Trauma Room Readiness: Project Report Out

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2024

Background and Problem Statement:
In April 2024, the Trauma PIPS program identified an opportunity to enhance the preparedness of trauma rooms for receiving critically ill patients. Through trauma video review (TVR) and patient case reviews, we discovered that trauma rooms often lacked optimal setup despite advance notice of high-acuity trauma arrivals. This lack of readiness led to uncoordinated patient care efforts and increased the time required to implement critical interventions.

Project AIM (goal statement)
Improve trauma room readiness for Red and Level 1 trauma activations with advanced notice by achieving 80% compliance for 4 out of 5 room readiness metrics—Bair Hugger activated, CPR board on bed, airway supplies prepared, Belmont primed, and PPE worn—by December 31, 2024.

Key Drivers and Interventions
- 7/2024: Collaborated with trauma centers nationwide to understand room readiness protocols, visual cues, and checklists.
- 8/2024: Worked with ED CCTRN's to review feedback from trauma centers and created an initial standardized checklist.
- 9/2024: Revised the checklist based on feedback, finalized it, and planned an educational rollout for staff.
- 10/2024: Conducted educational sessions for ED staff, CCTRN's, and trauma committee members on the checklist and readiness requirements.
- 10/18/2024: Implemented the trauma room readiness checklist and standardized practices

Key Measures	Definitions	Baseline	Goal	Progress
Process	80% of the time 4 out of 5 of the trauma room readiness metrics	40%	80%	76%

Project Results / Performance:

	Pre – 10/18/2024	Post 10/18/2024
Bair hugger on	49%	78%
Cpr board on bed	45%	75%
Airway supplies	47%	58%
Belmont primed	45%	38%
PPE worn	80%	88%
4/5 Metrics Met	40%	76%
5/5 Metrics Met	14%	37%

Summary:
Pre-implementation, 40% of trauma activations had 4 out of 5 room readiness metrics completed. Post-implementation, this rose to 76%. All metrics improved except for the Belmont priming, which dropped from 45% to 38%, likely due to observational limitations in video review.

Challenges and Barriers:
- Data gathered through video review was time-consuming due to insufficient staff. Additional efforts were needed to encourage ED RN and MD participation in the review process.

Lessons Learned and Next Steps:
- The data might not fully represent trauma room readiness due to visual field limitations during video review. We plan to implement collection and review of the trauma checklist for all trauma activations to improve data accuracy and to act as a reminder for bedside staff to complete all trauma room readiness tasks.
- Once process is in place for collection of the checklist the data will be reevaluate and next targeted interventions to help improve compliance with trauma room readiness if still falling below the benchmark.

Trauma Room Ready Checklist

Primary RN and/or CCTRN assigned responsibility

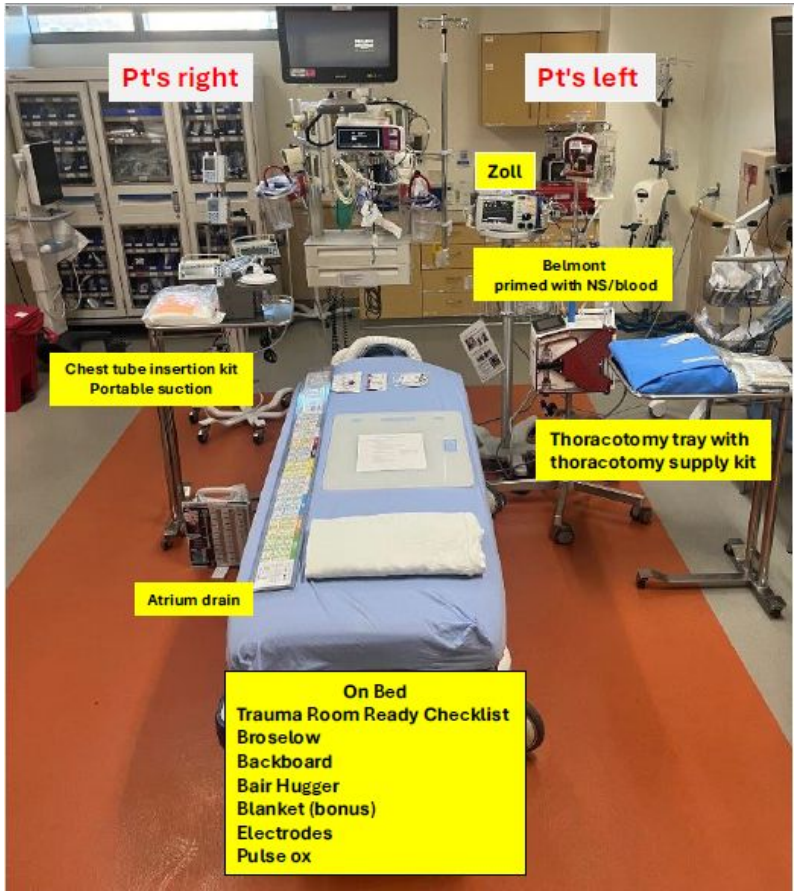
TRAUMA ROOM SET-UP

- ❑ Broselow on bed/zero bed
- ❑ Bair hugger open and attached to warmer
- ❑ Backboard – *assess necessity r/t chief complaint*
- ❑ Monitor turned on
  - Pulse ox
  - Electrodes
  - Appropriate age setting
- ❑ Appropriately sized cuff for manual BP
- ❑ Airways supplies (OPA, NPA, LMA, Intubation) if appropriate
- ❑ Appropriate O2 delivery device/ETCO2
- ❑ Suction ready
- ❑ Belmont/Life Flow primed with NS for ALL Trauma Reds
  - discuss need for blood products
- ❑ IV/IO supplies ready
  - (large bore Y-connector if blood products are anticipated)
- ❑ C-collar ready
- ❑ Ultrasound machine
- ❑ Zoll attached to appropriate size pads
- ❑ Major Trauma cart next to room

Airway & Breathing - Green
Circulation – Red
Disability - Blue

PREARRIVAL HUDDLE

- ❑ Summarize known injury details and demographics
- ❑ List interventions PTA
- ❑ Team introductions
- ❑ Role stickers
- ❑ Appropriate PPE
- ❑ Anticipated plan of care with priorities



Trauma Room Readiness Project

Children's Hospital Colorado

Western Pediatric Trauma Conference

COLUMBIA | SURGERY

PTC

A Hospital-Community Partnership Brings Stop the Bleed to a New York City High School Preparing Students for Pediatric Trauma Emergencies

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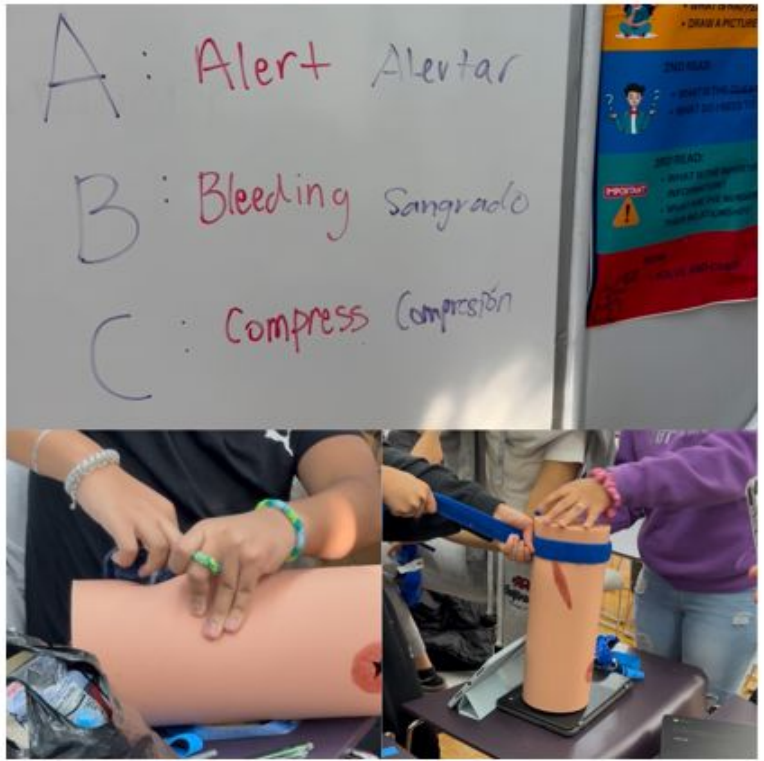
1. Columbia University Medical Center, Department of Surgery 2. Columbia University, Vagelos College of Physicians and Surgeons

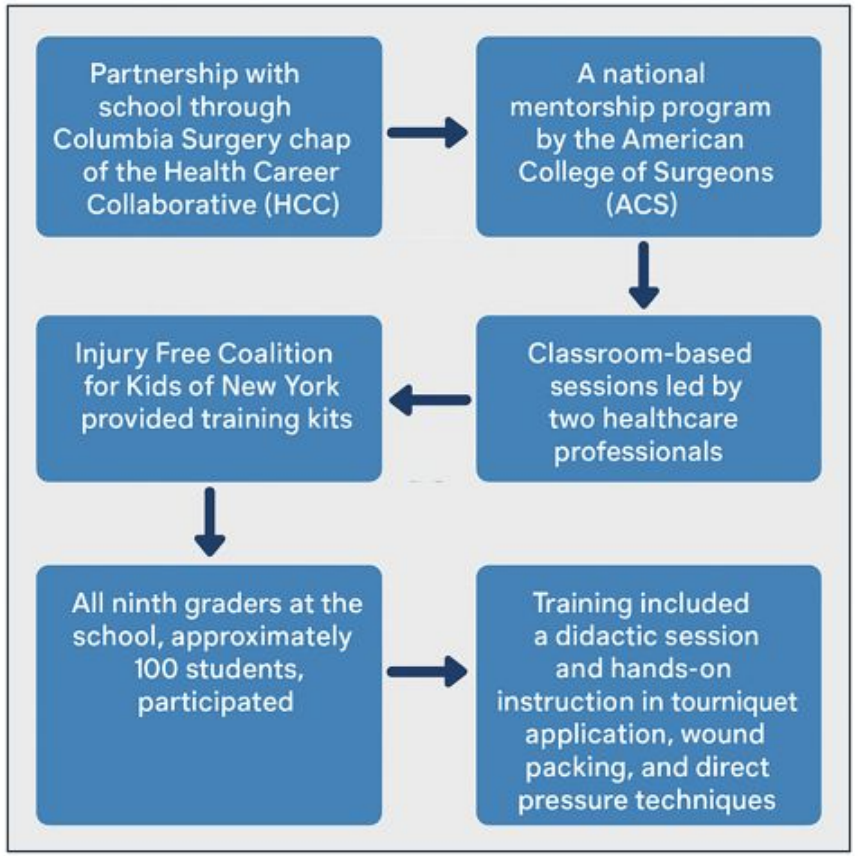
BACKGROUND

Trauma remains the leading cause of death in children and adolescents.

Columbia Surgery, **Injury Free Coalition for Kids**, and the **High School for Health Careers and Sciences** in Washington Heights partnered to bring Stop the Bleed training to students in New York City.



METHODS



This initiative highlights the vital role of hospital-community partnerships in pediatric injury prevention and affirms that students can effectively learn and apply hemorrhage control techniques.

RESULTS

All 100 students successfully demonstrated proficiency in Stop the Bleed techniques and reported feeling more prepared to respond to a bleeding emergency.

Given that Washington Heights has higher violent crime rates than many other NYC neighborhoods, these children face an increased risk of trauma-related injuries (2). Additionally, 96% of students come from low-income households, with many experiencing housing instability, food insecurity, and limited healthcare access (3). These factors emphasize the critical need for trauma preparedness initiatives in this community.

CONCLUSION

By successfully integrating Stop the Bleed into the school curriculum, we have established a scalable model for hospital-community partnerships in pediatric injury prevention. Future efforts will focus on expanding this program to additional NYC schools, further strengthening trauma preparedness among children in high-risk environments within our city.

Reducing Interfacility Transfers: Complex Laceration Repair by Emergency Department Advance Practice Providers

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BACKGROUND:

Facial lacerations in the pediatric trauma population account for up to 3.5 % of our visits monthly. A small percentage of the laceration are complex and have historically required Otolaryngology (ENT) or Plastic Surgeon repair. Primary Children's Hospital opened a second location in February 2024 known as the Primary Children's Hospital Miller Campus (Miller Campus). Due to different availability of subspecialty access at this site, including ENT and Plastic Surgeon, we determined a need for improving repair of the more complex lacerations in our Emergency Department (ED) to avoid patient transfer. These complex lacerations would be completed by the ED Advance Practice Practitioners (APPs) with outpatient wound check by ENT and Plastic Surgery to insure optimal outcome. Our goal was to decrease the number of transfers for complex lacerations while maintaining appropriate cosmetic outcomes.

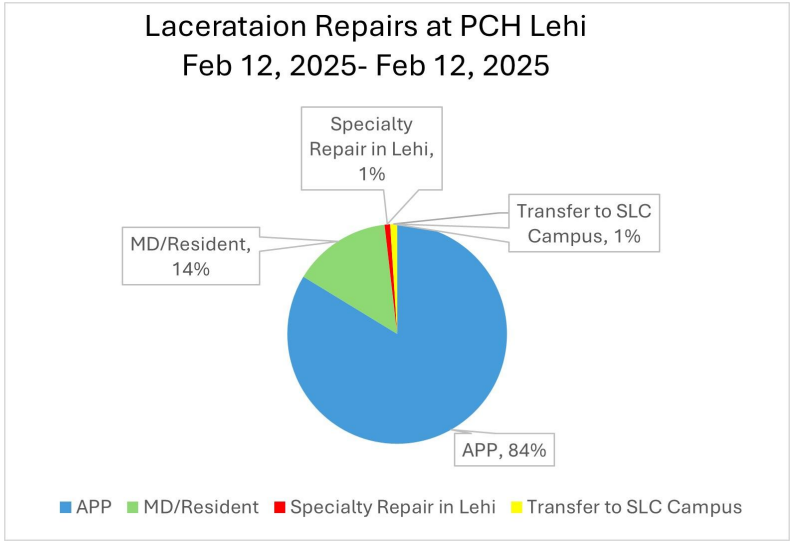
METHODS:

We maintained a list of pediatric patients (<18 years of age) presenting to Miller Campus secondary to facial trauma between February 2024 and February 2025 who would have historically required ENT or Plastic surgery repair due to complexity.

We confirmed that these patients had follow up in the ENT and Plastic surgery prior tot discharge from the ED. We reviewed the patient chart, focusing on and discussion of revision or concerns with healing.

RESULTS:

Since the opening of the Miller Campus approximately 18,599 patients have been evaluated and treated. Of those 489 have a degree of facial trauma requiring laceration repairs. Of these repairs 5 (1%) required transfer to the Salt Lake Campus. 411 (84.1%) were repaired by the ED APP, 71 (14.5%) were repaired by an ED Attending/Resident , and 7 (1.4%) of those being repaired by the ED APP with specialist phone consultation and instructions for clinic follow up. Of the seven lacerations that required specialist consultation, three complied with outpatient follow up instructions and received positive feedback from our ENT and Plastic Surgery teams with no recommendations for laceration revision.



DISCUSSION:

ED APPs can effectively manage complex pediatric facial lacerations, significantly reducing the need for transfer to a tertiary care center. This change has allowed for more efficient use of healthcare resources while minimizing disruption to families by keeping care local.

The high percentage of successful repairs (98%) completed on-site, with minimal transfers (1%) and specialist involvement (1%), demonstrates the APPs' ability to assess and manage cases traditionally referred to ENT or Plastic Surgery. Additionally, the positive feedback from follow-up visits reinforces the safety and cosmetic adequacy of APP-performed repairs.

CONCLUSION:

By expanding the scope of complex laceration repair completed by ED APP -we successfully reduced unnecessary patient transfers while maintaining high standards of care and cosmetic outcomes.

This model demonstrates that with proper training and follow-up protocols, APPs can safely and effectively manage cases that previously required specialty consultation—improving patient experience, reducing healthcare costs, and optimizing resource utilization across pediatric emergency departments.

Western Pediatric Trauma Conference

Post-Traumatic Acute Stress Risk Screening in Pediatric Trauma Patients: Best-Practices for Screening Implementation

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Background

- Pediatric trauma patients are at increased risk of developing post-trauma mental health conditions.
- American College of Surgeons recommends universal acute stress response screening.
- Universal acute stress response screening was implemented at two pediatric trauma centers as an APP lead initiative.
- Here, we describe the implementation of post-trauma screening at two pediatric trauma centers, with an evaluation of barriers and facilitators to successful implementation.

Methods

- Retrospective analysis of pediatric trauma patients, aged 4-18 years
- Primary Children's (Lehi) inclusion dates: 2/2024 to 12/2024
- Primary Children's (SLC) inclusion dates: 8/2024 and 12/2024
- Patients identified in our institutional trauma registry
- Primary outcome: rates of successful screening

Results

- 112 total trauma patients treated at the Lehi campus and 181 treated at the Salt Lake City campus, with 58.92% and 41.44% receiving post-trauma mental health screening, respectively.
- Facilitators: APP-led implementation, institutional buy-in
- Barriers: increased work-burden for APPs prior to discharge, significant manual data entry burden, insufficient time to address sensitive topics, technological barriers, difficulty ensuring appropriate post-trauma mental health follow-up for those screening at high-risk

Table 1: Pediatric Trauma Patient Screening Cohort

	Lehi Primary Children's Pediatric Trauma Center	Salt Lake City Primary Children's Pediatric Trauma Center
Timeframe	2/2024 - 12/2024	8/2024 - 12/2024
Total # trauma patients	112	181
Total # screened	66	75
Percent captured by screening	58.92%	41.44%

Conclusions

- Initial screening did not meet goal implementation of 80% capture.
- Success of initial implantation of Acute Stress Risk screening limited by significant barriers.
- Continued analysis of implementation rates is required to address discrepancies and reach the goal rate.
- Recommend dedicated trauma social worker to address barriers to implementation and offer immediate intervention and referral.

No disclosures to report

Nutrition Guideline for Pediatric Trauma Patients

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Trauma Program, Primary Children's Hospital

Background

- No nutrition guideline for trauma patients at Primary Children's Hospital
- Variability in NPO times, feeding initiation and continuation
- No standardization for stopping post-pyloric feeds pre-procedure
- Suboptimal nutrition for trauma patients

Methods

- Multi-team collaboration (trauma team, anesthesiologists & PICU) provided input and recommendations
- Established goals for ICU patients
- Standardized pre-operative plan for post-pyloric feedings
- Created a guideline
- Implemented with education and distributed to all departments

Nutrition Guidelines: Pediatric General Surgery & Trauma Service

GENERAL:

- Feeding the intestine/enteral feedings are preferred feeding plan
- Ok for necessary PO/enteral medication w/ sip of water or small flush when NPO
- TPN should be delayed for at least 7 days
- Start trophic feedings ASAP and at least by day 5 for trauma patients
- Ok to start trophic feedings in open abdomen
- Ok to start trophic feedings if on low dose pressor support
- ICU patients need dietician assessment within 48 hrs of admission
- Bowel prep patients will be clears only until midnight then NPO at midnight
- Surgeon preference and specific planning should always be followed for individualized patients

POSTPYLORIC FEEDINGS/NJ/GJ: *consider if planning multiple trips to the operating room*

- Order portable KUB for the morning of planned surgery
- If NJ placement confirmed to be post-pyloric continue feedings and turn off right before leaving for surgery
- Page scheduled anesthesiologist that KUB confirms placement and feedings will be running
- If NJ placement is not confirmed to be post-pyloric, follow guidelines for same day procedures and troubleshoot placement if concerned to feed into stomach

FEEDING ORDERS

Next Day Planned Procedures	• Change to human milk or clear diet day of surgery at 0100 • Human milk allowed until 0300 • Clear diet allowed until 0500 • NPO at 0500
Emergent Same Day Procedures	• Regular diet/feedings until 6 hrs before OR time • Human milk allowed until 4 hrs before OR time • Clear diet allowed until 2 hrs before OR time • If OR time unknown, make NPO now

Intermountain Children's Health
Primary Children's Hospital

Review: K. Russell, R. Swendiman, K. Barnes, J. Smith, K. Page , E. Buell — *2017 Nilesh et all. Journal of Nutrition* — 11/2024

Results

- Guideline implemented in Nov 2024
- Implementation provided clarity on nutrition goals and expectations
- Incorporated discussion regarding nutrition plan into daily rounds
- Emphasized early initiation of feeds

Conclusions

- Guideline resulted in standardized practices which encourage early initiation of feedings and reduce NPO time peri-operatively
- ICU patients benefiting from continued peri-operative post-pyloric feeds
- Positively impacting the pediatric trauma population and supporting their recovery

Next step: evaluate pre- and post-implementation outcomes

Disclosures: none to report

Trauma Video Review: Does it Improve Efficiency and Communication in the Trauma Bay?

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[b]University of Utah Health

Trauma Resuscitation requires a standardized approach to ensure the timely identification and treatment of life-threatening, or life-altering injuries

December 2024: Trauma Program Managers Implemented Video Review of TR-1 Activations

- Objective scoring tool based on current posted PAR and Huddle cards. *Focused on Efficiency and Communication.*
- Each resuscitation is scored out of 35 points.
- Determined baseline average.

January 2025: Trauma Video Review Conference started

- Monthly
- Run by Trauma Medical Director
- Guided review of 1-2 recent trauma activations.
- Successes and opportunities for improvement are highlighted and discussed.

TRAUMA PAR	
TIME OUT	Introductions, blood, present case, anticipate plan
PRIMARY SURVEY (2 MIN)	A: Talking, airway intact or intubated and ETT present, c-collar in place (HOB MD holds c-spine) B: Breath sounds equal C: Strong femoral pulse (radial ok if GCS 15), IV access D: PERRL, GCS, moving ext x 4 (HOB – GCS & pupils) E: Expose EVERYTHING and warm blankets
VITALS	Manual blood pressure in addition to monitors
If ANYTHING abnormal above → STOP to address (intubation, procedures) *You only roll during primary IF on a backboard or with penetrating trauma (make note of ALL bullet holes) *RNs should be working on 2 large bore IVs, labs, and ABOR2	
REPORT & Chest XRAY	Team leader needs to look at CXR Pelvis XR if concern, can also get femur XRs
SECONDARY SURVEY	HOB MD should assess head (hematoma, blood at TMS) Neck: Trachea midline Arms: Atraumatic Chest: Clavicles stable, no crepitus Abdomen: Soft, nondistended, no seatbelt sign Pelvis: Stable Legs: Atraumatic, pedal pulses Back: No step off, no deformity, no pain, rectal deferred unless concern for pelvic fx or paralysis We DO NOT have patient squeeze their butt cheeks
Review Labs. Trauma Huddle (see other side)	

TRAUMA HUDDLE:	To review what has been done in each category and what you MAY need to consider before proceeding
PRIMARY FINDINGS & INTERVENTIONS	Include GCS
RADIOLOGY PLAN	Consider: CTA – Max/Face – Bladder Delays
LINES	Large bore for CT - Consider: NG – Foley - Chest Tubes (Suction) – Art Line
LABS	ABOR2 – Respiratory Screening Sent Consider: Tox Screen – Abdominal Urine Tests – Repeat Labs
RESUSCITATION REVIEW & NEXT STEPS	Any Fluids or Blood Needed? Ongoing gtts? Determine Blood Disposition
MEDICATIONS	Consider: Antibiotics – Tetanus – Pain Medication in CT
CONSULTANTS	Consider: PICU – OR - Subspecialists
DISPOSITION	Consider: Procedures – OR vs ED Sedation
EXCUSE STAFF	Consider: Pharmacy – PICU – RT – Phlebotomy - OR

Primary Children's Trauma Video Review

Patient:	Alias:	Date:	IMT #:
TR1 ○ TR-2 ○ TR-3 ○ Page Time:	ETA:	Arrival:	EMS Agency:
Trauma Page:			
Pre-Arrival:			

	Y/N/NA	Time	Comments:
Trauma Time Out			Time: Performed by:
• Introductions & Roles			
○ Team Leader			
○ Primary Survey			
○ Secondary Survey			
○ Head of Bed			
• Badged In			
• Case Presentation			
• Plan			
Transfer to Gurney			Time: Performed by:
• Provider at Head of Bed			
Primary Survey & Resuscitation			Time: Performed by:
• Airway			
○ Intubated, ETCO2			
• Breathing			
• Circulation			
○ Pulses			
○ Access			
• Disability			
○ GCS			
○ Pupils			
• Exposure			
Adjuncts			Time: Performed by:
• Labs, Istat, ABOR2			
• Remove Backboard			
• CXR			
EMS Report			Time: Performed by:
• MIST Format Length:			
Secondary Survey			Time: Performed by:
• HEENT			
• Neck, C-collar			
• Chest			
• Abdomen			
• Pelvis			
• GU			
• Extremities			
• Back			
Trauma Huddle			Time: Performed by:
• Trauma Eval Findings			
• Plan of Care			
• Disposition			
• Blood Products Disposition			

Imaging:	Time:	
Consults:	Time:	
Misc:		
Disposition:	Time:	Total Trauma Time:

Trauma PAR Score	Score	Comments
• Trauma Timeout	/8	
• Transfer to Gurney	/1	
• Primary Survey & Resuscitation	/10	
• Adjuncts	/3	
• EMS Report	/1	
• Secondary Survey	/8	
• Trauma Huddle	/4	
Total Score (35 Pts):		
Reviewed By:		Date:

GOAL: Anticipate the average scores for trauma resuscitations will increase with the implementation of monthly video review conference.

Current Status:

- Held 5 Conferences
  - 20-30 Attendees: ED Attendings, PEM Fellows, Trauma APPs, Trauma Surgeons
- Examples of Opportunities for Improvement
  - Blood Handoff
  - Staff Roles During Procedures
  - Patients Arriving Without Prior Notification