
2017

Pennsylvania Trauma Systems Foundation
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Preface

This operations manual is intended to be a tool to orient users of the Pennsylvania Outcomes and Performance Improvement Measurements System (POPIMS) and a reference for the more experienced user. An accompanying document to be used in conjunction with this POPIMS manual is the PI Taxonomy Module users document. The PI Taxonomy Module works directly with your existing POPIMS software to support the collection needs of the JCAHO patient safety event taxonomy.

An ad hoc POPIMS Standardization Committee was formed in 2006 and tasked with standardizing data entry and the process used to classify deaths and complications. This committee reports to the Chairman of the Outcomes Committee.

Following is the mission statement of the committee:

**THE COMMITTEE GOALS ARE TO:**

- Identify and focus on outcomes in injured patients
- Enhance a standard database that will identify factors that impact the outcomes selected
- Facilitate data entry and the ability to share outcome data with other trauma centers to improve care.
- Utilize the outcomes database to improve the site survey process, recognizing that concurrent review is best practice
- Establish inter rater reliability as a goal among participating centers, including education and performance improvement
- Identify death rates, based on judgment status, for specific injury complexes to reduce morbidity and mortality

We recognize the continued effort of the Pennsylvania Accredited Trauma Centers to collect accurate and complete data. We welcome any questions or comments to this document. Your input and experience allows this project to grow and succeed in affecting patient care.

This document has been updated and reviewed as a result of the tireless efforts by those serving on the POPIMS Standardization Committee.
Patient Selection Criteria for Inclusion

All trauma cases are populated into the POPIMS software. This ensures that when a user generates a report, the denominator or ‘N’ is available for the calculations. The required variables to be completed are listed below and require responses in the POPIMS software.

It is recommended that patients meeting the following criteria be reviewed. At minimum, consider reviewing negative outcomes.

<table>
<thead>
<tr>
<th>All Deaths</th>
<th>Including dead on arrival (DOA), deaths in the ED and death during any portion of the hospital stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurrences</td>
<td>As defined by the COLLECTOR Operations Manual (See Appendix A for definitions)</td>
</tr>
<tr>
<td>Audit Filters</td>
<td>As defined by the COLLECTOR Operations Manual. This would include ACS and Joint Commission Audit Filters (See Appendix B for definition)</td>
</tr>
<tr>
<td>Opportunities for Improvement</td>
<td>Deviations in care as defined by the POPIMS ad Hoc Committee. (See Appendix C for definitions)</td>
</tr>
<tr>
<td>User Defined Issues</td>
<td>Defined by the institution as being a deviation in care or another quality parameter (such as tracking new protocol) to assist in identifying ongoing care related issues.</td>
</tr>
</tbody>
</table>

Section 1: Patient Information

Data in this section are automatically downloaded from the data in the Trauma Registry. Refer to current PTOS COLLECTOR Manual. However, this information is refreshed each time you run the Collector interface. If you want to maintain any special information that should not be written over during a rerun of the interface, put it in the Additional Case Summary Comments in the Case Management Section. Also, text noted in blue are the data points to be submitted as part of the Central Site Submission Trial.

In the opening screen, there are two tabs. The Search Criteria tab allows for searches based on name, medical record, or trauma number. The exact match field was created to select records based on the exact spelling only, and will be displayed by the most recent admission. Records can also be searched based on issues, loop closure, and meeting dates. When entering meeting information, The Meeting Default tab allows users to enter meeting, date, and attendees. This can be helpful when entering multiples cases after an M&M meeting for example. *Once you have entered your search criteria and in the ‘Select Record’ screen, you have the ability to change the size of this selection box. Use the mouse and place the cursor on the corner of the box. By dragging the cursor, you can increase and decrease the size of this box to your specifications. The changes made will be saved for future use.*

Patient Information

- **Flag Record:** This allows users to track, identify, and/or target cases currently being worked on. The ‘Flag Record’ field was implemented with a user defined menu that will hold up to nine unique menu choices or types of flags. The following generic menu choices were added as a
starting point. These menu choices can be changed/edited by the user to meet the needs at each facility.

- 1, Follow-Up
- 2, Re-evaluation
- 3, For Next Review

- **Institution #:** Four digit number assigned by the Pennsylvania Trauma Outcome Study to each participating hospital.
- **Trauma #:** Eight digit number assigned by the hospital submitting the data form for each qualifying patient. The first four digits will represent the current year (year of ED admission) with the remaining digits determined by consecutive sequence numbering.
- **Linkage #:** The linkage number is used to identify a patient if the medical record number is changed or deleted.
- **PTOS Patient:** Is the patient a PTOS patient? Yes or No

**Demographics:**

- **Patient Name:** Patient’s Name – Last, First and Middle initial.
- **Occupation:** This is the patient’s occupation. *This is not a PTOS defined element.*
- **Age:** Record the age of the patient in one of the following: Year, Months, Days or Estimated in years
- **Date of Birth:** MM/DD/YYYY format
- **Sex:** Male or Female
- **Cause of Injury:** Mechanism of Injury appropriate for this patient’s cause of injury/accident. Refer to the current ICD-10 Coding Manual.
- **Type of Injury:** Record the force causing the injury: Blunt, Penetrating, or Burn. If there are two causes of injury, choose the mechanism of injury which caused the more severe injury. Example: patient was assaulted with fists (blunt) and stabbed (penetrating) resulting in a concussion and laceration of the lungs. Record as penetrating.
- **Specify:** Free text information about the injury to supplement E-code description.

- **Prehospital:**
  - List available Scene, Transport, or scene EMS number and name
  - Referral facility number and name

- **Admission:**
  - **Date Entered ED:**
  - **Time Entered ED:**
  - **ED Discharge Time:** The military time (24 hour clock) patient was discharged from the ED. This should be the time the patient is actually taken to the final destination from the ED. The nursing admission time should not be used as ED Discharge Time. If the time the patient actually left for their final destination is not documented, then “U”s should be used for ED Discharge Time. The physician’s admission order time should not be used as the patient’s ED discharge time. If patient goes to x-ray, then to OR, include time in x-ray as ED time. If the patient dies in the ED, ED discharge time should equal time of death.
     - If patient was a direct admission, record the admission date and time for both Date and Time Entered ED and ED Discharge Date and Time.
  - **Admitting Service:** The physician code assigned per institution.
  - **Post ED Destination:**
  - **Systolic Blood Pressure:** Admitting vital signs
Unassisted Respiratory Rate/Minute: Admitting vital signs

Glasgow Coma Score: Admitting vital signs
  - Eye Opening
  - Verbal Response
  - Motor Response

GCS Qualifiers: Identifies treatments given to the patient that may affect the first assessment of GCS. Matches NRDB Initial ED/Hospital GCS Assessment Qualifiers.

Pulse: Admitting vital signs

RTS: Revised Trauma Score is automatically calculated from the admitting Glasgow Coma Score, Systolic Blood Pressure and Respiratory Rate.

Intubated with Artificial Airway:
  - 1 = Patient has an artificial airway (nasotracheal, endotracheal, EOA, Cricothyroidotomy, needle or surgical).
  - 2 = Patient does not have an artificial airway

Controlled Respiratory Rate (Bagging or Ventilator): Yes or No

Admitting Physician: Attending who admitted the patient

Trauma Attending: Attending who evaluated the patient in the ED

Trauma Alert Level: Highest, Second Level, Third Level, Consult, or Unknown

Trauma Alert Change:

Alert Level After Change:

Discharge:
- Discharge Status: Alive or Dead
- Date/Time of Death/Discharge/Transfer
- Total Days in: ICU/Step Down/Hospital/Ventilator Days
- Discharge Destination: Number and name of facility. Also includes comments documented by the Registry about their destination or discharge.
- PTOS Registry Status: This is the status of the record as it exists in the PTOS trauma registry. This must be a closed status in order to close it in POPIMS.

MTP:
- MTP: Mass Transfusion Protocol Initiated Yes or No
- Location: This field needs completed in POPIMS.
- Initiated: Date/Time: This field needs completed in POPIMS.
- Administered: Date/Time: This field needs completed in POPIMS.

Diagnosis:
- ISS/TRISS/ASCOT/EOE: See further description under Anatomical Diagnosis Section
- Burn: 2nd, 3rd, Total, P(s) and Alt P(s)
- Complete list of diagnosis: May need to scroll down to see the full list

Trauma Registry Abstractor: The abstractor text will be imported from the Collectors “Misc” tab.

Response Times:
- Emergency Physician Arrival Date, Time and Response in Minutes
- Emergency Medicine Resident Arrival Date, Time, Response in Minutes, and PGY Level
- Attending Trauma Surgeon Arrival Date, Time and Response in Minutes:
- Senior Trauma Resident Arrival Date, Time, Response in Minutes and PGY Level
- Junior Trauma Resident Arrival Date, Time, Response in Minutes and PGY Level
Procedures
A complete list of procedures including the location (i.e. ED, ICU, or OR procedures), date, time, ICD-10 code, and performing service.

Anatomical Diagnosis
- **Anatomical Diagnoses**: See COLLECTOR Operational Manual for further explanation.
- **AIS Version**: AIS 90 or AIS 2005 (all centers converted to this in 2012)
- **ISS**: Injury Severity Score (ISS) is automatically calculated in the Trauma Registry only if the facility uses TRICODE or if the Trauma Registrar has entered this data.
- **TRISS**: combines RTS, ISS, patient age and type of injury (blunt or penetrating) to calculate P(s).
- **ASCOT**: (A Severity Characterization of Trauma): A TRISS-like model that relies on anatomic descriptors, ED physiologic status, age and mechanism to produce a predictive survival score.
- **EOE**: (Extended Outcome Evaluation): Derived P(s) (survival probability) used when one or more physiologic values, normally used for TRISS, are missing. Whether or not the patient is intubated at the time of the vital signs impacts which EOE set the patient is placed in for determining the survival probability. See the PTOS quarterly reports for an explanation of the EOE sets.
- **Total BSA**: Total Burn Surface Area calculations based on diagnoses entered into Collector. Includes percent of 2\textsuperscript{nd}, 3\textsuperscript{rd}, 2/3\textsuperscript{rd}, Burn P(s), and Alternate Burn P(s)
- **ICD-9**: Injury Diagnosis Code derived from the AIS, an anatomical scoring system noting a minor injury as 1, ranging to 6, which is non-survivable. (ICD-9 no longer used as of 1/2016)
- **ICD-10**: Updated injury codes to begin 1/2016 on all patients.
- **AIS Severity**: Abbreviated Injury Score (AIS) notes the severity of the injury.
- **ISS BR**: Injury Severity Score Body Region indicates the ISS the location of injury (1-6), not the AIS body regions (1-9).
- **PREDOT**: The AIS code before denoting the severity

Section 2 – Case Management
In this section you will document case management information.

**Case Summary:**
This field is automatically pre-filled with scripted data provided by the Trauma Registry. This information can be edited. **HOWEVER, this information is refreshed each time you run the Collector interface. If you want to maintain any special information that should not be written over during a rerun of the interface, put it in the Additional Case Summary Comments section.** For example, the script will be generated as follows (downloaded data are underlined):

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Scripted Section (Auto Generated):

This is a 26 year old male whose mechanism of injury was a fall from a ladder while fixing the roof. The patient was transported to this facility from ABC Hospital on January 24, 2014. Patient diagnoses include:
Fracture left tibia
Fracture left humerus
Multiple abrasions and contusions of the hands

The patient ICU length of stay was 1 day. The total hospital days was 3 days. The patient was discharged to home on January 27, 2014.

Additional Case Summary Comments:

This area allows you to add any additional information that is not contained in the registry information. Any information placed here is NOT refreshed by the registry interface.

Case Management – Objective Review:

Pre-defined data elements from COLLECTOR that include summaries from Pre-hospital, ED/Resus, Operative, Consults, ICU, Floor/Ward, Discharge/Outcome Details, and Procedures. HOWEVER, this information is refreshed each time you run the Collector interface. If you want to maintain any special information that should not be written over during a rerun of the interface, put it in the Additional Case Summary Comments section.

Case Management Log:

This section can be used to enter daily hospital notes for day-to-day case management of the patient. (Saved as an external text file)

Notes could be formatted as follows:
Date – Location in Hospital – Comments.

For example:

01/15/14 – ICU – pulmonary consult

External Documents:

Allows the user to link external documents to the record. These documents can be scanned images, external notes or other documentation related to the case.

You can enter up to ten (10) external links.

You will notice a file path here which is auto generated. It shows the external link wherein the file is located. Do NOT change this. Changing the file path will break the document link and result in missing attachments.

The External Related Memo Notes section is an area provided to free text notes or comments about the attached documents. This section
can be helpful since only the documents path (where it’s stored in the network) is displayed.

**Section 3 - Meeting Information**

This section is the preferred location for documenting all pertinent meeting notes and discussion. This section can record up to five separate meeting discussions per patient. For further assistance in setting up the fields below, contact DI or refer to DI’s POPIMS Users Guide.

**Meeting Information:** In this section are meeting titles, attendees, dates and discussion notes for up to 5 meetings.

**Meeting (Primary, Second...):** Enter/Select the title of the meeting. The first entry is the initial Meeting, each meeting after is considered the consecutive meeting. This is automatically saved as an external document.

**Meeting Date:** Enter the date of the meeting/review by month, day and year. When you enter a zero (0) and hit ‘enter’, ‘tab’ or the right arrow button in the field for Meeting Date, the field will auto fill with the current date.

**Attendees:** Enter the attendees for the specific meeting. In the POPIMS configuration default values can be set for different meetings. Refer to the “Meeting Session Default” in the POPIMS User’s Guide for setting default values for each meeting. If paper sign in sheets are utilized, indicate this by placing “Please see attendance sheet” in the Attendees Section.

**Related Issues:** Issues identified as Audit Filters, Deaths, Occurrences, Opportunities for Improvement (OFI), and User Defined Issues (UDI’s) will be displayed here if you have linked or identified that particular issue. In order to do so, you must go to the “Issue” Section and place the meeting name into the “Meeting Discussed” section. It will then automatically link into the meeting section. An issue can be linked to more than one meeting.

**Discussion:** Enter in the proceedings of the meeting, including pertinent findings regarding issues surrounding the case.

Information should reflect the conclusions made with respect to Judgment status based upon and outcomes resolutions.

If Pre-Existing Conditions (PEC’s) played a role in the care of the patient, they can be mentioned here after the other issues have been identified and addressed.

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This data, along with the factors (listed in Section 5), should be included in the discussion and used to arrive at a judgment status.

The discussion notes in POPIMS are stored as an external memo field that allows for unlimited documentation. However, only the first 10,000 characters (or approximately 4 pages) of notes will be accepted by the software.

Export Notes to Template: If you would like to generate the meeting notes using one of POPIMS’s templates (i.e. MeetingSummary), select “1” or yes in this box. A menu will display all of the meeting template files. Similar to creating a referral letter, “Run Report for this Record” under “Tools” and then select which Meeting you will be using under the “Letter Word” section.

External Document Saved: If you would like to save a Word document, a PowerPoint presentation, or a scanned document, etc., you can do so by using this section. Type in the number “1” and it will open up your FILES folder located in your POPIMS and Collector drives. You can browse to where you have your document saved and open the file you want to save. When you want to retrieve the document, type “1” in the section called “Open External Letters” and open the document that you have saved.

Narrative Generator

The POPIMS “Narrative” tab, found on the Data Entry Window, is designed to provide a standardized review process when preparing for a meeting discussion. This is done by using a form based question and answer process along with objective data with these phases of care: Pre-hospital, ED/Resuscitation, Operative/Procedure, ICU/Stepdown, Floor/Ward, and Discharge/Rehab.

When the tab is opened, there are three tabs: Preliminary Info, Template/Topic Questions, and Generated Narrative. The Preliminary Info tab contains objective information about the case that was originally imported from Collector, and can also be found in the Case Management section. The objective information is then broken down into each phase of care in the Template/Topic Questions Tab. The Template/Topic Questions are systematically organized to queue end users to address care related issues and/or provide clarity for a clinical situation. Information can be typed in the boxes provided. If an issue has already been identified, clicking that specific issue in the Narrative’s Issue tab will allow that issue to be included in the discussion. Similarly, if a phase of care is to be included in the discussion, clicking that section will also include those contents.

After the desired issues, phases of care, and corresponding notes are entered, select the Generated Narrative tab. Select which meeting where the Narrative text is to be entered. After the box is meeting box is checked, selecting the Generate Narratives button to auto fill that text. Selecting Generate, Save, and Exit will auto fill the text and close the Narrative Generator.

Once this information is imported into the meeting section, the data can be used as your meeting notes in a PowerPoint presentation. To do this, Run a Report for this record under Tools, and select PRINTOUT TEXT/PP: Meeting Summary. Follow the PowerPoint instruction and it will ask you to insert slides from an Outline with the file ObjDetails.txt. If it does not come up by default, it is located under C:\PAOutcomesClient.
This Narrative Generator is to be used as a tool to assist in a standard review process and to export objective data that can be used for meeting discussions. It is not required to use this application. Further assistance, contact DI or refer to DI’s POPIMS Users Guide.

Section 4 – Pre Existing Conditions Identified by the Trauma Registry

Pre Existing Conditions (PEC) are no longer identified as issues directly, but are contained in this section for your review.
If you would like to mark the PEC as an issue, place a ‘y’ for ‘yes’ in the field next to the PEC code. A ‘yes’ will automatically place the PEC into your issues list. Information can now be entered in the Issue Section.

Section 5 – Issue Evaluation

Issue information is repeatable for up to 20 issues per patient. Issues can be manually entered or auto-filled using the PTOS Trauma Registry Interface. Occurrences, Audit Filters, and Deaths are automatically auto-filled from COLLECTOR. Issues are defined as Opportunities for Improvement (OFI), User Defined Issues (UDI), Occurrences, Audit Filters, and Deaths. Pre Existing Conditions (PEC) can be upgraded (see Section 4) to populate into this section.
Audits Filters and Custom Elements from Collector can be selectively populated into POPIMS. This can be done in “Customize” tab, under “POPIMS Setup and Referral Contacts”. To select which Audit Filters are populated into POPIMS, go to Tab 2 titled “Additional Filters” and enter a 1 (yes) or a 2 (no) for the desired Audit Filter. When you are done, hit “OK”
If there are Custom Elements entered into Collector, these elements can be customized to populate POPIMS as a UDI or OFI. A few examples would be:
· Damage Control
· TPOD use
· Exsanguination Protocol.

To configure the Custom Elements to populate into POPIMS, follow the previous steps to locate the “POPIMS Setup and Referral Contacts”. Next, go to Tab 4, “UDI Matchup”. The first column is the Custom element from Collector, which can be selected from the drop down list. The second column is the operator, or test. The third column also has a drop down list where users can either select a corresponding OFI or an already pre-assigned UDI within POPIMS. So in the future, when the registry staff enters a custom element such as “Exsanguinations Protocol” for any patient into Collector, it will then show up in POPIMS as a UDI or OFI. This newly populated UDI or OFI into POPIMS can then be reviewed for appropriate use.
If further instruction is needed, refer to Digital Innovation’s POPIMS User Guide.

Morbidity and Mortality

In order to perform a bona fide review, peer review and assessment of mortality, occurrences, and opportunities for improvement (OFI), a multidisciplinary team composed of trauma surgeons, trauma nurse coordinators, and when appropriate, subspecialist representation from anesthesia, emergency department, neuro, ortho, etc. should be developed.
This team is responsible for meeting, evaluating, and classifying each mortality/occurrence/OFI as to the preventability. The moderator of these reviews should be the chief of the division who will be
responsible for assuring the utmost integrity with respect to the evaluation as well as developing the process that will provide for inter-rater reliability. The process should involve identification of all injuries, and the severity whether or not standards of care were followed, whether or not there was provider error; and for deaths – what was the probability of survival based on TRISS methodology. It is imperative that when considering this process, all factors, i.e. error in management, error in technique, delayed diagnoses, missed diagnoses, deviation from protocol, deviation from standard of care, equipment failure, mortality – anatomical diagnoses, mortality – survival probability and pre-existing conditions are evaluated. Based on this process, decisions should be made on all deaths, occurrences, and OFI as to their preventability. That is – was the death believed to be an Unanticipated Mortality with Opportunity for Improvement, Mortality without Opportunity for Improvement or Anticipated Mortality with Opportunity for Improvement. Unanticipated Mortality with Opportunity for Improvement and Anticipated Mortality with Opportunity for Improvement mortality will require outcome results and resolution. Unanticipated events with Opportunity for Improvement, Events without Opportunity for Improvement or Events with Opportunity for Improvement mortality/occurrences/OFI must be assessed as shown in tables shown below. Patients who have withdrawal of support will be included in the analysis of preventability. In such cases, the care of the patient up until the time that support was withdrawn should be evaluated as to whether or not standard protocols were followed and whether provision of care was appropriate. These factors, along with the analysis of injury and TRISS methodology, will then be used to assign preventability.

**Mortality Judgment Status**

**Unanticipated Event with Opportunity for Improvement**
- Anatomic injury or combination of injuries considered survivable
- Standard protocols not followed with unfavorable consequence
- Inappropriate provider care with unfavorable consequences
- \( P(s) > 0.5 \) by TRISS methodology

**Anticipated Event with Opportunity for Improvement**
- Anatomic injury or combination of injuries considered severe but survivable under optimal conditions
- Standard protocols not followed, possibly resulting in unfavorable consequence
- Provider related care considered sub-optimal, possibly resulting in unfavorable consequence
- \( P(s) 0.25 - 0.5 \) by TRISS methodology

**Mortality Event without Opportunity for Improvement**
- Anatomic injury or combination of injuries considered non-survivable with optimal care
- Standard protocols followed or if not followed, did not result in unfavorable consequence
- Provider related care appropriate or if sub-optimal, did not result in unfavorable consequence
- \( P(s) < 0.25 \) by TRISS methodology

**Morbidity Judgment Status**

**Unanticipated Event with Opportunity for Improvement**
- Complication related to deviation from standard protocol
- Complication result of provider error
- Complication related to error in judgment
- Complication related to equipment malfunction

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Anticipated Event with Opportunity for Improvement
- Complication indirectly related to deviation from standard protocol, operator error or error in judgment
- Provider related care considered suboptimal indirectly resulting in unfavorable outcome

Event without Opportunity for Improvement
- Complication occurred despite adherence to a reasonable standard protocol
- Complication occurred despite appropriate care and good judgment

NOTE: If this section is being used to track protocols compliance or other center specific quality initiatives, select the appropriate OFI or UDI and select “No factors identified” in the Factors section and “tracking” in the Action Section. This will allow PTSF surveyors to identify issues vs. non issues when reviewing for Performance Improvement related issues.

Each screen will address one issue.

Issue: Enter in the issue for which this patient is being evaluated. See Appendix A for specific definitions of occurrences, pre-existing conditions and audit filters.

If you fill in an issue, the following fields should have an entry:
1. Presented by:
2. Identified Date:
3. Location of Incident:
4. Acknowledge/Reviewed:

An entry of “UU” can be used if the review information is not known. A “U” cannot be entered for Acknowledge/Reviewed.

Issue Description: (auto-fill) This field will automatically be filled with the corresponding text to the issue entered above. No additional information can be entered.

Copy from Issue #: This will allow you to copy all of the information from a previous issue page. Select the number of the issue that it was previously identified and that selection will remain in that box. After this information is copied over, you have the ability to further edit the information.

Presented By: Record the identifier (number or alpha numeric format) of the person who presented/reviewed this issue. The providers list is pulled from the Attending Physician list in Collector. To select from a customized list entered into POPIMS, click on the

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“Custom/User Defined Choices”. If further instruction is needed, refer Digital Innovation’s POPIMS User Guide.

**Date Identified:**
Record the date (mm/dd/yy) that the issue was identified. For occurrences identified in COLLECTOR, this date will be automatically brought over by the trauma registry interface. Selecting zero in this field and hitting the “tab”, “enter”, or right arrow key will enter the current day’s date.

**Issue Location:**
Enter the location where the issue occurred. For occurrences identified in COLLECTOR, this date will be automatically brought over by the trauma registry interface.

1 = ED (procedures listed under section B must be recorded in the procedure section for this phase of care)
2 = OR
3 = ICU
4 = Med/surg floor
5 = Step-down Unit (Step-down from ICU)
6 = Radiology
7 = Nuclear Medicine
8 = Burn Unit
9 = PMR (Physical Medical Rehabilitation)
10 = Minor Surgery Unit
11 = Special Procedure Unit/Angiography (Retired in 2015)
12 = Pre-Hospital (optional) (Retired in 2015)
13 = PACU (Post Anesthesia Recovery Unit)
14 = Postmortem
15 = EMS (optional)
16 = Referring Facility (optional)
17 = Special Procedure Unit
18 = Angiography
19 = Pediatric Unit (in-house)
*, Unknown

**Reporting Source:**
This is a user defined menu to indicate who reported the issue or from what source the issue was identified, i.e. person, hotline, etc. Please see the POPIMS User’s Guide on how to customize this field.

**Acknowledged/Reviewed:**
How was the issue acknowledged or reviewed?

1 = reviewed in committee
2 = reviewed individually
3= acknowledged, but not discussed
4= forwarded

January 2017 Grey Highlighted area = addition or revision
Meeting Discussed: Select the appropriate meetings that this case was discussed. This field can accommodate 5 different meetings. When this field is selected, it will auto-fill the “Related Issues” in the Meeting Section.

Factors: List the factors related to the issues:

Provider Related:
0 = No Factors Identified
1 = Error in Management
2 = Error in Technique
3 = Delayed Diagnoses
4 = Missed Diagnoses
5 = Deviation from Protocol
6 = Deviation from Standard of Care

Patient Disease Related:
8 = Mortality – Anatomical Diagnoses
9 = Mortality – Survival Probability
10 = PEC - Timely Identification
11 = PEC - Documented Appropriately
12 = PEC - Treated Appropriately
13 = PEC - Affected Patient Care
20 = DNR Order
21 = Withdrawal of Life Support
22 = Disease Related Comorbidity
23 = DOA/DOS (Dead on Arrival / Dead on Scene)

System Related:
7 = Equipment Failure
30 = Documentation Deficiency (Incomplete, Inaccurate)
31 = Documentation Failure (Missing)
32 = Communication Deficiency (Incomplete, Inaccurate, Misunderstood)
33 = Communication Failure

99 = Other, specify_________________________
(If you choose ‘other’, the specify field should be completed. This is a free text area noted after “Other”)

Judgment Status: Enter the judgment status of this issue:

1 = Unanticipated Event with OFI
2 = Anticipated Event with OFI

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3 = Event without OFI

Selecting “Shift I” in the Judgment Status field will auto-fill this area as “n/a”

If the judgment status is “1” or “2” then the following fields should have an entry:

- System Related (In House and/or Out of House)
- Provider Related (In House and/or Out of House. If this is selected, you may enter a provider.

**System Related:**

If this issue was system related, check whether it was an in-house or out-of-house issue.

In House:
1=yes 2=no

Out of House:
1=yes 2=no

**Provider Related:**

If this issue was provider related, check whether it was an in-house provider or an out-of-house provider issue. If this is selected, you may then enter a provider.

In House:
1=yes 2=no

Out of House:
1=yes 2=no

**Provider/Team ID:**

Enter in the identification of the provider, either individual or team, from the menu. The field can accommodate up to 3 providers. Please refer to the POPIMS User’s Guide document to update or develop the menu. If you are not selecting from the menu, you may enter an alpha numeric identifier. Select “U” for unknown and “I” for inappropriate, similar to COLLECTOR terminology.
Comments: This area may be used to further describe each issue. There are one half pages (2,500 characters) in each issue comment section for text. Each issue has its own comments section.

If the issue judgment is not discussed in detail in the Meeting Section, you can add additional comments that clarify reasoning behind loop closure in this section.

Actions: This is a brief description of the action plan used to address this issue.

0 = No Action Items Taken
1 = Tracking
10 = Education
11 = Education Session – Rounds
12 = Education Session – Conference
13 = Education Session – Journal Club

20 = Develop Policy-Protocol
21 = Revise Policy-Protocol

30 = Provider Counseling

40 = Enhanced Resources, facilities, or communication
41 = Address/Improve Resources
42 = Address/Improve Facilities
43 = Address/Improve Communication
80 = Referral
81 = External Review

99 = Other

Details: Provide details relating to the loop closure of the assigned issue. This section can allow for 1600 characters.

Loop Closure Status: The loop closure field is used to manage the QA/PI issues, i.e. actions or referrals related to specific issues. (The search screen will allow you to search by any loop closure status and/or date. For example, search for pending actions in the month of December.)

There are a total of 10 choices:

0 = no closure necessary

Pending Status:
1 = pending status – pending action*

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In the “Set up and Referral Contacts”, tab 8 will allow you to remind users of open issues. The user can use the set up screen to allow a welcome message to appear upon opening POPIMS. The screen will show any issue that is open. If you do not turn on this feature you may still print a report “Loop Closure Status Reminder” that will identify the same patients with an open loop closure status. Any issue that is open will show up on the welcome message, if the expected date of closure is greater than or equal to that current date, i.e. an issue is the past due.

Selecting zero in this field and hitting the “tab”, “enter’, or right arrow key will enter the current day’s date.

*For choices (1-4), the date field becomes the expected date of resolution. Records should not be closed with a pending status.
*For choices (5-7), the date field can be used as date that the issue is made inactive.

For choices 8 or 9 – the date reflects the date that the issue is closed

**Audit Issue:**
Select 1 (Yes) if an issue is felt to have contributed to the death.
After issue is selected, it will appear in the Audit section in the Related Issue Section.

**Section 6 – Audit**

The audit section is to be used to assess factors that had a direct impact on the death. This information will be submitted to a central site at the PTSF for the benefit of training and education throughout the state.
Primary Issue: “Death” will automatically be flagged on the issue tab, and will show up on the audit screen as the primary issue.

Related Issues: If the audit button is selected on the bottom of ANY issue related to the patient’s death, then this issue will show up under Related Issues in the audit page. This can be done by selecting “1, Yes” at the bottom of the Issue Section under “Audit Issue”.

Overall Appropriateness of Care: Select from the menu:

- Acceptable
- Acceptable with reservations: A variance from trauma center patient management guideline or standard of care that does not negatively impact patient care or outcome.
- Unacceptable: A variance from trauma center patient management guideline or standard of care that negatively impacts patient care or outcome

Inadequacies in Care: If Overall Appropriateness of Care is a “1”, you may skip this box. Otherwise, this field is for notes regarding inadequacies in care. This area is free text and to keep comments limited. Major inadequacies in care should be reflected in the “related issues” section as an Opportunity for Improvement.

Did it contribute to patient outcome? Yes or No. Select “N” if no deviations in care were identified.

Primary Cause of Issue: Cause of Death:
1 = Acute MI
2 = Cardiac Tamponade
3 = CNS
4 = Exsanguination
5 = Hypoxia
6 = Organ Failure
7 = PE
8 = Sepsis/infection
9 = Other
= Unknown

Cause of Complication:
11 = Preexisting condition
12 = Sequelae of injury
13 = Infection due to treatment
* = Unknown
99 = Other
If other=This is a free text box to add other causes
How were the opportunities for improvement addressed?

Memo field for narrative notes regarding actions related to issues. Please keep notes limited; ones that will only add clarification in this tab. The primary section to enter this information is in the “Issues” section.

**Section 7 – Outcome Summary**

Overall outcome results and resolution actions are recorded once per patient.

**Approval/Sign off:**
- **Primary:** This is an 8 character alphanumerical field. Enter the responsible person who verifies that all QA/Peer Review has been completed for this case.
- **Secondary:**

  NOTE: The account number with which you logged into the POPIMS system should match the initials used here.

**Level:**
- **Primary:**
- **Secondary:**

  This is the person’s position associated with the account used for the approval sign off. The following are considered valid sign off levels:

  1 = Trauma Program Director  
  2 = Physician Reviewer  
  3 = Trauma Program Coordinator

  ********************************************

  Other levels should have written preauthorization by the Trauma Program Director and kept on file:

  4 = other physician staff  
  5 = other nursing staff  
  6 = other clinical staff

**Outcome Results/Resolution date:**

Enter the date (mm/dd/yy) for the resolution of the outcome. When you enter a zero (0) and hit ‘enter’, ‘tab’, or the right arrow button in the field for the date, the field will automatically fill with the current date.

**Outcome Results/Resolution Discussion:**

Enter in any discussion related to outcome results or resolution information up to 2 pages.

**Additional Notes:**

Additional notes beyond the two pages for discussion related to the Results/Resolution can be entered. The discussion notes in POPIMS are stored as an external memo field that allows for unlimited documentation. However, only the first 10,000 characters (or approximately 4 pages) of notes will be displayed in the reports.
Export Case to Template: Notes entered into the Outcome Results/Resolution section can be exported into a template. However, be sure to have the field <<OUTCOME_MEMO>> in the template before you run the “Template Letter from within the Outcomes Record” report. See POPIMS User’s Guide on how to add Merge Fields.

Resolution Items Taken: Record the appropriate response. This section does not need to be completed if it was previously addressed in the Issue’s Action section.

Provider/Team Counseling: 1 = yes 2 = no

Develop/Revise Policy-Protocol: 1 = yes 2 = no

Education: 1 = yes 2 = no

Other, specify: Specify other resolution items, e.g. discipline, probation, termination.

Section 8 – Referrals/Re-Evaluation

Referrals documents are recorded in this section. Up to 10 referrals can be recorded for each case. Two pages of information can be written into the text body. When you enter a zero (0) and hit ‘enter’, ‘tab’, or the right arrow button in the field for the date, the field will automatically fill with the current date.

The referral section uses the referral address book that each institution populates specific to their center. Please review the customization document for POPIMS as a guide to set up your address book.

These fields will repeat for up to 10 referrals.

Referral Date: Enter the date the referral was made.

Related Issue: Enter the issue identifier related to this referral, i.e. pneumonia, death, etc. Due to the software, users must copy/paste the codes from the drop down list if you want to associate an issue with this referral. This drop down list is populated from issues already entered in the Issues Section.

Referred to: Record to whom the referral was made (physician, division, etc.). You may select from your address book or type in your own information. The contacts are listed in increments of 100. For instance, entries 1-100 will list contacts first entered into POPIMS. To edit or create this list, refer to the “POPIMS Setup and Referral Contacts” section under the ‘Customize’ menu.
Address: Enter the address for the person to whom the referral letter is being sent. This will be automatically filled if you have selected a referral from your address book.

Phone: Enter the phone number of the person to whom the referral letter is being sent. This will be automatically filled if you have selected a referral from your address book.

E-mail: Enter the e-mail of the person to whom the e-mail is being sent. This will be automatically filled if you have selected a referral from your address book.

Salutation: Enter the salutation for your referral letter, i.e. Dear Dr. Smith. This information will then be automatically placed in the referral letter when generated.

Memo (Body of Letter): Record the information regarding the referral up to 2 pages. This information will be included as part of the scripted letter. See Appendix E for an example of the location of this information in the referral letter.

Documents Field:

Export Referral To Template: Select the merge letter to use to generate a letter for this specific referral. When the referral reports are generated, the referral will use the merge template to generate a referral document. For instance, after selecting a template for Referral 1, use the Referral Letter for Referral 1 when running a report. To include the information in the Memo (Body of Letter) section, be sure have the field <<REF_MEMO>> in your template. For instance, the template “RefTemplate 01” includes that field. Other sample templates are provided with the POPIMS software. Users can set up their own merge templates. Refer to the POPIMS User’s Guide or the Referral Letter Demo Document under the ‘Help’ directory located under the server copy of POPIMS (I:\popims\help) to do this.

External Letter Saved: This field allows the user to link an externally saved document or scanned document to the referral. The best use is to link an electronic reply back to the referral. It can support any external files, i.e. jpeg, .doc, .pdf, etc.

Replied: Enter in the appropriate response to indicate whether a reply was received:
1 = yes
2 = no
I = it was not appropriate or expected to receive a reply

Reply Date: Enter the date that a reply was received.

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Reply Notes: Enter notes or comments provided back to your institution.

Other Reviews/Re-Evaluation: Reviews, other than your own, may be recorded in this section. However, the preferred location to document meeting information is in the Meeting Section. Two pages of information can be written into the re-evaluation memo. When you enter a zero (0) and hit enter or the right arrow button in the field for the date, the field will auto fill with the current date.

Other Reviews: Record the appropriate dates for other committee reviews. There are up to 3 additional spaces to record meetings

Committee: Enter the appropriate committee in which the review took place. This information needs to be typed manually as there is no drop down menu. Examples include division and departmental M&M meetings: Med-surg, ortho, plastics, etc.

Re-evaluation Date: Enter the date of the re-evaluation based upon referral in-house or out-of-house reports from committees or physicians.

Re-evaluation Memo Record the information regarding the re-evaluation of the case up to 2 pages, which may indicate significant conclusions, or no significant changes.

Section 9 – Log

The Modification Log identifies when the interface with Collector was initially made and when users enter data into POPIMS. Up to 5 different users are identified and it will track the last 5 modifications made in POPIMS. Information about specific users or patient activity can be obtained by using the “Audit” report. This can be found in the Report menu and running the Audit in CVW Batch. The audit report is saved on the local POPIMS files.

The User Defined Elements section is customized fields from the COLLECTOR trauma registry. They are automatically brought over when the registry interface is run. These elements may be used in POPIMS to query and use in reports. Please refer to Digital Innovations POPIMS Users Guide to integrate these fields into User Defined Issues (UDI), if appropriate.

Taxonomy

The PI Taxonomy Module has been integrated directly into the POPIMS software application. If you wish to collect Taxonomy information about one or more of the issues identified for the patient click on the Taxonomy button located in the button bar at the bottom of the screen. The interim Taxonomy grid screen will appear. All issues that have been identified in POPIMS will appear listed on the screen. Highlight the issue you wish to abstract Taxonomy data for and click on the Edit button. The Taxonomy detail screen will appear. Some data fields on this screen will be populated with data that was entered
on the Issue Evaluation screen in POPIMS while other data fields will be open for data entry. The fields that are populated from POPIMS are shaded gray in color and are view-only fields. The fields that are open for data entry are shaded in an orange color and can be entered only on the Taxonomy detail screen. Refer to the PI Taxonomy Module users documentation for PI Taxonomy Operational Definitions for information on each data field. In addition, you may also see the operational definition of an element by placing the cursor on the element and clicking Alt F1.

Once data entry is completed on the Taxonomy detail screen, click the OK button to save your entries and return to the interim Taxonomy grid screen. From the interim Taxonomy grid screen click the OK button to save and return to POPIMS.

Appendix A: PI Taxonomy Operational Definitions

Event: The specific event to track and collect detailed information about. The value entered in the ‘Issue’ field on the Issue Evaluation screen in POPIMS is displayed. This is a view-only field.

Occurrence Date: The date the event took place (occurred).

Domain: The Domain section of the Event Information screen captures information about the characteristics of the setting in which the incident occurred and the type of individuals involved.

Domain: Service/Staff - The hospital resource (service or staff) who was active and/or responsible for the event when it occurred. Users will be able to select up to 2 instances of Service/Staff for a single event.

1. Trauma
2. Neurosurgery
3. Orthopedics
4. General Surgery
5. Pediatric Surgery
6. Cardiotoracic Surgery
7. Burn Services
8. Emergency Medicine
9. Pediatrics
10. Anesthesiology
11. Cardiology
12. Chaplain
13. Child Protective Team
14. Critical Care
15. Discharge Planner
16. Documentation Recorder
17. Drug/Alcohol Counselor
18. EMT
19. ENT
20. Family Medicine
21. GI
22. Home Health
23. Hospitalist
24. Infectious Disease
25. Internal Medicine
26. Laboratory
27. Nephrology
28. Neurology
29. Nurse Practitioner
30. Nursing
31. Nutrition
32. Ob-Gyn
33. Occupational Therapy
34. Oncology
35. Ophthalmology
36. Oral Surgery
37. Oromaxillo Facial Service
38. Ortho-Spine
39. Palliative Care
40. Pharmacy
41. Physiatry
42. Physical Therapy
43. Plastic Surgery
44. Psychiatry
45. Pulmonary
46. Radiology
47. Rehab
48. Respiratory Therapist
49. Social Services
50. Social Worker
51. Speech Therapy
52. Thoracic Surgery
53. Trauma Resuscitation Nurse
54. Triage Nurse
55. Vascular Surgery
56. Other Surgical
57. Other Non-Surgical
58. Not Applicable
59. Unknown
**Domain: Phase of Care** - The period of time or stage along the continuum of care in which the event occurred.

1. Evaluation  
4. Critical Care  
7. Not Applicable

2. Resuscitation  
5. Recovery  
8. Other

3. Operative  
6. Rehabilitation  
?, Unknown

**Domain: Target/Goal of Care** - The result (target or goal) toward which treatment and care efforts were focused when the event occurred.

1. Therapeutic  
4. Preventative  
7. Cosmetic  
?, Unknown

2. Diagnostic  
5. Palliative  
8. Other

3. Rehabilitative  
6. Research  
/, Not Applicable

**Impact:** The Impact section of the Event Information screen captures information about the outcome or effects of medical error and systems failure, commonly referred to as harm to the patient. The degrees of harm are listed below:
- **None** – patient outcome is not symptomatic or no symptoms detected and no treatment is required (I. & II. Impact)
- **Minimal** – patient outcome is symptomatic, symptoms are mild, loss of function or harm is minimal or intermediate but short term, and no or minimal intervention (e.g., extra observation, investigation, review or minor treatment) is required (III. & IV. Impact)
- **Moderate** – patient outcome is symptomatic, requiring intervention (e.g., additional operative procedure; additional therapeutic treatment), an increased length of stay, or causing permanent or long term harm or loss of function (V. & VI. Impact)
- **Severe** – patient outcome is symptomatic, requiring life-saving intervention or major surgical/medical intervention, shortening life expectancy or causing major permanent or long term harm or loss of function (VII. & VIII. Impact)
- **Death** – on balance of probabilities, death was caused or brought forward in the short term by the incident (IX. Impact)

**Impact: Physical** – The tangible or actual (physical) outcome or effects of the event to the patient. Related to the Degree of Harm.

1. No Harm: Sufficient information or able to determine that no harm occurred
2. No Detectable Harm: Insufficient information or unable to determine any harm
3. Minimal-Temporary Harm: Requires little or no intervention
4. Minimal-Permanent Harm: Requires initial but not prolonged intervention
5. Moderate – Temporary Harm: Requires initial but not prolonged hospitalization
6. Moderate – Permanent Harm: Requires intensive but not prolonged hospitalization
7. Severe – Temporary Harm: Requires intervention necessary to sustain life but not prolonged hospitalization
8. Severe – Permanent Harm: Requires intervention necessary to sustain life and prolonged hospitalization, long-term care, or hospice
9. Death
/, Not Applicable
?, Unknown

**Impact: Psychological** – The mental or emotional (psychological) outcome or effects of the event to the patient. Related to the Degree of Harm.

1. No Harm
2. No Detectable Harm
3. Minimal-Temporary Harm
4. Minimal-Permanent Harm
5. Moderate – Temporary Harm
6. Moderate – Permanent Harm
7. Severe – Temporary Harm
8. Severe – Permanent Harm
9. Profound Mental Harm
/, Not Applicable
?, Unknown

**Impact: Social** - The relational (social) outcome or effects of the event to the patient. Related to the Degree of Harm.

1. Unable to Socialize
2. Homebound, Able to Socialize
3. No Social Impediments, Not Socially Active
4. Socially Active
/, Not Applicable
?, Unknown
Impact: Economic - The financial (economic) outcome or effects of the event to the patient. Related to the Degree of Harm.

1. Employed
2. Seeking Employment
3. Part-Time Employment
4. Unemployed
5. Not Employable
4. Not Employable
5. Not Applicable

Impact: Legal - The lawful (legal) outcome or effects of the event to the patient. Related to the Degree of Harm.

1. Referred to Risk Management
2. Complaint Registered
3. Referred to Legal Department
4. /, Not Applicable
5. ?, Unknown

ACS Example of Impact Classification

Type: The implied or visible processes that were faulty, or failed.

Communication
TC001. Inaccurate & Incomplete Information
TC002. Questionable Advice or Interpretation
TC003. Questionable Consent Process
TC004. Questionable Disclosure Process
TC005. Questionable Documentation

January 2017

Grey Highlighted area = addition or revision
**Patient Management**
TPM01. Questionable Delegation
TPM02. Questionable Patient Care
Tracking/Follow-up
TPM03. Questionable Referral or Consultation
TPM04. Questionable Use of Resources
TPM05. Airway
TPM06. Breathing
TPM07. Circulation
TPM08. Neurologic
TPM09. Pulmonary
TPM10. Gastrointestinal
TPM11. Nutritional
TPM12. Urologic
TPM13. Orthopedic
TPM14. Resuscitation
TPM15. Wound Care
TPM16. Intensive Care
TPM17. General Ward Care
TPM18. Rehabilitative Care

**Clinical Performance**
TCA01. Pre-Interventional – Correct Diagnosis Questionable Intervention
TCA02. Pre-Interventional – Inaccurate Diagnosis
TCA03. Pre-Interventional – Incomplete Diagnosis
TCA04. Pre-Interventional – Questionable Diagnosis

TCA01. Pre-Interventional – Correct Diagnosis Questionable Intervention
TCA02. Pre-Interventional – Inaccurate Diagnosis
TCA03. Pre-Interventional – Incomplete Diagnosis
TCA04. Pre-Interventional – Questionable Diagnosis

TCB01. Interventional – Correct Procedure with Complications
TCB02. Interventional – Correct Procedure – Incorrectly Performed
TCB03. Interventional – Correct Procedure but Untimely
TCB04. Interventional – Omission of Essential Procedure
TCB05. Interventional – Procedure Contraindicated
TCB06. Interventional – Procedure Not Indicated
TCB07. Interventional – Questionable Procedure
TCB08. Interventional – Wrong Patient

TCC01. Post Interventional – Correct Prognosis
TCC02. Post Interventional – Inaccurate Prognosis
TCC03. Post Interventional – Incomplete Prognosis
TCC04. Post Interventional – Questionable Prognosis
/, Not Applicable
?, Unknown
Factors: The Factors section of the Event Information screen captures information related to the cause and agents that led to an incident or event.

Factors: Factors - The cause and agents that led to the event.

System
FSSP05. Bed Availability
FSOC01. Chain of Command
FSOC03. Communication Channels
FSOC05. Culture of Safety
FSSP02. Delay in Consulting Provider
FSSP03. Delays in Provider Response
FSOC02. Delegation of Authority and Responsibility
FSSP01. Diversion
FSOPB03. Documentation
FSOPC02. Establishment and Use of Safety Programs
FSTE05. Equipment/Materials Availability
FSTE02. Equipment/Materials Construction
FSTE01. Equipment/Materials Design
FSTE03. Equipment/Materials Malfunction
FSTE04. Equipment/Materials Obsolescence
FSOC04. Formal Accountability
FSOPA02. Incentive Systems
FSOPB04. Instructions about Procedures
FSOM01. Maintenance of Organizational Resources

January 2017 Grey Highlighted area = addition or revision
FSOM02. Monetary Safety Budgets
FSOPB02. Objectives
FSSP04. OR Availability
FSOX01. Organization Failures Beyond Organization Control/Responsibility
FSOPB01. Performance Standards
FSOPC01. Risk Management
FSOPA03. Schedules
FSOK01. Supervision
FSOC06. Trauma Center Regulatory Criteria/Standards
FSTX01. Technical Failures Beyond Organization Control/Responsibility
FSOPA01. Time Pressures
FSOK02. Training

**Human-Practitioner**
FHC01. Skill Based
FHS02. Rule-Based
FHC03. Knowledge-Based
FHC04. Unclassifiable
FHC05. Negligence
FHC06. Recklessness
FHC07. Intentional Rule Violations

**Human – Patient**
FHP01. DNR (Do Not Resuscitate)
FHP02. DOA (Dead on Arrival) or DOS (Death on Scene)
FHP03. Survival Probability
FHP04. Withdrawal of Life Support
FHP05. Co-Morbidity
FHP06. Disease Related
FHP07. Other Pre-Existing Condition
FHP08. Patient Behavior or Refusal

**Human – External**
FHX01. External
/, Not Applicable
?, Unknown

**Factors: Meetings/Reviewed by** - The forum (meeting) where the event was discussed and/or the assembly of people (reviewed by) who discussed the event.

1. Trauma PI/QA Coordinator
2. Trauma Program Manager/Coordinator
3. Trauma Registrar
4. Case Manager
5. Physician Extender/PA/NP/CNS
6. Emergency Department
7. Trauma Medical Director/Designee
8. MD Specialty Liaison
9. Department Head
10. Risk Management
11. Pre Hospital Review
12. Transferred from Facility
13. Transferred to Facility
14. Trauma Morbidity and Mortality
15. Trauma Multidisciplinary Peer Review
16. Trauma Conference

January 2017  Grey Highlighted area = addition or revision
Factors: Levels - The scale (level) of the meeting where the event was discussed.


Factors: Date - The date of the meeting where the event was discussed (no menu).

Factors: Systems - Identify if the cause and agents that led to the event were related specifically to System factors. The values entered in the ‘System Related In House and Out House’ fields on the Issue Evaluation screen in POPIMS are considered in a mapping and displayed.

1. Yes  2. No  /, Not Applicable  ?, Unknown

View-only field.
Mapping: If either In House or Out House is =Y, set to Y on Taxonomy screen. If both = N, set to N on Taxonomy screen.

Factors: Providers/Practitioner - Identify if the cause and agents that led to the event were related specifically to Provider/Practitioner factors. The values entered in the ‘Provider/Team Related In House and Out House’ fields on the Issue Evaluation screen in POPIMS are considered in a mapping and displayed.

1. Yes  2. No  /, Not Applicable  ?, Unknown

View-only field.
Mapping: If either In House or Out House is =Y, set to Y on Taxonomy screen. If both = N, set to N on Taxonomy screen.

Factors: Patients - Identify if the cause and agents that led to the event were related specifically to the Patient factors.

1. Yes  2. No  /, Not Applicable  ?, Unknown

Factors: Comments - Any additional comments or pertinent notes about the event. The notes entered in the ‘Comments’ field on the Issue Evaluation screen in POPIMS is displayed. View-only field (no menu).

Factors: Determination - The status of the event and the measurement that best describes the potential for improvement. The Determination measures the potential that may have existed in improving the outcome of the event. The value entered in the ‘Judgement Status’ field on the Issue Evaluation screen in POPIMS is mapped to corresponding Taxonomy menu value and displayed. View-only field.

January 2017  Grey Highlighted area = addition or revision
1. Unanticipated Event with Opportunity for Improvement
2. Anticipated Event with Opportunity for Improvement
3. Event without Opportunity for Improvement
/ Not Applicable
? Unknown

Factors: Acceptability - The measurement of the care provided, and if it was acceptable for the event.

1. Acceptable
2. Acceptable with Reservations
3. Unacceptable
/ Not Applicable
? Unknown

Factors: Grade - The evaluation or assigned level (grade) of life threatening potential the event has caused the patient.

0. Grade Not Assigned
1. Grade I - Non Life Threatening (No Lasting Disability)
2. Grade II - Potentially Life Threatening (No Residual Disability)
3. Grade III - Life Threatening (Residual Disability)
4. Grade IV - Death
/ Not Applicable
? Unknown

ACS example of Factor Classification

January 2017  Grey Highlighted area = addition or revision
**Actions:** The Actions section of the Event Information screen captures information related to the activities or steps taken to minimize and/or eliminate the event in future patient care. Also captures information related to the closure of the reported event.

**Actions: Corrective Action** - The activities and steps that were taken by clinical staff to mitigate the outcome of an event, or to minimize and/or eliminate the occurrence of the event or its outcomes in the future. The value entered in the ‘Actions’ field on the Issue Evaluation screen in POPIMS is mapped to corresponding Taxonomy menu value and displayed. *View-only field.*

0. No Action Items Taken
1. Education Offering
2. Policy or Practice Guideline: Develop
3. Policy or Practice Guideline: Revise
4. Provider or Team Counseling
5. Improve Resources
6. Improve Facilities
7. Improve Communication
8. Referral to Department Head
9. External Review
10. Disciplinary Action
11. Change in Provider Credentialing
12. Administrative Action
13. Suspension or Termination of Provider
14. Discussion with Individual
15. Referral to Prehospital
16. Referral to Peer Review committee
17. Referral to Physician/Provider
19. Referral to Trauma Systems Committee
20. Track and Trend for Further Reporting
99, Other

**Actions: Prevention/Mitigation** - The type of measures taken or proposed to reduce incident and effect of adverse occurrences.

1. Prevention
2. Mitigation
/, Not Applicable
?, Unknown

**Actions: Scope** - The range (scope) of the plan being implemented related to the corrective actions to prevent future occurrence of the event.

1. Universal: Action Designed for All Patients
2. Selective: Action Designed for Patients with Specific Risk of Adverse Event
3. Indicated: Action Designed for High Risk Patients with Minimal Risk of Adverse Events
/, Not Applicable
?, Unknown

**Actions: Status** - The current state (status) of the corrective action being taken.

1. Active
2. Pending
3. Closed Tagged for Follow-Up
4. Closed
/, Not Applicable
?, Unknown

**Actions: Completed** - The date the corrective action was completed (no menu).
**Actions: Action Details** - Any additional information (comments or notes) about the corrective action being implemented in regard to the event. The notes entered in the ‘Details’ field on the Issue Evaluation screen in POPIMS is displayed. *View-only field (no menu).*

**Actions: Loop Closure Status** - The current state that best describes the status of the event resolution. The value entered in the ‘Loop Closure: Status’ field on the Issue Evaluation screen in POPIMS is displayed. *View-only field.*

1. Open – Pending Action
2. Open – Pending Autopsy
3. Open – Pending Referral
4. Open – Pending Other
5. Inactive – No Action Follow-Up
6. Inactive – No Referral Feedback
7. Inactive – Other/Not Resolved
8. Closed – Tagged for Follow-Up
9. Closed – Resolved
?: Unknown

**Actions: Loop Closure Date** - The expected completion for the event or the completion date for the event. This field can also be used to remind the user when to re-examine the event and set up follow-up reminders for the event. The value entered in the ‘Loop Closure: Date’ field on the Issue Evaluation screen in POPIMS is displayed. *View-only field (no menu).*

**Actions: Add to Calendar** - The ability to add reminders to users calendars about an event (no menu).

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**Appendix B: Issues**
Opportunities for Improvement Reference List

1. Airway: Delay in securing
2. Airway: Reintubation
3. Airway: Self Extubation
4. AMA/Elopement
5. Blood Bank: Other Issues
6. Blood Bank: Transfusion issue
7. Blood Bank: Availability/Massive Transfusion
8. Burn Care Issues
9. Case Management: Other
10. Case Management: Insurance Issue
11. Communication: Interdisciplinary
12. Communication: Lack of appropriate patient/family communication
13. Communication: Lack of documentation
14. Communication: Lack of Social Worker Involvement
15. Consultant: Delay in Evaluation
16. Consultant: Delay in Treatment
17. Delay: Completion of work-up
18. Delay: Diagnosis
19. Delay: Diagnostic studies
20. Delay: Subspecialty consultation
21. Delay: Physical Therapy/Rehabilitation
22. Delay: Trauma team arrival
23. Delay: Trauma team notification
24. Delay: Treatment
25. Delay: Discharge
26. DVT/PE Prophylaxis: Inappropriate
27. Equipment: Failure
28. Equipment: Unavailable
29. Fall
30. Hemorrhage Control
31. Hypothermia: Inappropriate assessment
32. Hypothermia: Inappropriate warming measures
33. Immobilization: Inappropriate or inadequate
34. Inappropriate transfer to Floor/ICU
35. Inappropriate use of CT
36. Infection: Central Line
37. Infection: Nosocomial (Other)
38. Missed Diagnosis
39. Monitoring: Inappropriate
40. Nursing: Delay in notification of patient event
41. Nursing: Documentation issue
42. Nursing: Medication issue
44. Nutrition issues
45. OR Delay: Other
46. OR Delay: Anesthesia Related
47. OR Delay: Availability
48. OR Delay: Resuscitation
49. OR Delay: Transportation – Removed
50. Organ Procurement Issues
51. Pain management issues
52. Pharmacy: Other Issues
53. Pharmacy: Delay in providing necessary medication
54. Pharmacy: Medication issue
55. Physician - Documentation Issue
56. Post discharge: Other
57. Post discharge: DVT/PE
58. Post discharge: Infection
59. Professional Behavior
60. Progression of Original Neurological Insult
61. Radiology Delay: Interventional Radiology
62. Radiology Interpretation
63. Radiology Interpretation: Issue
64. Radiology Imaging Delay: CT
65. Radiology Imaging Delay: Plain Film
66. Readmission: Unplanned
67. Resuscitation: Lack of Vascular Access
68. Resuscitation: Over
69. Resuscitation: Under
70. Spine Clearance: Delay
71. Spine Clearance: Protocol Not Followed
72. Subspecialist: Judgment Issue
73. Subspecialist: Technical Issue
74. Subspecialist: Deviation from guidelines/protocols
75. Subspecialist: Lack of appropriate patient/family communication

Grey Highlighted area = addition or revision

January 2017
Opportunities for Improvement Definitions:

Opportunities for Improvement (OFI’s) are a list of common Performance Improvement/Patient Safety (PIPS) terms used to categorize events that impact patient care. The intent is to differentiate issues not already captured in nationally recognized Occurrences or Audit Filters. The accompanied list of definitions is not to be used as absolutes for qualification, but rather a clarification of terminology. They can be applied at the discretion of the trauma centers regarding issues that have an effect on patient care.

Standardizing these terms will allow for an organized method to collect data across the state trauma system. Future plans will allow data mining for the purposes of identifying factors impacting care which we previously could not capture. Once it is captured from various trauma systems, education can be focused at a state wide level. The goal is to enhance the care provided to the trauma patient.

1. **Airway: Delay in securing** - Failure to recognize the need for airway protection and/or ventilation in a timely manner.
2. **Airway: Reintubation** - Securing an airway after prior elective and/or self extubation; any intentional change of an endotracheal tube due to tube malfunction/issue.
4. **AMA/Elopement** - Patient initiated departure from the hospital prior to ordered discharge, known or unknown by the trauma clinical staff.
5. **Blood Bank: Other Issues** - Absence of blood sample for T&C; Error in labeling blood; patient identification issue (mismatch between blood label and patient identification bracelet (trauma pseudo identifier verses real identifier).
6. **Blood Bank: Transfusion issue** - Blood reaction of any type; Type and cross/compatibility issue; adverse effects including, notification of a provider and ordered treatment; Initiation of a transfusion reaction report.
7. **Blood Bank: Availability/Massive Transfusion** - Delay in processing blood products;
   a. Availability of universal donor blood products
   b. Availability of type specific blood products
8. **Burn Care Issues** - Failure to identify/estimated the burn wound size; Failure to initiate appropriate fluid resuscitation; Delay in identification of burn wound requiring transfer to Burn Trauma Center.
9. **Case Management: Other** - Absence of documentation demonstrating coordination of care; appropriate d/c planning and follow-up care.
10. **Case Management: Insurance Issue** - Absence of documentation reflecting timely notification to treatment team of insurance coverage issues related to LOS, required post-discharge DME, appropriate post discharge level of care, or other services.
11. **Communication: Interdisciplinary** - Absence of written or verbal communication demonstrating collaboration across all disciplines involved in patient's care.

12. **Communication: Lack of appropriate patient/family communication** - Absence of written or verbal communication demonstrating timely notification of family regarding care management and/or involvement in discharge planning.

13. **Communication: Lack of documentation** - Absence of documentation for events/changes in clinical status that changed the course of treatment.


15. **Consultant: Delay in Evaluation** - Absence of documentation demonstrating timely response to ordered consultation.


17. **Delay: Completion of work-up** - Initial evaluation that is not completed in the Trauma Bay; excludes patients who go to the OR due to being in extremis.

18. **Delay: Diagnosis** - Diagnosis of injury that occurs after the initial resuscitation through the day of discharge.

19. **Delay: Diagnostic studies** - Delay in ordering or completing diagnostic studies that have been ordered.

20. **Delay: Subspecialty consultation** - Subspecialty consultation does not occur within 24 hours of injury being identified or the consultation wasn't ordered. REMOVED


22. **Delay: Trauma team arrival** - Delay in Team arrival as set forth in your Trauma Team Response policy.

23. **Delay: Trauma team notification** - Delay in Trauma Alert page being activated after patient arrival.

24. **Delay: Treatment** - Delays in ordered treatment plan (non-life threatening) that do not occur within 24 hours; delays in ordered treatment plan (life threatening) that do not occur within designated time (timeframe outlined in guidelines or predetermined timeframe).

25. **Delay: Discharge** - Delay in discharge related to: Unclear disposition, psychiatric issues, delay in assessment by rehabilitation, delay in referrals to rehabilitation, physician delay, diagnostic test delay, transportation issue, or insurance reasons.

26. **DVT/PE Prophylaxis: Inappropriate** - Chemical or mechanical DVT prophylaxis not initiated according to institutional guidelines. Chemical DVT prophylaxis ordered/administered, despite contraindication due to injury.

27. **Equipment: Failure** - Test or procedure, or monitoring not done/delayed due to broken or malfunctioning equipment.

28. **Equipment: Unavailable** - Test or procedure, or monitoring not done/delayed due to unavailable equipment.

29. **Fall** - A patient fall is an unplanned descent to the floor (or extension of the floor, e.g. trash can or other equipment) with or without injury to the patient.

30. **Hemorrhage Control** - Control of hemorrhage not achieved, required intervention, return to OR for continued bleeding. May include patients who need sutures, staples, or angiography.

31. **Hypothermia: Inappropriate assessment** - No temperature documented and/or hypothermic and temperature not repeated. REMOVED


33. **Immobilization: Inappropriate or inadequate** - Inappropriate/Inadequate immobilization as related to fracture or spinal immobilization: Lacking collar and/or back board; lacking appropriate sized cervical collar; utilization of non-approved spinal immobilization devices.

*January 2017  Grey Highlighted area = addition or revision*
34. **Inappropriate transfer to Floor/ICU** –
   a. *Inappropriate transfer to floor:* patient that requires ICU level of care and transferred back to ICU for management of injuries or complications.
   b. *Inappropriate transfer to ICU:* patient does not require high level monitoring as related to injuries sustained or complications occurrence.

35. **Inappropriate use of CT** - Pan scanning patient based on mechanism of injury alone vs. scanning based on physical examination and mechanism of injury.

36. **Infection: Central Line** - Central Line-Associated Bacteremia (CLAB) event is defined as a bloodstream infection (i.e. significant fungaemia or bacteremia) with no other apparent focus of infection where a central line has been in situ within 48 hours of the event. (Source CDC).

37. **Infection: Nosocomial (Other)** - Infection acquired during the course of receiving medical care. This would include infections not captured under Occurrences.

38. **Missed Diagnosis** - Inaccurate assessment of patient's injuries and/or inaccurate radiologic reading that lead to the diagnosis after discharge.


40. **Nursing: Delay in notification of patient event** - Delay to inform and / or respond to a change in pt. status, event, or result.

41. **Nursing: Documentation issue** - Documentation that is incomplete, incorrect, missing, or misinformed which results in a documentation error.

42. **Nursing: Medication issue** - Deviation from 1 of the 5 core principles in medication administration; documented:
   a. Correct medication
   b. Correct patient
   c. Correct dosage
   d. Correct route
   e. Correct time

43. **Nursing: Transfusion Issue** – Removed, definition added to 6 (Blood Bank: Transfusion Issue). Maps to OFI006.

44. **Nutrition issues** - Enteral feeding post resuscitation or acute operative course (ED to OR) per institutional guidelines:
   a. Parental nutrition used in combination with enteral nutrition started at < 8 days
   b. Parental nutrition alone started at < 8 days
   c. Delay in following nutritional recommendations

45. **OR Delay: Other** - Events resulting in a delay to operative patient care. Include delay in the following:
   a. Staffing (exclude anesthesiology)
   b. Facility
   c. Scheduling
   d. Therapy
   e. Diagnostic
   f. Equipment
   g. Social (family)
   h. Transportation

46. **OR Delay: Anesthesia Related** - Anesthesia events resulting in a delay to operative patient care.

47. **OR Delay: Availability** - OR room or OR team not available when needed for patient care.
48. **OR Delay: Resuscitation** – Fluids, blood products, medications and equipment unavailable at the time of resuscitation. REMOVED

49. **OR Delay: Transportation** – Removed, definition added to 45 (OT Delay: Other). Maps to OFI045.

50. **Organ Procurement Issues** -
   a. The hospital failed to call Organ Procurement Organization (OPO)
   b. Communication with the family about OPO occurred before the OPO team was present
   c. OPO process or personnel was not efficient

51. **Pain management issues** -
   a. Failed to identify pain management needs
   b. Failed to order the appropriate doses
   c. Delay in starting a pain management regime
   d. Adverse event due to lack of pain medicine, ex: respiratory compromise

52. **Pharmacy: Other Issues** - Any delay or incorrect medication that resulted in a "never event" or an actual adverse event.

53. **Pharmacy: Delay in providing necessary medication** - Delay in access to medications or putting orders into the computer for processing.

54. **Pharmacy: Medication issue** - Pharmacy sent the wrong medication or sent the wrong dose.

55. **Physician - Documentation Issue** - Documentation that is incomplete, incorrect, missing, or misinformed which results in a documentation error.

56. **Post discharge: Other** - Any care related issue identified \(<\) 30 days after a previous hospital admission.

57. **Post discharge: DVT/PE** - DVT/PE identified \(<\) 30 days after a previous hospital admission. REMOVED

58. **Post discharge: Infection** - Infection identified \(<\) 30 days after a previous hospital admission.

59. **Professional Behavior: Inappropriate** - Behavior deemed offensive and/or inappropriate as defined by hospital policy. This would include intimidating and disruptive behavior.

60. **Progression of Original Neurological Insult** - Documentation by a physician of deterioration or additional loss of function from that noted during hospital stay, i.e. paralysis, paresis or other neurologic sequelae.

61. **Radiology Delay: Interventional Radiology** - Absence of documentation demonstrating timely response or intervention to the ordered consultation.

62. **Radiology Interpretation: Delay** - Delay in radiology reading & reporting beyond the trauma center’s allotted time frame without supporting documentation.

63. **Radiology Interpretation: Issue** - Discrepancy in radiology reading & reporting. (Either by another radiologist or on subsequent radiographs).

64. **Radiology Imaging Delay: CT** - Delay in obtaining a CT scan from time of order- beyond the trauma center’s allotted time frame without supporting documentation.

65. **Radiology Imaging Delay: Plain Film** - Delay in obtaining an x-ray from time of order- beyond the trauma center’s allotted time frame without supporting documentation.

66. **Readmission: Unplanned** - Patients with unplanned readmissions to the hospital (\(<\)30 days) after a previously related hospital admission.


70. **Spine Clearance: Delay** - C-spine not cleared within established time frame designated by institution without documented explanation.

71. **Spine Clearance: Protocol Not Followed** - C-collar immobilization removed before patient meets criteria for clearance in institution's protocol.

72. **Subspecialist: Judgment Issue** - Plan of care not evident; omission or delay in implementing plan of care; error in plan of care within the institutions or treatment team's protocol.

73. **Subspecialist: Technical Issue** - Error in surgical/ interventional management; error in procedure, iatrogenic injury during procedure resulting in harms or increased length of stay.

74. **Subspecialist: Deviation from guidelines/protocols** - Non-justified variance from guidelines / protocols.

75. **Subspecialist: Lack of appropriate patient/family communication** – Removed, definition added to 12 (Communication: Lack of appropriate patient/family communication). Maps to OFI012.


77. **Transfer Delay: Time Unjustified** - Unjustified > 3 hrs at outside hospital; prolonged work up; delay in transport team; excessive work up/studies.

78. **Trauma Surgeon: Judgment Issue** - Plan of care not evident; omission or delay in implementing plan of care; error in plan of care within the institutions or treatment team’s protocol.

79. **Trauma Surgeon: Technical Issue** - Error in surgical/ interventional management; error in procedure, iatrogenic injury during procedure resulting in harms or increased length of stay.

80. **Trauma Surgeon: Deviation from guidelines/protocols** - Non-justified variance from guidelines / protocols.

81. **Trauma Surgeon: Lack of Resident/Advanced Practice Staff Supervision** - Lack of evidence of attending oversight for critical decision making/ management

82. **Trauma Surgeon: Post ED destination inappropriate** – Removed, definition added to new 85 below. (Post ED destination inappropriate). Maps to OFI085.

83. **Triage: Over** - Overestimating the level of injury; Trauma activation initiated that did not meet institution's Trauma Activation guidelines

84. **Triage: Under** - Failing to initiate or upgrade to appropriate level of trauma activation based on institution's Trauma Activation guidelines

85. **Post ED destination inappropriate** – Admission to level of care that is inappropriate for acuity of patient, inappropriate based on clinical guidelines or trauma or non-trauma floor. Decision to transfer/ not transfer to another facility deviates from institution's guidelines. (Please note: Former OFI076 Subspecialist: Post ED destination inappropriate and OFI082 Trauma Surgeon: Post ED destination inappropriate were removed and now are mapped to this new OFI085)

86. **Transfer to Higher Level of Care**: Unplanned and in-house patient transfers

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**Occurrences Reference List**

01 = None  
20 = Acute Respiratory Distress Syndrome (ARDS):  
21 = Acute Respiratory Failure  
22 = Aspiration/Aspiration Pneumonia  
24 = Fat Embolus Syndrome  
26 = Pneumonia Retired in 2016  
100 = Pneumonia (Does not include VAP (ventilator-assisted pneumonia))  
27 = Iatrogenic Pneumothorax  
28 = Pulmonary Embolus (PE)  
48 = Cardiopulmonary Arrest (unexpected, not resulting in death) – Retired in 2015  
34 = Major Dysrhythmia  
32 = Extremity Compartment Syndrome  
33 = Deep Vein Thrombosis (DVT)  
35 = Myocardial Infarction (MI):  
41 = Coagulopathy (excluding anticoagulation therapy, coumadin therapy, or underlying hematologic disorders, e.g. hemophilia):  
50 = Acute Kidney Injury

January 2017 Grey Highlighted area = addition or revision
70 = Empyema:
76 = Sepsis:
77 = Septicemia Retired in 2016
78 = Acute sinusitis:
79 = Soft Tissue Infection:
97 = Urinary Tract Infection (UTI) (not present on admission) Retired in 2016
101 = Urinary Tract Infection (UTI) (not present on admission, NOT including CAUTI (catheter-associated urinary tract infection))
99 = Wound Infection (traumatic or incisional)
80 = Esophageal Intubation (Inhouse Only)
69 = Unrecognized Mainstem Bronchus Intubation
83 = GI Bleeding
86 = Small Bowel Obstruction (SBO): (excluding ileus)
64 = CNS Infection
91 = Iatrogenic Organ, Nerve, Vessel
65 = Dehiscence/Evisceration
94 = Pressure Ulcer (formerly Decubitus Ulcer)
46 = Hypothermia:
47 = Post-Operative Hemorrhage:
49 = Adverse Drug Reaction
10 = Burn Graft Loss (of any percentage):
11 = Burn Wound Infection Post Excision:
12 = Burn Wound Sepsis (occurring in a burn patient; which is related to the burn):
13 = Burn Wound Cellulitis:
14 = Delay In Burn Donor Site Healing
15 = Hypovolemia
201 = Drug or alcohol withdrawal syndrome Retired in 2017
202 = Unplanned intubation:
203 = Unplanned return to the OR:
204 = Unplanned return admission to the ICU:
205 = Stroke/CVA:
206 = Cardiac Arrest with CPR
207 = Ventilator-Assisted Pneumonia
208 = Catheter Associated Urinary Tract Infection (CAUTI)
209 = Central Line-Associated Bloodstream Infection (CLABSI)
210 = Alcohol Withdrawal Syndrome (WHO Definition)

Occurrence Definitions:

Definition: An occurrence is defined as an unexpected event directly affecting patient care
Intent: Directly affect care and outcome; used to determine what factors contributed to morbidity and mortality; used in filter calculation

NONE
01 = None: patient’s hospital course has no identifiable clinical problems. When “01” is recorded the Date and Location elements will be automatically skipped.

PULMONARY
20 = Acute Respiratory Distress Syndrome (ARDS): utilize the NTDB Complication definition for Acute Respiratory Distress Syndrome (ARDS) which states:
   Timing: Within 1 week of known clinical insult or new or worsening respiratory symptoms.
   Chest imaging: Bilateral opacities – not fully explained by effusions, lobar/lung collage, or nodules

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Origin of edema: Respiratory failure not fully explained by cardiac failure of fluid overload.
Need objective assessment (e.g., echocardiography) to exclude hydrostatic edema if no risk factor present

Oxygenation (at a minimum): 200<Pa02/Fi02 ≤ 300 With PEEP or CPAP ≥ 5 cmH20c

21 = Acute Respiratory Failure: The need for prolonged (greater than 96 consecutive hours) ventilatory support after a period of normal non-assisted breathing (minimum of 48 hours) or reintubation.
   a. planned - do not report (i.e. taken to OR)
   b. unplanned – report

22 = Aspiration/Aspiration Pneumonia: documented inhalation of gastric contents or other materials followed by clinical and new radiological findings of pneumonitis which requires treatment within 48 hours.

24 = Fat Embolus Syndrome: documented diagnosis by an attending physician in a patient with pelvic or extremity fractures and a decreased PO2.
   One of the following must also be present:
   1. change in mental status,
   2. petechial signs,
   3. tachypnea,
   4. fat in urine, or
   5. decreased platelets.

27 = Iatrogenic Pneumothorax: presence of intrapleural air not present on admission radiograph, resulting from treatment or intervention. (Note: The descriptor of iatrogenic was added in 2012.)

28 = Pulmonary Embolus (PE): Defined as a lodging of a blood clot in a pulmonary artery with subsequent obstruction of blood supply to the lung parenchyma. The blood clots usually originate from the deep leg veins or the pelvic venous system. Consider the condition present if the patient has a V-Q scan interpreted as high probability of pulmonary embolism or a positive pulmonary arteriogram or positive CT angiogram. (NTDB Definition adopted by PTSF in 2011)

48 = Cardiopulmonary Arrest (unexpected, not resulting in death): documented by a physician.
Retired in 2015

100 = Pneumonia (does not include VAP (ventilator-associated pneumonia): which is defined as a patient with evidence of pneumonia that develops during the hospitalization without clinical evidence of inhalation injury. Patients with pneumonia must meet at least one of the following two criteria:
   Criterion 1. Rales or dullness to percussion on physical examination of chest AND any of the following:
      a. New onset of purulent sputum or change in character of sputum
      b. Organism isolated from blood culture
      c. Isolation of pathogen from specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy
   Criterion 2. Chest radiographic examination shows new or progressive infiltrate, consolidation, Cavitation, or pleural effusion AND any of the following:
      a. New onset of purulent sputum or change in character or sputum

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b. Organism isolated from the blood
c. Isolation of pathogen from specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy
d. Isolation of virus or detection of viral antigen in respiratory secretions
e. Diagnostic single antibody titer (IgM) or fourfold increase in paired serum samples (IgG) for pathogen
f. Histopathologic evidence of pneumonia

**CARDIOVASCULAR**

34 = **Major Dysrhythmia**: Dysrhythmia requiring drugs or defibrillation. (not resulting in death)
   Examples:
   - supraventricular tachycardia
   - rapid atrial fibrillation
   - sustained ventricular tachycardia
   - bradycardia requiring pacing

32 = **Extremity Compartment Syndrome**: Utilize the NTDB complication definition for Extremity Compartment Syndrome defined as a condition *not present at admission* in which there is documentation of tense muscular compartments of an extremity through clinical assessment or direct measurement of intracompartmental pressure requiring fasciotomy. Compartment syndromes usually involve the leg but can also occur in the forearm, arm, thigh, and shoulder. Record as a complication if it is originally missed, leading to late recognition, a need for late intervention, and has threatened limb viability. (*NTDB Definition adopted by PTSF in 2011*)

33 = **Deep Vein Thrombosis (DVT)**: Utilize the NTDB complication definition for Deep Vein Thrombosis, which states: The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation. This diagnosis may be confirmed by a venogram, ultrasound, or CT. The patient must be treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava. (*NTDB Definition adopted by PTSF in 2011*)

35 = **Myocardial Infarction (MI)**: Utilize the NTDB complication definition for Myocardial Infarction, which states: An acute myocardial infarction must be noted with documentation of any of the following:
   - Documentation of ECG changes indicative of acute MI (one or more of the following three):
     1. ST elevation >1 mm in two or more contiguous leads
     2. New left bundle branch block
     3. New q-wave in two or more contiguous leads
     OR
     New elevation in troponin greater than three times upper level of the reference range in the setting of suspected myocardial ischemia
     OR
     Physician diagnosis of myocardial infarction
   Must have occurred during the patient’s initial stay at your hospital.

**HEMATOLOGIC/COAGULOPATHY**

41 = **Coagulopathy (excluding anticoagulation therapy, coumadin therapy, or underlying hematologic disorders, e.g. hemophilia)**: *uncontrolled diffuse bleeding* in the presence of coagulation abnormalities, e.g., increased prothrombin time, increased partial thromboplastin time, decreased platelet count, or
disseminated intravascular coagulation (DIC) requiring treatment, i.e., transfusion of components such as platelets, clotting factors, FFP.

**RENA L**

50 = **Acute Renal Failure**: Acute Kidney Injury: utilize the NTDB Complication definition for Acute Kidney Injury, which states: acute kidney injury (AKI) (stage 3), is an abrupt reduction of kidney function defined as: increase in serum creatinine (SCr) of more than or equal to 3x baseline OR; increase in SCr to \( \geq 4 \text{ mg/dl (} \geq 353.3 \text{ µmol/l) OR; patients} \geq 18 \text{ years with a decrease in GFR to} < 35 \text{ ml/min per 1.73 m}^2 \text{ OR; reduction in urine output of } < 0.3 \text{ ml/kg/hr for } \geq 24 \text{ hrs OR; anuria for } \geq 12 \text{ hrs. OR; requiring renal replacement therapy (e.g., continuous renal replacement therapy (CRRT) or periodic peritoneal dialysis, hemodialysis, hemofiltration, or hemodiafiltration).} \)**

**NOTE**: If the patient or family refuses treatment (e.g., dialysis) the condition is still considered to be present if a combination of oliguria and creatinine are present. **EXCLUDE** patients with renal failure that were requiring chronic renal replacement therapy such as periodic peritoneal dialysis, hemodialysis, hemofiltration, or hemodiafiltration prior to injury.

**INFECTION/SEPSIS**

70 = **Empyema**: infection documented by purulent material or positive culture from the pleural space requiring thoracostomy tube drainage.

76 = **Sepsis**: documented by a physician with at least two or more of the following conditions (which occur at the same time):
1. core temperature of \( > 38^\circ \text{C or } \leq 36^\circ \text{C} \)
2. white blood cell count \( > 12,000 \text{ or } < 4,000 \text{ or } > 10\% \text{ immature bands} \)
3. positive blood cultures (excluding contaminants)
4. clinically obvious source of infection
5. heart rate \( > 90 \text{ beats/min or respiratory rate } > 20 \text{ breaths/min} \)

78 = **Acute sinusitis**: opacification on x-ray or CT with fever and/or positive purulent drainage requiring treatment.

79 = **Soft Tissue Infection**: documentation by a physician of cellulitis, gas gangrene, necrotizing fascitis, or streptococcal myositis requiring treatment.

99 = **Wound Infection (traumatic or incisional)**: drainage of purulent material from the wound, active treatment of the wound, or administration of antibiotics for the wound. An abdominal abscess would not be considered a wound infection and is not applicable as an occurrence.

101 = **Urinary Tract Infection (UTI) (not present on admission, NOT including CAUTI (catheter-associated urinary tract infection)**: clean voided or other catheter urine specimen with \( > 100,000 \text{ organisms/ml on C/S} \). Physician institutes appropriate therapy for a urinary tract infection An infection is considered Present on Admission (POA) if the date of event of the NHSN site-specific infection criterion occurs during the POA time period, which is defined as the day of admission to an inpatient location (calendar day 1), the 2 days before admission, and the calendar day after admission. **CDC guidelines used as reference.**

**AIRWAY MANAGEMENT**

80 = **Esophageal Intubation (Inhouse Only)**: endotracheal tube in esophagus and not immediately repositioned. Esophageal location determined by physical exam, x-ray, capnography or endoscopy.
Note: The additional clarification of “inhouse only” was added in 2012.

69 = Unrecognized Mainstem Bronchus Intubation: any endotracheal intubation procedure resulting in definitive placement of the tube in either the right or left mainstem bronchus.
   a. recognized and treated immediately - not reportable
   b. unrecognized on 2 successive chest x-rays - reportable

GASTROINTESTINAL
83 = GI Bleeding: blood loss from anywhere in the GI tract, grossly positive nasogastric (NG) aspirate, or grossly positive stool which requires treatment.

86 = Small Bowel Obstruction (SBO): (excluding ileus) radiographic evidence of dilated loop of bowel with multiple air-fluid levels and confirmed by a surgeon requiring treatment (surgery or NG tube).

NEUROLOGIC
64 = CNS Infection: CSF aspirate with positive culture and increased white blood cell count

PROCEDURE RELATED
91 = Iatrogenic Organ, Nerve, Vessel: perforation or injury resulting from treatment or intervention.
   (Note: The descriptor of iatrogenic was added in 2012.)

DECUBITUS
65 = Dehiscence/Evisceration: breakdown of fascial closure confirmed by discharge of peritoneal fluid, evisceration or palpable fascial defect.

94 = Pressure ulcer: Utilize NTDB Complication definition for Pressure Ulcer, defined as Consistent with the National Pressure Ulcer Advisory Panel (NPUAP) 2014. Always use the most recent definition provided by the NPUAP. A localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated. Equivalent to NPUAP Stages II-IV, Unstageable/Unclassified, and Suspected Deep Tissue Injury. Documentation of Pressure Ulcer must be in the patient’s medical record, and must have occurred during the patient’s initial stay at your hospital.

HYPOTHERMIA
46 = Hypothermia: (nontherapeutic) rectal or core temperature ≤ 34 °C or 93.2 °F.
If the patient presents to the hospital with hypothermia, the hypothermia is considered a diagnosis. If the hypothermia presents during the hospital stay and is unexpected, the hypothermia is considered an occurrence.

POST-OPERATIVE HEMORRHAGE
47 = Post-Operative Hemorrhage: requiring operative intervention.
   Procedures done in angio to control the hemorrhage should be considered operative interventions and the hemorrhage should be included as an occurrence.

PHARMACOLOGY
49 = Adverse Drug Reaction: As documented by a physician, plus one of the following:
   1. Adversely affects patient care
2. Increases length of stay
3. Increases morbidity and mortality

**BURNS** (Only required for burn patients at burn centers)

10 = **Burn Graft Loss (of any percentage):** documented by a physician (includes split thickness graft and free flap loss).

11 = **Burn Wound Infection Post Excision:** documented diagnosis by a physician (*after* excision).

12 = **Burn Wound Sepsis (occurring in a burn patient; which is related to the burn):** documented by a physician of drainage of purulent material from the wound, active treatment of the wound, or administration of antibiotics for the wound.

13 = **Burn Wound Cellulitis:** any documented diagnosis by a physician which includes fungal infection.

14 = **Delay In Burn Donor Site Healing:** documented by a physician of any healing which begins *greater than* 14 days post surgical procedure.

15 = **Hypovolemia:** must be documented by a physician.

**NTDS HOSPITAL COMPLICATIONS**

202 = **Unplanned intubation:** Patient requires placement of an endotracheal tube and mechanical or assisted ventilation because of the onset of respiratory or cardiac failure manifested by severe respiratory distress, hypoxia, hypercarbia, or respiratory acidosis. In patients who were intubated in the field or Emergency Department, or those intubated for surgery, unplanned intubation occurs if they require reintubation > 24 hours after extubation. *Added in 2012 to PTOS Collection.*

203 = **Unplanned return to the OR:** Unplanned return to the operating room after initial operation management for a similar or related previous procedure. *Added in 2012 to PTOS Collection.*

204 = **Unplanned return admission to the ICU:** INCLUDE: patients admitted to the ICU after initial transfer to the floor; and/or patients with an unplanned return to the ICU after initial ICU discharge. EXCLUDE: Patients in which ICU care was required for postoperative care of a planned surgical procedure

205 = **Stroke/CVA:** A focal or global neurological deficit of rapid onset and NOT present on admission. The patient must have at least one of the following symptoms:

1. Change in level of consciousness,
2. Hemiplegia,
3. Hemiparesis,
4. Numbness or sensory loss affecting one side of the body,
5. Dysphasia or aphasia,
6. Hemianopia,
7. Amaurosis fugax,
8. Or other neurological signs or symptoms consistent with stroke

AND
1. Duration of neurological deficit > 24 h
2. OR duration of deficit <24 h, if neuroimaging (MR, CT, or cerebral angiography) documents a new hemorrhage or infarct consistent with stroke, or therapeutic intervention(s) were performed for stroke, or the neurological deficit results in death

AND
1. No other readily identifiable non-stroke cause, e.g., progression of existing traumatic brain injury, seizure, tumor, metabolic or pharmacologic etiologies, is identified

AND
1. Diagnosis is confirmed by neurology or neurosurgical specialist or neuroimaging procedure (MR, CT, angiography) or lumbar puncture (CSF demonstrating intracranial hemorrhage that was not present on admission).

Although the neurologic deficit must not present on admission, risk factors predisposing to stroke (e.g., blunt cerebrovascular injury, dysrhythmia) may be present on admission. **Added in 2012 to PTOS Collection.**

**206 = Cardiac Arrest with CPR:** utilize the NTDB Complication definition for Cardiac Arrest with CPR, which states: Cardiac arrest is the sudden cessation of cardiac activity after hospital arrival. The patient becomes unresponsive with no normal breathing and no signs of circulation. If corrective measures are not taken rapidly, this condition progresses to sudden death.

INCLUDE patients who have had an episode of cardiac arrest evaluated by hospital personnel and received compressions or defibrillation or cardioversion or cardiac pacing to restore circulation.

**207 = Ventilator-Associated Pneumonia = utilize the NTDB Complication definition for Ventilator-Associated Pneumonia, which states:** A pneumonia where the patient is on mechanical ventilation for >2 calendar days on the date of event, with day of ventilator placement being Day 1, AND

The ventilator was in place on the date of event or the day before. If the patient is admitted or transferred into a facility on a ventilator, the day of admission is considered Day 1.

See NTDB Data Dictionary for VAP.

**208 = Catheter Associated Urinary Tract Infection (CAUTI) = utilize the NTDB Complication definition for Catheter Associated Urinary Tract Infection, which states:** Catheter-associated Urinary Tract Infection (Consistent with the January 2015 CDC defined CAUTI): A UTI where an indwelling urinary catheter was in place for >2 calendar days on the date of event, with day of device placement being Day 1,

AND

An indwelling urinary catheter was in place on the date of event or the day before. If an indwelling urinary catheter was in place for >2 calendar days and then removed, the date of event for the UTI must be the day of discontinuation or the next day for the UTI to be catheter-
associated.

209 = **Central line-associated bloodstream infection (CLABSI) = utilize the NTDB Complication definition for Central line-associated bloodstream infection (CLABSI), which states:** (Consistent with the January 2014 CDC Defined CLABSI): A laboratory-confirmed bloodstream infection (LCBI) where central line (CL) or umbilical catheter (UC) was in place for >2 calendar days on the date of event, with day of device placement being Day 1,

AND

A CL or UC was in place on the date of event or the day before. If a CL or UC was in place for >2 calendar days and then removed, the LCBI criteria must be fully met on the day of discontinuation or the next day. If the patient is admitted or transferred into a facility with a central line in place (e.g., tunneled or implanted central line), and that is the patient’s only central line, day of first access as an inpatient is considered Day 1. “Access” is defined as line placement, infusion or withdrawal through the line.

See NTDB Data Dictionary for CDC Criterion

210 = **Alcohol Withdrawal Syndrome:** utilize the NTDB Complication definition for Alcohol Withdrawal Syndrome which states - (Consistent with the 2016 World Health Organization (WHO) definition of Alcohol Withdrawal Syndrome. Always use the most recent definition provided by the WHO.) Characterized by tremor, sweating, anxiety, agitation, depression, nausea, and malaise. It occurs 6-48 hours after cessation of alcohol consumption, and when uncomplicated, abates after 2-5 days. It may be complicated by grand mal seizures and may progress to delirium (known as delirium tremens). Must have occurred during the patient’s initial stay at your hospital, and documentation of alcohol withdrawal must be in the patient’s medical record

**Pre-Existing Conditions (PEC) Reference List**

A.02 – Coronary Artery Disease

A.03 – Congestive Heart Failure

A.05 – Myocardial Infarction

A.06 – Hypertension requiring medication

B.01 – Insulin Dependent Diabetes Mellitus – Retired in 2015

B.02 – Non-Insulin Dependent/Type II Diabetes – Retired in 2015

B.03 – Diabetes Mellitus

C.01 – Peptic Ulcer Disease

C.02 – Gastric or Esophageal Varices

C.05 – Bariatric Surgery

D.02 – Reversible Anticoagulant Therapy – Retired in 2017

D.03 – Hemophilia/Clotting Disorders – Retired in 2015

D.05 – Anti-platelet Agents – Retired in 2017

D.06 – Thrombocytopenia/Platelet Disorders – Retired in 2015
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Pre-Existing Condition (PEC) Definitions:

**Definition:** Pre-existing co-morbid factors present before patient arrival at the ED/hospital

**Intent:** To capture specific conditions, prior to injury that the patient presents with at time of admission; these conditions were not caused by their injury, but will often have a direct effect on their treatment, length of stay and ability to recover.

These must be documented in the medical record (e.g. H&P, laboratory, radiology, operative report, consultation, autopsy report, etc.). Certain conditions are further described in the 2012 NTDB Definitions.

**A.02 – Coronary Artery Disease** – A condition caused by plaque buildup inside the coronary arteries which reduces the blood flow through the arteries to the heart muscle and typically results in chest pain or heart damage. It also causes formation of blood clots. CAD must be documented by a physician. Condition includes a revascularization, but not angioplasty, stent, CABG or a cardiac catheterization by itself. *Defined for 2012.*

**A.03 – Congestive Heart Failure** – utilize the NTDB Co-Morbid Condition definition for Congestive Heart Failure: which is defined as the inability of the heart to pump a sufficient quantity of blood to meet the metabolic needs of the body or can do so only at an increased ventricular filling pressure. To be included, this condition must be noted in the medical record as CHF, congestive heart failure, or pulmonary edema with onset or increasing symptoms within 30 days prior to injury. Common manifestations are:

- Abnormal limitation in exercise tolerance due to dyspnea or fatigue
- Orthopnea (dyspnea on lying supine)
- Paroxysmal nocturnal dyspnea (awakening from sleep with dyspnea)
- Increased jugular venous pressure
- Pulmonary rales on physical examination
- Cardiomegaly
- Pulmonary vascular engorgement

**A.05 – Myocardial Infarction** – Utilize the NTDB Co-morbid condition definition for Myocardial Infarction which is defined as History of a MI in the six months prior to injury. A diagnosis of MI must be documented in the patient’s medical record.

**A.06 – Hypertension requiring medication** – utilize the NTDB definition for Hypertension which is defined as History of persistent elevated blood pressure requiring medical therapy, present prior to injury. A diagnosis of Hypertension must be documented in the patient’s medical record.

**B.01 – Insulin Dependent Diabetes Mellitus** – Which is defined as diabetes mellitus prior to injury that required exogenous parenteral insulin or an oral hypoglycemic agent. – Retired in 2015
B.02 – Non-Insulin Dependent/Type II Diabetes – which is defined as diabetes mellitus prior to injury that required exogenous parenteral insulin or an oral hypoglycemic agent. – Retired in 2015

B.03 - Diabetes Mellitus – utilize the 2015 NTDB definition for Diabetes Mellitus which is defined as diabetes mellitus prior to injury that required exogenous parenteral insulin or an oral hypoglycemic agent.

C.01 – Peptic Ulcer Disease – Is a raw area (erosion) of the lining of the intestinal tract. Peptic ulcers are typically found in the lower half of the stomach or the first part of the duodenum. Defined for 2012.

C.02 – Gastric or Esophageal Varices – which is defined as esophageal varices are engorged collateral veins in the esophagus which bypass a scarred liver to carry portal blood to the superior vena cava. A sustained increase in portal pressure results in esophageal varices which are most frequently demonstrated by direct visualization at esophagoscopy.

C.05 – Bariatric Surgery – Bariatric surgery, or weight loss surgery, includes a variety of procedures performed on people who are obese. Weight loss is achieved by reducing the size of the stomach with an implanted medical device (gastric banding) or through removal of a portion of the stomach (sleeve gastrectomy or biliopancreatic diversion with duodenal switch) or by resecting and re-routing the small intestines to a small stomach pouch (gastric bypass surgery.) Also includes: Jejunooileal bypass, endoluminal sleeve, vertical banding gastroplasty, adjustable gastric band, sleeve gastrectomy, intragastric balloon (Gastric balloon), Gastric Plication, Gastric bypass surgery, sleeve gastrectomy with duodenal switch, implantable gastric stimulation. Defined for 2012.

D.08 – Bleeding Disorder – (Consistent with the American Society of Hematology, 2015. Always use the most recent definition provided by the American Society of Hematology.) A group of conditions that result when the blood cannot clot properly, present prior to injury. A Bleeding Disorder diagnosis must be documented in the patient’s medical record (e.g. Hemophilia, von Willenbrand Disease; Factor V Leiden.)

D.09 – Chronic Aspirin Use – Aspirin taken at least once daily.

D.10 – Anticoagulant Therapy - Utilize the NTDB definition for Anticoagulant Therapy, which states - Documentation in the medical record of the administration of medication (anticoagulants, antiplatelet agents, thrombin inhibitors, thrombolytic agents) that interferes with blood clotting, present prior to injury. Exclude patients who are on chronic Aspirin therapy. See the PTOS manual for examples.

E.00 – History of Psychiatric Disorders Mental/Psychological Disorder – utilize the NTDB definition for Mental/Psychological Disorder, which is defined as - (Consistent with American Psychiatric Association (APA) DSM 5, 2013. Always use the most recent definition provided by the APA.) Documentation of the presence of pre-injury depressive disorder, bipolar disorder, schizophrenia, borderline or antisocial personality disorder, and/or adjustment disorder/post-
traumatic stress disorder. A diagnosis of Mental/Personality Disorder must be documented in the patient's medical record.

E.01 – **Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD)**  
ADD is a developmental disorder. It is primarily characterized by "the co-existence of attentional problems and hyperactivity, with each behavior occurring infrequently alone" and symptoms starting before seven years of age. ADHD is the most commonly studied and diagnosed psychiatric disorder in children, affecting about 3 to 5 percent of children globally and diagnosed in about 2 to 16 percent of school aged children. It is a chronic disorder with 30 to 50 percent of those individuals diagnosed in childhood continuing to have symptoms into adulthood.

E.02 – **Intellectual Disability** – is a generalized disorder appearing before adulthood, characterized by significantly impaired cognitive functioning and deficits in two or more adaptive behaviors. It has historically been defined as an Intelligence Quotient score under 70. Once focused almost entirely on cognition, the definition now includes both a component relating to mental functioning and one relating to individuals’ skills in their environment. As a result, a person with a below-average intelligence quotient (BAIQ) may not be considered intellectually disabled.

F.01 – **HIV/AIDS** – All HIV-infected individuals with CD4 counts of <200/cells/µL (or CD4 <14%) as well as those with certain HIV related conditions and symptoms. The CDC categorization of HIV/AIDS is based on the lowest documented CD4 cell and on previously diagnosed HIV-related conditions. Patients in categories A3, B3, and C1-C3 are considered to have HIV/AIDS.

F.02 – **Routine Steroid Therapy** – utilize the 2015 NTDB definition of Steroid Use which is defined as patients that required the regular administration of oral or parenteral corticosteroid medications (e.g. prednisone, dexamethasone) in the 30 days prior to injury for a chronic medical condition (e.g., COPD, asthma, rheumatologic disease, rheumatoid arthritis, inflammatory bowel disease.) Do not include topical corticosteroids applied to the skin or corticosteroids administered by inhalation or rectally.

F.03 – **Transplants (Major organ transplants ONLY)** – The surgical replacement of an organ that is no longer functioning with a viable functioning organ. Transplanted organs to include: heart, lung, liver, pancreas, kidney, and small bowel.

F.04 – **Active Chemotherapy** – utilize the 2015 NTDB definition of Currently receiving chemotherapy for cancer, which is defined as a patient who is currently receiving any chemotherapy treatment for cancer prior to admission. Chemotherapy may include, but is not restricted to, oral and parenteral treatment with chemotherapeutic agents for malignancies such as colon, breast, lung, head and neck, and gastrointestinal solid tumors as well as lymphatic and hematopoietic malignancies such as lymphoma, leukemia, and multiple myeloma.

G.02 – **Documented History Of Cirrhosis** – utilize the NTDB definition for Cirrhosis which is defined as documentation in the medical record of cirrhosis, which might also be referred to as end stage liver disease. If there is documentation of prior or present esophageal or gastric varices, portal hypertension, previous hepatic encephalopathy, or ascites with notation of liver disease, then
cirrhosis should be considered present. Cirrhosis should also be considered present if
documented by diagnostic imaging studies or a laparotomy/laparoscopy.

H.01 – **Undergoing Current Therapy** – Patients with a past medical history of cancer that is
currently being treated (within the past 30 days) with either radiation, hormone therapy or
immunotherapy.

H.02 – **Concurrent or Existence of Metastasis** – utilize the 2015 NTDB definition for
Disseminated Cancer which is defined as patients who have cancer that has spread to one site or
more sites in addition to the primary site, AND in whom the presence of multiple metastases
indicates the cancer is widespread, fulminant, or near terminal.

I.01 – **Arthritis** - A form of joint disorder that involves inflammation of one or more joints. There are
over 100 different forms of arthritis. The most common form, osteoarthritis (degenerative joint
disease) is a result of trauma to the joint, infection of the joint, or age. Other arthritis forms are
rheumatoid arthritis, psoriatic arthritis, and related autoimmune diseases.

I.02 – **Systematic Lupus Erythematosus** – A chronic inflammatory condition caused by an
autoimmune disease. An autoimmune disease occurs when the body’s tissues are
attacked by its own immune system. Patients with lupus have unusual antibodies in their
blood that are targeted against their own body tissues.

I.03 – **Osteogenesis Imperfecta (OI)** – Osteogenis imperfecta is a genetic disorder characterized by
bones that break easily, often from little or no apparent cause. Type I through Type VIII.

J.01 – **Spinal Cord Injury** – Any insult that causes temporary or permanent change in normal
motor and/or sensory functions in the spinal cord of the thoracic, lumbar, or sacral
segments.

J.09 – **CVA (any documented h/o CVA with residual motor or cognitive deficits)** - utilize the 2015 NTDB
definition for CVA, which is defined as a history prior to injury of a cerebrovascular accident
(embolic, thrombotic, or hemorrhagic) with persistent residual motor sensory or cognitive
dysfunction (e.g., hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory).

J.10 – **Autism Spectrum** – Autism spectrum disorders (ASDs) are a group of related
developmental disabilities, caused by a problem with the brain, that affect a child’s
behavior, social, and communication skills. Autism, Asperger Syndrome, and Pervasive
Developmental Disorder–Not Otherwise Specified (PDD-NOS) are the three recognized
autism spectrum disorders.

J.11 – **Cerebral Palsy (CP)** – Cerebral palsy is a heterogeneous group of neuromotor conditions
involving disordered movement or posture and weakness resulting from a non-
progressive brain lesion, injury, or malformation occurring prenatally or in the first two
(2) years of life.
J.12 – Dementia – utilize the NTDB definition for Dementia, which is defined as documentation in the patient’s medical record of dementis including senile or vascular dementia (e.g., Alzheimer’s) present prior to injury.

K.00 – Obesity – Documented by a physician OR a BMI of 30 or greater.

L.05 - Respiratory Disease Chronic Obstructive Pulmonary Disease (COPD) – utilize the NTDB definition for Chronic Obstructive Pulmonary Disease (COPD) which states - (Consistent with World Health Organization (WHO), 2015. Always use the most recent definition provided by the WHO.) Lung ailment that is characterized by a persistent blockage of airflow from the lungs, present prior to injury. It is not one single disease but an umbrella term used to describe chronic lung diseases that cause limitations in lung airflow. The more familiar terms "chronic bronchitis" and "emphysema" are no longer used, but are now included within the COPD diagnosis and result in any one or more of the following:

- Functional disability from COPD (e.g., dyspnea, inability to perform activities of daily living (ADL’s))
- Hospitalization in the past for treatment of COPD
- Requires chronic bronchodilator therapy with oral or inhaled agents
- A forced expiratory volume in 1 second (FEV1) of <75% of predicted on pulmonary function testing

A diagnosis of COPD must be documented in the patient’s medical record. Do not include patients whose only pulmonary disease is acute asthma, and/or diffuse interstitial fibrosis or sarcoidosis.

M.01 – Serum Creatinine > 2 mg % (On admission) – Patient presents with a history of renal disease and the serum creatinine level is > 2 mg% on initial admission blood work, or the serum creatinine level is > 2 mg% on initial admission blood work, but no documented history of renal disease.

M.02 – Dialysis (excluding transplant patients) – utilize the NTDB definition for Chronic renal failure, which is defined as acute or chronic renal failure prior to injury that was requiring periodic peritoneal dialysis, hemodialysis, hemofiltration, or hemodiafiltration.

N.01 – Drug Use Disorder Substance Abuse Disorder – utilize the NTDB definition for Substance Abuse Disorder (Consistent with American Psychiatric Association (APA) DSM 5, 2013. Always use the most recent definition provided by the APA.) Documentation of Substance Abuse Disorder documented in the patient medical record, present prior to injury. A diagnosis of Substance Abuse Disorder must be documented in the patient’s medical record.

N.02 – Chronic Ongoing Alcohol Abuse - utilize the NTDB definition for Alcohol Use Disorder. Diagnosis of alcohol use disorder documented in the patient medical record, present prior to injury, consistent with APA DSM 5. Note: Social work, drug and alcohol counselor consults may be used to document this pre-existing condition.

P.00 – Pregnancy – Patient presenting with current (gravid) pregnancy with obvious physical findings of pregnancy, confirmed by lab work, ultrasound, or as reported by patient
and/or family members.

Q.01 – **Previous history of head trauma** – Any previous injury to the brain, skull or scalp (whether open or closed), that caused anything from drowsiness to an intracranial bleed. A TBI must be clearly documented.

R.01 – **Thyroid Disease** – Thyroid disease is a medical condition impairing the function of the thyroid. Hypothyroidism (underactivity) includes Hashimoto’s thyroiditis, thyroiditis, Oed’s thyroiditis, postoperative hypothyroidism, postpartum thyroiditis, silent thyroiditis, acute thyroiditis, iatrogenic hypothyroidism, thyroid hormone resistance, Euthyroid sick syndrome. Hyperthyroidism (overactivity) includes Thyroid storm, Grave’s disease, Toxic thyroid nodule, Toxic nodular struma (Plummer’s disease), Hashitoxicosis, Iatrogenic hyperthyroidism, De Quervain’s thyroiditis (inflammation starting as hyperthyroidism, can end as hypothyroidism). If the patient is on synthroid medication, this can be used to document thyroid disease as a pre-existing condition.

S.02 – **Current Smoker** – which is defined as a patient who reports smoking cigarettes every day or some days within the last 12 months. Includes electronic cigarette use. Excludes patients who smoke cigars or pipes or use smokeless tobacco (chewing tobacco or snuff).

S.03 – **Advanced Directive Limited Care** – NTDB Co-Morbid Condition - utilize the 2015 NTDB definition, which states - the patient had a Do Not Resuscitate (DNR) document or similar advance directive recorded prior to injury.

S.04 – **Functionally Dependent Health Status** – utilize the 2015 NTDB definition, pre-injury functional status may be represented by the ability of the patient to complete age appropriate activities of daily living (ADL) including: bathing, feeding, dressing, toileting, and walking. This item is marked YES if the patient, prior to injury, and as a result of cognitive or physical limitations relating to a pre-existing medical condition, was partially dependent or completely dependent upon equipment, devices or another person to complete some or all activities of daily living.

S.06 – **History of Peripheral Vascular Disease (PVD)** **Peripheral Arterial Disease** - NTDB Co-Morbid Condition – Utilize the NTDB definition - (Consistent with Centers for Disease Control, 2014 Fact Sheet. Always use the most recent definition provided by the CDC.) The narrowing or blockage of the vessels that carry blood from the heart to the legs, present prior to injury. It is primarily caused by the buildup of fatty plaque in the arteries, which is called atherosclerosis. PAD can occur in any blood vessel, but it is more common in the legs than the arms. A diagnosis of PAD must be documented in the patient's medical record.

S.07 – **Prematurity** – NTDB Co-Morbid Condition –Utilize the 201 NTDB definition, defined as documentation of premature birth, a history of bronchopulmonary dysplasia, or ventilator support for greater than 7 days after birth—Premature birth is defined as infants delivered before 37 weeks from the first day of the last menstrual period.

S.08 – **Pre-hospital cardiac arrest with CPR** – A patient who experienced a sudden cessation of cardiac activity. The patient was unresponsive with no normal breathing and no signs of circulation. The event must have occurred outside of the reporting hospital, prior to admission at the center in which the registry is maintained. Pre-hospital cardiac arrest could occur at a transferring...
institution. Any component of basic and/or advanced cardiac life support must have been initiated by a health care provider.

**If this pre-existing condition is selected, it will map to a ‘yes’ response to the NTDB element ‘Pre-hospital Cardiac Arrest.’ If this pre-existing condition is not selected, it will map to a response of ‘no’ to the NTDB element ‘Pre-hospital Cardiac Arrest.’

S.09 – **Angina Pectoris** – Utilize the NTDB Definition for Angina Pectoris which states- (Consistent with the American Heart Association (AHA), May 2015. Always use the most recent definition provided by the AHA.) Chest pain or discomfort due to Coronary Heart Disease, present prior to injury. Usually causes uncomfortable pressure, fullness, squeezing or pain in the center of the chest. Patient may also feel the discomfort in the neck, jaw, shoulder, back or arm. Symptoms may be different in women than men. A diagnosis of Angina or Chest Pain must be documented in the patient’s medical record.

T.00 – **Congenital Disorder** - Utilize the 2015 NTDB definition for Congenital Anomalies, which is defined as documentation of a cardiac, pulmonary, body wall, CNS/spinal, GI, renal, orthopaedic, or metabolic congenital anomaly.

* = Unknown – It is best to choose unknown for pre-existing conditions from the pre-existing conditions drop down menu. To manually enter unknown, the asterik must be used. The asterik is entered by using the shift and the 8 key on your keyboard. When printing a report the asterik will be replaced by “unk” automatically.
Audit Filters

ACS Filters List

- Ambulance scene time > 20 minutes (ACS Audit Filter #1)
- Absence of ambulance report on medical record for patient transported by EMS from scene (ACS Audit Filter #2)
- Patient with admission GCS < 14 who does not receive a CT of the head (ACS Audit Filter #3)
- Absence of sequential neurological documentation on emergency department record of trauma patient with a diagnosis of skull fracture or intracranial injury (ACS Audit Filter #4a)
- Absence of sequential neurological documentation on emergency department record of trauma patient with a diagnosis of spinal cord injury (ACS Audit Filter #4b)
- Absence of hourly documentation of blood pressure, pulse and respiration for any trauma patient beginning with arrival in ED, including time spent in radiology, up to admission to the ward, floor, OR, or ICU; death; or transfer to another hospital (ACS Audit Filter #5)
- Patient left ED with a discharge GCS ≤ 8 and without a definitive airway established (ACS Audit Filter #6)
- Any patient sustaining a GSW to the abdomen who is managed nonoperatively (ACS Audit Filter #8)
- Patient requiring laparotomy which is not performed within 2 hours of ED arrival (ACS Audit Filter #9)
- Patient with epidural or subdural brain hematoma receiving initial craniotomy > 4 hours after arrival at ED, excluding those performed for ICP monitoring (ACS Audit Filter #10)
- Patient transferred in after 3 hours at initial hospital (ACS Audit Filter #11a)
- Patient transferred out after 3 hours from ED arrival (ACS Audit Filter #11b)
- Interval of > 8 hours between arrival and initial treatment of blunt open tibial fracture (ACS Audit Filter #12) – Deleted for 2015
- Initial abdominal, intrathoracic, vascular, or cranial surgery performed > 24 hours after ED arrival (ACS Audit Filter #13)
- Trauma patient admitted to hospital under care of admitting or attending physician who is not a surgeon (ACS Audit Filter #15a)
- Burn patient with inhalation injury not admitted to burn or pulmonary service (ACS Audit Filter #15b)
- Nonfixation of femoral diaphyseal fracture in adult trauma patient (ACS Audit Filter #16)
- Any patient requiring reintubation within 48 hours of extubation (ACS Audit Filter #18)
- Specific occurrences (ACS Audit Filter #19)
- Patient with diagnosis at discharge of cervical spine fracture, subluxation, or neuro deficit not addressed on admission (ACS Audit Filter #20)
- All deaths (ACS Audit Filter #21)
Burn patient with inhalation injury and not intubated (ACS Audit Filter #23)

JCAHO Filters List

- Trauma patient with open fractures of long bones as a result of blunt trauma receiving initial surgical treatment > 8 hours after ED arrival (JCAHO Clinical Indicator #6)

- Trauma patient with diagnosis of liver or spleen laceration undergoing initial laparotomy > 2 hours after ED arrival (JCAHO Clinical Indicator #7)

- Trauma patient undergoing laparotomy for wounds penetrating the abdominal wall (gunshot and stab wounds) (JCAHO Clinical Indicator #8)

- Intrahospital mortality of trauma patient with 1 or more of the conditions who did not undergo a procedure for the condition: tension pneumothorax, hemoperitoneum, hemothoraces, ruptured aorta, pericardial tamponade, and epidural or subdural hemorrhage (JCAHO Clinical Indicator #11)

- Trauma patient who expired within 48 hours of ED arrival, with autopsy performed (JCAHO Clinical Indicator #12)

ACS Filters Definitions
Definitions of the audit filters provided in your COLLECTOR version are given on the following pages. ACS filters are indicated by ACS in parenthesis. JCAHO clinical indicators are indicated by JCAHO in parenthesis. Those listed in the COLLECTOR manual as not being used by PTOS or otherwise duplicated are not listed.

- Ambulance scene time > 20 minutes (ACS Audit Filter #1)

  Trauma Patient; AND

  Transport from Scene (SCENE_TRANS) = 1 (Ambulance), 2 (Helicopter), 3 (Ambulance/Helicopter) or 5 (Fire Rescue); AND

  Arrive at Scene Time (SCENE_ARRIVE_TIME) to
  Leave Scene Time (SCENE_LEAVE.TIME) > 20 minutes.

  If the response to “Were scene provider and transport provider the same?” is a 1 (yes) then just the Scene Section Arrive and Leave dates and times are used to calculate the time.
If the response to “Were scene provider and transport provider the same?” is a 2 (no) then the earliest Arrive date and time in either the Scene or Transport section and the Leave date and time in the Transport section are used to calculate the time.

Interhospital times are not utilized.

- Absence of ambulance report on medical record for patient transported by EMS from scene (ACS Audit Filter #2)
  
  Transport from Scene (SCENE_TRANSP) = 1 (Ambulance), 2 (Helicopter), 3 (Ambulance/Helicopter) or 5 (Fire Rescue); AND
  
  Patient Care Record in Patient Medical Record from Scene (SCENE_RUN_FORM) = 2 (No).

  If the response to “Were scene provider and transport provider the same?” is a 1 (yes) then just the Scene Section “Patient Care Record in Medical Record” is used to determine the absence.

  If the response to “Were scene provider and transport provider the same?” is a 2 (no) then just the Transport Section “Patient Care Record in Medical Record” is used to determine the absence.

  The Interhospital Section is not utilized.

- Patient with admission GCS < 14 who does not receive a CT of the head (ACS Audit Filter #3)

  Trauma Patient; AND

  GCS on Admission (GCS_A) < 14; AND

  “Did patient receive a CT scan of the head?” (CT_SCAN) = 2 (No).

- Absence of sequential neurological documentation on emergency department record of trauma patient with a diagnosis of skull fracture or intracranial injury (ACS Audit Filter #4a)

  Trauma Patient; AND

  Any ICD-10-CM diagnosis code (ICD10_01, ICD10_02, ... ICD10_27) that starts with S02.0, S02.1, S04, S06, S07.1; AND

  "Is there sequential neurological documentation on ED record of trauma patient with admission diagnosis of skull fx, intracranial injury, or spinal cord injury?" (NURS_N_DOC) = 2 (No).

- Absence of sequential neurological documentation on emergency department record of trauma patient with a diagnosis of spinal cord injury (ACS Audit Filter #4b)

  Trauma Patient; AND

  Any ICD-10-CM diagnosis code (ICD10_01, ICD10_02, ... ICD10_27) that starts with
S14.0, S14.1, S24.0, S24.1, S34.0, S34.1, S34.3; AND

"Is there sequential neurological documentation on ED record of trauma patient with admission diagnosis of skull fx, intracranial injury, or spinal cord injury?" (NURS_N_DOC) = 2 (No).

- Absence of hourly documentation of blood pressure, pulse and respiration for any trauma patient beginning with arrival in ED, including time spent in radiology, up to admission to the ward, floor, OR, or ICU; death; or transfer to another hospital (ACS Audit Filter #5)

  "Is there hourly documentation beginning with ED arrival?" (NURS_DOC_S) = 2 (No).

- Patient left ED with a discharge GCS ≤ 8 and without a definitive airway established (ACS Audit Filter #6)
  Trauma Patient; AND
  Post ED Destination (POST_ED_D) ≠ 6 (Morgue); AND
  "Did patient leave ED with a discharge GCS ≤ 8?" (ED_GCS_8) = 1 (Yes); AND
  "If yes, did patient leave ED with definitive airway?" (ED_AIRWAY) = 2 (No).

- Patient seen in ED, discharged and then admitted to the hospital within 72 hours of initial evaluation (ACS Audit Filter #7)
  ACS AUDIT FILTER #7 IS NOT USED BY PTOS.

- Any patient sustaining a GSW to the abdomen who is managed nonoperatively (ACS Audit Filter #8)
  Trauma Patient; AND
  "Did patient sustain a gunshot wound to the abdomen and receive non-operative management?" (NONOP_GSWA) = 1 (Yes).

- Patient requiring laparotomy which is not performed within 2 hours of ED arrival (ACS Audit Filter #9)
  Trauma Patient; AND
  "Did patient require a laparotomy that was not performed within 2 hours of ED arrival?" (LAPAROT) = 1 (Yes).

- Patient with epidural or subdural brain hematoma receiving initial craniotomy > 4 hours after arrival at ED, excluding those performed for ICP monitoring (ACS Audit Filter #10)
  Trauma Patient; AND

January 2017    Grey Highlighted area = addition or revision
Any ICD-10-CM diagnosis code (ICD10_01, ICD10_02, ... ICD10_27) that starts with S06.4; AND S06.5; AND

Any Operative procedure (PR_01_I10...PR_84_I10) = that starts with 0N [8,9,B,R,T,U] [0,1,2,3,4,5,6,7,8,C,D,F,G,J]0 OR 00[8,9,B,C,Q] [0,1,2,3,4,5,6,7,8,9,A,B,C,D]0; AND the associated time for the earliest (initial qualifying Operative procedure e.g., O_1_P1_DATE, O_1_P1_TIME) is greater than 4 hours after ED arrival (EDA_DATE, EDA_TIME).

- Patient transferred in after 3 hours at initial hospital (ACS Audit Filter #11a)

  "Is this a transfer patient?" (TRANSF_PT) = 1 (Yes); AND

  Time from Arrival at Referring Hospital (DATE_REF_AR, TIME_REF_AR) to Departure from Referring Hospital > 3 hours (DATE_REF_DP, TIME_REF_DP).

- Patient transferred out after 3 hours from ED arrival (ACS Audit Filter #11b)

  Discharge Status (DIS_STATUS) = 6 (Survivor); AND

  Discharge Destination (DISCG_TO) = 2 (Other Hospital), 3 (Trauma Center), 6 (Burn Center), 14 (Pennsylvania Trauma Center) or 15 (Out of State Trauma Center) AND

  Time from ED Arrival (EDA_DATE, EDA_TIME) to Discharge (D_C_DATE, D_C_TIME) > 3 hours.

- Interval of > 8 hours between arrival and initial treatment of blunt open tibial fracture (ACS Audit Filter #12) – Deleted for 2015

  Initial Trauma Patient; AND

  Type of Injury (INJ_TYPE) = 1 (Blunt); AND

  Any ICD-9-CM diagnosis code (ICD9_01, ICD9_02, ... ICD9_27) = 823.10, 823.12, 823.30, 823.32, 823.90 or 823.92; AND

  Any Operative procedure (OPER_1_P1, ... OPER_3_P12) = 78.0x, 78.1x or 79.xx; AND

  the associated time for the earliest (initial) qualifying Operative procedure (e.g., O_1_P1_DATE, O_1_P1_TIME) is greater than 8 hours after ED arrival (EDA_DATE, EDA_TIME).

- Initial abdominal, intrathoracic, vascular, or cranial surgery performed > 24 hours after ED arrival (ACS Audit Filter #13)

  Initial Trauma Patient; AND

  "Abdominal Surgery > 24 Hours" (ABD_GT_24) = 1 (Yes); OR

  January 2017 Grey Highlighted area = addition or revision
"Intrathoracic Surgery > 24 Hours" (THOR_GT_24) = 1 (Yes); OR
"Vascular Surgery > 24 Hours" (VASC_GT_24) = 1 (Yes); OR
"Cranial Surgery > 24 Hours" (CRAN_GT_24) = 1 (Yes).

- Unplanned return to the operating room within 48 hours of initial procedure (ACS Audit Filter #14)  
  
  **ACS FILTER #14 IS NOT USED BY PTOS**

- Trauma patient admitted to hospital under care of admitting or attending physician who is not a surgeon (ACS Audit Filter #15a)
  
  Trauma Patient; AND
  Admitting Service (ADM_SERV) = 6 (Other Non-Surgical) or 9 (Burn Service)

- Burn patient with inhalation injury not admitted to burn or pulmonary service (ACS Audit Filter #15b)
  
  Burn Patient; AND
  Any ICD-9-CM diagnosis code (ICD9_01, ICD9_02, ... ICD9_27) = 987.9; AND
  Not Admitted to Burn Service (ADM_SERV ≠ 9) or Pulmonary (ADM_SRV_NS ≠ "Pulmonary")

- Nonfixation of femoral diaphyseal fracture in adult trauma patient (ACS Audit Filter #16)
  
  Trauma Patient; AND
  Derived Age (AGE) ≥ 15; AND
  Any ICD-10-CM diagnosis code (ICD10_01, ICD10_02, ... ICD10_27) that starts with S72.3; AND
  NO Procedure that starts with (PR_01_I10...PR_84_I10 OQS [6,7,8,9,B,C] [0,3,4]_456,B,C,D)OR starts with OQH[6,7,8,9,B,C]

- Patient developing deep vein thrombosis, pulmonary embolism, or pressure ulcer (ACS Audit Filter #17)  

  **ACS FILTER #17 IS NOT USED BY PTOS**
• Any patient requiring reintubation within 48 hours of extubation (ACS Audit Filter #18)

"Was reintubation required within 48 hours of extubation?" (REINTUBAT) = 1 (Yes).

• Specific occurrences (ACS Audit Filter #19)

Any Occurrences (COMPLIC_1, COMPLIC_2, ... COMPLIC_10) valued and ≠ 01 (None).

• Patient with diagnosis at discharge of cervical spine fracture, subluxation, or neuro deficit not addressed on admission (ACS Audit Filter #20)

Trauma Patient; AND

"Did patient have discharge diagnosis of cervical spine fracture, subluxation, or neuro deficit not addressed on admission?" (MISSED_CS) = 1 (Yes).

• All deaths (ACS Audit Filter #21)

Discharge Status (DIS_STATUS) = 7 (Dead).

• Adult patient receiving transfusion of platelets or fresh frozen plasma within 24 hours of ED arrival after having received < 8 units of packed red blood cells or whole blood (ACS Audit Filter #22)

ACS FILTER #22 IS NOT USED BY PTOS

• Burn patient with inhalation injury and not intubated (ACS Audit Filter #23)

Burn Patient; AND

Any Predot codes = 419200.2, 419201.2, 419202.3, 419204.4, 419206.5, 419208.6; AND

Intubated with Artificial Airway (INTUBAT_A) ≠ 1 (Yes); AND

NO Procedure (PR_01_I10...PR_84_I10) = OBH10DZ, OBH13EZ, OBH14DZ, OBH17DZ, OBH17EZ, OBH18DZ, OBH18EZ, ODH57BZ, OCHY7BZ, OCHY8BZ AND Procedure Location = ED; OR Procedure Start Date/Time within ED Stay

• Burn patient with initial escharotomy performed > 8 hours after admission (ACS Audit Filter #24)

ACS FILTER #24 IS NOT USED BY PTOS

Burn Patient; AND

January 2017  Grey Highlighted area = addition or revision
Any Operative procedure (OPER_1_P1, ... OPER_3_P12) or Non-operative procedure (NON_Op_P1, ... NON_Op_P48) = 86.09; AND the associated time for the earliest (initial qualifying Operative procedure e.g., O_1_P1_DATE, O_1_P1_TIME or Non-operative procedure e.g., NOP_1_DATE, NOP_1_TIME) is greater than 8 hours after ED arrival (EDA_DATE, EDA_TIME).

**JCAHO Filters Definitions**

- Trauma patient with prehospital EMS scene time > 20 minutes *(JCAHO Clinical Indicator #1)*
  
  _Same definition as ACS Audit Filter #1._

- Trauma patient with BP, pulse rate, respiration, and GCS not documented in ED record on arrival and hourly until inpatient admission to the floor, OR, specialty care unit, death, or transfer to another care facility *(JCAHO Clinical Indicator #2)*
  
  _Same definition as ACS Audit Filter #5._

- Comatose patient (discharge GCS ≤ 8) discharged from ED prior to establishment of a definitive airway *(JCAHO Clinical Indicator #3)*
  
  _Same definition as ACS Audit Filter #6._

- Trauma patient with diagnosis of intracranial injury and altered state of consciousness upon ED arrival receiving initial head CT scan > 2 hours after ED arrival *(JCAHO Clinical Indicator #4)*
  
  _Same definition as ACS Audit Filter #3._

- Trauma patient with diagnosis of extradural or subdural brain hemorrhage undergoing initial craniotomy > 4 hours after ED arrival, excluding ICP monitoring *(JCAHO Clinical Indicator #5)*
  
  _Same definition as ACS Audit Filter #10._

- Trauma patient with open fractures of long bones as a result of blunt trauma receiving initial surgical treatment > 8 hours after ED arrival *(JCAHO Clinical Indicator #6)*

  _Trauma Patient; AND_

  Type of Injury (INJ_TYPE) = 1 (Blunt); AND

  Any ICD-9-CM diagnosis code (ICD9_01, ICD9_02, ..., ICD9_27) = 812.1x, 812.3x, 812.5x, 813.1x, 813.3x, 813.5x, 813.9x, 818.10, 820.1x, 820.3x, 820.90, 821.1x, 821.3x, 823.1x, 823.3x or 823.9x; AND

  Any Operative Procedure (OPER_1_P1, ..., OPER_3_P12) = 78.02, 78.03, 78.05, 78.07, 78.12, 78.13, 78.15, 78.17, 78.42, 78.43, 78.45, 78.47, 78.52, 78.53, 78.55, 78.57, 79.11,
79.12, 79.15, 79.16, 79.21, 79.22, 79.25, 79.26, 79.31, 79.32, 79.35, 79.36, 79.51, 79.52, 79.55, 79.56, 79.61, 79.62, 79.65 or 79.66; AND the associated time for the earliest (initial) qualifying Operative procedure (e.g., O_1_P1_DATE, O_1_P1_TIME) is greater than 8 hours after ED arrival (EDA_DATE, EDA_TIME).

- Trauma patient with diagnosis of liver or spleen laceration undergoing initial laparotomy > 2 hours after ED arrival (JCAHO Clinical Indicator #7)

  Trauma Patient; AND

  Any ICD-9-CM diagnosis code (ICD9_01, ICD9_02, ... ICD9_27) = 864.02-864.04, 864.12-864.14, 865.02-865.04 or 865.12-865.14; AND

  Any Operative procedure (OPER_1_P1, ... OPER_3_P12) is = 41.43, 41.5, 41.95, 50.22, 50.3, 50.61 or 50.69; AND the associated time for the earliest (initial) qualifying Operative procedure (e.g., O_1_P1_DATE, O_1_P1_TIME) is greater than 2 hours after ED arrival (EDA_DATE, EDA_TIME).

- Trauma patient undergoing laparotomy for wounds penetrating the abdominal wall (gunshot and stab wounds) (JCAHO Clinical Indicator #8)

  Trauma Patient; AND

  "Did patient sustain a gunshot wound to the abdomen and receive non-operative management?" (NONOP_GSWA) = 1 (Yes); OR

  "Did patient sustain a stab wound to the abdomen and receive non-operative management?" (NONOP_STAB) = 1 (Yes).

- Trauma patient transferred in after 3 hours at initial hospital (JCAHO Clinical Indicator #9a)

  Same definition as ACS Audit Filter #11a.

- Trauma patient transferred out after 3 hours from ED admission (JCAHO Clinical Indicator #9b)

  Same definition as ACS Audit Filter #11b.

- Adult trauma patient with femoral diaphyseal fractures treated by nonfixation technique (JCAHO Clinical Indicator #10)

  Same definition as ACS Audit Filter #16.

- Intrahospital mortality of trauma patient with 1 or more of the conditions who did not undergo a procedure for the condition: tension pneumothorax, hemoperitoneum, hemothoraces, ruptured aorta, pericardial tamponade, and epidural or subdural hemorrhage (JCAHO Clinical Indicator #11)

  Trauma Patient; AND

  January 2017 Grey Highlighted area = addition or revision
"Is this a transfer patient?" (TRANSF_PT) = 2 (No); AND

Discharge Status (DIS_STATUS) = 7 (Dead); AND

If any of the fields (COND_1, COND_2, ... COND_6) associated with the question: "If patient had one or more of the following conditions, did he/she undergo a procedure for the condition(s)?" = 2 (No).

- Trauma patient who expired within 48 hours of ED arrival, with autopsy performed (JCAHO Clinical Indicator #12)

  Trauma Patient; AND

  Discharge Status (DIS_STATUS) = 7 (Dead); AND

  "Source of Final Anatomical Diagnoses: Autopsy" (AUTOPSY_YN) = 1 (Yes); AND

  Time from ED arrival (EDA_DATE, EDA_TIME) to death (DATE_DEATH, TIME_DEATH) ≤ 48 hours.
Appendix C: Calculation of RTS

To calculate Revised Trauma Score (RTS), three weighted values are used: Glasgow Coma Scale (GCS) = .9368, Systolic Blood Pressure (SBP) = .7326 and Respiratory Rate (RR) = .2908.

<table>
<thead>
<tr>
<th>GCS</th>
<th>SBP</th>
<th>RR</th>
<th>Coded Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-15</td>
<td>&gt; 89</td>
<td>&gt;29</td>
<td>4</td>
</tr>
<tr>
<td>9-12</td>
<td>76-89</td>
<td>10-29</td>
<td>3</td>
</tr>
<tr>
<td>6-8</td>
<td>50-75</td>
<td>6-9</td>
<td>2</td>
</tr>
<tr>
<td>4-5</td>
<td>1-49</td>
<td>1-5</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Coded values are defined and used to calculate RTS.

Using the following example, calculate RTS.

<table>
<thead>
<tr>
<th>Raw Value</th>
<th>Coded Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCS</td>
<td>8</td>
</tr>
<tr>
<td>SBP</td>
<td>120</td>
</tr>
<tr>
<td>RR</td>
<td>30</td>
</tr>
</tbody>
</table>

\[
{\text{RTS}} = (2)(.9368) + (4)(.7326) + (3)(.2908)
\]

RTS = 5.6764

The above methodology is a calculated RTS. This will vary from the field RTS described by EMS. The range for the EMS field RTS will range from 0 to 12. The range for a calculated RTS is 0 to 7.8408.
Appendix D: AIS and ISS

**Abbreviated Injury Score (AIS) Classifications**

- 1 = minor; skin abrasion
- 2 = moderate; open fracture nose
- 3 = serious; fracture femur
- 4 = severe; intimal tear, abdominal aorta
- 5 = critical; complete cord syndrome, quad
- 6 = unsurvivable; crush injury chest (if a 6 is assigned, the ISS is an automatic 75)
- 9 = unspecified; blunt abdominal trauma

**AIS-90 Body Regions**

There are 9 body regions:

1. head
2. face
3. neck
4. thorax
5. lower extremity
6. upper extremity
7. spine
8. abdomen & pelvic contents
9. external/burns/other

**Injury Severity Score (ISS)**

Take the 3 highest injured body regions, square the highest score in each of those 3 identified regions, and then sum those 3 numbers to get an ISS Score.

\[ \text{ISS} = \sum x^2 \]

1

ISS

75
Appendix D: Caveats to Using POPIMS

There are cases in which a user can experience problems with using the POPIMS software:

1. The user bypasses data checks and closes a case in POPIMS while the case is active in the trauma registry. Make certain that the case is closed out in the trauma registry before the case is run through the data checks and closed out in POPIMS. You cannot
2. Close a case in POPIMS while it is active in Collector. You receive an error message that does not let you proceed.
3. The user deletes or renumbers a case in the trauma registry, the link between the case in the trauma registry and the case in POPIMS is broken. Any deletions or renumbering should be reported to the POPIMS user prior to deletion/renumbering. If it is not, there may be duplicate records in POPIMS.
4. Special characters copied and pasted into POPIMS from other sources, such as Word, are not supported and will be converted to underscores when the record is saved. For example, \( \frac{1}{4} \) will be converted to \_\_. (This does not include external files.) Avoid using special characters, such as certain fractions, bullets, arrows, etc. Quotation marks will affect report writing abilities. DI recommends that users of the POPIMS software avoid enter the following list of characters in memo fields in the POPIMS software. These characters can result in reporting issues when used in POPIMS reports:

<table>
<thead>
<tr>
<th>Character</th>
<th>Name</th>
<th>Replace with</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;</td>
<td>Less than</td>
<td>LT, less than</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
<td>GT, greater than</td>
</tr>
<tr>
<td>( \leq )</td>
<td>Less than or equal to</td>
<td>LTE, let than or equal to</td>
</tr>
<tr>
<td>( \geq )</td>
<td>Greater than or equal to</td>
<td>GTE, greater than or equal to</td>
</tr>
<tr>
<td>≠</td>
<td>Not equal to</td>
<td>NEQ, not equal to</td>
</tr>
<tr>
<td>÷, ×</td>
<td>Divide and multiply</td>
<td>/ for divide and * for multiply</td>
</tr>
<tr>
<td>‘</td>
<td>Double quote</td>
<td>‘ (Single quote/Apostrophe)</td>
</tr>
<tr>
<td>`</td>
<td>Forward leaning quote</td>
<td>‘ (Single quote/Apostrophe)</td>
</tr>
<tr>
<td>©, ®, ™</td>
<td>Copyright/Registered/Trademark</td>
<td>(C), (R), (TM)</td>
</tr>
<tr>
<td>( \frac{1}{2}, \frac{1}{4} )</td>
<td>Half, Quarter</td>
<td>1/2, 1/4</td>
</tr>
<tr>
<td>°</td>
<td>Degree</td>
<td>Use F/C without the degree symbol</td>
</tr>
<tr>
<td>§¶</td>
<td>Section Mark/Paragraph Mark</td>
<td>Remove these characters</td>
</tr>
</tbody>
</table>

NOTE: This list includes only the most common characters in text. The use of other special characters normally not found in narrative are also discouraged. Examples include: \( \pi, \epsilon, \downarrow, \rightarrow, \uparrow, \Sigma, \int, =, \equiv, \Delta, \delta \)