?
- www.facs.org
 - PIPS Resource Manual
 - NTDB Data Definitions
- www.east.org
 - Evidence Based Guidelines
- www.tetaf.org
- jorie.klein@phhs.org