Eastern Association for the Surgery of Trauma
Advancing Science, Fostering Relationships, and Building Careers

EAST MULTICENTER STUDY
DATA DICTIONARY

Development and Validation of a Prehospital Triage Model for the Severely Injured Trauma Patient– Data Dictionary

Data Entry Points and appropriate definitions / clarifications:

Entry space	Definition / Instructions
Random patient number identifier	Generated by mobile application, documented on EMS run sheet

Prehospital variables entered into mobile application:

Application download: Android- https://play.google.com/store/apps/details?id=org.nei6&hl=en_US&gl=US
Apple - https://apps.apple.com/ao/app/nei-6-trauma-triage/id1524375515

Type of transfer	Advanced life support/basic life support
Method of transport	Ground, helicopter, other
Transport time	Minutes (1-500), predicted by EMS
Transport distance	Miles (1-1000), predicted by EMS provider
Field receiving blood	EMS providers transfusing blood during transport
Age	Age of patient enrolled (1-89)
Gender	Gender of Patient enrolled
Field SBP	Systolic blood pressure as assessed by EMS provider
Field Temperature	Temperature (Fahrenheit degrees) as assessed by EMS provider
Field Pulse	Pulse (bpm) as assessed by EMS provider
Field GCS	Glasgow coma scale as assessed prehospital by EMS
Field assisted ventilation	Need for intubation, King Airway, bag valve mask or laryngeal mask airway in the prehospital setting
Predicted mechanism injury	Single choice for best description of mechanism as assessed prehospital by EMS: Options include:

	MVC, Auto vs. Peds (Pedestrian), Fall, Gunshot wound, Stab, Bike (Motorcycle Collision / Crash) Other
Intentionality	Intent of injury: Unintentional, self-infected, assault, undetermined, other
AIS Head/neck >=3	Yes or No value for AIS body region = Head (AIS = Abbreviated Injury Score) predicted by EMS
AIS Spine >=3	Yes or No value for AIS body region = Spine (AIS = Abbreviated Injury Score) predicted by EMS
AIS Extremity >=3	Yes or No value for AIS body region = Extremity (AIS = Abbreviated Injury Score) predicted by EMS
AIS Abdomen >=3	Yes or No value for AIS body region = Abdomen (AIS = Abbreviated Injury Score) predicted by EMS
AIS Chest >=3	Yes or No value for AIS body region = Chest (AIS = Abbreviated Injury Score) predicted by EMS
<u>Concerning injuries:</u>	
<u>Head/neck</u>	
Depressed skull fracture	Skull fracture with intrusion into cranial vault
Penetrating injury to head/neck	GSW (Gunshot wound), shotgun (Shotgun wound) or Stab (Stab Wound) to the head or neck
Large laceration to head/neck	5 cm or greater head or neck laceration
Respiratory distress	Difficulty breathing/speaking/swallowing as assessed by EMS provider
Pulsatile bleeding	Spurting-type bleeding from the head or neck
<u>Spine</u>	
Neurologic deficit	Motor or sensory defect associated abnormal nerve, spinal cord or brain function
<u>Abdomen</u>	
Penetrating injury to abdomen	GSW (Gunshot wound), shotgun (Shotgun wound) or Stab (Stab Wound) to the abdomen
Unstable pelvis	Movement upon compression of the pelvic rings at the hip
Evisceration	Exposed bowel or omentum
<u>Chest</u>	
Flail chest	Two or more contiguous rib fractures with two or more breaks per rib
Open “sucking” chest wound	Hissing or **sucking** sounds when the patient inhales or exhales
<u>Ext</u>	
Open fracture	Fracture with open wound or break in the skin near the site of the broken bone
Tourniquet	Placement of a tourniquet
Pulsatile bleeding	Spurting-type bleeding from an extremity
Pulseless extremity	Inability to palpate a pulse at any site
Partial or complete amputation	Partial or complete loss of limb

Variables Obtained from the Trauma Registry

In-hospital Complications	In-hospital development of acute respiratory distress syndrome, acute kidney injury, unplanned intubation, unplanned return to the operating room, cardiac arrest, sepsis and surgical site infection
Late Mortality	Yes or no, hospital death 48 hours after admission
Early Mortality	Yes or no, hospital death less than 48 hours after admission
In-hospital Mortality	Yes or no, any hospital death
Intensive care unit admission	Any admission to the icu during index hospitalization
ISS	Numerical value for calculated ISS (ISS = Injury Severity Score)
NFTI	NFTI = Need for Trauma Intervention (yes/no to each): -receiving packed red blood cells (PRBC) within the first 4 hours of arrival -being discharged from the ED to the operating room (OR) within 90 min of arrival -being discharged from the ED to interventional radiology (IR) -being discharged from the ED to the intensive care unit (ICU) -having a total ICU length of stay (LOS) of 3 or more calendar days -receiving mechanical ventilation for reasons other than procedural anesthesia within the first 3 days -death within 60 hours of hospital arrival
Intentionality	Intent of injury determined in the hospital: Unintentional, self-infected, assault, undetermined, other
Glasgow Coma Scale	First Glasgow coma scale as assessed in the trauma bay
SBP	First Systolic blood pressure as assessed in the trauma bay
Pulse	First pulse (bpm) as assessed in the trauma bay
Temperature	First temperature (Fahrenheit) in the trauma bay
<u>Mechanism of injury</u>	Single choice for best description of mechanism as assessed in the trauma bay: Options include: MVC, Auto vs. Peds (Pedestrian), Fall, Gunshot wound, Stab, Bike (Motorcycle Collision / Crash) Other
AIS Head/neck >=3	Yes or No value for AIS body region = Head (AIS = Abbreviated Injury Score), determined in the hospital
AIS Spine >=3	Yes or No value for AIS body region = Spine (AIS = Abbreviated Injury Score), determined in the hospital

AIS Extremity >=3	Yes or No value for AIS body region = Extremity (AIS = Abbreviated Injury Score), determined in the hospital
AIS Abdomen >=3	Yes or No value for AIS body region = Abdomen (AIS = Abbreviated Injury Score), determined in the hospital
AIS Chest >=3	Yes or No value for AIS body region = Chest (AIS = Abbreviated Injury Score), determined in the hospital
Age	Age of patient enrolled (1-89)
Insurance	Private, medicare, Medicaid, none
Race	Black, white, Hispanic, other
BMI	Body mass index
Gender	Gender of Patient enrolled
Level of trauma activation	None, trauma consultation, partial trauma alert, full trauma alert
Retrospective triage-assessment	Appropriate triage, undertriage or overtriage as determined by the trauma center
Retrospective triage-method	Triage assessment method used by the trauma center Cribari matrix, modified-Cribari matrix, NFTI, Secondary Triage Assessment Tool (STAT) or other

Manual Extraction

Emergency Physician Discretion	Yes or no, change to level of hospital trauma activation. Comments: why activation was changed, free text.
Emergent Chest Tube	Yes or no, Placement of any type of chest tube within 6 hours of arrival to the trauma bay
Emergent Operation/Angiography	Yes or no, Transfer to the operating room or interventional radiology suite within 6 hours of arrival to the trauma bay
Emergent Central Line	Yes or no, Placement of any type of central line within 6 hours of arrival to the trauma bay
Emergent Intubation	Yes or no, Intubation within 6 hours of arrival to the trauma bay
Emergent Blood Transfusion	Yes or no, Transfusion of greater than 4 units of blood within 4 hours of arrival of the trauma bay
Emergent Intra-Cranial Monitor	Yes or no, Placement of any type of intra-cranial within 6 hours of arrival to the trauma bay

EAST MULTICENTER STUDY

DATA COLLECTION FORM

Development and Validation of a Prehospital Triage Model for the Severely Injured Trauma Patient– Data Collection Form

Data Entry Points and appropriate definitions / clarifications:

Random patient number identifier: Generated by mobile application, documented on EMS run sheet

Prehospital variables entered into mobile application:

Application download: Android- https://play.google.com/store/apps/details?id=org.nei6&hl=en_US&gl=US
Apple - https://apps.apple.com/ao/app/nei-6-trauma-triage/id1524375515

Prehospital elements (app variables)	**Trauma Registry**	**Manual Extraction**
Type of transfer (ALS/BLS)	In-hospital complications: see below***	Emergency physician discretion (altering level of activation)- (update, downgrade, other, comments with text box)
Methods of transfer (ground, helicopter, other)	Late mortality (>48 hours)	Emergent chest tube (yes/no)
Transport distance miles (1-1000)	Early mortality (<48 hours)	Emergent OR/angiography (yes/no)
Field Receiving blood (yes/no)	In-hospital mortality (yes/no)	Emergent central line within 6 hours (yes/no)
Predicted mechanism of injury (fall, mvc, gsw, bike, pedestrian struck, stab, other)	ICU admission (yes/no)	Transfusion of greater than 4 units of blood within 4 hours of arrival (yes/no)
field GCS (1-15)	ISS (1-100)	Emergent intubation (yes/no)
Predicted transport time in minutes (1-500)	NFTI (yes/no)	Emergent intra-cranial monitor (yes/no)
Random # identifier (1-100,000)	Age (1-150)	

Field Age (1-89)	Intentionality (Unintentional, Self-inflicted, Assault, Undetermined, Other)	
Field SBP (0-300)	Level of trauma activation (none, trauma consultation, partial trauma alert, full trauma alert)	
Field temperature Fahrenheit degrees (1-100)	First GCS (1-15)	
Field Pulse bpm (0-200)	Mechanism of injury (fall, mvc, gsw, bike, pedestrian struck, stab, other)	
Intentionality (Unintentional, Self-inflicted, Assault, Undetermined, Other)	AIS chest (1-6)	
Field Gender (male/female)	AIS head/neck (1-6)	
Field Assisted ventilation (intubated, king airway, LMA, bag valve mask, none)	AIS abdomen (1-6)	
AIS abdomen >=3 (yes/no)	AIS extremity (1-6)	
AIS spine >=3 (yes/no)	AIS spine (1-6)	
AIS extremity >=3 (yes/no)	Insurance (private, none, medicare, Medicaid)	
AIS head/neck >=3 (yes/no)	Race (black, white, Hispanic, other)	
AIS chest >=3 (yes/no)	Bmi (1-100)	
<u>Spine</u> Neurologic deficit	Gender (male/female)	
<u>Head/neck</u> Depressed skull fracture Penetrating injury to head/neck Large laceration to head/neck Difficulty breathing/speaking/swallowing Pulsatile bleeding	Ethnicity (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White)	
<u>Abdomen</u> Penetrating injury to abdomen Unstable pelvis	First SBP (0-300)	

Evisceration		
<u>Extremity</u> Open fracture Tourniquet Pulsatile bleeding Pulseless extremity Partial or complete amputation	First Pulse bmp (0-200)	
<u>Chest</u> Flail chest Open “sucking” chest wound	First Temperature Fahrenheit degrees (1-100)	
	Triage (appropriate, undertriage, overtriage)	
	Triage method (ISS, NFTI, STAT, other)	

*in-hospital complications: ARDS, acute kidney injury, unplanned intubation, unplanned return to OR, cardiac arrest, sepsis and surgical site infection

From: Morris, Rachel
To: Rachel Dixon
Subject: FW: PRO00039024 Registration Determination Letter
Date: Friday, January 08, 2021 9:26:19 PM

IRB approval letter for trauma triage multi-center

From: help-ebridge@mcw.edu <help-ebridge@mcw.edu>
Sent: Wednesday, December 9, 2020 1:31 PM
To: Karam, Basil <bkaram@mcw.edu>; Morris, Rachel <ramorris@mcw.edu>
Cc: Brandolino, Amber <abrandolino@mcw.edu>
Subject: PRO00039024 Registration Determination Letter

Medical College of Wisconsin /
Froedtert Hospital
Institutional Review Board

To: Rachel Morris, MD
Basil Karam
CC: Amber Brandolino, MS

Date:**12/9/2020**

Re : **Project Title**:Prospective Validation of NEI6 Trauma Triage Model
PRO ID: PRO00039024

IRB Registration Date: 12/9/2020

The MCW/FH Institutional Review Board #5 has determined the above-referenced submission meets the criteria for registration in accordance with the MCW/FH IRB Policy: *Registration Projects: Human Subject Research Projects which Qualify for Flex Review,* Registration Category **#2, #8, and #9**.

This determination extends to the following institutions:

Froedtert & the Medical College of Wisconsin Hospitals and Health Partners
Froedtert Hospital (including all specialty clinics, the Cancer Center and the Eye Institute)

The items listed below were submitted and reviewed with this submission. Research must be conducted in accordance with the IRB's determination as described in the documents listed below:

Informational Study Letter for Simulation + Survey (Phase 1)
Informational Study Letter for Survey Only (Phase 2)
Study Protocol
Case Scenarios
Data Collection Variables
UTAUT Survey
SUS Survey

Given that the current project does not involve direct contact with subjects, an informed consent process is not required. The IRB has granted approval of a waiver of HIPAA authorization requirements at 45 CFR 164.
Given that the current project involves direct contact with subjects, an informed consent process utilizing an informational letter has been approved and is effective 12/9/2020.

Any and all proposed changes to this submission must be reviewed by the IRB prior to implementation. When it is necessary to eliminate hazards to subjects, changes may be made first. This should be followed promptly by contacting the MCW/FH IRB Office.

All Unanticipated Problems Involving Risks to Subjects or Others (UPIRSOs) must be reported promptly to the MCW/FH IRB according to IRB Standard Operating Procedures (SOPs).

If your project involves the use of any Froedtert Health resource such as, space, staff services, supplies/equipment or any ancillary services - lab, pharmacy, radiology, protected health/billing information or specimen requests, OCRICC approval is required before beginning any research activity at those sites.

If you have any questions, please contact the IRB Coordinator II for this IRB Committee, Cara Marzion, at 414-955-8601 or cmarzion@mcw.edu or Scott Brooks, at 414-955-8542 or sbrooks@mcw.edu

Sincerely,

Nevin Uysal Biggs, MD
Kathryn Gaudreau
IRB Chair
MCW/FH Institutional Review Board #5

appdata

Record ID	_____
Site	◯ Froedtert Hospital ◯ North Memorial
Generated ID	_____
Transfer type	◯ ALS ◯ BLS
Transfer method	◯ Ground ◯ Helicopter ◯ Other
Other transfer method	_____
Transport distance	_____ (in miles, 1 - 1,000)
Field receiving blood	◯ Yes ◯ No
Predicted mechanism of injury	◯ Fall ◯ MVC ◯ GSW ◯ Bike ◯ Pedestrian struck ◯ Stabb ◯ Other
Other predicted mechanism of injury	_____
Field GCS	_____ (15-Jan)
Predicted transport time	_____ (in minutes)
Field age	_____ (in years, 1 - 89)
Field SBP	_____ (0 - 300)

Field temperature	_____ (1 - 110)
Field pulse	_____ (in BPM, 0 - 200)
Intentionality	◯ Unintentional ◯ Self-inflicted ◯ Assault ◯ Undetermined ◯ Other
Other intentionality	_____
Field gender	◯ Male ◯ Female
Field assisted ventilation	◯ None ◯ Intubated ◯ King airway ◯ LMA ◯ Big valve mask
Field AIS abdomen >= 3?	◯ Yes ◯ No
Field AIS spine >= 3?	◯ Yes ◯ No
Field AIS extremity >= 3?	◯ Yes ◯ No
Field AIS head/neck >= 3?	◯ Yes ◯ No
Field AIS chest >= 3?	◯ Yes ◯ No

Spine

Neurologic deficit	◯ Yes ◯ No

Head/Neck

Depressed skull fracture	◯ Yes ◯ No
Penetrating injury to head/neck	◯ Yes ◯ No
Large laceration to head/neck	◯ Yes ◯ No
Dificulty breathing/speaking/swallowing	◯ Yes ◯ No
Pulsatile bleeding	◯ Yes ◯ No

Abdomen

Penetrating injury to abdomen	◯ Yes ◯ No
Unstable to pelvis	◯ Yes ◯ No
Evisceration	◯ Yes ◯ No

Extremity

Open fracture	◯ Yes ◯ No
Tourniquet	◯ Yes ◯ No
Pulsatile bleeding	◯ Yes ◯ No
Pulseless extremity	◯ Yes ◯ No
Partial or complete amputation	◯ Yes ◯ No

Chest

Flail chest	◯ Yes ◯ No
Open "sucking" chest wound	◯ Yes ◯ No

Trauma Registry

About Patient

Insurance	◯ None ◯ Private ◯ Medicare ◯ Medicaid
Race	◯ Black ◯ White ◯ Hispanic ◯ Other
Race other	_____
Gender	◯ Male ◯ Female
Ethnicity	◯ American Indian or Alaskan native ◯ Asian ◯ Black or African American ◯ Native Hawaiian or other Pacific Islander ◯ White
BMI	_____ (1 - 100)

About Visit

In-hospital complications	☐ ARDS ☐ Acute kidney injury ☐ Unplanned intubation ☐ Unplanned return to OR ☐ Cardiac arrest ☐ Sepsis ☐ Surgical site infection ☐ Other
Other in-hospital complications	_____
Late mortality (>48 hours)	◯ Yes ◯ No
Early mortality (< 48 hours)	◯ Yes ◯ No
In-hospital mortality	◯ Yes ◯ No
ICU admission	◯ Yes ◯ No

ISS

_____
(1 - 100)

NFTI (Need For Trauma Intervention)

◯ Yes
◯ No

Age

_____
(in years, 1 - 150)

Intentionality

◯ Unintentional
◯ Self-inflicted
◯ Assault
◯ Undetermined
◯ Other

Other intentionality

_____

Level of trauma activation

◯ None
◯ Trauma consultation
◯ Partial trauma alert
◯ Full trauma alert

First GCS

_____
(1 - 15)

Mechanism of injury

◯ Fall
◯ MVC
◯ GSW
◯ Bike
◯ Pedestrian struck
◯ Stabb
◯ Other

Other predicted mechanism of injury

_____

AIS chest

_____
(1 - 6)

AIS head/neck

_____
(1 - 6)

AIS abdomen

_____
(1 - 6)

AIS extremity

_____
(1 - 6)

AIS spine	_____ (1 - 6)
First SBP	_____ (0 - 300)
First pulse	_____ (in BPM, 0 - 200)
First temperature	_____ (Fahrenheit)
Triage	◯ Appropriate ◯ Undertriage ◯ Overtriage
Triage method	◯ Cribari ◯ NFTI (Need for Trauma Intervention) ◯ STAT (Secondary Triage Assessment Tool) ◯ Other
Other triage method	_____

Manual Extraction

Emergency physician discretion (altering level of activation)	◯ Yes ◯ No
Emergency physician discretion level of activation	◯ Upgrade ◯ Downgrade
Emergency physician discretion comments	
Emergent chest tube within 6 hours	◯ Yes ◯ No
Emergent OR/angiography within 6 hours	◯ Yes ◯ No
Emergent central line within 6 hours	◯ Yes ◯ No
Transfusion of greater than 4 units of blood within 4 hours of arrival	◯ Yes ◯ No
Emergent intubation within 6 hours	◯ Yes ◯ No
Emergent intracranial monitor within 6 hours	◯ Yes ◯ No