pennsylvania TRAUMA SYSTEMS foundation

Performance Improvement Primer

2021

HISTORICAL OVERVIEW & PRIMER PURPOSE

Performance improvement (PI) is the *systematic evaluation of care* for every trauma patient.

The terms and focus of this process have undergone numerous changes - beginning with the term quality assurance. This evolved into total quality management and later continuous quality improvement. Currently, trauma programs refer to the PI process as performance improvement and patient safety (PIPS). Most importantly, the focus has shifted away from individual provider errors to a system-wide perspective. This more sophisticated model has two fundamental concepts - "systems measures" and "human measures" that both impact patient outcome. This broader understanding of performance and quality review requires awareness that the system has the potential to contribute to error. In fact, the overall goal of building strong, resilient systems supports the delivery of safe, quality care. This foundation prevents errors from occurring and favorably impacts patient outcomes.

Just as the term has evolved, so has the trauma system's adoption, expectation and utilization of the PIPS process. PI for the care of the injured patient remains the central core element of Pennsylvania's Trauma System.

Historically, PI was limited and conducted only at the local trauma facility level. As a result of health facilities merging into larger systems, the PI process has grown into a more regional process. Pennsylvania's statewide PIPS process continues to mature and evolve with quarterly benchmark reporting, central PA V5 Outcomes repository of state deaths, PIPS, Outcomes Committees, and the Pennsylvania State Trauma Quality Improvement Program (TQIP) Collaborative (PA-TQIP) initiative.

This Pennsylvania Trauma Systems Foundation (PTSF) PI Primer is designed to support basic, trauma PI that is conducted and documented by the core trauma team. The PI process should be meaningful, methodical, and, most of all, beneficial to the maturation of a developing trauma program. This foundation is paramount in creating a sustainable PIPS process that fosters system-wide excellence in patient care and outcome.

WHAT IS TRAUMA PERFORMANCE IMPROVEMENT?

PI is a confidential, systematic review and discussion of trauma care with ongoing surveillance of processes, systems and its impact on outcomes. PI is both time and data intensive and includes multiple processes. PI is the core of a trauma center's development.

A high-functioning PI program must document the quality and timeliness of trauma care. The program must use metrics to assess impacts and trend result in efforts to improve trauma care. These metrics will guide patient care outcomes, provider performance—both response and actions—as well as system performance.

COMPONENTS OF THE PERFORMANCE IMPROVEMENT PROCESS

The identified components of the PI process occur in phases.

These phases are:

PERFORMANCE IMPROVEMENT & PATIENT SAFEFY PLAN

A PIPS Plan is a written document that outlines the structure for how the facility's trauma program's PI process functions. This plan should establish roles, accountability, and credibility. Furthermore, it should demonstrate the linkage to the hospital's facility-wide PIPS process. Although the components of a PIPS plan are prescriptive and required for all trauma programs, the content must be customized to the resources and processes at the individual facilities. A PIPS Plan is required per PTSF Standards of Accreditation and must be reviewed, at a minimum, yearly.

COMPONENTS OF THE PIPS PLAN

The following list outlines the required components of the PIPS Plan as per the PTSF Standards of Accreditation:

- Authority of the Trauma Program Medical Director (TPMD) and Trauma Program Manager (TPM) to lead the PI program
    - Granted and empowered by the hospital governing body
    - Must include authority to transcend service lines
        - Due to multiple subspecialties and departments participate in the care of the trauma patient, the TPMD and TPM must be able to address events that involve other disciplines
- Trauma credentialing requirements for the physicians and advanced practitioners
    - Must include authority of the TPMD to determine providers ability to participate in trauma care and remove providers from trauma call if deemed necessary
- Trauma PI Roles and responsibilities
- Issue identification encompassing all phases of care
    - Process for verification and validation of events:
        - Process for retrospective review
        - Process for concurrent review
- Process for data collection
- Process for use of PI indicators, opportunities for improvement (OFI), hospital events/occurrences, and audit filters
- Process for analysis of PI events/issues
- Levels of review, congruent with the TOPIC curriculum, further defined and described by the PI program on how each level is conducted at your instituion
    - Primary: typically TPM, Trauma PI Coordinator, Registry, or designee
    - Secondary: typically TPM, Trauma PI Coordinator and TPMD
    - Tertiary: typically multidisciplinary forum lead by the TPMD and TPM

    - Quaternary: typically a high-level hospital committee, system level or external review
- Description of PI forums and meeting structure, including frequency and mandatory participants
- Utilization of Pa v5 Outcomes to operationalize PI activities
- Classification of events: includes determination of the effects of the event utilizing an institutional or PI program defined grading system
    - For example, Pa v5 Outcomes Determination and Acceptability status
    - Taxonomy must be utilized in the classification of all deaths at a minimum
- Process for action plan development, implementation and reevaluation
- Process for issue resolution (loop closure)
- Process for integrating/incorporating benchmark reports, such as TQIP, into the PI program

Optional components that can be included in the PI Plan:

- Philosophy, mission & vision
- Confidentiality protection
- Mentoring/coaching
- Trauma patient population criteria
- PI interrater reliability

PI INDICATORS

Fundamental to the PIPS process is the monitoring and measuring of the outcome of specific processes or procedures. This includes the intent to increase effectiveness, or reduce real or potential harm, as well as to improve future outcomes.

The core measures for quality and patient safety are often noted as process and outcome measures. Process measures are institution, system, and operational focused, while outcome measures are clinical/patient care focused. Some core measures are required while some are discretional or institutional-specific based on the needs of the trauma program. The American College of Surgeons (ACS) provides the fundamental list of required PI indicators.

All process and outcome measures must be documented within the trauma PIPS plan and should be reviewed as well as updated annually. This plan should identify the core measures, include details on monitoring (frequency and benchmarks), and report the PIPS components.

AUDIT FILTERS & CORE MEASURES

Trauma standards establish care delivery and are evidenced-based. They are established from national, regional, and local standards of care. **Audit Filters** assist with monitoring the process of care relative to established standards and/or benchmarks. They are a trigger to establish an outlier followed by a prompt review. An audit filter trigger does not equate bad care, but rather suggests the PIPS program to review the care for justification or opportunities for improvement. **Core measures** are based on data/scientific evidence about process and treatment that are known to achieve the best results for a condition or illness. Examples of Core Measures are Clinical/Practice Management Guidelines.

Appendix A: ACS Required Core Measures

EVENT IDENTIFICATION & REPORTING

The identification and reporting of PI events may come from various resources. This is considered the first step or stage of the PIPS process. Potential sources of event identification and reporting may include but are not limited to:

- Accreditation Reports
- Autopsies
- Daily rounds
- Emergency Medical Services (EMS) documentation
- Established patient report forums i.e. morning report, huddles
- Medical record
- Patient & Family
- PI Conferences / Meetings
- Registry abstraction/surveillance
- Risk Management/Quality Department
- Reports and metrics from external agencies – PTOS, TQIP, NTDB
- Staff referral: email, verbal, hotline, reporting system
- Tertiary phases of care feedback: rehab, long term care, other trauma centers
- Video/audio recordings i.e. Pre-hospital (medical command, transfer center), resuscitation and operating rooms

The PIPS plan must incorporate details of the process for the trauma program to identify and report PI events. Regardless of the data management system or process utilized, the PIPS Plan should also address confidentiality and protection of the data.

DATA MANAGEMENT, PIPS DOCUMENTATION & VALIDATION

The source of all trauma PI is recorded in the trauma registry. PTSF utilizes ESO/DI V5 Collector Software for the state registry. The trauma registry is the foundation of the trauma program and utilizes data to support: PIPS, research, injury prevention, financial and strategic planning and other focused projects. The Collector software interfaces with the Pa v5 Outcomes software.

Imperative to a sound registry is a data dictionary. Its purpose is to assure that data is consistent among abstractors and evaluators. The use of a data source hierarchy is important, as well. It is strongly recommended that each institution develops a data source hierarchy. A fundamental key for data management and PIPS is concurrent review. This assures timely identification and intervention of issues.

Pennsylvania mandates utilization of the ESO/DI V5 Outcomes software to track PIPS. Refer to the resource manuals for additional details on the utilization of the software. This software contains the mandatory audit filters, occurrences, and core measures. Additionally, the software is customizable to add institution-specific tracking capability.

After an event is identified and recorded in the PIPS software, the trauma program staff validates the event. This is referred to as the Primary or First level of the performance improvement review (see the next section for addition details). This validation includes obtaining additional details such as who was involved, when, where and why.

Sources of information for validation may include but are not limited to:

- Obtaining additional details via
  - Medical Record Review
  - Subspecialty Liaisons and Department Liaisons referrals
  - Staff discussions
  - Investigating justifications
  - Data dictionary confirmation

Every component of the PIPS process should be documented in the PA V5 Outcomes software to assure reproducible records of the process as well as to aid in tracking and trending of the data.

FOUR LEVELS OF PI REVIEW

The PI Process includes four levels of review. These levels are:

- Primary
- Secondary
- Tertiary
- Quaternary

Achievement of loop closure (event resolution) may occur at any level depending on the issue. Regardless of the level of review, the goal is determination and loop closure.

PRIMARY REVIEW

The goal of primary review is to identify and validate events. The PI Coordinator, TPM, or designee typically completes the primary review.

- Validation is a methodical review of information that is essential to confirm and collate data to make a determination for the event.
- There are several courses of actions that may follow the primary review:
    - Resolution of the event/loop closed
    - Trend the issue to determine if frequency or outcome requires additional action
    - Refer the issue for TPMD or designee review (see Secondary Review)

SECONDARY REVIEW

The goal of secondary review is to further investigation & triage of events. The PI Coordinator, TPM, TPMD, Assistant TPMD or designee typically completes the secondary review.

- This level may require the review and opinion of a sub-specialty expert to gain further insight and perspective.
- There are several courses of actions that may follow the secondary review:
    - Resolution of event/loop closed by the TPMD or Delegate
    - Trend the issue to determine if frequency or outcome requires additional action
    - Referral for further review to specialty group or committee (see Tertiary Review)

TERTIARY REVIEW

The goal of the tertiary review is to reach consensus of determinations and course of action to provide loop closure (event resolution). The TPMD (or physician designee) must lead peer review discussions as well as moderate peer review determination and judgments.

- This is a structured review by a group; usually multi-disciplinary (see Committee Structure)
- Cases appropriate for committee review may include but are not limited to:
    - Deaths
    - All transfers out of specialty populations
    - Morbidities
    - Unexpected outcomes
    - Review requested by trauma stakeholder
    - Sentinel events
    - System Events
    - Policy/protocol/clinical management guideline non-compliance
    - Low volume populations such as pediatrics, pregnant women, burns
    - Provider specific issues
- There are several courses of action that may follow the tertiary review:
    - Determination of event
    - Corrective action plan
    - Referral for further review to external source (see Quaternary Review)

QUATERNARY REVIEW

The goal of the quaternary review is to complete a review of the event by reviewers external to the trauma program.

- External review from a partnering trauma center, subspecialist reviewer or subject expert
- May include Regional/State/Health System PI Committees

COMMITTEES AND COMMITTEE STRUCUTRE

The PIPS plan (Tertiary or 3rd level of review) requires a minimum of two formal PI committees. These are a component of the Tertiary Level of PI review.

- Multidisciplinary Peer Review Committee
- System/Operational PI Committee

MULTIDISCIPLINARY PEER REVIEW COMMITTEE

The Multidisciplinary Peer Review Committee is the forum for review of individual patient cases. The goal of the Peer Review Committee is to have robust case discussion among multidisciplinary peers. In this forum, discussions should include clinical dialogs at the patient and provider-related levels.

The Multidisciplinary Peer Review meetings must be scheduled at regular times and frequency to assure prompt review of the cases. ~~Attendance must be monitored. Meeting minutes must be maintained. Teleconferencing is acceptable and must allow for active participation..~~

Meeting minutes and attendance log must be maintained. Attendance may be met through teleconferencing and/or videoconferencing as long as it facilitates active participation.

The TPMD, in collaboration with the TPM and the Trauma PI Coordinator, will have the leadership role. The TPMD must chair this committee.

Specific attendees are required, including a liaison for subspecialties, depending on the level of trauma accreditation. It is the responsibility of the liaison to communicate critical information to their subspecialty group.

If individual subspecialty services/departments have department and/or hospital-based peer or case review meetings in addition to the required PIPS peer review meeting, then those meeting minutes or outcomes must be made available to the trauma PIPS program.

<u>PARTICIPATION REQUIREMENTS for Level I, II and III Trauma Centers include but are not limited to:</u>

- The TPMD, TPM, Trauma PI Medical Director/Assistant TPMD (if applicable) and PI Coordinator/each individual in a PI capacity must maintain 75% attendance

- All General Surgeons participating in trauma care must participate
  - Each General surgeon must maintain 50% attendance
- All advanced practitioners (AP) supporting the general surgical team and having a defined role in trauma care must participate
  - Each AP must maintain 50% attendance
- Subspecialty liaisons must participate
  - Each subspecialty must have a primary liaison and may assign a secondary liaison. The combined attendance of the two individuals must be at least 50%
  - Subspecialties include:
    - Anesthesia
    - Emergency Medicine
    - Critical Care – If critical care unit is not independently directed by a surgeon (Level I/II)
    - Neurosurgery (Level I/II and as applicable for Level III)
    - Orthopedics
    - Radiology
    - Additional subspecialists as defined by the PIPS plan

PARTICIPATION REQUIREMENTS for Level IV Trauma Centers include but are not limited to:

- The TPMD, TPM, Trauma PI Medical Director/Assistant TPMD (if applicable) and PI Coordinator (if applicable) must maintain 75% attendance
- Subspecialty liaisons must participate
  - Emergency Medicine (if the TPMD is not from the ED)
  - Radiology
- Required subspecialty if participating in care of the injured patient:
  - Service that admits patients (i.e. Hospitalist)
  - Orthopedics
  - Anesthesia
  - Surgeons
  - Advanced Practitioners
  - Additional subspecialists as defined by the PIPS plan

MULTIDISCIPLINARY TRAUMA SYSTEMS / OPERATIONS COMMITTEE

The multidisciplinary committee addresses process, system, and operational events that impact trauma care. Individual patient cases typically are not presented in this venue, but the events identified from patient case review requiring operational and/or system inputs to resolve are. This committee should be separate from the peer-review

(case review focused) committee for Level I, II and III trauma centers. Level IV trauma centers may choose to combine this meeting with the peer-review committee.

MEETING STRUCTURE AND LOGISTICS

The meetings must be scheduled at regular times and frequency to assure prompt discussion of events. Meeting minutes and attendance must be maintained.

The TPMD and TPM co-chair this committee.

PARTICIPATION REQUIREMENTS:

Attendees should include representatives from all phases of care provided to injured patients, including any ancillary personnel as defined by the PIPS plan.

- TPMD, TPM, Trauma PI Medical Director/Assistant TPMD (if applicable) and Trauma PI Coordinator must maintain 75% attendance
- Other potential attendees include but are not limited to:
    - Administration
    - Emergency Department
    - Information Management (IT)
    - Lab/Blood Bank
    - Nursing
    - Nutrition
    - Pediatrics Representative
    - Pharmacy
    - Pre-hospital/EMS
    - Quality Management
    - Registrars
    - Rehabilitation
    - Respiratory
    - Social Services
    - Subspecialty Liaisons
    - Trauma Surgeons

ADDITIONAL OPTIONAL PIPS COMMITTEE MEETINGS

Trauma programs may have additional PIPS committees based on educational purposes, scope of practice, specific-event-driven necessity or program development. Examples include but are not limited to: Morbidity and Mortality Conferences, Pre-Hospital PI Committees, Subspecialty focused such as Orthopedic/Neurosurgery and

Ad-Hoc workgroups etc. Regardless of the forum, the meeting minutes should be accessible to the trauma PI program.

HOSPTIAL QUALITY DEPARTMENT MEETINGS

The PIPS plan must describe how the trauma program interfaces with the Hospital Quality program.

Appendix B: PIPS Institutional Hierarchy

DETERMINATION & CLASSIFICATION

Regardless of the level of review, the PIPS program must classify the event. This includes determination of the effects of events based on an institutional defined system such as but not limited to: Taxonomy embedded in Pa V5 Outcomes, expected/unexpected, severity levels or other grading system.

The Pa V5 Outcomes software standardizes PI documentation and classification in Pennsylvania, and utilizes many of the Joint Commission taxonomy elements. The PIPS plan must identify and define the classification definitions for the institution.

CLASSIFICATION DEFINITIONS FOR PA V5 OUTCOMES

Domain: Characteristics surrounding the event, including setting/location, service/staff, phase of care, and target/goal of care

Impact: The amount of effect the specific event had on the patient - also called "degree of harm." The impact of the event can range between no harm and death. Separated into 5 areas: physical, psychological, social, economic and legal

Type: The implied or visible processes that were faulty or failed. Subcategories include: communication, patient management, and clinical performance

Factors: The contributing reasons and agents that lead to the event. Subcategories include: system, human-practitioner, human-patient and human-other. Multiple factors may have contributed to the event

Determination: The status of this specific event and the measurement that best describes the potential for improvement as agreed upon by those involved in review of this specific event. The Determination measures the potential that may have existed in improving the outcome of this specific event

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

Prevention or Mitigation: The type of corrective actions taken or proposed to reduce incident and effect of adverse occurrences are classified as either being a prevention measure or a mitigation measure.

CLASSIFICATION IN TERTIARY REVIEW

The multidisciplinary trauma peer review committee must systematically review mortalities, significant complications, and process variances associated with unanticipated outcomes and classify the event. The committee will agree upon a determination and acceptability of the event and determine the specific opportunities for improvement.

Mutually agreed upon nomenclature to allow for integration with the institution-wide PIPS process should be used.

Based on this review process, both the appropriateness and timeliness of care should be reviewed and opportunities for improvement (for example errors in judgment, technique, treatment, or communication, along with delays in assessment, diagnosis, technique, or treatment) should be determined and documented in Pa V5 Outcomes.

Appendix C: Morbidity and Mortality Determination Classifications

ACTION PLANS

When an opportunity for improvement is identified, appropriate corrective actions to mitigate or prevent similar future adverse events must be developed, implemented, and clearly documented by the trauma PIPS program in the specific Tracked Event in Pa V5 Outcomes.

Examples of corrective actions may include but are not limited to:

- Change in provider credentialing
- Disciplinary Action
- Educational offering (for example, rounds, conferences, or journal clubs)
- Enhance resources, facilities, equipment and/or communication
- Policy, practice guideline, protocol, or pathway development or revision
- Provider or team counseling/remediation
- Suspension or termination of provider
- Track and trend for further reporting/PI Project/Focused workgroup

ACTION PLAN: EDUCATION

When education is the identified action plan, the method for providing education to the targeted personnel must be established. Examples of methods for providing education include but are not limited to:

- Invite a speaker to present on area of identified knowledge deficit at a formal conference or informal educational sessions
- Include skill/information at nursing competencies
- Journal club
- On-line education
- Newsletters
- One-on-one education
- Posters/fliers around department
- Webinar
- Formal Trauma Course/Education (example: ATLS/ATCN)

ACTION PLAN: PI TEAM PROJECT

A PI Team Project may be appropriate to address an event, particularly if there is a pattern of the event occurring in multiple patient cases. This includes:

- Workgroup of stakeholders to work on specific issue/event, usually less urgent but still important
- Must have oversight by trauma program leadership. TPMD/TPM must act as champion
- Use available data to determine effectiveness of suggested changes

ACTION PLAN: PROVIDER COUNSELING AND REMEDIATION

When remediation and counseling is indicated some concepts to consider include:

- Usually most effective for behavior related events, which are rare
- Difficult but necessary and should be done as soon as possible to the event
- Does not belong in an email – should be done face to face
- Delivered by TPMD or Nurse Manager depending on who is involved following hospital/Human Resources policies and guidelines
- Especially difficult in trauma centers with small number of providers
- Must be documented
    - For Example: The TPMD ~~has a one-on-one conversation~~ directly communicates with their colleague regarding the poor documentation of trauma activations. He/she then sends a memo to the trauma coordinator outlining the conversation and action items that came from the meeting. This is documented in Pa V5 Outcomes
- Following counseling, look for trends and changes in behavior
- Mitigation plan may include involving administration and removing provider from the trauma service

ACTION PLAN: CLINICAL/PRACTICE MANAGEMENT GUIDELINE

When a clinical or practice management policy/guideline development or revision is indicated some concepts to consider include:

- Elicit input and feedback from stakeholders
- Focus on evidence-based foundations
- Utilize resources (do not reinvent the wheel). There is a good possibility that your guideline may already exist
    - Contact TPMs from other accredited trauma centers
    - Contact other hospitals within your health system
    - Refer to professional organizations – where best practices are frequently available on the web page
    - Utilize reputable organizations such as EAST, AAST, STN and ENA
    - Customize to the facility's scope of practice

It is important to understand that creating, approving, and implementing a guideline does NOT mean you have achieved loop closure. Practice Management Guidelines must be monitored for compliance. The results are then shared with the specific providers and the TPMD at a minimum. Provider-Specific compliance tracking is incorporated into the credentialing process. In order to track compliance accurately, astute data collection is imperative. Most importantly, the outcomes must be monitored to assure the guideline positively effecting care.

Appendix D: Practice Management Guideline Template

Appendix E: Publications and Resources

LOOP CLOSURE (EVENT RESOLUTION)

Effective PI demonstrates that a corrective action has had the desired effect by continuous monitoring and re-evaluation. This process is referred to as "closing the loop" or event resolution.

Following the implementation of a corrective active plan, the effectiveness of these interventions/corrective actions should be continuously re-evaluated to determine if they improved the process or outcomes in care. Documentation in PaV5 Outcomes must clearly demonstrate that the event has not reoccurred. If the event has not occurred, then the tracked event can be considered to have achieved loop closure.

Demonstration of consistent systematic use of a defined PIPS process is clear evidence of a commitment to the continuous pursuit of improving the care of the trauma patient.

> Example of how loop closure might look in your trauma center:
> A four-year-old presents to a non-trauma hospital after being thrown from an ATV. Found to have significant head and abdominal injuries, the patient is transferred to an adult-only level II trauma center. Next, the patient is transferred from ED of level II center to pediatric level I trauma center after 60 minutes for pediatric neurosurgery unavailable at level II center.
>
> **Issue identification**: Double transfer leading to delay to definitive care. Documented in Pa V5 Outcomes as a Tracked Event – User Defined Issues.
>
> **Analysis:** The pediatric trauma center TPMD and the adult trauma center TPMD discuss the transfer. The discussion revealed that the adult trauma center does not currently have a process for triaging pediatric patients transfer directly to a pediatric trauma center rather than an adult trauma center. The analysis, Factors, Impact, Determination and Acceptability is documented in the Pa V5 Outcomes Tracked Event.
>
> **Action plan**: Development of guideline outlining injuries that should be triaged directly to a pediatric trauma center and review the new guideline with providers. Additionally, host a provider conference with speaker from pediatric trauma center to present cases. The plan is documented in the Pa V5 Outcomes Actions section. Record implementation of action plans, including attendance of providers at educational sessions.
>
> **Monitoring**: Review transfers for compliance with new guideline.

Loop Closure: On-going monitoring of transfers revealed the next severely injured children that present following implementation of guideline are transferred directly to pediatric trauma center. It is determined that the loop is closed – resolved.

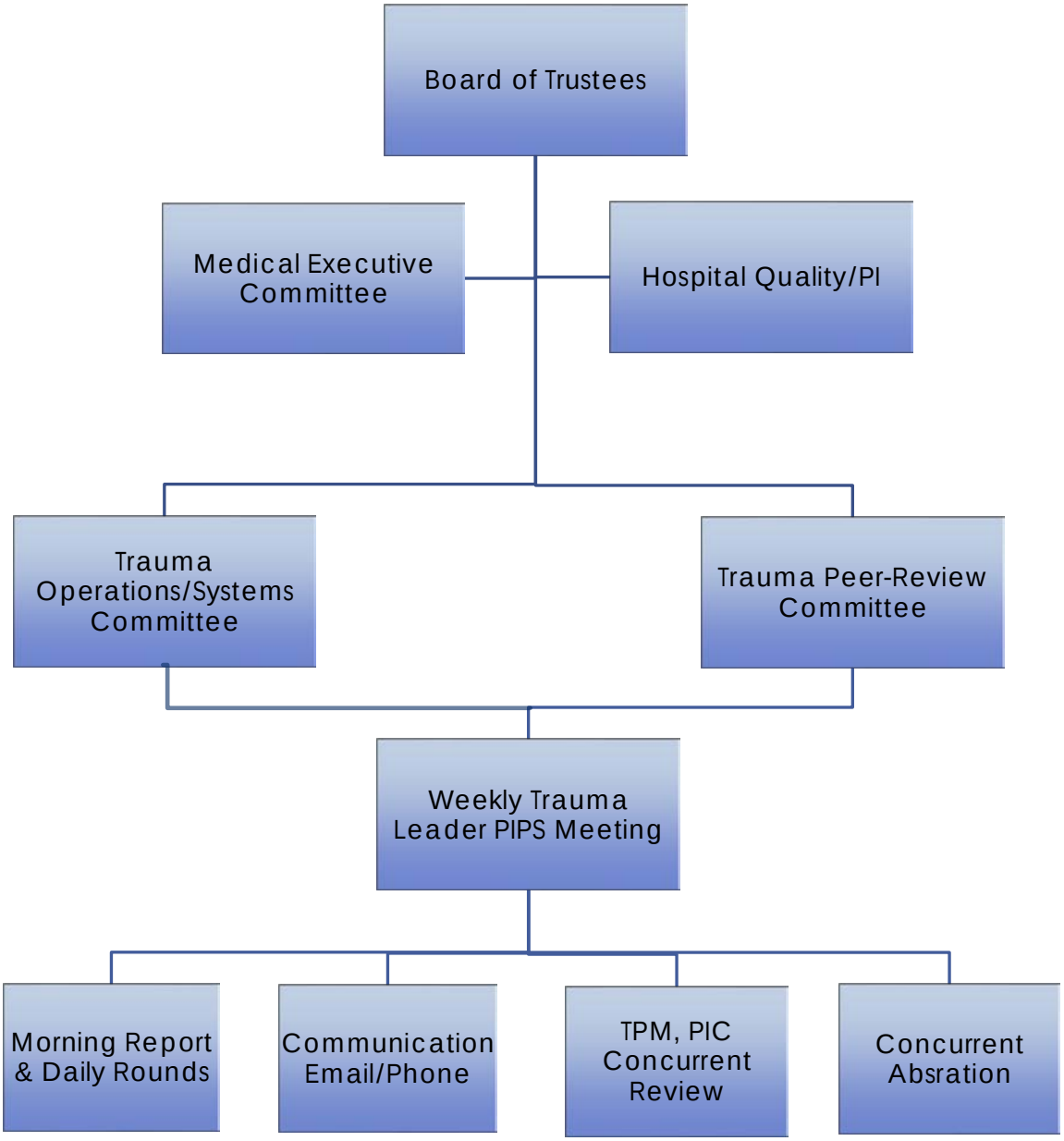
Event is now resolved but monitoring should be on going to validate that improvement is maintained.

APPENDIX A: ACS REQUIRED CORE MEASURES

- Mortality:
  - Dead on Arrival (defined as no signs of life on arrival)
  - Death by ISS subgroups
  - Died in ED despite resuscitation efforts
  - Died in-hospital
  - Total Mortality Rate
    - All Trauma Patients
    - Pediatric <15 years old
    - Geriatric >64 years old
- Response time to the ED: Trauma Surgeons
  - Response to activations
  - Response to trauma consults
  - Response of back-up call
- Triage (includes all activations, trauma consults, non-activations & direct admits):
  - Compliance with Activation Criteria *annually
  - By level of response (quantified by # and % of total)
  - Over/Under triage trended rate *monthly
- Response time to consultation of time-critical injuries (as defined by the trauma program)
  - Neurosurgery
  - Orthopedic Surgery
  - Anesthesiology: to in-house and to Operating Room
  - Radiologist
- Admission to Non-Surgical Service *10% threshold
- Pediatric (<15 years old) trauma care
  - Timeliness and appropriateness of care
- Acute Transfers Out
- Emergency Medicine In-House coverage (if applicable for hospital/level)
- Diversion Report
- Appropriate Neurosurgical care (Level III & IV, where applicable)
- Radiology timeliness of response for: (if responding from outside center)
  - CT – 30 min
  - Interventional Radiology – 30 min
  - MRI – 60 min
- Radiology variance trending: Rate of change of read interpretation

- Operating Room availability
- Operating Room/PACU: Back-up team response time and utilization
- Transfers to higher level of care within the institution
- Organ donation rates
- Trauma Registry submission timeliness
- PIPS Meeting Attendance:
    - TPM
    - TPMD
    - Trauma physicians
    - Subspecialty Liaisons
    - Trauma Advanced Practitioners

APPENDIX B: PIPS INSTITUIONAL HIERARCHY



APPENDIX C: MORBIDITY AND MORTALITY DETERMINATION CLASSIFICATIONS

MORTALITY DETERMINATION 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

- **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

- **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 consequences
  - P(s) < 0.25 by TRISS methodology

MORBIDITY

DETERMINATION 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

- **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

APPENDIX D: PRACTICE MANAGEMENT GUIDELINE TEMPLATE

Your Hospital Logo

Your Hospital Name

Regional Practice Management Guideline

Title	
Adult **Practice Management Guideline**	**Effective: 11/2011**
Contact: Trauma Coordinator	**Last Reviewed:**

Purpose
Definition of purpose: " something set up as an object or end to be attained"

Example: To describe the airway management for patients presenting with an emergency airway

Definitions
Definition of definition: "a statement expressing the essential nature of something"

Example: Emergency Airway: a device placed to support respiratory function that is **not** considered a definitive airway (i.e., Combitube, King LTS-D)

1. Adult trauma patient – any patient age fifteen (15) or older suffering an injury. For the purposes of this guideline the definition is any injured patient who may be at risk for a spine injury.

Policy Statements
May be one or multiple statements

Example: All trauma patients arriving with an emergency airway for respiratory support meet criterial for highest level of trauma activation

Procedure Statements
Definition of statement: "a particular way of doing things; a set of steps that must be followed to achieve the desired results"

Example: The trauma team leader should view patient arriving with an emergency airway has a potential airway management risk and be prepared to utilize alternate advanced airway modalities with the assistance of Anesthesia.

Resources/Links
Definition of resource: "a source of information or expertise:

Example: literature review; existing guideline

Prepared by: Hospital **leadership**
Approvals: ?? **Subcommittee;** ?? **12/15/2011** Identify who provides final approval for implementation

Disclaimer: This is a general guideline and is not intended as a substitute for clinical judgment or as a protocol for the management of all trauma patients. Can place any disclaimer here according to your leadership team or none at all.

Suggestion made 2014—identify audit filters that will apply to this PMG

APPENDIX E: PUBLICATIONS AND RESOURCES

American College of Emergency Physicians
www.acep.org

American College of Surgeons Trauma Publications
https://www.facs.org/quality-programs/trauma/publications
www.aast.org

American Trauma Society
http://www.amtrauma.org/

Brain Trauma Foundation
www.braintrauma.org

Eastern Association for the Surgery of Trauma, Trauma Practice Management Guidelines
http://www.east.org/tpg.html

Minnesota Department of Health
https://www.facs.org/quality-programs/trauma/publications

Minnesota CALS Program
https://calsprogram.org/

National Trauma Data Bank
http://www.facs.org/trauma/ntdb.html

Pediatric Trauma Society
https://pediatrictraumasociety.org/

Society of Trauma Nurses
https://www.traumanurses.org/

Trauma Center Association of America
http://www.traumacenters.org/

Trauma Quality Improvement (TQIP)
https://www.facs.org/quality-programs/trauma/tqip

Western Trauma Association, Algorithms
http://westerntrauma.org/algorithms/algorithms.html