Appendix 3

Department of Defense Trauma Registry

General

Evidence-based medicine allows for identification of best practices and the timely formulation of clinical practice guidelines. Unfortunately, because of the realities of combat trauma, timely and accurate data collection and interpretation of results are difficult. Quality information on casualties for combatant commanders is essential because it facilitates optimal placement, utilization, and resupply of scarce medical resources, and rapid identification of new trends in wounding, prevention, and treatment. Timely, accurate, aggregated theater information is necessary to shorten quality improvement cycles and improve outcomes.

Furthermore, aggregation, evaluation, and reporting of these data provide rapid feedback for providers across the entire chain of care and evacuation in the Joint Trauma System (JTS). Application of these principles to the battlefield, using a set of jointly approved data elements as a means to drive concurrent performance improvement within the JTS, has been a major advancement of the recent conflicts in Afghanistan and Iraq. This effort has led to the adaption of technology and the training of specialists to serve the mission of timely and accurate collection of combat injury data. The trauma documentation tool that facilitates this process should be used as the trauma medical record (for both battle and nonbattle injuries) and should accompany the casualty throughout the chain of care and evacuation.

Situational Awareness

The revolution in warfighting that has digitized the battlefield to display friendly positions, intelligence, and engagements electronically has not been equally applied to the casualty care side of the equation. This places demands on medical organizations to provide online and continuously updated status and location information on killed, wounded, ill, and psychologically impaired combatants and noncombatants, including both the casualty loss to the unit and the return-to-duty patient. This need will only escalate as medical situational awareness plays an increasing role in the tactical risk assessment process. At a minimum, commanders should be able to assess the case fatality rate (CFR; fraction of an exposed group—all those wounded in action [WIA] who die—a measure of the lethality of the battlefield; the calculation includes those WIA individuals who are returned to duty [RTD]), percentage killed in action (KIA; died before reaching medical care/force wounded), and percentage died of wounds (DOW; died after reaching medical care/force wounded) in order to measure risk associated with operations and the capability of the medical force to control mortality.

$$\text{CFR} = \frac{(\text{KIA} + \text{DOW})}{(\text{KIA} + \text{WIA})} \times 100$$

$$\%\text{KIA} = \frac{(\text{Deaths before MTF})}{\text{KIA} + (\text{WIA} - \text{RTD})} \times 100$$

$$\%\text{DOW} = \frac{(\text{Deaths after MTF})}{(\text{WIA} - \text{RTD})} \times 100,$$

where MTF is defined as medical treatment facility or any fixed facility with a medical provider.

Categorization of casualties by type and distribution of injury within the major body regions (ie, face, head and neck, chest, abdomen and pelvis, upper and lower extremities, and skin) enables analysis of injury patterns and assessment of injury severity that can be utilized to design prevention applications

and care interventions, thus decreasing the burden of injury, morbidity, and mortality.

Other Uses

Data on types of wounds, their causes, and appropriate procedures have potential value in constructing predictive models for medical force development and placement, logistical delivery systems, and research on improved medical and surgical interventions and prevention. The history of improvements in medicine and surgery is grounded on the battlefield, and dissemination should not be limited to the isolated innovator with a personal spreadsheet for documentation. Individual providers at individual medical treatment facilities have long recorded clinical data and observations. This Department of Defense Trauma Registry (DoDTR) is an organized and coordinated effort to facilitate documentation of information that is aggregated into the registry that provides the means to better understand the effectiveness of prevention measures and casualty care, as well as the burden of injury, morbidity, and mortality in a population.

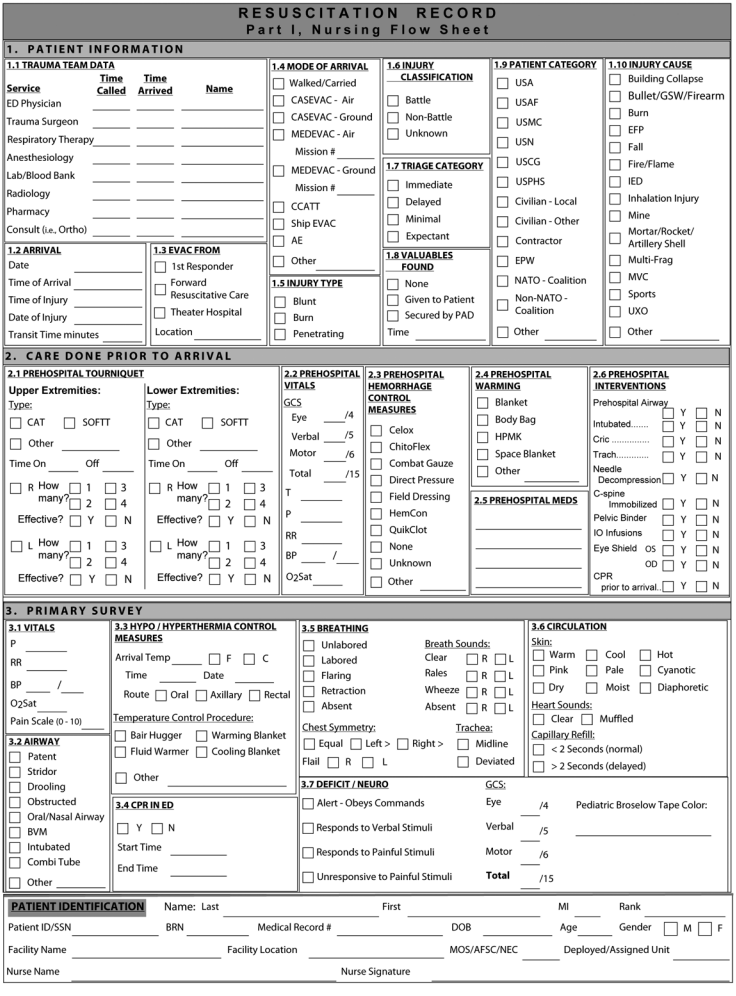
Minimum Essential Data

In addition to recording the standard contents of the postprocedure note (ie, who did what, on whom, why, and a plan), the standard data components of a trauma registry are especially helpful (eg, demographics, circumstance and mechanism of injury, injury severity, prehospital monitoring and care, hospital monitoring and care, outcome, participants, direct assessment against standards). Figure A3-1 is a sample of the form that serves as both the trauma medical record and as a source for data capture. The minimum essential elements present on this form have been agreed upon by the US Army, the US Air Force, and the US Navy; official Department of Defense (DoD) forms are pending. Data are collated into the registry, evaluated, and reported by the JTS.

Recommended Methods and Technology

The process to document emergency trauma care can be used on either the immature or mature battlefield. This would entail utilizing paper or computer-assisted electronic technology, respectively. In the ideal environment, this would be a single-step

process. Reality is much different. It is important to recognize that documentation should occur across the chain of care and evacuation, whereas aggregation of data should occur at the first level of care that can support such activity. At a minimum, paper



RESUSCITATION RECORD
Part I, Nursing Flow Sheet

1. PATIENT INFORMATION

1.1 TRAUMA TEAM DATA

Service	Time Called	Time Arrived	Name
ED Physician			
Trauma Surgeon			
Respiratory Therapy			
Anesthesiology			
Lab/Blood Bank			
Radiology			
Pharmacy			
Consult (i.e., Ortho)			

1.2 ARRIVAL
Date
Time of Arrival
Time of Injury
Date of Injury
Transit Time minutes

1.3 EVAC FROM
☐ 1st Responder
☐ Forward Resuscitative Care
☐ Theater Hospital
Location

1.4 MODE OF ARRIVAL
☐ Walked/Carried
☐ CASEVAC - Air
☐ CASEVAC - Ground
☐ MEDEVAC - Air
Mission #
☐ MEDEVAC - Ground
Mission #
☐ CCATT
☐ Ship EVAC
☐ AE
☐ Other

1.5 INJURY TYPE
☐ Blunt
☐ Burn
☐ Penetrating

1.6 INJURY CLASSIFICATION
☐ Battle
☐ Non-Battle
☐ Unknown

1.7 TRIAGE CATEGORY
☐ Immediate
☐ Delayed
☐ Minimal
☐ Expectant

1.8 VALUABLES FOUND
☐ None
☐ Given to Patient
☐ Secured by PAD
Time

1.9 PATIENT CATEGORY
☐ USA
☐ USAF
☐ USMC
☐ USN
☐ USCG
☐ USPHS
☐ Civilian - Local
☐ Civilian - Other
☐ Contractor
☐ EPW
☐ NATO - Coalition
☐ Non-NATO - Coalition
☐ Other

1.10 INJURY CAUSE
☐ Building Collapse
☐ Bullet/GSW/Firearm
☐ Burn
☐ EFP
☐ Fall
☐ Fire/Flame
☐ IED
☐ Inhalation Injury
☐ Mine
☐ Mortar/Rocket/Artillery Shell
☐ Multi-Frag
☐ MVC
☐ Sports
☐ UXO
☐ Other

2. CARE DONE PRIOR TO ARRIVAL

2.1 PREHOSPITAL TOURNIQUET
Upper Extremities: Type: ☐ CAT ☐ SOFTT ☐ Other
Time On ____ Off ____
☐ R How many? ☐ 1 ☐ 2 ☐ 3 ☐ 4 Effective? ☐ Y ☐ N
☐ L How many? ☐ 1 ☐ 2 ☐ 3 ☐ 4 Effective? ☐ Y ☐ N
Lower Extremities: Type: ☐ CAT ☐ SOFTT ☐ Other
Time On ____ Off ____
☐ R How many? ☐ 1 ☐ 2 ☐ 3 ☐ 4 Effective? ☐ Y ☐ N
☐ L How many? ☐ 1 ☐ 2 ☐ 3 ☐ 4 Effective? ☐ Y ☐ N

2.2 PREHOSPITAL VITALS
GCS Eye ___/4 Verbal ___/5 Motor ___/6 Total ___/15
T
P
RR
BP ___/___
O2Sat

2.3 PREHOSPITAL HEMORRHAGE CONTROL MEASURES
☐ Celox
☐ ChitoFlex
☐ Combat Gauze
☐ Direct Pressure
☐ Field Dressing
☐ HemCon
☐ QuikClot
☐ None
☐ Unknown
☐ Other

2.4 PREHOSPITAL WARMING
☐ Blanket
☐ Body Bag
☐ HPMK
☐ Space Blanket
☐ Other

2.5 PREHOSPITAL MEDS

2.6 PREHOSPITAL INTERVENTIONS
Prehospital Airway ☐ Y ☐ N
Intubated ☐ Y ☐ N
Cric ☐ Y ☐ N
Trach ☐ Y ☐ N
Needle Decompression ☐ Y ☐ N
C-spine Immobilized ☐ Y ☐ N
Pelvic Binder ☐ Y ☐ N
IO Infusions ☐ Y ☐ N
Eye Shield OS ☐ Y ☐ N
OD ☐ Y ☐ N
CPR prior to arrival ☐ Y ☐ N

3. PRIMARY SURVEY

3.1 VITALS
P
RR
BP ___/___
O2Sat
Pain Scale (0 - 10)

3.2 AIRWAY
☐ Patent
☐ Stridor
☐ Drooling
☐ Obstructed
☐ Oral/Nasal Airway
☐ BVM
☐ Intubated
☐ Combi Tube
☐ Other

3.3 HYPO / HYPERTHERMIA CONTROL MEASURES
Arrival Temp ___ ☐ F ☐ C
Time ___ Date ___
Route ☐ Oral ☐ Axillary ☐ Rectal
Temperature Control Procedure:
☐ Bair Hugger ☐ Warming Blanket
☐ Fluid Warmer ☐ Cooling Blanket
☐ Other

3.4 CPR IN ED
☐ Y ☐ N
Start Time
End Time

3.5 BREATHING
☐ Unlabored
☐ Labored
☐ Flaring
☐ Retraction
☐ Absent
Breath Sounds:
Clear ☐ R ☐ L
Rales ☐ R ☐ L
Wheeze ☐ R ☐ L
Absent ☐ R ☐ L
Chest Symmetry:
☐ Equal ☐ Left > ☐ Right >
Flail ☐ R ☐ L
Trachea:
☐ Midline ☐ Deviated

3.6 CIRCULATION
Skin:
☐ Warm ☐ Cool ☐ Hot
☐ Pink ☐ Pale ☐ Cyanotic
☐ Dry ☐ Moist ☐ Diaphoretic
Heart Sounds:
☐ Clear ☐ Muffled
Capillary Refill:
☐ < 2 Seconds (normal)
☐ > 2 Seconds (delayed)

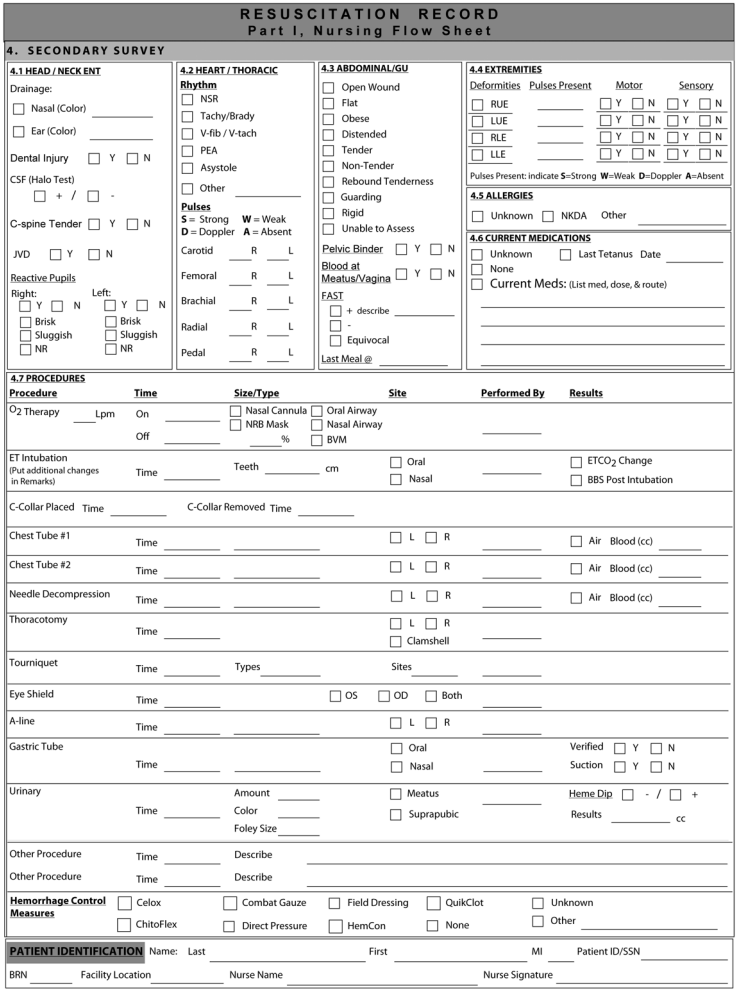
3.7 DEFICIT / NEURO
☐ Alert - Obeys Commands
☐ Responds to Verbal Stimuli
☐ Responds to Painful Stimuli
☐ Unresponsive to Painful Stimuli
GCS:
Eye ___/4
Verbal ___/5
Motor ___/6
Total ___/15
Pediatric Broselow Tape Color:

PATIENT IDENTIFICATION
Name: Last First MI Rank
Patient ID/SSN BRN Medical Record # DOB Age Gender ☐ M ☐ F
Facility Name Facility Location MOS/AFSC/NEC Deployed/Assigned Unit
Nurse Name Nurse Signature

Resuscitation Record *continues*

Fig. A3-1. Sample resuscitation record.

documentation should be used for each casualty, and the chart should accompany the patient to the rear as evacuation occurs. When effective electronic records are available, this process will be expedited and simplified.Bis doleceped ex et qui am untiati blab inis untior rest arum exerspi catquat eossi que volor mintis



RESUSCITATION RECORD
Part I, Nursing Flow Sheet

4. SECONDARY SURVEY

4.1 HEAD / NECK ENT

Drainage:
☐ Nasal (Color) _____
☐ Ear (Color) _____

Dental Injury ☐ Y ☐ N

CSF (Halo Test)
☐ + / ☐ -

C-spine Tender ☐ Y ☐ N

JVD ☐ Y ☐ N

Reactive Pupils

Right:	Left:
☐ Y ☐ N	☐ Y ☐ N
☐ Brisk	☐ Brisk
☐ Sluggish	☐ Sluggish
☐ NR	☐ NR

4.2 HEART / THORACIC

Rhythm
☐ NSR
☐ Tachy/Brady
☐ V-fib / V-tach
☐ PEA
☐ Asystole
☐ Other _____

Pulses
S = Strong **W** = Weak
D = Doppler **A** = Absent

Carotid	R	L
Femoral	R	L
Brachial	R	L
Radial	R	L
Pedal	R	L

4.3 ABDOMINAL/GU

☐ Open Wound
☐ Flat
☐ Obese
☐ Distended
☐ Tender
☐ Non-Tender
☐ Rebound Tenderness
☐ Guarding
☐ Rigid
☐ Unable to Assess

Pelvic Binder ☐ Y ☐ N

Blood at Meatus/Vagina ☐ Y ☐ N

FAST
☐ + describe _____
☐ -
☐ Equivocal

Last Meal @ _____

4.4 EXTREMITIES

Deformities	Pulses Present	Motor		Sensory	
☐ RUE	_____	☐ Y	☐ N	☐ Y	☐ N
☐ LUE	_____	☐ Y	☐ N	☐ Y	☐ N
☐ RLE	_____	☐ Y	☐ N	☐ Y	☐ N
☐ LLE	_____	☐ Y	☐ N	☐ Y	☐ N

Pulses Present: indicate **S**=Strong **W**=Weak **D**=Doppler **A**=Absent

4.5 ALLERGIES

☐ Unknown ☐ NKDA Other _____

4.6 CURRENT MEDICATIONS

☐ Unknown ☐ Last Tetanus Date _____
☐ None
☐ Current Meds: (List med, dose, & route)

4.7 PROCEDURES

Procedure	Time	Size/Type	Site	Performed By	Results
O_2 Therapy ___Lpm	On _____	☐ Nasal Cannula ☐ Oral Airway ☐ NRB Mask ☐ Nasal Airway ____% ☐ BVM		_____	
	Off _____				
ET Intubation (Put additional changes in Remarks)	Time _____	Teeth _____ cm	☐ Oral ☐ Nasal	_____	☐ $ETCO_2$ Change ☐ BBS Post Intubation
C-Collar Placed Time _____	C-Collar Removed Time _____				
Chest Tube #1	Time _____	_____	☐ L ☐ R	_____	☐ Air Blood (cc) _____
Chest Tube #2	Time _____	_____	☐ L ☐ R	_____	☐ Air Blood (cc) _____
Needle Decompression	Time _____	_____	☐ L ☐ R	_____	☐ Air Blood (cc) _____
Thoracotomy	Time _____		☐ L ☐ R ☐ Clamshell	_____	
Tourniquet	Time _____	Types _____	Sites _____	_____	
Eye Shield	Time _____		☐ OS ☐ OD ☐ Both	_____	
A-line	Time _____	_____	☐ L ☐ R	_____	
Gastric Tube	Time _____	_____	☐ Oral ☐ Nasal	_____	Verified ☐ Y ☐ N Suction ☐ Y ☐ N
Urinary	Time _____	Amount _____ Color _____ Foley Size _____	☐ Meatus ☐ Suprapubic	_____	Heme Dip ☐ - / ☐ + Results _____ cc
Other Procedure	Time _____	Describe _____			
Other Procedure	Time _____	Describe _____			

Hemorrhage Control Measures
☐ Celox ☐ Combat Gauze ☐ Field Dressing ☐ QuikClot ☐ Unknown
☐ ChitoFlex ☐ Direct Pressure ☐ HemCon ☐ None ☐ Other _____

PATIENT IDENTIFICATION Name: Last _____ First _____ MI ____ Patient ID/SSN _____

BRN _____ Facility Location _____ Nurse Name _____ Nurse Signature _____

Resuscitation Record *continues*

RESUSCITATION RECORD
Part I, Nursing Flow Sheet

4. SECONDARY SURVEY, continued

4.8 INTUBATION MECH/VENT

Time
MODE:
FiO_2:
RATE:
PEEP:
TV:

4.9 ABGs / VBGs

	Time	FiO_2	pH	pCO_2	pO_2	BE	HCO_3	SAT
☐ ABG or ☐ VBG								
☐ ABG or ☐ VBG								
☐ ABG or ☐ VBG								
☐ ABG or ☐ VBG								
☐ ABG or ☐ VBG								

4.10 INTRAVENOUS ACCESS AND FLUIDS

Time	Rate	Gauge	Site	IVF Type	Amount Up	Amount In	Stop

Total Amount Infused:

4.11 BLOOD PRODUCTS

Unit #	Type	Start	Stop	Volume	Initials

4.12 MEDICATIONS

Drug	Dose	Route	Time	Initials

4.13 VITAL SIGNS

Time	GCS	BP	P	RR	Temp	SaO_2	Pain Scale (0-10)	Other (ICP)

4.14 LABS

Time Test
_____ CBC
_____ ABG
_____ VBG
_____ Chemistry
_____ PT/PTT
_____ TEG
_____ H&H
_____ INR
_____ T&S
_____ T&C x ____
_____ UA
_____ HCG
_____ Other
Specify Other: _____

4.15 CT

Type Time
☐ Head
☐ C-Spine
☐ Chest
☐ Abd
☐ Pelvis
☐ Pan Scan*

* Select Pan Scan only if all of the above requested

4.16 X-RAY

Type Time
☐ C-Spine
☐ Chest
☐ Abd
☐ Pelvis
☐ Ext
☐ RUE ☐ LUE
☐ RLE ☐ LLE

4.17 DISPOSITION Date: Time:

Admit
☐ OR ☐ ICU ☐ ICW

RTD
☐ Full ☐ Quarters ☐ Profile
☐ RTD Unit:

RTD Mode of Transport:
☐ Ambulatory ☐ W/C

Evac to ☐ Host Nation ☐ Coalition ☐ CASF
Facility Name:

Evac Priority ☐ Routine ☐ Priority ☐ Urgent

Evac Transport Vehicle
MEDEVAC: ☐ Rotary Wing - ☐ MedTech ☐ Critical Care
☐ Fixed Wing - ☐ AE ☐ CCATT
Ground: ☐ Medical ☐ Non-Medical

Evac Mode of Transport ☐ Ambulatory ☐ W/C
☐ Litter ☐ Vacuum Spine Board

4.18 DEATH INFORMATION

Time of Death _____ Mortuary Affairs Notified? ☐ Y ☐ N Time to Morgue _____

Death Remarks _____

4.19 REMARKS

PATIENT IDENTIFICATION Name: Last _____ First _____ MI ____ Patient ID/SSN _____

BRN _____ Facility Location _____ Nurse Name _____ Nurse Signature _____

Resuscitation Record *continues*

RESUSCITATION RECORD
Part II, Physician H&P

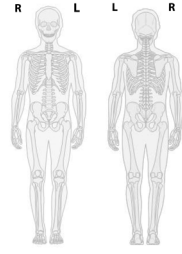
1. HISTORY & PHYSICAL - INJURY DESCRIPTION

1.1 ARRIVAL
Date _____
Time of Arrival _____

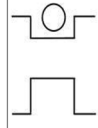
1.2 TRIAGE CATEGORY
☐ Immediate
☐ Delayed
☐ Minimal
☐ Expectant

1.3 CHIEF COMPLAINT, HISTORY AND PRESENTING ILLNESS

1.4 INJURY DESCRIPTION
(**AB**)rasion
(**AMP**)utation
(**AV**)ulsion
(**BL**)eeding
(**B**)urn %TBSA_____
(**C**)repitus
(**D**)eformity
(**DG**)Degloving
(**E**)cchymosis
(**FX**)Fracture
(**F**)oreign Body
(**GSW**)Gun Shot Wound
(**H**)ematoma
(**LAC**)eration
(**PW**)Puncture Wound
(**SS**)Seatbelt Sign
(**SW**)Stab Wound
(**P**)ain
(**PP**)Peppering



Pulses Present
S= Strong
W= Weak
D= Doppler
A=Absent



1.5 HISTORY AND PHYSICAL

Head & Neck :

Chest:

Abdomen/Back and Spine:

Pelvis: ☐ Stable ☐ Unstable ☐ Binder

Upper Extremities:

Lower Extremities:

Interventions Prior to Arrival:

1.6 PRE / INITIAL PROCEDURES / DIAGNOSTICS

Pre / Initial
☐ ☐ Cric
☐ ☐ ICP Monitor
☐ ☐ Ventric

Pre / Initial
☐ ☐ C-Collar/ Time Removed _____
☐ ☐ Cantholysis & Canthotomy ☐ R ☐ L
☐ ☐ Tympanic Membranes Rupture ☐ R ☐ L
Blood ☐ R ☐ L
☐ ☐ Eye Shield ☐ R ☐ L

Needle Decompression ☐ R ☐ L
Output ☐ Air Blood (cc) _____
Pericardial FAST ☐ - / ☐ + describe: _____
☐ Pericardiocentesis

DPL ☐ Gross Blood: ☐ - / ☐ + describe _____
Log Roll Time _____
Back Exam ☐ WNL ☐ ABNL describe _____
Rectal Exam ☐ WNL ☐ Weak/Absent Tone Gross Blood: ☐ - /☐ +

Prostate _____
Gyn _____

☐ Closed Reduction ☐ EXT Fixation ☐ Tourniquet ☐ R # _____ ☐ L # _____
☐ Wound Washout ☐ Splint

☐ Closed Reduction ☐ EXT Fixation ☐ Tourniquet ☐ R # _____ ☐ L # _____
☐ Wound Washout ☐ Splint

☐ Sedated ☐ 3% Saline ☐ Cntrl Line Loc _____ Site _____
☐ Chemical Paralyze ☐ Mannitol ☐ IO Loc _____ Site _____
☐ Seizure Protocol ☐ A-Line Loc _____ Site _____

1.7 PUPILS / VISION

Brisk	☐ R ☐ L	Hand Motion	☐ R ☐ L		
Sluggish	☐ R ☐ L	Light Perception	☐ R ☐ L		
NR	☐ R ☐ L	No Light Perception	☐ R ☐ L		

Size Right mm _____ Left mm _____

1.8 BURN
☐ 1st ☐ 2nd ☐ 3rd
%TBSA _____
>20% Use the Burn Flow Sheet
Cause _____

1.9 EXTREMITIES

	Motor	Sens	ROM
RUE	+ ____ / - ____	+ ____ / - ____	+ ____ / - ____
LUE	+ ____ / - ____	+ ____ / - ____	+ ____ / - ____
RLE	+ ____ / - ____	+ ____ / - ____	+ ____ / - ____
LLE	+ ____ / - ____	+ ____ / - ____	+ ____ / - ____

PATIENT IDENTIFICATION Name: Last _____ First _____ MI _____ Rank _____
Patient ID/SSN _____ BRN _____ Medical Record # _____ DOB _____ Age _____ Gender ☐ M ☐ F
Facility Name _____ Facility Location _____ Physician Signature _____

Resuscitation Record *continues*

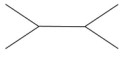
RESUSCITATION RECORD
Part II, Physician H&P

2. X-RAYS and CT

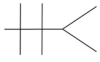
2.1 CT OBTAINED	2.2 X-RAYS OBTAINED	2.3 PENDING STUDIES	2.4 RESULTS (include TEG/Rotem results)	2.5 C-SPINE RESULTS
☐ Head ☐ C-Spine ☐ Chest ☐ Abd/Pelvis ☐ Pan Scan* * Select Pan Scan only if all of the above requested	☐ C-Spine ☐ Extremity ☐ Spine ☐ RUE ☐ Chest/Upright ☐ LUE ☐ Pelvis ☐ RLE ☐ LLE Other _____ Other _____			☐ CT Scan Normal ☐ CT Scan Abnormal C-Spine cleared based on: ☐ Normal exam, reliable Pt ☐ Normal CT scan, normal exam C-Spine not cleared based on: ☐ Neuro c/o, abnormal exam ☐ Abnormal imaging ☐ Unreliable Pt

3. LABORATORY RESULTS

3.1 CBC



3.2 CHEMISTRY 7



3.3 PT / INR / PTT _____ / _____ / _____

3.4 LFT

Amylase _____ Bili _____
Alk Phos _____ SGOT _____
LDH _____ SGPT _____
Other _____

3.5 URINALYSIS

SpGr _____ Chem _____
Micro _____ HCG _____
pH _____ Bact _____
WBC _____ RBC _____

4. IMPRESSION

5. DIAGNOSES

1	4
2	5
3	6

6. PLAN

6.1 PLAN

6.2 TRIAD INDICATORS UPON ARRIVAL IN ED

Temp < 96F/36C ☐ Yes ☐ No INR >1.4 ☐ Yes ☐ No Base Deficit >5 ☐ Yes ☐ No FWB Requested ☐ Yes ☐ No Damage Control ☐ Yes ☐ No

6.3 DISPOSITION ☐ OR ☐ ICU ☐ ICW ☐ Transfer Date: _____ Time: _____

7. DNBI / NBI CATEGORY

☐ Injury, Sports ☐ Injury, Work/Training ☐ Surgical ☐ _____
☐ Injury, MVC ☐ Injury, Other ☐ _____

8. CAUSE OF DEATH

8.1 ANATOMIC

☐ Airway ☐ Neck ☐ Abdomen ☐ Extremity ☐ U / ☐ L
☐ Head ☐ Chest ☐ Pelvis ☐ Other, Specify _____

8.2 PHYSIOLOGIC

☐ MOF ☐ Sepsis ☐ Total Body Disruption
☐ CNS ☐ Hemorrhage ☐ Breathing
☐ Other, Specify _____

PATIENT IDENTIFICATION Name: Last _____ First _____ MI ____ Patient ID/SSN _____

BRN _____ Facility Location _____ Physician Name _____ Physician Signature _____