## 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 lead 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.

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

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

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

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 are 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

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2. CARE DONE F		- more and in terms of the last					-1	_	
2.1 PREHOSPITAL TOUR   Upper Extremities:     Jpet:   CAT   SOFIT     Other     Time On   Off     R How   1     many?   2     Effective?   Y     L How   How     many?   2     Effective?   Y	Low Type  Time  N Eff	er Extremities:	GC E N T T P N RF 3 BF	/sye/4 /erbal/5 lotor/6 otal/15	2.3 PREHOSP. HEMORRHAG CONTROL MEASURES  Celox ChitoFle Combat Direct Pi Field Dri HemCor QuikClot None Unknow Other	x Gauze ressure essing	## PREHO:  WARMING  Blanke  Body B  HPMK  Space  Other	et Bag Blanket	2.4 FBR SOSPITAL   MITTER VENTIONS
3.1 VITALS	3.3 HYPO / H MEASURES	YPERTHERMIA CONTR		3.5 BREATHING	1	Breath Soun		3.6 CIRCULAT	Cool Hot
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Stridor Drooling Obstructed Oral/Nasal Airway BVM Intubated Combi Tube Other				3.7 DEFICIT / NEURC Alert - Obeys Co Responds to Ver Responds to Pai					
PATIENT IDENTIFIC	ATION	lame: Last			First			м	Rank
Patient ID/SSN Facility Name Nurse Name	_			10000100	Signature	DOB MOS/A	FSC/NEC	Age	Gender M

**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.

4. SECONDARY SUR  A.1 HEAD / NECK ENT  Drainage:    Sar (Color)	4.2 HEAI   Rhythm   NSF   Tac   V-fi   PEA   Asy   Oth   Pulses   S = Stro	kt / THORACIC k hy/Brady b / V-tach stole	4.3 ABDOMIN  Open Wo Flat Obese Distende Tender Non-Ten Rebound Guarding Rigid	ound od der	A4 EXTREMITIES Deformities Pulse RUE LUE RLE LLE	s.Present Motor Sensory
Drainage:	Rhythm   NSF   Tac   V-fi   V-fi   Pußes   S = Stro   D = Dop	hy/Brady b / V-tach stole er 	Open Wo Flat Obese Distende Tender Non-Tens Rebound Guarding	ound od der	Deformities Pulse RUE LUE RLE	Y   N   Y
Brisk   Brisi   Sluggish   Slug   NR   NR	k ggish Radial	RL	Unable to	o Assess  t	4.5 ALLERGIES  Unknown  4.6 CURRENT MEDIN Unknown None	e S~Strong W=Weak D=Doppler A=Abso
4.7 PROCEDURES	Pedal	RL	Last Meal @			
0	Time	Size/Type	70-11	Site	Performed By	Results
	On		☐ Oral Airway ☐ Nasal Airway ☐ BVM	,	-	
ET Intubation (Put additional changes in Remarks)	Time	Teeth	_ cm	☐ Oral ☐ Nasal		☐ ETCO <sub>2</sub> Change ☐ BBS Post Intubation
C-Collar Placed Time	C-Colla	ar Removed Time				
Chest Tube #1	Time			LR		Air Blood (cc)
Chest Tube #2	Time			_ L _ R		Air Blood (cc)
Needle Decompression .	Time			L R		Air Blood (cc)
Thoracotomy	Time	-:		L R		
Tourniquet .	Time	Types		Sites		
Eye Shield	Time	_	os [	OD Boti		
A-line .	Time		39	L R	2	
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				
Measures	Celox ChitoFlex	Combat Gauze	☐ Field Dr	_		Unknown Other
PATIENT IDENTIFICATION	N Name: Let		Fir		MI	Patient ID/SSN
BRN Facility Locat	_	Nurse Name	FIE		Nurse Signature	, sectificity 33H

Resuscitation Record continues

		RESUSCI Part I. No	TATION ursing Flo	RECORI					
4. SECONDARY	SURVEY, continu						_	_	
4.8 INTUBATION MECH									
Time		Time FiO	2 pH	pCO <sub>2</sub>	pO <sub>2</sub>	BE	HCO <sub>3</sub>	SAT	
MODE:	ABG or V	/BG							
FiO <sub>2</sub> :	ABG or \( \square\)	/8G	77						
RATE:	☐ ABG or ☐ \	/8G							
PEEP:	☐ ABG or ☐ V	/8G		-					
TV:	☐ ABG or ☐ \	/8G							
4.10 INTRAVENOUS AC	CESS AND FLUIDS		4.11	BLOOD PRODUCT	s				
Time Rate Gas	ige Site IVF.Type	Amount Up Amount I	In Stop Uni	t# Type	Start	Stop	Volume	Initials	
	Total Amount Infused:								
4.12 MEDICATIONS	Total Amount Iniused:		4.13 VITAL SIGNS						
Drug	Dose Route	Time Initials	Time GCS	82 P	R8	Temp SaC	Pain Scal (0-10)	Other (KP)	
4.14 LABS Time Test CBC	4.15.CT Type Time	4.17 DISPOSITION	Date:		Facility Name	on Coalii			
ABG	☐ C-Spine	OR LICE	n □ KM		sport Vehicle		, 🗀		
VBG	Chest	BTD Full Qu	arters Profile	Profile					
Chemistry	Abd	RTD Unit:							
PT/PTT	Pelvis	RTD Mode of Trans	sport:						
TEG	Pan Scan*	Ambulato				Vacuum Spine Board			
нан	* Select Pan Scan only if all of the above requested			N 100000 000000 0000000 000000000000000					
INR		Time of Death	Mortuary	Affairs Notified?	Y N	Time to Mo	rgue		
T&S	4.16 X-RAY Type Time	Death Remarks							
	C-Spine	4.19 REMARKS							
T&C x	☐ Chest								
UA	Abd	.							
HCG	Pelvis								
Other	Ext	-							
Specify Other:	RUE LUE								
-	RLE LLE								
PATIENT IDENTIFIC	ATION Name: Last	Nurse Name	First	N	MI urse Signatur	Patient e	ID/SSN		

**Resuscitation Record** continues

			ON RECORD sician H&P					
1. HISTORY & PHYSIC	AL - INJURY DESCRIPTION		orerum mar					
1.1 ARRIVAL	1.2 TRIAGE CATEGORY		HOTION					
Date Time of Arrival	Immediate   Delayed   Minimal   Expectant	(AB)rasion (AMP)utation (AV)uision (BL)eeding	(AMP)utation S= Strong W= Weak (BL)seding D= Doppler					
1.3 CHIEF COMPLAINT, HIST	ORY AND PRESENTING ILLNESS	(Bjurn %TBSA (C)repitus (D)eformity (DG)Degloving (E)cchymosis (FX)Fracture (F)oreign Body (GSW)Gun Shot (H)ematoma (LAC)eration (PW)Puncture W (SS)Seatheit Sig (SW)Stab Woun (P)ein (PP)Peppering	found grad grad grad grad grad grad grad gra					
	7		ANTERIOR POSTERIOR					
1.5 HISTORY AND PHYSICAL Head & Neck;			1.6.PRC_INITIAL_PROCEUPRES_DIAGNOSTICS					
Chest:			Needle Decompression   R   L   Pericardial   describe:					
Abdomen/Back and Spin	et:		DPL					
Pelvis: Stable	☐ Unstable ☐ Bind	ler	Prostate Gyn					
Upper Extremities:			☐ Closed Reduction         ☐ EXT Fixation         ☐ Tourniquet           ☐ Wound Washout         ☐ Splint         ☐ L #					
Lower Extremities:			☐ Closed Reduction         ☐ EXT Fixation         ☐ Tourniquet           ☐ Wound Washout         ☐ Splint         ☐ L #					
Interventions Prior to Arr	ival;		Sedated         3% Saline         Cntrl Line         Loc         Site           Chemical Paralyze         Mannitol         IO         Loc         Site           Seizure Protocol         A-Line         Loc         Site					
	d Motion R L t Perception R L ight Perception R L temm Ca	BURN  1 st 2nd 3  TBSA  0% Use the Burn Flow Suise	RUE + / · + / · + / ·					
Patient ID/SSN Facility Name	BRN Med Facility Location	ical Record #	DOB Age Gender M F Physician Signature					

**Resuscitation Record** continues

## Emergency War Surgery

RESUSCITATION RECORD Part II, Physician H&P								
2. X-RAYS and C	т	1,511,111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
	X-RAYS OBTAINED	2.3 PENDING STUDIES	2.4 RESUL	TS (include TEG/Ro	tem results)	2.5 C-SPINE RESU	LTS	
	C-Spine Extremity		-			CT Scan Norr		
	Spine RUE				9	CT Scan Abn		
	Chest/Upright LUE				1	C-Spine cleared b		
Abd/Pelvis							al exam, reliable Pt	
						C-Spine not clear	al CT scan, normal exam	
Pan Scan* * Select Pan Scan	☐ LLE				1		c/o, abnormal exam	
only if all of the	ther						mal imaging	
	ther					Unreli		
3. LABORATORY R	ESULTS		_					
3.1.0	CBC 3.	2 CHEMISTRY 7	3.4 LFT			3.5 URINALYSIS		
		1 1 2	*************				***	
			Amylase	Bili	_	SpGr	Chem	
			Alk Phos	SGOT		Micro	HCG	
			LDH	SGPT		pH	Bact	
3.3 PT / INR / PTT			Other		-	WBC	RBC	
23 FT/1114/FII			Other			And the second		
4. IMPRESSION			201					
5. DIAGNOSES			5					
3			6					
6. PLAN								
6.1 PLAN								
	S UPON ARRIVAL IN ED	Western Browns - provides to		9010000000 0-00		equested Ye		
Temp < 96F/36C	Yes No INR >	I.A Yes No	Base Deficit	>5   Yes	No Damaç	ge Control   Yes	No No	
6.3 DISPOSITION	OR LICU	☐ ICW ☐ Transfe	e	Date:	Time:			
7. DNBI/NBI CAT	EGORY							
☐ Injury, Sports	☐ Injury, Work/Train	ing Surgical	13	0				
☐ Injury, MVC	☐ Injury, Other							
8. CAUSE OF DEAT								
				8.2 PHYSIOLOGIC				
8.1 ANATOMIC				100000000000000000000000000000000000000			52.225.002.00	
Airway Neck		tremity U/ L		☐ MOF	☐ Sepsis		ody Disruption	
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				Other, Speci	ry			
PATIENT IDENTIFIE	CATION Name: Last		First		м	Patient ID/	SSN	
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Paci	lity Location	r rrystciari manne			+ rrysician sign	orong.		