

The following PI indicators were put together by the SERTAC PI subcommittee as a general framework for PI trauma program development at the individual facility level. This document would be recommended for level 3 and 4 facilities.

Goal: To provide assistance in forming the framework for a strong PI process to aid trauma coordinators, trauma program managers, and trauma medical directors better understand the Performance Improvement, follow up process, item tracking, and loop closure.

You will note in the “Rationale” column, we have cross referenced American College of Surgeon (ACS) recommendations, State of Wisconsin recommendations, and ideas for site specific options. Please note, ideas for site specific options or recommendations are not directly called out by the state of Wisconsin trauma program and the ACS.

The work has been color coded. **The text below listed in pink** are examples of Benchmarking, Potential Action Steps/Review, as well as potential clarification of what is the earliest point of closure utilized for that specific indicator. Yellow highlighting is required by the State of WI DHS. *Please remember, this document should be complementary for your trauma center’s Performance Improvement and Patient Safety (PIPs) Plan.*

Resources Utilized:

**American College of Surgeons.** (2022). Resources for Optimal Care of the Injured Patient (2022 Standards)

<https://www.facs.org/quality-programs/trauma/quality/verification-review-and-consultation-program/standards/>

**Wisconsin Department of Health Services** (2023). Division of Public Health. Statewide Performance Improvement Indicators.

<https://www.dhs.wisconsin.gov/publications/p03364.pdf>

**Wisconsin Department of Health Services** (2024). Trauma Registry Data Dictionary.

<https://www.dhs.wisconsin.gov/publications/p01117.pdf>

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Green = ED Based indicators. Blue = Inpatient Based Indicators. Pink = Both ED and Inpatient Indicators.

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| PI Indicator | Description  Describe how the indicator is measured and be specific on if things are not included | Rationale / Facility Specific Guideline  Place supporting facility or state information here | Benchmark Goal  (If applicable)  Defined by facility/TPM | Action / Review Steps  Explain facility specific flow for review and include different councils that you can work with also include tracking elements. | Lowest Review Level for Closure  Defined by State and/or facility |
| ED LOS  > 180 Minutes | From arrival time to transfer of the patient from the ED. The outlined goal is < 3 hours. | LOS > 3 hours by itself is not a required audit filter; there is value in tracking causation of LOS delays to improve ED throughput and care. From a regional standpoint, it is recommended by SERTAC as it may have increased benefits at individual facilities to identify potential opportunities. | Recommend  Tracking of causation and goals related to that | Identify any OFI.  Categorize the reason for extended LOS using registry options to the best of your ability.  If no OFI found and reasonable cause of delay without impacting patient outcomes, it can close in primary. | Primary Review. |
| ED LOS > 180 Minutes with ISS  > 15 | From arrival time to transfer of the patient from the ED. The outlined goal is < 3 hours with ISS > 15.  This is for trauma transfer out only. | State criteria 2(i): Timely definitive care for all trauma patients.  State PI indicator: https://www.dhs.wisconsin.gov/publications/p03364.pdf  LOS > than 3 hours by itself is no longer a state audit filter, however LOS with ISS > 15 references a severely injured patient that was delayed in transfer to tertiary care. These cases should be closely reviewed for potential opportunities/ delays in care, and outcomes. | > 80% Monthly  (Outlier cases divided by total trauma transfers) | Primary case review takes place with transfer out case audits.  Outlier cases reviewed at secondary level by TMD. Tertiary review in department trauma meetings with opportunities found shared with ED bedside staff.  If prehospital is involved for interfacility transfer, send to EMS if opportunities are found.  Batched averages shared with ED leadership quarterly with annual running trends. | Secondary Review. |
| Delay or Non-response of Surgeon to highest level of trauma activation | In all trauma centers, trauma surgery coverage must be  continuously available (> Level III).  For the highest level of activation, at least 80 percent of the time, the trauma surgeon must be at the patient’s bedside within 15 minutes (Level I or II trauma centers) or 30 minutes (Level III trauma centers) of patient arrival. | ACS: Required audit filter per ACS Gray book standards 4.2 and 5.4.  State criteria: 2(f)(h) | State: Trauma Activation response must meet  > 80 % | Primary and secondary review and feedback completed, taken to trauma multidisciplinary and PIPS meeting for tertiary review.  Individual surgeon response times tracked and reported out quarterly to surgical group and OR leaders. | Tertiary Review. |
| ED Management: GCS < 8 without definitive airway | This measure is hospital based airway management.  The emergency airway provider must be capable of advanced airway techniques, including surgical airway. Considerations to presentation, change in mentation, documented airway status, vitals. | ACS: Required audit filter per ACS Gray Book Standard 7.2  State criteria: 11(e) |  | If hospital based, the case will go to secondary review with TMD.  If corrected in a timely manner without complications, can close. If opportunities found taken to tertiary review in ED meetings and with medical providers involved. | Secondary Review. |
| Open fractures  Abx Admin  > 60 Minutes from arrival | Open fractures occur when a fractured bone is exposed to contamination from the external environment through a disruption of the skin and subcutaneous tissues and is susceptible to infection.  Patients with open fractures should receive intravenous antimicrobials within < 60 minutes of presentation to reduce the risk of infection. | ACS Ortho Guidelines: Best practice to ensure early antibiotic administration for open long bone fractures (humerus, radius, ulna, femur, tibia, or fibula fractures).  <https://www.facs.org/media/mkbnhqtw/ortho_guidelines.pdf>  At minimum, ACS encourages close review of open tib/fib.  Facility Specific Guideline, if applicable. | Track all open fractures to antibiotic times.  > 80% open long bone fractures; ED arrival to IV antibiotic administration less than 60 minutes. | Fallouts for >60 min abx administration from time of arrival will be reviewed by TPC and TMD for all open fractures.  Monthly report out to ED Leaders on a quarterly basis for LONG BONE open fractures, trending annual numbers, categorizing all fallouts.  (Provider order delay, nursing admin delay, recognition delay, or not to delay transfer out) | All open fx: Secondary Review.  Long bone open fractures: Tertiary Review. |
| Rapid Trauma Blood Administration  Or  Full MTP | Administration of > 1 unit of uncrossmatched O Neg blood for a trauma activation will be reviewed using the ABC Criteria and Shock Index. Begin universal blood product infusion rather than crystalloid or colloid solutions.  Assessment of Blood Consumption or “ABC Criteria”  > 2 should be met to activate full MTP. The patient is likely to require massive transfusion, defined as ≥ 10 units of pRBCs in the first 24 hours resuscitation.   * Penetrating mechanism (Yes = 1; No =0) * Systolic BP < 90 mmHg in the ED (Yes= 1; No= 0) * HR > 120 mmHg in the ED (Yes= 1; No= 0) * Positive FAST Exam (Yes= 1; No= 0)   [Journal on Trauma; Multicenter review of ABC Criteria](https://read.qxmd.com/read/20622617/multicenter-validation-of-a-simplified-score-to-predict-massive-transfusion-in-trauma?redirected=slug) | *MTP:* ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120).  Reviewed for ratio/opportunities with system processes due to low volume/high risk scenario. Use ABS criteria listed to the left. MTP activation documented on EPIC trauma narrator with activation time start/stop.  Measure is supported by TQIP ACS guidelines and recommended measures for higher level facilities.  <https://www.facs.org/Cri/zcjdtrd1/transfusion_guildelines.pdf>  Facility Specific:: *Rapid trauma blood administration* will be tracked and reviewed for appropriateness using framework for ABC criteria. | Example:  > 90% eeting ABC criteria prior to blood administration. | Case review at primary and secondary levels. Can close if there are no issues.  Track usage totals and report out quarterly at the Trauma multidisciplinary and PIPS meeting.  Report usage to the blood bank of your facility and compare use totals.  Review any blood waste and document OFI found. | Secondary Review. |
| Transfer out | Trauma transfers in the acute phase  Primary review completed on all transfers to identify audit filter fallouts, delays, complications, and outcomes. | ACS Required audit filter per ACS Gray Book Standard 7.2 (see page 120).  State criteria 4(d): facility must review for appropriateness of care, adverse outcomes, OFI  State PI indicator: <https://www.dhs.wisconsin.gov/publications/p03364.pdf> |  | Trauma program coordinator reviews all trauma transfer cases. If no other indicator is met for review, can close in primary. Escalate cases per PI plan as needed. | Primary Review. |
| EMS/ Pre-Hospital Concerns | This indicator reviews compliance with prehospital triage criteria as dictated by regional and state protocols as well as department, delays or adverse events associated with prehospital trauma care.  All EMS items such as staff concerns, care concerns, prolonged extrication, unexplained scene times > 20 minutes, inappropriate c-spine precautions, GCS < 9 without treatment of hypoxia (O2 saturation < 90% and/or cyanosis is a major emphasis. Care is initiated by continuous high-flow O2 for all potential TBI cases. If high-flow O2 fails to correct hypoxia, airway repositioning maneuvers are performed; see EPIC resource for details). | Compliance with the National Field Triage Guidelines (endorsed by the Wisconsin STAC and EMS Board).  Audit filter per ACS Gray Book Standard 7.2 (see page 120).  Prompt access to trauma care is essential for optimal patient outcome.  EMS: [2024 Wisconsin EMS Scope of Practice](https://www.dhs.wisconsin.gov/publications/p0/p00451.pdf)  [Wisconsin EMS Protocols](https://www.dhs.wisconsin.gov/publications/p02875.pdf)  [The Excellence in Prehospital Injury Care (EPIC)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4134700/#:~:text=Management%20of%20airway%2Foxygenation,cyanosis) |  | Send to EMS agency/department for quality review and facility EMS coordinator. Concerns submitted for in depth review by EMS agency or review process if in place.  Loop in EMS medical director for review if appropriate depending on concern. Follow the internal tracking process for the facility and ensure receipt from EMS agency. | Secondary Review. |
| Documentation and/or elements missed | Trauma activations should be documented under the trauma narrator including a primary (within 30 minutes of arrival) and secondary assessment documented as well as the order for trauma activation level.  All interventions such as c-collar, splints, warming, blood transfusions, medications, fluids, chest tube and foley outputs, etc are all accurately charted.  This also includes physician/APP charting such as ED notes, consultations, H&P, etc.  This documentation indicator also includes *alcohol screening.* | All measures documented are important for patient care and progression of symptoms.  What are the alcohol screening requirements? In relation to criteria 17(c), the Wisconsin Department of Health Services (DHS) aligns with the American College of Surgeons' clarification that “all” refers to at least 80% of trauma patients who are admitted or discharged from the emergency department. |  | Primary Review and discussion with RN staff.  TPC/TMD follow up with Provider staff.  To Secondary or Tertiary Review if trending problems or unresolved issues.  During DHS site reviews, please ensure to have your total percentage ready and if below the 80% threshold, demonstrate the work TCF’s performance improvement work to reach the goals outlined by the ACS. | Primary Review. |
| ISS > 15 and NOT activated as a trauma upon arrival  (Did NOT meet current activation criteria) | The Injury Severity Score is an established medical score to assess trauma severity. It correlates with mortality, morbidity and hospitalization time after trauma. It is used to define the term major trauma. A major trauma is defined as the Injury Severity Score being greater than 15. This would include trauma transfers or admissions that were NOT activated as a trauma upon arrival to the department. Mechanism of injury and presentation should be considered, as well as trauma activation criteria.  (GOAL: Reviewing criteria to ensure criteria is not over or under calling based on MOI which can be trended with the final ISS) | Cribari tool and NFTI uses metrics to review the undertriage rate.  This metric should be used if the patient DID NOT meet activation criteria as written and was found to have elevated ISS score.  Under triage should be used if the patient met activation criteria and was not activated on arrival.  [Under-Triage and Over-Triage Using the Field Triage Guidelines for Injured Patients: A Systematic Review - PubMed (nih.gov)](https://pubmed.ncbi.nlm.nih.gov/35191799/) | Wisconsin state guidelines recommend under triage rates < 5%, and align with ACS over triage rates < 35% | Monitor under/over triage on a quarterly basis. Discussion regarding results at the trauma committee meeting.  All trauma related admissions and transfers are reviewed by the TPC. | Secondary Review. |
| Under Triage  Missed Trauma Team Activation based on criteria | Trauma Activation criteria for tiered activations must be clearly defined and adhered to for patients that need immediate care.  Cribari Metric utilized in conjunction with ISS scores and initial presentation. NFTI can also be used for review.  Ensure review of age specific markers with focus on pediatric patients and geriatric patients. | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120).  State criteria 3(c) and 5(n). | ACS/State Goal is  < 5%. | Present and review under triage cases on a quarterly basis.  Use under triage data to drive annual review of trauma team activation guidelines.  Reminder for Site Reviews: "TCF must explain the variance and demonstrate that they are doing performance improvement work to reach the goal outlined by the ACS." | Secondary Review. |
| Over Triage | Trauma Activation criteria for tiered activations must be clearly defined and adhered to for patients that need immediate care.  Facility can define how over triage is measured, the important thing is to use an evidenced based tool and be consistent.  One option: Cribari Metric utilized in conjunction with ISS scores and initial presentation. <https://thetraumapro.com/2016/11/28/the-cribari-grid-and-overundertriage/>  Another option: Need for Trauma Intervention (NFTI) https://thetraumapro.com/2019/07/09/nfti-a-nifty-tool-to-replace-the-cribari-grid/  Ensure review of age specific markers for pediatric patients and geriatric patients. | State criteria 3(c).  State PI indicator:  https://www.dhs.wisconsin.gov/publications/p03364.pdf  Over triage is essentially over calling an activation. For the most part, you want to be over prepared, however over calling things too frequently may lead to needlessly calling in a surgical team or wasting units of blood. | ACS Goal is  < 50 %  Tip: Cribari may be used to review and report out over triage rate. | Develop a PI plan that includes over triage. Many organizations focus more on under triage than over triage.  Reminder for Site Reviews: "TCF must explain the variance and demonstrate that they are doing performance improvement work to reach the goals outlined by the ACS." | Primary Review- escalate per PI plan. |
| Upgraded Trauma Team Activation | Trauma Activation criteria for tiered activations must be clearly defined and adhered to for patients that need immediate care.  Pay special attention to presentation, EMS information obtained, and early vitals to review if this was an undertriaged patient, or if this was a change in patient’s condition. | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120)  State criteria 5(n) |  | Review with the ED team to ensure appropriate and timely response.  This would include review of patient condition on arrival to the ED, change in patient status, and response of the ED team. | Secondary Review. |
| Delays in care | Delayed in care due to unavailability of emergency department physicians or APP, or staff members. This would also include any delays to the OR.  “Accessible for patient care” implies that the necessary human resources and equipment are available within the time specified. The time interval refers to the time between initial request and initiation of the test/procedure. This does not mean that every test must be completed within the interval specified. Timeliness depends on patient need. Review of perceived delays that might have affected patient care is a component of the PIPS program. | ACS: Required audit filter per ACS Gray Book Standard 7.2  State Criteria 2(g)(k), 7(b), 11(b)(e)(f)(h) |  | Discussion with Providers/staff. To Provider Meetings depending on where the delay occurred.  TMD aware/involved.  For OR- to TMD with Providers, TPC with Nursing Management.  If OFI, to Tertiary Review, Quaternary if unresolved or decided by TMD/ED. | Secondary Review. |
| Missed FAST Exam | A FAST exam should be completed and documented on each trauma activation unless a downgrade is completed after rapid assessment by the ATLS provider as well as documented rationale. | All trauma activations should have a FAST exam completed and dictated per ATLS trauma care guidelines. |  | Trauma activations without a fast exam documented will be reviewed by TPC and TMD. Follow up by TMD with the provider. | Secondary Review. |
| Equipment Miss-use/Failures | This would also include equipment failures of any kind.  Ie: Pelvic binder not applied properly, a delay in use of equipment, or not considered when indicated. | ACS: Missing equipment specific. Required audit filter per ACS Gray Book Standard 7.2 (see page 120). |  | Review areas that had opportunity for improvement and follow up with areas responsible for overseeing. Provide any education as needed and ensure that it is included in the loop closure portion of that case when complete. | Secondary Review. |
| Transfer Letter with Feedback Opportunities | Feedback from receiving facilities is essential to help identify opportunities for improvement for the most critical patients. If there are any items brought forward not already addressed on the case's initial review, new item will be brought forward for review with the trauma medical director. | Site specific: Important to review care after transfer and address all opportunities brought forward to review opportunities. |  | Provide feedback with opportunities to TMD for review. Escalate based on OFI and impacted disciplines. Report out to the receiving facility (HLOC) follow up items as appropriate. | Secondary Review. |
| Delayed recognition of or missed injuries | Injuries identified after admission/discharge from the ED. This would include any add on radiology images or assessments that were not noted in the ED.  Measured by: *Injuries that are diagnosed 24 hours after the initial evaluation.* | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120). Ongoing physical assessment is essential in the care of the injured trauma patient. *Injuries that are diagnosed 24 hours after the initial evaluation.* |  | Deep dive into case with TMD to determine cause. Develop a plan to ensure this will not occur again. | Minimally secondary review, most need tertiary review. |
| Trauma Mortalities | Mortalities include ED-DOA, Died in Emergency Department (DIED), and patients who were admitted or died after withdrawal of life-sustaining care. The goal of reviewing events is to identify potential opportunities for improvement.  A death should be designated as “*mortality with opportunity for improvement*” if any of the following criteria are met:   * Anatomic injury or combination of severe injuries but may have been survivable under optimal conditions * Standard protocols were not followed, possibly resulting in unfavorable consequence * Provider care was suboptimal   Also considering **hospice/palliative care referral times.**  For full hospice transfers, can subcategorize these as hospice death versus trauma mortality, and should still be reviewed for OFI).  Reviewing each mortality and transfer to hospice provides the greatest assurance that the trauma program will identify opportunities for improvement. Transfers to hospice require review to ensure there were no opportunities for improvement in care that might have significantly changed the clinical course that ultimately led to the decision for hospice care. | ACS: Required audit filter per ACS Gray Book Standard 7.2  Individual facility brain death determination policy that derives from accepted national standards.  TQIP TBI Management Best Practice:  <https://www.facs.org/media/mkej5u3b/tbi_guidelines.pdf>  State criteria 2(o) and 15(f) |  | Mortalities must be reviewed with TMD.  Opportunities for improvement clearly described in review.  **Cases should be deemed by TMD:**   1. **Preventable** 2. **Potentially Preventable** 3. **Non-preventable**   **And include:**   * **Mortality Without OFI** * **Mortality With OFI**   Any death that is designated as “mortality with opportunity for improvement” will be tracked to monitor trends, with appropriate follow up depending on findings. | Tertiary Review.  **\*Required at State level** |
| Referrals for Review | “Event Report System” write ups, Significant Events, and Notifications or Request for review.  All staff and leader concerns will receive an in depth review of highlighted concerns or issues. Apply other PI indicators as needed. | TPC will review all referrals, EMS, and unidentified significant events not met by other indicators.  State criteria 15(h) | Varies | Escalate as needed depending on the area of concern. | Primary Review. |
| Delayed recognition of or missed injuries | Injuries identified during the inpatient stay after admission from the ED. This would include any add on radiology images or assessments that were not noted in the ED.  Compartment Syndrome Recognition:  An orthopedic surgeon must consult within 30 minutes of request or initiate immediate rapid transfer to a higher level of care for suspected extremity compartment syndrome.  Pay special attention to arrival time, presenting complaints, timing in any change of symptoms, consultation times, recognition times, stryker pressure measurements, intervention/operating room/transportation times. | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120). Ongoing physical assessment is essential in the care of the injured trauma patient. *Injuries that are diagnosed 24 hours after the initial evaluation.*  State criteria 2(o) | Varies | Based on the finding, send to involved physician leads, committees, quality groups, or leaders. | Secondary Review. |
| Missed Tertiary Evaluation completed as Head to Toe on Trauma Admissions | The tertiary survey serves as the final means of identifying injury in the trauma patient. It typically takes place within 24 hours of the injury. The primary and secondary surveys are repeated and all laboratory and imaging date are reviewed. | Supported within ACS  State criteria 5(p): Inpatient case reviews  2(a) The TCF must have an integrated, concurrent trauma PIPS program. |  | Time and expectation should be outlined within your PIPS Plan. | Secondary Review. |
| Radiology Misreads/ Grading | Radiology interpretation errors or discrepancies between the preliminary and final reports need verification and review. | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120). Interpretation errors or discrepancies between preliminary and final reports.  State criteria 11(p)(m)(q) | > 90% Compliance | Review with radiology.  Confirm timing, reads, results, and reporting.  Tracking with radiology leadership.  Trend and report out at radiology group meetings to ensure accurate communication of this marker. | Tertiary Review. |
| Missed referral for organ donation  (Tracking facility organ procurement rates) | Documentation of referral and organ donation referral when clinical triggers are met noting Imminent Death or Clinical Triggers for Versiti: call within one hour for a ventilated patient where there is one of the following: Any discussions concerning end of life options (e.g. comfort care measures, no escalation of care, or withdrawal of life sustaining therapies); Non-survivable brain injury; A Glasgow Coma Score (GCS) of 4 or less or absence of 2 or more cranial nerve reflexes; First indication of Brain Death; Family initiated discussions regarding donation. **Imminent Death or Clinical Triggers for UW OTD**: A mechanically ventilated patient with a confirmed severe neurologic injury and one of the following: A physician is evaluating for brain death, A Glasgow Coma Score (GCS) of 5 or less; A plan to discuss withdrawal of life-sustaining therapies. | ACS: Required audit filter per ACS Gray Book Standard 7.2(see page 120).  Facility Specific:  Organ Donation Policy  Acknowledgement of EPIC BPA, documentation. | > 90% Opportunities referred | Primary Review, include the ED/ICU/Organ Donation Committee.  Collaborate with organ donation organization that your facility refers to. Review monthly/quarterly information to ensure accurate totals.  Share with staff as appropriate and can also help in reminder education as well as follow up for OFI.  Secondary or Tertiary if concerns or trending. | Primary Review. |
| Missed Intubations | Hospital Based Indicator  (See Prehospital Concerns for EMS Indicator)  Anytime more than one intubation attempt occurs, this indicator should be utilized. Considerations for review should include timing of the recognition of a misplaced ET tube, vital trends, troubleshooting, and escalation of resources for difficult airways. | TQIP recommended measures: VAP prevention.  State criteria 11(e) | Example: Goal to have < 5% of intubations being ‘missed’ | Definition needed for standards; all missed or only delayed recognitions need to be decided.  Missed intubations, complications or concerns escalations are reviewed by the TPC.  Repeat issues, or higher # for identified providers should be reported out to individuals and leaders quarterly. | Primary Review. |
| Variance from treatment guidelines | The principal benefit of guidelines is to improve the quality of care received by patients. It has been shown in rigorous evaluations that clinical practice guidelines can improve the quality of care.  Guidelines/policies are useless by themselves. Review and monitoring is needed to ensure the guideline is being followed and continues to be effective in its intention. | State criteria 2(o).  State PI indictor: https://www.dhs.wisconsin.gov/publications/p03364.pdf  Facility Specific: Guidelines and policies should be followed and variance requires review to ensure appropriateness of care pathway. |  | Work closely with your medical director to determine if a guideline was not followed and make an action plan based on causation. Track this closely to ensure guidelines are being followed. If it is determined that certain guideline elements are routinely not followed that also needs to be reviewed and an action plan made. | Minimally secondary review, most need tertiary review. |
| **PEDS**  Pediatric Trauma Case  < 15 years  (Based on PRQ from DHS) | Each facility needs to demonstrate that they are reviewing pediatric trauma cases with a pediatric lens.  The facility can define what pediatric specific items are reviewed. Some recommendations: age specific activation indications, abuse screening (CPS notification with concerns), pain control especially with positive findings and prior to any splinting or transfer.  Additional considerations are earlier contact to Children's Hospital/UW Madison physicians for significant injuries to collaborate on imaging or initiating cares/medications.  Pediatric Audit Filters:  Weight documented on arrival in kg  Appropriate fluid resuscitation of child with signs of shock (20cc/kg bolus x2 followed by blood administration)  GCS documented on arrival and at least Q1 hour with head injury  Child abuse screen for all injured children with suspicious injury/history  Appropriate IV/IO access with appropriate fluid resuscitation including maintenance IV fluids  Clear documentation of splenic/liver injury grade with clear documentation of plan of care  (operative versus non-operative)  Emergent operative intervention required for any expected non-operative care (spleen,  head . . . ) | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120) for non pediatric trauma centers.  ACS TQIP Best Practice Recognition of Abuse  <https://www.facs.org/media/o0wdimys/abuse_guidelines.pdf>  State ped imaging guideline  <https://img1.wsimg.com/blobby/go/e1608bfe-8a5e-4618-9639-81c9ad8f95c5/downloads/State%20Pediatric%20Imaging%20Guidelines%2011.21.pdf?ver=1709657744201>  State criteria 2(p)(r) and 10(a)(b)  State PI indicator https://www.dhs.wisconsin.gov/publications/p03364.pdf  State Current PI filters in Registry  Weight, BP, GCS  Can add facility specific as needed.  Hospital policy specific to age admission  WI imaging guidelines:  <https://www.chawisconsin.org/download/state-pediatric-imaging-guidelines/?wpdmdl=8296&masterkey=6234e46b10c7e> | Example:  > 95% safety screen for all pediatrics seen for traumatic injuries | Add peds indicators to PI to determine the best action plan.  Some organizations have peds quality meetings.  Collaborate with pediatric centers for specific OFI. | Primary Review. |
| Admitted Trauma Patients | All patients admitted for care after a traumatic event will be reviewed by the Trauma Program Coordinator and inpatient trauma representative specific to the floor or area.  Ensure Alcohol Screening is completed on  > 80% of admitted patients.  Include physical and occupational therapy, as well as social worker consultation for admitted patients as outlined in hospital policy. | Required audit filter per ACS Gray Book Standard 7.2 (see page 120).  State criteria 5(p): Inpatient case reviews 2(a) The TCF must have an integrated, concurrent trauma PIPS program.  What are the alcohol screening requirements? In relation to criteria 17(c), the Wisconsin Department of Health Services (DHS) aligns with the American College of Surgeons' clarification that “all” refers to at least 80% of trauma patients who are admitted or discharged from the emergency department. |  | Concurrent Inpatient rounding tool.  Define what standard is concurrent within the PIPs program.  Case finding by daily review of ED log, EHR reports, TAP admissions.  Reconciliation with data abstractor.  During DHS site reviews, please ensure to have your total percentage ready and if below the 80% threshold, demonstrate the work TCF’s performance improvement work to reach the goals outlined by the ACS. | Primary Review. |
| Non-surgical Admissions | In all trauma centers, nonsurgical admissions (NSA) cases without trauma or other surgical consultation must be reviewed for appropriateness.  Ensure cases are being reviewed with a trauma specific lens and ensuring guidelines are being followed, tracking/reducing complications. Facilities must have guidelines for care for NSA- ensure these guidelines are followed during admission.  It may be helpful to utilize a tool such as the Nelson tool listed below for appropriateness of the admission service.  \*NELSON TOOL | ACS and State requirement. If  > 10%, all cases should be reviewed at minimum primary level.  State criteria 5(r): Guideline for the care of non-surgically admitted patients State criteria 5(p)  State PI indicator: <https://www.dhs.wisconsin.gov/publications/p03364.pdf>  <https://trauma-news.com/2024/03/leveraging-the-trauma-registry-to-facilitate-concurrent-inpatient-review/>  The ACS has identified NSA with an ISS < 9 can be closed in primary review. |  | Follow up on any audit filter fallouts that occur during admission per your PI plan.  Tip: some facilities find the Nelson scoring tool helpful to determine what patients need review beyond Primary Review.  <https://journals.lww.com/journaloftraumanursing/abstract/2022/09000/validation_of_the_nelson_tool__a_scoring_tool_for.10.aspx>  NSA cases without any surgical consultations with an ISS of < 9 can be closed in primary. An ISS of >9 must go for secondary review and escalated with any additional concerns. | Primary Review.  Consider Nelson tool. |
| Admission to hospital and transfer to OSH after admit | Appropriate disposition for patients is integral as to not delay care. No matter the timeframe from admission, if a patient is transferred from the inpatient area to another facility for a higher level or care or specialty care, this indicator should be utilized.  EXCLUDE: This would not include SNF or long term care centers but only acute care facilities. | Facility Specific: admission appropriateness should be reviewed to ensure that transfer need could be identified at an earlier time.  State criteria 9(g): review of orthopedic trauma cases to determine appropriateness for decision to admit or transfer.  State criteria 8(c): written guideline that describes what neurosurgical injuries can be admitted transferred.  State criteria 8(e): neurosurgical cases admitted or transferred, care must be timely and appropriate. |  | Work closely with your TMD to determine the cause. Depending on the cause will drive an action plan. IE: did the patient have a change in condition driving the transfer- could the complication be prevented?  Is this provider dependent?  Determine the cause, make an action plan to prevent a recurrence, closely monitor for trends. | Minimally secondary review, most need tertiary review. |
| Transfer in / Direct Admission | Any patient transferred from an acute care facility into inpatient care after a traumatic incident shall be reviewed for transfer appropriateness, process, and overall care. | ACS: Required audit filter per ACS Gray Book Standard 7.2 (see page 120). |  | TPC-ongoing audits for inpatient trauma to include transfers to a HLOC. | Primary Review. |

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| Hospital Event (TR23.1) | References | Action / Review Steps to Consider in Review |
| Acute Kidney Injury (AKI)  Acute Respiratory Distress Syndrome (ARDS)  Alcohol Withdrawal Syndrome  Cardiac Arrest with CPR  Catheter-Associated Urinary Tract Infection (CAUTI)  Central Line-Associated Bloodstream Infection (CLABSI)  Deep Surgical Site Infection  Deep Vein Thrombosis (DVT)  Delirium  Myocardial Infarction (MI)  Organ/Space Surgical Site Infection (SSI)  Osteomyelitis  Pressure Injury/Ulcer  Pulmonary Embolism (PE)  Severe Sepsis  Stroke/CVA  Superficial Incisional Surgical Site Infection  Unplanned Admission to ICU  Unplanned Intubation  Unplanned Visit to the Operating Room  Ventilator-Associated Pneumonia (VAP)  -Readmissions within 30 days of discharge | State criteria 15(i).  **Link for NTDB is included on page one of this document.**  List on  Page 5  of the  WI NTDS  Definitions found on pages  139 - 170 | **State of WI DHS Identifies this list as an Unplanned Hospital Event and should be included in PIPS Review.**  Other recommendations to consider/ include in case review include infection control, pharmacy, comparison to hospital order sets/prevention measures. Also include leaders of the area(s) involved in care of the patient leading up to and during the event to ensure proper awareness and management of the event.  If your facility has specific policies, treatment, or prevention measures, we encourage you to link them here for reference. |

Abbreviations Used within this Document:

ACS- American College Of Surgeons (Committee on Trauma)

DHS- Department of Health Services (WI State Trauma Program)

EMS- Emergency Medical Services

E-Fast- Extended Focused Assessment with Sonography

FAST Exam- Focused Assessment with Sonography

GLF- Ground Level Fall

HLOC- Higher Level of Care

ISS- Injury Severity Score

NSA- Non-Surgical Admission

OFI- Opportunity for Improvement

PI- Performance Improvement

PRQ- Pre-Review Questionnaire

SNF- Skilled Nursing Facility / Nursing Home

TCF- Trauma Care Facility

TMD- Trauma Medical Director

TPC- Trauma Program Coordinator (either can be used depending on job title at your facility).

TPM- Trauma Program Manager (either can be used depending on job title at your facility).

TQIP- Trauma Quality Improvement Program (State and National groups)