Michigan - Performance Improvement for Level III & IV Trauma Centers

August 26, 2019 – Lansing, MI

Michigan – PI for Level III & IV Trauma Centers

Faculty Introductions

Sheryl Sahr, MD, FACS
Carol Immermann, RN
Deb Syverson, RN

August 26, 2019 – Lansing, MI

PI: The Foundation of Any Trauma Program

PERFORMANCE IMPROVEMENT & PATIENT SAFETY

Deb Syverson, RN, BSN, TCRN
Director - Trauma Services
Sanford Health – Fargo, ND

PI: The Foundation

Objectives:

- Describe a thorough performance improvement process that evaluates and improves trauma care from pre-hospital to discharge.

Performance Improvement & Patient Safety

PIPS

Demonstrate a continuous process of monitoring, assessment, and management directed at improving performance of the trauma program.

This effort should routinely reduce unnecessary variation in care and prevent adverse events (patient safety).

Performance Improvement & Patient Safety (PIPS) – Why?

- Evaluates patient care outcomes
- Improving system performance
- Requirement to be a designated/verified trauma center
- Opportunity for Improvement
- Promotes a culture of safety
- Multidisciplinary
- Integrated into hospital QI process
- Data driven

PIPS: Getting Started

- Establish leadership (authority)
  - **Trauma Medical Director**
    - Ideally a physician with experience in trauma care
    - Interest/commitment to trauma patient care
  - **Trauma Program Manager/Coordinator**
    - Usually a RN familiar with the continuum of trauma care
    - Allied health provider with trauma care experience
  - **Hospital Administration**
    - Need support to make needed changes

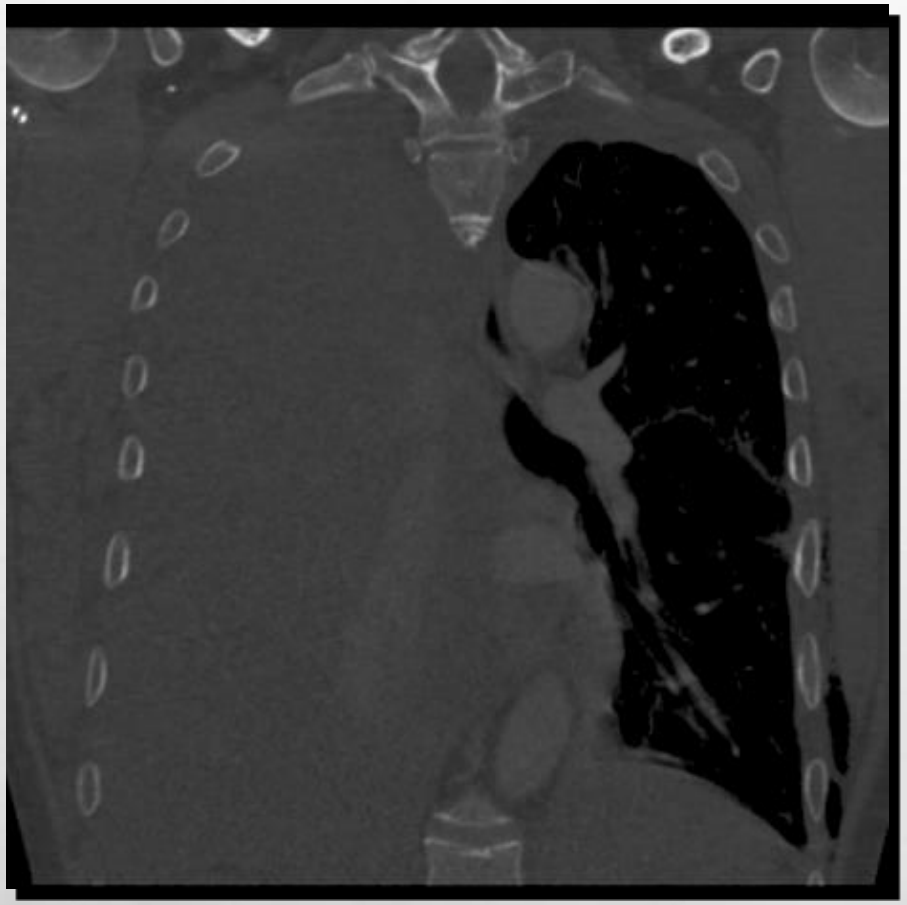
PIPS: Getting Started

- Define & Identify trauma patient population
- Refer to your state requirements or those set by your hospital or entity that will verify your trauma center
  - generally called trauma patient inclusion criteria
- Determine indicators/filters (some are mandatory: ACS, State)
- Event identification (Indicator, system issues, not standard of care)
- Validation of events
- Process – Action Plan – Loop Closure – Review
- Required Documentation

PIPS: Getting Started

- Patient care review is ideally done soon after presentation to the hospital and daily if admitted.
  - This allows for better review of cases.

PIPS: Getting Started



- *"Future similar patients are less likely to have this outcome because_____?*

PI: Engage the Entire Trauma Team

- ED Physicians
- NP/PA
- Surgeons
- Specialists
- EMS
- Nursing
- RT
- LAB
- Radiology
- Pharmacy
- Hospital Quality Dept.

Performance Improvement & Patient Safety

- System Issues
- Clinical Care

Performance Improvement & Patient Safety

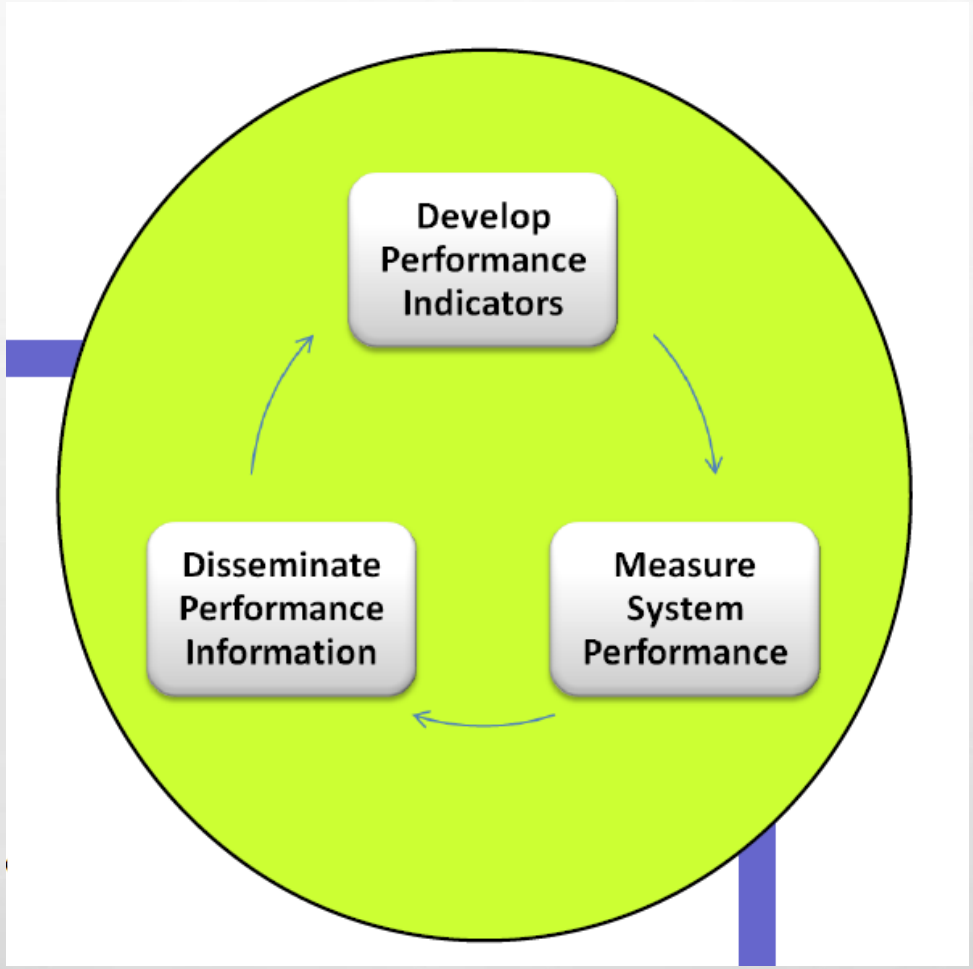
HOW WELL IS YOUR TRAUMA PROGRAM DOING?

PERFORMANCE IMPROVEMENT TOOL KIT FOR LEVEL IV AND V TRAUMA CENTERS

Trauma Center DEMANDS

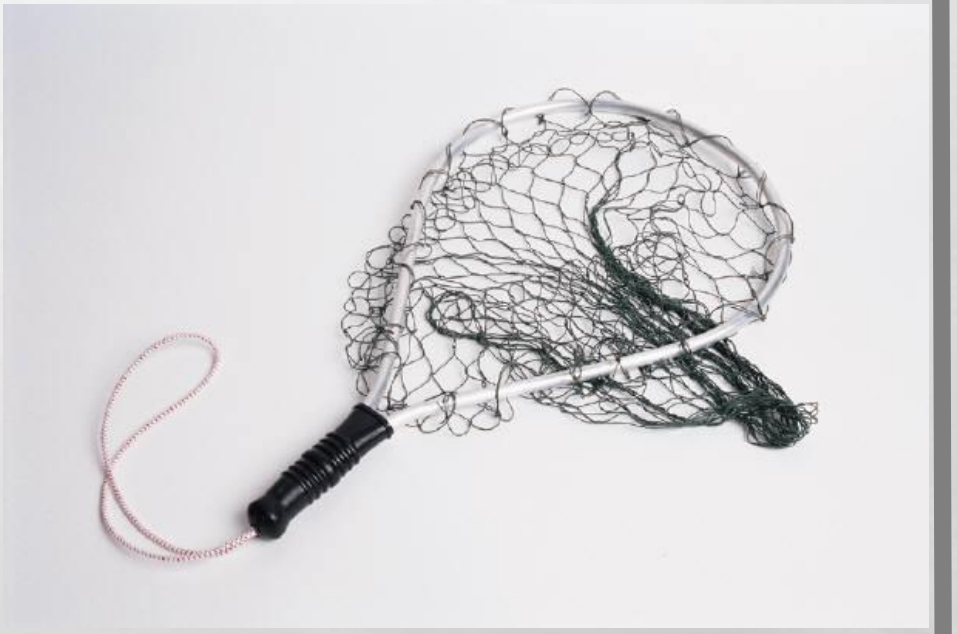
- √ RIGHT **LEADERSHIP**
- √ RIGHT **PEOPLE**
- √ RIGHT **COMMUNICATION**
- √ RIGHT **ATTITUDE**
- √ RIGHT **EQUIPMENT**
- √ RIGHT **PROCEDURES**
- √ RIGHT **SKILLS**
- √ RIGHT **TIME**

Performance Improvement & Patient Safety



PIPS – Filters (indicators, criteria, events, variances)

- Filters "catch" those occurrences that fall out of the expected norm
- Filters flag occurrences for review
  - Does **not** imply problem/error



PIPS – Common Filters/Indicators

- EMS scene time > 20”
- ED length of stay > 60”
- Undertriage &/or trauma team not activated
- ED physician response ≥ 20” after notification of trauma code
- Trauma flow sheet not used for recording
- GCS ≤ 8, & no definitive airway established

- Care provided by physician without minimal education (such as ATLS)
- Surgeon response
- Admission by non-surgeon
- No warming measures
- VS not documented
- Unnecessary CT scans done , causing a delay in transfer

PI Indicators: Outcomes

- May be actual outcome or issues that may affect best outcome:
  - Death
  - Unanticipated operation
  - Length of stay (increased)
  - Morbidity
  - Vaccines not given to splenectomy patient
  - Inability to intubate trauma patient
  - Delay in chest tube placement

Performance Improvement & Patient Safety

PI - Standards of Care

- Advanced Trauma Life Support (ATLS®)
- Rural Trauma Team Development Course (RTTDC©)
- ATCN, TNCC
- PHTLS©
- PALS, ENPC, EMS-C national guidelines
- State trauma system expectations/guidelines
- Hospital Defined Standards
- Eastern Association for the Surgery of Trauma (EAST©) Practice Guidelines

Performance Improvement & Patient Safety

- INVESTIGATE THE ISSUE

  - Make the issue a topic of exploration. **Learn all the facts!!!** Talk to EMS providers and nurses and ask for input on the issue. Do not make the investigation about blaming or pointing fingers. **Seek to truly understand the issue.**

"Hey Deb, we had a really crazy airway last night…."

Performance Improvement & Patient Safety

- IDENTIFY SPECIFIC ISSUES IMPACTING PERFORMANCE

  - **Specifically identify issues that may be impacting performance.**

  For example, the issue may be that EMS, providers and nurses have not had the appropriate education or training on the criteria for activating trauma coeds and do not recognize the importance of activating the codes. Make sure you look at how issues are impacting how people respond and behave.

  - Airway Management?
  - Opportunities for Improvement?
  - Education?
  - Other Indicators? Death

Performance Improvement & Patient Safety

- TAKE APPROPRIATE ACTION

  - If you discover the performance problem is a system or process issue, **involve all EMS, providers and nurses** in changing the system or process. Provide necessary information, counsel or education and training to ensure that necessary resources are available to meet the expected performance.

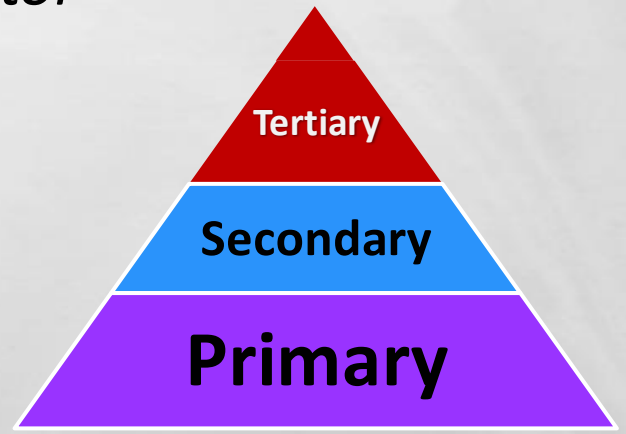
Performance Improvement & Patient Safety

- CLOSING THE LOOP

  - After taking action and giving the action time to be incorporated, **measure the performance again and see if the action improves the performance**. If performance is improved, document and continue the actions. If performance is not improved, once again investigate, identify issues and take appropriate action.

Levels of Review

- Defined steps to address relevant level of review in order to reach loop closure.
- **Levels of Review include:**
  - **Primary** (1st level)
    - "every patient" *Trauma Program Manager/Coordinator*
  - **Secondary** (2nd level)
    - "identified issues" *Trauma Medical Director*
  - **Tertiary** (3rd level)
    - "opportunities for improvement!!" *Committee*



PIPS: Closure

- Once a case has gone through the appropriate level of review(s) it is important to capture all information on the PI tracking sheet
  - DOCUMENT! *“dear site reviewer….see what we did”*
- Use trauma registry for data repository if able
- Confidentiality for documents/registry

Documentation: “dear site reviewer…..see what we did”

EXAMPLE:

#1 “GCS doc. 2 times at referral; 24g vs. 20g IV started; no response by RT at referral hosp. (they don’t have RT), CT scanner too few slices”

#2 signature of TMD on PI form (no other documentation on form)

#3 “Not survivable at his arrival. Only chance he had was if a Stop-the-Bleed maneuver could have been done at scene. Maybe pro-coagulant gauze aggressively placed deep into would. Even then may not have changed outcome. Review at Multi-disc. Peer Review Mtg.

#4

Performance Improvement & Patient Safety

Trauma Registry
Documentation
Dissemination of Info.

PIPS: Complications (examples)

- Complication reviews
  - Rate
    - Compare trauma population with general population in your hospital
  - Trends
  - Preventability
  - Need for guideline (standardization of practice)

Opportunities: Performance Improvement

Sample Completed PI Tracking Form

From Minnesota Trauma System Website

Confidential Pursuant to Minnesota Statute 145.64 DO NOT COPY/FOR AUTHORIZED USE ONLY

Trauma PI Tracking Form

Demographics	Source of Information	Location of Issue
Date of report: 3/11/08 Medical record #: 179545578	☐ Trauma program coordinator ☐ Nurse manager ☐ Staff nurse ☐ Physician ☐ Patient relations ☐ Rounds ☐ Multi-disciplinary conference ☐ Registry ☒ QA/QI chart audit ☐	☐ EMS ☒ ED ☐ OR ☐ ICU/PACU ☐ Floor ☐ Radiology ☐ Lab ☐ Rehab ☐

Complication, problem or complaint:

Length of stay in ED was 109 minutes. Patient was seriously injured and met criteria for transfer. Transfer delayed for imaging.

Reviewed by: Dr. Simpson, Trauma Medical Director

Date of review: 3/12/08

Determination:	Preventability:
☐ system-related ☐ disease-related ☒ provider-related ☐ unable to determine	☐ non-preventable ☐ potentially preventable ☐ preventable ☐ unable to determine

Corrective action:

☐ not necessary	☐ guideline/protocol	☐ resource enhancement
☒ trend/track similar occurrences	☐ counseling	☐ privilege/credentialing review
☐ education	☒ peer review	☐

Action Plan:

Sent to physician peer review at medical staff meeting on 3/20/08 (see meeting minutes). Medical director will review the next 12 cases from this provider. Team will continue to monitor length of stays with the PI filter "length of stay > 60 minutes."

4/1/09: 12 of 12 cases reviewed; 100% were transferred appropriately. Loop closed. Program will continue to monitor length of stays.

Signature: Cassandra Simpson, M.D. **Date:** 4/1/09

Adapted from American College of Surgeons, *Resources for Optimal Care of the Injured Patient: 1999*, p. 72.

Opportunities: Performance Improvement

Trauma Program Improvements

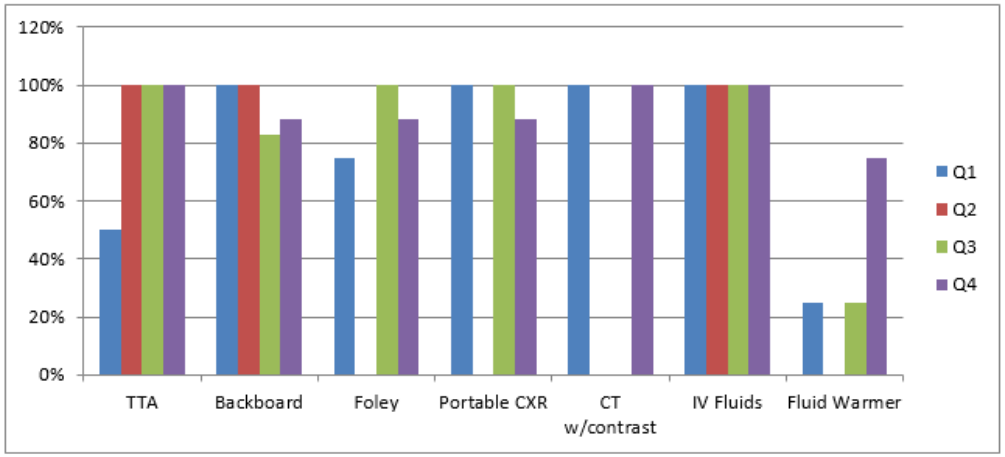
- Goal-Improve Backboard Removal Times
  - Develop Guidelines
  - Educate Staff
  - Audit Filter Tracking
  - STATS
    - 2015 38% removed 0-30 min
    - 2017 88% removed 0-30 (63% within 20 min)

Opportunities: Performance Improvement

Emergency Department – Summary 2016 Trauma PI

Trauma PI goals revised to focus on best practice trends in trauma care:

- Appropriate level of trauma team activation
- Backboard removal <15min
- Foley insertion only when indicated
- Portable CXR/pelvis prior to CT
- Abd/chest CT with contrast (if ordered, complete studies with contrast, not without)
- Judicious fluid resuscitation (blood transfusion after 2L crystalloid/hemodynamically unstable)
- Warmed fluids >1L and/or blood products



Summary:
Trauma coordinator reviewed 23 severe injury cases and improved understanding and implementation of trauma treatment guidelines noted. Team met goals for appropriate activation of trauma team, performing abdominal/pelvis CT with IV contrast and judicious IV resuscitation. Continued focus on prompt backboard removal, obtaining portable CXR, necessity of foley catheter insertion and use of fluid warmer.

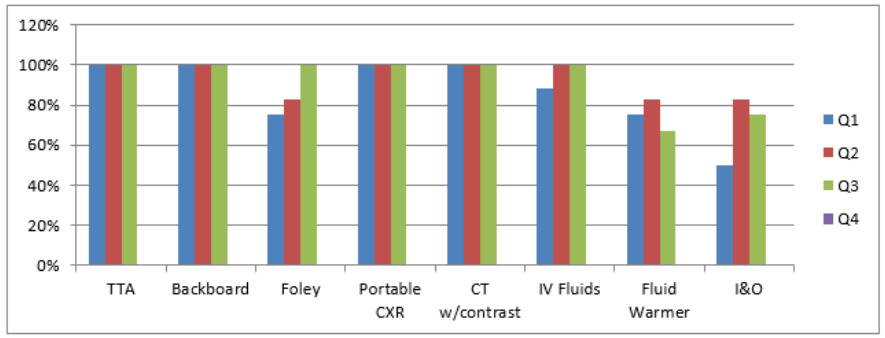
Action Plan:

- Continue chart review of all severe injury cases with prompt f/u with provider and nurses involved in case
- Participation in quarterly regional trauma case review
- Trauma case review at quarterly ED provider meeting
- Review trauma PI at quarterly ED Committee and ED RN team meetings
- ED Providers required to maintain ATLS certification
- ED RN required to maintain TNCC certification
- 5-6 ED/ambulance staff participate in annual rural trauma training course provided by the state

Emergency Department – 2017 Trauma PI

Trauma PI goals revised to focus on best practice trends in trauma care:

- Appropriate level of trauma team activation
- Backboard removal <20min
- Foley insertion only when indicated
- Portable CXR/pelvis prior to CT
- Abd/chest CT with contrast (if ordered, complete studies with contrast, not without)
- Judicious fluid resuscitation (blood transfusion after 2L crystalloid/hemodynamically unstable)
- Warmed fluids >1L and/or blood products
- Documented I&O



Q3 Comments:

- One patient met TTA absolute criteria and trauma team activated due to MOI on 3 patients (same incident – scaffolding gave way – fell 10-12 feet)
- Backboard removal within 20 minutes – 100% compliance. Documentation supported leaving backboard in place to control posterior scalp bleed on 14 year old with 30 minute ED LOS
- Necessity of foley catheter insertion – 100% compliance.
- Portable CXR completed before CT – 100% compliance
- Use of IV contrast for CT chest/abdomen – 100% compliance
- Judicious use of IV fluids – 100% compliance
- Use of fluid warmer when infusing >1L IV fluids or blood products – 75% compliance. IV fluids pulled from warming cabinet but mechanical warmer not used on 1 of 3 patients
- Nursing goal to document both intake and output for trauma patients – 75% compliance
- ED length of stay ≤ 60 minutes – Unstable patient LOS 34 minutes, stable ortho transfer 1 hour 47 minutes. Two patients discharged home

Action Plan:

- Changes made to Meditech interventions to enhance nursing documentation (I&O)
- Nursing education provided at October Team Meeting to include:
  - Trauma Team Activation criteria
  - Fluid Management
    - >3 L associated with worse outcomes
    - Consider blood products early
    - Do not leave IV lines wide open – resuscitate with 250-500ml boluses
    - SBP >90 and MAP 65 acceptable
    - Use mechanical fluid warmer > 1L IV fluids

PI: Recognition, Assessment, Correction

Backboard Removal in ER

PDSA Project Worksheet

Project Name:	**Backboard Removal in ER**
Team Members:	Heather, Kristi, Amy
Aim Statement:	Backboards in ER to be removed on average of 20 minutes from arrival time.

PLAN

What is the current process?

It has been long-standing practice to place trauma patients on backboards and in C-collars to protect their spine from potential further damage until definative clearance is made. The standard for use of backboards has changed. Backboards are now only to be used for extrication and transport. Studies have shown that skin breakdown occurs and the benefit does not outweigh this risk.

Describe the problem (opportunity for improvement)?

Inconsistent practices occur from provider to nursing to EMS staff. Our average length of time pts are on backboard since beginning of the year = 106 minutes. Current standards vary from 5-10 min at Avera McK to 20 minutes nationally.

Identify Causes and Develop Alternatives

Causes: * Inconsistent training * Locum Tenens without knowledge of current standards * Misunderstanding of changes * Lack of knowledge of others' scope of practice. * eER physicians not current with standards Alternatives: * Communicate providers, locums and nursing staff of changes and current expectations.

DO

What did you observe?

12/14/15: Providers were informed of 20 minutes goal during Med Staff Mtg.
12/15/15: Nursing staff was informed of 20 minute goal during Nurses Mtg.

STUDY

What did you learn? What were the results?

STUDY

What did you conclude?

Performance Improvement

(Rural Hospital) Level IV Trauma Center Performance Improvement Process - CY 2017 (TTA Group)											
	Pt #	Pt #	Pt #	Pt #	Pt #	Pt #	Pt #	Pt #	Pt #	Pt #	%
INDICATOR:	11701	11740	11741	11742	11890	12400	12728	12999	13056	13057	
Tr Team Activated prior to pt arrival	x	x	x	x	x	x	x	x	x	x	100%
Provider arrival within 30 minutes of		x	x	x		x	x	x	x	x	80%
GCS <8 & airway established	n/a	n/a	x	n/a	x	n/a	n/a	n/a	n/a	n/a	100%
Complete VS documentation including GCS (x2	x	x	x	x	x	x	x	x	x	x	100%
Appropriate warming measures (blankets, warmed IV Fluids)			x			x	x	x	x	x	60%
Patient Transferred with ER LOS < 2 hours	x	x	n/a	x	x			n/a		x	63%
No Death in hospital	x	x		x	x	x	x	x	x	x	90%
EMS trip ticket in patient chart			x					x	x	x	40%
Contrast used for C/A/P CTs (added July 17)							n/a	x	x	x	75%
Other											

Trauma Performance Improvement

- Measures Performance/Process and Validates Care
- Improves Patient Care
  - Standardization & Outcomes Driven
- Identifies Areas for Improvement
- Accomplished via Patient Care Review
- Is a Model that works well with Other Patient Populations

OPPORTUNITIES FOR IMPROVEMENT


REST AREA
1 MILE
NEXT REST AREA
118 MILES


REST AREA
1 MILE
NEXT REST AREA
118 MILES

The Importance of Developing a Working PI Plan….

Developing a Working PI Plan

Carol Immermann RN

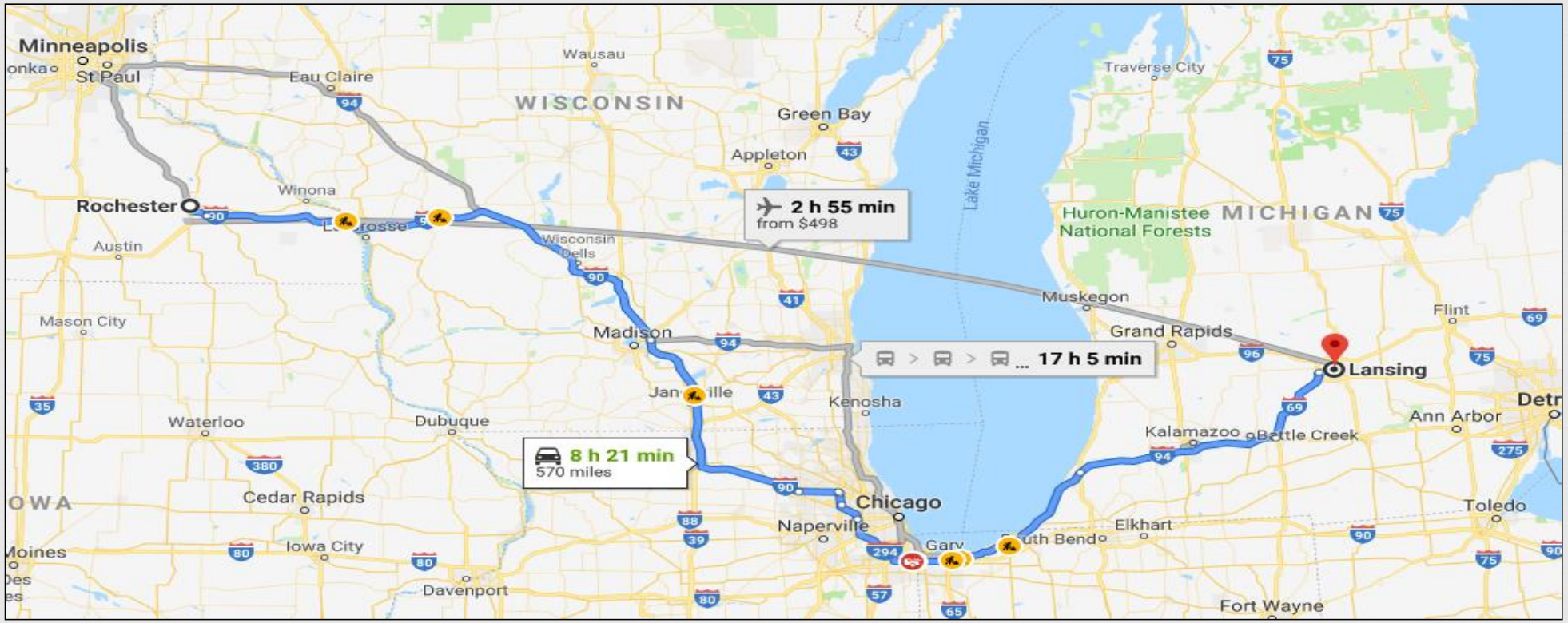
Trauma Program Manager – Mayo Clinic Rochester

Nothing to Disclose

Objective

Describe how to create a relevant performance improvement (PI) plan that provides the foundation and conduit for a successful trauma performance improvement program at any level of trauma care

PI Plan – Why?


Minneapolis
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Madison
Janesville
Waterloo
Dubuque
Cedar Rapids
Iowa City
Davenport
Kenosha
Chicago
Naperville
Gary
Lake Michigan
Traverse City
Huron-Manistee National Forests
MICHIGAN
Muskegon
Grand Rapids
Lansing
Flint
Kalamazoo
Battle Creek
Ann Arbor
Detroit
Toledo
Elkhart
South Bend
Fort Wayne
2 h 55 min
from $498
17 h 5 min
8 h 21 min
570 miles

PI Plan – Why?

Healthcare facilities seeking in-state verification as a Level III trauma facility must meet performance improvement criteria for Level III referenced by Rule 325.135 and outlined in the American College of Surgeons Committee on Trauma "Resources for the Optimal Care of the Injured Patient 2014" in a written plan.

Healthcare facilities seeking in-state verification as a Level IV trauma facility shall develop a performance improvement plan [illegible] standards that are incorporated by reference to Rule 325.135 and the American College of Surgeons Committee on Trauma "Resources for the Optimal Care of the Injured Patient 2014".

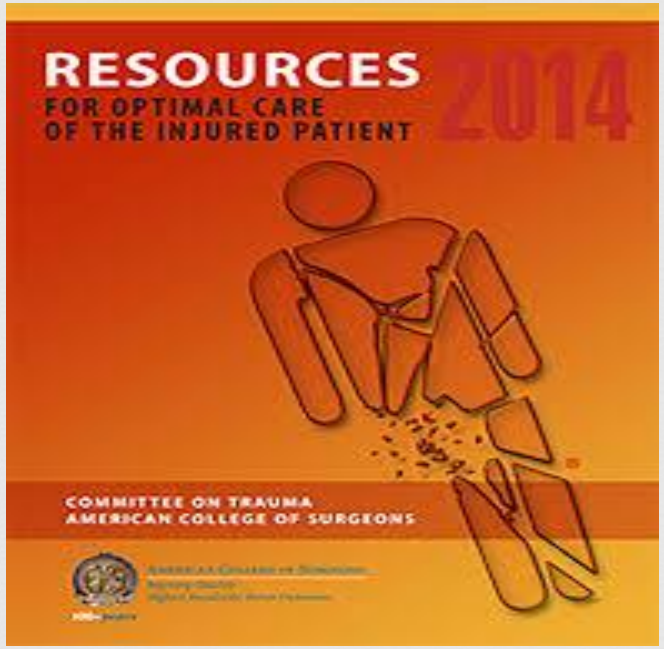
PI Plan - Purpose

- To provide authority, structure, and organization to the Trauma PIPS program
- Promotes consensus on the PIPS process
- Assures compliance with rules for the verification process

Content

- The PI Plan should include
  - How the trauma PIPS program fits into the organizational structure of the hospital (institutional authority)
  - Who is responsible for what
  - What is reviewed
  - How PIPS events are reviewed

Level III - MI


RESOURCES
FOR OPTIMAL CARE
OF THE INJURED PATIENT
2014
COMMITTEE ON TRAUMA
AMERICAN COLLEGE OF SURGEONS


The American College of Surgeons
Clarification Document
Resources for Optimal Care of the Injured Patient
By the Verification Review Committee
V19_ 8/16/19
2019

Level III Rule

MI-CD 2-2:

Failure of a facility requesting Level III in-state verification to provide a written performance improvement plan which meets performance improvement criteria from the state of Michigan and the American College of Surgeons shall be considered a critical deficiency

MI PIPS Plan – Level IV

- A process of event identification and levels of review which result in the development of corrective action plans, methods of monitoring, re-evaluation, risk stratified benchmarking must be present and this process must be reviewed and updated annually

- Problem resolution, outcome improvements and assurance of safety (loop closure) must be readily identifiable through methods of monitoring, re-evaluation, benchmarking and documentation.

MI PIPS Plan – Level IV

- All criteria for trauma team activation have been determined by the trauma program and evaluated on an ongoing basis in the PI process.

MI PIPS Plan – Level IV

- Audit Filters - the PI program identifies and reviews documents, findings, and corrective action on the following five (5) audit filters which must be addressed in the PRQ:
  - • Any system and process issues
  - • Trauma deaths in house or in emergency department
  - • Any clinical care issues, including identifying and treatment of immediate life threatening injuries
  - • Any issues regarding transfer decision
  - • Trauma team activation times to trauma activation

MI PIPS Plan – Level IV

- A policy in place to review issues that revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care including identification and treatment of immediate life threatening injuries (ATLS); and (3) transfer decisions.

Level IV Rule

- ***MI-CD 2-3:***

Failure of a facility requesting Level IV in-state verification to provide a written performance improvement plan which meets state of Michigan and American College of Surgeons criteria as outlined in section C shall be considered a critical deficiency.

MI PIPS

- ***MI-CD 2-1:***

Failure to participate in the Regional Trauma Networks performance improvement work plan and initiatives outlined in the brief description submitted with the designation application shall be considered a critical deficiency.

PIPS Plan – Where to Start

- Where are you going with this? (Goal)
- By what power will the plan be allowed to work? (Authority)
- What patients are affected by this plan?(Scope - Trauma population inclusion criteria)
- What data will be collected to support the PIPS plan? (Data Collection and Analysis)
- What will decide what is collected – why it is collected – what is done with it? (Compliance monitoring)

PIPS Plan – Where to Start

- Organized/standardized method for review (Levels of Review)
- Was there opportunity for improvement? (Determination/judgement)
- Resolution planning (action plans)
- Confidentiality
- Integration into overall hospital PI
- Items needing annual review
  - PIPS forms – audit filter list


Let's do it!

YOUR PIPS Plan

- Document will be formatted for use
- This sample plan sent to Trauma Coalition for evaluation and possible use

Thank you!

Trauma Program Staff: Role of PI

The Trauma Team

Trauma Program Manager / Coordinator

Trauma Medical Director

Trauma Registrar

Trauma Program Staff: Role of PI

Objectives:

- Describe the ideal trauma performance improvement and patient safety team.

- Clarify the roles and expectations for various members of the PIPS team.

Trauma Program Staff: Role of PI

It takes a TEAM to create a successful program!

- Trauma Program Manager/Coordinator
- Trauma Medical Director
- Trauma Registrar

Trauma Program Coordinator

Trauma Program Coordinator

- Assures trauma program meets requirements for trauma designation which PIPS is a major component
- Implements PIPS plan and Operations
- Leadership interface with other allied-health leaders
- Interfaces with other hospital committees and programs
- Trauma Center site visits – know your PI!
- Opportunities for Improvement

Can’t See The Forest For The Trees

Definition: overly concerned with detail; not understanding the whole situation

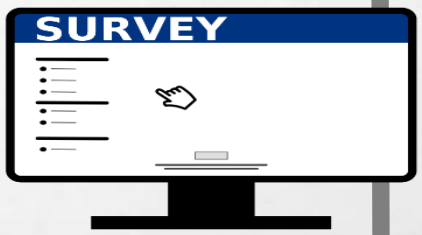
Explanation: Used when expressing that a person is focusing too much on specific problems and is missing the point

Examples: I'm afraid you can't see the forest for the trees. - He often can't see the forest for the trees and needs to have the most relevant points explained to him.

Trauma Program Coordinator

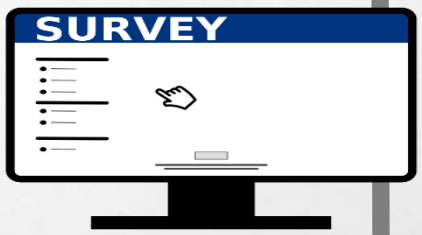
- Meeting Minutes are important
- Determine your trauma program priorities, and know WHAT you HAVE to do
- Consider Lean Principles
  - Define the Value
  - ? Value added, ? Non-Value added
  - Continuous flow of product, services and information from end to end, through the process
  - Pull from the customer - Demand pulls the product
  - Work towards Perfection

What is the most helpful resource to you in supporting you in your TPM/TC position?



- *Having 8 hrs/week to fulfill duties required by position*
- *Supportive administration & TMD*
- *Feedback on patient care*
- *Support from providers & nurses*
- *Education provided to me & regional meetings*
- *Quarterly state meetings – support from Level IIs*

What is the most helpful resource to you in supporting you in your TPM/TC position?



- *Level II & State Trauma Coordinator(s)*
- *State designation site visits*
- *Other trauma coordinators helpful ideas*
- *Reference materials from the state*

Trauma Program Staff: Role of PI

It takes a TEAM to create a successful program!

- Trauma Program Manager/Coordinator
- **Trauma Medical Director**
- Trauma Registrar

Trauma Medical Director

- Authority to direct PIPS plan
- ATLS™ knowledge when reviewing case
- Leader for peer review discussion
- Ultimate authority for final rulings/judgements in case reviews
- Have the authority to correct deficiencies in trauma care
- Follow up with physicians and providers

Trauma Medical Director

- Good idea to “try” to have a set meeting time to meet with TPM/TC
- Educational content expert
- Present for trauma center site visits
- Knowledge of the site visit application
- Navigating a “small group” of partners/sole provider

Trauma Medical Director

- Navigating a “small group” of partners/sole provider
- When reviewing cases, consider the question: *Future similar patients are less likely to have this outcome because_____?*

Trauma Program Staff: Role of PI

It takes a TEAM to create a successful program!

- Trauma Program Manager/Coordinator
- Trauma Medical Director
- **Trauma Registrar**

Trauma Registrar

- “Developing a trauma registry requires significant commitment and hard work before the registry begins to approach it potential.”

- “High-quality data begins with high-quality data entry, and it is the trauma registrar who is responsible for performing this task.”

Resources for the Optimal Care of the Injured Patient – 2014

Trauma Registrar - Who

- Staffing model volume driven
  - Level III (examples)
    - Independent registrar
    - Shared registrar for multiple registries (e.g. NSQIP, Stroke, Cardiac, etc.)
    - Trauma Program Manager/Coordinator
  - Level IV (examples)
    - Often combined in Trauma Program Manager/Coordinator role
    - Staff nurse with interest in trauma/quality/data/etc.

Trauma Registrar - Who

- Other Examples:
  - Health Information Manager
  - Coding
    - **Caution!**
  - Quality Department

Trauma Data Entry

- Must follow data dictionary
  - State Data
  - National Trauma Data Standard
  - TQIP
    - MTQIP

Data Entry – Definitions

What is the definition for time to Operating Room?

Cut Time

Trauma Coding

Trauma Coding ≠ Billing Coding

Coding Examples

- Possible/Probably
  - Assigned billing code
  - Cannot code for trauma
- Other examples
  - Do not code consequence of injury
  - Proper verification (e.g. diagnostic tests) to code

Must Haves for Registrar

- Job description specific for their role
- On-boarding to position
- Orientation
- Avoid isolation

Must Haves for Registrar

- Appropriate work space
- Appropriate equipment
  - Dual monitors create efficiencies

Roles & Responsibilities

- Administrative Leadership
- ED Medical Director - Liaison
- ED Nurse Manager / DON
- Anesthesia
- RT
- Lab
- Radiology
- Pharmacy
- Quality
- EMS

Optimal Outcomes

Opportunities for Improvement

Summary

- Trauma Leadership team is vital to the success of the trauma program
- Each role brings unique functions to assure a strong/successful program
- The team is only as strong as its weakest link

Issue Identification

PERFORMANCE IMPROVEMENT: IMPROVING PATIENT CARE & OUTCOMES

Issue Identification

Objectives:

- Describe the processes of event identification and levels of review.

Improving Patient Care & Outcomes

- *We have a trauma system, we are designated as a trauma center, we have all the equipment, our staff is trained, we have an EMR template for trauma team activations……. what could go wrong?*

Improving Patient Care & Outcomes

Opportunities for Improvement

Sources for Identifying Patient Care Events

- EMS / documentation
- Identified during a resuscitation
- Medical Record review
- Staff – evaluations (emails, knocking on the door, looks in the hallway)
- Daily Rounds/Case Management
- Hospital Quality Management Dept./Risk Management
- Patient/Family Feedback
- Referral/Referring Hospital PI
- Meetings

PI Issue Identification

Issues Identification Includes Phases of Care

- Pre-Hospital
- Resuscitation
- In-Patient Care
- Out-Patient Care

"Any tips on how to identify/catch PI events in your trauma patients?" (STN listserve)

- Log events
- White board
- Spread sheet on "share drive"
- "Complex" patients
- Morning rounds
- EMR - new orders, notes, lab/test results
- Talk with nursing, physicians, PA/NP, EMS
- Trauma Registry & staff

Forms/Tools to Capture PI Issues

THE PERFORMANCE IMPROVEMENT CHECKLIST

Chart #:_____ Physician/PA/NP: _____ Date: _____

PREHOSPITAL

Initial trip ticket present on chart:	☐ Yes	☐ No	☐ NA
Scene time ≤ 20 minutes:	☐ Yes	☐ No	☐ NA
Appropriate spinal immobilization:	☐ Yes	☐ No	☐ NA
Airway maintained on arrival to hospital:	☐ Yes	☐ No	☐ NA
Trauma code activated in field:	☐ Yes	☐ No	☐ NA

HOSPITAL

Trauma code activated when met criteria:	☐ Yes	☐ No	☐ NA
Team leader response time ≤ 20 minutes:	☐ Yes	☐ No	☐ NA
Transfer <2 hours from arrival:	☐ Yes	☐ No	☐ NA
GCS ≤ 8 and airway established:	☐ Yes	☐ No	☐ NA
ET tube placement confirmed:	☐ Yes	☐ No	☐ NA
Spinal precautions:	☐ Yes	☐ No	☐ NA
No transport delays due to CT scans/x-rays being done:	☐ Yes	☐ No	☐ NA
Documentation of review midlevel supervisor within 72 hours:	☐ Yes	☐ No	☐ NA

Comments:

_____

_____

_____

Actions Taken:

_____

_____

_____

Follow up:

_____

_____

_____

Can you consistently answer YES to ALL QUESTIONS on the checklist?

PI Indicators

Sample Trauma Performance Standards

*Emergency department physician arrival >15 minutes after EMS notification
†Emergency department provider arrival >30 minutes after EMS notification
Emergency department provider not present upon patient arrival
*Tier-one TTA and general surgeon arrival >30/60 minutes after patient arrival
*TTA and general surgeon did not promptly contact ED provider after activation
General surgeon not present upon patient arrival
*†Trauma care provided by non-ATLS/CALS provider
*Admitted by a non-surgeon and no surgeon consult
†Admitted by a non-surgeon
Under-triaged/trauma team not activated when criteria met
Over-triaged/trauma team activated when criteria not met
Blunt chest or abdominal, multi system or high-energy trauma admitted with no general surgeon evaluation
GCS <13 and no neurosurgical consultation
Response times incomplete/missing
Emergency department provider response time incomplete/missing
Trauma surgeon response time incomplete/missing
GCS ≤8 and no endotracheal tube or surgical airway
GCS ≤10 and no endotracheal tube or surgical airway
GCS ≤8 and no endotracheal tube or surgical airway within 15 minutes of arrival
Unrecognized misplaced endotracheal tube
Re-intubated within 24 hours of extubation
Intubated and end tidal CO2 not documented
Intubated and no orogastric or nasogastric tube placed
Head injury and BP not maintained above 90 systolic
Head injury, INR >1.5 and no anti-coagulation reversal
Intracranial hemorrhage, on anti-coagulant with no reversal
Head injury and pCO_2 maintained <35 or >40
Pneumothorax or hemothorax and no chest tube placed within 15 minutes of diagnosis
No chest tube placed for pneumothorax or hemothorax before transfer
Pneumothorax and no chest tube placement before aeromedical transfer

* Level 3 state-required filters

† Level 4 state-require

*Emergency department physician arrival >15 minutes after EMS notification
Chest tube <36 Fr.
Pneumothorax w/ hemodynamic and/or respiratory compromise and no chest decompression
Over-ventilation within the first 12 hours/pCO_2 <32
Under-ventilation within the first 12 hours/pCO_2 > 50
GCS <14 and no head CT
GCS <14 and head CT >2 hours after admission
Spinal immobilization indicated and arrived via EMS without spinal immobilization
Spinal immobilization not maintained until cleared
C spine cleared without radiography in patient w/ altered LOC, focal neurological signs or distracting injury
C spine injury missed on initial evaluation
Cervical collar removed before transfer (with or without negative radiograph)
>65, fall w/ head injury and no C collar
Spine injury missed on initial evaluation
Spine board removal >30 minutes after arrival
Admitted to the OR >60 minutes after arrival in ED
Abdominal injuries, systolic blood pressure <90 and admitted to OR >1 hour
Abdominal, thoracic or vascular surgery >24 hours
Fewer than two IV lines
IV fluids not warmed
IV lines smaller than 16 Ga.
Unstable vitals/hemodynamic compromise and unable to obtain vascular access
IV placement difficult/delayed and no IO attempted
Pediatric patient received >50ml/kg crystalloid solution w/in first two hours
Persistent hypotension and no blood product administered after 2 liters of crystalloid
Blood pressure <70 systolic for >2 hours without definitive intervention
External bleeding not controlled
CT performed without IV contrast
Oral contrast used rather than IV contrast
Long bone fracture and no traction or splint applied
Extremity fracture/dislocation w/o distal pulse and no attempt to reduce

* Level 3 state-required filters

† Level 4 state-required filters

Sep-17

*Emergency department physician arrival >15 minutes after EMS notification
Hip dislocation and no attempt to reduce w/in 6 hours
Hip fracture and no DVT prophylaxis
Surgery to stabilize hip fracture >24 hours
Open fracture and surgery >8 hours after admission
Non-fixation of femoral diaphyseal fracture in adult
Core temperature <36°C and IV fluids/blood not warmed
Core temperature <36°C and no re-warming measures
Open fracture and antibiotics not administered w/in 1 hour of arrival
Missed injury/injury diagnosed >24H after an initial traumatic event
Failure to diagnose major vascular injury w/in 6 hours of admission
Readmitted to hospital for care of injuries from same event
Unplanned return to the OR
Length of stay in ED >60 minutes before transfer
*TTA and length of stay in ED >60 minutes before transfer
High acuity or high energy mechanism and patient's length of stay in ED >60 minutes before transfer
Low acuity & low energy mechanism and patient's length of stay in ED >60 minutes before transfer
Transferred after admission
*Patient met transfer criteria and admitted locally
Pediatric patient transferred to non-pediatric trauma center
More than one transfer before arrival at definitive care facility
Unplanned readmission
No chest x-ray before transfer
Unplanned transfer to the ICU
No Foley catheter placed before transfer
No rectal exam prior to Foley insertion in male patient
Trauma team activation and flow sheet not used
Absent hourly charting
Vital signs not recorded every 15 minutes
Pain assessment not recorded hourly
Pain not re-assessed after analgesic administration

* Level 3 state-required filters

† Level 4 state-required

*Emergency department physician arrival >15 minutes after EMS notification
Pain level persistently >5
Patient <18 years old and not weighed
Patient <18 years old and weight estimated, not measured
Patient's weight recorded in pounds rather than kilograms
No initial GCS recorded
Volume of infused fluids not documented
No initial temperature recorded
No temperature recorded in patient <12 years old
Complete initial vital signs not recorded (HR, BP, RR, temp., GCS, SaO_2)
EMS report not in patient chart
EMS times incomplete/missing
EMS en route time >4 minutes (time called to time en route)
EMS scene time >15 minutes (arrive scene to leave scene)

Sample Trauma Populations for Review

*†Trauma death
*†Transferred out
*†Transferred in
Trauma care provided by advance practice provider
Massive blood transfusion (>3 units)
Taking anti-coagulating medication
Preexisting cardiovascular disease
Preexisting COPD
Insulin-dependent diabetes
Obesity
Pregnancy
<5 years old or >55 years old

* Level 3 state-required filters

† Level 4 state-required filters

Sep-17

PI Issue Identify Tools

Sanford Medical Center Fargo - Performance Improvement
Issue Identification Form

☐ MAJOR ☐ MINOR ☐ CONSULT ☐ NON-CODE

Patient Name: (Last)_____ (First)_____ MR#_____ Admit Date_____

Indicator:
☐ Death: where did it occurr? DOA ED OR ICU Floor Other _____
☐ Delayed Diagnosis ***(injury found after tertiary survey, >24°)*** of:_____ Provider:_____
☐ Missed Diagnosis (***injury found after d/c from hospital)*** of:_____Provider:_____
☐ Transfer Out Hospital: _____ Reason:_____
☐ Thoracotomy performed outside the OR_____
☐ Readmission as inpatient within 7 days of discharge (date)_____
☐ >24° between arrival and operative treatment of blunt, compound fracture or laceration into joints
☐ Abdominal/Thoracic/Cranial/Vascular surgery >24° after arrival, unplanned
☐ Under Triage (reason)_____

System Issues:
☐ Trauma Surgeon NOT present on arrival or within 15" of patient arrival ☐ Not Doc_____
☐ Trauma/Neuro/Ortho surgeon DOES NOT see prior to admission (Minor) _____
☐ Trauma Consult NOT seen within 12°_____
☐ Consults NOT seen and dictated within 24° (***specialty***)_____
☐ Delay in Activation/Triage Issue
☐ Seen in ED, discharged and readmitted to Trauma Service within 72° of initial visit _____
☐ Pt with GCS ≤ 12 on presentation and does not have a CT scan within 2°_____
☐ Admitted to a Non-surgical service with an ISS > 3 _____
☐ Documentation: _____
☐ BAC/UDS/CD Consult/Provider education/notes:_____

Complications:
☐ MISC Other_____

Further Explanations: _____
_____

PI Issue Identify Tools

Further Explanations: _____

_____

_____

_____

_____

_____

_____

_____

Privileged Confidential Peer Review Record under NDCC 23-01; Chapter 23-01.2; Adm. Rules:33-38-01-09 *Revised 12/31/18*

PI Issue Identify Tools

Sanford Medical Center Fargo - Trauma Services
PEDIATRIC PI INDICATORS (reviewed January 2019)
≤ 17 years of age

Indicator	Definition	Y/N	A/I*	Initial	NA/ UNK
Blood transfusion	Any Transfusion of Blood Product				
Cervical spine clearance	Abnormal exam?				
	CT performed?				
	X-Ray done?				
CT brain	CT brain done when no LOC or GCS >14				
	Repeat CT at any time				
Anticoagulation	Lovenox or prophylactic heparin ordered				
Direct admission	Admitted directly to floor/PICU				
Suspected NAT	Suspected non-accidental trauma				
Other	Concern needing follow-up				
Alcohol and/or Drug Screen in age 12 and above?	Screening methods: Admission navigator questionnaire, BAC/UDS/Referring Hospital Report				
If Screen positive, f/u complete?	F/U: CD, SW, Provider or Peds Behavior Specialist				

*A=Care Appropriate/ I=Care Inappropriate

IF "YES" TO ANY ABOVE, COMPLETE CASE SUMMARY REPORT

PI Issue Identification

- Verify & Validate actual PIPS events!
- Follow up on all validated issues
- Good to provide feedback
- Determine if it is an isolated issue vs. a system/provider issue
- Sentinel event?

Trauma PI Filter Tracking Worksheet

Patient name: _____ Admit date: _____

Medical record #: _____

Data Point	Yes	No	N/A
*Emergency department provider arrival >15 minutes after EMS notification			
*TTA and general surgeon did not promptly contact ED provider after activation			
*Tier-one TTA and general surgeon arrival >30/60 minutes after patient arrival			
*Admitted by a non-surgeon and no surgeon consult			
*Care provided by provider who did not meet the educational requirement (e.g., ATLS or CALS)			
*TTA and length of stay in ED >60 minutes before transfer			
*Patient met transfer criteria and admitted locally			
*Death			
*Transferred			
Under-triaged/trauma team not activated when criteria met			
>65, fall w/ head injury and no C collar			
Oral contrast used rather than IV contrast			
Spine board removal >30 minutes after arrival			
EMS report not in patient chart			
GCS ≤10 no endotracheal tube or surgical airway			

Any chart that generated a "Yes" must be reviewed by trauma PI team.

* Required by state trauma system

PI Issue Identify Tools

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TPM/TC

Trauma Program Coordinator

☐ No improvement opportunities identified ☐ Refer to TMD

Comments:

Signature: Date:

TMD

Trauma Medical Director

☐ No improvement opportunities identified ☐ Refer to committee

Comments:

Signature: Date:

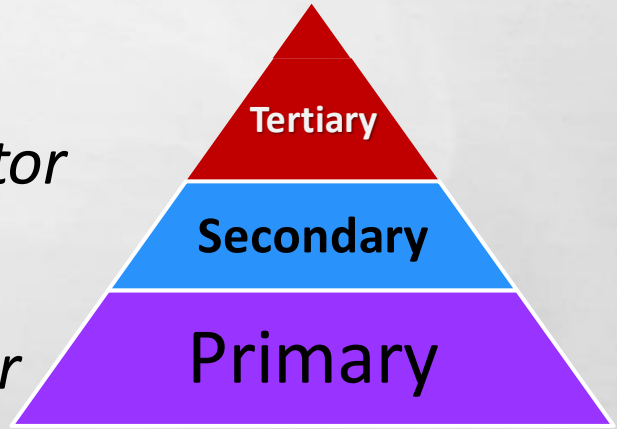
PI Issue Identification – Concurrent Process

- Affects patient care at point of service
- Increased staff/patient/family satisfaction
- Less reliance on Med Records Dept.
- Improve prospective reporting
- Staff necessary
- ***"Future similar patients are less likely to have this outcome because_____?***

Patient Care & PI Issue Identification

After Issues Identified: Levels of Review

- Defined steps to address relevant level of review in order to reach loop closure.
- **Levels of Review include:**
  - **Primary** (1st level)
    - "every patient" *Trauma Program Manager/Coordinator*
  - **Secondary** (2nd level)
    - "identified/validated issues" *Trauma Medical Director*
  - **Tertiary** (3rd level)
    - "opportunities for improvement!!" *Committee*



Levels of Review

- After information is gathered on the trauma patient, need to review case in a structured deliberate manner
- Review case from beginning to end
- Any filter/complication/outcome that was identified needs to be reviewed
- All cases/issues need to be taken to closure

Levels of Review – Primary

- **Primary review**
  - Trauma Program Manager/Coordinator
  - Validate issue, then determine next steps
    - Issues that are primarily allied health may be addressed at this level
    - Some system issues
    - Issues that can be addressed by trauma center guidelines/policies may be addressed at this level

Levels of Review – Primary

- *Sometimes things do not seem right at first, but as you investigate & validate, they may be a little different, but yet appropriate.*

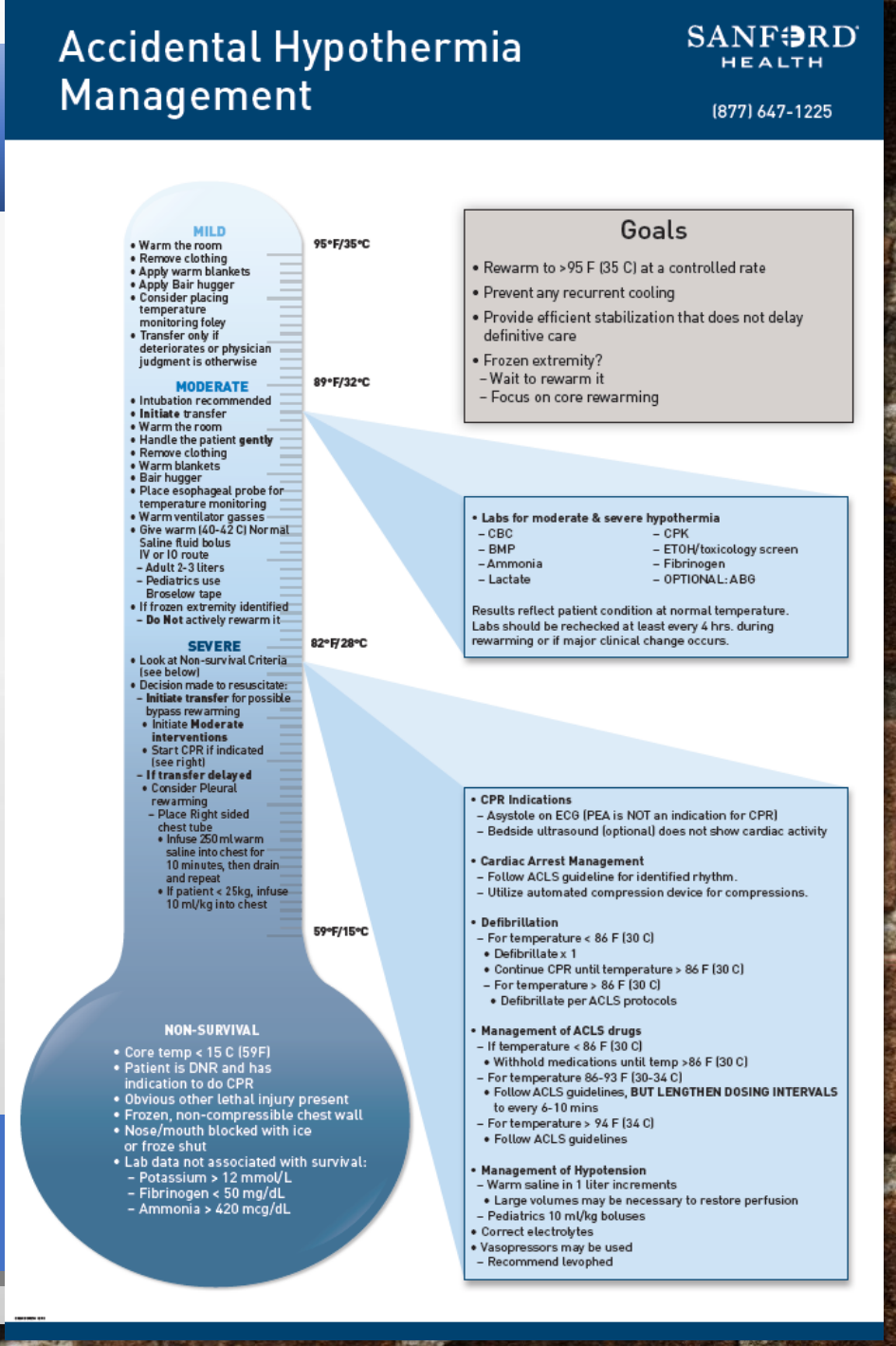
Primary Review – Examples

- Allied health issues:
  - Warming measures not used during trauma resuscitation
  - VS not monitored/charted on an unstable patient in the ED
  - Pulmonary toilet not emphasized in a patient admitted with rib fractures
  - I & O charting missing
- Review by policy
  - Timeliness of physician response
  - Over-under triage
  - Non-surgical admit patient
  - Timeliness of tertiary survey

Primary Review – Examples

- Review by “guideline”
  - MVC / Hypothermic patient
  - Transfer in to our hospital
  - PI Process Review

To Be Continued…



Levels of Review – Secondary

- **Secondary Review**
  - Case is reviewed by the Trauma Medical Director
  - Determine need to elevate to the next level of review (Committee), or use resources at this level to provide resolution

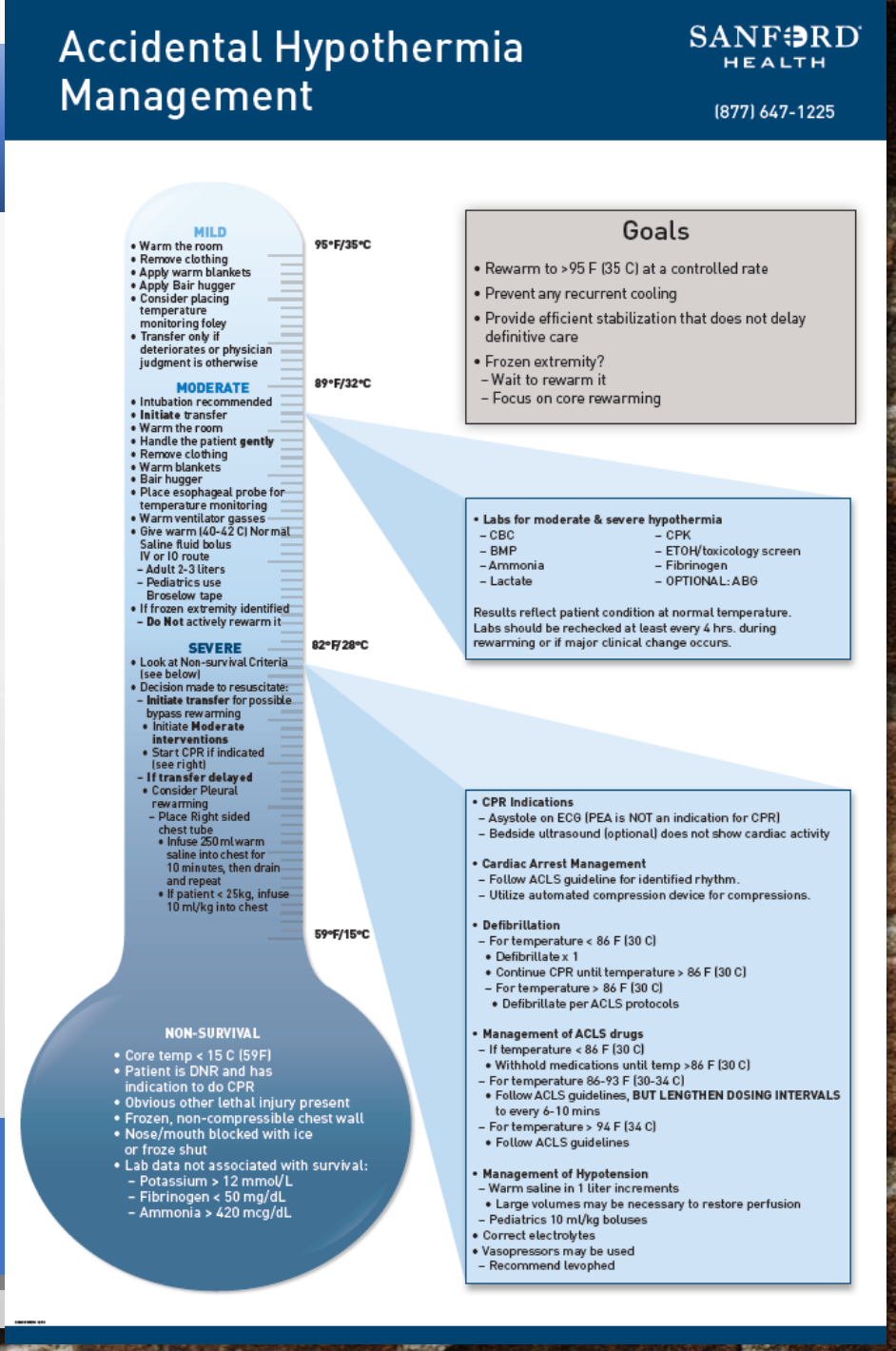
Secondary Review – Examples

- Physician response to trauma activation
  - Not meeting expectations
- Non-surgical admission
- Trauma care provided by NP/PA
- Timeliness of care in the ED
- Imaging performed prior to transfer

Secondary Review – Examples

- Review by “guideline”
  - MVC / Hypothermic patient
  - Transfer in to our hospital
  - PI Process Review
  - TMD Review, brought to Peer Review Meeting

To Be Continued…



Levels of Review - Tertiary

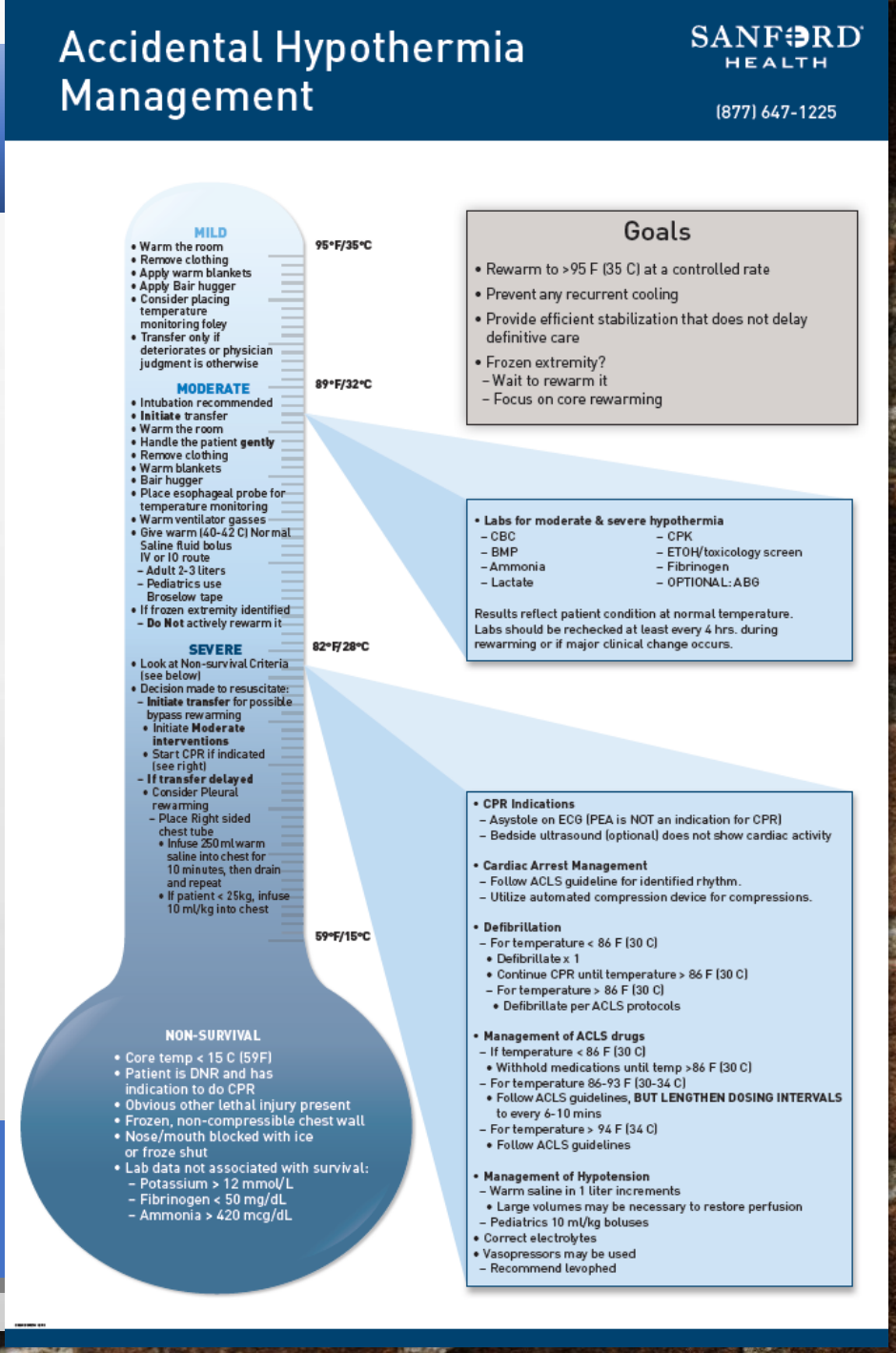
- **Tertiary Review**
  - Cases that require committee review
    - Peer review committee
    - Multi-disciplinary committee
    - Some institutions have a multi-disciplinary committee conducting patient reviews – not physician only

Tertiary Review – Examples

- Deaths
- Unexpected outcomes
- Sentinel events
- Complications/Filters
  - Delays in care
  - DVT/PE
  - Delays to OR

Tertiary Review – Examples

- Review by “guideline”
  - MVC / Hypothermic patient
  - Transfer in to our hospital
  - PI Process Review
  - TMD Review, brought to Peer Review Meeting
  - TMD Created a guideline (initial time this occurred – now used for further care review)
  - Education done with staff, Regional Trauma Committee, State Trauma Conference



Tertiary Review

- It is crucial to have input from specialties involved in patient events:
  - Example: GCS ≤ & not intubated
  - Example: if reviewing an extremity compartment syndrome need input from Orthopedics
  - Variation in care from guidelines
- *It is crucial to have physician representative if using locums tenens providers (ask agency for representation)

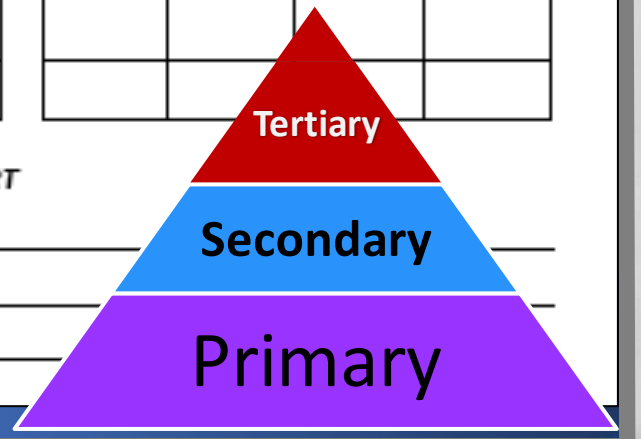
Example

Sanford Medical Center Fargo - Trauma Services
PEDIATRIC PI INDICATORS (reviewed January 2019)
≤ 17 years of age

Indicator	Definition	Y/N	A/I*	Initial	NA/ UNK
Blood transfusion	Any Transfusion of Blood Product				
Cervical spine clearance	Abnormal exam?				
	CT performed?				
	X-Ray done?				
CT brain	CT brain done when no LOC or GCS >14	X			
	Repeat CT at any time				
Anticoagulation	Lovenox or prophylactic heparin ordered				
Direct admission	Admitted directly to floor/PICU				
Suspected NAT	Suspected non-accidental trauma				
Other	Concern needing follow-up				
Alcohol and/or Drug Screen in age 12 and above?	Screening methods: Admission navigator questionnaire, BAC/UDS/Referring Hospital Report				
If Screen positive, f/u complete?	F/U: CD, SW, Provider or Peds Behavior Specialist				

*A=Care Appropriate/ I=Care Inappropriate

IF "YES" TO ANY ABOVE, COMPLETE CASE SUMMARY REPORT



Trauma PI Filter Tracking Worksheet

Patient name: _____ Admit date: _____

Medical record #: _____

Data Point	Yes	No	N/A
*Emergency department provider arrival >15 minutes after EMS notification			
*TTA and general surgeon did not promptly contact ED provider after activation			
*Tier-one TTA and general surgeon arrival >30/60 minutes after patient arrival			
*Admitted by a non-surgeon and no surgeon consult			
*Care provided by provider who did not meet the educational requirement (e.g., ATLS or CALS)			
*TTA and length of stay in ED >60 minutes before transfer			
*Patient met transfer criteria and admitted locally			
*Death DEATH	X		
*Transferred			
Under-triaged/trauma team not activated when criteria met			
>65, fall w/ head injury and no C collar			
Oral contrast used rather than IV contrast			
Spine board removal >30 minutes after arrival			
EMS report not in patient chart			
GCS ≤10 no endotracheal tube or surgical airway			

Any chart that generated a "Yes" must be reviewed by trauma PI team.

* Required by state trauma system

Example

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TPM/TC Trauma Program Coordinator

[X] No improvement opportunities identified [X] Refer to TMD

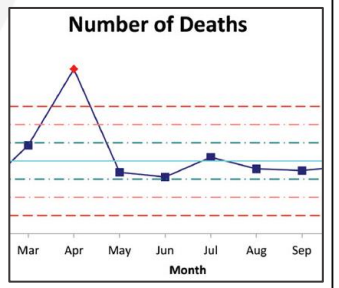
Comments:
- 52 y/o male, unrestrained driver of MVC at hwy speeds, ejected thru windshield, found on hood, CPR, PEA, intubated, fluids, Epi.
- Major Trauma Code- Team
- Primary Survey
- Cardiac US
- Time of Death….
- Not a donor candidate

Signature: Date:

TMD Trauma Medical Director

[X] No improvement opportunities identified [ ] Refer to committee

Comments:
- Care appropriate (EMS & Hospital)
- No opportunities for improvement, other than seatbelt usage.



Signature: Date:

G

O

A

L

IMPROVING PATIENT CARE & OUTCOMES!

Documentation Example

Trauma PI Tracking Form

Date of report: Date(s) of occurrence: Medical record #:
Complication, problem or complaint:
Goal(s):

Corrective action		
☐ trend/track similar occurrences ☐ education ☐ guideline/policy	☐ individual counseling ☐ tertiary/committee review	☐ resource enhancement ☐ privilege/credentialing review ☐ _____

Action Plan(s)/Activities (with dates):

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Action Plan(s)/Activities (cont'd):
Measures/results (with dates):
Loop closure (with date):

TPM Signature:	**Date:**
TMD Signature:	**Date:**

Trending PI Indicators

Performance Metrics Surveillance Tracking Form	Q1			Q2			Q3			Q4				
	January	February	March	April	May	June	July	August	September	October	November	December		
Emergency department provider off-site														
Emergency department provider off-site and arrived within 30 minutes of patient's arrival														
Trauma team activation criteria met														
Trauma team criteria met and team activated														
Transferred and physiological TTA criterion met														
Transferred, physiological criterion met, and transportation ordered within 30 minutes of patient's arrival/time of discovery														
Sustained GCS ≤8 Sustained GCS ≤8 and airway successfully secured														
Pneumothorax requiring a chest tube and admitted Pneumothorax requiring a chest tube, admitted and general surgeon at bedside within 18 hours														
Performance													**Average %**	**Goal %**
Time from patient arrival to emergency department provider arrival at hospital ≤30 minutes when the emergency department provider is off-site													#DIV/0!	80%
Trauma team activated when criteria met													#DIV/0!	80%
Time from patient arrival until transportation ordered <30 minutes when a physiological TTA criterion is met and patient transferred for trauma care; or Time from when a physiological TTA criterion is discovered until transportation ordered <30 minutes when patient transferred for trauma care													#DIV/0!	80%
Airway successfully secured when GCS ≤8													#DIV/0!	90%
General surgeon arrival at bedside within 18 hours when required													#DIV/0!	80%

Trending PI Indicators

North Dakota Level IV/V Trauma Centers
PERFORMANCE IMPROVEMENT Tracking Form - 2019

(Month / Quarter / or Year) i.e.: June 2019 or "2019" or 2Q 2019

2Q 2019 Example:

Indicator below:	Patient Initials: DS DOS: 1/1/10 MRN# 123456	Patient Initials: JP DOS: MRN#	Patient Initials: JL DOS: MRN#	Patient Initials: DLS DOS: MRN#	Patient Initials: AL DOS: MRN#	Patient Initials: DE DOS: MRN#	Patient Initials: AE DOS: MRN#	Patient Initials: LN DOS: MRN#	Patient Initials: VB DOS: MRN#	Patient Initials: LD DOS: MRN#	Patient Initials: HW DOS: MRN#	Patient Initials: SA DOS: MRN#	Patient Initials: TJ DOS: MRN#
Trauma code not called & patient meets trauma code criteria		X					X						
GCS ≤8 and patient not intubated								X					
Pneumo/Hemothorax identified and no chest tube placed													
NO GCS Documented	X	X	X										
Hypothermia not treated (< 97.5 F / 36.4 C)			X		X	X		X			X		X
> 2 liters of crystaloid infused and no RBC administered					X								
Delay in transferring patient (>2hrs)			X	X				X					
Trauma Death					X								
CT scans not indicated, causing delay of transfer													

Issue Identification

PERFORMANCE IMPROVEMENT: IMPROVING PATIENT CARE & OUTCOMES

Chart Review Process

Mortalities and More

Sheryl M. Sahr MD MS FACS

Trauma and Acute Care Surgeon

Sanford Medical Center - Fargo

SANFORD HEALTH

Chart Review Process

- This is what happens after you've compiled a list of complications ("identified issues")
  - I'm imagining you with a list (Excel spreadsheet, EMR data pull, or a notepad with patient stickers and short descriptions of complications) and a worried look on your face
- The idea here is to get a sense of what could be driving these issues
  - Sometimes complications occur for no reason; other times, there is a reason and a pattern that can be identified.
- Avoid getting overwhelmed; take things one step at a time

Big Picture or Little Picture?

- Forest or trees? Both – but not at the same time. And not from the same angle every time.

Ways to Sort the Trees

- One angle: sort by timeline
  - Patient characteristics prior to injury
  - Mechanism of injury
  - Elements of first response
  - ED work-up and evaluation
  - Hospital/health system elements

Ways to Sort the Trees

- Another angle: sort by complication
  - For example, mortality. Why do patients die?
    - Airway/breathing
    - Circulation
    - Disability (i.e. TBI)
    - Late complications (sepsis, MSOF)

Complications

- A good list is supplied by TQIP
  - AKI - ALI/ARDS – Cardiac Arrest – CRBSI Decubitus – Surgical Site Infections – MI PNA – PE – Severe Sepsis – CVA – Unplanned OR Return – Unplanned ICU Admission
  - Not all complications will occur at all facilities
    - No OR? No surgical site infections or unplanned OR
    - No ICU? You get the idea…
  - There may be other complications that are important in your facility

Other Important Outcomes

- Again, TQIP has a good list
  - Percentage of patients transferred
  - Average time to transfer
  - Late transfers (more than12 hours)
  - Mortality
  - LOS
  - ISS>16

Important Populations

- TQIP has a good starting list
  - Severe TBI – Pediatric – Elderly – Isolated hip fractures
- There may be important populations specific to your facility as well
  - For us, Native Americans comprise 16 percent of our patients. National average is less than 1 percent.

SANFORD HEALTH

Look for the Tree Rows

- What time period of review works for you and your system – every year? Quarter? Month?
- Now – how many patients do you have in each population? (TQIP or your own specific populations)
  - You may already start seeing some patterns, either by time or by population
    - For example, complications from fireworks injuries frequently occur in younger populations in July.

Entering the Forest

- Start big. Look for large groups and obvious combinations. Ignore things (for now) that don't seem to matter.
  - No ICU? Then you won't be chasing those ICU complications.
    - The first and most obvious group will be the deaths
  - Do you transfer most of your patients?
    - Then you want to look at complications like late transfer or mortality of patients who are ***not*** transferred

Choosing Your Tree

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Death – the First Tree

- Depending on the number of deaths your system has, you may need to look over a longer time period
  - For more common things, like complications or outcomes, you may need to use a shorter time period in order to keep up.
- Sort the deaths by several angles, looking for patterns
  - Deaths by population
    - Elderly, young, TBI, transfers, not-transfers

Deaths

- Sort the deaths by several angles, looking for patterns
  - Deaths by mechanism
  - Deaths by population
    - Elderly, young, TBI, transfers, not-transfers
  - Deaths by location in the timeline
    - Pre-hospital, ED, hospital stay
  - Deaths by cause
    - Airway, breathing, circulation, disability, sepsis/MSOF

Transfers – The Second Tree

- Depending on your local resources, this may be the single biggest group of patients you have
  - For the larger facilities, you may be on the receiving end of transfers as often as you are the sending facility
- This group includes some of your other trackable outcomes
  - Time to transfer, late transfer

Transfers

- Sort this population into sub-groups as well, just as if these were deaths or complications (even though they aren't)
  - Transfers by age group
  - Transfers by injury mechanism
  - Transfers by ISS or need for higher level of care
    - Are there groups which are always transferred?
    - Are there groups which are never transferred?

More on Transfers

- Know your definitions!
  - TQIP's definition looks like "door in" to "door out", so that means it includes waiting for transport after the decision to transfer has been made.
  - You may also track other times in your own facility, to look at the elements involved in transfer time.
    - "door in" to "provider at bedside", or "decision to transfer"
    - This requires a lot of in-depth chart review, so it wouldn't be my first or even second choice unless there are significant problems with late transfers.

More on Transfers

- Important groups to track
  - Transfers after 12 hours
    - Did the patient's condition change? Were new injuries discovered?
  - Populations that are always transferred
    - How can you streamline the transfer process?
  - Patients who died after more than 12 hours in your facility
    - Should these patients have been transferred?

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Complications

- This is where things get messy because of the level of detail. Again, start big.
- Group complication types together where possible
  - ICU-associated complications
    - ALI/ARDS, CRBSI, unplanned ICU admission
  - Time-associated complications
    - Decubitus ulcers, severe sepsis, PNA

More on Complications

- Group complication types together where possible
  - Iatrogenic complications
    - These are not all specifically listed in TQIP
    - Line associated pneumothorax, UTI, use of Narcan, rapid response team activations, adverse drug reactions or dosing errors
  - Comorbidity-based complications
    - AKI, cardiac arrest, CVA, MI

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Bringing the Data Home

- What do you do with all this data?
  - Track, track, track
    - Again, choose the time period that makes sense in your facility
  - Your hospital may already be tracking some of these complications (and you can use their surveillance data to make your job easier)
  - Look for combinations of complications…there may be ones you don't expect.

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Event Resolution

WHEN IS THE PIPS LOOP CLOSED?

CAROL IMMERMANN RN BSN
TRAUMA PROGRAM MANAGER – MAYO CLINIC ROCHESTER MN

Objectives

1) Define the meaning of event resolution in the PIPS process

2) State the principles used to determine when an event can deemed to be resolved

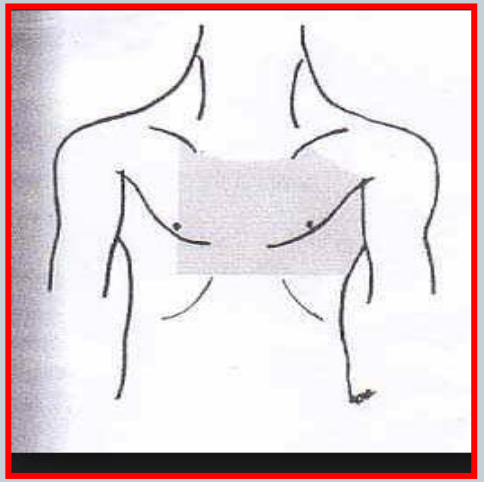
3) State how to demonstrate/document event resolution in trauma PIPS

Case Scenario

- Trauma case (Jerry Unlucky)
  - Jerry presents to a Level IV hospital with a penetrating injury to the chest
    - The hospital has the following resources:
      - Fully staffed ED
      - Periodic surgeon availability
      - 24 / 7 CT (in house)
      - OR – staff called in after hours
      - Emergency release O-negative/positive blood

Trauma Case Continued

- ED presentation
  - VS – BP 100/78 HR 98 Resp. 32
  - Wound “in the box” from “small” knife
- Resuscitation/Evaluation - Chest x-ray, trauma panel, FAST (negative), Chest/Abdomen/Pelvis CT
- Labs
  - Lactate 10
  - HCT 30
- CT
  - Positive hemothorax



Trauma Case Continued

- Transfer ordered after lab / CT results
- Chest tube placed as transfer being arranged
- Total time in ED – 110”
- Cardiac arrest enroute to tertiary care where patient later dies
- Autopsy reveals lacerated pericardium with tamponade
  - Outcome information provided to initial facility

PIPS

- Triggers (events) for review
  - Transfer out
  - ED length of stay
  - Guideline variation (?)
  - Death (?)

- Opportunities for Improvement identified

Documentation

Trauma PI Filter Tracking Worksheet

Patient name: _____Jerry Unlucky_____ Admit date: __1/1/2019____

Medical record #: _____13_____

Data Point	Yes	No	N/A
*Emergency department provider arrival >30 minutes after EMS notification		X	
*Admitted by non-surgeon			X
*Care provided by advance practice provider		X	
*Care provided by provider who did not meet the educational requirement (e.g., ATLS or CALS)		X	
*Death	X		
*Transferred	X		
Transfer out after > 60 minutes	X		
Guideline Variation	X		

Any chart that generated a "Yes" must be reviewed by trauma PI team.

☐ No improvement opportunities identified

Comments: Patient presented with criteria for Level Red activation. Decision made to undergo complete trauma evaluation prior to decision to transfer. Positive CT and positive lab results triggered decision to transfer. Patient sustained cardiac arrest enroute to tertiary care facility where he ultimately died. Autopsy determined cause of death to be cardiac tamponade.

Signature: *Trauma Program Coordinator*	Date: 1/3/2019

Does Every Opportunity for Improvement need an Action Plan?

PIPS for Jerry Unlucky

- PIPS review determined failure to follow accepted guideline/standards caused delay to transfer.

- Impact to patient – Death

Common Action Plans

- Education
- Discussions/Counseling
- Guideline/Policy/Protocol Development
- Focused PI Project
- Periodic Reporting

Action Plan

- Discussion/Counseling
  - Date – 1/20/2019

    Dr. TMD met with Dr. ED and reviewed the protocol for Trauma Red patients. Dr. ED agreed to follow Red/Yellow treatment protocols
- Education
  - Date – 1/30/2019
    - *Dr. TMD provided case review at monthly ED staff meeting. Education included Red/Yellow treatment protocols*
  - Date – 2/1/2019
    - *TPC provided case review at quarterly ED nursing meeting. Education included how the team can support Red/Yellow protocol*

Action Plan

- Guideline Review
  - ***Red/Yellow patient care management guideline reviewed by trauma medical director, ED medical director, trauma program coordinator, and lead tertiary care facility.***
  - ***All agreed guideline should remain as is***

Trauma PI Tracking Form

Demographics	Source of Information	Location of Issue
Date of report: 1/3/2019 Date(s) of occurrence: 1/1/2019 Medical record #: 13	☒ Trauma program coordinator ☐ Nurse manager ☐ Staff nurse ☐ Physician ☐ Patient relations ☐ Rounds ☐ Multi-disciplinary conference ☐ Registry ☐ PI chart audit ☐	☐ EMS ☒ ED ☐ OR ☐ ICU/PACU ☐ Floor ☐ Radiology ☐ Lab ☐ Rehab ☐

Complication, problem or complaint [Event]: 1) Death 2) Delay to Transfer 3) Guideline variation

Date of review: 1/8/2019 **Reviewed by: Trauma PIPS Committee**

Determination	Outcome	Preventability
☐ system-related ☐ disease-related ☒ provider-related ☐ unable to determine	☐ expected outcome ☒ unexpected outcome	☐ without opportunity for improvement ☒ with opportunity for improvement

Corrective action [Action Plan]

☐ not necessary	☐ guideline/protocol	☐ resource enhancement
☐ trend/track similar occurrences	☒ individual counseling	☐ privilege/credentialing review
☒ education	☒ provider case review	☒ __Guideline Review ____

Action Plan(s) & Effect(s):

- Discussion/Counseling
  - Date – 1/20/2019

    TMD met with Dr. ED and reviewed the protocol for Trauma Red patients. Dr. ED agreed to follow Red/Yellow treatment protocols
- Education
  - Date – 1/30/2019
    - *Dr. TMD provided case review at monthly ED staff meeting. Education included Red/Yellow treatment protocols*
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Guideline Review

Analysis of Level Red/Yellow patients revealed 95% transferred within 30" when protocol followed. All with good outcomes. This presented to Trauma System Committee on 3/1/2019. Agreed to keep guideline as written.

Signature: *Trauma Program Coordinator* **Date: 3/4/2019**

Adapted from American College of Surgeons, *Resources for Optimal Care of the Injured Patient: 1999*, p. 72.


KEEP
CALM
CASE
CLOSED
I AM HAPPY!

Event Resolution - Definition

After a *period of monitoring* it is determined that the implemented action plans have succeeded to prevent or mitigate similar events in the future

Period of Monitoring

- How long should a specific event be monitored?
- What factors come into play in the above decision?
- Is there a minimum time?
- Is it possible to close all events?

Event and Opportunities

- Event
  - Death
- Opportunities for Improvements
  - ED Length of Stay
  - Guideline Variation

Guiding Principles for Monitoring

- Event monitoring should be three - six months minimum
- Factors that affect monitoring time
  - Patient volumes
  - Specific trauma presentations (penetrating/burns/etc)
  - Impact to the patient
  - Complexity of action plan
  - The need to alter action plans
  - Internal quality program recommendations

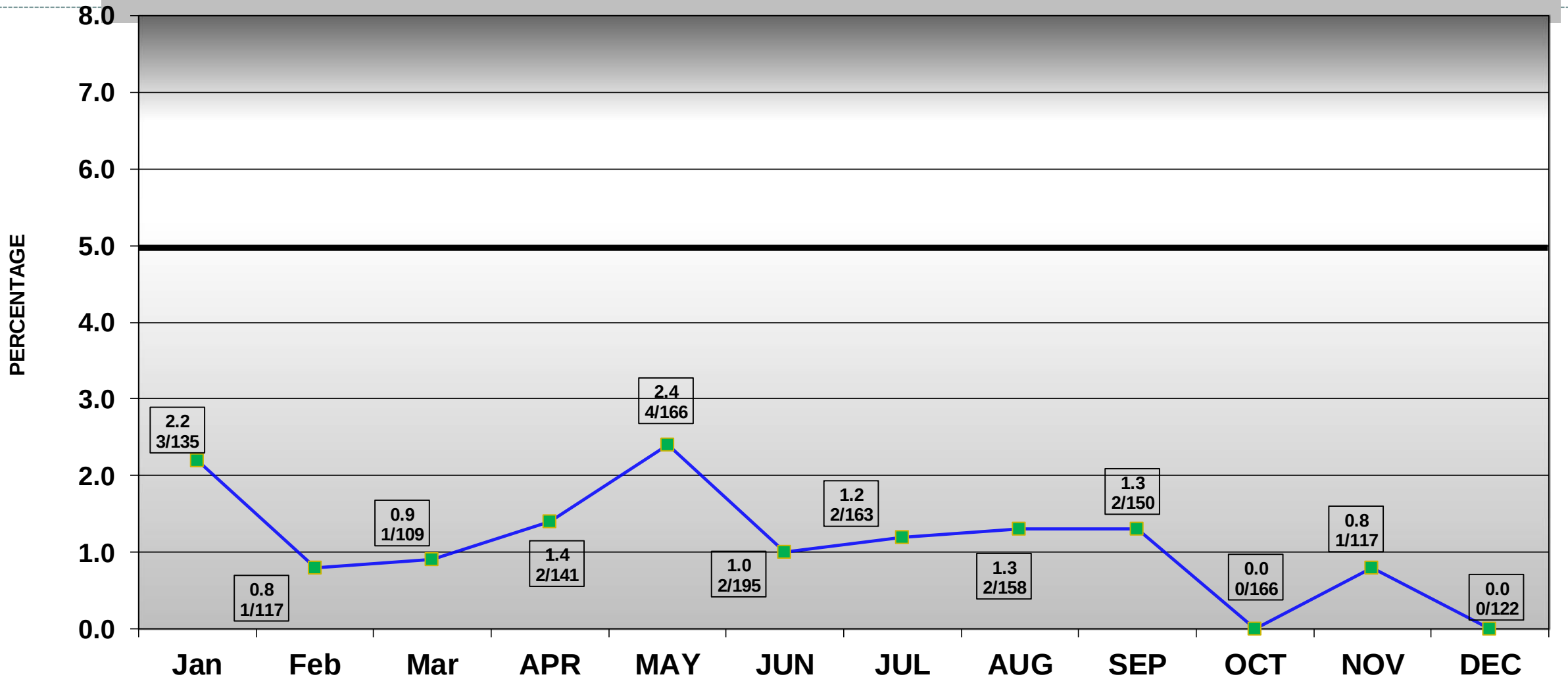
Guiding Principles for Monitoring

- Monitor the action plan itself when monitoring its success
  - Be prepared to modify/change action plan
- Look for ways to incorporate a trauma action plan with similar institutional initiatives
- While the time should not be too short – it also needs to end!

Event Resolution

- Is it possible that some events cannot be closed?
  - Undertriage/Overtriage
  - Mandatory filters
- Monitor the factors that were identified as the opportunity for improvement and bring those to a close
  - Document resolution in PIPS file

Monthly Under Triage Rates
Overall Rate – 1.1%



Event Resolution

- Share success institutionally
- Include in PIPS reports
  - Individual patient
  - Trauma Center reports
- Document for site visit

Trauma PI Tracking Form

Demographics	Source of Information	Location of Issue
Date of report: 1/3/2019 Date(s) of occurrence: 1/1/2019 Medical record #: 13	☒ Trauma program coordinator ☐ Nurse manager ☐ Staff nurse ☐ Physician ☐ Patient relations ☐ Rounds ☐ Multi-disciplinary conference ☐ Registry ☐ PI chart audit ☐	☐ EMS ☒ ED ☐ OR ☐ ICU/PACU ☐ Floor ☐ Radiology ☐ Lab ☐ Rehab ☐

Complication, problem or complaint [Event]: 1) Death 2) Delay to Transfer 3) Guideline variation

Date of review: 1/8/2019 **Reviewed by: Trauma PIPS Committee**

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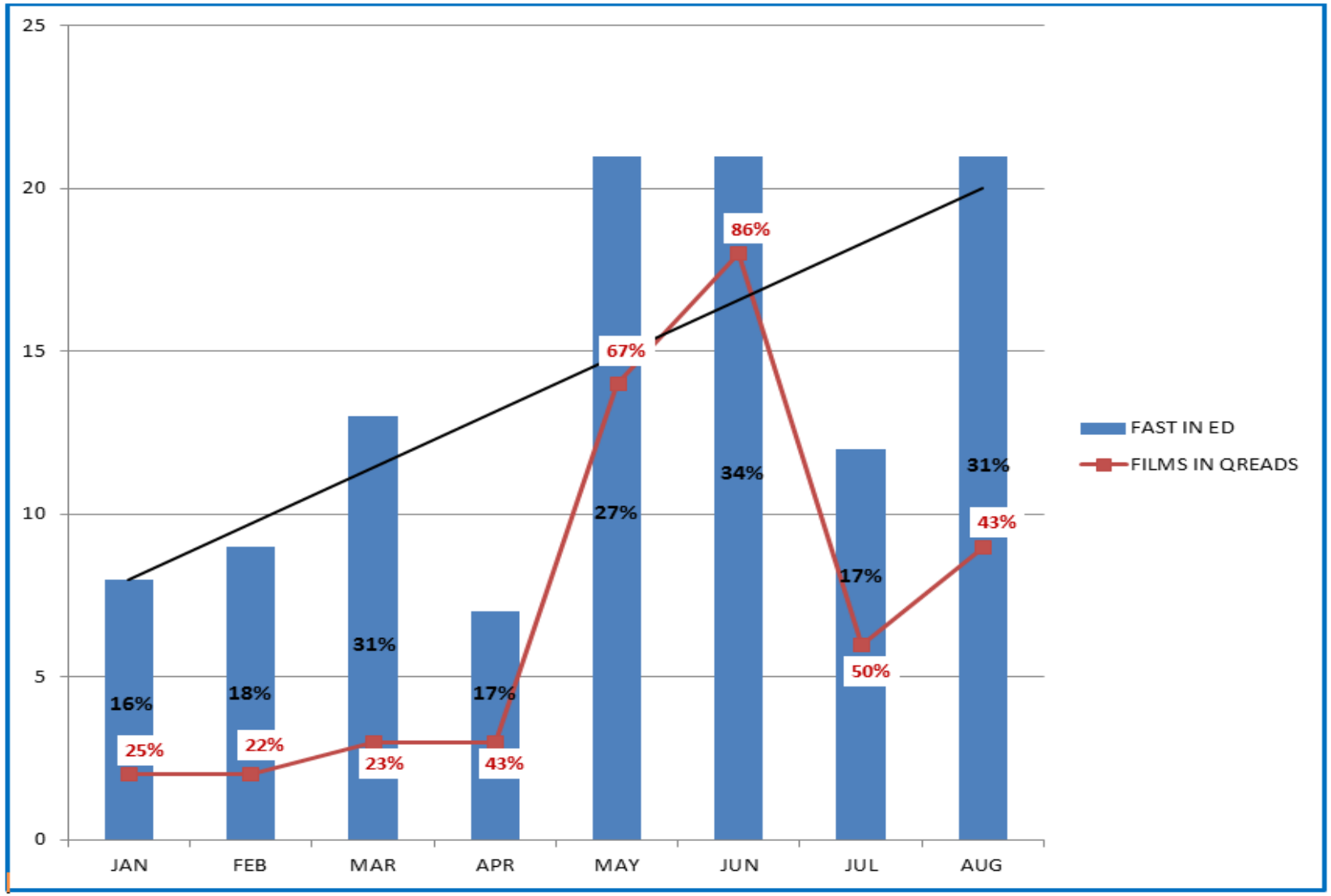
Event will be monitored for six (6) months to determine success of action plans.
After six months of monitoring no instances of guideline variation occurred. Event resolved

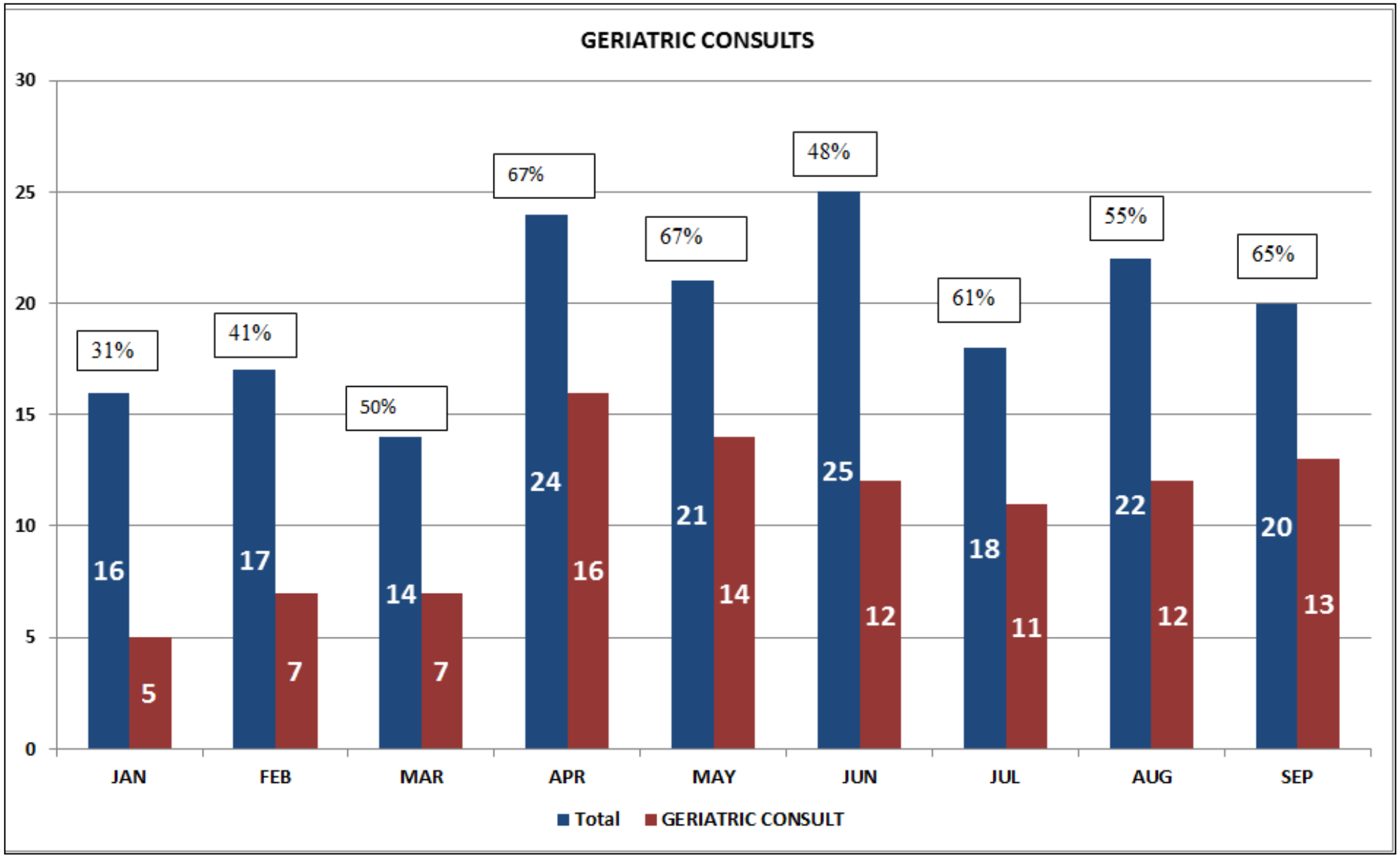
Signature: *Trauma Program Coordinator*	Date: 10/4/2019

FAST Exams Jan 1 2018 – Aug 31 2018



System PIPS Example for Site Visit

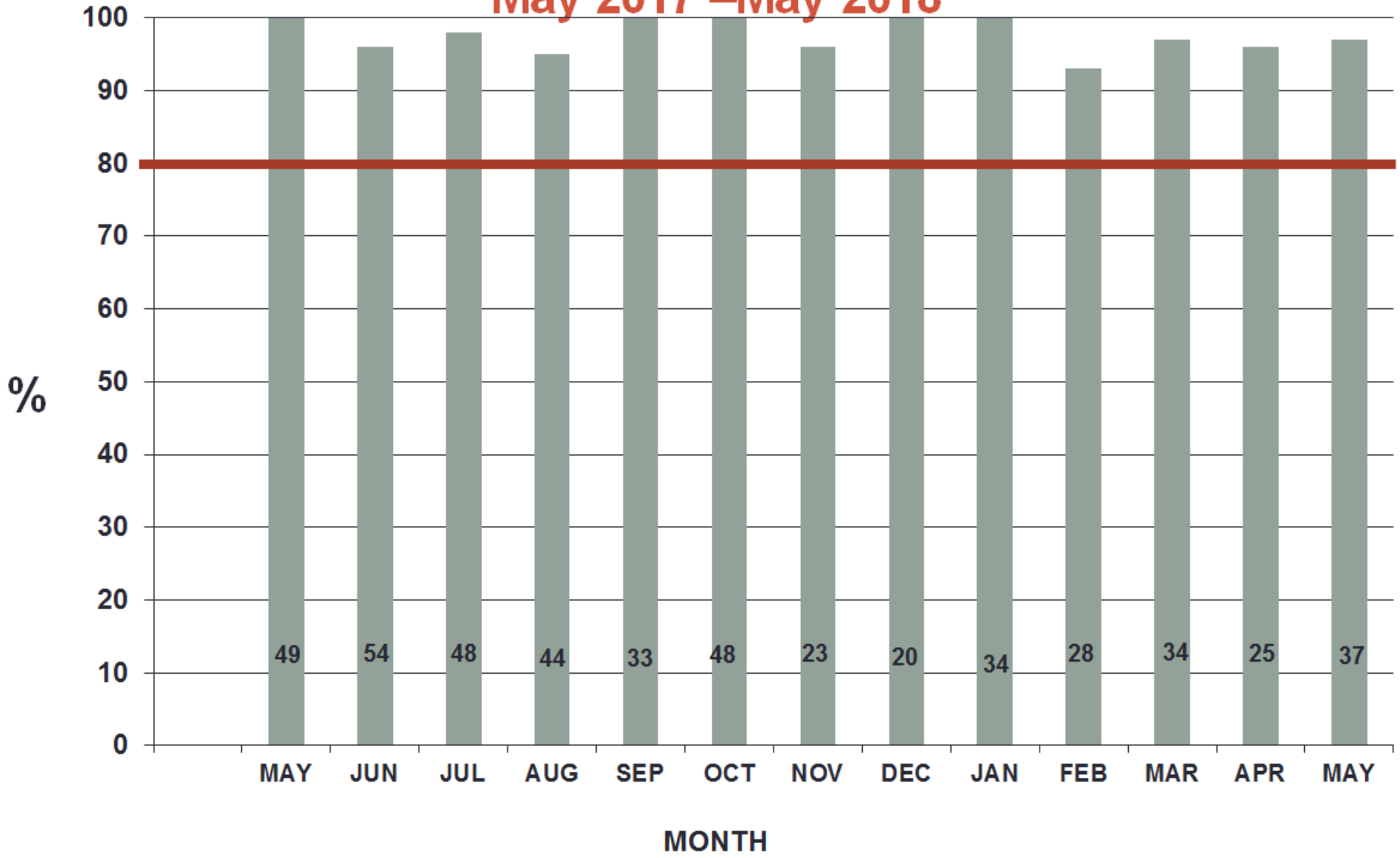
	TOTAL PATIENTS	< 20 DAYS	< 40 DAYS	< 60 DAYS	>= 60 DAYS
OCTOBER 2017 DISCHARGES	176	1 (1%)	3 (2%)	170 (97%)	176 (100%)
NOVEMBER 2017 DISCHARGES	155	2 (1%)	2 (1%)	153 (99%)	155 (100%)
DECEMBER 2017 DISCHARGES	129	19 (15%)	20 (16%)	128 (99%)	129 (100%)
JANUARY 2018 DISCHARGES	165	31 (19%)	44 (27%)	165 (100%)	NA
FEBRUARY 2018 DISCHARGES	132	32 (24%)	119 (90%)	132 (100%)	NA
MARCH 2018 DISCHARGES (NEW PROCESS STARTED)	139	107 (77%)	137 (99%)	139 (100%)	NA
APRIL 2018 DISCHARGES	133	132 (99%)	133 (100%)	NA	NA
MAY 2018 DISCHARGES (EPIC STARTED)	209	174 (83%)	208 (99%)	209 (100%)	NA
JUNE 2018 DISCHARGES	194	172 (89%)	193 (99%)	194 (100%)	NA


GERIATRIC CONSULTS
30
25
20
15
10
5
0
31%
41%
50%
67%
67%
48%
61%
55%
65%
16
5
17
7
14
7
24
16
21
14
25
12
18
11
22
12
20
13
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
Total
GERIATRIC CONSULT

Adult Trauma Performance Improvement Committee – Attendance 2018

	Jan. 10 2018	Feb. 14 2018	Apr. 11 2018	May 30 2018	Jul. 11 2018	Aug. 8 2018	Oct. 10 2018	Nov. 14 2018	Dec. 12 2018	% Total
TCGS										
	X	X				X		X	X	56
	X		X	X	X	X	X		X	78
	X	X	X	X	X		X	X	X	89
		X	X	X	X	X	X		X	78
	X	X	X	X	X	X	X	X	X	100
	X	X	X	X		X	X	X		78
	X	X	X	X	X	X	X	X	X	100
		X		X	X	X		X	X	67
		X	X	X	X	X	X	X	X	89
	X		X	X	X	X		X	X	78
	X	X	X	X	X	X	X	X	X	100
	X	X			X	X	X	X	X	78
					X	X	X	X	X	100
		X	X		X	X		X	X	67
		X	X	X	X	X	X	X		78
Anesthesia	X	X	X	X		X		X		67
EM	X	X	X	X	X	X	X	X	X	100
Orthopedics		X		X	X	X	X	X	X	78
Neurosurgery	X	X	X	X	X	X	X	X	X	100
Radiology		X	X	X	X	X	X	X	X	89
TPM	X	X	X	X	X	X	X	X	X	100
PEDS TMD	X	X	X	X	X	X	X	X	X	100

RED ACTIVATION MD RESPONSE
% COMPLIANCE
May 2017 –May 2018



Summary

- Event resolution follows a period of monitoring of action plans developed to address opportunities for improvement
- Time to monitor will vary depending on severity, patient volumes, and resources
- Documentation of event resolution crucial to successful site visit