

National Sample Program

ED Admission Year 2003 to 2006

Public Manual

**National Trauma Data Bank (NTDB)
National Sample Program**

January 2009

**NTDB,
American College of Surgeons
633 N. Saint Clair
Chicago, IL 60611
www.ntdb.org/nsp**

ACKNOWLEDGMENT

The American College of Surgeons Committee on Trauma thanks the Centers for Disease Control and Prevention (CDC) for their support of the NTDB.

TERMS OF USE

The American College of Surgeons (ACS) was awarded a contract from the National Center for Injury Prevention and Control (NCIPC), Centers for Disease Control and Prevention (CDC), to develop a nationally representative sample of U.S. trauma centers that provides data on treated trauma patients. This National Sample Program (NSP) is intended to enhance the ACS National Trauma Data Bank (NTDB) by providing data from a probabilistic sample of trauma center hospitals nationwide to meet the broad range of trauma care assessment, clinical outcomes research, and injury surveillance needs.

The American College of Surgeons Committee on Trauma collects and maintains the NTDB NSP. Therefore, use of any information from these must include a prominent credit line. That line is to read as follows: *Committee on Trauma, American College of Surgeons, NTDB NSP 2003 – 2007, Chicago, IL. The content reproduced from the NTDB NSP remains the full and exclusive copyrighted property of the American College of Surgeons. The American College of Surgeons is not responsible for any claims arising from works based on the original Data, Text, Tables, or Figures.*

Specific Terms of Agreement:

Limited license is granted to use said Information from the NTDB from The American College of Surgeons Committee on Trauma, provided the Requester agrees to the following provisions:

1. Treat the information received from The American College of Surgeons Committee on Trauma as non-public health data. The data may never be used by Requester as a basis for legal, administrative, or other actions that can directly affect an individual whose medical or personal information is included in a case in the data.
2. Use the information received under the provisions of this Agreement only for the following not-for-profit purposes: research, advocacy, medical education, patient education, or other trauma care-related activities supported by not-for-profit organizations.
3. All information derived from the NTDB NSP from The American College of Surgeons Committee on Trauma shall remain the full and copyrighted property of The American College of Surgeons Committee on Trauma and shall be so noted in educational material, website presentations, and publications.
4. Warrant that The American College of Surgeons Committee on Trauma is not responsible for any claims arising from works based on the original Data, Text, Tables, or Figures.
5. Indemnify The American College of Surgeons, its Committee on Trauma, and their employees, agents, and contributors from any and all liability, loss, or damage suffered as a result of claims, demands, costs, or judgments arising out of use of NTDB NSP information.
6. Requestor may not sublease or permit other parties to use NTDB NSP data without advance written approval of The American College of Surgeons Committee on Trauma.

The Requester's obligations hereunder shall remain in full force and effect and survive the completion of the Requester's defined project described herein above. The terms of this Agreement shall be binding upon the Requester and the organization through which his/her project is conducted.

TABLE OF CONTENTS

Section	Page
ACKNOWLEDGMENT.....	4
BACKGROUND AND DESCRIPTION OF THE NSP	7
NTDB CONFIDENTIALITY POLICY	8
CURRENT LIMITATIONS OF NSP DATA.....	8
1. Data quality in the NTDB.....	8
2. Selection bias in the NTDB	9
3. Missing data in the NTDB.....	9
GETTING STARTED WITH NSP DATA	9
FREQUENTLY ASKED QUESTIONS.....	13
PUBLICATIONS.....	16
CONTACT INFORMATION.....	17

APPENDICES

APPENDIX A: VARIABLE LIST AND CLASSIFICATIONS.....	18
--	----

BACKGROUND AND DESCRIPTION OF THE NSP

The American College of Surgeons (ACS) was awarded a contract from the National Center for Injury Prevention and Control (NCIPC), Centers for Disease Control and Prevention (CDC), to develop a nationally representative sample of U.S. trauma centers that provides data on treated trauma patients. This National Sample Program (NSP) is intended to enhance the ACS National Trauma Data Bank (NTDB) by providing data from a probabilistic sample of trauma centers nationwide to meet the broad range of trauma care assessment, clinical outcomes research, and injury surveillance needs.

The NTDB is the largest compilation of traumatic injury data ever assembled. It contains over 3 million records voluntarily provided by more than 900 U.S. trauma centers. The information contained in the NTDB has implications for many areas, including epidemiology, injury control, research, education, acute care, and resource allocation. The goal of the NTDB is to collect data on every patient in every trauma center in the U.S. and inform the medical community, the public, and decision makers about a wide variety of issues that characterize the current state of care for injured persons in our country. Since the NTDB does not yet collect data from every trauma center in the U.S., the data do not allow one to make national estimates of rates for clinical measures of trauma care. The NSP, which will collect data stratified by region and level of care, will provide baseline data and allow reliability in computing national estimates with high confidence. The NSP will allow researchers to make statistically valid inferences about patients cared for in Level I and II trauma centers in the U.S. by improving the NTDB's data quality based on a representative sample of 100 hospital trauma centers. While other national probability samples of hospital inpatient and outpatient settings exist, the NSP will provide detailed clinical indicators and other trauma care information that are not available in other data systems.

The NSP is intended to (1) create a traumatic injury database from a nationally representative sample of trauma hospitals; (2) collect a wide variety of diagnostic and clinical indicators complementary to the NTDB; and (3) produce national baseline estimates of variables and indices associated with hospitalized traumatic injuries, such as prehospital diagnosis and management, trauma outcomes, and other variables that characterize the dimensions of trauma treatment. It is also intended to help characterize the circumstances of the injury incident (e.g., external causes of injury) and injured patients treated in trauma centers in the United States.

The NTDB National Sample is a stratified sample of 100 hospitals, with sample hospitals drawn based on probability-proportional-to-size methodology, using number of ER visits from AHA 2005 data as the size measure. The sampling universe used to create the NTDB National Sample was the 453 Level I or II trauma centers based on TIEP 2003 data. The strata used for the sampling were (1) NTDB participation (NTDB, non-NTDB), (2) Trauma Level I or II, and (3) Region—Northeast, Midwest, West, and South.

The NTDB National Sample consists of incident-level records, hospital information, and weights. Appendix A consists of the data elements that are found in the NTDB National

Sample. Note that all records from the sample hospitals are provided with sample weights, and data are not excluded due to low quality or incompleteness. Currently data are available for admission years 2003 to 2007.

NTDB CONFIDENTIALITY POLICY

NTDB data are maintained in a secure database with limited internal access. External users must gain permission to the database, and data are then supplied at the aggregate level only. Use of NTDB data is in strict compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA). The NTDB does not distribute or report hospital information in any manner that allows the reporting hospital to be identified without the express written permission of the hospital. The dataset collected by NTDB is considered a limited dataset under HIPAA, and the research dataset that ACS releases is a de-identified dataset.

CURRENT LIMITATIONS OF NSP DATA

The data in the National Sample are based on NTDB data and will inherit the limitations that the NTDB has. The weights data have been reviewed and edited carefully by NTDB for accuracy. However, the data for the NSP has the same limitations as the rest of the NTDB data, and data were not excluded due to low quality or incompleteness. Researchers need to understand that these data are submitted to the NTDB voluntarily from a stratified probability sample from trauma centers and that the inclusion/exclusion criteria for records may vary between trauma hospitals.

1. Data quality in the NTDB

The NTDB is continually cleaning and standardizing the data to improve the data quality. Data files received from contributing hospitals are checked for completeness, logical consistency, and proper formatting. Any files not passing the checking system are either rejected or flagged, based upon the seriousness of the file's errors. A screening report is generated for each submitting facility, and the facilities are given the opportunity to correct errors and resubmit their data. Edit flags indicate invalid or out-of-range values for the most important variables in the dataset. There are 27 edit flags, denoted by letters A to Z and number 0. For further information about the edit flags please see Appendix A. The datasets provided include all the data submitted to the NTDB for the hospitals participating in the National Sample Program. We strongly suggest that you use these edit flags (or create your own) to screen out data that are not valid based on the criteria in Appendix A.

2. Selection bias in the NTDB

The NTDB data are submitted voluntarily from hospitals, and by definition, cases not admitted to a hospital will not be included in the NTDB, including injury victims who die before they can be transported to a hospital. Hospitals may have differing criteria for including deaths on admission, deaths in the Emergency Department, or other cases, which should be evaluated before making comparisons. The American College of Surgeons Committee on Trauma has been trying to standardize the inclusion criteria among trauma registries; however, there is still some variability in trauma registry inclusion criteria across the country. Selection bias refers to an apparent difference between two groups that is actually caused by different inclusion criteria. For example, if one trauma center includes isolated hip fractures in its registry and another does not, and if mortality for this injury is lower than for other injuries with the same severity score, the hospital that included isolated hip fractures will appear to have a lower “risk-adjusted” mortality. Any difference in inclusion/exclusion criteria could produce a selection bias. The FACILITY tables include submitted detail on the trauma registry inclusion criteria at each hospital, and it is advised that information from these tables be used when there is concern about the selection bias.

3. Missing data in the NTDB

The proportion of missing data varies across data elements in the NTDB, but it is important to decide how to deal with missing data when doing analyses. In most cases NTDB data are not missing at random, and analyses, therefore, are subject to bias if missing data are ignored. That is, the results may be misleading when all observations with missing data are excluded. Excluding observations with missing values is the default for most software programs when running statistical analyses. Another option is to provide plausible values for the missing data, either by single or multiple imputation. A single imputation of a value may be an educated guess at the value, substitution of the mean value, or substitution based on a regression equation using other (observed) values. Most statistical software packages can do imputations without much difficulty. However, it is important to explore the impact of missing data with sensitivity analyses. That is, repeat an analysis with and without imputation and see whether there are any important differences.

GETTING STARTED WITH NSP DATA

The NSP data are a set of relational tables and consist of 21 data files. These files are in ASCII-CSV format (comma separated value) and DBF format (DBASE version 2.0), which can be easily imported to most statistical software (i.e., SAS, SPSS, and Stata). The file WEIGHTS includes the strata and weights for each trauma incident. This file and 15 other files include a unique incident identifier (inc_key) that can be used for merging the files together. Two of the data files include the facility information for the NSP participating hospitals for corresponding, and these data can be merged to ED, DEMO,

DISCHARGE, and SCENE by using the unique facility identifier (fac_key). The remaining three data files (DIAGNOSISDESC, MECHDESC, and PROCEDUREDESC) are look-up tables with the description of the ICD-9 Diagnosis code, E-code, and procedure codes, respectively. The look-up tables can be merged with the unique DCODE, ECODE, and PCODE.

Included on the downloading website are two sample programs to help researchers get started with merging files and creating weighted statistical output. These sample programs are available for SAS and Stata. A copy of the source codes of these programs can be found in Appendices D and E. We hope that you will contact us with any concerns or suggestions on how to make these sample programs more useful in the future. Table 1 is a listing of the 21 relational files with a short description for each data file. A detailed data dictionary of each variable in the datasets can be found in Appendix A. Appendices B, C, D, and E are available with the purchase of the NSP dataset.

Table 1: Data files and descriptions

File Name	Description
AISCODE	The AIS (Abbreviated Injury Scale) information for the trauma diagnosis.
COMORBID	Information pertaining to any pre-existing comorbid condition the patient had upon arrival in the ED/hospital.
COMPLIC	Information pertaining to any complications that arose during the course of patient treatment at the facility.
DEMO	Includes information about the patient and incident demographics.
DIAGNOS	ICD-9-CM Code of Diagnosis Information for the trauma incident.
DIAGNOSISDESC	Look-up table of the description of the ICD-9-CM diagnosis codes.
DISCHARGE	Includes discharge and outcome information pertaining to the trauma incident.
ECODE	Includes the ICD-9-CM external cause of injury code.
ED	Includes information pertaining to events and measurements that take place in the ED.
EDIT_FLAG	Includes the 27 edit flags (see Appendix C) for each incident.
FACILITY	Includes information about the participating facilities.
FACILITY_INC	Includes information about the participating facilities' inclusion and exclusion criteria for trauma registry data.
IMPUTED	Includes the imputed values, if value is missing for selected variables.
INTUB	Information that indicates whether endotracheal intubation was performed either at the scene or in the ED.
MECHDESC	Look-up table for the external cause of injury code (ICD-9-CM ECodes).
PREHPROC	Information pertaining to the procedure performed for a trauma incident prior to arriving at the hospital.
PROCEDUR	Information pertaining to the procedure performed for a trauma incident in the hospital.
PROCEDUREDESC	Look-up table for the description of procedures performed for a trauma incident.
SAFETY	Information pertaining to the safety equipment used or worn by the patient at the time of the injury.
SCENE	Includes information pertaining to the scene of the trauma incident.
WEIGHTS	The final weights and strata indicators for each incident

The breakdown of number of facilities and trauma incidents included in each year of the NSP data is presented in Table 2. The total number of hospitals in the NSP is 100 hospitals; however, not all hospitals submit data each year. The NTDB has worked to recruit hospitals to submit data in the last few years, and has been targeting a participation rate of at least 85% of the hospitals. Table 2 also gives the number of trauma centers per strata used for the National Sample design.

Table 2: Description of data in each dataset

Data-set	Number Incidents	Number of Trauma Centers			
		Total	Trauma Level	NTDB Status	Census Region
2003	122,210	70	36 Level I 34 Level II	66 NTDB 4 non-NTDB	9 Northeast 21 South 23 Midwest 15 West
2004	109,284	71	40 Level I 31 Level II	68 NTDB 3 non-NTDB	6 Northeast 29 South 24 Midwest 12 West
2005	128,841	72	38 Level I 34 Level II	67 NTDB 5 non-NTDB	11 Northeast 23 South 21 Midwest 17 West
2006	150,159	86	46 Level I 40 Level II	79 NTDB 7 non-NTDB	15 Northeast 29 South 26 Midwest 16 West

FREQUENTLY ASKED QUESTIONS

This section includes research-related questions and answers related to using the NSP. In addition, Appendix B contains weighted frequencies and weighted means for the data in NTDB NSP samples 2003–2006 to help users ensure they are correctly using the data.

1. Can I estimate the number of patients based on the NSP?

The NTDB NSP is an **incident** database, and there are no patient identifiers in the database. If a patient has more than one reported trauma incident during an admission year, this patient may be in the database more than once.

2. How can I merge the datasets in the NTDB?

The data files can be merged by using the unique incident key for each incident (`inc_key`). There is also a unique facility key (`fac_key`) which can be used for hospital-level analysis. SAS and Stata source codes are provided (Appendix D and E) to help you get started.

3. What are the differences between the CSV and DBF files?

CSV files are comma separated value files, and DBF files are from the FoxPro database format. Some statistical packages will handle one file type better than the other. We are aware that SAS handles CSVs inconsistently while using PROC IMPORT. Please use caution and check your datasets prior to analysis, including checking variable values against the variable list. The inconsistencies include truncation of values and changing of variable type (numeric to character), specifically with the facility key (`fac_key`) variable in the FACILITY file. We are working to improve these inconsistencies but strongly recommend the use of DBF files with SAS.

4. What are the patient inclusion criteria for the NTDB?

All patients with ICD-9-CM discharge diagnosis 800.00 – 959.9

- Excluding 905-909 (late effects of injury)
- Excluding 910-924 (blisters, contusions, abrasion, and insect bites)
- Excluding 930-939 (foreign bodies)

AND who were admitted, died, or were transferred in or out of the reports hospitals.

5. Where can I find the external cause of injury, and how many of them are available in the dataset?

The ECODE table includes the primary (first-listed) ICD-9 external cause of injury code. Hence, there is only one ICD-9 external cause of injury code per incident. Appendix E contains the standard matrix of ICD-9 external-cause-of-injury code groupings used for reporting of injury mortality (defined by ICD-9 codes) and morbidity (defined by ICD-9-CM codes) data systems.

6. Where can I find the diagnosis and severity of the injury, and how many of them are available in the dataset?

The DCODE table includes all of the ICD-9-CM Codes of Diagnosis for each incident. The AISCODE table includes all the AIS codes for each injury. These diagnosis codes are not listed in hierarchical order, and there is no way to identify the principal diagnosis.

7. Do I need to use the sample weights in analyzing the data?

Yes, the sample weights are essential for computing national estimates. Each sample weight represents the inverse of the probability of selection of the hospitals. The sample weight has been adjusted for hospital nonresponse within each NSP sample stratum and changes in the number of ED visits annually in the sampling frame of U.S. hospital EDs. The WEIGHTS table includes the sample weights for each incident. More details on the NTDB NSP sample are given in Appendix C: Sample Design and Sample Creation.

8. How do I calculate standard errors of the national estimates?

Two computer programs can be used to calculate relative standard errors and 95% confidence intervals: Stata SVY and SAS proc SURVEYMEANS / SURVEYFREQ. Both programs seem to provide very similar estimates of standard errors. Sample programs written in Stata and SAS code estimation using the NSP data are provided in Appendix D and Appendix E, respectively.

9. What are the stratification variables for this sample?

The NTDB national sample is a stratified sample of 100 trauma centers. The sample is stratified by trauma designation level (I or II), census region (Northeast, South, Midwest, and West), and NTDB participation (NTDB, non-NTDB) prior to year 2003, when the sampling frame was established. The 16 strata for the sample are:

- 1 = NTDB, Level I, Northeast
- 2 = NTDB, Level II, Northeast
- 3 = NTDB, Level I, South
- 4 = NTDB, Level II, South
- 5 = NTDB, Level I, Midwest
- 6 = NTDB, Level II, Midwest
- 7 = NTDB, Level I, West
- 8 = NTDB, Level II, West
- 9 = non-NTDB, Level I, Northeast
- 10 = non-NTDB, Level II, Northeast
- 11 = non-NTDB, Level I, South
- 12 = non-NTDB, Level II, South
- 13 = non-NTDB, Level I, Midwest
- 14 = non-NTDB, Level II, Midwest
- 15 = non-NTDB, Level I, West
- 16 = non-NTDB, Level II, West

More details on the NTDB NSP sample are given in Appendix C.

10. What statistical criteria should be used to decide if an estimate is unstable or unreliable?

There are approximately 110,000 to 150,000 records of injury incidents for each admission year (2003, 2004, 2005, and 2006) in the NSP data files. Such a large sample size should allow estimates with sufficient precision in general, particularly estimates at the national level. However, when estimation is restricted to a sub-domain such as specific causes/mechanisms of injury or intents of injury by age, sex, and/or race/ethnicity, the sample size may become too small to produce reliable estimates. We recommend the following rules based on sample size and the standard error estimate to determine the validity of an estimate:

1. At least 30 NSP cases can be used in the estimation, and
2. For estimates of continuous variable (i.e., mean of the length of hospital stay), relative standard error (ratio of standard error to the value of the estimate) should be less than 50%; for estimates of categorical variable (i.e., proportion), relative standard error is calculated on a logarithm scale as follows:

$RSE[-\ln(p)] \leq 0.225$ when $p \leq 0.5$ or

$RSE[-\ln(1-p)] \leq 0.225$ when $p > 0.5$.

11. There seem to be some inconsistencies between fields; how do I decide what data to include?

The NTDB has been working the last couple of years to improve the quality of the data, and with the new dataset standard the quality and consistency has improved, but is of course not perfect. It is always important that researchers make sure that the data they use for analyses are consistent and valid for their purpose. Edit flags indicate invalid or out of range values for the most important variables in the dataset. There are 27 edit flags, denoted by letters A to Z and number 0. For further information about the edit flags, please see Appendix A.

PUBLICATIONS

We request that researchers using NSP notify us of any publications. Authors should be aware that the following recommendations have been provided to the editors of journals most likely to publish articles based upon NTDB data:

Recommendations for Peer Review of Studies Using the NTDB (from the NTDB Subcommittee, ACS Committee on Trauma, March 2007)

The ACS Committee on Trauma does not presume or desire to involve itself directly in the editorial process by which manuscripts are selected for publication. However, we do wish to inform this process and maximize the quality of these publications by making editors and reviewers aware of the obligations of licensees to the National Trauma Data Bank (NTDB[®]), as well as some of the technical issues posed by research involving this database.

Licensees have agreed to include a statement in their manuscripts acknowledging that “the NTDB remains the full and exclusive copyrighted property of the American College of Surgeons. The American College of Surgeons is not responsible for any claims arising from works based on the original Data, Text, Tables, or Figures.”

Licensees have further agreed to include language indicating which version of the NTDB (e.g., Version 6.1 issued in January 2007) they are using. This is important since the database is updated frequently, and other researchers should be provided with sufficient information to allow replication of the findings using the same dataset.

The NTDB files provide only general information about contributing institutions, such as trauma center verification status and categorical number of beds. We and our licensees are committed to maintaining the confidentiality of contributing institutions and patients as mandated by federal law. Studies claiming to add information about hospitals or patients from sources outside the NTDB should therefore be evaluated with great caution. Reviewers may wish to verify assertions about the characteristics of contributing hospitals against the characteristics actually available in the research dataset.

Like any large database, the NTDB does not have complete data for all cases; therefore authors should be expected to state how they dealt with missing data (exclusion, imputation, etc.). Similarly, the NTDB is not a population-based dataset; therefore statements about the incidence of specific conditions are inappropriate if based only on NTDB data. A Reference Manual, which describes these and other sources of potential bias inherent to the NTDB, has been provided to all researchers with the database files. Reviewers are advised to look for explicit discussion of these biases and their possible effects on the analysis.

Our web site (www.ntdb.org) includes the data use agreements, data dictionaries, a list of prior publications, the Reference Manual, and other related material. Please feel free to contact the NTDB office for further information.

CONTACT INFORMATION

Additional information regarding the National Sample Program, 2003–2007, may be obtained from:

Melanie Neal, NTDB Manager

E-Mail: mneal@facs.org

Phone: 312-202-5536

Sandra Goble, NTDB Statistician

E-Mail: sgoble@facs.org

Phone: 312-202-5255

Chrystal Price, NTDB Data Analyst

E-Mail: cprice@facs.org

Phone: 312-202-5467

Chris Hoeft, NTDB Coordinator

E-Mail: choeft@facs.org

Phone: 312-202-5538

American College of Surgeons

National Trauma Data Bank[®]

633 N. St. Clair, 26th Floor

Chicago, IL 60611

APPENDIX A: VARIABLE LIST AND CLASSIFICATIONS

This appendix includes the definition, format, and length of each variable in the NTDB NSP datasets. In addition to the variable list this appendix also includes other important descriptions on how NTDB data are derived—for example, the description of edit flags, Barell matrix of injury coding and the E-Code grouping of mechanism of injury and type, Barell matrix for ICD-9-CM diagnosis codes, and NTDB definitions for complications and pre existing comorbid conditions.

NOTE: The Research Dataset may contain values that are not listed in the tables below. In most cases, these are invalid values submitted to the NTDB and subsequently flagged by the NTDB. The EDITFLAGS table provides details on the flagging of invalid values.

VARIABLE DESCRIPTION LIST

The datasets are presented in alphabetical order.

File Name: AISCODE

Definition: The AIS (Abbreviated Injury Scale) information for the trauma diagnosis.

Frequency: Unlimited number of records per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
AISCODE	Represents the AIS Full Code that describes the diagnosis	C	8	
AISSCORE	Represents the severity portion of the AIS Full Code	N	10	
BODYREGION	Body region based on the AAAM (Association for the Advancement of Automotive Medicine)	C	30	1=Head , 2=Face, 3=Neck, 4=Thorax, 5=Abdomen, 6=Spin, 7=Upper Extremity, 8=Lower Extremity, 9=Unspecified

File Name: COMORBID

Definition: Information pertaining to any pre-existing comorbid diseases the patient had upon arrival in the ED/hospital.

Frequency: Unlimited number of per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
PREXCOMOR	Pertaining to a pre-existing comorbid factor present at the point of patient arrival in the ED	C	100	A valid code as listed in Appendix E

File Name: COMPLIC

Definition: Information pertaining to any complications during the course of patient treatment.

Frequency: Unlimited number of records per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
COMP_DESCR	Pertaining to a complication description that arose during the course of treatment	C	100	A valid code as listed in Appendix D

File Name: DEMO

Definition: Includes information about the patient and incident demographics.

Frequency: One record per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
YOBIRTH	Year of birth; patients with age > 89 are presented with a YOBIRTH = -1	N	5	
AGE	The age of the patient on arrival to the hospital. Patients with age > 89 are presented with age = -1	N	5	0–89 years, -1 represents patient 89–120 years old; out of range values are flagged according to Appendix B
GENDER	Gender	C	6	"Male," "Female"
RACE	Race	C	40	"Asian or Pacific Islander," "Black," "Hispanic," "Native American or Alaskan Native," "Other," "White, not of Hispanic Origin"
FAC_KEY	Facility Key	N	10	

File Name: DIAGNOS

Definition: ICD-9-CM Code of Diagnosis Information for the trauma incident.

Frequency: Unlimited number of records per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
DCODE	ICD-9-CM Code of Diagnosis	C	7	

File Name: DIAGNOSISDESC

Definition: Information pertaining to a diagnosis made about the trauma incident.

Frequency: One record per Diagnosis code.

Field Name	Definition	Data Type	Length	Standard Option
DCODE	ICD-9-CM Code of Diagnosis	C	7	
DCODEDESCR	Description pertaining to the ICD-9-CM Code of Diagnosis	C	255	

File Name: DISCHARGE

Definition: Includes discharge and outcome information pertaining to the trauma incident.

Frequency: Unlimited number of records per facility record.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
LOS	Length of stay in hospital	N	10	0–364 days; out of range values are flagged according to Appendix B
ICUDAYS	Days of total stay in ICU	N	10	Out of range values are flagged according to Appendix B
VENTDAYS	Ventilator support days	N	10	Out of range values are flagged according to Appendix B
FIMFEED	FIM Self-feeding Score at discharge	N	10	1=Dependent–Total Help Required 2=Dependent–Partial Help Required 3=Independent with Device 4=Independent 8=Not Applicable (e.g., < 7 yr old or died) 9=Unknown
FEEDSTATUS	Status of FIM Self-feeding Score	C	9	"D"=Not Done/Not Documented "P"=Permanent "T"=Temporary
FIMLOCOT	FIM Locomotion Score at discharge	N	10	1=Dependent–Total Help Required 2=Dependent–Partial Help Required 3=Independent with Device 4=Independent 8=Not Applicable (e.g., < 7 yr old or died) 9=Unknown
LOCOM STATU	Status of FIM Locomotion Score	C	9	"D"=Not Done/Not Documented "P"=Permanent "T"=Temporary
FIMEXPRESS	FIM Expression Score at discharge	N	10	1=Dependent–Total Help Required

Field Name	Definition	Data Type	Length	Standard Option
				2=Dependent–Partial Help Required 3=Independent with Device 4=Independent 8=Not Applicable (e.g., < 7 yr old or died) 9=Unknown
EXPSTATUS	Status of FIM Expression Score	C	9	"D"=Not Done/Not Documented "P"=Permanent "T"=Temporary
FIMTOTAL	Total FIM Score	N	10	Any integer between 1 and 12
YODISCH	Year of discharge or death	N	5	
PAYMENT	Principal payment source	C	50	"Automobile Insurance," "Blue Cross/Blue Shield," "CHAMPUS," "Government/Military Insurance," "Liability Insurance/Under Litigation," "MCH and Crippled Children's," "Managed Care Organization," "Medicaid," "Medicare," "No Charge," "No Fault Insurance," "None," "Not Done/Not Doc," "Organ Donor Subsidy," "Other," "Other Commercial Indemnity Plan," "Pending," "Private Charity," "Self Pay," "Worker's Compensation"
CHARGES	Billed hospital charges in U.S. dollars.	N	10	
DISCHDISP	Discharge disposition	C	30	"Burn," "Death," "Death (DOA)," "Died During Treatment," "Discharged, SNF," "Home," "Home Health," "Hosp Transfer," "Jail," "Nursing Home," "Other," "Rehab," "Unable to

Field Name	Definition	Data Type	Length	Standard Option
				Complete Treatment"
DISSTATUS	Discharge status	C	5	"Alive," "Dead"
FAC_KEY	Facility Key	N	10	

File Name: ECODE

Definition: Includes the ICD-9-CM external cause of injury code.

Frequency: One record per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
ECODE	ICD-9-CM external-cause-of-injury code	C	6	

File Name: ED

Definition: Information pertaining events and measurements that take place in the ED.

Frequency: One record per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
YOADMIT	First recorded year of patient's arrival at reporting hospital ED	N	5	
EDARRTIME	First recorded time of patient's arrival at reporting hospital ED	C	5	
TSTIMELY	Was trauma surgeon arrival in ED timely?	C	3	"D" = Not Done/Not Documented "N" = No, "P" = Pending, "Y" = Yes
DAYTOADMIT	Days between injury and admission	N	5	
EDSYSBP	Initial assessment in the ED of the systolic blood pressure	N	10	Any integer between 0 and 300;.out of range values are flagged according to Appendix B
EDRESPRATE	First unassisted respiratory rate in ED	N	10	Any integer between 0 and 99; out of range values are flagged according to Appendix B
EDTEMP	First temperature in the ED	N	15,1	Any real number between 0 and 110

Field Name	Definition	Data Type	Length	Standard Option
TEMPSCALE	Temperature scale	C	1	"C" = Celsius "F" = Fahrenheit
EDHEADCT	Head CT results	C	8	"D" = Not Done/Not Documented "Negative", "Positive"
EDABEVAL	Abdominal evaluation	C	8	"D" = Not Done/Not Documented "Negative," "Positive"
ABEVALTYPE	Abdominal evaluation type	C	25	"CT," "CT ,DPL," "DPL," "Ultrasound"
EDBASEDEF	Base deficit/excess in ED	N	15,1	Any integer between -80 and +80
EDGCSEYE	Lowest Glasgow Eye Component in ED	N	10	Values for Adults (>5 yr old): 1 = Does not open eyes 2 = Opens eyes to pain 3 = Opens eyes to commands 4 = Spontaneous eye opening Values for Infants and Children: 1 = No response 2 = Pain 3 = Verbal stimuli 4 = Spontaneous
EDGCSVERB	Lowest Glasgow Verbal Component in ED	N	10	Values for Adults (>5 yr old): 1 = None 2 = Incomprehensible words 3 = Inappropriate words 4 = Confused 5 = Oriented Values for Child: 1 = No response 2 = Incomprehensible sounds 3 = Inappropriate cries 4 = Confused

Field Name	Definition	Data Type	Length	Standard Option
				5 = Oriented Values for Infant: 1 = No response 2 = Moans to pain 3 = Cries to pain 4 = Irritable cries 5 = Coos, babbles.
EDGCSMOTOR	Lowest Glasgow Motor Component in ED	N	10	Values for Adults (>5 yr old): 1 = None 2 = Extensor posturing in response to painful stimulation 3 = Flexor posturing in response to painful stimulation 4 = General withdrawal in response to painful stimulation 5 = Localization of painful stimulation 6 = Obeys commands with appropriate motor response Values for Infants and Children: 1 = None 2 = Abnormal flexion (decerebrate) 3 = Abnormal flexion (decerebrate) 4 = Withdraws to pain 5 = Withdraws to touch 6 = Normal spontaneous movement
EDGCSTOTAL	Glasgow Coma Scale Total in ED	N	10	Any integer between 3 and 15; out of range values are flagged according to Appendix B
EDRTS	Revised Trauma Score in ED	N	15,4	Any number between 0 and 8

Field Name	Definition	Data Type	Length	Standard Option
ALCOHOLPRE	Alcohol present in blood?	C	3	"No," "Yes"
DRUGSPRE	Drugs present?	C	3	"No," "Yes"
ADMITSERV	Admitting service	C	20	"Burn," "Medical," "Neuro," "Ortho," "Other," "Pediatric," "Trauma"
EDDISP	Emergency Department disposition	C	25	"Burn," "DOA (Death)," "Die in ED," "ED Observation," "Floor," "Home," "ICU," "Not Done/Doc," "OR," "Other," "Telemetry," "Transfer," "Unable to Complete Treatment," "Unknown"
ISS	Total Injury Severity Score	N	10	Any integer between 0 and 75; out of range values are flagged according to Appendix B
TRISS_PROB	TRISS Survival Probability	N	10	Any number between 0.00 and 1.00
ACS_EDRTS	Recalculated Revised Trauma Score in ED by ACS	N	10	Any number between 0 and 8
ACS_PS	Recalculated TRISS Survival Probability by ACS	N	38,30	Any real number between 0.00 and 1.00
RESPRATEAQ	Respiratory Rate Assessment Qualifier in ED	C	2	"L" = Initial respiratory rate in ED is a legitimate value, without interventions such as intubation and sedation "S" = Patient chemically sedated when initially assessed in ED "T" = Patient intubated when initially assessed in ED "TP" = Patient intubated and chemically paralyzed when initially assessed in ED
EDGCS_AQ	GCS Assessment Qualifier in ED	C	2	"L" = Initial GCS components in ED are

Field Name	Definition	Data Type	Length	Standard Option
				legitimate values "S" = Patient chemically sedated when initial GCS components assessed in ED "T" = Patient intubated when GCS components assessed in ED "TP" = Patient intubated and chemically paralyzed when GCS components assessed in ED
FAC_KEY	Facility Key	N	10	

File Name: EDITFLAGS

Definition: Includes the 27 edit flags (see Appendix C) for each incident.

Frequency: One record per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
EDITSCORE	Number of edit checks that were flagged for the incident	N	10	Any integer between 0 and 27
EDITDETAIL	A text string of all the edit checks that were flagged for the incident	C	27	See Edit Flags section for description of flags
FLAG_A	Was the incident flagged for Edit check A?	C	4	"Yes," "No"
FLAG_B	Was the incident flagged for Edit check B?	C	4	"Yes," "No"
FLAG_C	Was the incident flagged for Edit check C?	C	4	"Yes," "No"
FLAG_D	Was the incident flagged for Edit check D?	C	4	"Yes," "No"
FLAG_E	Was the incident flagged for Edit check E?	C	4	"Yes," "No"
FLAG_F	Was the incident flagged for Edit check F?	C	4	"Yes," "No"
FLAG_G	Was the incident flagged for Edit check G?	C	4	"Yes," "No"
FLAG_H	Was the incident flagged for Edit check H?	C	4	"Yes," "No"
FLAG_I	Was the incident flagged for Edit check I?	C	4	"Yes," "No"
FLAG_J	Was the incident flagged for Edit check J?	C	4	"Yes," "No"
FLAG_K	Was the incident flagged for Edit check K?	C	4	"Yes," "No"
FLAG_L	Was the incident flagged for Edit check L?	C	4	"Yes," "No"
FLAG_M	Was the incident flagged for Edit check M?	C	4	"Yes," "No"
FLAG_N	Was the incident flagged for Edit check N?	C	4	"Yes," "No"
FLAG_O	Was the incident flagged for Edit check O?	C	4	"Yes," "No"
FLAG_P	Was the incident flagged for Edit check P?	C	4	"Yes," "No"
FLAG_Q	Was the incident flagged for Edit check Q?	C	4	"Yes," "No"

Field Name	Definition	Data Type	Length	Standard Option
FLAG_R	Was the incident flagged for Edit check R?	C	4	"Yes," "No"
FLAG_S	Was the incident flagged for Edit check S?	C	4	"Yes," "No"
FLAG_T	Was the incident flagged for Edit check T?	C	4	"Yes," "No"
FLAG_U	Was the incident flagged for Edit check U?	C	4	"Yes," "No"
FLAG_V	Was the incident flagged for Edit check V?	C	4	"Yes," "No"
FLAG_W	Was the incident flagged for Edit check W?	C	4	"Yes," "No"
FLAG_X	Was the incident flagged for Edit check X?	C	4	"Yes," "No"
FLAG_Y	Was the incident flagged for Edit check Y?	C	4	"Yes," "No"
FLAG_Z	Was the incident flagged for Edit check Z?	C	4	"Yes," "No"
FLAG_0	Was the incident flagged for Edit check 0?	C	4	"Yes," "No"

File Name: FACILITY

Definition: Includes information about the participating facilities.

Frequency: One record per Facility.

Field Name	Definition	Data Type	Length	Standard Option
FAC_KEY	Facility Key	N	10	
ACSLEVEL	ACS verification level	C	15	"I," "I," "III," "IV," or "Not Applicable"
STATELEVEL	State designation level	C	25	"I," "II," "III," "IV," "Other," or "Not Applicable"
NOADULTBED	Number of adult hospital beds	N	10	
NOPEDBEDS	Number of pediatric hospital beds	N	10	
NOBURNBEDS	Number of burn hospital beds	N	10	
NOTRAICU	Number of ICU beds available for trauma patients	N	10	
NOBURNICU	No of ICU beds for burn patients	N	10	
TEACHSTATU	Hospital teaching status	C	12	"Community," "Non-Teaching," "University"

Field Name	Definition	Data Type	Length	Standard Option
TEACHTYPE	Hospital type	C	12	"For profit", "N/A," "Non-profit"
BEDSIZE	Category for total number of beds in hospital	C	30	"≤200," "201-400," "401-600," ">600," "Not Provided"
REGION	Geographic region for the hospital	C	40	"Midwest," "Northeast," "South," "West"
TRA_LEVEL	Trauma level combining the ACS verification and state designation	C	30	"I," "II," "III," "IV," or "Not Applicable"
ACSPEDLEV	ACS verification level for pediatric hospital	C	50	"I," "II," "Not Applicable"
STATEPLEV	State designation level for pediatric hospital	C	50	"I," "II," "Not Applicable"
NOREGISTRA	Number registrars that are certified	N	10	
NONEUROSUR	Number of neurosurgeons	N	10	
NOORTHSURG	Number of orthopedic surgeons	N	10	
NOTRAREGIS	Number of trauma registrars (FTEs)	N	10	
NOTRASURG	Number of core trauma surgeons	N	10	
PEDAGECUT	What is your age cutoff in years for pediatric patients?	N	10	"Yes"
PEDASSOC	Is the hospital associated with a pediatric hospital?	C	3	"Yes," "No"
PEDCAREALL	This hospital provides all acute care service to injured children	C	3	"Yes," "No"
PEDCARENO	This hospital does not provide care to injured children (not applicable)	C	3	"Yes," "No"
PEDCRSHARE	This hospital shares role with another center when it comes to providing care to injured children. (resuscitation and care of acute injuries, followed by transfer)	C	3	"Yes," "No"
PED_ICU	Does the hospital have a pediatric ICU?	C	3	"Yes," "No"
PED_NONE	This hospital has none of the following associations to	C	3	"Yes," "No"

Field Name	Definition	Data Type	Length	Standard Option
	pediatric care: association with a pediatric hospital, pediatric ward, pediatric ICU, or transfer bulk of injured children.			
PEDTRANSF	Does the hospital transfer the bulk of severely injured children to other specialty centers?	C	3	"Yes," "No"
PED_WARD	Does the hospital have a pediatric ward?	C	3	"Yes," "No"
COMOR_CODE	Comorbidity recording	C	50	"Derived from ICD-9 coding," "Chart abstraction by trauma registrar," "Calculated by software registry program," "Not collected"
COMPL_CODE	Complication recording	C	50	"Derived from ICD-9 coding," "Chart abstraction by trauma registrar," "Calculated by software registry program," "Not collected"

File Name: FACILITY_INC

Definition: Includes information about the participating facilities inclusion and exclusion criteria for trauma registry data.

Frequency: One record per facility.

Field Name	Definition	Data Type	Length	Standard Option
FAC_KEY	Facility Key	N	10	
HIPFRACAGE	The age cutoff for including hip fractures in non-elderly patients, if applicable	C	10	
HIPFRACALL	Were all isolated hip fractures included in dataset?	C	3	"Yes," "No"
HIPFRACELD	Were isolated hip fractures included in the non-elderly?	C	3	"Yes," "No"
DOA_INC	Were Dead On Arrival (DOA) in ED included in dataset?	C	3	"Yes," "No"

Field Name	Definition	Data Type	Length	Standard Option
DEATHSAFT	Were deaths after receiving any evaluation/treatment including died in ED included in the dataset?	C	3	"Yes," "No"
TRANSIN	Were all patients transferred into hospital included in the dataset?	C	3	"Yes"
TRANSINWIT	Were only patients that were transferred into the hospital within specified number of hours included in the dataset?	C	3	"Yes," "No"
TRANSINWHR	Number of hours cutoff for patients to be included	N	10	
TRANSOUT	Were all patients transferred out included in the dataset?	C	3	"Yes"
ICD9EXC	ICD-9 exclusion range	C	2000	
ICD9RANGE	ICD-9 inclusion range	C	2000	
ICD_MAP	AIS coding is done with ICD-9 map	C	3	"Yes," "No"
AIS05_FULL	AIS coding is done with AIS 05 full code (description plus severity)	C	3	"Yes," "No"
AIS05_ONLY	AIS coding is done with AIS 05 only (severity only)	C	3	"Yes," "No"
AIS80_FULL	AIS coding is done with AIS 80 full code (description plus severity)	C	3	"Yes," "No"
AIS80_ONLY	AIS coding is done with AIS 80 only (severity only)	C	3	"Yes," "No"
AIS85_FULL	AIS coding is done with AIS 85 full code (description plus severity)	C	3	"Yes," "No"
AIS85_ONLY	AIS coding is done with AIS 85 only (severity only)	C	3	"Yes," "No"
AIS90_FULL	AIS coding is done with AIS 90 full code (description plus severity)	C	3	"Yes," "No"
AIS90_ONLY	AIS coding is done with AIS 90 only (severity only)	C	3	"Yes," "No"
AIS95_FULL	AIS coding is done with AIS 95 full code (description plus severity)	C	3	"Yes," "No"
AIS95_ONLY	AIS coding is done with AIS 95 only (severity only)	C	3	"Yes," "No"
AIS98_FULL	AIS coding is done with AIS 98 full code (description plus severity)	C	3	"Yes," "No"
AIS98_ONLY	AIS coding is done with AIS 98 only (severity only)	C	3	"Yes," "No"
AISCODEEXC	AIS code exclusion range	C	2000	
AISCODEINC	AIS code inclusion range	C	2000	
AISNOTDONE	AIS coding was not done (not	C	3	"Yes," "No"

Field Name	Definition	Data Type	Length	Standard Option
	applicable)			
AIS_OTHER	AIS coding was done with other method	C	3	"Yes," "No"
AISOSPEC	Specify of other method used for AIS coding	C	50	
TRICODE	AIS coding is done with ICD-9-CM map	C	3	"Yes," "No"
LOSINC	What length of stay cutoff is used for including patient in dataset?	C	25	"23 hours hold," "≥24 hours," "≥48 hours," "≥72 hours," "All admissions"

File Name: IMPUTED

Definition: Includes the imputed values or the original value, if value is not missing.

Frequency: One record per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
SCENEEYE	Imputed or original value for lowest Glasgow Eye component at the scene Imputation rule for missing values: GCS Eye = 1 when GCS Total = 3; GCS Eye = 4 when GCS Total = 15 GCS Eye = GCS Total minus the sum of GCS Verbal and GCS Motor	N	10	Values for Adults (>5 yr old): 1 = None 2 = Pain 3 = Voice 4 = Spontaneous Values for Children and Infants: 1 = No response 2 = Pain 3 = Verbal stimuli 4 = Spontaneous
SCENEVERB	Imputed or original lowest Glasgow Verbal component at the scene Imputation rule for missing values: GCS Verbal = 1 when GCS Total = 3; GCS Verbal = 5 when GCS Total = 15	N	10	Values for Adults (>5 yr old): 1 = None 2 = Incomprehensible words 3 = Inappropriate words 4 = Confused 5 = Oriented

Field Name	Definition	Data Type	Length	Standard Option
	GCS Verbal = GCS Total minus the sum of GCS Eye and GCS Motor			Values for Child: 1 = No response 2 = Incomprehensible sounds 3 = Inappropriate cries 4 = Confused 5 = Oriented Values for Infant: 1 = No response 2 = Moans to pain 3 = Cries to pain 4 = Irritable cries 5 = Coos, babbles
SCENEMOTOR	Imputed or original lowest Glasgow Motor component at the scene Imputation rule for missing values: GCS Motor = 1 when GCS Total = 3; GCS Motor = 6 when GCS Total = 15 GCS Motor = GCS Total minus the sum of GCS Eye and GCS Verbal	N	10	Values for Adults (>5 yr old): 1 = None 2 = Extensor posturing in response to painful stimulation 3 = Flexor posturing in response to painful stimulation 4 = General withdrawal in response to painful stimulation 5 = Localization of painful stimulation 6 = Obeys commands with appropriate motor response Values for Infants and Children: 1 = None 2 = Abnormal flexion (decerebrate) 3 = Abnormal flexion (decerebrate) 4 = Withdraws to pain 5 = Withdraws to touch 6 = Normal spontaneous movement

Field Name	Definition	Data Type	Length	Standard Option
SCENETOTAL	Imputed or original Glasgow Coma Scale Total at the scene Imputation rule for missing values: GCS Total = sum of GCS Eye, GCS Motor, and GCS verbal.	N	10	Any integer between 3 and 15
EDSYSBP	Imputed or original first systolic blood pressure value in the ED Imputation rule for missing values: A systolic blood pressure of 0 was imputed when patient's discharge disposition from ED/hospital was DOA (dead on arrival)	N	10	Any integer between 0 and 300
EDRESPRATE	Imputed or original first unassisted respiratory rate in ED Imputation rule for missing values: A systolic blood pressure of 0 was imputed when patient's discharge disposition from ED/Hospital was DOA (dead on arrival)	N	10	Any integer between 0 and 99
EDGCSEYE	Imputed or original lowest Glasgow Eye component in ED Imputation rule for missing values: GCS Eye = 1 when GCS Total = 3; GCS Eye = 4 when GCS Total = 15 GCS Eye = GCS Total minus the sum of GCS Verbal and GCS Motor	N	10	Values for Adults (>5 yr old): 1 = None 2 = Pain 3 = Voice 4 = Spontaneous Values for Children and Infants: 1 = No response 2 = Pain 3 = Verbal stimuli 4 = Spontaneous
EDGCSVERB	Imputed or original lowest Glasgow Verbal component In ED	N	10	Values for Adults (>5 yr old): 1 = None

Field Name	Definition	Data Type	Length	Standard Option
	<p>Imputation rule for missing values: GCS Verbal = 1 when GCS Total = 3; GCS Verbal = 5 when GCS Total = 15 GCS Verbal = GCS Total minus the sum of GCS Eye and GCS Motor</p>			<p>2 = Incomprehensible words 3 = Inappropriate Words 4 = Confused 5 = Oriented</p> <p>Values for Child: 1 = No Response 2 = Incomprehensible sounds 3 = Inappropriate cries 4 = Confused 5 = Oriented</p> <p>Values for Infant: 1 = No response 2 = Moans to pain 3 = Cries to pain 4 = Irritable cries 5 = Coos, babbles</p>
EDGCSMOTOR	<p>Imputed or original lowest Glasgow Motor component in ED</p> <p>Imputation rule for missing values: GCS Motor = 1 when GCS Total = 3; GCS Motor = 6 when GCS Total = 15 GCS Motor = GCS Total minus the sum of GCS Eye and GCS Verbal</p>	N	10	<p>Values for Adults (>5 yr old): 1 = None 2 = Extensor posturing in response to painful stimulation 3 = Flexor posturing in response to painful stimulation 4 = General withdrawal in response to painful stimulation 5 = Localization of painful stimulation 6 = Obeys commands with appropriate motor response</p> <p>Values for Infants and Children: 1 = None 2 = Abnormal flexion (decerebrate) 3 = Abnormal flexion</p>

Field Name	Definition	Data Type	Length	Standard Option
				(decerebrate) 4 = Withdraws to pain 5 = Withdraws to touch 6 = Normal spontaneous movement
EDGCSTOTAL	Imputed or original Glasgow Coma Scale Total in ED Imputation rule for missing values: GCS Total = sum of GCS Eye, GCS Motor, and GCS verbal	N	10	Any integer between 3 and 15
FIMFEED	Imputed or Original FIM Self-feeding Score at discharge Imputation rule for missing values: FIM Feeding = 1 when FIM Total = 3; FIM Feeding = 4 when GCS Total = 12 FIM Feeding = FIM Total minus the sum of FIM Locomotion and FIM Express	N	10	1 = Dependent–Total Help Required 2 = Dependent–Partial Help Required 3 = Independent with Device 4 = Independent 8 = Not Applicable (e.g., < 7 yr old or died)
FIMLOCOMT	Imputed or original FIM Locomotion Score at discharge Imputation rule for missing values: FIM Locom = 1 when FIM Total = 3; FIM Locom = 4 when GCS Total = 12 FIM Locom = FIM Total minus the sum of FIM Feeding and FIM Express	N	10	1 = Dependent–Total Help Required 2 = Dependent–Partial Help Required 3 = Independent with Device 4 = Independent 8 = Not Applicable (e.g., < 7 yr old or died)
FIMEXPRESS	Imputed or original FIM Expression Score at discharge Imputation rule for missing values: FIM Express = 1 when FIM Total = 3; FIM Express = 4 when GCS Total = 12 FIM Express = FIM Total minus the sum of FIM Feeding	N	10	1 = Dependent–Total Help Required 2 = Dependent–Partial Help Required 3 = Independent with Device 4 = Independent 8 = Not Applicable (e.g., < 7 yr old or died)

Field Name	Definition	Data Type	Length	Standard Option
	and FIM Locomotion			
FIMTOTAL	Imputed or original Total FIM Score Imputation rule for missing values: FIM Total = sum of FIM Feeding, FIM Locomotion, and FIM Express	N	10	Any integer between 1 and 12

File Name: INTUB

Definition: Information about intubation performed either at the scene or in the ED.

Frequency: Unlimited number of records per incident record.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
INTUB_LOC	Location where intubation took place	C	16	"Scene," "ED"
INTUB_TYPE	Intubation type; indicates the type of mechanical or surgical airway placed	C	35	"Cricothyrotomy," "ETT Route Not Recorded," "Nasal ETT," "No Airway Placed," "Not Done/Not Documented," "Oral ETT," "Tracheostomy," "Tracheostomy/ Cricothyrotomy," "Unintentional Esophageal Intubation"

File Name: MECHDESC

Definition: Look-up table for the mechanism of injury.

Frequency: One record per mechanism code.

Field Name	Definition	Data Type	Length	Standard Option
ECODE	External-cause-of-injury code	C	5	
PASSENGER	Indicates if patient was passenger	C	1	"Y"
DESCR	E code description	C	254	
MECH_CDC	CDC external cause of injury	C	50	Shown in Appendix C
INTENT	Intent of injury	C	30	"Assault," "Other," "Self-Inflicted," "Undetermined," "Unintentional"

File Name: PREHPROC

Definition: Information pertaining to the procedure prior to arriving at the hospital.

Frequency: Unlimited per incident record.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
PREHOSPPRO	Information pertaining to the pre-hospital procedure information	C	50	

File Name: PROCEDUR

Definition: Information pertaining to the procedure performed for a trauma incident.

Frequency: Unlimited per incident record.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
PCODE	ICD-9-CM code of Procedure; the ICD-9-CM code that describes the procedure	C	7	
YOPROC	Year the patient underwent the operation or procedure	N	15	
PROC_TIME	The time the patient underwent the operation or procedure	C	5	
DAYTOPROC	The number of days after ED arrival the procedure was done	N	15	DAYTOPROC is 0 for procedures occurring on same day as ED arrival
HOURTOPRO	The number of hours within ED arrival that procedure was done	N	15	Calculated hours are rounded up to closest integer

File Name: PROCEDUREDESC

Definition: Look-up table for the procedure performed for a trauma incident.

Frequency: One record per procedure record.

Field Name	Definition	Data Type	Length	Standard Option
PCODE	The ICD-9-CM code that describes the procedure	C	7	
PCODEDESCR	Description pertaining to the ICD-9-CM Code of Procedure	C	255	

File Name: SAFETY

Definition: Information pertaining to the safety equipment used/worn at injury.

Frequency: Unlimited per incident record.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key	N	10	
SAFETY_DES	Safety equipment used; identifies the protective/safety device(s) in use at injury	C	25	

File Name: SCENE

Definition: Includes information pertaining to the scene of the trauma incident.

Frequency: One record per incident.

Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident key (primary key to identify an incident)	N	10	
YOINJ	Year of injury	N	5	
INJURYCOU	Country in which injury occurred	C	30	
HOSPTRANS	Inter-hospital transfer	C	50	"Emergency: NOS" "Emergency: Trauma Level 1" "Emergency: Trauma Level 2" "Emergency: Trauma Level 3" "Emergency: Trauma Level 4" "Inpatient: Acute/Rehabilitation Facility" "Home Health: NOS"
WORKREL	Work relatedness of injury	C	15	3 = Paid Work (work related) 4 = Unpaid Work (non-work related) 99 = Unknown

INJURYSITE	Site at which injury occurred	C	50	Home Farm Mine and Quarry Industrial Places and Premises Place for Recreation and Sport Street and Highway Public Building Residential Institution Other Specified Places Unspecified Places
SCENEEYE	Lowest Glasgow Eye component at the scene	N	10	Values for Adults (>5 yr old): 1 = None 2 = Pain 3 = Voice 4 = Spontaneous Values for Children and Infants: 1 = No response 2 = Pain 3 = Verbal stimuli 4 = Spontaneous
SCENEGCSAQ	GCS Assessment Qualifier at the scene	C	27	"L" = Initial GCS components at scene are legitimate values, without interventions such as intubation and sedation; "S" = Patient chemically sedated when initial GCS components assessed at scene; "T" = Patient intubated when GCS components assessed at scene; "TP" = Patient intubated and chemically paralyzed when GCS components assessed at scene
SCENETOTAL	Glasgow Coma Scale Total at the scene	N	10	Any integer between 3 and 15
INJURYTYPE	Injury type	C	10	"Blunt," "Burn," "Penetrating"
FAC_KEY	Facility Key	N	10	

File Name: WEIGHTS

Definition: The final weights and strata indicators for each incident.

Frequency: One record per incident.

File Information Record				
Field Name	Definition	Data Type	Length	Standard Option
INC_KEY	Incident Key; this field is the primary key to identify an incident in the incident record	N	8	
STRATA	Stratification variable	N	8	1 = NTDB, Level I, Northeast 2 = NTDB, Level II, Northeast 3 = NTDB, Level I, South 4 = NTDB, Level II, South 5 = NTDB, Level I, Midwest 6 = NTDB, Level II, Midwest 7 = NTDB, Level I, West 8 = NTDB, Level II, West 9 = non-NTDB, Level I, Northeast 10 = non-NTDB, Level II, Northeast 11 = non-NTDB, Level I, South 12 = non-NTDB, Level II, South 13 = non-NTDB, Level I, Midwest 14 = non-NTDB, Level II, Midwest 15 = non-NTDB, Level I, West 16 = non-NTDB, Level II, West
WEIGHTS	Weights	N	8	
FAC_KEY	Facility Key (primary key to identify a facility)	N	8	

EDIT FLAGS FOR NTDB DATA

Flag No	Data Field	Edit Check
0	Valid Trauma Diagnosis Code (ICD-9 Code or AISCODE)	ALL PATIENTS WITH ICD-9-CM DISCHARGE DIAGNOSIS 800.00–959.9, EXCLUDING 905-909, 910-924, AND 930-939. OR ANY NON-MISSING AIS CODE.
A	Date of Birth	Year of Birth must be non-missing and less than or equal to Date of Admission. Year of Birth plus 120 must not be greater than Year of Admission.
B	Gender	Gender must be non-missing and Male or Female.
C	E-Code	The E-code record must be non-missing and cannot be E849.x.
D	Injury Severity Score	ISS must be non-missing, an integer between 0 and 75, and the sum of three squares.
E	Length of Stay	Length of Stay must be non-missing and an integer between 0 and 364.
F	Discharge Disposition/Discharge Status	Discharge Disposition and Discharge Status must be non-missing and consistent (Alive/Died). Records with Discharge Disposition of “Other” or “Unknown” are not flagged.
G	Hospital Length of Stay < ICU Length of Stay	The Length of ICU Stay must be non-missing and less than or equal to the Hospital Length of Stay.
H	Year of Admission	Year of Admission must be non-missing and greater than or equal to 1993.
I	Date of Injury	Date of Injury must be non-missing and less than or equal to Date of Admission.
J	ED Arrival Time	ED Arrival Time must be non-missing, based on a 24-hour clock from 00:00 to 23:59, and with valid entries for hour and minute.
K	Initial ED Systolic Blood Pressure	Initial ED Systolic Blood Pressure must be non-missing and an integer between 0 and 299.
L	Initial ED Respiratory Rate	Initial ED Respiratory Rate must be non-missing and an integer between 0 and 59.
M	ED Disposition	If ED disposition is equal to DOA, then final hospital disposition must be DOA and must have Initial ED Systolic Blood Pressure = 0, Initial ED Respiratory Rate = 0. In addition, missing ED dispositions are flagged.
N	Discharge or Death Date	Date of Discharge or Death must be non-missing and greater than or equal to Date of Admission.

Flag No	Data Field	Edit Check
O	Lowest Glasgow Coma Scale Eye Component in ED	Glasgow Coma Scale Eye component must be non-missing and an integer between 1 and 4.
P	Lowest Glasgow Coma Scale Verbal Component in ED	Glasgow Coma Scale Verbal component must be an integer between 1 and 5. If Glasgow Coma Scale qualifier indicates patient intubated, then GCS Verbal must be missing. However, if qualified does not indicate patient intubated, then missing will be flagged.
Q	Lowest Glasgow Coma Scale Motor Component in ED	Glasgow Coma Scale Motor component must be non-missing and an integer between 1 and 6.
R	Glasgow Coma Scale Qualifier	Glasgow Coma Scale qualifier must be non-missing and equal to T (intubated), TP (intubated and chemically paralyzed), S (chemically sedated), or L (legitimate value).
S	Number of Days to Admission	Number of Days to Admission must be non-missing and an integer between 0 and 30.
T	Probability of Survival	Probability of Survival must be non-missing and a value between 0 and 1.
U	Ventilator Days	Ventilator Days must be non-missing and less than or equal to the Hospital Length of Stay.
V	FIM Locomotion Score at Discharge	FIM Locomotion Score must be non-missing and an integer between 0 and 4.
W	FIM Expression Score at Discharge	FIM Expression Score must be non-missing and an integer between 0 and 4.
X	FIM Score Total at Discharge	Total FIM must be non-missing and an integer between 1 and 12.
Y	FIM Self-feeding Score at Discharge	FIM Self-feeding Score must be non-missing and an integer between 0 and 4.
Z	Glasgow Coma Scale Total	Glasgow Coma Scale Total must be non-missing and the sum of Glasgow Coma Scale Eye, Verbal, and Motor components. If one of the components is missing, then the value is flagged because the total score is invalid.

GROUPING FOR PRESENTING INJURY MORTALITY AND MORBIDITY DATA (FEBRUARY 2007)

This matrix contains the ICD-9-CM external-cause-of-injury codes used for coding of injury mortality data and additional ICD-9-CM external-cause-of-injury codes, designated in bold, only used for coding of injury morbidity data. Further details and access to SAS input statements set up to define these groupings can be found at <http://www.cdc.gov/ncipc/osp/matrix2.htm>.

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
Cut/pierce	E920.0-.9	E956	E966	E986	E974
Drowning/submersion	E830.0-.9, E832.0-.9 E910.0-.9	E954	E964	E984	
Fall	E880.0-E886.9, E888	E957.0-.9	E968.1	E987.0-.9	
Fire/burn ³	E890.0-E899, E924.0-.9	E958.1,.2,.7	E961, E968.0,.3, E979.3	E988.1,.2,.7	
Fire/flame ³	E890.0-E899	E958.1	E968.0, E979.3	E988.1	
Hot object/substance	E924.0-.9	E958.2,.7	E961, E968.3	E988.2,.7	
Firearm ³	E922.0-.3,.8,.9	E955.0-.4	E965.0-4, E979.4	E985.0-.4	E970
Machinery	E919 (.0-.9)				
Motor vehicle traffic ^{2,3}	E810-E819 (.0-.9)	E958.5	E968.5	E988.5	
Occupant	E810-E819 (.0,.1)				
Motorcyclist	E810-E819 (.2,.3)				
Pedal cyclist	E810-E819 (.6)				
Pedestrian	E810-E819 (.7)				
Unspecified	E810-E819 (.9)				

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
Pedal cyclist, other	E800-E807 (.3) E820-E825 (.6), E826.1,.9 E827-E829(.1)				
Pedestrian, other	E800-807(.2) E820-E825(.7) E826-E829(.0)				
Transport, other	E800-E807 (.0,.1,8,.9) E820-E825 (.0- .5,.8,.9) E826.2-.8 E827-E829 (.2-.9), E831.0-.9, E833.0- E845.9	E958.6		E988.6	
Natural/ environmental	E900.0-E909, E928.0-.2	E958.3		E988.3	
Bites and stings³	E905.0-.6,.9 E906.0-.4,.5,.9				
Overexertion	E927				
Poisoning	E850.0-E869.9	E950.0- E952.9	E962.0-.9, E979.6,.7	E980.0-E982.9	E972
Struck by, against	E916-E917.9		E960.0; E968.2		E973, E975
Suffocation	E911-E913.9	E953.0-.9	E963	E983.0-.9	

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
Other specified and classifiable³	E846-E848, E914-E915 E918, E921.0-.9, E922.4,.5 E923.0-.9, E925.0-E926.9 E928(.3-.5) , E929.0-.5	E955.5,. 6 , .7,.9 E958.0,.4	E960.1, E965.5-.9 E967.0-.9, E968.4,. 6 , .7 E979 (.0-.2,.5,.8,.9)	E985.5,. 6 ,.7 E988.0,.4	E971, E978, E990-E994, E996 E997.0-.2
Other specified, not elsewhere classifiable	E928.8, E929.8	E958.8, E959	E968.8, E969, E999.1	E988.8, E989	E977, E995, E997.8 E998, E999.0
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
All injury³	E800-E869, E880-E929	E950-E959	E960- E969, E979 , E999.1	E980-E989	E970-E978, E990-E999.0
<hr/>					
Adverse effects					E870-E879 E930.0-E949.9
Medical care					E870-E879
Drugs					E930.0-E949.9
All external causes					E800-E999

¹Includes legal intervention (E970-E978) and operations of war (E990-E999).

²Three 4th-digit codes (.4 [occupant of streetcar], .5 [rider of animal], .8 [other specified person]) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle traffic category, the sum of these categories can be derived by subtraction.

³Codes in bold are for morbidity coding only.

THE BARELL INJURY DIAGNOSIS MATRIX, CLASSIFICATION BY BODY REGION AND NATURE OF INJURY

This matrix contains the ICD-9-CM diagnosis classification. Further details on these groupings can be found at: <http://www.cdc.gov/nchs/about/otheract/ice/barellmatrix.htm>

The Barell Matrix

The Barell Injury Diagnosis Matrix, Classification by Body Region and Nature of the Injury

based on 5 digit ICD-9 CM codes

		A	B	C	D	E	F	G	H	I	J	K	L	
	ICD-9-CM codes	FRACTURE	DISLOCATION	SPRAINS & STRAINS	INTERNAL	OPEN WOUND	AMPUTATIONS	BLOOD VESSELS	CONTUSION / SUPERFICIAL	CRUSH	BURNS	NERVES	UNSPECIFIED	
		800-829	830-839	840-848	850-854,860-869	870-884, 890-894	885-887, 895-897	900-904	910-924	925-929	940-949	950-951, 953-957	959	
11 Traumatic Brain Injury	Type 1 TBI	800,801,803,804(1-4, 8-9), (03-05, 03-55) 850(2-4), 851-854, 950(1-3), 955-956	/	/	850(2-4) 851-854*, 955-956	/	/	/	/	/	/	950,1-3	/	
	Type 2 TBI	800,801,803,804(00, 02, 06, 09), (50, 52, 56, 59), 850(0, 1, 5, 9)	/	/	850(0, 1, 5, 9)	/	/	/	/	/	/	/	/	
	Type 3 TBI	800,801,803,804(01, 51)	/	/	/	/	/	/	/	/	/	/	/	
	Other Head	873(0-1, 8-9), 941-x5, 951, 959,01	/	/	/	/	873 0-1, 8-9	/	/	/	/	941-x5	951	959,01*
	Face	802, 830, 848,0-1, 872, 873,2-7, 941(x1, x3-x5, x7)	802	830	848,0-1	/	872, 873,2-7	/	/	/	/	941,x1, x3-x5, x7	/	/
	Eye	870-871, 918, 921, 940, 941-x2, 950(0, 9)	/	/	/	/	870-871	/	/	918, 921	/	940, 941-x2	950(0,9)	/
	Neck	807 5-6, 848,2, 874, 925,2, 941-x8, 953,0, 954,0	807 5-6	/	848,2	/	874	/	/	/	925,2	941-x8	953,0, 954,0	/
	Head, Face and Neck Unspecified	900, 910, 920, 925,1, 941-x0, -x6, 947,0, 957,0, 959,09	/	/	/	/	/	/	900	910, 920	925,1	941-x0, -x6, 947,0	957,0	959,09
	Cervical SCI	806(0-1), 952,0	806,0-1	/	/	952,0	/	/	/	/	/	/	/	/
	Thoracic Dorsal SCI	806(2-3), 952,1	806,2-3	/	/	952,1	/	/	/	/	/	/	/	/
Lumbar SCI	806(4-5), 952,2	806,4-5	/	/	952,2	/	/	/	/	/	/	/	/	
Sacrum Coccyx SCI	806(6-7), 952(3-4)	806,6-7	/	/	952,3-4	/	/	/	/	/	/	/	/	
Spine Back Unspecified SCI	806(8-9), 952(8-9)	806,8-9	/	/	952,8-9	/	/	/	/	/	/	/	/	
Cervical VCI	805(0-1), 839(0-1), 847,0	805,0-1	839,0-1	847,0	/	/	/	/	/	/	/	/	/	
Thoracic Dorsal VCI	805(2-3), 839(21, 31), 847,1	805,2-3	839,21, 31	847,1	/	/	/	/	/	/	/	/	/	
Lumbar VCI	805(4-5), 839(30, 30), 847,2	805,4-5	839,30, 30	847,2	/	/	/	/	/	/	/	/	/	
Sacrum Coccyx VCI	805(6-7), 839(41-42), 839(51-52), 847,3-4	805,6-7	839(41-42, 51-52)	847,3-4	/	/	/	/	/	/	/	/	/	
Spine Back Unspecified VCI	805(8-9), 839(40, 40), 839(50, 50)	805,8-9	839(40, 40, 50, 50)	/	/	/	/	/	/	/	/	/	/	
Chest (Thorax)	807(0-4), 839(61, 71), 848(3-4), 850-852, 875, 879(0-1), 901, 922(0-1, 33), 926,10, 942-x1-x2, 953,1	807,0-4	839,61,71	848,3-4	850-852	875, 879,0-1	/	901	922(0, 1, 33)	926,10	942-x1-x2	953,1	/	
Abdomen	863-866, 868, 879(2-5), 902(0-4), 922,2,942-x3, 947,3, 953(2, 5)	/	/	/	863-866, 868	870,2-5	/	902,0-4	922,2	/	942-x3, 947,3	953,2, 953,5	/	
Pelvis	808, 839(69, 79), 846, 848,5, 867,877-878	808	839,69, 79	846, 848,5	867	877-878	/	902(5, 81-82)	922,4	926(0, 12)	942-x5, 947,4	953,3	/	
Urogenital	902(5, 81-82), 922,4, 926(0, 12), 942-x5,947,4, 953,3	/	/	/	/	/	/	/	/	/	/	/	/	
Trunk	809, 879(6-7), 911, 922(8-9), 926(8-9), 942(-x0, -x5), 954(1, 8-9), 959,1	809	/	/	/	879,6-7	/	/	911, 922,8-9	926,8-9	942-x0, 942-x9	954,1, 8-9	959,1	
Back and Buttock	847,9, 876, 922(31-32), 926,11, 942-x4	/	/	847,9	/	876	/	/	922,31-32	926,11	942-x4	/	/	
Shoulder & upper arm	810-812, 831, 840, 880, 887(2-3), 912,923,0, 927,0, 943(x3-x9), 959,2	810-812	831	840	/	880	887,2-3	/	912, 923,0	927,0	943,x3-x9	/	959,2	
Forearm & elbow	813, 832, 841, 891(x0-x1), 897(0-1), 923,1, 927,1, 943(x1-x2)	813	832	841	/	891-x0-x1	897,0-1	/	923,1	927,1	943,x1-x2	/	/	
Wrist, hand & fingers	814-817, 833-834, 842,881-x2, 882, 883, 885-886, 914-915, 923(2-3), 927(2-3), 944, 959(4-5)	814-817	833, 834	842	/	881-x2,882, 883	/	/	914-915,	927,2-3	944	/	959,4-5	
Other & unspecified	818, 884, 887(4-7), 903, 913, 923(8-9), 927(8-9), 943(x0, x9), 953,4, 955, 959,3	818	/	/	/	884	887,4-7	903	913,923,8,9	927,8-9	943,x0,x9	953,4, 955	959,3	
Hip	820, 835, 843, 924,01, 928,01	820	835	843	/	/	/	/	924,01	928,01	/	/	/	
Upper leg & thigh	821, 897(2-3), 924,00, 928,00, 945-x6	821	/	/	/	/	897,2-3	/	924,00	928,00	945-x6	/	/	
Knee	822, 836, 844(0-3), 924,11, 928,11, 945-x5	822	836	844,0-3	/	/	/	/	924,11	928,11	945-x5	/	/	
Lower leg & ankle	823-824, 837, 845,0, 897(0-1), 924(10, 21), 926(10, 21), 945(x3-x4)	823-824	837	845,0	/	/	897,0-1	/	924,10,21	926,10,21	945-x3-x4	/	/	
Foot & toe	825-826, 838, 845,1, 892-893, 895-896, 917, 924(3, 20), 928(3, 20), 945(x1-x2)	825-826	838	845,1	/	892-893	895-896	/	917, 924(3, 20)	928(3, 20)	945-x1-x2	/	/	
Other & unspecified	827,841(8-9), 890-891, 894, 897(4-7), 904(0-8), 916, 924(4-5), 928(8-9), 945(x0, x9), 959,6-7	827	/	844,8-9	/	890-891,894	897,4-7	904,0-8	916, 924,4-5	928,8,9	945-x0,x9	/	959,6-7	
Other/multiple	819, 828, 902(87, 89), 947(1-2), 953,8, 956	819, 828	/	/	/	/	/	902,87, 89	/	/	947,1-2	953,8, 956	/	
Unspecified	829, 839(8-9), 845(8-9), 869, 879(8, 9), 902,9, 904,9, 919, 924(8,9), 929, 946, 947(8,9), 948, 949, 953,9, 957(1, 8,9), 959(8,9)	829	839,8-9	848,8-9	869	879(8,9)	/	902,9, 904,9	919, 924,8,9	929	946, 947,8,9	953,9, 957,1,8,9	959,8,9	
System-wide & late effects	905-908, 909(0, 1, 2, 4, 9), 930-939,959, 990-994, 995,00-54, 59, 995(89-89)	Foreign body (903-939); Early complications of trauma (956); Poisoning (960-979); Toxic Effects (980-985); Other and unspecified effects of external cause (990-994) Child and adult maltreatment (995,00-54, 59, 995,80-85)												
		Late effects of injuries, poisonings, toxic effects and other external causes (995-999) excluding 909(3, 5)												

Special diagnosis codes for trauma: Flail Chest (807.4) Pneumothorax (860)

For purposes of classification, head injuries are labeled as Type 1 TBI if there is recorded evidence of an intracranial injury or a moderate or a prolonged loss of consciousness (LOC), Shaken Infant Syndrome (SIS), or injuries to the optic nerve pathways.

Type 2 TBI includes injuries with no recorded evidence of intracranial injury, and LOC of less than one hour, or LOC of unknown duration, or unspecified level of consciousness. Type 3 TBI includes patients with no evidence of intracranial injury and no LOC.

* Note from CDC: 959.01 (added to ICD-9-CM in 1997) is not intended to be assigned to TBI cases; however, in the USA it has been assigned incorrectly to a substantial proportion of cases previously coded 854.

The Matrix is available on the net at www.cdc.gov/nchs/about/otheract/ice/barellmatrix.htm

COMPLICATIONS CODING IN THE NTDB

Below is a list of complications as defined by the Committee on Trauma Quality Improvement Subcommittee. Each complication has been tagged with its identifying code, which is used in field position 2 in the *Incident Complication Record*. If your system records complications in another format (e.g., Boolean Y/N fields), please translate each complication present for a patient incident to an *Incident Complication Record* that contains the appropriate complication code as defined in the table below.

COT Complication Name	File Format Complication Code	Definition	Related ICD-9-CM Codes
Acute Respiratory Distress Syndrome (ARDS)	"ARDS"	PaO ₂ /fI _O ₂ ≥ 200, decreased compliance, diffuse pulmonary infiltrates associated with normal capillary wedge pressure in an appropriate setting. "Decreased compliance" is defined as abnormal per criteria established by institution.	518.5
Aspiration Pneumonia	"ASPP"	History of aspiration of gastric contents followed by clinical and new radiologic findings of pneumonitis within 48 hours.	507
Bacteremia	"BACT"	Any positive blood culture (<i>not</i> contaminants).	790.7
Cardiac Arrest	"CARA"	Sudden cessation of cardiac activity <i>after arrival</i> in ED, resulting in deprivation of sufficient oxygen to maintain viability of heart and brain.	427.5
Coagulopathy	"COAG"	Uncontrolled diffuse bleeding in the presence of coagulation abnormalities, e.g., increased PT or PTT, decreased platelets, or DIC.- requires treatment.	286.6

COT Complication Name	File Format Complication Code	Definition	Related ICD-9-CM Codes
Compartment Syndrome	"COMS"	Clinical evidence of increased compartment pressure with or without development of sensory or motor deficit not present on admission in a patient following blunt or penetrating extremity injury.	958.8
DVT (Lower Extremity)	"DVTL"	Venous thrombosis proximal to or involving popliteal vein confirmed by autopsy, venogram, duplex scan, or non-invasive vascular evaluation.	453.8
Dehiscence/+Evisceration	"DEEV"	Breakdown of fascial closure confirmed by discharge of peritoneal fluid, evisceration, or palpable fascial defect.	998.3
Disseminated Fungal Infection	"DFUI"	Clinical picture of sepsis with isolation of fungus from the blood, <i>or</i> two or more non-hematogenous sites, <i>or</i> tissue biopsy, <i>or</i> positive fundoscopic findings.	117.9
Empyema	"EMPY"	Positive culture of purulent material from pleural space requiring thoracostomy tube drainage.	510.9
Esophageal Intubation	"ESOP"	Endotracheal tube in esophagus and not immediately repositioned. Esophageal location determined by physical examination, x-ray, capnography, or endoscopy.	
Hypothermia	"HPOT"	Temperature \leq 35 C.	780.9

COT Complication Name	File Format Complication Code	Definition	Related ICD-9-CM Codes
Intra-Abdominal Abscess	"INAA"	Localized collection of purulent material in the abdominal cavity confirmed by Gram stain or culture.	682.2
Jaundice	"JAUN"	Total bilirubin \geq 2.5 and AST or ALT greater than twice normal.	774.4
Loss of Operative Reduction/Fixation	"LORF"	Configuration of reduced fracture changed enough to warrant reoperative reposition of fragments.	
Myocardial Infarction	"MYCI"	Acute, irreversible myocardial injury and necrosis documented by increased CK-MB isoenzyme and serial T wave, S-T segment; or Q wave ECG changes; or a diagnostic radionuclide scan.	410.9
Pancreatitis	"PANC"	Any hyperamylasemia associated with ultrasound or CT findings compatible with pancreatic inflammation.	577.0
Pneumonia	"PNEU"	Presence of fever, leukocytosis, Gram stain of sputum with a predominant organism and white blood cells, chest radiograph with a pneumonic infiltrate, and culture of sputum demonstrating a pathogen.	482.9
Pneumothorax	"PNTH"	Presence of intra-pleural air.	512.99

COT Complication Name	File Format Complication Code	Definition	Related ICD-9-CM Codes
Progression of Original Neurologic Insult	"PONI"	Deterioration of additional loss of function from that noted on arrival in ED.	
Pulmonary Embolus	"PEMB"	Embolus to the lungs documented by arteriography, nuclear scan, or autopsy.	415.1
Renal Failure	"RENF"	Creatine \geq 3.5 mg/dl or BUN \geq 100 mg/dl.	584.8
Skin Breakdown	"SKBD"	Contact pressure–induced skin breakdown.	707
Urinary Tract Infection	"UNTI"	Clean voided or catheter urine specimen with \geq 10 WBC/hpf or \geq 50K organisms/ml on C/S.	any 599
Wound Infection	"WNDI"	Drainage of purulent material from wound or active treatment of the wound, including opening a closed wound or antibiotics for the wound.	958.3

PRE-EXISTING COMORBIDITY FACTORS IN NTDB

Below is the list of factors that are applicable for the *Incident Pre-Existing Comorbidity Factors* record (*I-COMBDTY*). ICD-9-CM codes are listed for each comorbid factor. These codes are provided in the event that your system records comorbidities in the form of ICD-9-CM codes. If this is the case, please translate each comorbid ICD-9-CM code (if present for the patient incident) to create a *Pre-Existing Comorbidity Factors* record with the associated Data Submission File Format code as indicated in the first column.

Code	Name	Related ICD-9-CM Codes
A.01	History of Cardiac Surgery	V45.0, P35.00-39.99, V42.1, V42.2, V42.2, V43.3
A.02	Coronary Artery Disease	414.9, 414.0
A.03	Congestive Heart Failure	428.0, 425.0-425.9
A.04	Cor Pulmonale	416.8, 415.0, 416.9
A.05	Myocardial Infarction	410.0-412.0, 428, 429.0-429.3, 429.8, 429.9
A.06	Hypertension	any 401, 402.00, 402.10, 402.90
B.01	Insulin Dependent	250 (5 th digit assignment for each comorbid factor)
B.02	Non-Insulin Dependent	250 (5 th digit assignment for each comorbid factor)
C.01	Peptic Ulcer Disease	any 533
C.02	Gastric or Esophageal Varices	456.0-456.2
C.03	Pancreatitis	577.0
C.04	Inflammatory Bowel Disease	558.9
D.01	Acquired Coagulopathy	286.7
D.02	Coumadin Therapy	
D.03	Hemophilia	286.0-286.4
D.04	Pre-existing Anemia	285.0, 285.8, 285.9
E.00	History of Psychiatric Disorders	any V11, V40.2

Code	Name	Related ICD-9-CM Codes
F.01	HIV/AIDS	079.53
F.04	Active Chemotherapy	V58.1
G.01	Bilirubin > 2 mg % (on Admission)	
G.02	Documented History of Cirrhosis	571.2, 571.5
H.01	Undergoing Current Therapy	
H.02	Concurrent or Existence of Metastasis	
I.01	Rheumatoid Arthritis	714.0-714.9
I.02	Systemic Lupus Erythematosus	710.0
J.01	Spinal Cord Injury	any 806, 952-954
J.02	Multiple Sclerosis	340
J.03	Alzheimer's Disease	290.0-290.13, 331.0
J.04	Seizures	780.3
J.05	Chronic Demyelinating Disease	341.0-341.9
J.06	Chronic Dementia	290.10
J.07	Organic Brain Syndrome	310.9
J.08	Parkinson's Disease	332.0
J.09	CVA/Hemiparesis (Stroke with Residual)	342.0-342.9
K.00	Obesity	278.00-278.01
L.01	Documented Prior History of Pulmonary Disease with Ongoing Active Treatment	
L.02	Asthma	493.0-493.9
L.03	Chronic Obstructive Pulmonary Disease	493.2, 496
L.04	Chronic Pulmonary Condition	496
M.01	Serum Creatinine > 2 mg % (on Admission)	
M.02	Dialysis (Excludes Transplant Patients)	V56.0, V45.1, V56.8

Code	Name	Related ICD-9-CM Codes
N.01	Chronic Drug Abuse	304.0-304.9
N.02	Chronic Alcohol Abuse	303.9
P.00	Pregnancy	any V22