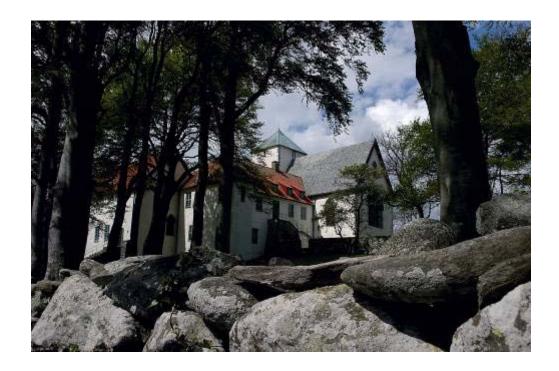# The Utstein Trauma Template for Uniform Reporting of Data following Major Trauma

Data Dictionary

Scandinavian Networking Group for Trauma and Emergency Management (SCANTEM)

The Trauma Audit & Research Network (TARN), UK

Trauma Registry of the German Society of Surgery (DGU-TR)

Italian National Registry of Major Injuries (RITG)

Version: 1.1.1

Date: May 19, 2009

Suggested citation:

Ringdal KG, Coats TJ, Lefering R, Di Bartolomeo S, Steen PA, Røise O, Handolin L, Castrén M, Christensen EF, Edwards A, Eken T, Gomes E, Hestnes M, Klarin L, Larsen MS, Lauritsen J, Leppäniemi A, Örtenwall P, Skaga NO, Wisborg T, Woodford M, Lossius HM. **The Utstein Trauma Template for Uniform Reporting of Data following Major Trauma: Data Dictionary. Version 1.1.1.** European Trauma Registry Network, 2008.

The photograph of the Utstein Abbey was reproduced with permission from the Laerdal Foundation for Acute Medicine, Stavanger, Norway.

Layout: Kjetil G. Ringdal and Liv K. Norland

For further information, including updates see:

> http://www.scantem.org/
> https://www.tarn.ac.uk/
> http://www.traumaregister.de/de/index.htm
> http://www.pprg.infoteca.it/ritg/

Comments and observations by users are welcome and can be posted to kjetil.ringdal@snla.no

Cologne, Gothenburg, Hammerfest, Helsinki, Leicester, Manchester, Odense, Oslo, Porto, Stavanger, Stockholm, Udine, Aarhus.

Collaborators

Expert panel – Utstein Trauma Template Data Dictionary

Stefano Di Bartolomeo	Jens Lauritsen
Maaret Castrén	Rolf Lefering
Erika F. Christensen	Ari Leppäniemi
Timothy J. Coats	Hans Morten Lossius
Antoinette Edwards	Per Örtenwall
Torsten Eken	Kjetil G. Ringdal
Ernestina Gomes	Olav Røise
Lauri Handolin	Nils Oddvar Skaga
Morten Hestnes	Petter Andreas Steen
Lena Klarin	Torben Wisborg
Morten Schultz Larsen	Maralyn Woodford

Other associates

Marius Rehn

Table of Contents

Acknowledgement

Foreword

The precise definition of data points in a trauma registry might seem to be a rather esoteric subject. However, in order to evaluate outcomes in any medical condition a 'like for like' comparison must be made. The various European trauma registries are at different stages of development, use different prediction models, and have different structures, but they are united by the common desire to improve trauma care by auditing processes and outcomes.

In 2007, an expert panel consisting of representatives from major trauma organisations in Europe joined a process to create a European standard for documenting and reporting data following major trauma. The process was initiated by the Scandinavian Networking Group for Trauma and Emergency Management (SCANTEM), the UK Trauma Audit & Research Network (TARN), the Trauma Registry of the German Society of Trauma Surgery (DGU-TR), and the Italian National Registry of Major Injuries (RITG).

The main focus of the process was to define inclusion and exclusion criteria and a minimum core data set with precise data point definitions for documenting and reporting data following major trauma. In addition, the aim was to develop a joint European standard for comparison of trauma care that was compatible with the large trauma registries in Europe and adhered to the EuroTARN and the European Core Dataset (EuroCoreD). The process was built on the recommendations laid down by the 1st Utstein process on uniform reporting of data following major trauma, which was formulated by the International Trauma Anaesthesia and Critical Care Society (ITACCS).

The process was based on a modified nominal group technique. After initial e-mail rounds, two meeting were held at the Utstein Abbey, Stavanger, Norway, in 2007, where a consensus was reached on an Utstein Template for documenting and reporting data after major trauma.

The overall aim of the Utstein Trauma Template is to develop a system which is able to use the diversity in trauma care across Europe to identify key factors which are related to good outcomes – in other words, to build a better trauma system by identifying the best parts from many different systems. Using the same language for a unified set of data definitions is the first step in this process. Trauma registries across Europe have agreed to implement these definitions, a process which will require everyone to change their methods of data collection, to add new data fields, or to change the definitions of existing data fields.

The expert panel chose to focus on a relatively small set off 35 variables to describe patient, process, and system characteristics, on the assumption that it is better to collect very good data about a small set of variables than to have a large data set of lower quality. The whole complexity of trauma management cannot be incorporated into 35 variables; however, it is hoped that these key data points will allow for an exploration of the relationships between processes, systems, and outcomes. This would then form the basis for clinical trials or more detailed data collection around specific interventions, processes, or outcomes. While it may be tempting to look to a 'league table' of performance by country, this is probably not the best approach; it is much better to look at specific system or treatment factors across countries to

find positive or negative effects on outcomes.

It has already been shown that the 'top level' of international data can be shared across international trauma registries. The next challenge is to overcome the logistic, ethical, and legal barriers to the sharing of patient level data, in order to unlock the potential power of international comparisons. The Utstein Trauma Template is a significant step in this process.

Leicester, UK / Idse, Norway - November 1, 2008

Timothy J. Coats   Hans Morten Lossius

Introduction

In 2007, the EuroTARN Group conducted a study to assess whether it was possible to compare data collected by a number of trauma services across Europe[2]. The study revealed that it was possible to collect and collate outcome data from established trauma registries across Europe with minimal additional infrastructure using a web-based system. Furthermore, the study demonstrated support across Europe for a wide-scale registry allowing performance and outcome comparison. However, several studies have reported significant variations in composition and content of trauma registries, and have called for a uniform set of data variables, data definitions, value codes, coding instructions, as well as uniform inclusion and exclusion criteria[9-12]. The core data of the revised Utstein Trauma Template[13] represent what is considered to be the most important variables for comparison of trauma systems and outcomes in Europe, and is intended to cover data from the first (initial) hospital admissions.

To ensure implementation of the template into local and/or national trauma registries, we chose (in the first phase) to introduce a low number of core (mandatory) data. It is expected that local and national trauma registries will extend and/or modify their registries to adopt the Utstein Template definitions. However, implementation of the template does not preclude the possibility that local or national trauma registries contain additional data variables or additional response codes beyond those captured in template.

Further, it does not preclude the possibility that individual registries use a lower inclusion criteria than NISS > 15, as long as this anatomic criterion is the cut-off level for comparison between systems.

Definition of data variables is a complex and ongoing process and all readers are encouraged to ask for clarifications and point out potential improvements.

Kjetil G. Ringdal

Abbreviations

AIS = Abbreviated Injury Scale
ASA-PS = American Society of Anestesiology Physical Status
BE = Base Excess
BiPAP = Biphasic Positive Airway Pressure
CCU = Critical Care Unit
CPAP = Continuous Positive Airway Pressure
CT = Computed Tomography
ED = Emergency Department
EI = Emergency Intervention
EMS = Emergency Medical Services
EMT = Emergency Medical Technician
GCS = Glasgow Coma Scale
GOS = Glasgow Outcome Scale
HEMS = Helicopter Emergency Medical Services
HDU = High Dependency Unit
ICU = Intensive Care Unit
INR = International Normalized Ratio
ISS = Injury Severity Score
ITU = Intensive Therapy/Treatment Unit
NISS = New Injury Severity Score
OR = Operating Room
RR = Respiratory Rate
RTS = Revised Trauma Score
SBP = Systolic Blood Pressure
TRISS = Trauma and Injury Severity Score

Inclusion and Exclusion Criteria

To ensure consistent data collection and comparison across Europe, a patient sustaining a severe injury and meeting the following criteria should be included:

Inclusion criteria

- New Injury Severity Score[14] > 15.

Exclusion criteria

- Admission to reporting hospital occurred more than 24 hours after injury.
- Patient declared dead before hospital arrival or with no signs of life upon hospital arrival and no response to hospital resuscitation.
- Asphyxia.
- Drowning.
- Burn patients are excluded if the burn represents the predominant injury or if the patient is treated in a specialised burn unit.

Predictive Model Variables

Prediction models are composed of patient and injury severity variables that are considered important for prediction of outcome. Such models are not determinative; rather, they provide the probability of an outcome (e.g., survival) for a given patient. Complex scoring systems, such as the AIS derivatives and the RTS score[15], have been used to create outcome prediction models. In the literature, the probability of survival (Ps) of a trauma patient has most frequently been estimated with the TRISS method[16-18], which is based on the ISS[19, 20], the RTS, age, and type of injury (blunt versus penetrating). However, experience from European and North American trauma registries have shown that other explanatory variables can be used for outcome prediction[5, 21-24].

Age

Data variable number

1

Abbreviated field name

pt_age_yrs

Definition of data variable

The patient's age at the time of injury.

Type of data

Continuous

Data variable values

Number

Source of data information

Hospital record

Coding guidance

Report in years rounded down. Ages above one year are reported without decimals (i.e., if the patient is 66 years and 7 months, the patient's age is reports as 66 years). Patients under one year of age are to be reported with one decimal number (e.g., 6 months is 0.5). Use a period, not a comma, as a decimal point. The local hospitals should be able to document all ages with one decimal digit.

Age is calculated as the date of injury minus the date of birth.

If data is missing, leave the data field blank.

Date of last revision

April 20, 2009

Gender

Data variable number
> 2

Abbreviated field name
> pt_gender

Definition of data variable
> The patient's gender.

Type of data
> Nominal

Data variable categories
> 1 = Male
> 2 = Female
> 999 = Unknown

Source of data information
> Hospital record
> National insurance number
> National population register
> Identity card

Coding guidance
> Accepted categories: 1-2 and 999

Date of last revision
> April 20, 2009

Dominating Type of Injury

Data variable number

    3

Abbreviated field name

    inj_dominant

Definition of data variable

    The dominant type of injury produced by the trauma.

Type of data

    Nominal

Data variable categories

    1 = Blunt
    2 = Penetrating
    999 = Unknown

Source of data information

    Hospital record
    Autopsy record

Coding guidance

    Accepted categories: 1-2 and 999

    The dominant injury is defined as the injury with the highest AIS score.

    If a patient has both blunt and penetrating traumas with the same AIS severity scores, the penetrating trauma is defined as the predominant injury.

    Definition of penetrating:
    Injury resulting from tissue penetration or puncture by a sharp object (e.g., bullet, knife, spear, glass shards, spike, bomb fragments).

    Definition of blunt:
    Injury resulting from the application of a diffuse force (i.e., injury incurred when the human body hits or is hit by an outside object).

    Examples:
- Crushes and amputations due to tearing forces are blunt injuries.
- A bite injury (e.g., dog bite) is classified as penetrating if the teeth penetrate the body beyond superficial structures.
- Injuries resulting from explosions (blast injuries) are defined as penetrating if there is anatomical evidence that the injuries resulted from bomb fragments.
- Other blast injuries are recorded as blunt (e.g., if an extremity has been injured or amputated due to changes in air pressure (barotrauma)).
- If a finger has been amputated as a result of a ballistic injury, it is classified

as a penetrating injury.

- If a limb has been cut off (amputated) by a knife or sword, it is classified as a penetrating injury.
- If a blunt object/instrument (e.g., pipe, pole) penetrates the body, it is classified as a penetrating injury.
- If a patient has suffered a laceration of the forehead as a result of a direct impact against the front windscreen of a car, the injury is classified as a blunt injury.

Date of last revision

March 5, 2009

Mechanism of Injury

Data variable number

    4

Abbreviated field name

    inj_mechanism

Definition of data variable

    The mechanism (external factor) that caused the injury event.

Type of data

    Nominal

Data variable categories

    1 = Traffic: motor vehicle accident – not motorcycle (the injured patient is an occupant or passenger of a motor vehicle; i.e., car, pickup truck, van, heavy transport vehicle, bus)

    2 = Traffic: motorcycle accident (the injured patient is an occupant or passenger of a motorcycle)

    3 = Traffic: bicycle accident (the injured patient is an occupant or passenger of a bicycle)

    4 = Traffic: pedestrian (the injured patient is a pedestrian)

    5 = Traffic: other (the injured patient is an occupant or passenger of other means of transport; i.e., ship, airplane, railway train)

    6 = Shot by handgun, shotgun, rifle, other firearm of any calibre

    7 = Stabbed by knife, sword, dagger, other pointed or sharp object

    8 = Struck or hit by blunt object (i.e., tree, tree branch, bar, stone, human body part, metal, other)

    9 = Low energy fall (fall at the same level)

    10 = High energy fall (fall from a higher level)

    11 = Blast injury (the injured patient is involved in an explosion)

    12 = Other

    999 = Unknown

Source of data information

    EMS record

    HEMS record

    Hospital record

    Autopsy record

    Other relevant documentation

Coding guidance

    Accepted categories: 1-12 and 999

    Fall-related injuries are separated into high and low energy falls, where the impact is more important than the exact height; same level falls belong to low energy falls while falls from one or more floors are high energy falls.

Low energy falls have been classified as < 1 meter by some registries and < 2 or < 3 meters by others. We believe that they are still low energy falls. If an exact definition is required, we suggest a person's height as a cut-off.

The best cut-off value between high and low energy falls is an area where there is a lack of uniformity and lack of good evidence, so for future development, the Utstein Template suggestion is that individual registries record the actual estimated height of the fall in meters so that an analysis can be performed.

Date of last revision
April 30, 2009

Intention of Injury

Data variable number

5

Abbreviated field name

inj_intention

Definition of data variable

Information about the role of human intent of an injury, primarily determined by the incident and not by the resulting injury.

Type of data

Nominal

Data variable categories or values

1 = Accident (unintentional)
2 = Self-inflicted (suspected suicide, incomplete suicide attempt, or injury attempt)
3 = Assault (suspected)
4 = Other
999 = Unknown

Source of data information

EMS record
HEMS record
Hospital record
Autopsy record
Other relevant documentation

Coding guidance

Accepted categories: 1-4 and 999

Date of last revision

October 24, 2008

Pre-injury ASA Physical Status Classification

Data variable number
>6

Abbreviated field name
>pt_asa_preinjury

Definition of data variable
>The co-morbidity existing before the incident.

Type of data
>Ordinal

Data variable categories or values
>1 = ASA-PS 1. A normal healthy patient
>2 = ASA-PS 2. A patient with mild systemic disease
>3 = ASA-PS 3. A patient with severe systemic disease
>4 = ASA-PS 4. A patient with severe systemic disease that is a constant threat to life
>5 = ASA-PS 5. A moribund patient who is not expected to survive without an operation
>6 = ASA-PS 6. A declared brain-dead patient whose organs are being removed for donor purposes
>999 = Unknown

Source of data information
>Hospital record
>Previous hospital records
>X-ray study reports
>Autopsy reports
>Other relevant documentation

Coding guidance
>Accepted categories: 1-6 and 999
>
>**1 = ASA-PS 1. A normal healthy patient.**
>Guidelines: No organic, physiologic, biochemical, or psychiatric disturbance. Any disorder that is localised, without systemic effects. Smoking < 5 cigarettes per day.
>Examples: Healthy non-smoker, admitted for varicose vein operation
>
>**2 = ASA-PS 2. A patient with mild systemic disease.**
>Guidelines: Present pathology might imply specific measures or anaesthesia related precautions. The disturbance(s) might be caused by the condition to be surgically treated or by another pathologic process. Smoking > 5 cigarettes per day.

Examples: Mild organic heart disease, uncomplicated diabetes mellitus (type 1 or 2), benign hypertension without complications, healthy patient with trismus, etc.

3 = ASA-PS 3. A patient with severe systemic disease.
Examples: Diabetes mellitus with organ complications, disabling heart disease, moderate to severe respiratory disease, angina pectoris, myocardial infarction > 6 months ago, etc.

4 = ASA-PS 4. A patient with severe systemic disease that is a constant threat to life.
Guidelines: The disease is not necessarily related to the condition to be surgically treated, neither is it necessarily improved by the surgical intervention per se.
Examples: Malignant hypertension, myocardial infarction < 6 months ago, severe liver, kidney, respiratory, or endocrine dysfunction, manifest cardiac failure, unstable angina pectoris, subarachnoid haemorrhage – patient awake or somnolent, etc.

5 = ASA-PS 5. A moribund patient who is not expected to survive without an operation.
Examples: Patient in circulatory shock because of ruptured aortic aneurysm, deeply comatose patient with intracranial haemorrhage, etc.

6 = ASA-PS 6. A declared brain-dead patient whose organs are being removed for donor purposes.

The pre-injury co-morbidity definitions used above, correspond to the American Society of Anesthesiologists Physical Status (ASA-PS) classification system[25].

The ASA-PS examples and guidelines in the template are translated from the Norwegian edition of ASA-PS[26, 27].

For the Utstein Template, the ASA-PS classification system is used solely to categorise co-morbidity that exists before injury[27]. Derangements resulting from the injury are not considered.

The category option "unknown" is used in cases where no information on pre-injury health is obtainable, e.g., patients that die in the early hospital care process/in the ED.

Date of last revision
October 28, 2008

Pre-hospital Cardiac Arrest

Data variable number
> 7

Abbreviated field name
> pre_card_arrest

Definition of data variable
> Did the patient suffer an injury-related pre-hospital cardiac arrest?

Type of data
> Nominal

Data variable categories or values
> 1 = Yes
> 2 = No
> 999 = Unknown

Source of data information
> EMS record
> HEMS record
> Hospital record

Coding guidance
> Accepted categories: 1-2 and 999
>
> Cardiac arrest is the cessation of cardiac mechanical activity, confirmed by the absence of a detectable pulse (palpatory, ultrasound), unresponsiveness, and apnoea (or agonal, gasping respirations)[28].

Date of last revision
> January 22, 2009

Glasgow Coma Scale Score upon arrival of EMS personnel at scene

Data variable number

8

Abbreviated field name

pre_gcs_sum

Definition of data variable

First documented pre-interventional GCS score upon arrival at scene of EMS personnel trained to assess.

Type of data

Ordinal

Data variable categories or values

3-15

999 = Unknown

Source of data information

EMS record

HEMS record

Coding guidance

Report on the 3-15 point ordinal scale and not the RTS coded value scale[15].

The GCS score is the sum of the Eye, Verbal, and Motor scores[29].

Intervention = any therapeutic care that may affect GCS.

If the total GCS score is unknown or not documented, code as 999.

Date of last revision

April 30, 2009

Glasgow Coma Scale Motor Component upon arrival of EMS personnel at scene

Data variable number

    9

Abbreviated field name

    pre_gcs_motor

Definition of data variable

    First recorded pre-interventional Glasgow Coma Scale (GCS) motor component upon arrival at scene of EMS personnel trained to assess.

Type of data

    Ordinal

Data variable categories or values

    6 = Obeys commands / appropriate response to pain
    5 = Localising pain
    4 = Withdrawal from pain
    3 = Flexion to pain (decorticate)
    2 = Extension to pain (decerebrate)
    1 = No motor response
    999 = Unknown

Source of data information

    EMS record
    HEMS record

Coding guidance

    Accepted categories: 1-6 and 999

    If the GCS motor component is unknown or not documented, code as 999.
    If only the total GCS score (data variable 8) is known, code as 999, unknown.

Date of last revision

    April 30, 2009

Glasgow Coma Scale Score upon arrival in ED / hospital

Data variable number

> 10

Abbreviated field name

> ed_gcs_sum

Definition of data variable

> First recorded GCS score upon arrival in the ED / hospital.

Type of data

> Ordinal

Data variable categories or values

> 3-15
> 99 = Intubated on arrival
> 999 = Unknown

Source of data information

> Hospital record (preferably ED record)

Coding guidance

> Report on the 3-15 point ordinal scale, not the RTS coded value scale.
> The GCS score is the sum of the Eye, Verbal, and Motor scores.
>
> If the total GCS score is unknown or not documented, code as 999.
> If the patient is in general anaesthesia/intubated/curarized on arrival, code as 99, intubated on arrival.

Date of last revision

> May 18, 2009

Glasgow Coma Scale Motor Component upon arrival in ED / hospital

Data variable number

11

Abbreviated field name

ed_gcs_motor

Definition of data variable

First recorded GCS motor component upon arrival in the ED / hospital.

Type of data

Ordinal

Data variable categories or values

6 = Obeys commands / appropriate response to pain
5 = Localising pain
4 = Withdrawal from pain
3 = Flexion to pain (decorticate)
2 = Extension to pain (decerebrate)
1 = No motor response
99 = Intubated on arrival
999 = Unknown

Source of data information

Hospital record (preferably ED record)

Coding guidance

Accepted categories: 1-6, 99, and 999

If the GCS motor component is unknown or not documented, code as 999.
If only the total GCS score (data variable 10) is known, code as 999, unknown.
If the patient is in general anaesthesia/intubated/curarized on arrival, code as 99, intubated on arrival.

Date of last revision

October 24, 2008

Systolic Blood Pressure upon arrival of EMS personnel at scene

Data variable number

12a

Abbreviated field name

pre_sbp_value

Definition of data variable

First recorded SBP upon arrival at scene of EMS personnel trained to assess.

Type of data

Continuous

Data variable categories or values

Number

Source of data information

EMS record
HEMS record

Coding guidance

Preferably, use pre-interventional SBP.
Preferably, record exact values (continuous data). In cases with missing exact values, use clinical categories (data variable 12b).
Patients in cardiac arrest are assigned SBP = 0.

If data is unknown or not documented, leave data field blank.

Measure the SBP by arm cuff.
Unit of measurement is mmHg.

Date of last revision

April 20, 2009

Systolic Blood Pressure Clinical Category upon arrival of EMS personnel at scene

Data variable number
> 12b

Abbreviated field name
> pre_sbp_rtscat

Definition of data variable
> First recorded SBP Clinical Category upon arrival at scene of EMS personnel trained to assess. Use only if exact SBP value (data variable 12a) is missing.

Type of data
> Ordinal

Data variable categories or values
> 4 = RTS 4   > 89 ("good radial pulse")
> 3 = RTS 3   76 – 89 ("weak radial pulse")
> 2 = RTS 2   50 – 75 ("femoral pulse")
> 1 = RTS 1   1 – 49 ("only carotid pulse")
> 0 = RTS 0   0 ("no carotid pulse")
> 999 = Unknown

Source of data information
> EMS record
> HEMS record

Coding guidance
> Accepted categories: 0–4 and 999
>
> Preferably, record the pre-interventional SBP.
> Leave data field blank if the actual SBP value is documented in 12a. If both 12a and clinical category are missing, use code 999, unknown.

Date of last revision
> April 20, 2009

Systolic Blood Pressure upon arrival in ED / hospital

Data variable number

13a

Abbreviated field name

ed_sbp_value

Definition of data variable

First recorded SBP upon arrival in the ED / hospital.

Type of data

Continuous

Data variable categories or values

Number

Source of data information

Hospital record (preferably ED record)

Coding guidance

Preferably, record exact values (continuous data). In cases with missing exact values, use clinical categories (data variable 13b).
Patients in cardiac arrest are assigned SBP = 0.
If data is unknown or not documented, leave data field blank.

Measure the SBP by arm cuff or arterial line.
Unit of measurement is mmHg.

Date of last revision

April 20, 2009

Systolic Blood Pressure Clinical Category upon arrival in ED / hospital

Data variable number

    13b

Abbreviated field name

    ed_sbp_rtscat

Definition of data variable

    First recorded SBP Clinical Category upon arrival in the ED / hospital. Use only if exact SBP value (data variable 13a) is missing.

Type of data

    Ordinal

Data variable categories or values

    4 = RTS 4   > 89 ("good radial pulse")
    3 = RTS 3   76 - 89 ("weak radial pulse")
    2 = RTS 2   50 - 75 ("femoral pulse")
    1 = RTS 1   1 - 49 ("only carotid pulse")
    0 = RTS 0   0 ("no carotid pulse")
    999 = Unknown

Source of data information

    Hospital record (preferably ED record)

Coding guidance

    Accepted categories: 0-4 and 999

    Leave data field blank if the exact SBP value is documented in 13a.
    If both 13a and clinical category are missing, use code 999, unknown.

Date of last revision

    April 30, 2009

Respiratory Rate upon arrival of EMS personnel at scene

Data variable number

14a

Abbreviated field name

pre_rr_value

Definition of data variable

First recorded respiratory rate (RR) upon arrival at scene of EMS personnel trained to assess.

Type of data

Continuous

Data variable categories or values

Number

Source of data information

EMS record
HEMS record

Coding guidance

Preferably, record exact values (continuous data). In cases with missing exact values, use clinical categories (data variable 14b).
Preferably, use pre-interventional RR.
If data is unknown or not documented, leave data field blank.

Unit of measurement is breaths per minute.

Date of last revision

April 20, 2009

Respiratory Rate Clinical Category upon arrival of EMS personnel at scene

Data variable number

14b

Abbreviated field name

pre_rr_rtscat

Definition of data variable

First recorded RR upon arrival at scene of EMS personnel trained to assess.
Use only if actual RR value (data variable 14a) is missing.

Type of data

Ordinal

Data variable categories or values

4 = RTS 4   10 - 29 ("normal")
3 = RTS 3   > 29 ("fast")
2 = RTS 2   6 - 9 ("slow")
1 = RTS 1   1 - 5 ("gasp")
0 = RTS 0   0 ("no respiration")
999 = Unknown

Source of data information

EMS record
HEMS record

Coding guidance

Accepted categories: 0-4 and 999

Preferably, record the pre-interventional RR.
Preferably, record exact values.
Leave data field blank if the actual RR value is documented in 14a.
If both 14a and clinical category are missing, use code 999, unknown.

Date of last revision

April 20, 2009

Respiratory Rate upon arrival in ED / hospital

Data variable number
> 15a

Abbreviated field name
> ed_rr_value

Definition of data variable
> First recorded RR upon arrival in the ED / hospital.

Type of data
> Continuous

Data variable categories or values
> Number

Source of data information
> Hospital record (preferably ED record)

Coding guidance
> Preferably, record exact values (continuous data). In cases with missing exact values, use clinical categories (data variable 15b).
>
> If data is unknown or not documented, leave data field blank.
> If the patient is in general anaesthesia/intubated/curarized on arrival, use code 99, intubated before arrival.
> Information about pre-hospital airway management is also documented in data variable 26.
>
> Unit of measurement is breaths per minute.

Date of last revision
> April 25, 2009

Respiratory Rate Clinical Category upon arrival in ED / hospital

Data variable number
15b

Abbreviated field name
ed_rr_rtscat

Definition of data variable
First recorded RR upon arrival in the ED / hospital. Use only if actual RR value (data variable 15a) is missing.

Type of data
Ordinal

Data variable categories or values
4 = RTS 4   10 - 29 ("normal")
3 = RTS 3   > 29 ("fast")
2 = RTS 2   6 - 9 ("slow")
1 = RTS 1   1 - 5 ("gasp")
0 = RTS 0   0 ("no respiration")
999 = Unknown

Source of data information
Hospital record (preferably ED record)

Coding guidance
Accepted categories: 0-4 and 999

Preferably, record exact values.
Leave data field blank if the actual RR value is documented in 15a.
If both 15a and clinical category are missing, use code 999, unknown.

Date of last revision
April 25, 2009

Arterial Base Excess

Data variable number
16

Abbreviated field name
ed_be_art

Definition of data variable
First measured arterial base excess after arrival in the ED / hospital.

Type of data
Continuous

Data variable categories or values
Number

Source of data information
Hospital record

Coding guidance
Report the first arterial base excess (BE) value measured within the first hour after ED / hospital arrival. If more than one value has been measured within the first hour after arrival, report the first measured value, not the worst value.

If arterial BE is unknown or not documented, leave data field blank.
If arterial BE is not measured within the first hour after arrival, use code 9999.0.

Use a period, not a comma, as a decimal point.
Unit of measurement is mmol/l.
Reference range for base excess: ±3 mmol/l.

Date of last revision
April 30, 2009

Coagulation: INR

Data variable number
17

Abbreviated field name
ed_inr

Definition of data variable
First measured INR within the first hour after hospital arrival.

Type of data
Continuous

Data variable categories or values
Number

Source of data information
Hospital record

Coding guidance
Measure the INR within the first hour after arrival.

If data is unknown or not documented, leave data field blank.
If the INR is not measured within the first hour after arrival, use code 9999.0

Use a period, not a comma, as a decimal point.

Date of last revision
March 5, 2009

Number of Days on Ventilator

Data variable number
18

Abbreviated field name
hosp_vent_days

Definition of data variable
Total number of patient days spent on a mechanical ventilator.

Type of data
Continuous

Data variable categories or values
Number

Source of data information
Hospital record

Coding guidance
Record in full day increments with any partial day listed as a full day. If a patient is ventilated for half a day in the reporting hospital, number of days on ventilator = 1. No days on ventilator = 0 days.
Include all episodes.
Days on CPAP/BiPAP ventilation, both on a modern ventilator and on external devices, counts as days on a ventilator.

If number of days on ventilator is unknown, leave data field blank.

Date of last revision
October 28, 2008

Length of Stay in Reporting Hospital

Data variable number

19

Abbreviated field name

hosp_los_days

Definition of data variable

Length of stay in the reporting hospital.

Type of data

Continuous

Data variable categories or values

Number

Source of data information

Hospital record

Coding guidance

Report in full day increments with any partial day listed as a full day. If a patient is admitted for half a day in reporting hospital, length of stay = 1 day. If the patients die the same day as admission, length of stay = 1 day.

Do not count the length of stay as the date of discharge (D_d) minus the date of admission (D_a), which would give one day less. Rather, calculate as $(D_d - D_a) + 1$.

If the length of stay is unknown, leave data field blank.

Date of last revision

May 18, 2009

Discharge Destination

Data variable number

20

Abbreviated field name

hosp_dischg_dest

Definition of data variable

The patient's destination after the end of acute care in the reporting hospital.

Type of data

Nominal

Data variable categories or values

1 = Home
2 = Rehabilitation
3 = Morgue
4 = Another CCU, higher treatment level
5 = Another CCU, same level of care (e.g., foreign citizen sent home, guest patient sent to CCU at his/her own hospital)
6 = Another intermediate or low care somatic hospital ward
7 = Other
999 = Unknown

Source of data information

Hospital record

Coding guidance

Accepted categories: 1-7 and 999

CCU = critical care unit (including ICU, ITU, PICU, TICU, NICU, etc.)

Date of last revision

April 30, 2009

Glasgow Outcome Scale Score at Discharge from Reporting Hospital

Data variable number
    21

Abbreviated field name
    res_gos_dischg

Definition of data variable
    Glasgow Outcome Scale[30] score at discharge from reporting hospital.

Type of data
    Ordinal

Data variable categories or values
    5 = Good recovery
    4 = Moderate disability (e.g., disabled but independent of care)
    3 = Severe disability (e.g., conscious but disabled; care-dependent; intubated)
    2 = Persistent vegetative state (i.e., unresponsive; care-dependent)
    1 = Death
    999 = Unknown

Source of data information
    Hospital record

Coding guidance
    Accepted categories: 1-5 and 999

    Although GOS was developed for patients with head injuries, it represents a rough disability outcome score, and as such, it should be regarded as an estimate of the amount of care needed for a trauma patient beyond the acute hospital stay. We are aware that the best way of assessing the GOS is after at least six months, but since this was not considered feasible, registration at discharge from the reporting hospital was chosen as the endpoint.

    Intubated patients are coded with a GOS score 3 = Severe disability (except head injury patients in persistent vegetative state who are coded as GOS score 2).
    A fully conscious but tetraplegic patient is GOS score 3, as the patient is severely disabled and care-dependent.

Date of last revision
    May 16, 2009

Survival Status

Data variable number

22

Abbreviated field name

res_survival

Definition of data variable

Alive or dead 30 days after injury.

Type of data

Nominal

Data variable categories or values

1 = Dead
2 = Alive
999 = Unknown

Source of data information

Hospital record
National population register
Death certificate information

Coding guidance

Accepted categories: 1-2 and 999

Thirty-day mortality is the endpoint, and indicates patient status at 30 days. Deaths occurring later than 30 days after injury are not considered; such patients are coded as survivors.

Foreign citizens, who are alive when repatriated to their home country before 30 days after injury, are defined as survivors (i.e., the outcomes of these patients are not followed after they return to their home countries).

Date of last revision

February 20, 2009

Abbreviated Injury Scale

Data variable number
> 23

Abbreviated field name
> inj_ais

Definition of data variable
> The AIS severity codes that reflects the patient's injuries.

Type of data
> Ordinal

Data variable categories or values
> Number

Source of data information
> Hospital records
> X-ray study reports
> Autopsy records
> EMS record
> HEMS record
> Other relevant documentation

Coding guidance
> The AIS 2005[31] edition is the Utstein-recommendation.
>
> AIS has been used to describe and rank injuries by severity throughout the body, and is incorporated in several injury scoring systems that assess the combined effects of multiple injuries[31, 32]. The most employed systems are the ISS[19, 20], the Anatomic Profile (AP)[33], and the NISS[14]. ISS is the sum of the squares of the highest AIS scores in each of the three most severely injured ISS body regions. In contrast, NISS is defined as the sum of the squares of the three highest AIS codes, regardless of body region.
>
> All injuries should be listed, as should duplicate codes (e.g., bilateral femoral fractures, multiple spine fractures, etc.).
>
> Coding a traumatic amputation according to the AIS coding dictionary results in a single AIS score (e.g., "Traumatic amputation below knee" is AIS = 3, resulting in ISS and NISS = 9). These ISS and NISS scores will exclude the patient from comparison of data according to the inclusion criteria Utstein Trauma Template. Rather, we recommend that a traumatic amputation is reported with codes for all injuries that are results of the amputation; in this case, both the tibial injury, fibula injury, and popliteal artery injury. If these injuries are all coded, according to the NISS convention, the patient will be included in the comparison (NISS = 17).

The latter coding convention, in which all injuries are reported (according to the Utstein Template and NISS), is recommended.

Date of last revision

May 19, 2009

System Characteristic Descriptors

Within Europe, there are large differences in the philosophies and structures of trauma care systems. We do not have enough evidence regarding which components of a system that contributes to better outcomes and to what degree. The data variables may allow description of the care of individual patients in different trauma systems. The intention of these data variables is that they may indicate key differences between systems and thereby permit comparisons of the effects of system structure on outcomes.

Time from Alarm until Hospital Arrival

Data variable number

24

Abbreviated field name

dt_alarm_hosp

Definition of data variable

Time interval from when the alarm call is answered at the emergency call centre until the patient arrives at the reporting hospital.

Type of data

Continuous

Data variable categories or values

HH:MM

Source of data information

Dispatch centre printouts
Emergency call centre printouts
EMS record
HEMS record
Hospital record

Coding guidance

In some systems (e.g., Norway, Sweden, UK), the call-taker is separated from the person dispatching the resources[34].
Preferably, record the time of call to the emergency call centre. If the time of call to the emergency call centre is not obtainable, record the time of call to the dispatch centre.

This data variable is only used for primary (first hospital) admissions.
The variable should indicate the pre-hospital system's efficiency in dealing with traumatised patients.

If the time interval is unknown, leave data field blank.

Date of last revision

April 30, 2009

Highest Level of Pre-Hospital Care Provided

Data variable number

    25

Abbreviated field name

    pre_provided

Definition of data variable

    The highest level of pre-hospital care provided to the injured patient.

Type of data

    Ordinal

Data variable categories or values

    1 = Level I. No Field Care
    2 = Level II. Basic Life Support
    3 = Level III. Advanced Life Support – No Physician Present
    4 = Level IV. Advanced Life Support – Physician Field Care
    5 = Other
    999 = Unknown

Source of data information

    EMS record
    HEMS record
    Hospital record

Coding guidance

    Accepted categories: 1-5 and 999

Report the highest level of pre-hospital care provided to the injured patient. Report the actual level of provided care, regardless of whether or not the patient's needs were different. The revised template's categorisation of level of pre-hospital care provided is based on levels proposed by McSwain[35].

1 = Level I. No Field Care.
Guidelines: No field care beyond layman (nonprofessional) first aid is provided for the patient; transportation by private vehicle without medical supervision.

2 = Level II. Basic Life Support.
Guidelines: The EMT / paramedic provides airway management, including bag-valve-mask ventilation; enhanced oxygen (FiO_2 approximately 0.85); compression (or tourniquet) haemorrhage control; potential fracture immobilisation utilizing, at minimum, a cervical collar and long backboard with all bones appropriately immobilised to the backboard; rapid movement of the patient to the hospital.

3 = Level III. Advanced Life Support – No Physician Present.
Guidelines: This level includes everything listed above in the basic life support level (level II), in addition to endotracheal intubation or supraglottic adjunct

insertion and/or i.v. fluid replacement based on EMT / paramedic judgment, nurse judgement, or physician-written protocols.

4 = Level IV. Advanced Life Support – Physician Field Care.
<u>Guidelines</u>: A physician with trauma care competence is present at scene. The physician provides or directs the pre-hospital patient care and advanced life support. This level includes everything listed in the above leves (II-III) in addition to more invasive and technically more difficult measures/interventions.

Date of last revision
May 16, 2009

Pre-Hospital Airway Management

Data variable number
>26a

Abbreviated field name
>pre_intubated

Definition of data variable
>Was the injured patient´s airway managed (with the airway adjuncts in data variable no. 26b) before hospital arrival?

Type of data
>Nominal

Data variable categories or values
>1 = Yes
>2 = No
>999 = Unknown

Source of data information
>EMS record
>HEMS record
>Hospital record
>Other relevant documentation

Coding guidance
>Accepted categories: 1-2 and 999
>
>This data variable considers airway management with the airway adjuncts listed in data variable no. 26b.

Date of last revision
>May 16, 2009

Type of Pre-Hospital Airway Management

Data variable number
26b

Abbreviated field name
pre_intub_type

Definition of data variable
Type of pre-hospital airway management.

Type of data
Nominal

Data variable categories or values
1 = A tube in the trachea (orotracheal, nasotracheal, or surgical airway) – drug assisted
2 = A supraglottic airway adjunct that prevents speech (such as oesophago-tracheal combitube, the laryngeal tube, and various kinds of laryngeal masks) – drug assisted
3 = A tube in the trachea (orotracheal, nasotracheal, or surgical airway) – not drug assisted
4 = A supraglottic airway adjunct that prevents speech (such as oesophago-tracheal combitube, the laryngeal tube, and various kinds of laryngeal masks) – not drug assisted
5 = Other
999 = Unknown

Source of data information
EMS record
HEMS record
Hospital record

Coding guidance
Accepted categories: 1-5 and 999

Report the type of airway device that was used for pre-hospital airway management.

Supraglottic airway adjuncts (e.g., oesophago-tracheal combitube, the laryngeal tube, various kinds of laryngeal masks) are not inserted past the vocal cords into the trachea.
Use of an oropharyngeal airway is not considered as intubation.

Drug assisted = anaesthesia, neuromuscular blocking agents, or deep sedation.

Date of last revision
May 16, 2009

Type of Transportation

Data variable number
> 27

Abbreviated field name
> pre_transport

Definition of data variable
> The main type of transportation delivering the patient to the reporting hospital.

Type of data
> Nominal

Data variable categories or values
> 1 = Ground ambulance
> 2 = Helicopter ambulance
> 3 = Fixed-wing ambulance
> 4 = Private/public vehicle
> 5 = Walk-in
> 6 = Police
> 7 = Other
> 999 = Unknown

Source of data information
> EMS record
> HEMS record
> Hospital record

Coding guidance
> Accepted categories: 1-7 and 999
>
> Clarification: If the patient is transported by a fixed-wing ambulance to an airport in the near proximity of a trauma centre, and transported the last (and shortest) distance from the airport to the hospital by ground ambulance, record the fixed-wing ambulance transport.

Date of last revision
> April 20, 2009

Type of First Key Emergency Intervention

Data variable number

    28

Abbreviated field name

    ed_emerg_proc

Definition of data variable

    The first key emergency intervention performed for treatment and stabilisation of the patient.

Type of data

    Nominal

Data variable categories or values

    1 = Damage control thoracotomy (any emergency or urgent thoracotomy performed for bleeding or suspected bleeding into the chest, but excluding simple thoracic tube drainage)

    2 = Damage control laparotomy (any emergency or urgent laparotomy performed for bleeding or suspected bleeding into the abdomen, including bleeding from the aorta)

    3 = Extraperitoneal pelvic packing

    4 = Limb revascularisation (arterial injury necessitating vascular surgery or interventional radiology, including all interventions for pulseless limb, decreased perfusion, and intimal arterial injuries)

    5 = Interventional radiology (angiographic embolisation; stent; stent-graft placement – excluding limb revascularisations which are classified as 4)

    6 = Craniotomy

    7 = Intracranial pressure device insertion (excluding cases were the ICP device was inserted as part of a craniotomy, which are classified as 6)

    8 = Other

    99 = No emergency interventions performed

    999 = Unknown

Source of data information

    EMS record

    HEMS record

    Hospital record

Coding guidance

    Accepted categories: 1-8, 99, and 999

    Key emergency interventions are essential procedures conducted during the hospital stay (ED, OR, critical care unit) for the treatment and stabilisation of severe injuries.

    Record only the FIRST performed emergency intervention (of the defined set). The first intervention will, in most cases, be the life saving intervention, and it

is recommended that the EI found in the present categories be recorded, even if there is no proof that the cause of intervention was bleeding.

The list of emergency interventions was developed to cover the broad majority of emergency intervention (but perhaps not all of them). For the purpose of comparative evaluation of the acute treatment process, some less common types of intervention may not be appropriate.

The term ´damage control´, as used in some categories, implies that only the urgent internevntion (rather than later planned procedures) should be recorded.

When measuring the time interval until first performed emergency intervention (data variable no. 35), the categories 'other' and 'unknown' cannot be used. A summation of times until 'other' or 'unknown' interventions would be too difficult to interpret.

Clarification: If clamping of the aorta precedes packing of the pelvis in patients with a pelvic haemorrhage and circulatory collapse, pelvic packing (category no. 3) is classified as the first intervention, since control of the bleeding is done at the bleeding site after the clamping.

Clarification: All limb revascularisations should be categorised in the same group (whether surgical or radiological) since it is the fact that the patient needed revascularisation (rather than the exact method used) that is important.

Date of last revision
 May 18, 2009

Activation of the Trauma Team

Data variable number

29

Abbreviated field name

ed_tta

Definition of data variable

Was the hospital's trauma team activated prior to or upon arrival of the patient?

Type of data

Nominal

Data variable categories or values

1 = Yes
2 = No
99 = The hospital has no formal trauma team activation
999 = Unknown

Source of data information

Hospital record

Coding guidance

Accepted categories: 1-2, 99, and 999

This data variable describes whether the traumatised patient received immediate in-hospital attendance by a multidisciplinary team of healthcare personnel that aims to evaluate, resuscitate, and provide early final treatment.

Date of last revision

March 5, 2009

Inter-Hospital Transfer

Data variable number

30

Abbreviated field name

hosp_transferred

Definition of data variable

Was the patient transferred from/to another hospital for acute treatment?

Type of data

Nominal

Data variable categories

1 = No
2 = Yes - Transferred IN to the reporting hospital
3 = Yes - Transferred OUT of the reporting hospital
4 = Yes - Transferred both IN to and OUT of the reporting hospital
999 = Unknown

Source of data information

Hospital record

Coding guidance

Accepted categories: 1–4 and 999

Patients that are transferred from a local hospital in to the trauma receiving hospital (reporting hospital) should be assigned category no. 2.

If the patient is transported from the reporting hospital to a trauma centre with a higher level of trauma care competence, the patients should be assigned category no. 3.

If the patient is sent from a local hospital to the reporting hospital, but is later transferred back to a local hospital after the end of care at the reporting hospital, the patient should be assigned category no. 4.

Date of last revision

March 5, 2009

Highest Level of In-Hospital Care

Data variable number

31

Abbreviated field name

hosp_care_level

Definition of data variable

The highest level of care at the reporting hospital.

Type of data

Ordinal

Data variable categories or values

1 = Emergency Department
2 = General Ward
3 = Operation Theatre
4 = High Dependency Unit (HDU)
5 = Critical Care Unit (definition based on nurse to patient ratio)
999 = Unknown

Source of data information

Hospital record

Coding guidance

Accepted categories: 1-5 and 999

Critical Care Unit = ICU, ITU, Paediatric ICU, Coronary Care Unit, Neurosurgical ICU, etc.

Clarification: Patients admitted into the hospital may require a level of care that cannot be provided on a general ward (i.e., after an operation, or patients who have a single failing organs system) but does not require admission into a Critical Care Unit. This area is often referred to as the High Dependency Unit (category no. 4).

Clarification: Patients who need more intensive care and treatment (i.e., patients that cannot breathe without medical help, those who need support for two failing organ systems, or have multi-organ failure) will usually be cared for in a Critical Care Unit (category no. 5). These units are designed to deliver the highest of medical and nursing care to the sickest of patients.

This is an ordinal scale ranging from 1-5 where category 5 is defined as the highest level of in-hospital care. Record only the highest level of in-hospital care that the patient received at the reporting hospital.

Date of last revision

May 5, 2009

Process Mapping Variables

Process Mapping variables are intended to measure the efficiency of the trauma care process for individual patients. These variables document time factors, care processes and care activities, and may be used to monitor standards of care or as quality indicators of trauma care.

Time from Alarm until Arrival at Scene

Data variable number

> 32

Abbreviated field name

> dt_alarm_scene

Definition of data variable

> The time interval from when the emergency call is answered (at the emergency call centre) until the first EMS provider (at least the equivalent of EMTs) arrives at the patient.

Type of data

> Continuous

Data variable categories or values

> HH:MM

Source of data information

> Dispatch centre printouts
> Emergency call centre printouts
> EMS record
> HEMS record
> Hospital record

Coding guidance

> Arrives at the patient = when the first dispatch vehicle has stopped at the scene of injury.
>
> Preferably, record the time of call to the emergency call centre. If the time of call to the emergency call centre is not obtainable, record the time of call to the dispatch centre.
>
> This data variable is used for first hospital admissions.
> The core data represents parts of the first link in the chain of survival, and is an important measure of the quality and efficiency of the pre-hospital EMS system.
>
> If the time interval is unknown, leave data field blank.

Date of last revision

> April 30, 2009

Time until Normal Arterial Base Excess

Data variable number

> 33

Abbreviated field name

> dt_ed_norm_be

Definition of data variable

> Time interval from hospital / ED arrival until the first measured arterial base excess value within normal range.

Type of data

> Continuous

Data variable categories or values

> HH:MM

Source of data information

> Hospital record

Coding guidance

> Measure the arterial base excess (BE) at hospital arrival (data variable no. 16), and in cases of abnormal values, report the time interval from hospital arrival until the first measured normalised arterial BE (within reference range).
>
> If the patient arrives with a normal arterial BE, use the time interval 00:00.
> If the time interval from hospital arrival until normalisation is unknown, leave data field blank.
>
> In cases where the arterial BE normalises, but the exact time of normalisation is unknown, document and report the time interval from hospital arrival until the first measured normalised arterial BE.
> If normalisation of arterial BE does not occur (e.g., because of death), report as time interval 9999:00.
>
> Reference range for base excess: ±3 mmol/l.
>
> The time required to achieve normal arterial BE is considered an overall marker of the efficiency of patient treatment (including resuscitation, diagnostics and surgery) and as an indicator of process quality (quality indicator).
> The arterial BE should be measured regularly after hospital arrival.

Date of last revision

> May 5, 2009

Time until First CT Scan

Data variable number
34

Abbreviated field name
dt_ed_first_ct

Definition of data variable
The time interval from hospital arrival until first CT scan image.

Type of data
Continuous

Data variable categories or values
HH:MM

Source of data information
Hospital record

Coding guidance
Report the elapsed time from hospital arrival until first CT scan image (time marked on the first CT scan image)., regardless of whether the first CT scan was an organ-focused or whole-body CT scanning.

If the time interval is unknown, leave data field blank.

This data represents the time required to initiate key in-hospital diagnostic tests, and may be seen as a measure of the efficiency of the trauma system in the initial phase.

Date of last revision
April 20, 2009

Time until First Key Emergency Intervention

Data variable number

35

Abbreviated field name

dt_ed_emerg_proc

Definition of data variable

Time from hospital admission until the FIRST emergency intervention.

Type of data

Continuous

Data variable categories or values

HH:MM

Source of data information

Hospital record
EMS record
HEMS record

Coding guidance

Report the time interval from hospital admission until the time of FIRST knife to skin. Consider only the emergency interventions (1-7) listed in data variable no. 28.
If the time interval is unknown, leave data field blank.

Time until first intervention is to be seen as a measure of the efficiency of the trauma system in the initial phase.

Clarification: In cases when aorta clamping precedes extraperitoneal pelvic packing (category no. 3), start of procedure is defined as start of skin incision for the aorta clamping procedure.

Date of last revision

May 16, 2009

Appendix 1: Specific Premises

Constructing a data variable

In order to prevent any risk of misinterpretation, an effort must be made to define every core data variable as unambiguously as possible[36]; thus, before data variables are operationalised, it must be clarified how they are defined, measured, and documented. To meet this requirement, this data variable dictionary contain information about:

- 'Data variable name'
- 'Data variable number'
- 'Abbreviated field name'
- 'Definition of data variable'
- 'Type of data'
- 'Data variable categories or values'
- 'Source of data information'
- 'Coding guidance'
- 'Date of last revision'

Constructing an abbreviated field name

The abbreviated field names in the Utstein template should be identical in European registries. Abbreviated field names can make it easier to identify data variables and should be should be used whenever data are exported (e.g., in delimited text format or in XML format).

The principles used for designing an abbreviated field name were:

- Use alphanumeric characters only (A to Z, a to z, and 0 to 9)
- Do not use spaces between characters; instead, use an underscore (_)
- Use a maximum of 16 characters
- General rule: where_what(_specification(_subspecification))
- For time differences: dt_from_to
- Prefixes ("Where_") are as follows:

pt_	Patient
inj_	Injury
pre_	Pre-hospital
ed_	Emergency department
hosp_	Hospital
dt_	Time difference
res_	Result (outcome)

Definitions

Abbreviated field name = Unique abbreviated data variable name. The field name is essential in statistical analysis tools (e.g., SPSS or STATA).

Data variable definition = Defines how to understand the data variable.

Data type = Presentation of data, choice of effect measure and statistical analysis depends on the scale of measure. Normally there is a separation between categorical and continuous scales. Categorical data are divided into nominal and ordinal variables[37].

Data variable categories or values = A variable can either be denoted in categorical (divided in subgroups) or continuous (exact) values.

Source of data information = Describes the sources of information that should be used for identifying essential patient information.

Coding guidance = Gives a specific description of how the data variable should be interpreted and coded.

Continuous variable = Continuous variables are information that can be measured on a continuum or scale, and can have almost any numeric value. These data can be subdivided into finer and finer increments, depending upon the precision of the measurement system[37]. Examples are height, weight, blood pressure, and age.

Nominal variable = A nominal variable is divided into separate categories, with no natural order between the categories[37]. One example is the classification of the type of injury as a blunt or penetrating trauma.

Ordinal variable = An ordinal variable is divided into certain categories in such a way that there is an underlying rank-order (distance) between the categories[37]. One example is a subjective assessment of degree of pain, classified as: minimal, moderate, severe, and unbearably severe pain[37]. The intervals between the categories are not interpretable in an ordinal measure.

References

[1]   Dick WF, Baskett PJ. Recommendations for uniform reporting of data following major trauma - the Utstein style. A report of a working party of the International Trauma Anaesthesia and Critical Care Society (ITACCS). Resuscitation 1999;42:81-100

[2]   The EuroTARN Writing Committee on behalf of the EuroTARN Group. A comparison of European Trauma Registries The first report from the EuroTARN Group. Resuscitation 2007;75:286-97

[3]   The Laerdal Foundation for Acute Medicine. Available at: http://www.laerdalfoundation.org/. Accessed: October 10, 2008

[4]   The Norwegian Air Ambulance Foundation. Available at: http://www.norskluftambulanse.no. Accessed: October 10, 2008

[5]   Trauma Audit and Research Network. TARN. Available at: https://www.tarn.ac.uk/. Accessed: February 8, 2009

[6]   Trauma Registry of the German Society of Trauma Surgery. Traumaregister der Deutsche Gesellschaft für Unfallchirurgie. Available at: http://www.traumaregister.de/de/index.htm. Accessed: February 8, 2009

[7]   Italian National Registry of Major Injuries. Registro Intraospedaliero Multiregionale Traumi Gravi. Available at: http://www.pprg.infoteca.it/ritg/. January 8, 2009

[8]   SCANTEM. Scandinavian Networking Group for Trauma and Emergency Management. Available at: http://www.scantem.org/. Accessed: February 8, 2009

[9]   Owen JL, Bolenbaucher RM, Moore ML. Trauma Registry Databases: A Comparison of Data Abstraction, Interpretation, and Entry at Two Level I Trauma Centers. J Trauma 1999;46:1100-04

[10]   Garthe E. Overview of trauma registries in the United States. J AHIMA 1997;68:26, 28-32; quiz 33-4

[11]   Mann NC, Guice K, Cassidy L, et al. Are statewide trauma registries comparable? Reaching for a national trauma dataset. Acad Emerg Med 2006;13:946-53

[12]   Ringdal KG, Lossius HM, SCANTEM ad hoc group on Scandinavian MTOS and Trauma Registry. Feasibility of comparing core data from existing trauma registries in Scandinavia. Reaching for a Scandinavian major trauma outcome study (MTOS). Scand J Surg 2007;96:325-31

[13]   Ringdal KG, Coats TJ, Lefering R, et al. The Utstein template for uniform reporting of data following major trauma: a joint revision by SCANTEM, TARN, DGU-TR and RITG. Scand J Trauma Resusc Emerg Med 2008;16:7

[14]   Osler T, Baker SP, Long W. A modification of the injury severity score that both improves accuracy and simplifies scoring. J Trauma 1997;43:922-5; discussion 25-6

[15]   Champion HR, Sacco WJ, Copes WS, et al. A Revision of the Trauma Score. J Trauma 1989;29:623-29

[16]   Champion HR, Sacco WJ, Hunt TK. Trauma severity scoring to predict mortality. World J Surg 1983;7:4-11

[17]   Boyd CR, Tolson MA, Copes WS. Evaluating trauma care: the TRISS method. Trauma Score and the Injury Severity Score. J Trauma 1987;27:370-78

[18]   Champion HR, Copes WS, Sacco WJ, et al. The Major Trauma Outcome Study: Establishing national norms for trauma care. J Trauma 1990;30:1356-65

[19]   Baker SP, O'Neill B, Haddon W, Jr., Long WB. The injury severity score: a method for describing patients with multiple injuries and evaluating emergency care. J Trauma 1974;14:187-96

[20]   Baker SP, O'Neill B. The injury severity score: an update. J Trauma 1976;16:882-5

[21]   Champion HR, Copes WS, Sacco WJ, et al. A new characterization of injury severity. J Trauma 1990;30:539-45; discussion 45-6

[22]   Rixen D, Raum M, Bouillon B, et al. Base deficit development and its prognostic significance in posttrauma critical illness: an analysis by the trauma registry of the Deutsche Gesellschaft für Unfallchirurgie. Shock 2001;15:83-9

[23]   Ruchholtz S, Lefering R, Paffrath T, et al. Reduction in Mortality of Severely Injured Patients in Germany. Dtsch Arztebl Int 2008;105:225-31

[24]   Bouamra O, Wrotchford A, Hollis S, et al. A new approach to outcome prediction in trauma: A comparison with the TRISS model. J Trauma 2006;61:701-10

[25]   American Society of Anesthesiologists. ASA Physical Status Classification System. Available at: http://www.asahq.org/clinical/physicalstatus.htm. Accessed: October 10, 2008

[26]   Norwegian Society of Anaesthesiology. ASA Physical Status Classification (ASA-klassifikasjonen). Available at: http://nafweb.no/index.php?option=com_content&view=article&id=62:asa-klassifikasjon&catid=38:standarder&Itemid=27. Accessed: October 10, 2008

[27]   Skaga NO, Eken T, Sovik S, et al. Pre-injury ASA physical status classification is an independent predictor of mortality after trauma. J Trauma 2007;63:972-78

[28]   Cummins RO, Chamberlain DA, Abramson NS, et al. Recommended guidelines for uniform reporting of data from out-of-hospital cardiac arrest: the Utstein Style. A statement for health professionals from a task force of the American Heart Association, the European Resuscitation Council, the Heart and Stroke Foundation of Canada, and the Australian Resuscitation Council. Circulation 1991;84:960-75

[29]   Teasdale G, Jennett B. Assessment of coma and impaired consciousness. A practical scale. Lancet 1974;2:81-84

[30]   Jennett B, Bond M. Assessment of outcome after severe brain damage. Lancet 1975;1:480-4

[31]   Association for the Advancement of Automotive Medicine. The Abbreviated Injury Scale 2005. Barrington, IL: Association for the Advancement of Automotive Medicine 2005.

[32]   Sacco WJ, MacKenzie EJ, Champion HR, et al. Comparison of alternative methods for assessing injury severity based on anatomic descriptors. J Trauma 1999;47:441-6; discussion 46-7

[33]   Copes WS, Champion HR, Sacco WJ, et al. Progress in characterizing anatomic injury. J Trauma 1990;30:1200-7

[34]   Castren M, Karlsten R, Lippert F, et al. Recommended guidelines for reporting on emergency medical dispatch when conducting research in emergency medicine: The Utstein style. Resuscitation 2008; 79:193-7

[35]   McSwain NE, Jr. A plea for uniformity in EMS research. J Trauma 2002;52:1220-1

[36]   Kelsey JL, Whittemore AS, Evans AS, Thompson WD. Methods in observational epidemiology. 2nd ed. New York: Oxford University Press 1996.

[37]   Altman DG. Practical Statistics for Medical Research. London: Chapman & Hall/CRC 1991.