



Washington State Trauma Registry Users Guide



*Washington State Department of Health
Office of Community Health Systems
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INTRODUCTION

Washington's trauma system has been in place since 1993. The Washington State Department of Health has authority to oversee and manage the trauma system and the WTR. The Washington Trauma Registry (WTR) started collecting trauma data in 1994, and currently we get about 26K records a year from 82 facilities. All of our 82 trauma designated facilities are required to submit trauma registry data (except the one designated Level V trauma clinic on one of the islands).

In our office we have a trauma registry administrator, who accepts submissions, cleans data, processes submissions, posts submissions to the WTR, runs reports, provides training (we use Collector software), and provides technical support to the WA users. We also have a trauma epidemiologist who runs reports, looks at trends, cleans data, does record linking, supports statewide, regional, and facility QI work, and helps us review the data. In my role, I focus mostly on trauma designation process, clinical education and performance, but I also consult and do training on the trauma registry regarding clinical and logic content.

You can probably tell I really love the registry—it's a great resource for us all.

We have a Trauma Outcomes Technical Advisory Committee, made up of surgeons, trauma program managers (TPM), and trauma registrars (TR) who help our office review trauma system performance. We also have a Data Quality Workgroup, made up of TPM's and TR's—we are working on improving data quality and completeness in the registry.

Each of our 82 hospitals has a TR. In many of the smaller facilities, the TPM and the TR are the same person, but in most of the larger facilities, the TR role is separate, but reports to, the TPM. Some larger facilities have multiple TR's. We have 2 TR's in our state who have their CSTR—they are at the larger facilities. We have had a few of the American Trauma Society's Trauma Registrar courses here, as well as several AIS coding courses here in WA. Two of our facilities contract with an external trauma registry firm to do the registry remotely. Another facility uses a different external registry firm on an as-needed basis to catch up on backlogs. These external registry firms might be an opportunity for you to consider.

We upgraded our Collector software in 2010 to use AIS 2005 finally. We had a big educational and distribution push to get that software out to everyone, and everyone trained on the changes. We also have an EMS registry, though EMS agencies can opt out at this time—that will change eventually to be a requirement.

The TPM's and TR's meet 3 times a year in various WA locations for education and problem-solving (Trauma Nurse + Trauma Registrar Network). It's a great all day meeting, and we get 60-70 folks a meeting. Our state also has a dedicated Trauma Care Fund that provides money to trauma hospitals, trauma-verified EMS agencies, trauma physicians, and designated trauma rehab services. The facilities use this funding to support their education, meeting attendance, and clinical care. (I think our state may be the only one that designates trauma rehab facilities). We are working on getting data from the trauma rehab facilities. We also separately designated pediatric trauma facilities.

Welcome to the Washington State Trauma Registry!

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OVERVIEW

The primary reason to establish a trauma care system is to effect improvement in the prevention of trauma and increase the survival rate of victims when trauma occurs. One way to accomplish this goal is having a statewide monitoring and data collection system. Collecting data on the incidence and prevalence of trauma leads to the determination of the sources and causes of trauma. Trauma-designated hospitals are required to collect data on all trauma patients that meet inclusion criteria. This is accomplished with the trauma registry, a complex database of the demographics, injuries, care, and outcomes of trauma patients.

Trauma registries serve many purposes such as data for injury surveillance, analysis, and prevention programs; continuous and systematic collection of trauma data for epidemiological studies; planning and evaluation of prevention programs; oversight and evaluation of the outcomes of care and the cost-effectiveness of trauma care; support of statewide and regional quality assurance and system evaluation activities; and information for trauma system resource planning, system design, and management. Trauma registry data are also important for the documentation needed for hospital accreditation, and for hospital level designation. Most importantly, trauma registries are valuable tools for assessing the effectiveness of a trauma care system

The trauma registrar is responsible for the collection, abstraction, entry, and submission of trauma data. Trauma registry data must be accurate and complete to be useful for quality improvement evaluation and for trauma system planning. Common problems with trauma registry data are incomplete case findings, abstractor subjectivity, inconsistency among data abstractors, and miscoding of trauma patients and injuries. The use of trauma registry data information is only as valid as the data entered.

Because data quality is essential for trauma registry, education and training for trauma registrars is a necessary commitment. This education should be standardized and include a user's manual; definition manual; orientation to trauma registry function and uses; medical records orientation; chart review procedures; coding and scoring workshops; data entry, abstraction, and submission training; ongoing processes to test validity and reliability of trauma registry data; training with specialized collection software and hardware; introduction to trauma registry policy and procedures; and orientation to performance improvement processes.

To achieve performance excellence from a trauma registrar, trauma management should provide time for training, and the materials necessary for the training. However, this approach does not prevent errors. If errors are found, they should be collected and a root-cause analysis should be completed. This will help to improve both training and practices. Trauma registry data is gathered piece-by-piece and assembled into a body of information useful for evaluation and quality improvement. Continuous examination and testing of data collection is extremely important. This can be achieved through regular data validation and interrater reliability audits.

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CHAPTER 1 - ESSENTIAL COMPONENTS OF A TRAUMA REGISTRY

PERSONNEL

Data gathering also requires consistent and capable personnel to identify and case find the trauma population including the state registry inclusion criteria cases as well as additional cases desired by the facility. The registry personnel abstract the required data, enter the data into the trauma registry software, and provide reports to trauma clinicians, trauma quality improvement (QI) committees. Additionally the registry staff performs data quality and completeness evaluations, and identifies cases meeting trauma audit filters or indicators or demonstrating undesirable variations in performance. Registrars also track follow-up data from receiving hospitals on transferred out cases.

HARDWARE AND SOFTWARE

The computer hardware and software capable of supporting the above functions must also be included in the trauma registry resources. The software manufacturer or the oversight agency staff can provide a list of the required hardware capabilities needed to operate the registry software. Electronic mail, internet access, and a quality printer are also essential for trauma registry staff. Other software, such as spreadsheet and word processing applications that will convert the registry reports into other document formats may also be needed.

OFFICE SPACE

The trauma registry staff needs office space away from public view and in a quiet area with sufficient desktop space to spread out the patient chart as well as bookshelf space to store reference manuals. A telephone is also needed.

CASE FINDING

Your facility's inclusion criteria must be established, and relationships begun with information services, medical records, and billing departments to design filters or pneumonics to locate potentially eligible patients in your hospital database. Timely access to the patient charts may involve medical records as well as the QI and medical staff departments to assure that chart documents are complete and available when needed.

DATA ABSTRACTION AND DATA ENTRY

Data gathering requires complete and accurate information, timely access to the information, and information that is readable. Inaccurate and incomplete information threatens the validity of decisions made using the data. Abstracting requires a person trained in injury etiology and medical terminology. A survey performed by the Washington State Department of Health showed that the average time to abstract and enter one registry chart was between 30 and 90 minutes. Two-thirds of the time was spent abstracting, and one third was in data entry. This time estimate did not include case finding efforts, which can be substantial, data quality evaluation and intervention, quality screens, or reporting. If data elements or QI filters are added to the trauma registry, time needs will increase. The trauma registry staff

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may highlight the need to revise medical record forms so that the required information is easily documented and found.

REPORTING

The registry's value grows with time, and a plan of when to produce reports and who to present them to, is necessary to pave the way for interest and support for the registry. Consider your audience and target your reports for them. The trauma registry assures that all data necessary for trauma QI are automated and in one place. Once the trauma service sets the QI filters, the exceptions and all supporting data are available. Standard reports provide management with an accurate and timely tracking mechanism. Customized reports are invaluable to measure effectiveness, performance, efficiency, resource utilization, and need for change.

EVALUATION

Improved care of the individual trauma patient requires decision-making, and a detailed understanding of the causes, interventions, and outcomes of injury. This entails accurate and user-friendly data provided by the trauma registry. The trauma registry is essential to any trauma program, and time spent planning, evaluating, and maintaining the trauma registry components will prove valuable to all members of the team, including administration and the patient.

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CHAPTER 2 - WASHINGTON STATE REQUIREMENTS

WASHINGTON STATE ADMINISTRATIVE CODE

WAC 246-976-420: Trauma registry — Department responsibilities.

- (1) Purpose:** The department maintains a trauma registry, as required by RCW 70.168.060 and 70.168.090. The purpose of this registry is to:
- (a) Provide data for injury surveillance, analysis, and prevention programs;
 - (b) Monitor and evaluate the outcome of care of major trauma patients, in support of statewide and regional quality assurance and system evaluation activities;
 - (c) Assess compliance with state standards for trauma care;
 - (d) Provide information for resource planning, system design and management;
 - (e) Provide a resource for research and education.
- (2) Confidentiality:** It is essential for the department to protect information regarding specific patients and providers. Data elements related to the identification of individual patient's, provider's, and facility's care outcomes shall be confidential, shall be exempt from RCW 42.17.250 through 42.17.450, and shall not be subject to discovery by subpoena or admissible as evidence.
- (a) The department may release confidential information from the trauma registry in compliance with applicable laws and regulations. No other person may release confidential information from the trauma registry without express written permission from the department.
 - (b) The department may approve requests for trauma registry data from qualified agencies or individuals, consistent with applicable statutes and rules. The department may charge reasonable costs associated with such requests.
 - (c) The data elements indicated in Tables E, F and G below are considered confidential.
 - (d) The department will establish criteria defining situations in which additional registry information is confidential, in order to protect confidentiality for patients, providers, and facilities.
 - (e) This paragraph does not limit access to confidential data by approved regional quality assurance programs established under chapter 70.168 RCW and described in WAC 246-976-910
- (3) Inclusion criteria:**
- (a) The department will establish inclusion criteria to identify those injured patients that designated trauma services must report to the trauma registry.

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These criteria will include:

All patients who were discharged with ICD diagnosis codes of 800.0 - 904.99, 910 - 959.9 (injuries), 994.1 (drowning), 994.7 (asphyxiation), or 994.8 (electrocution) and:

- (i) For whom the hospital trauma resuscitation team (full or modified) was activated; or
 - (ii) Who were dead on arrival at your facility; or
 - (iii) Who were dead at discharge from your facility; or
 - (iv) Who were transferred by ambulance into your facility from another facility; or
 - (v) Who were transferred by ambulance out of your facility to another acute care facility; or
 - (vi) Adult patients (age fifteen or greater) who were admitted as inpatients to your facility and have a length of stay greater than two days or forty-eight hours; or
 - (vii) Pediatric patients (ages under fifteen years) who were admitted as inpatients to your facility, regardless of length of stay; or
 - (viii) All injuries flown from the scene;
- (b) For all licensed rehabilitation services, these criteria will include all patients who were included in the trauma registry for acute care.
- (4) **Other data:** The department and regional quality assurance programs may request data from medical examiners and coroners in support of the registry.
- (5) **Data linking:** To link data from different sources, the department will establish procedures to assign a unique identifying number to each trauma patient. All providers reporting to the trauma registry must include this trauma number.
- (6) **Data submission:** The department will establish procedures and format for providers to submit data electronically. These will include a mechanism for the reporting agency to check data for validity and completeness before data is sent to the registry.
- (7) **Data quality:** The department will establish mechanisms to evaluate the quality of trauma registry data. These mechanisms will include at least:
- (a) Detailed protocols for quality control, consistent with the department's most current data quality guidelines.

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- (b) Validity studies to assess the timeliness, completeness and accuracy of case identification and data collection.

(8) Registry reports:

- (a) Annually, the department will report:
 - (i) Summary statistics and trends for demographic and related information about trauma care, for the state and for each EMS/TC region;
 - (ii) Outcome measures, for system-wide evaluation, and regional quality improvement programs;
 - (iii) Trends, patient care outcomes, and other data, for each EMS/TC region and for the state, for the purpose of regional evaluation;
 - (iv) Aggregate regional data to the regional EMS/TC council, excluding any confidential or identifying data.
- (b) The department will provide reports to facilities upon request, according to the confidentiality provisions in subsection (2) of this section.

[Statutory Authority: RCW 70.168.060 and 70.168.090. 09-23-083, § 246-976-420, filed 11/16/09, effective 12/17/09; 02-02-077, § 246-976-420, filed 12/31/01, effective 1/31/02. Statutory Authority: Chapters 18.71, 18.73, and 70.168 RCW.00-08-102, § 246-976-420, filed 4/5/00, effective 5/6/00. Statutory Authority: RCW 43.70.040 and chapters 18.71, 18.73 and 70.168 RCW. 93-01-148 (Order 323), § 246-976-420, filed 12/23/92, effective 1/23/93.]

WAC 246-976-430: Trauma registry — Provider responsibilities.

- (1) All **trauma care providers must protect the confidentiality of data** in their possession and as it is transferred to the department.
- (2) All **trauma care providers must correct and resubmit records which fail the department's validity tests** described in WAC 246-976-420(7). You must send corrected records to the department within three months of notification.
- (3) **Licensed prehospital services that transport trauma patients must:**
 - (a) Provide an initial report of patient care to the receiving facility at the time the trauma patient is delivered as described in WAC 246-976-330.
 - (b) Within ten days after the trauma patient is delivered, send a complete patient care report to the receiving facility to include the data shown in Table E.
- (4) **Designated trauma services must:**
 - (a) Have a person identified as responsible for coordination of trauma registry activities.

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- (b) Report data elements shown in Table F for all patients defined in WAC 246-976-420.
 - (c) Report patients in a calendar quarter in a department-approved format by the end of the following quarter.
- (5) Designated trauma rehabilitation services must: Provide data to the trauma registry upon request.**
- (a) Data elements shown in Table G; or
 - (b) If the service submits data to the Centers for Medicare and Medicaid Services (CMS) for medical rehabilitation, provide a copy of the data to the department.

Data Element	Type of patient	
	Pre-Hosp Transport	Inter-Facility
Incident Information		
Transporting EMS agency number	X	X
Unit en route date/time	X	
Patient care report number	X	X
First EMS agency on scene identification number	X	
Crew member level	X	X
Mode of transport	X	X
Incident county	X	
Incident zip code	X	
Incident location type	X	
Incident response area type	X	
Mass casualty incident declared		

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Patient Information		
Name	X	X
Date of birth, or Age	X	X
Sex	X	X
Cause of injury	X	
Use of safety equipment (occupant)	X	
Extrication required		
Extrication > 20 minutes		
Transportation		
Facility transported from (code)		X
Times		
Unit notified by dispatch date/time	X	X
Unit arrived on scene date/time	X	X
Unit left scene date/time	X	X
Vital Signs		
Date/time vital signs taken	X	
Systolic blood pressure (first)	X	
Respiratory rate (first)	X	
Pulse (first)	X	
GCS eye, GCS verbal, GCS motor, GCS total, GCS qualifier	X	
Treatment: Procedure performed		
Procedure performed prior to this unit's care		

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TABLE F: Hospital Data Elements for the Washington Trauma Registry

All licensed hospitals must submit the following data for patients identified in WAC 246-976-420(3):

Record Identification

- Identification of reporting facility;
- Date and time of arrival at reporting facility;
- Unique patient identification number assigned to the patient by the reporting facility;

Patient Identification

- Name;
- Date of birth;
- Sex;
- Race;
- Ethnicity;
- Was the patient pregnant;
- Last four digits of Social Security number;
- Home zip code;

Prehospital Incident Information

- Date and time of incident;
- Incident zip code;
- Mechanism/type of injury;
- First EMS agency on-scene ID number;
- Transporting agency ID and unit number;
- Transporting agency patient care report number;
- Cause of injury;
- Incident county code;
- Incident location type;
- Incident response area type;
- Work related?;
- Use of safety equipment (occupant);

Earliest Available Prehospital Vital Signs

- Time;

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Systolic blood pressure (first);
Respiratory rate (first);
Pulse rate (first);
GCS eye, GCS verbal, GCS motor, GCS qualifier, GCS total;
Intubated at time of scene GCS;
Pharmacologically paralyzed at time of scene GCS;
Vitals from first EMS agency on-scene;
Extrication;
Extrication time over twenty minutes;
Transportation Information
 Date and time unit dispatched;
 Time unit arrived at scene;
 Time unit left scene;
 Transportation mode;
 Crew member level;
 Transferred in from another facility;
 Transported from (hospital patient transferred from);
 Who initiated the transfer?;

ED or Admitting Information

Was patient intubated prior to arrival at hospital?;
Readmission;
Direct admit;
Time ED physician called;
Time ED physician available for patient care;
Trauma team activated;
Level of trauma team activation;
Time of trauma team activation;
Time trauma surgeon called;
Time trauma surgeon available for patient care;
Vital Signs in ED
 First systolic blood pressure;
 First temperature;
 First pulse rate;
 First spontaneous respiration rate;

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- Lowest systolic blood pressure;
- First hematocrit level;
- Controlled rate of respiration;
- Glasgow coma scores (eye, verbal, motor);
- Intubated at time of ED GCS;
- Pharmacologically paralyzed at time of ED GCS;
- Disaster plan implemented;

Injury severity scores

- Revised trauma score (RTS) on admission;
- For pediatric patients:
 - Pediatric trauma score (PTS) on admission;
 - TRISS;

- ED procedures performed;
- ED care issues;
- Date and time of ED discharge;
- ED discharge disposition, including
 - If transferred out, ID of receiving hospital;
- Was patient admitted to hospital?;
 - If admitted, the admitting service;
- Reason for referral (receiving facility);
- Reason for transfer (sending facility);

Diagnostic and Consultative Information

- Date and time of head CT scan;
- For patients with diagnosis of brain or facial injury:
 - Was the patient diagnosed with brain or facial injury before transfer?;
 - Was the diagnosis of brain or facial injury based on either physician documentation or head CT report?;
 - Did the patient receive Coumadin or warfarin medication in the four days prior to injury?;
 - Date/time of first international normalized ratio (INR) performed at your hospital;
 - Results of first INR done at your hospital;
 - Source of date and time of CT scan of head;
 - Was fresh frozen plasma (FFP) or Factor VIIa administered for reversal of anticoagulation?;
 - What medication was first used to reverse anticoagulation?;
 - Date and time of first dose of anticoagulation reversal medication;

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Date of physical therapy consult;
Date of rehabilitation consult;
Blood alcohol content;
Toxicology screen results;
Drugs found;
Was a brief substance use intervention done?;
Comorbid factors/preexisting conditions;

Surgical Information

For the first operation:
Date and time patient arrived in operating room;
Date and time operation started;
OR procedure codes;
OR disposition;
For later operations:
Date and time of operation;
OR procedure codes;
OR disposition;

Critical Care Unit Information

Patient admitted to ICU;
Patient readmitted to ICU;
Date and time of admission for primary stay in critical care unit;
Date and time of discharge from primary stay in critical care unit;
Length of readmission stay(s) in critical care unit;

Other in-house procedures performed (not in OR)

Discharge Status

Date and time of facility discharge;
Most recent ICD diagnosis codes/discharge codes, including nontrauma codes;
E-codes, primary and secondary;
Glasgow Score at discharge;
Disability at discharge (feeding/locomotion/expression);
Total ventilator days;

Discharge disposition

Hospital discharge disposition;

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If transferred out, ID of facility patient was transferred to

Rehabilitation facility ID;

If patient died in your facility

Date and time of death;

Was an autopsy done?;

Was patient declared brain dead prior to expiring?;

Was life support withdrawn?;

Was organ donation requested?;

Organs donated?;

Financial Information (All Confidential)

For each patient

Total billed charges;

Payer sources (by category);

Reimbursement received (by payer category);

TABLE G: Data Elements for Designated Rehabilitation Services

Designated trauma rehabilitation services must provide the following data upon request by the department for patients identified in WAC 246-976-420(3).

Rehabilitation services, Levels I and II

Patient Information

Facility ID

Facility code

Patient code

Date of birth

Social Security number

Patient name

Patient sex

Care Information

Date of admission

Admission class

Date of discharge

Impairment group code

ASIA impairment scale

Diagnosis (ICD-9) Codes

Etiologic diagnosis

Other significant diagnoses

Complications/comorbidities

Diagnosis for transfer or death

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Other Information

- Date of onset
- Admit from (type of facility)
- Admit from (ID of facility)
- Acute trauma care by (ID of facility)
- Prehospital living setting
- Prehospital vocational category
- Discharge-to-living setting

Inpatient Rehabilitation Facility - Patient Assessment Instrument (IRF-PAI) - One set on admission and one on discharge

- Self care
- Eating
- Grooming
- Bathing
- Dressing - Upper
- Dressing - Lower
- Toileting
- Sphincter control
- Bladder
- Bowel
- Transfers
- Bed/chair/wheelchair
- Toilet
- Tub/shower
- Locomotion
- Walk/wheelchair
- Stairs
- Communication
- Comprehension
- Expression
- Social cognition
- Social interaction
- Problem solving
- Memory

Payment Information (all confidential)

- Payer source - primary and secondary
- Total charges
- Remitted reimbursement by category

Rehabilitation, Level III

Patient Information

- Facility ID
- Patient number
- Social Security number
- Patient name

Care Information

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Date of admission

Impairment Group Code

Diagnosis (ICD-9) Codes

Etiologic diagnosis

Other significant diagnoses

Complications/comorbidities

Other Information

Admit from (type of facility)

Admit from (ID of facility)

Acute trauma care given by (ID of facility)

Inpatient trauma rehabilitation given by (ID of facility)

Discharge-to-living setting

Payment Information (all confidential)

Payer source - primary and secondary

Total charges

Remitted reimbursement by category

[Statutory Authority: RCW 70.168.060 and 70.168.090. 09-23-083, § 246-976-430, filed 11/16/09, effective 12/17/09; 02-02-077, § 246-976-430, filed 12/31/01, effective 1/31/02. Statutory Authority: Chapters 18.71, 18.73, and 70.168 RCW. 00-08-102, § 246-976-430, filed 4/5/00, effective 5/6/00. Statutory Authority: RCW 43.70.040 and chapters 18.71, 18.73 and 70.168 RCW. 93-01-148 (Order 323), § 246-976-430, filed 12/23/92, effective 1/23/93.]

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WASHINGTON STATE TRAUMA REGISTRY INCLUSION CRITERIA

Detailed description of the injury criteria requirements for patients included in the Washington State Trauma Registry. (*Effective December 17, 2009*)

Data must be reported to the Washington Trauma Registry (WTR) for all patients with a discharge ICD9-CM diagnosis code of 800-904, or 910-959, or 994.1 (drowning), 994.7 (asphyxiation), or 994.8 (electrocution) AND any one or more of the following:

- All patients (any diagnosis) for whom the full or modified Trauma Resuscitation Team was activated; or
- All trauma patients who were dead on arrival at your facility; or
- All trauma patients who died in your facility; or
- All trauma patients transferred out to another facility by EMS/ambulance; or
- All trauma patients transferred in from another facility by EMS/ambulance; or
- All trauma patients flown from the scene to your facility; or
- All pediatric (age 0-14) trauma patients admitted to your facility; or
- All adult (age 15+) trauma patients admitted to your facility with length-of-stay more than 2 days (48 hours)

Note: *The diagnosis codes above include all subcodes; e.g., 806 includes 806.00-806.99.*

While **isolated hip fractures/femoral neck fractures** (ICD9-CM 820 with no other significant injuries noted) in elderly patients are included in registry requirements, WAC 246-976-420, *DOH does not require you to report those injuries at this time. It is applicable to patients 65 and older.*

Patients with diagnoses of **foreign bodies** (ICD9-CM 930-939) are required to be included in the registry **only if** there is a resulting injury. In these cases, the resulting injury should be coded in addition to the foreign body.

Transfers: Patients sent from one hospital to another hospital via private vehicle (non-ambulance) are not considered transfers for the purpose of inclusion. It is expected that patients with serious injuries will be transferred via ambulance, and that private vehicles are used only for patients with minor injuries.

Admitted to your facility: Patients moved from the emergency department (includes observation units and short stay units) to any bed in the hospital are considered admitted to the facility.

Readmissions: The Trauma Registry does not require readmission records for the same injury. Only the initial episode of care (first admission) is required. Exception: If a patient is discharged home from the emergency department and is subsequently admitted for a missed diagnosis of the same injury, both records should be included.

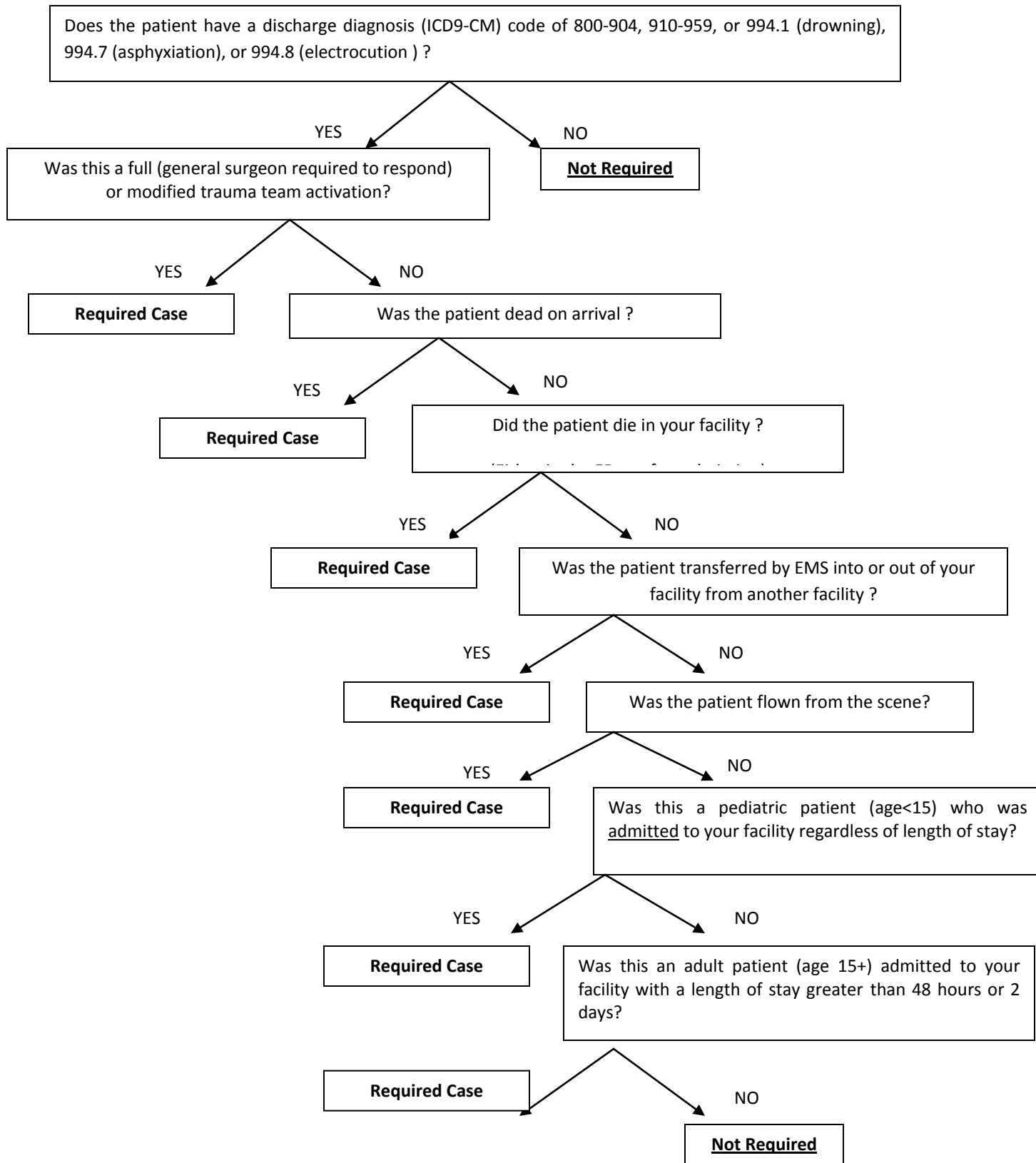
Trauma services may include additional patients that do not meet the state inclusion criteria. However, hospital comparative reports, regional quality improvement reports, and other state-prepared reports will only reflect records that meet the state criteria. This helps assure comparability across facilities and regions.

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A detailed list of the discharge diagnosis codes for registry inclusion are provided below. Refer to ICD9-CM documentation for all sub-object detail. **Required ICD9-CM Injury Diagnoses:**

800	Fx of vault of skull	845	Sprains and strains of ankle and foot
801	Fx of base of skull	846	Sprains and strains of sacroiliac region
802	Fx of Face bones	847	Sprains and strains of other and unspecified parts of back
803	Other and unqualified skull fxs	848	Other and ill-defined sprains and strains
804	Multiple fx involving skull or face with other bones	849	Unspecified site of sprain and strain
805	Fx of vertebral column without mention of spinal cord injury	850	Concussion
806	Fx of vertebral column with spinal cord injury	851	Cerebral laceration and contusion
807	Fx of rib(s), sternum, larynx, and trachea	852	Subarachnoid, subdural, and extradural hemorrhage following injury
808	Fx of pelvis	853	Other and unspecified intracranial hemorrhage following injury
809	Ill-defined fx of bones of truck	854	Intracranial injury of other & unspecified nature
810	Fx of clavicle	860	Traumatic pneumothorax and hemorrhage
811	Fx of scapula	861	Injury to heart and lung
812	Fx of humerus	862	Injury to other & unspecified intrathoracic organs
813	Fx of radius and ulna	863	Injury to gastrointestinal tract
814	Fx of carpal bone(s)	864	Injury to liver
815	Fx of metacarpal bone(s)	865	Injury to spleen
816	Fx or one or more phalanges of hand	866	Injury to kidney
817	Multiple fxs of hand bones	867	Injury to pelvic organs
818	Ill-defined fx of upper limb	868	Injury to other intra-abdominal organs
819	Multiple fxs involving both upper limbs, and upper limb with rib(s) and sternum	869	Internal injury to unspecified or ill-defined organs
820	Fx of neck of femur (or hip fx) (optional)	870	Open wound of ocular adnexa
821	Fx of other and unspecified parts of femur	871	Open wound of eyeball
822	Fx of patella	872	Open wound of ear
823	Fx of tibia and fibula	873	Other open wound of head
824	Fx of one or more tarsal and metatarsal bones	874	Open wound of neck
825	Fx of calcaneus	875	Open wound of chest wall
826	Fx of one or more phalanges of foot	876	Open wound of back
827	Other, multiple, and ill-defined fx of lower limb	877	Open wound of buttock
828	Multiple fxs involving both lower limbs, lower with upper limb, & lower limb(s) with rib(s) & sternum	878	Open wound of genital organs (external) including traumatic amputation
829	Fx of unspecified bones	879	Open wound of other and unspecified sites, except limbs
830	Dislocation of jaw	880	Open wound of shoulder and upper arm
831	Dislocation of shoulder	881	Open wound of elbow, forearm, and wrist
832	Dislocation of elbow	882	Open wound of hand except finger(s) alone
833	Dislocation of wrist	883	Open wound of finger(s)
834	Dislocation of finger	884	Multiple & unspecified open wound of upper limb
835	Dislocation of hip	885	Traumatic amputation of thumb (complete) (partial)
836	Dislocation of knee	886	Traumatic amputation of other finger(s) (complete) (partial)
837	Dislocation of ankle	887	Traumatic amputation of arm & hand (complete) (partial)
838	Dislocation of foot	890	Open wound of hip and thigh
839	Other, multiple, and ill-defined dislocations	891	Open wound of knee, leg (except thigh), & ankle
840	Sprains and strains of shoulder and upper arm	892	Open wound of foot except toe(s) alone
841	Sprains and strains of elbow and forearm	893	Open wound of toe(s)
842	Sprains and strains of wrist and hand	894	Multiple & unspecified open wound of lower limb
843	Sprains and strains of hip and thigh		
844	Sprains and strains of knee and leg		

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CHAPTER 3 USING THE COLLECTOR APPLICATION

TRAUMA REGISTRY USER INSTRUCTIONS

These instructions are designed to help a new trauma registrar or trauma nurse coordinator set up their COLLECTOR trauma registry software and prepare to enter data into the trauma registry. (See the Collector User Guide - Appendix IV)

USER ACCOUNTS

Access is controlled in the trauma registry by account. If you log in using the default account, you have access to all of the program's features. If you take no action, this default super-account can be used by you, by people you teach, and by state personnel who are familiar with the software and to whom you have granted permission to access your records.

HOW TO SET UP USER ACCOUNTS:

1. The default account is:
 - a. USER ID: **COLLECT** (UPPER CASE)
 - b. Password: **password** (lower case)
2. When setting up a new account, log in using the default account.
 - a. Select the Admin drop down from the main menu bar
 - b. Next select the Add option
 - c. Create a new User ID and password, then confirm the password
 - d. Select Add, and the new user account can be modified
3. Select the User privileges by checking the boxes next to the option.
The User privileges that can be allowed are:
 - a. Configuration Access
 - b. System Maintenance Access
 - c. Data Modification Level
 - d. Data Access Level
 - e. Transfer Access
 - f. Report Writer/Querier Access
 - g. File System Access
4. Remove the default account for security, once the user accounts have been created:
 - a. From the main menu, choose **ADMIN, ACCOUNTS, DELETE** and select the COLLECT account.
 - b. Select the DELETE option, then confirm by selecting YES.

Privileges

Accounts can limit the functions that a user can access. You can grant a user the privilege to enter data but not run reports, or transfer records but not change program menus or defaults. The following is a list of privileges that you can grant for each account:

Configuration Access—the ability to customize (everything under the CUSTOMIZE choice in the main menu).

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System Maintenance—the ability to add, modify and delete accounts (everything under the ACCOUNTS choice in the main menu), system diagnostics such as re-indexing, etc.

Data Modification Level—the ability to change patient records

1. View Only
2. Interactive—add, modify, run checks
3. Batch—renumber, delete, batch check
4. Admin—run diagnostics, import, export, DBF export, Accounts

Data Access Level—controls access to the data

9. All data levels (recommended)
8. Restricted access

Transfer Access—the ability to transfer records to the Washington State Trauma Registry.

Report Writer/Query Access—the ability to run reports, write queries, and write reports.

File System Access—the ability to view, edit and delete patient records.

CUSTOMIZED MENUS

Some menus allow facilities to define some or all of their values (Physician names, etc.). This improves the speed of data entry and provides the ability to track procedures that are not included in the standard lists.

CASE FINDING

Coordination among the Emergency Department (ED), admitting, medical records, billing and the trauma coordinator is critical in case finding, in order to identify those patients who meet the trauma registry Inclusion Criteria. Coordination can mean checking paper logs or nightly discharge reports for patients with trauma diagnoses, screening for diagnosis codes, tracking the transfer of trauma patients or reporting payors and totals when trauma patient bills have reached a zero balance.

ABSTRACT SHEET

Usually, information that you need to complete the trauma registry record is scattered throughout your hospital. To prepare for entering the record into the trauma registry software, an abstract sheet can be used as a guide to the Collector section layout. The abstract sheet is a list of all the data elements in Collector, divided into the corresponding sections of the Collector screens. Sample Abstract sheets can be found in Appendix II.

HOW TO SET UP CUSTOMIZABLE MENUS

1. From the main COLLECTOR screen, choose **CUSTOMIZE, POPUP MENU**. The Select Menu window will appear with the sections of the data entry screen listed. Choose one of the sections and you will get a list of the customizable menus.
2. Selecting one of the customizable menus will open a Menu Edit window. Type the values that you wish to add to menu.

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- a. The typical format is: **a numeric value , (comma) text description.**(ex: 01, SRS)
- b. Starting the line with a semicolon (;) will treat the line as a remark and not a value.
- c. Click on OK when the editing is finished.
- d. After editing a menu, select CUSTOMIZE, UPDATE "AS-TEXT" DEFINITIONS (This update links the words on the text side of the comma with the numeric values on the number side)

DATA SUBMISSION REQUIREMENTS

WAC 2460-976-430 (5) requires designated trauma services to submit trauma data to the Washington State trauma registry for patients discharged in a calendar quarter by the end of the following quarter. The Research, Analysis and Data (RAD) Section in the Office of Community Health Systems (OCHS) recognizes the importance of complete and timely data submissions. The purpose of this procedure is to establish a consistent way to remind trauma services of trauma data reporting deadlines and a consistent and graduated way to notify, assist and document trauma services out of compliance with trauma registry reporting requirements.

Designated trauma services are required to submit data ninety days after a quarter has been completed. The schedule of reporting dates for each year is listed below.

<u>Quarter</u>	<u>Covering the Period</u>	<u>Due Date</u>
1st Quarter	January 1 to March 31	June 30
2nd Quarter	April 1 to June 30	September 30
3rd Quarter	July 1 to September 30	December 31
4th Quarter	October 1 to December 31	March 31

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CHAPTER 4 - INJURY CODING

New users of Collector may feel overwhelmed at the amount of information needed to understand how to correctly enter data and code patient injuries. There are lots of resources available to help users get started, including other trauma coordinators or registrars, the state Department of Health (DOH), and classes offered periodically in-person or on-line. As users gain experience and understanding of the injury coding system, they will come to realize the benefit of accurate and detailed coding in ensuring complete data for the Trauma Registry. A brief discussion of the various types of codes follows.

E CODES

E code stands for “External Causes of Injury and Poisoning”. Classifies environmental events, circumstances and conditions as the cause of injury, poisoning or adverse effects

E codes describe how an injury happened, in greater detail than the mechanism of injury alone. For instance, the mechanism of injury was a Motor Vehicle, but E codes specify whether it was a traffic or non-traffic motor vehicle crash, whether the patient was a driver, passenger or other, whether there was a loss of control, whether the car hit a stationery object, etc. Note that there are lots of different E codes for falls, and it is difficult to decide which to use for a given injury. Collector users will want to become familiarize with all of the different fall codes and options. There is a code for Unspecified fall (888.9), but this should be reserved for times when a user cannot locate any more information about how a fall occurred.

Sources of information useful in determining the correct E code include the ED physician’s dictation, nurse’s notes, EMS run reports and codes selected by hospital coders. Sometimes the various coders selections do not match, because some use more detailed information than others. For instance, a coder may have coded a fall unspecified, and a registrar finds in the ED nurse’s notes that the patient actually fell down two stairs at their home. Thus, the registrar can use the more specific code for falls down stairs. It is recommended that a registrar become familiar with the codes. The more specific information is when entered into Collector, the better quality the final data will be to analyze and use.

There is a list of E codes contained in Collector, which can be accessed by clicking in the E code fields in the Injury information section, screen F 2.2. A user can select more than one E code. There are times when a user may want to use the second E code field to specify that the injury occurred in the home, etc. You can also add detailed information about the mechanism of injury in the line after the E code field. Refer to the Data Dictionary in Appendix III for a complete listing of E-codes.

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Some examples of E codes include:

Transport Accidents (E 800-848)

Aircraft and spacecraft (E840-E845)

Watercraft (E830-E838)

Motor Vehicle (E810-E825)

Traffic- public highway

Non-traffic = off public highway

Excludes private driveways, parking lots, ramps, private grounds

Railway (E800-E807)

Other road vehicles (E826-E829)

Falls (E880-E888)

Falls from stairs or steps (E880)

Falls from ladders or scaffolding (E881)

Falls from buildings or other structures (E882)

Balconies, bridges, buildings, towers, turrets, walls, windows, through roof, from flagpole

Fall into hole or other opening in surface (E883)

Falls into dock, cavity, hole, pit, quarry, shaft, swimming pool, tank or well

Falls on same level from slipping, tripping, stumbling (E885)

Falls on same level from collision, pushing, or shoving (E886)

Fracture, cause unspecified (E887)

Other and unspecified fall (E888)

ICD-9 CODES

ICD stands for "International Classification of Disease". ICD-9 codes are used to describe the actual injury to the tissues. There is a lot of detail needed to get the correct ICD9 code. Registrars need to specify the body part and what injury occurred.

There is a comprehensive list of ICD 9 codes in Collector, and can be accessed by entering the text of an injury into the F9.1 diagnosis screen, then Collector will select the best ICD-9 code for injuries described in the text box. Sometimes users will want to just enter the codes that have already been assigned by hospital coders. This is done to save time on data entry. It is recommended that users enter actual text descriptions of the injuries whenever possible, allowing greater accuracy in both coding and scoring.

There is a manual of ICD-9 codes available from St. Anthony Publishing.

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An online resource that is fast and useful is also available at:

<http://icd9cm.chrisendres.com/index.php?action=contents>

This website will tell you the correct ICD-9 code if you enter the injury description. It contains more current ICD 9 codes than the Collector software does.

AIS CODES

AIS stands for “Abbreviated Injury Scale”. AIS is a standardized system to categorize injury type and severity. AIS was originally developed by the Association for the Advancement of Automotive Medicine (AAAM) to score impact injuries, but is now applied to score other injuries as well.

The “predot” code is derived from the AIS system. In the 6 digit “predot” code, the following is the scheme for determining the code.

1st digit = body region

1. Head
2. Face
3. Neck
4. Thorax
5. Abdomen
6. Spine
7. Upper Extremity
8. Lower Extremity
9. Unspecified

2nd digit = type of anatomic structure

1. Whole Area
2. Vessels
3. Nerves
4. Organs (including muscles, ligaments)
5. Skeletal (including joints)
6. Head / LOC

3rd & 4th digits = Specific Anatomic Structure or Nature

- Whole Area
 - 02 = Skin Abrasion
 - 04 = Contusion
 - 06 = Laceration
 - 08 = Avulsion
 - 10 = Amputation
 - 20 = Burn
 - 30 = Crush
 - 40 = Degloving
 - 50 = Injury – NFS
 - 60 = Penetrating
 - 09 = Trauma, other than mechanical
- Head / LOC
 - 02 = Length of LOC
 - 04,06,08 = Level of consciousness
 - 10 = concussion
- Spine

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02 = cervical
04 = thoracic
06 = lumbar

Vessels, nerves, organs, bones joints are assigned numbers

5th and 6th digits

Specific injuries are assigned consecutive two digit numbers

There are LOTS of rules in injury coding, and the most effective way to gain a greater understanding of the meaning and usefulness of AIS scoring is to take a class to learn how to use this scaling system properly.

ISS SCORES

ISS stands for “Injury Severity Score”. The injury severity score is derived from the AIS code. The severity assigned to an injury appears in a small box that is visible on the Collector F9.1 screen, when entering diagnoses. The ICD 9 code is listed first, then the severity, followed by the body region (BR) and the “predot” code. The BR and “predot” (meaning before the dot) codes are used in AIS scoring. The severity is used to calculate the ISS for each patient.

For ISS calculations to be accurate, as much information as possible should be entered about the injury. Text of an injury description is the most complete way to do this. Injury descriptions can be found in ED physician dictations, nurses’ notes and radiology and operative reports. Usually, the most complete fracture information comes from radiology reports or operative reports. For other injuries, such as abdominal injuries involving the spleen, liver or other organs, radiology and CT reports will contain injury descriptions (such as “transhilar splenic laceration”) as will operative reports (such as “massive destruction of spleen”). In these cases the patient record might have only had “splenic laceration” listed in the ED physician dictation. Users may also find information in the CT or operative reports about amounts of bleeding involved. A CT report may just say “large amount of intraperitoneal hemorrhage” , but on the operative report it may specify “2,500 ml blood aspirated from peritoneal cavity”. This information will help registrars to enter more complete information. For instance, if “splenic laceration” is entered into the injury description field, it will generate the ICD-9 code 865.02, a severity of 2, and predot code of 544220. However, if the operative report reads that there was massive destruction of the spleen with 2,500 ml hemorrhage, and that information is entered into the injury description field, the code changes to 865.04 with a severity of 5 and predot code of 544228. Therefore, the more specific the injury description, the more accurate the scores will be.

ISS scores are used in determining which patients have suffered “major” versus “minor” injuries. Injuries with an ISS of 16 or higher are considered “major”, where injuries with scores less than 16 are considered “minor”. These differentiations may be used by hospitals to help determine which trauma cases warrant review. Many hospitals review cases of all patients with ISS scores 16 or higher (major trauma) and other cases of interest (such as pediatric trauma admits).

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Another important use of the ISS score is in determining whether the patient is eligible for enhanced trauma reimbursement. In the past, patients who were covered by DSHS and who had an ISS of 9 or higher were eligible for the hospital and physicians to seek a higher than normal level of reimbursement.

Accurate and comprehensive ISS scoring is important, and is worth the time to do it right.

ISS scores range from 1 to 75. ISS is derived from the sum of the square of the most severe injury in each of 3 body regions.

Body regions (BR) include:

1. Head or Neck (includes brain, cervical spine, skull)
2. Face (includes mouth, eyes, ears, nose and facial bones)
3. Chest (includes diaphragm, ribs, thoracic spine and contents)
4. Abdominal or pelvic contents (includes lumbar spine and contents)
5. Extremities or pelvic girdle (includes sprains, fractures, dislocations and amputations, except for spinal column, ribs and skull)
6. External (includes lacerations, contusions, abrasions and burns regardless of location)

PROCEDURE CODES

Procedure codes are used to numerically specify what sort of surgery was done for the patient. A list of procedure codes is located in ICD-9 Book in alphabetical order. Procedure codes have up to 4 digits.

Currently, the only procedures requiring entry in the trauma registry are procedures done in the operating room. For instance, a patient may have had an embolization of a pelvic vein or artery performed in the angiography suite. This procedure will not be listed in the procedures section of Collector, though it will be coded by the hospital's coders as a procedure. There may also be codes in the record for mechanical ventilation or placement of a central line or intracranial pressure monitor. Unless these procedures are performed in the operating room, they are not to be included.

In Collector, there is a complete alphabetical and numeric list of procedure codes available for access by clicking in the ICD-9 procedure codes section in screen F5.1. Information needed to select the correct procedure code is found in the operative report, and sometimes will have been coded by the hospital's coders. It is important to use the most detailed information available, to select the correct code. There are a number of codes which may apply to different procedures, and they vary dependent upon what specifically was done. For instance, if 41.43 (partial splenectomy) is selected, this indicates that only part of the spleen was removed, and that some spleen remains or that a repair was done. If 41.5 (complete splenectomy) is selected, this indicates that the entire spleen was removed.

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CONCLUSION

The ability to understand the various codes and their appropriate uses will grow through exposure to the trauma registry system. The more users work with the codes, the greater their understanding will be of the codes and how they can provide information about trauma services. There is a lot of information available, and codes allow Collector users to categorize it into a more useful form.

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CHAPTER 5 - DATA COMPLETENESS AND QUALITY

DATA QUALITY

Assuring high quality, complete data is critical. Data users, such as hospitals, regional quality improvement (QI) committees, the state Department of Health (DOH), and academic researchers, are dependent on the work of trauma registrars to assure records are complete and accurate. The more the data is analyzed, the more issues are uncovered in terms of data quality and completeness. As such, the data checks that are included in Collector will change over time as new issues are discovered. Likewise, by using the data to develop reports for their hospitals, Collector users will undoubtedly strive to improve the quality of their data.

One of the most important strategies is to run all Collector data checks prior to transferring records to DOH. It is recommended that a registrar check each record after completing the data entry. After completing the diagnosis coding procedure and data entry for a record, and before exiting the record, click 'Check' at the bottom left of the screen. Collector will prompt you if there are errors or missing data. Fixing the problems at this stage will save time later.

HOW TO RUN DATA CHECKS

Prior to transferring data to DOH, you should run the data checks to make sure that all records have been checked. These steps will walk you through the process of checking records prior to transfer to DOH:

1. Open Collector and log in.
2. On the top menu bar, click 'Registry', then 'Run Checks'.
3. Make sure the top option: "Automatically close records with no errors" is selected.
4. Click 'Check' to begin the process.
5. After clicking 'Check', you will be asked to specify the records to check (This is where you will specify a date range, or record number range). Your specification should include all records that have not previously been transferred to DOH. If you are unsure of the dates of these records, we recommend specifying a wide range of dates.
6. Select OK from the command bar.
7. The program will run a scan of all the records in the specified range, and a list of the records will be generated. If there are any errors, the list will provide that information.

DATA SUBMISSION REPORTS - CHECKS BY DOH

In addition to users conducting the standard data checks in Collector, the Department of Health (DOH) performs data checks on the data submissions when they are logged in to the main Collector database. Several reports are generated during this process, and facilities will receive these reports by email, as confirmation that their data has been received. The reports list the total number of records processed, if they were accepted and/or rejected; and provides an explanation of any errors with instruction of how to correct them. Corrections to the records listed in the submission reports should be made prior to your next scheduled data submission. The corrected records will be retransferred at that time. Examples of the data submission reports are shown here:

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Numeric Report

Numeric Listing of Submitted Records

Hospital Number: [REDACTED]		[REDACTED]	
Date Submissions Processed: 09/02/09			
Disk ID #: [REDACTED]	Total Records Submitted:	13	Print Date: 09/02/09
	Total Records Accepted:	13	
	Percent Accepted:	100%	

Hospital Index	Status	Action Needed
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	error warning	review Error Listing Report
[REDACTED]	error warning	review Error Listing Report
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none
[REDACTED]	accepted	none

- Facility ID #
- Date Processed
- Total Records Submitted
- Total Records Accepted
- Total Records Rejected (if any)
- Percent of Records Accepted
- Hospital Index (Record #)
- Status (accepted, rejected, or error warning) *A record may have an error warning, but NOT be rejected.*
- Action Needed (if rejected or error warning) *The user should review the error report and any records with errors, correct the errors and resubmit records.*

Error Report

Disk ID	Hospital Index	Screen	Data Element	Error	Needed Action
2913	[REDACTED]	F3.2	Pulse at Scene	State Required Field Missing	Enter U, I, or Data
2913	[REDACTED]	F3.2	PHI	State Required Field Missing	Enter U, I, or Data
2913	[REDACTED]	F4.3	Recorded Temperature	State Required Field Missing	Enter U, I, or Data
2913	[REDACTED]	F4.3	Unit of Recorded Temperature	State Required Field Missing	Enter U, I, or Data

- **State Required Data Element Fields on the F3.2 and F4.3 screens have no entry.**
- **If there is no data to enter, use the “U” (Unknown) or “I” (Innapropriate).**
- Hospital Index (Record #)
- Collector Screen and page
- Data Element
- Error Description
- Needed Action (How to correct the error)

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Rejected Records Report

Detail of Facility's Rejected Submissions

Reporting Period:	From:	To:
Facility ID #: [REDACTED]		Print Date: 10/02/09

Hosp Index	Disk ID	Reject Date	Reason Rejected	Date Accepted
[REDACTED]	[REDACTED]	10/02/09	Dispatch Date after ED Admission Date	

- Facility ID
- Hospital Index (Record #)
- Rejected Date
- Reason Rejected (Detailed description of why the record was rejected)

Outlier Report

The Outlier Report shows TRISS data for individual patient records with unexpected outcomes (Survived / Did Not Survive), based on the data.

OUTLIER REPORT LOS & Probability of Survival

Hospital Number: [REDACTED]
Disk ID Number: [REDACTED]
Date Submissions Processed: 09/02/09

Summary of Submitted Records			
59	Transfers accepted	0	Transfers rejected
0	Retransfers accepted	0	Retransfers rejected
		100%	Accepted
		100%	Accepted

Probability of Survival (TRISS)											2% of Submitted Records not Suitable for TRISS Analysis	
Hospital Index	Age	ISS	B/P	RTS	GCS	Eve	Ver	Mot	SBP	Resp Rate		
[REDACTED]	31	16	1		II	I	I	I	III	II		

- Facility Number and Name
- Date Processed
- Summary Count of Records (Transfers or Retransfers) and percent Accepted or Rejected
- Probability of Survival (TRISS*)

**TRISS is calculated with Revised Trauma Score (GCS systolic BP, spontaneous respiratory rate), ISS, Age. TRISS of .99 means patient has a 99% chance of surviving.*

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DATA VALIDATION

Trauma Registry data can be used for quality improvement, medical research, statistical analysis, outreach/prevention, resource utilization and planning. The information provided by a trauma registry is only as valid as the data entered. Use of a data validation process will ensure the data used for quality improvement, resource utilization, planning, research and analysis is accurate and complete.

Validation Guideline:

- Review randomly selected trauma charts for errors and missing data.
- Re-Abstraction of the following data elements using a Data Validation Abstraction Tool with the minimum following elements:
 1. Age
 2. Gender
 3. Mechanism of Injury
 4. Trauma Team Activation
 5. Injury Diagnosis
 6. ISS
 7. Additional Data Elements are chosen by facility.
- The minimum percentage of accuracy should be 95%.

Recommended Process:

- Facility with two or more abstractors (Quarterly):
 1. Select **5%** of total trauma cases for validation review.
 2. An abstractor (other than the original abstractor) will re-abstract the data elements from the selected charts, then compare with the original abstractor's data.
 3. The Validation Abstraction Tool will be utilized for the re-abstraction process and recording errors.
 4. Interrater reliability audit will be determined using the following method:
 $(\text{Number of elements agreed on}) \div (\text{Number validated}) \times 100$
 5. The results of the audit will be recorded on the Data Validation Abstraction Tool & Summary, to be kept on file and a copy sent to the Trauma Registry Administrator at the quarterly data submission due date.
- Facility with one abstractor (Twice a Year):
 1. Select **5%** of total trauma cases for validation review.
 2. The abstractor will re-abstract the data elements from the selected charts.
 3. The Validation Abstraction Tool will be utilized for the re-abstraction process and recording errors.
 4. The abstractor will print out the Collector standard facsimile report for the original abstracted charts, and compare the selected data elements with the re-abstracted chart results, using the validation tool.
 5. Interrater reliability audit will be determined using the following method:
 $(\text{Number of elements agreed on}) \div (\text{Number validated}) \times 100$

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6. Corrections or modifications to records will be made if necessary, upon completion of the audit.
7. The results of the audit will be recorded on the Data Validation Abstraction Tool & Summary, to be kept on file and a copy sent to the Trauma Registry Administrator at the quarterly data submission due date.

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APPENDIX I: COMMON TERMS

- AIS** Abbreviated Injury Scale
AIS is an anatomical scoring system that classifies injuries from 1 (minor) to 6 (unsurvivable). This scale is not meant to be an injury severity measure but instead a measure of "threat to life" associated with an injury. For more information consult the following webpage:
<http://www.trauma.org/scores/ais.html>
- ARNP** Advanced Registered Nurse Practitioner
- AS_TEXT** When writing a report in COLLECTOR, you will get the coded value for an element if you put the element's name in the report. For example, SEX will return either a 1 for male or a 2 for female. If you want the text instead of the code, you simply append "_AS_TEXT" to the name of the element; eg, SEX_AS_TEXT will return male or female.
- A-score** Indicates the "A" component of the Anatomic Profile (AP), a score that was developed to compare groups of patients with similar injuries and is comprised of four scores (A, B, C, D). The first three components summarize all serious (AIS > 2) injuries to (A) the head/brain and spinal cord,
- ASCOT** A Severity Characterization of Trauma
a scoring system that uses Anatomical Profile to characterize injury instead of ISS. It uses different coefficients for blunt and penetrating trauma and has been shown to be more accurate than TRISS at predicting survivability especially in penetrating trauma.
- BAC** Blood Alcohol Content
- Backup** A security process where three COLLECTOR subdirectories--CDB, USR, & SYS--are copied and stored in a safe place. If your computer should fail, just install the COLLECTOR program to a new computer and then copy the backup disk into that computer and your files, reports and queries will be restored.
- Batch checking** A method of closing completed COLLECTOR files and preparing them for transfer to the state registry. First, a report is run to identify required data that may be missing (From the main menu: Registry / Run Checks / Check). This report allows you to insure that all errors and missing data are truly missing. Then, you can close those records by over-riding the checks (Registry / Run Checks / Check and mark the third checkbox: Override all Data Checks). These closed records are now ready for transfer.
- B-score** Indicates the "B" component of the Anatomic Profile (AP), a score that was developed to compare groups of patients with similar injuries and is comprised of four scores (A, B, C, D). (B) is the thorax and front of the neck.

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Center for Health Statistics	Also known as Vital Statistics, this DOH office provides birth and death statistics and data on the health of Washington. The web address for health data is: http://www.doh.wa.gov/Data/data.htm
CHARS	Comprehensive Hospital Abstract Reporting System
Coded Variable	A coded variable is a feature in COLLECTOR that lets you assign a name to a range of values. For instance, you can define the set of diagnosis codes that you would like to include in the term "HEAD INJURY" and treat the new term as an element in COLLECTOR that can be included in queries, reports, or gathers.
COT	Committee on Trauma--from the American College of Surgeons
C-score	Indicates the "C" component of the Anatomic Profile (AP), a score that was developed to compare groups of patients with similar injuries and is comprised of four scores (A, B, C, D). (C) covers all remaining serious injuries not addressed in A or B, and is used in the calculation of ASCOT.
Data Entry Default	In COLLECTOR, any data element can be given a default value. This value will automatically appear whenever a new record is added but can be changed if needed. To add a default value from the main menu, select: Customize / Data Entry Defaults. A screen that looks like the data entry screen will appear. Add whatever you wish to default and click: OK. All new records will reflect this change until the default is removed.
Data Table	A DATA TABLE is a report that gives you detail about a set of patients. When you define a DATA TABLE, you answer the question, "What do you want to know about your patients?" To answer this question, you pick the data elements that should be included in a DATA TABLE. These elements can be the elements that were keyed in the records, Queries that calculate elapsed times, Coded Variables, or Custom Elements. These elements are selected from the main menu by choosing: Report / Report / New Data Table Report and clicking on the section and data element that you would like to include. When the report is run, each column will contain one of the data elements. Each row will represent a different patient.
DBF Export	A DBF EXPORT is a common method for moving data out of COLLECTOR and into another database. To export records, an EXPORT SPECIFICATION must first be defined. This is done from the main menu by selecting: Admin / DBF Export / New. Data elements are selected from the input screen. Note: if you are choosing a data element that is stored as a LIST (such as protective devices), choose the element that is followed by (L) for a DBF EXPORT. Once the DBF EXPORT specification is defined and saved, the button at the bottom of the screen, EXPORT DBF, will move the data out of COLLECTOR into a specified file with the .DBF extension. This file can be pulled into Access, FoxPro, or other DBF-compatible databases.

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- Direct Admit** A patient who bypasses the Emergency Department to be admitted directly as an Inpatient is a DIRECT ADMIT.
- D-score** Indicates the “D” component of the Anatomic Profile (AP), a score that was developed to compare groups of patients with similar injuries and is comprised of four scores (A, B, C, D). (D) is a summary measure of all non-serious injuries and is not used in the calculation of ASCOT.
- E849** A special External Cause of Injury Code (E-code) that specifies the place of the injury. The choices are: 0-Home, 1-Farm, 2-Mine/Quarry, 3-Industrial Place, 4-Place for Sport/Recreation, 5-Street/Highway, 6-Public Building, 7-Residential Institution, 8-Other Specified Place, 9-Unspecified Place.
- Ecode** External Cause of Injury Code
- ED** Emergency Department
- FARS** Fatality Analysis Reporting System
<http://www-fars.nhtsa.dot.gov/>
- FIM score** Functional Independence Measure Score--this score measures a patient's ability to live independently by describing how well a patient functions in several living skills.
- Gather** A GATHER is a way of sorting records by a criterion and reproducing a report for each of the gathers. To perform a GATHER, the specification must first be defined and saved. From the main menu, select: Report / Gather Spec / New. A gather spec window will open allowing you to choose the data element that the records will be sorted by. Up to 3 levels of sorts may be selected. If, for instance, trauma surgeon is selected, the records will be sorted by surgeon and a separate report will be created for each surgeon and include only that surgeon's patients. After the GATHER SPEC is saved, records must be sorted and saved to a file that ends in .GTF This is done by selected the Create Gather File button at the bottom of the gather window. When running a report, this file will be added to the report specification window under GATHER FILE to run the report in the gather mode.
- GCS** Glasgow Coma Score
Range is between 3 (worst) and 15 (best). Score is a composite of three parameters: Best Eye Response, Best Verbal Response, and Best Motor Response. For additional scoring information, see the website:
<http://www.trauma.org/scores/gcs.html>
- ICD-9** International Classification of Diseases-9 is the world-wide method of coding diagnosis codes, procedure codes, external causes of injury (e-codes), and

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codes of factors Influencing Health Status and Contact (V-codes).

Inclusion Criteria	Washington State Department of Health's specific patient criteria, that defines the data required to be reported to the Washington State Trauma Registry.
ISS	Injury Severity Score An anatomical scoring system with a range from 0 to 75. An ISS of 16 or greater is generally considered Major Trauma. For information on how to score, see the website: http://www.trauma.org/scores/iss.html
IT	Information Technology
Memo fields	Text fields at the end of each section in COLLECTOR that allows for free-text memos in each area.
MTOS	Major Trauma Outcome Study
NEDARC	National Emergency Medical Services for Children (EMSC) Data Analysis and Research Center
NHTSA	National Highway Traffic Safety Administration
NOSECURE	A special account that can be established in COLLECTOR that will turn off the password protection for the program. To remove password protection create a new account named NOSECURE from the main menu by selecting: Admin / Accounts / Add and typing in NOSECURE under USER ID. When COLLECTOR is restarted, the program will go directly into the main menu bypassing the password window. To remove the NOSECURE from the main menu, select: Admin / Accounts / Delete and pick the NOSECURE account.
NTDB	National Trauma Data Bank
OEMSTS	Office of Emergency Medical Services & Trauma System
PA	Physician's Assistant
Password	A security process that requires each user to enter a unique word to access the program. If a user forgets their password, the administrator can reassign a new password. If an administrator forgets a password, call the Washington Trauma Registry.
PHI	Prehospital Index

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predot code	A code used by the National Highway Traffic Safety Administration to classify injuries. This code is automatically assigned by Tri-code during the anatomical diagnosis coding in Section 8 of COLLECTOR.
PTS	Pediatric Trauma Score
Query	A statement that limits the universe of patients that COLLECTOR will use for a report. See USING QUERIES in the Washington Trauma Users' Manual.
RECV ISS	The Injury Severity Score that has been assigned by the receiving hospital and reported back to the sending hospital.
Renumbering records	A record may need to be renumbered when a facility changes the numbering convention, or when there are duplicate records. A record can be renumbered at any time after it has been added to the database.
RTS	Revised Trauma Score A physiological score that ranges from 0 (very low probability of survival) to 7.8408 (very high probability of survival). The score is calculated using the first set of vitals on a patient and uses the components of GCS, Systolic Blood Pressure, and respiratory rate. Each of these three components is weighted to adjust for major head injury without multisystem injuries.
Statistic Report	A report generated from trauma registry data that uses data values for specific data elements in the Collector database.
TNC	Trauma Nurse Coordinator
transfer	The process of encrypting and sending records to the state Trauma Registry. Only closed records can be transferred (see BATCH CHECKING). To transfer from the main menu, select: Admin / Transfer. In the TRANSFER WINDOW, click the transfer button. The computer will prompt you to label and insert a disk. Encrypted files will then be written to the disk. Either the disk can be mailed to the registry, or the files on the disk can be attached to an email and sent to the registry.
Trauma Team Activation	(TTA) As defined in WAC and for the purposes of WTR, the Trauma Team is a group organized and directed by a general surgeon who assumes responsibility for coordination of overall care of the trauma patient. The Team includes an emergency physician who is responsible for: 1) activating the trauma team using an approved scoring system; 2) arrival of the surgeon in the resuscitation area. Other team members, as well as operational details, are described in the hospital's approved application for designation.
Trauma Triage	The criteria used to identify this patient as a major trauma victim as recorded on the pre-hospital run form. The criteria includes Vital Signs and Level of

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Criteria	Consciousness, Anatomy of Injury assessment and Biomechanics of Injury.
Tri-Code	An option in the Collector software, which assigns ICD-9-CM, AIS and Body Regions from text injury descriptions.
TRISS	Trauma Score--Injury Severity Score Determines the patient's probability of survival by using the ISS and RTS and weighting using coefficients from the Major Trauma Outcome Study. For more information on how to calculate, see the website: http://www.trauma.org/scores/triss.html
TRUM	Trauma Registry Users' Manual
WSTR	Washington State Trauma Registry

ADDITIONAL APPENDICES

[Appendix II:](#) Hospital Abstract Form

[Appendix III:](#) Hospital Data Dictionary

The following Appendices are available by request at: [DOH Trauma Registry](#)

Appendix IV: Collector User Guide (*Digital Innovations, Inc., 2011*)

Appendix V: DI Coder User Guide (*Digital Innovations, Inc., 2011*)

Appendix VI: DI Report Writer User Guide (*Digital Innovations, Inc., 2011*)