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

Resuscitation Record continues

Fig. A3-1. Sample resuscitation record.

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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.

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**RESUSCITATION RECORD**

**Part I, Nursing Flow Sheet**

### 4. SECONDARY SURVEY

#### 4.1 HEAD / NECK ENT
- Drainage: N\(\_\_\_\_\_\_\_\) Y \(\_\_\_\_\_\_\_\) Ear (Color) \(\_\_\_\_\_\_\_\)
- Dental Injury: Y N
- C/S (Halo Test): \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- G-spine Tender: Y N
- JVD: Y N

#### 4.2 HEART / THORACIC
- P: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Rythm: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- A/P: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Other: \(\_\_\_\_\_\_\_\)

#### 4.3 ABDOMINAL/GI
- Open Wound: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Fracture: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Asystole: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Non-Tender: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Tenderness: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Guarding: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Fever: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Dialysis: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Blood Biv: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Blood Pressure: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Fluid Res.: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- IV Drip: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Resuscitation: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Nasal Cann.: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Oral Airway: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Nasal Airway: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- BVM: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)

#### 4.7 PROCEDURES

- O\_\_ Therapy: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- ET Intubation: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- C-Intubated: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- C-Intubated Time: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- C-Intubated Removed Time: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Chest Tube #1: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Needle Decompression: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Thoracotomy: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Tourniquet: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Eye Shield: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- A-line: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Gavrin Tube: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Urinary: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)

### 4.4 EXTREMITIES
- Fracture: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Swelling: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Laceration: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Fracture: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Hemorrhage: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Hemorrhage Control Measures: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)

### 4.5 ALLERGIES
- Unknown: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- MD: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Other: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)

### 4.6 CURRENT MEDICATIONS
- Unknown: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- MD: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Other: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Current Meds: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)

### PATIENT IDENTIFICATION
- Name: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Last: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- First: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- MD: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)
- Patient ID/SSN: \(\_\_\_\_\_\_\_\) \(\_\_\_\_\_\_\_\)

Resuscitation Record continues
Resuscitation Record continues
Resuscitation Record continues
# Emergency War Surgery

## RESUSCITATION RECORD

### Part II, Physician H&P

<table>
<thead>
<tr>
<th>2. X-RAYS and CT</th>
<th>3. LABORATORY RESULTS</th>
<th>4. IMPRESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 CT OBTAINED</td>
<td>3.1 CBC</td>
<td>4. IMPRESSION</td>
</tr>
<tr>
<td>2.2 X-RAYS OBTAINED</td>
<td>3.2 CHEMISTRY</td>
<td>4. IMPRESSION</td>
</tr>
<tr>
<td>2.3 PENDING STUDIES</td>
<td>3.3 LFT</td>
<td>4. IMPRESSION</td>
</tr>
<tr>
<td>2.4 RESULTS (include TEG, filter results)</td>
<td>3.4 VITALS</td>
<td>4. IMPRESSION</td>
</tr>
<tr>
<td>2.5 SPHINX RESULTS</td>
<td>3.5 URINALYSIS</td>
<td>4. IMPRESSION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Diagnosis

1. 4

2. 1

3. 6

### Plan

#### 6.1 PLAN

**6.3 TRAUMA INDICATORS UPON ARRIVAL IN ED**

- Temp < 96/106: Yes / No
- INR > 1.4: Yes / No
- Base Deficit > 3: Yes / No
- FWB Requested: Yes / No
- Damage Control: Yes / No

**6.1 DISPOSITION**

- CR: Yes / No
- ICU: Yes / No
- ICW: Yes / No
- Transfer: Yes / No

### Injury/NIBI Category

- Injury, Sports / Yes / No
- Injury, Work/Training / Yes / No
- Injuries, MVC / Yes / No
- Injury, Other / Yes / No

### Cause of Death

#### 8.1 ANATOMIC

- Airway / Yes / No
- Neck / Yes / No
- Abdomen / Yes / No
- Extremity / Yes / No

#### 8.2 PHYSIOLOGIC

- MOF / Yes / No
- Septic / Yes / No
- Total Body Disruption / Yes / No

### Patient Identification

- Name: [Last] [First]
- Patient ID/SIN: [ID/SIN]
- Facility Location: [Location]
- Physician Name: [Name]
- Physician Signature: [Signature]