

The Trauma Audit & Research Network

Procedures manual



Updated January 2011
Including NEW CORE dataset
& New Reports



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1. Information prior to joining

1.1 RESOURCE REQUIREMENTS

Participant Contributions

Are based on the number of new attendances to the Emergency Department each year, the number of children admitted for further care of their injuries and the number of head injured patients admitted to Neurosurgical units. The numbers used are taken from [The Directory of Critical Care](#), which contains information relating to every NHS trust in the UK and Ireland and is updated every year.

Number of submissions (approximate)

- A Hospital receiving 60-70,000 new patients annually, would normally provide data on approximately **120-150 patients each year (plus transfers in)**; these patients would fulfil the current TARN Inclusion Criteria.
- A Hospital receiving 100,000 new patients annually, would normally provide data on approximately **200-300 patients each year (plus transfers in)**.

Data is entered onto an Electronic Data Collection and Reporting system (EDCR).

Staff Requirements

- Based upon an average sized site (60-70,000 annual attendances per annum) TARN would suggest that approximately **7-10 hours a week** is required for a Data Coordinator/s. This should enable the person to gather all data, enter submissions via computer and to organise multi-disciplinary trauma audit meetings (to use the reports provided by TARN).
- An **AFC Administrative Band 3/4 is recommended**. It is absolutely vital Clinician backup is available.
- Alternatively, your site may prefer to initiate Data collection in the Emergency Department via a **dedicated Clinician who** (usually a Nurse or middle grade Doctor) could enter all clinical data, then have the submissions completed via an Administrative person.

STARTUP Training

- TARN will ensure that all relevant staff members receive **STARTUP Training** (including an overview of TARN, EDCR data entry and reporting, injury coding and statistics). There is **no limit to the number of staff trained from each site**.
- All STARTUP Training (regardless of number of delegates) is FREE OF CHARGE and is one day only.
- Training sessions are **usually held in Manchester &/or London every 1-2 months** (dependant on demand).

Capital Expenditure

Everyone involved in Data Collection or wishing to receive TARN reports will need access to a computer that is connected to the Internet, as all data is now collected and certain reports are produced via an Electronic system.

For further information:

Telephone: 00 44 (0) 161 206 4397

Email: support@tarn.ac.uk

Website: www.tarn.ac.uk

Complete and return the following paperwork to tarn

- ✓ Membership Authorisation form
- ✓ Hospital Contacts sheet
- ✓ Training form

Locate the person, place and facilities

Identify the staff member/s that will collect the data and discuss relevant training courses with TARN. The data collector should be organised, proactive, have some anatomical knowledge and be PC literate.

Identify a working area with a computer with **Internet connection (vital)**, desk and a telephone.

Introduce TARN and yourself

The data collector should introduce themselves to all levels of staff with whom they will liaise. Don't forget the Ambulance service & Coroners office.

The Lead Clinician or data collector should introduce TARN to the rest of the hospital's Clinicians at a relevant meeting; TARN can assist with a **PowerPoint presentation** for this.

You should invite staff from clinical audit, intensive care areas, orthopaedics, paediatrics, anaesthetics, surgery and the ambulance services, to highlight the message that this important & useful data is being collected.

Setting up EDCR users

Once the data collector/s have been identified, inform TARN of their names and email addresses so they can be issued with a username and password to access the EDCR system.

Any interested Clinician/s or Manager/s can also be issued with a username and password to access the reporting part of the EDCR system; these users will not have the ability to enter or edit data (unless expressly required).

The reports

Quarterly Reports are produced at regular intervals throughout the year by TARN and uploaded into the EDCR system.

The reports are themed around: Thoracic, Orthopaedic, Abdominal & Spinal and Head injuries.

Case Summary and Demographic and Clinical Frequencies Reports can also be generated at any time by anyone who has a **username and password** with access to the TARN EDCR system (see 4.9 EDCR reporting for information on how to produce these reports).

Ad-hoc analysis is also available at any time to member sites.

Identifying patients using ICD10 codes

Most sites now use their Hospital coding system (ICD10) to identify their TARN patients.

An ICD10 code is given to every patient seen at a hospital and there are 2 sections that refer to Trauma:

S OR T codes.

Ask the I.T. Department to produce a regular spreadsheet listing all patients with an S or T code that fulfil the following:

- Stayed for ≥ 3 days
- Died
- Transferred out
- Transferred in
- Admitted to Critical care

The spreadsheet should include:

- Discharge destination
- ICD10 code/s
- Name
- Age/DOB
- Admission date
- Discharge Date/Date of Death
- LOS

TARN has a list of all included ICD10 Trauma codes on www.tarn.ac.uk/Resources

You can then quickly identify which injuries can be excluded from your spreadsheet (**elderly Neck of Femurs, Closed limb fractures, superficial injuries etc**).

Also exclude any patient admitted to a **medical or rehabilitation ward or whose LOS <3 days (unless they died, were transferred out or spent time in Critical care)**.

Patients who die from their injuries in the Emergency Department **are included in TARN**.

Clarifying inclusion

When you have your remaining list of potential TARN patients, you must request the case notes and firstly check to ensure the injuries fulfil the TARN Injury criteria (see 2.1):

If they do: Complete a submission

If they do not: Do not complete a submission, **regardless of LOS or Outcome**.

NEVER COMPLETE A SUBMISSION USING THE EMERGENCY DEPARTMENT CARD ONLY.

Emergency department patient identification

Some sites use a manual system to identify their TARN patients, which involves checking the E.D. patient log for any potential Traumas, then checking PAS system to ensure the patients meet the LOS criteria, then pulling the case notes.

This system can be more time consuming than using ICD10 codes, but is preferable if a site has employed a system of patient identification being completed by an E.D. staff member (receptionist, nurse, doctor).

However, a system of identifying patients who bypass E.D. must also be found.

2. Standards of practice

2.1 INCLUSION CRITERIA : REVISED JUNE 2009

The decision to include a patient should be based on the following points:

A. ALL TRAUMA PATIENTS IRRESPECTIVE OF AGE

B. WHO FULFILL THE FOLLOWING LENGTH OF STAY CRITERIA

DIRECT ADMISSIONS	PATIENTS TRANSFERRED IN
<p>Trauma admissions whose length of stay is 72 hours or more</p> <p>OR</p> <p>Trauma patients admitted to a High Dependency Area regardless of length of stay</p> <p>OR</p> <p>Deaths of trauma patients occurring in the hospital including the Emergency Department (even if the cause of death is medical)</p> <p>OR</p> <p>Trauma patients transferred to other hospital for specialist care or for an ICU/HDU bed.</p>	<p>Trauma patients transferred into your hospital for specialist care whose combined hospital stay at both sites is 72 hours or more</p> <p>OR</p> <p>Trauma admissions to a ICU/HDU area regardless of length of stay</p> <p>OR</p> <p>Trauma patients who die from their injuries (even if the cause of death is medical)</p> <p>OR</p> <p>Patients transferred in for rehabilitation only do not need to be submitted to TARN.</p>

C. AND WHOSE ISOLATED INJURIES MEET THE FOLLOWING CRITERIA

(JUNE 09 REVISIONS ARE HIGHLIGHTED IN RED)

BODY REGION OR SPECIFIC INJURY	INCLUDED – IN ISOLATION (EXCEPT WHERE SPECIFIED)	EXCLUDED – IN ISOLATION (EXCEPT WHERE SPECIFIED)
HEAD	All brain or skull injuries	LOC – unless accompanied by brain injury or skull/face fracture
THORAX	All Patients	None
ABDOMEN	All Patients	None
SPINE	Cord injury, fracture, dislocation or nerve root injury.	Spinal strain or sprain.
FACE	Fractures documented as Significant displacement, open, compound or comminuted. All Lefort fractures, All panfacial fractures. All Orbital Blowout fractures	Fractures documented as simple or stable.
FEMORAL FRACTURE	All (Open or Closed) up to 64 years old	Neck of femur, Intertrochanteric, Subtrochanteric or Greater trochanteric Femur fractures ≥ 65 years.
FOOT OR HAND: JOINT OR BONE	Crush or amputation only.	Any fractures &/or dislocations, even if Open &/or multiple

FINGER OR TOE	None	All injuries to digits, even if Open fractures, amputation or crush &/or multiple injuries.
LIMB – UPPER (EXCEPT HANDS/FINGERS)	Any Open injury. Any 2 limb fractures &/or dislocations.	Any Closed unilateral injury (including multiple closed fractures &/or dislocations or the same limb)
LIMB – BELOW KNEE (EXCEPT FEET/TOES)	Any Open injury. Any 2 limb fractures &/or dislocations.	Any Closed unilateral injury (including multiple closed fractures &/or dislocations or the same limb)
PELVIS	All up to 64 years old	Single pubic rami fracture ≥ 65 years old.
NERVE	Any injury to sciatic, facial, femoral or cranial nerve.	All other nerve injuries, single or multiple.
VESSEL	All injuries to femoral, neck, facial, cranial, thoracic or abdominal vessels. Transection or major disruption of any other vessel.	Intimal tear or superficial laceration or perforation to any limb vessel.
SKIN	Laceration or penetrating skin injuries with blood loss $>20\%$ (1000mls) Major degloving injury.	Simple skin lacerations or penetrating injuries with blood loss $< 20\%$ (1000mls); single or multiple. Contusions or abrasions: single or multiple. Minor degloving injury.
BURN	Any full thickness burn or Partial/superficial burn $\geq 10\%$ body surface area NOT referred to a Burns unit	Partial or superficial burn $<10\%$ body surface area. Or any burn referred to a Burns unit.
INHALATION	All included - if not referred to Burns unit	If referred to Burns unit.
FROSTBITE	Severe frostbite	Superficial frostbite
ASPHYXIA	All	None
DROWNING	All	None
EXPLOSION	All	None
HYPOTHERMIA	$\leq 31^{\circ}$ And accompanied by another (non skin) injury	$>31^{\circ}$ Or Hypothermia in isolation
ELECTRICAL	All	None

Where applicable, all of the following should be recorded in a TARN submission:

<p><u>ENDOCRINE NUTRITIONAL, METABOLIC & GU DISEASES</u></p> <p>ICD Chapters IV, XI, XIV</p> <ul style="list-style-type: none"> • GU Diseases NFS • Upper GI • Lower GI • Ulcer • Liver disease • Previous splenectomy • Renal disease • Crohn’s disease, • Colitis • Diverticular disease • Other GU Diseases • Metabolic NFS • Diabetes mellitus • Diabetes insipidus • Adrenal disease • Thyroid disease • Pituitary disease • Other Metabolic Diseases • Other ENM and GU Diseases 	<p><u>NEOPLASMS & BLOOD/IMMUNE DISEASES</u></p> <p>ICD Chapters II, III</p> <ul style="list-style-type: none"> • Cancer of GI Tract • Cancer of Lung • Cancer of Breast • Cancer of Kidney • Cancer of GU Tract • Cancer of Bone • Cancer of Skin • Cancer of Brain • Other Neoplasms • Thrombocytopenia • Thrombocytosis • Coagulopathy • Haemophilia • Anaemia • Lymphoma • Multiple Myeloma • Leukaemia • Other Blood/immune Diseases • Other
<p><u>MENTAL & BEHAVIOURAL DISORDERS</u></p> <p>ICD Chapter V</p> <ul style="list-style-type: none"> • Psychosis • Schizophrenia • Depression • Deliberate self-harm • Neurosis • Personality Disorder • Alcohol abuse • Drug addiction • Anorexia/Bulimia • Obesity • Other 	<p><u>DISEASES OF THE NERVOUS SYSTEM</u></p> <p>ICD Chapter VI</p> <ul style="list-style-type: none"> • Stroke/CVA/TIA • Subarachnoid bleed • Vertebrobasilar disease • Migraine • Epilepsy • Cerebral palsy • Spina Bifida/Previous spinal cord injury • Mental handicap • Dementia • Parkinson’s Disease • Multiple Sclerosis • Other

CIRCULATORY & RESPIRATORY SYSTEMS

ICD Chapters IX and X

- Heart NFS
- IHD
- Myocardial Infarction
- Carditis NFS
- Valvular heart disease
- Cardiomyopathy
- Other Circulatory
- Hypertension
- Peripheral vascular Disease
- DVT
- PE
- Vasculitis
- Asthma
- COPD
- Fibrosis NFS
- Bronchiectasis
- Cystic Fibrosis
- Other Respiratory

GENERAL INFECTIONS & PARASITIC DISEASES

ICD Chapter I

- HIV/AIDS
- TB
- MRSA
- STD
- Other

SKIN & SUBCUTANEOUS TISSUE, DISEASES OF THE EYE & EAR AND PREGNANCY

ICD Chapters XII, VII, VIII, XV

- Pre-existing skin conditions
- Diseases of the Eye
- Diseases of the Ear
- Pregnancy at time of injury
- Other

MUSCULO-SKELETAL & CONNECTIVE TISSUE

ICD Chapter XIII

- Arthritis
- Osteoarthritis
- Rheumatoid arthritis
- Connective Tissue Disease
- Major joint replacement
- Brittle bone disease
- Generalised osteoporosis
- Paget's Disease
- Degenerative Spinal disease
- Other

NO PRE-EXISTING DISEASE

MISSING

A full list of PED and how to record them in EDCR can be located by clicking on the hyperlinked "Pre-existing medical conditions" field in the OUTCOME section.

Injury detail

Injury detail is of **paramount importance to any TARN submission**, therefore **all injuries** sustained by a patient must be recorded on every submission.

Information relating to injuries should be obtained from the following sources: clinician's notes, nursing notes, radiology reports, operative notes, discharge summaries and post mortem reports.

Guidelines to help with injury documentation:

- Record the **length** of all lacerations/penetrating injuries, whether external or internal.
- Record the **depth** if laceration to vessels.
- Record the **size and site** of all cerebral contusions.
- Locate all **entrance and exit wounds** on penetrating injuries.
- Record the **amount of blood loss** from internal organs.
- Record **the part of the bone** that is fractured and the **extent of that fracture**.
- All fractures should be further defined as **open or closed**.
- Record **all injuries** (no matter how insignificant they may appear).

Unconfirmed injuries

Injuries should only be recorded when the diagnosis is confirmed.

Never record possible, probable or suspected injuries.

Radiology reports and post mortems

Photocopies of all radiology reports or post mortem reports can be posted, scanned in or faxed to TARN with the corresponding 12-digit submission number clearly visible; users must however ensure **all patient identifiers have been removed**.

The user must always **note "CT scan faxed to TARN"** or similar in the **Diary section** of the EDCR submission, so the TARN coder is aware of the presence of additional information before assigning AIS codes.

Alternatively, the user can simply copy and paste a radiology report into the relevant CT/X-Ray/Ultrasound section of any EDCR submission.

When a Report is pasted into an EDCR submission, it will automatically appear on the AIS coding section, thus ensuring that the TARN coder has all the information in front of them before assigning AIS codes.

Post mortem results should be used whenever available even if this results in a delay in dispatching your submission.

All injury coding using AIS is done centrally at TARN, but users can see every AIS code issued by TARN by clicking into the AIS coding section once a submission has been Approved.

Accurate and detailed injury descriptions will enable a more precise Injury Severity Score (see 3.1) and therefore a more accurate Probability of Survival calculation (see 3.2).

Background information

A.I.S. was first published in 1969 by the Association for the Advancement of Automotive Medicine (A.A.A.M.). The latest edition (AIS2005) is now available from the AAAM website: www.Carcrash.org a cost of \$250 per dictionary.

Structure

- Based on anatomical injury.
- A single AIS score for each injury.
- More than 1500 injuries listed.
- Scores range from 1 to 6, the higher the score the more severe the injury.
- The intervals between the scores are not always consistent e.g. the difference between AIS3 and AIS4 is not necessarily the same as the difference between AIS1 and AIS2.

Example AIS codes

INJURY	NUMERICAL IDENTIFIER	AIS	SEVERITY
Fracture 1 rib	450201	1	Minor
Fractured 2 ribs	450202	2	Moderate
Haemopneumothorax	442205	3	Serious
Bilateral lung lacerations	441450	4	Severe
Bilateral flail chest	450214	5	Critical
Massive chest crush	413000	6	Maximum

Coding structure explained

Body Region	Type of Anatomical Structure	Specific Anatomical Structure	Specific Anatomical Structure	Level	Level	AIS
4	5	0	2	0	2	2

From 1st June 2009 onwards, Tarn will begin using AIS2005 for all Injury coding.

All existing codes on the TARN database that were coded with AIS98 (previous version of dictionary) have been successfully mapped to corresponding AIS2005 codes, so continuing comparisons can be made.

2.5 THE PATH OF A TARN SUBMISSION

POTENTIAL	↓	I.T. system report produced or ICD 10 codes are used to highlight potential TARN patients.
CONFIRM	↓	Data Collector/EDCR user checks if TARN Inclusion Criteria is fulfilled – if YES
CREATE	↓	Using the EDCR system a user then creates a submission for each TARN patient and enters data gathered from ambulance sheets, radiology reports, post mortems, hospital notes, trauma sheets, operative notes and discharge summaries, a unique submission number will appear at the top of each submission screen. Further detail can be added at any time and in any order whilst a submission remains in the created status. These submissions can be accessed again using the EDCR submission summary screen, which lists their STATUS as CREATED .
DIARY	↓	Any additional information the user wishes TARN to have (e.g. radiology reports) can be added to the DIARY SECTION prior to dispatch. Diary section is also used by TARN post dispatch to inform user of any rejection or return of a submission.
VALIDATE	↓	Once all available patient data is entered, the user electronically VALIDATES the submission. The validation procedure checks to ensure no mandatory fields have been missed and if so, will not allow dispatch until all are completed.
DISPATCH	↓	The user then DISPATCHES all validated submissions to TARN. All dispatched submissions are then assigned to an individual TARN coder. No further detail can then be added by user, however further detail can be added by TARN post dispatch. These submissions can be viewed using the EDCR submission summary screen, which lists their STATUS as DISPATCHED .
APPROVE	↓	Within one week all standard submissions (excluding transfers out-see below) are coded, assigned an ISS and APPROVED by TARN. These submissions can be viewed using the EDCR submission summary screen, which lists their STATUS as APPROVED .
REJECT	↑	If the submission does not meet TARN inclusion criteria, the TARN coder will electronically REJECT it, informing the user of the reason in the DIARY section. These submissions can be viewed using the EDCR submission summary screen, which lists their STATUS as REJECTED .
RETURN	↑	If the submission requires additional information prior to approval, the TARN coder will electronically RETURN it informing the user of the reason in the DIARY section. These submissions can be viewed using the EDCR submission summary screen, which lists their STATUS as RETURNED .
REDISPATCH	↓	When user has the additional detail required, they must RE-DISPATCH the submission. These submissions can be viewed using the EDCR submission summary screen, which lists their STATUS as REDISPATCHED and then when coded and approved by TARN as APPROVED .
TRANSFER	↓	Transfers out for further care to another TARN site are coded and FLAGGED whilst awaiting the second site's submission. These submissions can be viewed using the EDCR submission summary screen, which lists their STATUS as DISPATCHED with a FLAG attached. Once the second site's submission is received, TARN matches and approves both submissions.
CASE	↓	A case is a complete picture of patient care and final outcome. A case can involve one or multiple sites. When a submission is approved or a transfer out is matched and approved, a case number will appear at the top of the submission screen.
REPORT		<u>ONLY APPROVED SUBMISSIONS ARE USED IN TARN REPORTS AND ANALYSES.</u>

3. Statistics, information and reporting

3.1 THE INJURY SEVERITY SCORE (ISS)

Background

- ISS is based on the AIS and is calculated at discharge or death.
- Increased injury severity scores are associated with increased rates of mortality.
- Only 10% of patients with an ISS of <8 die compared with 95% of patients with an ISS of >50.

Calculating the ISS

- a) Code all injuries using the AIS dictionary
- b) Assign to one of the following body regions:
 - Head, neck, or cervical spine
 - Face
 - Chest or thoracic spine
 - Abdomen, pelvic contents or lumbar spine
 - Extremities or bony pelvis
 - External injuries or burns
- c) Square the highest score in each body region
- d) Add the sum of the squares of the highest AIS scores in each of **the three most severely injured body regions**.

Example

Body region	Injury	Code	AIS	AIS ²
Head	Temporal fracture	150400	2	4
Head	Small Subdural haematoma	140652	4	16
Chest	3 rib fractures	450220	2	4
Abdomen	Liver laceration (major)	541826	4	16
Extremities	Tibia fracture(displaced)	853405	3	9
External	Abrasions	910200	1	1
	ISS = 16 +16 + 9 = 41			

ISS scores range from 1 to 75, a score of 75 results in one of two ways:

- Three AIS 5 injuries ($5^2 + 5^2 + 5^2 = 75$)
- Injuries coded as AIS6 are, by convention, given an ISS of 75

There is variation in the frequency of different scores:

- 9 & 16 are common,
- 14 & 22 are unusual
- 7 & 15 are unobtainable

An Improved Approach to Outcome Predictions

TRISS (used by TARN until July 2004)

The Probability of Survival (Ps) of each patient has previously been calculated from the Revised Trauma Score (RTS), Injury Severity Score (ISS), age and method of injury (blunt or penetrating). Additionally, the outcome of the patient (survival or death) has been taken at discharge or 93 days (whichever is sooner). This model was referred to as TRISS (Trauma and ISS).

There were a few problems with TRISS including: High number of cases with unrecorded data (respiratory rate, systolic blood pressure and Glasgow Coma Scale) and the exclusion of transfers out, intubated patients, burns and penetrating injuries.

Ps04 (used by TARN from August 2004 – November 2007)

In 2004 Probability of Survival (Ps04) was introduced by TARN and the Ps of each injured patient was more accurately calculated using just:

- ✓ Age
- ✓ Gender
- ✓ Glasgow Coma Scale
- ✓ Injury Severity Score

The Ps04 model is based on the following components:

- Outcome (survival or death) used is calculated at 30 days.
- The GCS replaces the RTS in the new model.
- The ISS is incorporated using an improved format.
- Patients transferred out for further care are included (where final outcome is known).
- Children have a better weighting for their age.
- Patients with burn or penetrating injuries are included.
- There is now a relationship between gender and age.

Ps07 (used from November 2007 to May 2009)

TARN revised the Ps04 model, to ensure that, for the first time, **all eligible cases have a Ps calculated**; this is possible by using a combination of:

- ✓ **Statistical weighting** for cases intubated on arrival (where no GCS is available at scene or in ED)
- ✓ **Imputation** for cases with missing GCS on arrival and at scene.

Due to these improvements to the Ps model, 100% of all eligible cases are now included in the Comparative Outcome Analysis (Ws graph).

Ps09 (June 2009 onwards): LATEST MODEL

Ps07 was based on AIS98 injury codes, so TARN has revised the Ps07 model, to incorporate the new Abbreviated Injury Scale (AIS2005) codes.

Further details of the latest outcome predictor model can be found on the TARN website:

www.tarn.ac.uk/resources

The comparative outcome analysis (Ws graph)

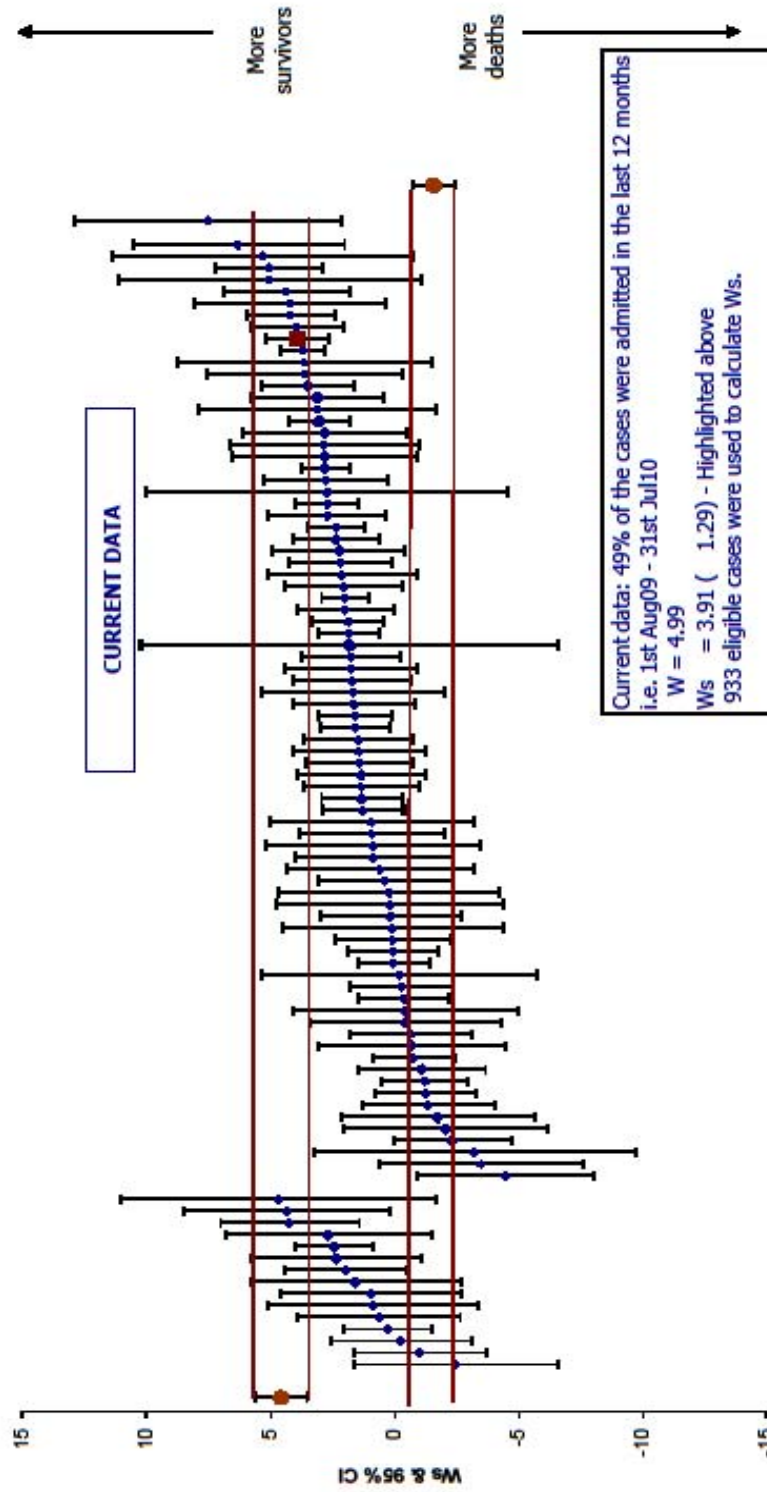
Background

- The following statistics are commonly known as DEF statistics & are used internationally.
- These statistics are used to make comparisons of hospital performance; the most recent innovations can be seen on www.tarn.ac.uk/resources.
- Comparison of the Ps07 of all patients (seen at a particular site with observed outcome) can be used as an index of overall performance.
- Probabilities of survival are combined in the `Comparative Outcome Analysis (Ws) to assess a group of patients; in this way a national comparison graph can be compiled containing all sites that submit data to TARN.
- **Ws provides a measure of excess survivors or deaths per 100 patients treated at each site.**

Interpreting Ws

- A **high positive Ws value is desirable** this indicates that your hospital has **more survivors** than expected
- Conversely a **negative Ws** value indicates that your hospital has **fewer survivors** than expected.
- The Ws can be shown graphically (with **95% confidence intervals**) to illustrate clinical differences between hospitals relative to the UK norm (See Ws graph on page 16)
- The 95% Confidence Interval indicates that we can be **95% certain** the true Ws lies somewhere along the line accounting for different injury severity mixes and the `standardised Z statistic' (Zs) provides a measure of its statistical significance.
- A narrow range would show that there is a good deal of confidence in the value of Ws.
- The Zs value is often misquoted when comparisons of trauma care are made between hospitals, the Zs statistic is purely a measure of the statistical significance of Ws statistic; it is often said that:
 - Zs scores >1.96 indicate the hospital is significantly better than the UK average.
 - Zs scores <1.96 indicate that the hospital is significantly worse than the UK average.
- Comparisons have become more relevant to Clinicians after extensive work was undertaken to base the regression analyses on statistics derived from the AIS (98 update) dictionary and data collection in England and Wales.
- As statistical methods become more refined we can be a little more confident that these inter-hospital comparisons really do reflect variations in Clinical practice.

4.1 COMPARATIVE OUTCOME ANALYSES:- All Cases Admission dates: 2007-2010



Case Summary, Performance Comparison & Demographic and Clinical Frequencies Reports

Users with relevant rights to the EDCR system can produce these at any time, covering any time period.

See 4.9.1 for full details of content and how to produce each of these reports.

Themed Quarterly Reports

Produced by TARN every three months and uploaded into EDCR.

Quarterly reports cover the following themes:

- Thoracic
- Orthopaedic
- Abdominal/Spinal
- Head injuries.

These reports include Process Measures monitoring standards set out in the Royal College of Surgeons and British Orthopaedic Association report of 2000 “[Standards of Care for the Severely Injured](http://www.rcseng.ac.uk/publications)” (www.rcseng.ac.uk/publications)

Performance Comparisons

Published by TARN every 3 months onto the website, showing Standards of Care results, Survival Rates and Data Accreditation and Completeness figures for every Hospital with >50 cases.

Ad hoc analyses

In addition to the Demographic and Clinical Frequencies reports that can be produced by any EDCR user with the relevant rights (see 4.9.2 for further information); ad hoc analyses can be requested by any member site and produced by TARN at any time.

Local trauma audit

- Identifying and comparing national standards
- Deriving local guidelines
- Discussions at multi-speciality meetings
- Communicating and acting on discussions

These actions are central to change in practice and improvement in trauma care.

Closing the loop

"Closing the audit loop" involves re-analysis of performance after appropriate changes have been introduced, this can only occur if all those involved in the management of the major trauma patient are consulted and co-operate.

Central to this Process are multi-speciality audit meetings.

TARN quarterly and Case Summary reports should also be shared with audit departments, purchasers, clinical governance and clinical colleagues.

The multi-speciality audit

The themed quarterly report is an extremely useful tool to inform multi-speciality audit meetings.

To use to your best advantage we recommend that you:

- Schedule a regular audit meeting of representatives from trauma receiving departments.
- Theme the meetings with additional data from TARN e.g. Head Injury
- Always discuss a patient who survived after serious injury and optimum care.
- Present your hospital status in relation to the other TARN sites.
- Invite speakers from TARN or other participating hospitals.



AIM TO IMPROVE YOUR TRAUMA SERVICES AS A RESULT OF THESE MEETINGS.

Why?

- 33% of death after injury thought to be preventable.
- The initial management of major trauma was unsatisfactory.
- The treatment and mortality rate of injured patients varied inexplicably between hospitals.
- There were delays in providing experienced staff and timely operations.

A retrospective study of 1000 trauma deaths from injury in England and Wales.

Brit.Med.J 1988: 296;1305.

Preliminary analysis of the care of injured patients in 33 British Hospitals: first report of the United Kingdom Major Trauma Outcome Study. *Brit.Med.J 1992: 305;737-740.*

When?

- Overall hospital care has made a valuable but variable contribution to reductions in case fatality after injury between 1989 and 1997.
- However there was significant variability in the proportion of survivors between the highest and lowest 10% of hospitals in England and Wales.
- The proportion of severely injured seen first by senior doctors increased.

Trends in trauma care in England and Wales 1989-1997. *Lancet 2000: 355;1771-75.*

How?

The reduction in trauma mortality was due to a strategic mixture of change:

Context: Common goals for improving trauma care

- NHS Executive
- Royal College of Surgeons
- Close inter-disciplinary cooperation
- Senior clinical involvement

Content: Targets for treatment times

- Specific protocols
- Trauma team membership
- Continuity of care from the scene to rehabilitation
- Frequent statistical analyses of performance
- Application of protocols
- Multidisciplinary audit

Process: Complex

- No formal model of change management

Management of major trauma: changes required for improvement. *Quality in Health Care 1999;8;78-85.*

Trauma audit – closing the loop. *Injury 1994;25: 511-514.*

TARN provides a nationally driven framework for the collection, submission and scrutiny of trauma survival data by hospitals, and crucially, comparison with other hospitals. The existence of such a framework allows common ground to be established between different centres and lays the foundation for a systematic process for clinical audit.

4. EDCR: User guide

4.1 GETTING STARTED

The system is designed to run from Microsoft's Windows Internet Explorer.

Open internet explorer on your PC, and select the address: www.tarn.ac.uk

The TARN Home Login page will then be displayed.

To save the address as a favourite, select the favourites option in the browser Toolbar, then select **Add to Favourites**.

Logging in to TARN

- The Login is shown at the right of the Home page.
- This requires you to enter the username and password supplied by TARN.
- If you wish to change your supplied password, you can do this after log in on the Home page.
- If the system has no activity for a period it will log the user out, a re-login will then be required. (There is a warning given when the session is reaching its timeout, and if timed out then a message is shown at the bottom of this panel)
- NOTE: Any work in progress but not saved may be lost.
- If the user does not have a login or there is a problem with the login then the TARN administration staff should be contacted, selection of "Contact Us" will show the details.
- If the user cannot remember the password, then selection of the "Forgotten password" option will allow the entry of the username, and will send an email of instructions to the registered email address.

Changing password

This allows a logged in user to change their password; it does not allow the old one to be viewed or edited. (The password entered will be shown as ●●●●●● on entry). If the Login fails then, then it should be tried again, in case of a miss-type, the entry is case independent so entry of user name or password "BILL" or "bill" or "Bill" are all treated alike.

If the user still cannot login, then they should contact TARN Administration who has the option of resetting the current password to something else (again they cannot view or edit the old password).

Logging off

While the user is logged into the system the top menu bar will have the option to log off the current user at the right end of the bar; selection of this will log the current user out of the system with no further prompt.



Field types

When entering submissions there are three types of entry fields these are:-

MANDATORY ENTRIES: The entry **MUST** be made in order to dispatch the submission to TARN and are marked with a RED * to the left of the entry field.

***Date of Arrival at the Hospital** / /

PREFERRED ENTRIES: These entries should be entered (if data available), but are not enforced and are marked with a GREEN # to the left of the entry fields.

#Date of Departure from Scene / /

Any entry not marked is optional and entry is not enforced.

Tool tips

Tool tips tell you what information should be recorded in that field e.g. Respiratory Rate Tool tip.

Respiratory Rate
Pulse Number of breaths per minute.

Simply hover the mouse over the field name to get the Tool tip.

Help prompts

For most fields Help Prompts are available; these can be viewed by holding the mouse over a field name and clicking the left mouse button.

Help prompts give information about what the field name means, how it is recorded in the Notes and which Location it is usually recorded in, see below.

Unnasisted Respiratory Rate
Number of breaths per minute. Ranges from 0 – 70. Normal range 16 – 24.

These may be in any section, and come in any order.

TEXT (LIMITED ENTRY)

This entry type will accept text and numbers up to a preset length, e.g. Patient Post Code (first part); this example entry takes letters and numbers up to a preset total of five (5) characters.

In this particular field the entry is validated later.

The length of the entry is preset and may be different from one field to another.

FREE TEXT ENTRY

This entry type will accept a limited (but very large) entry, e.g. the entry may be larger than the visible panel (see injury details section on EDCR).

The scroll bar at the right of the panel allows the other text to be read.

DATE

The Date entry type requires entries in each part of the field set. The <TAB> key or completing all the digits required will move to the next part of the field.

The entries must be numbers only.

Date of Incident: 12/10/2010 (DD/MM/YYYY)

Each part is validated and a warning will be displayed at the end of the line if the entry is incorrect.

Invalid Day - If the Day is 0 or more than the number of days in the month

Month – If the Month is 0 or more than 12

Year – If the year is less than 1800

Date in Future – If the entry is for a future date

Invalid Entry - If the entry is invalid in other ways, e.g. “/” is not allowed.

The date is checked for leap years so an entry of 29/02/2010 would be invalid.

Dates are allowed from 1/1/1800 to “NOW”. The date entered cannot be in the future.

Auto-population

In some fields this button (represented as two pieces of paper one on top of other, see below) this button is shown at the end of the field indicates that the selection can be auto filled.

This happens when the entry may have been entered onto a previous screen or can be inferred from a preceding entry, selection of the button will fill in this entry with that made previously.

If the entry cannot be auto-populated it will be left blank i.e. there has been no other entry made to duplicate.



Time

The time type entry requires an entry in each part of the field set, the <TAB> key or completing all the digits required will move onto the part of the field.

The entries must be numbers only, in the **24 hour clock format**.

Time of Arrival at the Hospital: 15: 35 (HH:MM)

Each part is validated and a warning will be displayed at the end of the line if the entry is incorrect.

- Time cannot be 00:00 – The entered time is not allowed to be exactly midnight, if the actual time was 00:00 then the entry of 00:01 should be made.
- Invalid Hours – If the hours are more than 23
- Invalid Minutes – If the minutes are more than 59
- Invalid Entry - If the entry is invalid in other ways, e.g. “/” is not allowed

Drop list

This type of entry is the choice of a preset entry from a list.

Usually there is the option at the top of the list for a “nothing” entry to clear the choice made.

Select the down arrow button to “drop” the list then select the choice required.

Once a choice has been made the list is hidden and the choice selected is shown.

The choices available are usually controlled by TARN Admin, if an entry required is not listed then contact your administrator.

Radio buttons

This entry is the choice of a single selection from a multiple choice list.

It is usually used where only one answer can be correct at any one time.

E.g. Sex

The selection of any choice will remove any previously marked choice and make the current selection the choice.

The - button will clear the choices made to this option.

Tick selection boxes

These entries allow the choice of one or more selections from a preset list.

It is used where multiple choices/selections are valid.

E.g. the selection of Vehicle Collision as an Injury Mechanism will open up sub choices of “Position” and “Protection”.

Selection of the box will mark the choice, reselection will unset the choice.

Extra information entry

In places there may be the option of adding additional data to the section; this is shown by the additional of a + symbol next to the entry that can be repeated.

By selecting + an extra drop list is created so another entry can be added.

E.g. Pre-existing conditions or complications



Pre-existing medical condition(s) [dropdown] +

Complication(s) [dropdown] +

Printer friendly versions of pages

On each page the option for a printer friendly version of the screen is presented at the bottom of the left side bar menu.

This will reshuffle the current page details, without the top and side menus, so it is ready for printing.

Print

This option will generate a printed copy of the submission entry form with details as entered; the printout is several pages long, and is previewed on screen before being optionally printed.

There are printed blank entry lines for questions that may not need to be answered in this case or for options to a question answered that did not need that option (i.e. Grade & Speciality of the Attendant 2, who as an Ambulance Paramedic does not need those entries); these should be ignored.

There will also be blank entry lines for any question left unanswered that should have an entry.

Note that the extra sections (Attendant, etc) are indented and included in the section to which they were added.

In the cases where multiple sections have been added they are numbered.

4.5 SUBMISSIONS

A submission is an entry of a hospital admission trauma event relating to the care and outcome of a patient.

On selection of the submission section the screen shows a summary of all submissions.

Selection of one of the underlined numbers in the summary categories, or a selection of a status in the drop list will show all submissions in that category.

4.6 CREATING A NEW SUBMISSION

The submission data can be entered from a pre-printed blank form or entered directly from the case notes.

Choosing a hospital

This determines which hospital you are about to view or enter data for, if you only enter data for one hospital, only one option will be available.

Once a hospital site has been chosen and saved, the rest of the submission screens are available.

This will also **automatically assign the next 12 digit sequential submission number** for the new submission, and give it a TARN case number.

You will see the submission number at the top of the screen, followed by (Created) in brackets; you are now ready to enter data.

4.7 WHICH DATASET: CORE OR EXTENDED

From January 2011 onwards the TARN Electronic Data Collection & Reporting (eDCR) system will allow users to choose which dataset best suits the type of submission they need to enter: **Core or Extended Dataset**.

CORE DATASET: For standard submissions

- The Core screens contain only the **Key Performance fields** that are routinely used in the Quarterly Reports, the Network Reports (where applicable) and the website Performance Comparison results.
- These screens were developed to enable data entry into these key fields to be quicker and more efficient.
- As soon as a submission is created, a user automatically enters the 'Core Dataset' format.
- There are 10 screens that a user can enter data into: Opening Section, Incident, Pre Hospital, ED, ED Attendants, Imaging, Operations, Critical Care, Ward and At Discharge.
- There are options to bypass locations if no information is recorded.
- There are a reduced number of Observations, Interventions and Investigations to enter data into.
- Most fields are Mandatory with the option for: **Yes, No or Not Recorded** available where applicable.
- Times are classed as **preferred fields** to allow the user to enter data when times are simply not available.

EXTENDED DATASET: For more complex/severe submissions

- For the more complex or severe cases, we suggest that users continue to use the EDCR system as before, this is now called the "Extended Dataset."
- The Extended dataset allows users to more easily enter multiple interventions, observations, Investigations and attendants into every location.
- To enter the Extended Dataset simply create a submission and click on the button which can be found at the top and bottom of every screen, or choose the option from the left hand side navigation hyperlinks.
- Once a user enters and saves data in the Extended Dataset, they can no longer revert back to the Core dataset.
- The Extended Dataset allows users to enter data as before.

4.8 EXTENDED DATASET

A location is any place where observations can be taken or procedures can be carried out; there are nine locations in the Extended Dataset:

- AT SCENE
- ENROUTE
- ED (EMERGENCY DEPARTMENT)
- IMAGING
- THEATRE
- CRITICAL CARE
- WARD
- REHABILITATION
- TRANSFER

At the top of each location screen, there is a space to enter the date and time that the patient entered that location.

Data can be entered in any order; you may enter the Ward details prior to the At Scene details and the system will allow it.

Related sections

In each of the system Locations, there are options to record procedures carried out and staff in attendance. These are called RELATED SECTIONS and there are five of them in the Extended Dataset:-

- OBSERVATIONS
- INVESTIGATIONS
- INTERVENTIONS
- ATTENDANTS
- OPERATIONS

These can be accessed using the buttons at the bottom of each location screen. Clicking a button will bring up another screen where details can be entered.

There is a space at the top of each section to record the date and time, this date and time will be used for all procedures in this section unless you tell the system otherwise.

The pre-populate button can be used to copy the date from the main location screen. Alternatively, you can type in the date.

As details are entered and saved at a location, the side bar menu will change. It will give details of how many procedures have been carried out at each location.

Clicking on a location will bring up more details about the data entered. Clicking on an individual field will bring up details of an observation, procedure or attendant.

OBSERVATIONS, INVESTIGATIONS AND INTERVENTIONS are further split into the following subsections:

OBSERVATIONS

INVESTIGATIONS

INTERVENTIONS

Respiration	Respiration	Imaging
Circulation	Circulation	Blood sampling
Nervous system	Nervous system	Urine sampling
Metabolism	Metabolism	Signal
Host Defence	Host defence	Other

Clicking on the **ATTENDANTS** button in a location will bring up a screen that will allow you to record attendants at that location, including ambulance staff and nurses.

Information is entered using drop down lists. Use this button to record attendants at all locations **except theatre** (see below).

Clicking on the **OPERATIONS** button in a location will bring up a screen where surgical and other procedures can be recorded.

Data entry is via drop down boxes and text entry.

The Operations section asks for details of Grade of Surgeon and Anaesthetist performing the operation, **therefore there is no need to go into the Attendants subsection at this location.**

Data entry in related sections

Data is entered using drop down boxes or by keyboard entry according to the field. **Some fields only require a “Yes” or “No” response.**

All that is needed is to record that the procedure was carried out. To do this, use the radio buttons.

A procedure may be marked as not performed by selection of the “No” option. A selection can be cleared using the “-” option.

Additional recordings in related sections

Extra sections can be added from the same category if required. If, for example the patient had two GCS observations in the Emergency Department, you would enter them as below:

Click E.D, Observations, Circulation and enter date, time and recording of 1st GCS – then Save Changes.

Save Changes will clear the E.D. Observations screen (storing the information in the crumb trail – see below) but keep you on the same screen so you can simply enter another date, time and GCS recording without moving between screens.

You may know that a particular procedure has been carried out a second time, but not have any data to enter, for example, you may know a second blood pressure reading has been taken, but not have the actual reading.

In this case, you would tick the Add New Section box. This would create a section containing the date and time and nothing else.

Crumb trail

Whenever you **SAVE** information in a Related Section, the screen is cleared and the information is stored under the relevant Location to the left of main screen; this is called a “crumb trail” and you can review or change any information by clicking on the relevant location, then into the data you wish to change.

You will see a number to the right of any Location you have entered Related Section data into, this number represents the number of data fields you have added, e.g. if you add GCS, Bp, Pulse and Attendant to E.D. you will see E.D. (4).

Opening section

MUST BE COMPLETED FOR EVERY SUBMISSION.

This contains the general submission details, including:

Age, Gender, Date of Incident, Date & Time of Arrival at Hospital, Transfer to/from, TARN Inclusion
As details are entered, extra options may become available, e.g.

- If the option for Full Date of Birth is selected as “Yes” then the screen will offer the following fields: dd/mm/yyyy in which to enter the data.
- If the option “No” is chosen for Full Date of Birth, then the screen will offer Short Date of Birth and if the option “Yes” is chosen, will show the following fields: mm/yyyy in which to enter the data.
- If “No” is chosen for Short Date of Birth, then the screen will offer an Age box in which to enter the data.

If a birth date is entered and an Incident date, the system will automatically calculate the age of the patient at the time of the Incident; this automatic calculation may result in an invalid date depending on the entries made, e.g. If the date of birth is entered as 1/2/2009, but the incident date is entered as 1/1/2009, then the calculated age at the time of the incident would be minus one month and this would fail the save validation.

Patient details

MUST BE COMPLETED FOR EVERY SUBMISSION.

This contains the general patient details including: Postcode, Nationality, Name, NHS and Hospital numbers.

Some fields here are pre-filled from the previous Opening Section screen (if entered there); any changes made to pre-filled field will be reflected on the previous screen once saved here.

The entry for the patient postcode first numeric is not editable; this entry is calculated from the second part postcode entry when saving the record.

Note, to protect patient confidentiality: Patient’s name, DOB, Full postcode, NHS and Hospital numbers are seen only by the Site user – not by TARN.

Incident

MUST BE COMPLETED FOR EVERY SUBMISSION.

Contains information about incident including: Date & Time of Incident, Incident postcode, Incident Location, Incident Type, Intent and Mechanism, Trapped at Scene and any additional incident detail.

At Scene

Contains details from the Scene of the incident including: Date & Time Ambulance called and dispatched.

This is the first section where the **RELATED SECTIONS** appear; this section allows the details entered to be expanded by selection of the related section buttons below, selection will then open an extra section of details relevant to the section chosen, multiple extra sections can be chosen if required.

En Route

Contains any en-route details either from scene to hospital, or between transferring hospitals, including:

Type of Transport, Date & Time of Departure, Patient Report Number, Computer Aided Dispatch and Vehicle Call Sign Number.

Also contains [RELATED SECTIONS](#).

Emergency Department (E.D.)

[SHOULD BE COMPLETED FOR EVERY ADMISSION VIA E.D.](#)

Contains details of Emergency Department care, including: Date & Time of Arrival (pre-filled from Opening Section), Date & Time of leaving E.D. and presence of Trauma team.

Also contains [RELATED SECTIONS](#).

Imaging

Contains: Date & Time of Arrival.

Also contains [RELATED SECTIONS](#).

Multiple visits to the Imaging suite can be entered by selection of the “Add New Section” option.

Operations

[SHOULD BE COMPLETED IF YOUR PATIENT SPENT ANY TIME IN AN OPERATING THEATRE.](#)

Contains: Date & Times of Arrival and Departure.

Also contains [RELATED SECTIONS](#).

Multiple visits to the Operating Theatre can be entered by selection of the “Add New Section” option.

Critical care

Contains: Date & Time of Arrival, Type of unit, and Length of stay.

Also contains [RELATED SECTIONS](#).

Multiple visits to Critical Care unit can be entered by selection of the “Add New Section” option.

Ward

Contains: Date & Time of Arrival, Type of ward.

Also contains [RELATED SECTIONS](#).

Multiple visits to a Ward can be entered by selection of the “Add New Section” option.

Rehabilitation

Contains: Date & Time of Arrival, Type of unit.

Also contains [RELATED SECTIONS](#).

Multiple visits to Rehabilitation can be entered by selection of the “Add New Section” option.

Transfer

This section for transfers will request different details depending whether the patient was a, transfer in, transfer out or transferred both ways submission.

One of the key points of the TARN system is the ability to link together submissions from different hospitals, where the patient details relate to the same incident; for this reason the transfers should be carefully entered to allow the system to locate matching submissions.

Outcome

MUST BE COMPLETED FOR EVERY SUBMISSION.

This section records the details of the patient at time of discharge or death, including: Pre-existing conditions, complications of care, Outcome at discharge and 30 days (if known), Date of discharge or death, Time of discharge or death, Dates spent in Critical care (pre-filled) and days spent Intubated, Discharge to, Glasgow Outcome Scale and Readmission details.

If **Readmission = Yes** a new set of questions will appear about dates and times of readmission and final discharge status and date.

Injuries

MUST BE COMPLETED FOR EVERY SUBMISSION.

This section is for a description of **every injury the patient sustained**.

Please enter each injury on a new line, by pressing the enter key.

Each entry can be longer than the visible screen if required, in which case the entered text will be automatically word wrapped.

The scroll bar at the right of the text allows the extra text to be viewed.

Any additional injury information including X-rays, CTs and PMS can be copied and pasted into the INVESTIGATIONS subsection.

Alternatively they can be emailed, faxed or posted to TARN and this information **must be logged in the view diary section** so the TARN coder is aware of the presence of additional information when coding.

Where applicable, please do not dispatch a submission to TARN until the Post mortem is available, as we are unable to code it without full injury details.

AIS coding

COMPLETED BY TARN AND VIEWABLE BY USERS.

Once a submission has been Approved by TARN the user can see the individual AIS codes assigned to every injury for each submission, they can also see the calculated ISS.

Each submission is assigned to a TARN coder and the user can see who has coded their submission by looking in VIEW DIARY.

Hospital questions

THE ENTRY OF ANSWERS TO HOSPITAL QUESTIONS IS OPTIONAL AND DEPENDANT ON WHETHER SPECIFIC QUESTIONS HAVE BEEN SET BY THE HOSPITAL.

This section will display any additional questions that the hospital has requested, the questions in this section are not requested by TARN.

These are specific to the hospital selected, and may have a specified format for entry.

For details on where these are created contact TARN.

OPENING SECTION

- The Opening section of the Core Dataset is a combination of the Opening section, Patient Details and Transfer screens with only the Core fields from each displayed.
- The Patient’s NHS number is an increasingly important Core field and users should aim to complete this wherever possible, the option for Not know is: 9999999999.
- Patient’s postcode should also be completed wherever possible, with the following options also available:
 - No fixed abode: ZZ99 3VZ
 - Unknown postcode or Foreign national: ZZ99 3WZ

- The Core Dataset has no dedicated Transfer screen, but a user can still enter Transferred patients by selecting: Transfer In, Out or In & out on the Opening screen.
- If one of these options are chosen the following additional Transfer questions are requested:

- Brief Injury Description questions are no longer required in either the Core or Extended Datasets.
- The Penetrating Injury Study questions for Non-TARN cases remain the same as before.

INCIDENT

- The Incident screen is identical in both the Core and Extended datasets.
- The Incident location (free text) box has been removed, but any free text information about the incident location can still be entered using the Description of incident box.
- A new question called “Length of time trapped” appears when the Trapped at scene box is confirmed.

The Pre Hospital screen is a combination of At Scene and En-route with only the Core fields from each displayed.

The user has the following 4 options for Pre-Hospital data:

1. If no pre hospital details are available:
 - Enter No for **Pre Hospital Stay**.
2. If the patient was transferred in or injured in Hospital, therefore pre hospital data isn't appropriate:
 - Enter Not Appropriate for **Pre Hospital stay**.

Answering No or Not Appropriate allows the user to bypass this screen completely.

3. If the patient was brought in by Ambulance or Helicopter but the full Patient Report Form (PRF) isn't available or readable.
 - Enter Yes for **Pre Hospital stay** and No for **Patient Report Form issued**.
 - The user is still prompted to answer Observations, Interventions and Attendants but is not prompted to answer Date/Time of Departing scene or asked for PRF, Vehicle Call Sign or CAD (Computer Aided Dispatch) numbers.
4. If the patient was brought in by Ambulance/Helicopter and the PRF is available/readable.
 - Enter Yes for **Pre Hospital stay** and Yes for **Patient Report Form issued**.
 - The user is then prompted to enter the following fields:

The screenshot shows a 'Pre-Hospital' form with the following sections and fields:

- Ambulance Details**
 - *Pre Hospital Stay: Radio buttons for Yes, No, Not Appropriate.
 - *Patient's method of transport: Dropdown menu (Ambulance selected).
 - *Patient Report Form Issued?: Radio buttons for Yes, No, Not Recorded.
 - *Date of arrival: DD/MM/YYYY format.
 - *Time of arrival: HH:MM format.
 - *Date of departure: DD/MM/YYYY format.
 - *Time of departure: HH:MM format.
 - *Patient Report Form number: Text input field.
 - *Vehicle call sign: Text input field.
 - *CAD Number: Text input field.
- Attendants**
 - *Attendants at this location: Radio buttons for Yes, No, Not Recorded.
- Observations - Respiratory**
 - *Respiratory observations: Radio buttons for Yes, No, Not Recorded.
- Observations - Circulation**
 - *Circulation observations: Radio buttons for Yes, No, Not Recorded.
- Observations - Nervous System**
 - *Nervous System observations: Radio buttons for Yes, No, Not Recorded.
- Interventions**
 - *Airway Support: Radio buttons for Yes, No, Not Recorded.
 - *Breathing support: Radio buttons for Yes, No, Not Recorded.
 - *Spinal protection: Radio buttons for Yes, No, Not Recorded.
 - *Chest Drain (NOT needle thoracocentesis): Radio buttons for Yes, No, Not Recorded.

- Patient Report Form, Vehicle Call sign and CAD (computer aided dispatch) numbers are all important fields and should be found on the PRF (when available). The option for not known is: 9999 for all 3 fields.
- Date and Time of Arrival Pre Hospital are new fields and relate to the date and time the Ambulance or Helicopter arrived at scene.

PRE HOSPITAL ATTENDANTS

- Answering Yes to the question “Attendants at this location” will prompt the following additional fields to appear:

PRE HOSPITAL INTERVENTIONS

- Interventions are limited to the following 4 Core questions: Airway Support, Breathing Support, Spinal Protection and Chest Drain.
- If Yes is selected for any intervention, further questions about date/time/type will appear.

PRE HOSPITAL OBSERVATIONS

- Observations remain batched in the sections: Respiration, Circulation and Nervous System, but are restricted to the following Core fields:
 - Respiratory: Airway status, Breathing status, Oxygen saturation, Respiratory rate.
 - Circulation: Pulse rate, Blood pressure.
 - Nervous system: GCS, Pupil size and Reactivity.
- Each section shares a date and time that apply to all the observations.
-

Where available, users should aim to enter the first set of observations taken Pre Hospital.

Multiple recordings of Observations, Interventions and Attendants can also be added simply by pressing the Save button.

ED

ED
*ED Stay Yes No Not Recorded

- Users are prompted to answer **ED Stay**: Yes, No or Not Recorded.
- If a patient is seen in ED, the user should answer Yes.
- If the patient is transferred in or injured in hospital and therefore bypasses ED, the user should answer No.
- If there is absolutely no information about whether or not a patient was seen in ED, the user should answer Not Recorded.

Answering No or Not Recorded allows the user to bypass this screen completely.

Answering Yes prompts the user to answer the Date/Time and Trauma Team questions shown below:

ED
*ED Stay Yes No Not Recorded
*Date of arrival / / (DD/MM/YYYY)
*Time of arrival : (HH:MM)
*Date of leaving / / (DD/MM/YYYY)
*Time of leaving : (HH:MM)
*Trauma Team Yes No Not Recorded
Observations - Respiratory
*Respiratory observations Yes No Not Recorded
Observations - Circulation
*Circulation observations Yes No Not Recorded
Observations - Nervous System
*Nervous System observations Yes No Not Recorded
Interventions
*Airway Support Yes No Not Recorded
*Extubation Yes No Not Recorded
*Breathing support Yes No Not Recorded
*Spinal protection Yes No Not Recorded
*Spinal protection removed Yes No Not Recorded
*Chest Drain (NOT needle thoracocentesis) Yes No Not Recorded

ED OBSERVATIONS

- Observations remain batched in sections: Respiration, Circulation and Nervous System, but are restricted to the following Core fields:
 - Respiratory: Airway status, Breathing status, Oxygen saturation, Respiratory rate.
 - Circulation: Pulse rate, Blood pressure.
 - Nervous system: GCS, Pupil size and Reactivity.
- Each section shares a date and time that apply to all the observations.

Where available, users should aim to enter the first set of observations taken in ED.

ED INTERVENTIONS

- ED Interventions are structured in the same way as in Pre Hospital, with the additional of the following 2 questions: Extubation and Spinal Protection Removed.
- If Yes is selected for any intervention, further questions about date/time/type of intervention will appear:

ED Attendants

- ED Attendants are now recorded on a separate screen.
- Multiple Attendants can easily be recorded simply by clicking on the save button.
- Save refreshes the screen and stores the Attendant information in the crumb trail on the left hand side (see below) allowing another attendant to be entered.

Crumb Trail

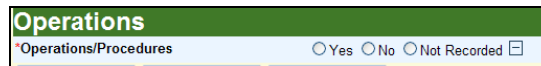


IMAGING

- Imaging is now recorded on one Imaging location screen rather than via the Investigations subsection.
- Core imaging fields are limited to just: X-ray, CT, Ultrasound, Fast Scan and Other Imaging which includes: AP and Judet Oblique Radiograph and MRI scan.
- A user must answer Yes, No or N/R to each question.
- If Yes is chosen, the user is then prompted to complete: Date, Time and Body region scanned, Method of Image transfer to specialist centre and whether or not the image was Reported by Senior Radiologist.
- Users also have the ability to copy and paste reports directly into the relevant imaging section. It is recommended that users copy in reports that show any injuries.
- TARN injury coders can see copies of all pasted reports on the AIS coding screen, which helps ensure accurate injury coding.
- Dates and Times of Imaging are Core fields and users should aim to record these for every applicable submission.

Imaging	
Plain X-ray	
*X-Ray	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Date of X-ray	<input type="text"/> / <input type="text"/> / <input type="text"/> (DD/MM/YYYY) <input type="checkbox"/>
#Time of X-ray	<input type="text"/> : <input type="text"/> (HH.MM)
*Body region	<input type="text"/> <input type="checkbox"/>
*Method of image transfer to specialist centre	<input type="text"/>
#Report	<input type="text"/>
*Reported by Senior Radiologist	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
CT	
*CT scan	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Ultrasound	
*Ultrasound	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Fast Scan	
*Fast Scan	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Other Imaging	
*Other Imaging	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*AP and Judet oblique radiographs performed	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*MRI scan	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>

OPERATIONS

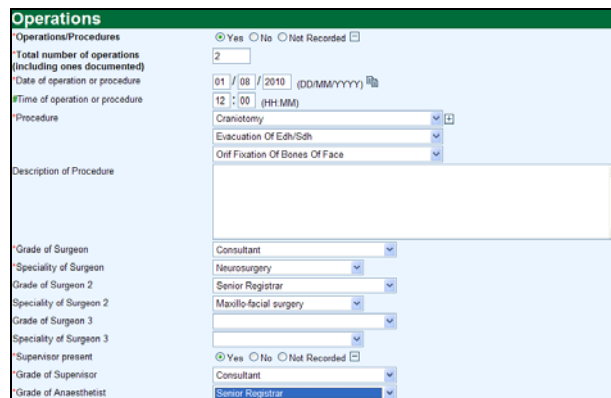


Operations
*Operations/Procedures Yes No Not Recorded

- The Theatre location **has been simplified and renamed as Operations.**
- A user can now go directly into the Operations screen rather than having to complete the Theatre location first. **This change applies to both Core and Extended datasets.**
- Users are prompted to answer **Operations:** Yes, No or Not Recorded.
- If a patient has an Operation, the user should answer Yes.
- If the patient does not have an Operation, the user should answer No.
- If it is unclear as to whether or not an Operation was performed, the user should answer Not Recorded.

Answering No or Not Recorded allows the user to bypass this screen completely.

Answering Yes prompts the user to answer the following questions:



Operations
Operations/Procedures Yes No Not Recorded

*Total number of operations (including ones documented) 2

*Date of operation or procedure 01 / 08 / 2010 (DD/MM/YYYY)

*Time of operation or procedure 12 : 00 (HH:MM)

*Procedure
Craniotomy
Evacuation Of Edh/Sdh
Orif Fixation Of Bones Of Face

Description of Procedure

*Grade of Surgeon Consultant

*Speciality of Surgeon Neurosurgery

Grade of Surgeon 2 Senior Registrar

Speciality of Surgeon 2 Maxillo-facial surgery

Grade of Surgeon 3

Speciality of Surgeon 3

Supervisor present Yes No Not Recorded

*Grade of Supervisor Consultant

*Grade of Anaesthetist Senior Registrar

- Total number of Operations is a new field and should include the operation you are entering data for, i.e. if a patient has only one operation in total, put 1 into this field.
- If a patient has 2 Operations, put 2 in this field, then enter the data relating to the first Operation, Save and the information is stored in the crumb trail to the left, the screen then refreshes to allow you to enter in your second Operation.
- Supervisor Present is also a new field and should be recorded when a Consultant is present in the Operating room, but not actually performing the Operation.
- Grade and Speciality of the most senior surgeon from each speciality and the Anaesthetist are Core fields and should be recorded wherever possible
- Only the first Grade/Speciality is Mandatory in case only 1 speciality is involved.
- An option for Not Known exists for both Grade and Speciality.

CRITICAL CARE

- Users are prompted to answer **Critical Care Stay**: Yes, No or Not Recorded.
- If a patient is taken to Critical Care for any length of time, the user should answer Yes.
- If the patient isn't taken to Critical Care, the user should answer No.
- If it is unclear as to whether or not the patient was taken to Critical Care, the user should answer Not Recorded.

Answering No or Not Recorded allows the user to bypass this screen completely.

Answering Yes prompts the user to answer the questions shown below:

Critical Care	
*Critical Care Stay	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Date of arrival	<input type="text"/> / <input type="text"/> / <input type="text"/> (DD/MM/YYYY)
#Time of arrival	<input type="text"/> : <input type="text"/> (HH:MM)
*Date of departure	<input type="text"/> / <input type="text"/> / <input type="text"/> (DD/MM/YYYY)
#Time of departure	<input type="text"/> : <input type="text"/> (HH:MM)
*Type of unit	<input type="text"/>
*Length of stay in Critical Care	<input type="text"/>
*Re-admission to ICU?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Observations - Respiratory	
*Respiratory observations	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Observations - Circulation	
*Circulation observations	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Observations - Nervous System	
*Nervous System observations	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
Interventions	
*Airway Support	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Extubation	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Breathing support	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Spinal protection	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Spinal protection removed	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Chest Drain (NOT needle thoracocentesis)	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>

- In Critical Care the Observations and Interventions are the same as those requested in ED.

Where applicable, users should complete the first set of observations taken in Critical Care.

- Attendants are not required in the Core Dataset.
- Length of Stay in Critical Care should be completed as days, with anything up to 24 hours being classed as 1 day, when a user completes this field the system will copy the data over onto the At Discharge screen.
- Date and Time of Departure from Critical Care are new fields, as is Readmission to ICU.

WARD

- The Ward section core questions are limited to just Date & Time of arrival/departure and type of ward.
- Observations, Interventions and Attendants are no required in the Core Dataset.

Ward	
*Ward Stay	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Recorded <input type="checkbox"/>
*Date of arrival	<input type="text"/> / <input type="text"/> / <input type="text"/> (DD/MM/YYYY)
#Time of arrival	<input type="text"/> : <input type="text"/> (HH:MM)
*Date of departure	<input type="text"/> / <input type="text"/> / <input type="text"/> (DD/MM/YYYY)
#Time of departure	<input type="text"/> : <input type="text"/> (HH:MM)
*Type of ward	<input type="text"/>

AT DISCHARGE

- The At Discharge screen is a combination of the Outcome and Injuries screens with only the Core fields from each displayed.
- Is a user answers Yes to Complications they are then prompted to answer Yes, No or Not Recorded to the following: Deep Vein Thrombosis, Duodenal Ulcer, Pulmonary Embolism and Multi Organ Failure.
- All other complications should be entered using the drop down box.
- Length of Stay in Critical care is a Core field and if completed on the Critical care screen will automatically populate onto the At Discharge screen.
- If the patient doesn't go to Critical Care, Users should **put 0 into this field**.
- Number of Days intubated is also a Core field and should be completed in days, with anything up to 24 hours being classed as 1 day.
- If the patient is not intubated, users should record as 0.

- If a patient's Outcome at Discharge is recorded as Alive, the user is prompted to answer:
 - Did the patient self discharge
 - Date/Time of Discharge
 - Discharged to
 - Glasgow Outcome Scale (disability status, normally found on the discharge letter)
 - Readmission
- With options for Not Recorded or Not Known available where applicable.

AT DISCHARGE

- If a patient's Outcome is recorded as Dead, the user is prompted to answer:
 - Date/Time of Death
 - Cause of Death
 - Post Mortem done
 - Mode of death
 - Organ donation

The "Glasgow Outcome Scale" field will auto-populate with Death and the "Discharged to" field with Mortuary.

The screenshot shows a form titled "Outcome at Discharge". At the top right, there are radio buttons for "Alive" and "Dead", with "Dead" selected. Below this are several input fields and dropdown menus: "Date of death" (DD/MM/YYYY), "Time of death" (HH:MM), "Length of stay" (0), "Length of stay in Critical Care", "Days intubated", "Cause of death 1", "Cause of death 2", "Cause of death 3", "Post Mortem", "#Mode of death", "Organ donation" (Yes, No, Not Recorded), "Discharged to", "Glasgow Outcome Scale", and "When GOS recorded".

OUTCOME MEASUREMENTS

- The outcome measurements screen is automatically populated once a submission has been coded and Approved by TARN, therefore the User does not enter data into this section. The Outcome Measurements screen contains the Patient's:
 - Injury Severity Score (ISS)
 - Probability of Survival (Ps)
 - New Injury Severity Score (NISS)
 - ICD10 codes mapped from AIS codes
 - Age
 - Gender
 - Earliest recorded GCS
 - Intubation status

AIS CODING

- The AIS coding screen is used by TARN coders to assign Abbreviated Injury Codes (AIS) to all injuries documented on the At Discharge screen.
- The AIS coding screen also shows any CT, X-ray, US or Fast scan reports copied and pasted into the Imaging screen by the user.

DISPATCH AND VALIDATION

- Dispatch and Validation work the same as before:
 - Missing Mandatory fields highlighted in red
 - Missing Preferred fields highlighted in green.

A user can not dispatch a submission without completing all the Mandatory Core fields.

Applicable to both Core and Extended Datasets.

In all sections any changes made MUST be explicitly saved by the user.

Moving away from the entry screen will not save the entered/changed details automatically.

A submission can be saved at almost any point, and returned to later for editing, there is a warning given if a save is not possible, usually due to “Live” validation in an entry.

The top side bar menu shows all the submission sections, allowing for quick access as required.

If extra details or extra sections have been added to a section, e.g. Attendants then they will also be shown here (as below).

The lower side bar menu shows options available for the submission being edited.

Saving

On most screens any changes made to the section will **NOT be saved or prompted to be saved when the section is exited or moved away from.**

If the screen is timed out, due to inactivity the entries made will not be saved, if you are leaving the screen for a while and want to save your entered work, then **save before you leave.**

If the changes are to be saved then they should be explicitly saved.

If there are any errors on screen due to checking of the entered data they will have to be corrected before the screen can be saved, e.g. If the entry is out of bounds i.e. an age of 120 (limited to 1 - 110) there will be an on screen message shown, and the error must be corrected or cleared before the page can be saved.

Saving options

On screen at both top and bottom of the section is a choice of options for that section.

On entry to a section open for editing the choice may be:-

SAVE CHANGES:

This allows the saving of changes made to the section and remains in that section.

SAVE AND NEXT:

Allows saving of the changes and moving to the next Location on the list.

SAVE AND BACK:

Allows saving of changes and moving back to the main page of that section e.g. If in Attendants in Emergency Department section, you will be taken back to the Emergency Department opening screen.

Edit

When a submission is recalled, it is shown as a read only set, the edit option re-enables the editing of the sheet allowing entries to be made and saved.

You can not edit a submission after it has been dispatched to TARN.

View

If a submission has been made editable, the view option will return it to being read only, preventing any inadvertent changes from being saved.

Anybody with rights to “view data and produce reports”, will only ever see data in the View state.

Any data dispatched or approved will only be viewable not editable.

Add new section

Multiple sections can be recorded by selection of this option; this will repeat the section allowing multiple entries for the patient. E.g. If a patient has multiple visits to Imaging suite on different dates – use this option.

Delete section

Will delete all the data entered for that section.

If a section has been visited and saved with no entries, then any mandatory or preferred entries due for that section will be requested before the submission can be dispatched.

If a section has been saved in error, then the section should be deleted, this will remove it from the validation.

Validate

Selecting this option will validate that the submission selected is ready for dispatch, it does not dispatch it.

The submission is checked for entries in the **mandatory and preferred fields**, and any incorrect entries that would prevent the submission being dispatched.

If there is no missing data, then the validation warning screen is not shown, and the opening section is displayed.

If there is any missing data, then the screen will show a list of warnings and errors in the submission; each warning is listed with the section, question and warning.

- All missing mandatory fields are highlighted in **Red**.
- All missing preferred fields are highlighted in **Green**.

Selection of the underlined section name will take the user back to that section for editing.

Once all mandatory fields are completed, an option to **Dispatch this submission to TARN** appears underscored at the top of the page.

Dispatch

The simplest way to dispatch a submission is to validate, then use the dispatch statement (see above).

Alternatively a user can bypass the Validate option and choose the Dispatch button to the bottom left of the screen, this will also check for missing mandatory and preferred fields.

Once a submission has been dispatched the user will see the submission number at the top of the screen with (Dispatched) in brackets.

Approve

This is the Status of a dispatched submission that a TARN qualified coder has checked and coded.

The user can see all approved submissions by looking on the Submission Summary page and choosing the Approved status in the drop down list.

Once a submission has been approved the user can click into it and will see the submission number at the top of the screen with (Approved) in brackets.

Only when a submission has been approved by TARN can it be used in any reports.

Flag

A TARN coder will flag a submission if it is a transfer out to another TARN site and is awaiting the corresponding submission to match and approve.

Flagged submissions will remain in the Dispatched in-tray until un-flagged and approved by TARN.

Reject

This is the Status of a dispatched submission that a TARN coder has checked but it doesn't fulfil the Inclusion Criteria.

The submission is rejected and a message will be entered in the [VIEW DIARY](#) section explaining why it has been rejected.

The user can see all rejected submissions by looking on the Submission Summary page and choosing the Rejected status in the drop down list, or by clicking on the number to the side of the Rejected in-tray (also on the Submission Summary page).

Once a submission has been rejected the user can click into it and will see the submission number at the top of the screen with (Rejected) in brackets.

No further action is necessary unless user disagrees with reject reason or has further information.

Return

This is the Status of a dispatched submission that a TARN coder has checked, but needs further detail from the user before APPROVING.

The submission is returned and a message will be entered in the [VIEW DIARY](#) section explaining why it has been returned.

Once the additional data is added, a hospital user should REDISPATCH the submission to TARN.

The user can see all returned submissions by looking on the Submission Summary page and choosing the Returned status in the drop down list, or by clicking on the number to the side of the Returned in-tray (also on the Submission Summary page).

Once a submission has been returned the user can click into it and will see the submission number at the top of the screen with (Returned) in brackets.

View diary

This shows any diary notes associated with this submission and can be added to **by TARN and user**.

Diary notes are used to communicate with others who are collaborating with the submission.

Diary notes can be added by user (before dispatch) or by TARN (post dispatch) to clarify reasons for returning or rejecting a submission.

Submitted By: Ann Smith Date: 26/09/2005 11:42

Opening section includes details of intracranial injuries, but no CT scan on record. Is this correct?

Once a diary note has been saved it is not editable

If the submission is only being viewed, then the user cannot add to the diary notes.

4.11 SEARCHING FOR SUBMISSIONS

The submission search screen allows the user to find any existing submission (regardless of status) based on numerous fields.

The search options can be entered either singularly or multiply, but the result is restrictive when multiple i.e. where family name and postcode have entries only those that match for both will be shown.

The search options are not case sensitive on entry, i.e. Family Name search for Ford, ford and FORD will all return the same entries.

Standard searches

The simplest field to search on is the submission number, but if this is not known try using the Hospital Arrival Date fields, this will then list all submissions that arrived at your hospital within that time period.

Enter the field/s and select “Find” option.

This will produce a list of all submissions matching your criteria and you can access them simply by clicking the underlined submission number.

Wild card searches

The search can include symbols for wild card searching if unsure of exact spelling or detail, the symbols used are:-

% {percent}: to indicate a wild card where required, this symbol can represent none, one or many characters.

_ {underscore}: to indicate any single character. Note that the character must be present.

Examples below:

Fred_ would find Fredi & Freda, but not Fred or Frederick.

If the family name (m) is searched for then nothing may be found, if however the search was for m% then this would find any submissions that start with the letter m.

If the family name %man is searched for, then this will find any name ending in man, i.e. Seaman, Hillman, etc.

If the search is for a segment of the name that could be anywhere in the name then the % should be added to both ends, i.e. %man% this will then return both Seaman and Manfield and also Hunmanton.

4.12 EDCR REPORTING

In addition to entering data, you can also produce reports to summarise and analyse data for your hospital(s). The reports area of the EDCR system allows you to produce two types of report: Case Summary and Demographic and Clinical Frequencies. Full explanations of these reports and instructions about how to produce them can be found below.

The reports section can also be used by TARN staff to upload any *ad hoc* analysis that is beyond the scope of what you can produce using the Case Summary and Demographic and Clinical Frequencies reports. This facility allows you to download files quickly and easily with no need for e mail attachments. Further details can be found below.

Case Summary

Case Summary reports provide a patient by patient summary of coded and approved cases for your hospital for a specified time period. The following fields are displayed for each case included in a Case Summary report:

- SUBMISSION/CASE NUMBER
- MECHANISM OF INJURY
- LEVEL OF INTENT
- DATE OF INCIDENT
- TIME OF INCIDENT
- ADMISSION DATE
- ADMISSION TIME
- TRAUMA TEAM (YES/NO)
- LENGTH OF STAY
- OPERATION/PROCEDURE
- STATUS (ALIVE/DEAD)
- TRANSFER DETAILS
- EARLIEST GCS
- INJURY SEVERITY SCORE
- AGE
- SEX
- PROBABILITY OF SURVIVAL
- INJURY DESCRIPTION

Suggested cases for review are also highlighted.

To create a Case Summary report, follow these steps:

1. Click on **REPORTS** on the menu bar at the top of the screen.
2. Click the **CREATE REPORT** link on the left hand side of the screen.
3. Choose **CASE SUMMARY** from the REPORT drop list.
4. If you only have rights for one hospital, it should appear in the **HOSPITAL SITE** box automatically. If you have rights for more than hospital, choose the site you want from the drop down.
5. Enter your **START DATE** and **END DATE**. Remember to enter them in *dd/mm/yyyy* format; the dates are inclusive. If you wanted to report on data for 2009, your start date would be *01/01/2009* and your end date would be *31/12/2009*.
6. Choose the type of **DATE TO USE FOR RANGE** you want. You have the following choices:
 - Approval date: when the submission was coded and approved by TARN.
 - Admission date: when the patient arrived at hospital.
7. You can order the cases in your Case Summary report in two ways: by trauma number or by date of arrival. Choose the option you want from the *Order by* drop down.
8. When you have finished setting up your report, click **GENERATE REPORT** at the bottom of the screen. You will receive a message saying that your report is being generated.
9. Click on **OK** and then choose **PREVIEW REPORTS** from the reports menu on the left of the screen.
10. Choose **CASE SUMMARY** from the **REPORTING SECTIONS** menu.

11. This will bring up a list of the Case Summary reports you have created. Click on one of them to bring up your report in Adobe Acrobat, you may get a message saying that your report is still being generated. If this happens, refresh your browser by pressing F5 on your keyboard.

Performance Review Indicators – NEW REPORT

This new report will be a similar format to the Case Summary report and shows approved cases for your hospital for a specified time period. This report highlights the fields that underpin the analysis used to monitor Standards of Care in both the Performance Comparison section of the TARN website and in the Quarterly reports. It includes:

Date and Time of first operation	All Attendants in ED
Time to first Operation	Patients meeting NICE Head Injury Guidelines Criteria.
Date and Time of First CT scan	Shocked patients (SBP<90) Yes/No
Time to CT scan	All Attendants in ED

To create a Performance Review Indicators report, follow these steps:

1. Click on [REPORTS](#) on the menu bar at the top of the screen.
2. Click the [CREATE REPORT](#) link on the left hand side of the screen.
3. Choose [PERFORMANCE REVIEW INDICATORS](#) from the REPORT drop list.
4. If you only have rights for one hospital, it should appear in the [HOSPITAL SITE](#) box automatically. If you have rights for more than hospital, choose the site you want from the drop down.
5. Enter your [START DATE](#) and [END DATE](#). Remember to enter them in *dd/mm/yyyy* format; the dates are inclusive. If you wanted to report on data for 2009, your start date would be *01/01/2009* and your end date would be *31/12/2009*.
6. Choose the type of [DATE TO USE FOR RANGE](#) you want. You have the following choices:
7. Approval date: when the submission was coded and approved by TARN.
8. Admission date: when the patient arrived at hospital.
9. You can order the cases in your Performance Review Indicators report in two ways: by trauma number or by date of arrival. Choose the option you want from the [Order by](#) drop down.
10. When you have finished setting up your report, click [GENERATE REPORT](#) at the bottom of the screen. You will receive a message saying that your report is being generated.
11. Click on [OK](#) and then choose [PREVIEW REPORTS](#) from the reports menu on the left of the screen.
12. Choose [PERFORMANCE REVIEW INDICATORS](#) from the [REPORTING SECTIONS](#) menu.
13. This will bring up a list of the Performance Review Indicators reports you have created. Click on one of them to bring up your report in Adobe Acrobat, you may get a message saying that your report is still being generated. If this happens, refresh your browser by pressing F5 on your keyboard.

Demographic and Clinical Frequencies

The Demographic and Clinical Frequencies report allow you to analyse the data for your hospital(s). They are much more powerful than Case Summary reports, which simply supply a general summary of your data for a particular time period. Demographic and Clinical Frequencies allow you to focus on particular aspects of your data. They show how two or more questions interrelate and the patterns of interaction between them. If, for example, you wanted to know how many people had been admitted to your hospital as the result of a vehicle collision and look at the pattern of age or gender, you could use the Demographic and Clinical Frequencies report. To create a Demographic and Clinical Frequencies report, follow these steps.

1. Click on **REPORTS** on the menu bar at the top of the screen
2. Click the **CREATE REPORT** link on the left hand side of the screen.
3. Choose **DEMOGRAPHIC AND CLINICAL FREQUENCIES** from the REPORT drop list. This should bring up the main Demographic and Clinical Frequencies screen.
4. If you only have rights for one hospital, it should appear in the **HOSPITAL SITE** box automatically. If you have rights for more than hospital, choose the site you want from the drop down.
5. Enter your **START DATE and END DATE**. Remember to enter them in *dd/mm/yyyy* format. The dates are inclusive.

EXAMPLE:

If you wanted to report on first 6 months of 2010, your start date would be 01/01/2010 and your end date would be 30/06/2010.

1. Choose the type of **DATE FOR SELECTION** you want. You have a choice of incident date or admission date. Admission date is the date that the patient arrived at hospital.
2. If you wish, you can, produce a report for a particular body region using the **BODY REGION** drop down if your want to produce a report on a particular type of injury. The body regions are:
 - **THORAX**
 - **ABDOMEN**
 - **HEAD**
 - **UPPER LIMB**
 - **LOWER LIMB**
 - **SPINE**

If you want all injury types in your report, leave this option blank.

1. You can also use the **ISOLATED INJURIES** option to say whether you want to produce a report on just one particular body region, or injuries in that body region with injuries to other body regions.
2. **SELECTION CRITERIA:** You can further filter your report by Age, Gender, Outcome, Injury Type or Injury Mechanism. If you leave these fields blank, all patients within the date range selected will be included.
3. **CHOOSE YOUR ROW AND COLUMN** (see next page for examples of how to do this); there are a range of criteria available for use in your report. You must choose one row and one column.
4. Observations are available under the Row and column options, but if chosen one of these you must then choose whether you want HIGHEST OR LOWEST (use the Process Measure Options buttons for this).
5. When you have finished setting up your report, click **GENERATE REPORT** at the bottom of the screen. This will bring up a message saying that your report is being generated.
6. Click on **OK** and then choose **PREVIEW REPORTS** from the reports menu on the left of the screen.
7. Choose **DEMOGRAPHIC AND CLINICAL FREQUENCIES** from the **REPORTING SECTIONS** menu.
8. This will bring up a list of the Demographic and Clinical Frequencies reports you have created. Click on one of them to bring up your report in Adobe Acrobat.

EXAMPLE I: ISOLATED THORACIC PATIENTS ONLY

To produce this report, you would choose Thoracic from the Injury Type drop down and choose Isolated from the Isolated Injuries drop down.

EXAMPLE II: THORACIC PATIENTS WITH OTHER INJURIES

To produce this report, you would choose With Other Injuries from the Isolated Injuries drop down.

EXAMPLE III: LOWEST GCS FOR ALL PATIENTS WHO WERE GIVEN MANNITOL

To produce this report, you would choose Mannitol as Process Measure 1 and GCS as Process Measure 2, choosing lowest as the Process Measure 2 option.

All of the other criteria work in the same way. You can either choose from a particular category on a drop list or choose All to display all categories on the list in your report.

EXAMPLE IV: VEHICLE COLLISION BY AGE

After entering your hospital and date information at the top of the report, you would select Age (all) and Mechanism of injury (vehicle collision) as your variables. This would create a report breaking down submissions relating to vehicle collisions by age.

EXAMPLE V: AGE (16 – 25) BY INJURY MECHANISM

Using the same variables in another way would produce a different report. To produce this report, you would select Age (16-25) and Injury Mechanism (all) as your variables. This would produce a report breaking down submissions relating to 16 – 25 year olds by mechanism of injury.

Uploaded reports

TARN uses this option to upload the Quarterly reports and Coordinator contacts lists and Core data collection forms. Any files that are uploaded in this way can be accessed by clicking REPORTS and choosing PUBLISHED REPORTS from the reports menu.

Submission Summary reports: Updated August 2010

METHODOLOGY

The Submission Summary report has a new format and will now enable TARN data coordinators to summarise submissions over a specified time period. The report now includes the following fields (new fields are highlighted in blue):

- Submission number
- Patient's first name
- Patient's surname
- Date of Birth
- Gender
- Age
- ED number
- Hospital Number
- Gender
- NHS Number
- Patient Postcode
- Date of Arrival
- Discharge Date
- Date of Death (if applicable)
- Discharge status
- ISS

As the reports contain sensitive patient data, they can only be produced by a hospital user with rights to a specific hospital. For this reason staff at TARN will not be able to produce these reports. To create a Submission Summary Report on the eDCR system, follow the steps below:

1. Log into www.tarn.ac.uk using your secure username and password.
2. Click on **SUBMISSION**, then **SEARCH** and select your hospital.
3. Choose the **DATE PERIOD** – the options are:
 - Incident date
 - Admission date
 - Discharge date
 - Submission Creation date
 - Submission Approval date
 - Submission Return date
 - Re-submission date

The most useful dates will be Admission date, Discharge date and Submission Approval date.

4. Choose the date range using the **FROM** and **TO** date cells.
5. Choose the Submission Status:
 - CREATED:** The report will contain submission you are currently working on.
 - APPROVED:** The report will contain submissions sent to TARN that have been coded and approved.If you leave the Submission Status blank, the report will contain every submission (Created, Dispatched, Approved etc) entered during the time period selected.
6. Click **FIND** – the results will appear at the bottom of the screen.
7. Click on **REPORT** (top left) - the list will be converted into an excel spreadsheet.

EXAMPLE

	A	B	C	D	E	F	G	H	I
1	SUBMISSION_ID	PATIENT_FIRSTNAM	PATIENT_SURNAME	PATIENT_DOB	PATIENT_GENDER	PATIENT_AGE	PATIENT_AENUMBE	PATIENT_HOSPNUM	PATIENT_NHSNUM
2	822200000475	Paul	Smith	01/05/1969	Male	40.9	21321321	HR121321321	9999999999
3	822200000486	John	Jones		Male	20			
4	822200000511	Fred	Johnson		Male	21			
5	822200000524	Joe	McIntyre		Male	25			9999999999
6									

Excel represents any number containing >10 digits as decimal places, therefore to show the Submission ID number in a logical format, simply:

1. Highlight Column A
2. Right click and choose Format Cells
3. Choose Number
4. Decimal places = 0
5. Okay

SUBMISSION SUMMARY REPORT EXAMPLES

This will generate a report showing all cases Approved by TARN during June 2010

Submission search

Submission No.:

Hospital: Submission status:

Family name: First name:

DOB from: DOB to:

A&E Dept No. from: A&E Dept No to:

NHS number: Postcode:

Matching: Coding Status:

Date Period:

From: To:

With warnings:

This will generate a report showing all cases Approved by TARN that were Discharged during May 2010.

Submission search

Submission No.:

Hospital: Submission status:

Family name: First name:

DOB from: DOB to:

A&E Dept No. from: A&E Dept No to:

NHS number: Postcode:

Matching: Coding Status:

Date Period:

From: To:

With warnings:

This will generate a report showing all cases Created during July 2010.

Submission search

Submission No.:

Hospital: Submission status:

Family name: First name:

DOB from: DOB to:

A&E Dept No. from: A&E Dept No to:

NHS number: Postcode:

Matching: Coding Status:

Date Period:

From: To:

With warnings:

4.13 TARN HOME PAGE

This is the starter page for the TARN system, the screen has links to various public details of the TARN project, with the option to [login to the members only](#).

From the top menu the following options can be accessed:-

INTRODUCTION

This section contains basic information about Trauma.

- How TARN evolved.
- Implementation of the EDCR system

HOW TO JOIN

This section details the joining process.

- Participant Contribution fees
- Membership Authorisation Form

FEEDBACK

Information about Process measure contained in each Quarterly report:

- Quality Indicators booklet

RESOURCES

This section lists some of the resources available.

- PS calculator
- TARN Overview booklet
- NEW INCLUSION CRITERIA: FAQ's
- NEW INCLUSION CRITERIA: Fracture definition list
- Anatomy guide
- Tarn newsletters by month since 2000
- How to produce the Case Summary reports
- Procedures book
- Minimum data requirements document
- List of ICD10 Trauma codes and inclusion rules for TARN.

Where the Adobe icon appears this indicates a PDF document, the other options will open further pages.

TRAINING

This section contains information about TARN training courses.

TARNLET

Is the paediatric TARN group, and this screen provides access to the news from it, together with lists of research and publications and the committee members.

REGIONAL TARN

Contains information about regional groups and links to their websites, including Greater Manchester TARN group.

EUROTARN

This section contains information about the 14 countries collecting trauma data across Europe, trying to develop an effective system to review the standards of trauma care across Europe.

- List of countries involved
- Progress of Eurotarn so far
- Minutes from Manchester, Hanover, Leeds and Stavanger meetings.

RESEARCH

A collated list of applicable research papers for reference.

- Past publications
- List of current research
- Collaborative projects

CONTACT US

- Directions to TARN offices
- Map of TARN offices
- Address of TARN
- Job title and Email address for all TARN staff
- Executive Board members listed

LOGIN

Used to Login to the secure areas of TARN, see “Logging in to TARN”

Please contact TARN if you represent a TARN member site and would like a username and password setting up.

PERFORMANCE COMPARISONS

This part of the website provides, for the first time, important information about the rates of survival for patients who have been injured and treated at different hospitals across England and Wales. It also provides information about the benefits of certain kinds of treatment.

This information is freely available without a username and password.

This section contains data relating to every region of the England and Wales, including:

- Which sites submit data to TARN and their data completeness rates
- Data accreditation percentages
- Survival rates
- Process measures relating to: Brain, Spinal, Chest and Limb injuries,

Detailed information on how each of these is calculated is also included.

This part of the TARN website was designed with the help of The Healthcare Commission and modelled on the Heart Surgery Website.

There have been a few problems with Internet Explorer crashing on some PCs in the Transfers and Outcomes sections. This is a problem with the individual PCs and not the TARN site.

To put this right, you need to change the settings on your PC. If you have not already done so, we recommend that you work through the following steps as soon as possible:

Start up Internet Explorer.

Click Tools and select Internet Options from the menu.

Select the General tab, if this is not already selected.

Under Temporary Internet Files, click the Settings button.

Change the setting for Check for newer versions of stored page to every visit to the page rather than the default setting of automatically.

Click OK, then OK again.

Re-start Internet Explorer.

To avoid this problem, we recommend that this should be done on every PC that is used to enter TARN data.

4.15 LOCATING A FIELD

FIELD NAME	CORE DATASET	LOCATION in EXTENDED DATASET	HELP TEXT
Airway status	Yes	Observations/ Respiration	The patient's airway status ON ARRIVAL in a location. Choose from: patent (normal breathing), obstructed (airway blocked), supported (breathing with mask), intubated (breathing through tube inserted into airway) or annulated (breathing through thin tube inserted through cricothyroid membrane). Use 'missing' option if status not known.
Airway support	Yes	Interventions/ Respiration	Procedures carried out to support or maintain the airway in this location. Choose from Airway positioning, Pharyngeal tube, Intubation, Cricothyroidotomy, Tracheostomy Or Extubation
Analgesia		Interventions/ Nervous System	Drugs administered to relieve pain. Details usually found in drugs section of notes.
Angiography		Investigations/ Other Imaging	An x-ray procedure where dye is injected into arteries so that blood circulation can be studied.
Antibiotics		Interventions/ Host Defence	Anti-infection drugs. Details usually found in drugs section of notes.
Anticonvulsant		Interventions/ Nervous System	Drugs administered to prevent muscle convulsions. Details usually found in drugs section of notes.
AP and Judet oblique radiograph	Yes	Investigations/ Other Imaging	Takes oblique views of injury site to give 3 dimensional images. Primarily for pelvic injuries.
Biochemistry		Investigations/ Blood Sampling	Tests on the chemical composition of blood, such as levels of sodium, potassium or glucose.
Bladder catheter		Interventions/ Metabolism	A tube that is placed in the bladder to help with urination.
Blood gases		Investigations/ Blood Sampling	Range of tests (pH, pCO ₂ , Bicarb, BXS) used when patient has symptoms of an oxygen/carbon dioxide imbalance.
Blood pressure	Yes	Observations/ Circulation	Enter systolic and diastolic values if known.
Blood products		Interventions/ Circulation	Blood and related products. Choose from blood, FFP or platelets and give quantity in units
Bp mean		Observations/ Circulation	Mean arterial blood pressure read directly from machine.
Bp mean (calculated)		Observations/ Circulation	Mean arterial blood pressure calculated using systolic and diastolic values.
Breathing status	Yes	Observations/ Respiration	The patient's breathing status ON ARRIVAL in a location. Choose from: air (breathing room air), added oxygen (oxygen administered via nasal tubes), compromised (breathing impaired by injury), manual ventilation (breathing supported by 'bag' operated by hand), non-invasive ventilation (mechanical ventilation via mask) or invasive ventilation (mechanical ventilation via tube inserted into airway).

			Use 'missing' option if status not known.
Breathing support	Yes	Interventions/ Respiration	Interventions to assist breathing. Choose from: oxygen, manual ventilation (breathing supported by 'bag' operated by hand), mechanical ventilation (via tube), CPAP (Continuous Positive Airway Pressure) or BiPAP (Bi-level Positive Airway Pressure). Choose 'missing' if not known.
Cannulation		Interventions/ Circulation	The insertion of a tube for drainage. Can be written as cannule, IV or peripheral line.
Capillary refill		Observations/ Circulation	Measured in seconds. Reading is normal if less than 2 seconds.
Cardiac enzymes		Observations/ Circulation	Tests to check for enzymes released into blood when heart is damaged. Record presence of troponin, troponin T or creatinine using selection buttons.
Cardio respiratory resuscitation		Interventions/ Circulation	May also be noted as Cardio Pulmonary Resuscitation (CPR).
Chest drain	Yes	Interventions/ Respiration	Drainage of fluid, air or pus from the inthoracic space.
Circulatory status		Observations/ Circulation	The patient's circulatory status ON ARRIVAL in location. Choose from: unsupported (normal circulation), inotrope/vasopressor dependent (assisted by drugs), balloon pump (mechanical device attached to catheter to assist circulation), on-going CPR (cardio pulmonary resuscitation continued after arrival at hospital. Use 'missing' option if status not known.
Cooling		Interventions/ Host Defence	Reducing temperature of body area in cases of burns/scalds.
Creatinine (urine)		Investigations/ Urine Sampling	Measured in millilitres per minute (ml/min). For a 24-hour urine collection, normal results are 90-139 ml/min for adult males less than 40 years old, and 80-125 ml/min for adult females less than 40 years old. For people over 40, values decrease by 6.5 ml/min for each decade of life.
Cricothyroidotomy		Interventions/ Respiration	Creation of temporary hole in cricothyroid membrane to assist breathing in case of severe facial injury.
CT scan	Yes	Investigations/ CT	Computed Tomography scan. Shows the internal structure of organs.
CT with contrast		Investigations/ Other Imaging	A Computed Tomography scan using dye to show vascular structures.
Cystogram		Investigations/ Other Imaging	An x-ray of the bladder using dye.
Defibrillation		Interventions/ Circulation	An electrical device used to restore normal heartbeat by applying a brief electric shock.
Diagnostic peritoneal lavage		Investigations/ Diagnostic peritoneal lavage	Procedure to check for bleeding in cases of abdominal injury. Now little used.
Diastolic blood pressure	Yes	Observations/ Circulation	Blood pressure in arteries when heart is at rest. Measured in millimetres of mercury (mmHg).

Direct compression of external haemorrhage		Interventions/ Circulation	Stopping bleeding using a pressure bandage or stitches, or a tourniquet in the case of vascular injury.
Doppler probe		Observations/ Circulation	A portable ultrasound device used to measure blood pressure in suspected cases of vascular injury.
ECG		Investigations/ Cardiography/Neuro physiology	Standard ECG used for routine heartbeat monitoring.
ECG (12 lead)		Investigations/ Cardiography/Neuro physiology	Electrocardiogram using different permutations of twelve leads to measure electrical activity of heart. 6 leads on chest (VI - 6) and 1 on each limb (I - IV).
Echocardiogram		Investigations/ Cardiography/Neuro physiology	Checks for damage to heart and checks functionality of chambers. Written in radiology report, often shown as LVF + RVF.
EEG		Investigations/ Cardiography/Neuro physiology	Electroencephalogram. A brain scan.
End tidal CO ₂		Observations/ Respiration	A dynamic reading of how much carbon dioxide a patient is breathing out. Usually found in anaesthetist's notes.
Escarotomy		Interventions/ Respiration	Burns procedure. Cutting through burnt tissue to assist breathing/circulation.
Fluid		Interventions/ Circulation	Fluids administered to regulate sugar levels in blood. Choose from dextrose, colloid, crystalloid, polygelatine, starch or hypertonic saline/hyperOsmolar fluid and record units administered.
Gastric tube		Interventions/ Metabolism	A tube inserted into the stomach for drainage or feeding.
GCS	Yes	Observations/ Nervous System	Assesses eye, verbal and motor response. A number is recorded for each, giving the patient a total score from 15. 3 – 5 = serious brain impairment. 15 = normal functioning. Total will be automatically calculated on saving or can be input using drop down list if scores are missing.
Glucose administration (hypo)		Interventions/ Metabolism	The administration of glucose to prevent diabetic coma.
Gut status		Observations/ Metabolism	Gut (digestive) status of patient ON ARRIVAL in location. Choose from: nil by mouth (receiving no food either normally or with assistance), eating (eating normally), naso/oro gastric tube (feeding via tube in nose/mouth), percutaneous enteric feed (feeding via tube inserted into intestine through skin), parental feed (fed via large bag). Choose 'missing' option if status not known.
Haematology		Investigations/ Blood Sampling	Tests to determine levels of haemoglobin in blood and/or number of white blood cells.
Inotropes/ vasopressors		Interventions/ Circulation	Drugs to assist circulation.
Intra cranial pressure		Observations/ Circulation	Intra cranial pressure. Arterial blood pressure inside

monitoring (ICP)		Nervous System	the skull in millimetres of mercury (mmHg). Sometimes referred to as ICP bolt.
Limb splint		Interventions/ Host Defence	Restraint fitted to injured limb
Lung function tests		Observations/ Respiration	Tests used to measure lung capacity in cases of spinal injury (cervical or thoracic cord). Can record whether spirometry and/or peak flow tests carried out.
Mannitol		Interventions/ Nervous System	Osmotic diuretic used to reduce pressure in cranium by reducing brain swelling. Details usually in drug chart.
MRI scan	Yes	Investigations/ Other Imaging	Magneto Resonance Imaging scan. A computerised scan producing detailed images of the internal organs of the body. More detailed than CT scan and used mostly for spine, brain and limb injuries.
Muscle chart recording		Observations/ Nervous System	An assessment of muscle response. More detailed than limb muscle power assessment.
Near patient blood test (glucose)		Observations/ Metabolism	Level of glucose in blood.
Needle thoracocentesis		Interventions/ Respiration	Used to determine the cause of abnormal accumulation of fluid in the pleural space, usually in cases of tension pneumothorax.
Neurophysiology		Observations/ Nervous System	Tests to check the functioning of the nervous system.
Oxygen		Interventions/ Respiration	Administered to assist breathing.
Oxygen saturation	Yes	Observations/ Respiration	Oxygen saturation of arterial blood as %.
Paralysis		Interventions/ Nervous System	Drugs administered to reduce or suppress muscle response. Details usually found in drugs section of notes.
Pelvic sling		Interventions/ Host Defence	Also referred to as pelvic sheet. Used to keep pelvis stable after injury.
Pericardiocentesis		Interventions/ Circulation	Procedure to relieve pressure in heart area.
X ray	Yes	Investigations/ Plain X-Ray	Standard X-ray.
Power status		Observations/ Nervous System	The patient's muscle power status ON ARRIVAL in a location. Choose from: normal, lateralised weakness (weakness on one side of body), segmental weakness (weakness in defined area of body, e.g. Upper arm, forearm, thigh), other focal weakness (weakness in single muscle or muscle group), general weakness or paralysis. Use 'missing' option if status not known.
Pulse rate	Yes	Observations/ Circulation	Number of heartbeats per minute. Details usually written in notes.
Renal status		Observations/ Metabolism	Renal (kidney function) status of patient ON ARRIVAL in a location. Choose from: normal, catheterised (catheter

			fitted to bladder to assist urine extraction) or dialysis/filtration dependent (assisted by machine).
Respiratory rate	Yes	Observations/ Respiration	Number of breaths per minute. Ranges from 0 – 70. Normal range 16 – 24.
Sedation status		Observations/ Nervous System	The patient's sedation status ON ARRIVAL in a location. Choose from: anaesthetised/sedated or not sedated. Use 'missing' option if status not known.
Sedation/ anaesthesia		Interventions/ Nervous System	Drugs administered to render patient unconscious or reduce consciousness. Details usually found in drugs section of notes.
Sensation deficit recording		Observations/ Nervous System	Tests patient's response to stimuli. Four possible states: normal, abnormal, reduced or absent.
Septic status		Observations/ Host Defence	Septic (blood poisoning) status of patient ON ARRIVAL in location. Choose from: not septic, suspected infection, proven infection or inflammatory response (redness or swelling). Choose 'missing' if status not known.
Simple airway manoeuvre		Interventions/ Respiration	Procedure to remove obstructions from airway.
Simple reduction of fracture/dislocation		Interventions/ Host Defence	Re-aligning bones/joints after dislocation or fracture. Usually performed as operative procedure.
Simple suture/glue		Interventions/ Host Defence	A skin suture. Details usually written in notes.
Simple wound dressing		Interventions/ Host Defence	Bandages and other dressings.
Simple wound irrigation/debridement		Interventions/ Host Defence	Cleaning a wound.
Spinal Protection	Yes	Interventions/ Host Defence	Used to keep spine stable after injury. Usually referred to as spinal board, collar, blocks or full spinal protection.
Steroids		Interventions/ Host Defence	Drugs to improve muscle strength. Details usually found in drugs section of notes.
Synacthen tests		Observations/ Metabolism	Measures levels of cortisone in blood.
Systolic blood pressure	Yes	Observations/ Circulation	Blood pressure in arteries when heart contracts. Measured in millimetres of mercury (mm/Hg). Normal readings vary according to age and general health, but are generally considered high if above 140 in an adult.
Temperature		Observations/ Host Defence	7 possible reading points: ear/tympanic, oral, nasopharyngeal, rectal, intravascular, oesophageal or rectal.
Tetanus prophylaxis		Interventions/ Host Defence	Injection given to immunise patient against tetanus when a wound has occurred.
Toxicology screen		Observations/ Host Defence	Checks blood and/or urine for presence of drugs, particularly paracetamol and salicylate levels.
Tracheostomy		Interventions/	Surgical construction of an opening in the trachea for

		Respiration	the insertion of a catheter or tube to facilitate breathing. Usually found in notes.
Ultrasound	Yes	Investigations/ Ultrasound	Imaging test that uses high-frequency sound waves.
Urea (urine)		Investigations/ Urine Sampling	Urea clearance time. Measured in millilitres per minute (ml/min). Normal range 64 - 99 ml/min.
Urethography		Investigations/ Other Imaging	A scan of the urethra.
Urine output		Investigations/ Urine Sampling	Millilitres (mls) of urine per hour. For catheterised patients.
Urogram		Investigations/ Other Imaging	A scan of the urinary system involving dye in the veins and kidneys.
Warming		Interventions/ Host Defence	Increasing body temperature, e.g. in cases of hypothermia.
Waterlow score		Observations/ Host Defence	Numerical assessment of risk of developing a pressure sore. 0 – 9 is low risk. 20 + is very high risk.