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# TRAUMA

OUTCOMES & PERFORMANCE

# IMPROVEMENT

COURSE

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A course taught to all members of the trauma system team who participate in the ongoing assessment, evaluation and improvement of trauma care.



# Financial Disclosure

Faculty/Presenters/Authors/Content Reviewers/Planners disclose no financial relationships relative to this educational activity

# Course Objectives

- Incorporate the concepts of the culture of safety and PI plan presented in the pre-course module as it applies to performance improvement and highly reliable organizations
- Articulate the roles and responsibilities of the trauma team and how those apply to the processes of a highly reliable trauma program, including audit filters, levels of review, and management guidelines.
- Explain committee structure options and ways of integration into facility quality improvement
- Review effectiveness of data management processes through development of a data plan and how that applies to options for reporting that data as presented in the pre-course module.

# Course Objectives (continued)

- Apply event classifications as presented in the pre-course module to trauma PI review to identify opportunities for improvement
- Apply the principles of event identification to develop an effective corrective action plan
- Choose options and methods to achieve event resolution that are measurable and sustainable
- Demonstrate the use of PI skills through case scenario reviews

# Society of Trauma Nurses Membership

- Only organization dedicated to trauma nursing
- All phases of care in all settings
- Opportunities for participation
- Committees
- Special interest groups
- Active Membership
- Associate Membership
- A subscription to STN's bi-monthly journal, the *Journal of Trauma Nursing* (JTN).
- Assistance in education of under-developed countries
- Free educational contact hours through webinars



## Amber Kyle, BSN, MSN, RN

“Trauma Performance Improvement is what we do everyday. When we are discussing care of patients, we are identifying issues and determining, if anything, what needs to be done. The problem comes in when the assumption is made that actions were taken and the desired results have materialized. The trauma PI process takes the team from identifying issues through to getting the desired results that improve the care and outcomes for our trauma patients. We want our patients to get the best care which means our systems and knowledge need to be cutting-edge and evidence based, and our approach meets the needs of our patients and their families.”



# Evolution of TOPIC

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**Initial goal**

To provide Trauma Program Managers with Trauma PI structure and processes

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**2003**

1st course offered at STN Annual Conference

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**2004-2005**

Received HRSA grant to teach TOPIC in 50 states

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**2006**

Collaborated with ACS to regionalize TOPIC

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**2010-2012**

STN/ACS collaborated to reengineer and teach TOPIC

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**2015**

TOPIC revised for consistency with new Resources of Optimal Trauma Care

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**2019**

TOPIC revised based on participant feedback and to increase course interaction

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**2020**

Rural TOPIC Course implemented

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**2022**

Integrated the American College of Surgeons (ACS) 2022 Standards for Verification

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**2024**

TOPIC revised based on participant feedback

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# Trauma Outcomes Performance and Improvement Course

- Offers practical applications for all levels of trauma centers, from entry level to mature trauma programs, through interactive modules and course manual that culminate in application of the materials in case scenarios to increase knowledge and skills in professional development
- The course is DESIGNED to meet the needs of multidisciplinary providers with varying levels of trauma performance improvement and patient safety experience
- Operational definitions, sample tools, and case studies are incorporated to facilitate learning

## Successful Completion

- To successfully complete this course, all participants must attend the entire event
- Pre-course modules must have been completed
- Attendance must be verified by signature on the sign-in sheets
- If virtual, attendees must attend all day with cameras on

# Continuing Education

- Upon completion of the course, you will receive an email with a link to the on-line evaluation
- Once completed nurses will be directed to the STN website with directions on how to download the CE certificate and physicians will be directed to the University of Kentucky College of Medicine
- Evaluations should be completed within 10 days

# Continuing Nurse Education

Society of Trauma Nurses is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation.

This event has been awarded  
8.25 contact hours.

# Introductions

- What is your role?
- What is the level trauma center you are affiliated with?
- How many years of experience do you have in your current role?
- Have you taken TOPIC before?
- What is your greatest PI challenge AND GOAL FOR TODAY?

# Why is Performance Improvement Important?

SIGNIFICANCE	CHALLENGES
<ul style="list-style-type: none"><li>• Improves Patient Safety</li><li>• Improves Effectiveness of the Performance Improvement process</li><li>• Impacts Patient Outcomes and Experiences</li><li>• Enhances Provider and Staff Performance</li><li>• Aligns with Reimbursement</li></ul>	<ul style="list-style-type: none"><li>• PI is DYNAMIC and TIME CONSUMING</li><li>• Requires COMMITMENT AND DEDICATION</li><li>• Requires RESOURCES</li><li>• Must be DETAIL ORIENTED</li><li>• Must include VALIDATION</li></ul>

**\*\*PI is the most common area of opportunity identified in site reviews\*\***

# Review of Pre-Work Materials

# Culture of Safety Pre-Course Module Review

- Embed the principles of high reliability organizations and the culture of safety into all aspects of your Trauma PI program
- These principles are the foundation of a high performing trauma center with proven good patient outcomes
- Components of PI Plan are constant and prescriptive in all levels of trauma centers; implementation may vary
- Integrate with your hospital's quality management program-processes
- Ensure integration and active participation with your trauma system PI activities
- Use your PI plan as a compass and an anchor

# PIPS Reports Pre-Course Module Review

- Plan carefully when creating a report
- Understand your target audience
- Ensure your data is accurate
- Use clear labeling and appropriate types of graphs to display the data
- Practice presenting the reports

# Classification Pre-Course Module Review

- Trauma performance improvement classification system plays a crucial role in establishing best practice programs.
- While there is currently no national standard definitions or nomenclature for classification systems, some trauma systems and centers have successfully integrated PI classification systems.
- Utilizing a trauma PI classification system offers several advantages.
  - The advantages include promoting optimal tracking, monitoring, and reporting;
  - Creating common terminology;
  - Assisting in prioritizing and defining the urgency of PI; and
  - Establishing best practice PI models.

**Are there any questions?**

# PRE-COURSE MODULE 1: THE CULTURE OF SAFETY



# Warren Dorlac, MD, FACS



*“The Trauma Outcomes and Performance Improvement Course teaches us how to become a “learning” trauma system. How to do things better for the next patient who arrives to your center!”*

# High Reliability Organizations = Trauma Care

*A perfect match!*

High reliability means consistent excellence in quality and safety across all services maintained over long periods of time.

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

**Leadership  
Commitment**

**Culture of  
Safety**

**Empowered  
Work Force**

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

## Leadership Commitment:

*Leadership (hospital AND trauma leaders) are committed to the goal of zero harm*

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

Leaders from across the continuum of care such as nursing directors, physician Chairs, and physician liaisons are all a crucial component of the trauma PI process; representing their departments and service lines; the common goal is safe patient trauma care, and supporting their teams in the delivery of care

## Leadership Commitment:

*Leadership (hospital AND trauma leaders) are committed to the goal of zero harm*

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

**Culture of Safety**

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

A culture of safety not only within the hospital, but deeply embedded in the trauma PI processes

**Culture of Safety**

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

**Empowered Work Force**

(Joint Commission Resources, 2024)

# The High Reliability Organization (HRO) Has 3 Pillars

An empowered workforce means front line staff (and our trauma liaisons) are empowered to speak up, identify PI events, near misses, and any patient safety concern

**Empowered Work Force**

(Joint Commission Resources, 2024)

# These 3 HRO Pillars are Guided By 5 Principles

Preoccupation with failure

Reluctance to simplify

Sensitivity to operations

Deference to expertise

Commitment to resilience

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Preoccupation with failure

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Sensitivity to operations

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# HRO Principles

## Preoccupation With Failure

There is an awareness of (preoccupation) about the potential for failure, e.g., what could go wrong.

## Trauma PI

In trauma care and systems/operations, we need to be alert to the small signs of impending patient safety issues. We need to avoid complacency because this leads to drift.

Drift becomes a patient safety issue. In addition, we need to be vigilant for near misses. It is best to view near misses as opportunities to improve.

# These 3 HRO Pillars are Guided By 5 Principles

Preoccupation with failure

Reluctance to simplify

Sensitivity to operations

Deference to expertise

Commitment to resilience

# HRO Principles

## Reluctance to Simplify

## Trauma PI

The trauma environment within a hospital is complex and dynamic. This is not “simple”. Standardizing workflows for trauma care decreases variation in care which improves outcomes. However, trauma care is time sensitive, high acuity, and has multiple services (teams) working together simultaneously. There are also time sensitive hand off reports being given. All these factors require us to avoid simplifying processes when in fact, they are complex.

# These 3 HRO Pillars are Guided By 5 Principles

Preoccupation with failure

Reluctance to simplify

Sensitivity to operations

Deference to expertise

Commitment to resilience

(Agency for Healthcare Research and Quality, 2019)

# HRO Principles

## Sensitivity to Operations

Staff maintains a high awareness of operational conditions.

## Trauma PI

In trauma care, the ED charge nurse is fully aware of prioritizing patients who require CT scans. Another example is the OR team who understands prioritizing an open/available OR immediately available for an incoming trauma patient.

Additionally, the trauma team captain has an acute “situational awareness” of every role and activity occurring during a resuscitation.

# These 3 HRO Pillars are Guided By 5 Principles

Preoccupation with failure

Reluctance to simplify

Sensitivity to operations

Deference to expertise

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(Agency for Healthcare Research and Quality, 2019)

# HRO Principles

## Deference to Expertise

Staff who are the closest to the work are the most knowledgeable.

## Trauma PI

Everyone is expected to share concerns (trauma PI safety concerns). The hospital environment has a culture that allows staff to feel comfortable when speaking up about real or potential patient safety issues.

# These 3 HRO Pillars are Guided By 5 Principles

Preoccupation with failure

Reluctance to simplify

Sensitivity to operations

Deference to expertise

Commitment to resilience

(Agency for Healthcare Research and Quality, 2019)

# HRO Principles

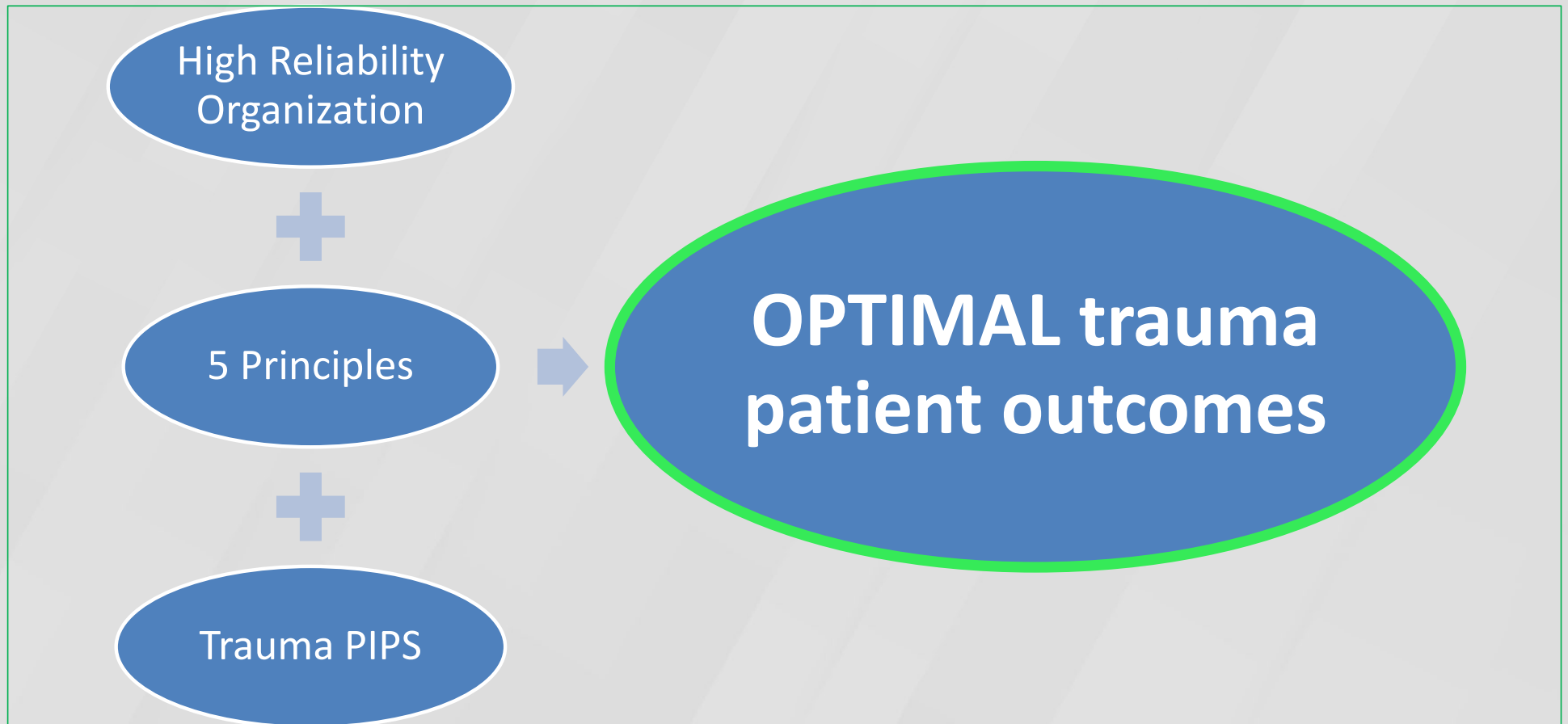
## Commitment to Resilience

System failures (PI events) are unpredictable. HROs assume the system is at risk for failure. Therefore, staff and leaders practice performing rapid assessments of and responses to challenging situations.

## Trauma PI

In trauma centers, these may take the form of simulated resuscitations, disaster drills, etc. Then, based on opportunities for improvement that are identified during these trainings, action plans can be developed and implemented.

# Why is this important to trauma leaders?



# THE CULTURE OF SAFETY

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# The Culture of Safety

What does this mean?

*“all who work within the organization **are actively involved** in identifying and resolving safety concerns and are **empowered** to take appropriate action to **prevent** an adverse event”*

Institute of Medicine (US) Committee on the Work Environment for Nurses and Patient Safety; Page A, editor. Washington (DC): [National Academies Press \(US\)](http://www.nationalacademies.org); 2004. [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov) › books › NBK216181

# Culture of Safety Includes 4 Components

Leadership commitment

Open communication

Staff engagement

Continuous improvement

(Cross Checks, 2023)

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Leadership commitment

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(Cross Checks, 2023)

# Leadership Commitment



Hospital And  
Medical Staff



Trauma  
Medical  
Director



Trauma  
Program  
Manager /  
Director



Department  
And Division  
Leaders



Physician  
Liaisons

# Culture of Safety Includes 4 Components

Leadership commitment

Open communication

Staff engagement

Continuous improvement

(Cross Checks, 2023)

# Open Communication

When the culture of safety is embedded into the trauma PI program, candid discussions pertaining to patient safety become the norm.



# Culture of Safety Includes 4 Components

Leadership commitment

Open communication

Staff engagement

Continuous improvement

(Cross Checks, 2023)

# Staff Engagement

- Front line staff are best placed to identify risk, near misses and trauma PI events.
- Trauma leaders must encourage collaboration across ranks and disciplines to seek solutions to patient safety problems.
- Trauma is always multi-specialty and multidisciplinary.
- Therefore, PI must also reflect this diversity.



# Culture of Safety Includes 4 Components

Leadership commitment

Open communication

Staff engagement

Continuous improvement

(Cross Checks, 2023)

# Continuous Improvement



Requires commitment, including organizational commitment of resources to address safety concerns



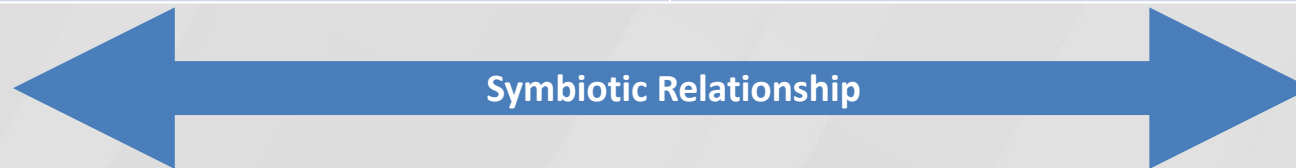
Data is required



A proactive approach is the best approach

# Culture of Safety and Teamwork in PIPS

CULTURE OF SAFETY	KEYS TO TEAMWORK
<ul style="list-style-type: none"><li>• Staff are Empowered to “Speak Up”</li><li>• Embraces Safety and a “Patient First” Mindset</li><li>• Non-Hierarchical</li><li>• Requires “Transparency”</li><li>• Support from Leadership</li></ul>	<ul style="list-style-type: none"><li>• Communication is Paramount</li><li>• Generational Differences are Considered</li><li>• Facilitated by Leadership</li><li>• Staff Engagement and Input is Critical</li><li>• Crosses Multiple Departments</li></ul>

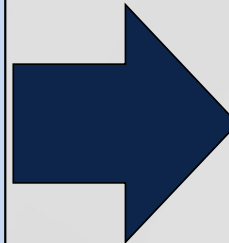


# Adopt a Culture of Safety Language

## Blame

Eliminates hierarchy and language that places blame

- “error”
- “wrong”
- “preventable”
- “cause”
- “unanticipated”



## Safety

Identifies strategies to reduce risk

- “opportunity for improvement”
- “near misses “
- “adverse events”
- “event”

# Culture of Safety: Inherent Risks

## System Risks

- Technologically complex
- Constantly changing technology, clinical practice, medication, and equipment
- Competing priorities
- Variable individual competence
- Every patient is different

## Human Error

- Involves human issues
  - Fatigue
  - Knowledge
  - Skill
  - Reliance on personal **perfection**
- Humans are not perfect

# **PROMOTING THE CULTURE OF SAFETY: WHAT WE DO EVERYDAY!**

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# What We Do Everyday!

Patient safety is always in focus

Identify safe practices and safe care

Focus on “opportunities for improvement”

Great saves have lessons to be learned and applied

Communication should always be motivated by safety

Elicit front line staff’s opinions: “how can we improve”?

Tools and technology that promote safety

- Standard order sets and checklists
- Easy access to policies/CPGs (apps/SharePoint)

Concurrent PI during patient rounds

# HOW MATURE IS YOUR TRAUMA PI PROGRAM?

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# How Mature is your trauma PI program?

*(Temperature Check)*

Unmindful

No awareness

Reactive

Defensive, react to events

Systematic

System in place to manage

Proactive

Offensive, anticipate events

Generative

Wired for safety and improvement

**Of the 5 categories,  
which one would you like  
your program to reflect?**

# How Mature is your trauma PI program?

(Temperature Check)

Unmindful

No awareness

Reactive

Defensive, react to events

Systematic

System in place to manage

Proactive

Offensive, anticipate events

**Generative**

***Wired for safety and improvement***

# 11 Essential Principles for Effective PIPS

1. Appropriate team
2. Clearly defined goals
3. Clearly defined process
4. Clearly defined parameters
5. Structured communication, common language, and shared understanding
6. Power/Authority
7. Champions
8. Shared norms and accountability
9. Skilled facilitation
10. Understanding of systems theory
11. Self-evaluation

Berg et al. Trauma Performance Improvement and Patient Safety Committee: Fostering an Effective Team. *Journal of Trauma Nursing*. 18(4):213-220, October/December 2011.



See the TOPIC Manual Appendix for more information

# Trauma Performance Improvement and Patient Safety (PIPS)

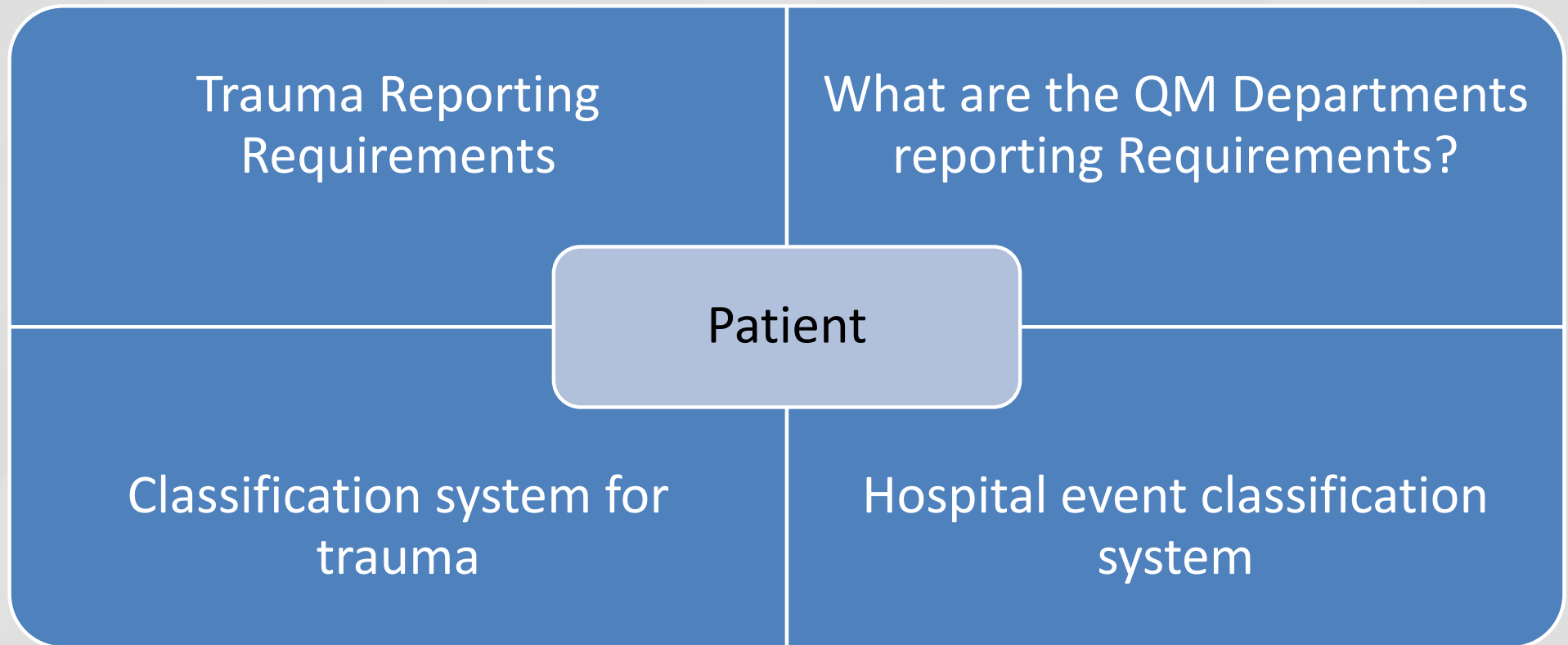
- Dynamic (individualized to your institution)
- Prescriptive (must have required components)
- Multidisciplinary team examines trauma related patient care and operations from a system perspective
- Collaborative and trust oriented
- Integrated into the hospital PIPS system
- Benchmarked (internal over time, external, risk adjusted)
- Facilitated by Trauma Medical Director Program Director

# **INTEGRATING TRAUMA PIPS WITH YOUR HOSPITAL QUALITY MANAGEMENT DEPARTMENT**

TRAUMA OUTCOMES & PERFORMANCE IMPROVEMENT COURSE

# Integrating with the Hospital Quality Department

*Collaborative Relationship with Leaders From Both Departments*

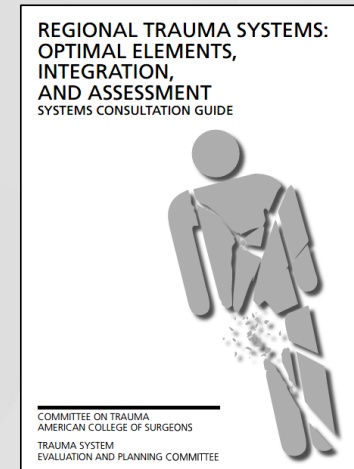


# Integrating with the Trauma System PI Activities

- Trauma System Components
- Statutory Authority
- Multidisciplinary Advisory Group
- Trauma System Plan
- Designation based on Need
- Funding
- Data Collection
- Confidentiality and Discoverability

## *System-wide Performance Improvement*

- Disaster Preparedness
- Military Integration



The National Academy of Sciences, Engineering, and Medicine 2016. *A National Trauma Care System Integrating Military and Civilian Trauma Systems to Achieve Zero Preventable Deaths After Injury*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/23511>.

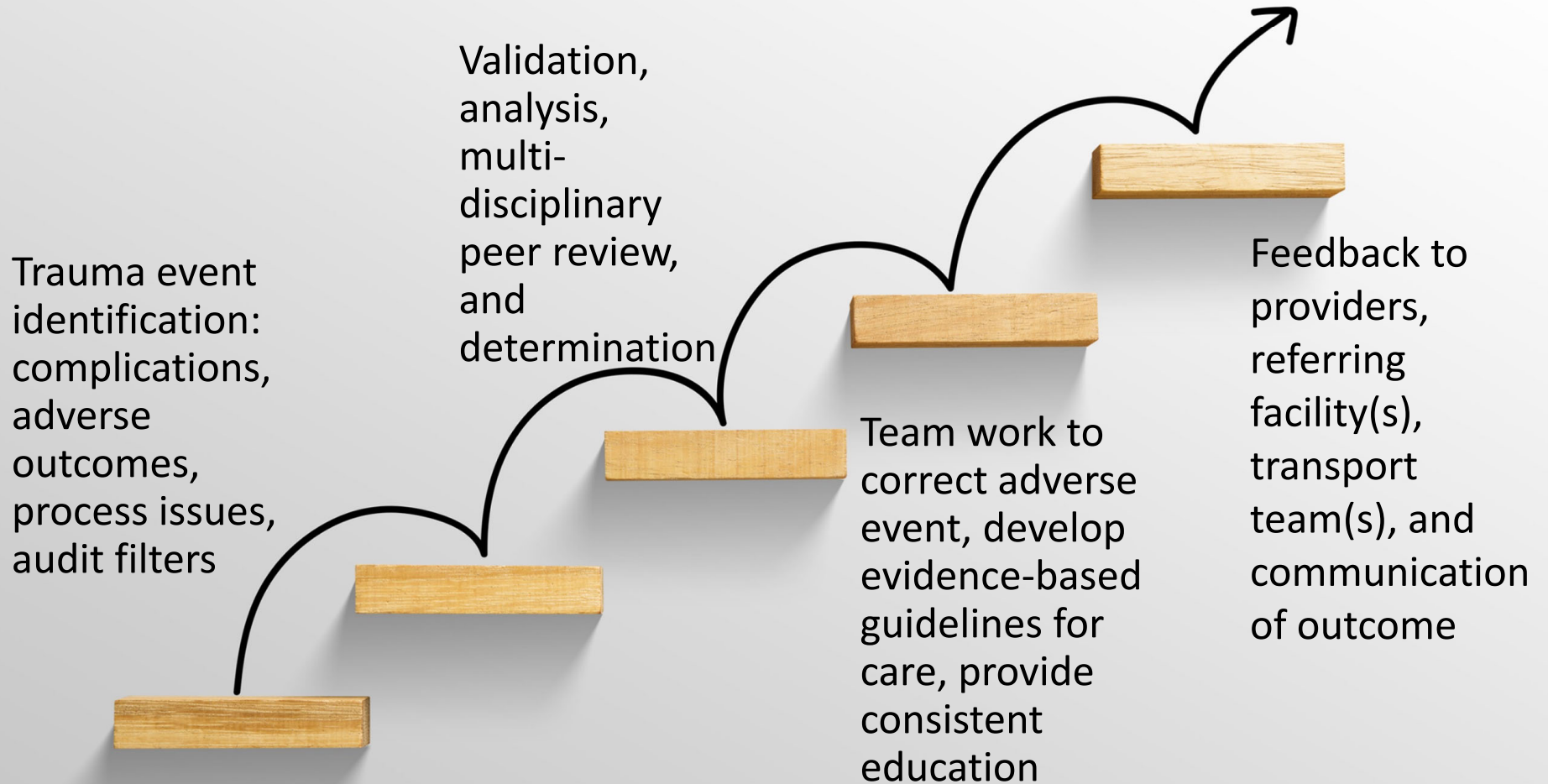
**Are you aware of your trauma system's PI activities?  
Are you involved?**

# Links to Trauma System Plans

- Performance Improvement and Patient Safety Plan 15 April 2019 Joint Trauma System (JTS), a DoD Center of Excellence for Trauma, DHA AD Combat Support
  - [https://jts.health.mil/assets/docs/assessments/JTS PI Plan 2019 15 Apr 2019.pdf](https://jts.health.mil/assets/docs/assessments/JTS_PI_Plan_2019_15_Apr_2019.pdf)
- Texas EMS-Trauma and Emergency Healthcare System Performance Improvement Plan
  - <https://www.dshs.texas.gov/sites/default/files/emstraumasystems/GETAC/PDF/Texas-System-PI-Plan.pdf>
- Mississippi Trauma System State PI Plan
  - <https://msdh.ms.gov/page/resources/7974.pdf>

# Get Ready – This is What’s Coming!

## Improving Processes and Patient Outcomes



# SUMMARY

- Embed the principles of high reliability organizations and the culture of safety into all aspects of your Trauma PI program
- These principles are the foundation of a high performing trauma center with proven good patient outcomes
- Integrate with your hospital's quality management program-processes
- Ensure integration and active participation with your trauma system PI activities

# Pre-Course Module 2: Reports



# Why?

Why not put your best foot forward and show a terrific looking (graph) report to capture the attention of your audience?



# Let Your Data Tell the Story

**All presentations  
are basically  
story-telling  
opportunities**

**Visually engaging  
to improve  
information  
retention**

# Let Your Data Tell the Story

Without a visual presentation of data & its impact, your message, may be lost

There are many people in the world who do not find it easy to understand numbers

There are also many people who will simply switch off if you show them figures in a table

# Foundational Concepts of Presenting Data

 Make sure the graph is a good one

 Pick the right visuals for the job

 Break the complex into multiple graphics

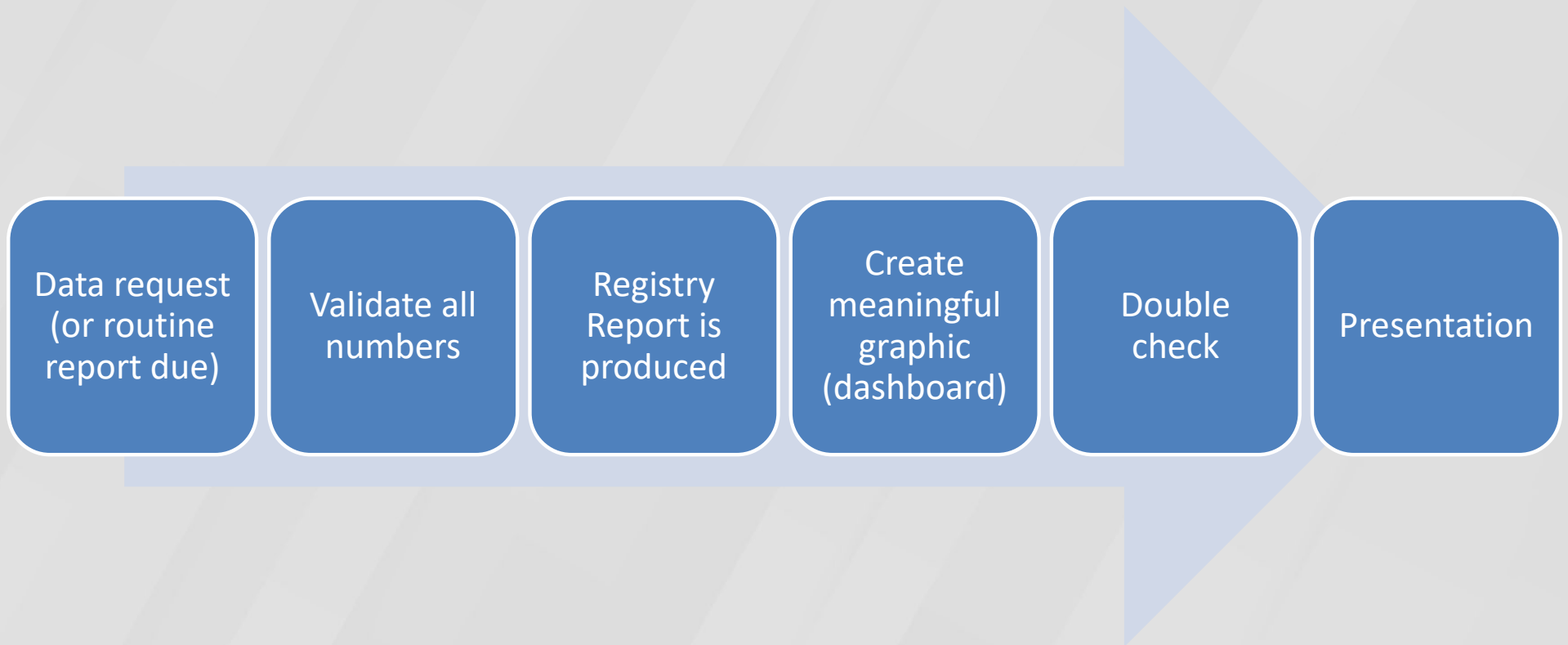
 Choose colors carefully

 Keep it simple

# Getting Started...Ask Yourself

- Do you have accurate data?
- How do you know?
- Do you have timely and meaningful data?
- Who is your target audience?
- What do you want your audience to get from your data?
- Who is presenting the data?
- How well do they know the data?
- What message do you want to convey?
- What is the goal of the report?

# Process for Creating a Good Report



# Tips for Creating Meaningful Reports

1

Spend time thinking about how you want to communicate your data

2

Display the data so it is easy to read

3

Determine what type of graph best displays a particular data set

4

Avoid presenting raw data

5

Show everything in context

6

When in doubt, annotate

7

Place labels in close proximity to the actual data

8

Reference sources of data

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# Tips for Creating Meaningful Reports

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# Presenting Reports

- Who will be presenting the data?
- How well do they know the data?
- Who is the audience?
- Practice
- Anticipate questions



# Types of Trauma PI Reports

## Basic Hospital Reports

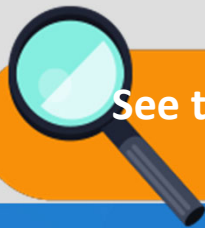
- Census ED disposition
- Hospital disposition
- Hospital and ICU length of stay
- Mechanism of injury
- Demographics
- Trauma team activations

## Trauma PI Reports

- Events
- Summary analysis dashboard
- Complication dashboard
- Control charts
- Deaths using classification

# Reporting Hospital Events

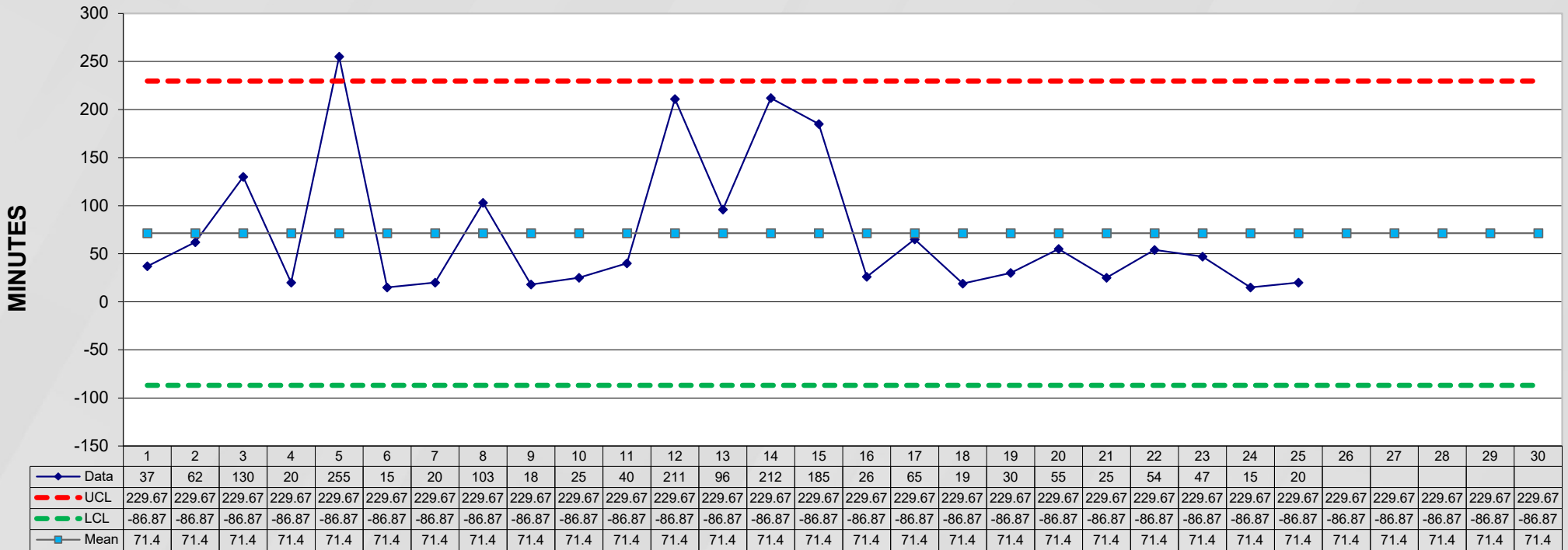
- Present the reports shortly after a month of data is completed
- Concurrent is a best practice
- Include individual provider-specific complication rates in the OPPE
- Control charts show trends over time



See the TOPIC Manual Appendix  
for more information

# Control Charts

TIME TO DEFINITIVE CARE  
 TIME OF ADMIT UNTIL TIME PATIENT LEFT ED FOR OR  
 N=25



# Customized PI Reports

- Consultant response times
- Timeliness to OR
- Compliance with documentation of vital signs protocols
- Timeliness of interventions and diagnostics
- Special populations core measures
- Dashboard reports: audit filters, focused audits

# Chart Types

- Line Charts: show developments over time, trends
- Bar Charts: simple, clear, comparisons
- Table: great for detailed information
- Gauge: for 1 or more values; dashboard to highlight a specific indicator (red light)
- Maps: effective for regional differences
- Pie Charts: controversial, use when the total of your numbers is 100%

(Petersen, 2017)

# General Benchmark Comparison Report Examples

## Administrative

- Patient demographics
- Hospital demographics
- Blunt vs. penetrating percentages
- ED disposition
- Hospital disposition
- MOI and restraint usage
- Survivors vs. non-survivors:
  - LOS
  - Median ISS & ICU days
  - Age

## Outcome Measures

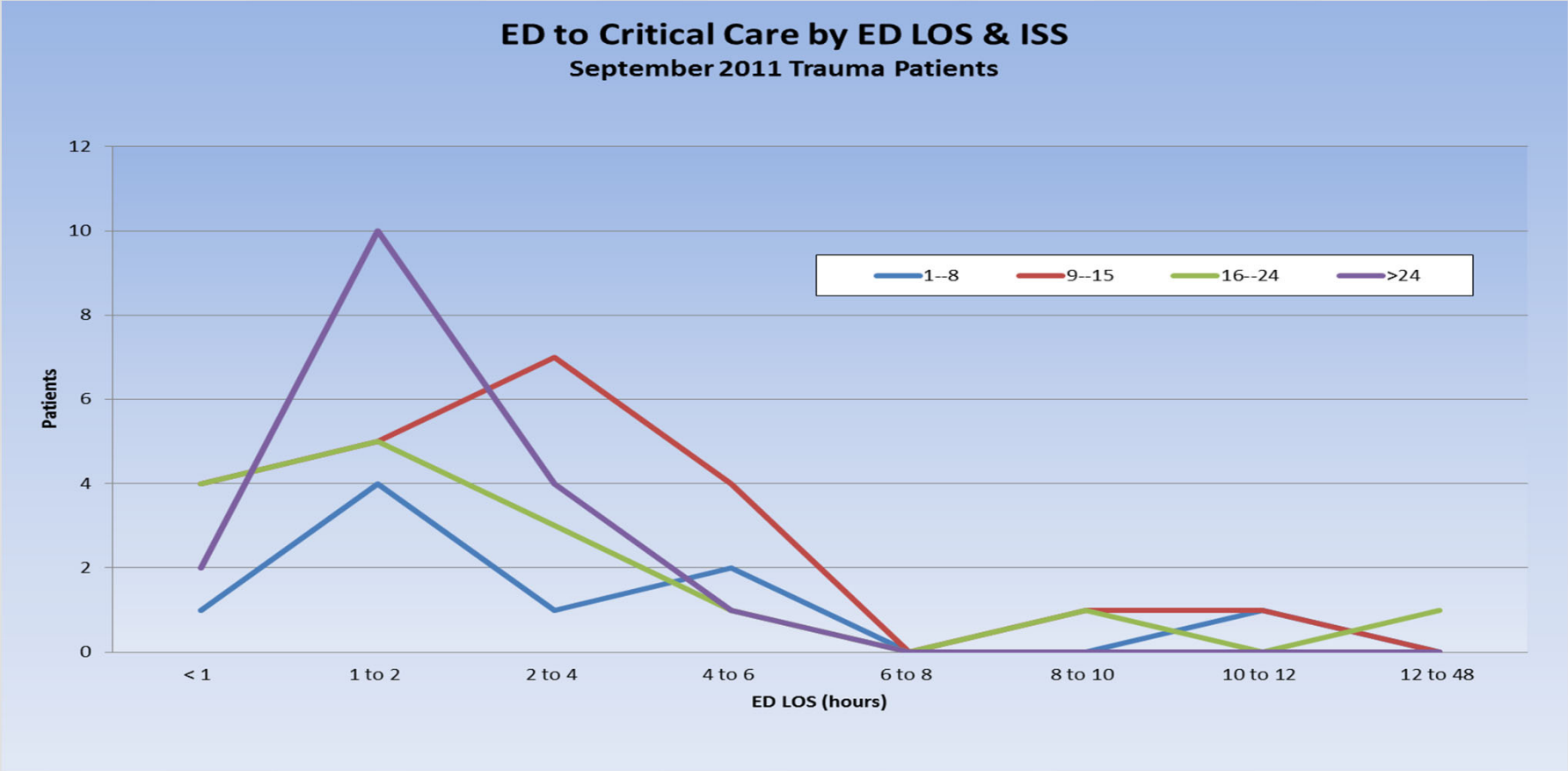
- Hospital discharge status
- Mortality rates
- Complication Rates

# **TRAUMA REPORTS: EXAMPLES**

# Consider How Your Data Looks in Table vs. Graph

ED to Critical Care by ED LOS    Sep 2011 Trauma Patients					
Hours	ISS Range				Total
	1-8	9-15	16-24	>24	
< 1	1	4	4	2	11
1 to 2	4	5	5	10	24
2 to 4	1	7	3	4	15
4 to 6	2	4	1	1	8
6 to 8	0	0	0	0	0
8 to 10	0	1	1	0	2
10 to 12	1	1	0	0	2
12 to 48	0	0	1	0	1
Total	9	22	15	17	63

# Same Information in a Graph

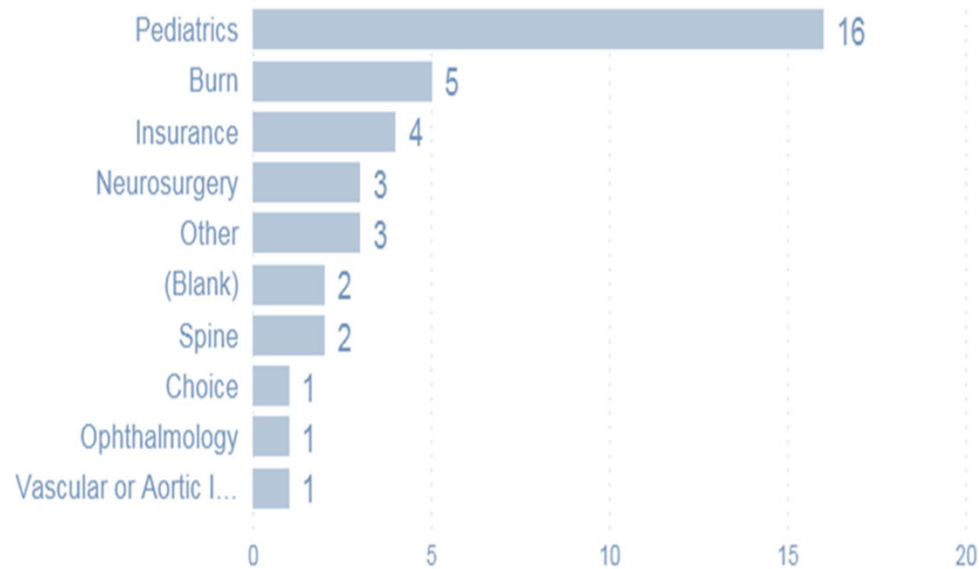


# Bar Graphs

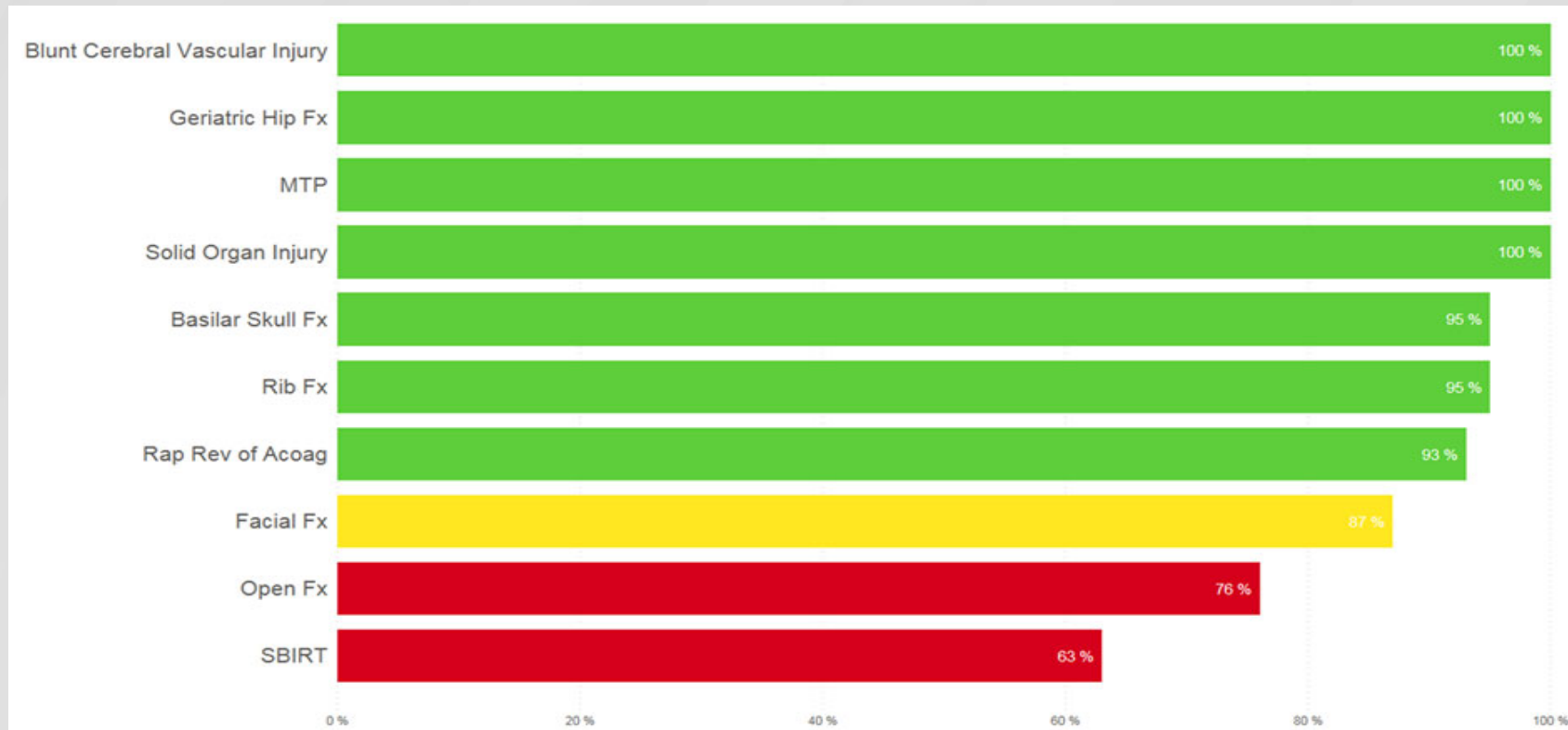
## Transfers Out



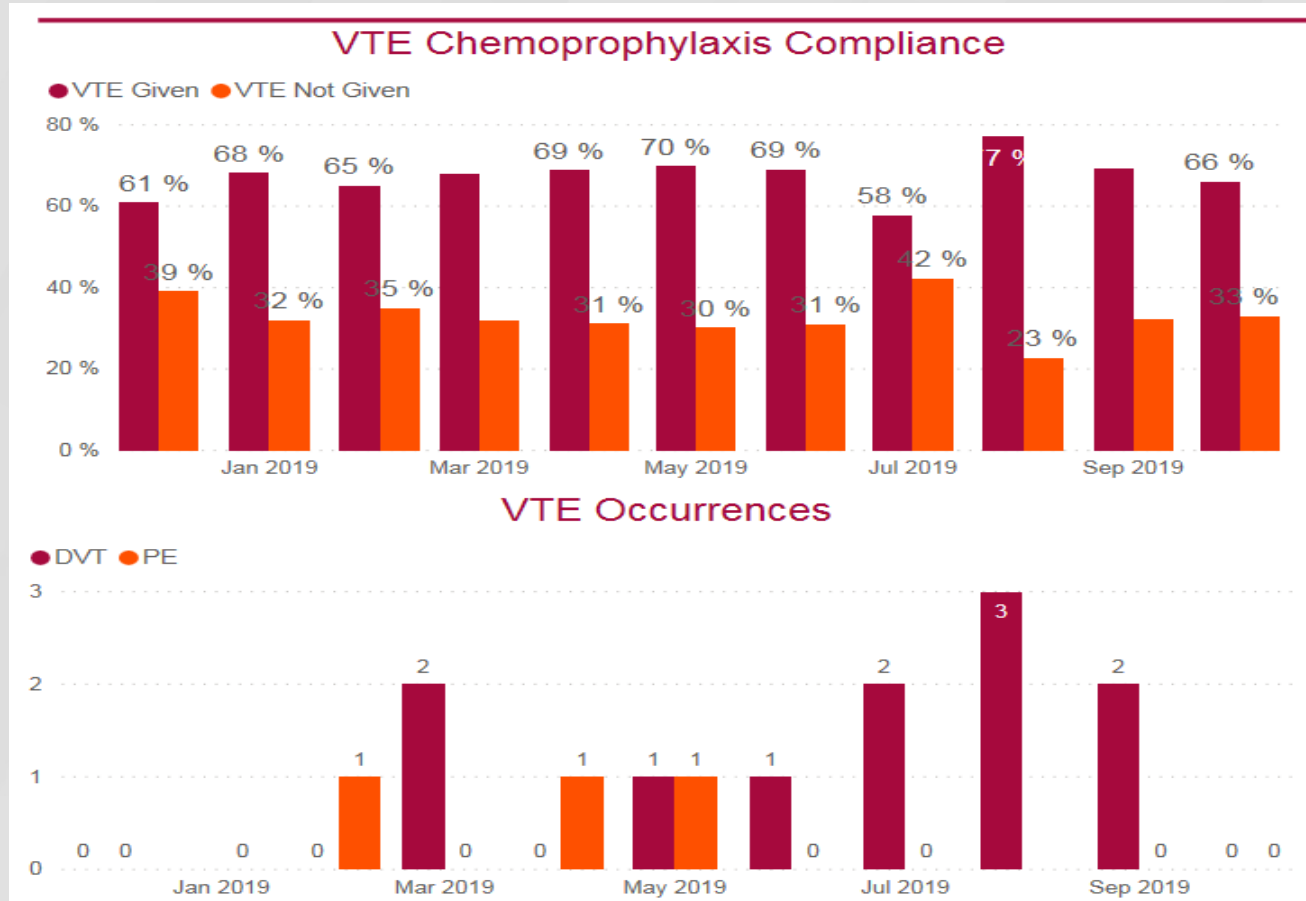
## Reason for Transfer



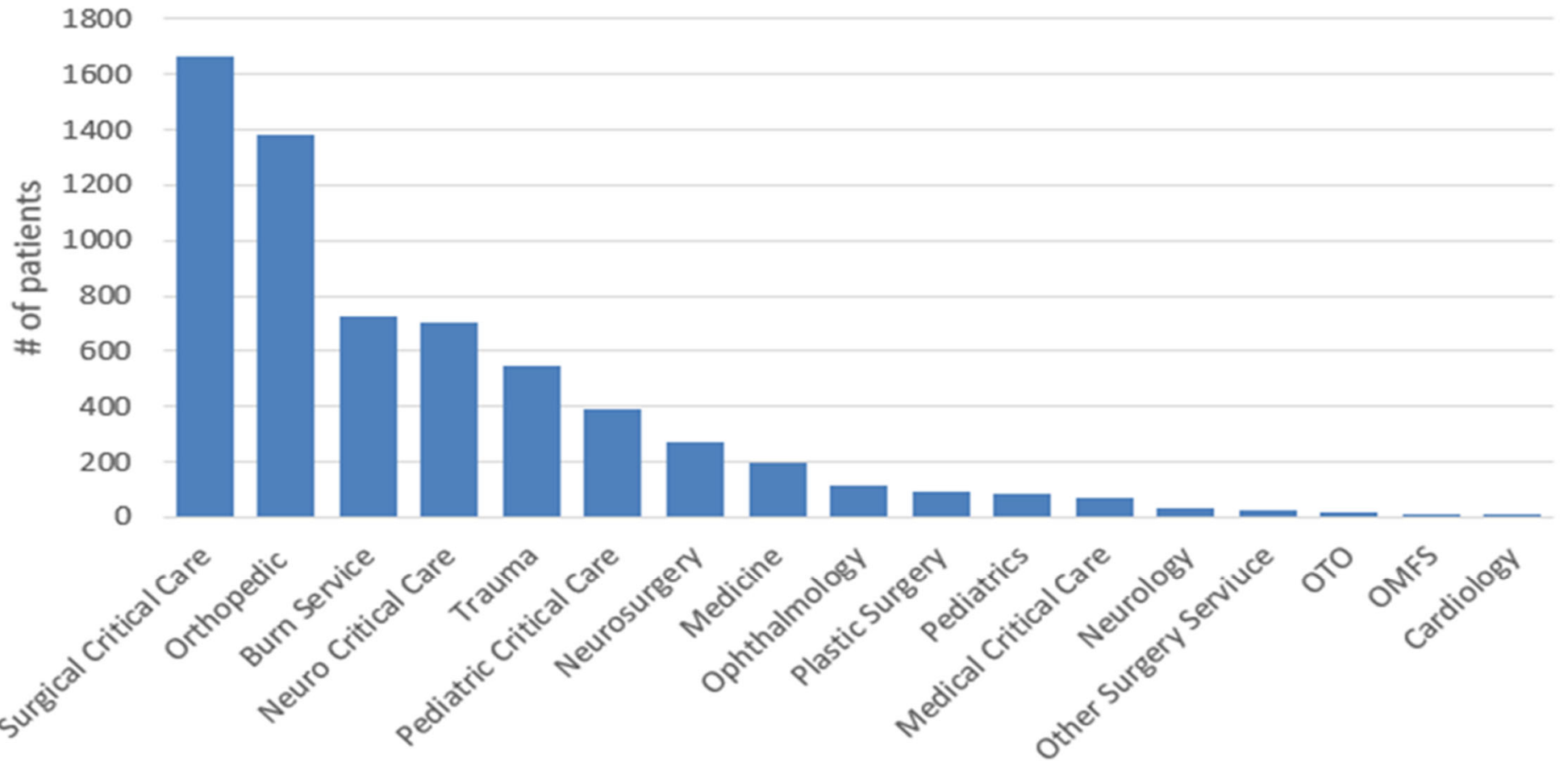
# Clinical Practice Guideline Compliance Rolling 12 Months



# VTE CPG Compliance Paired with VTE Occurrences

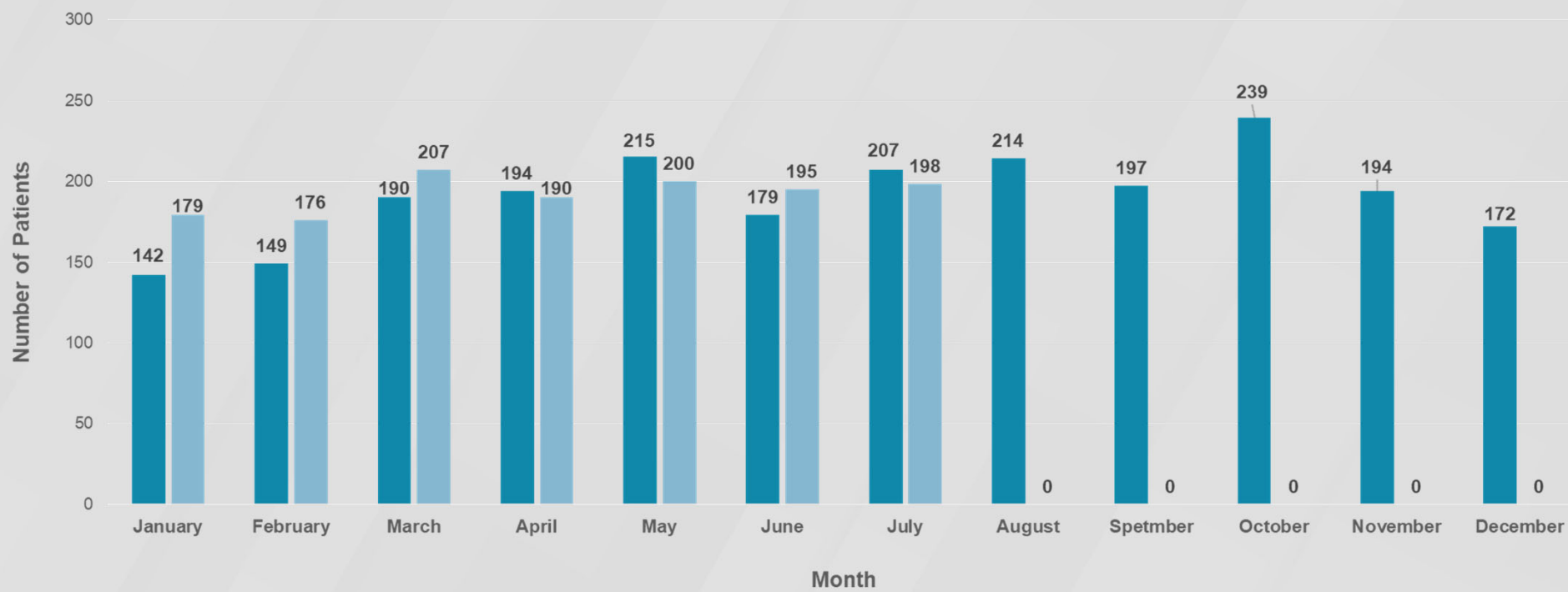


## # of Admits 2017-2018



### Trauma Patient Census: 2021 vs. January – July 2022

■ 2021 ■ 2022



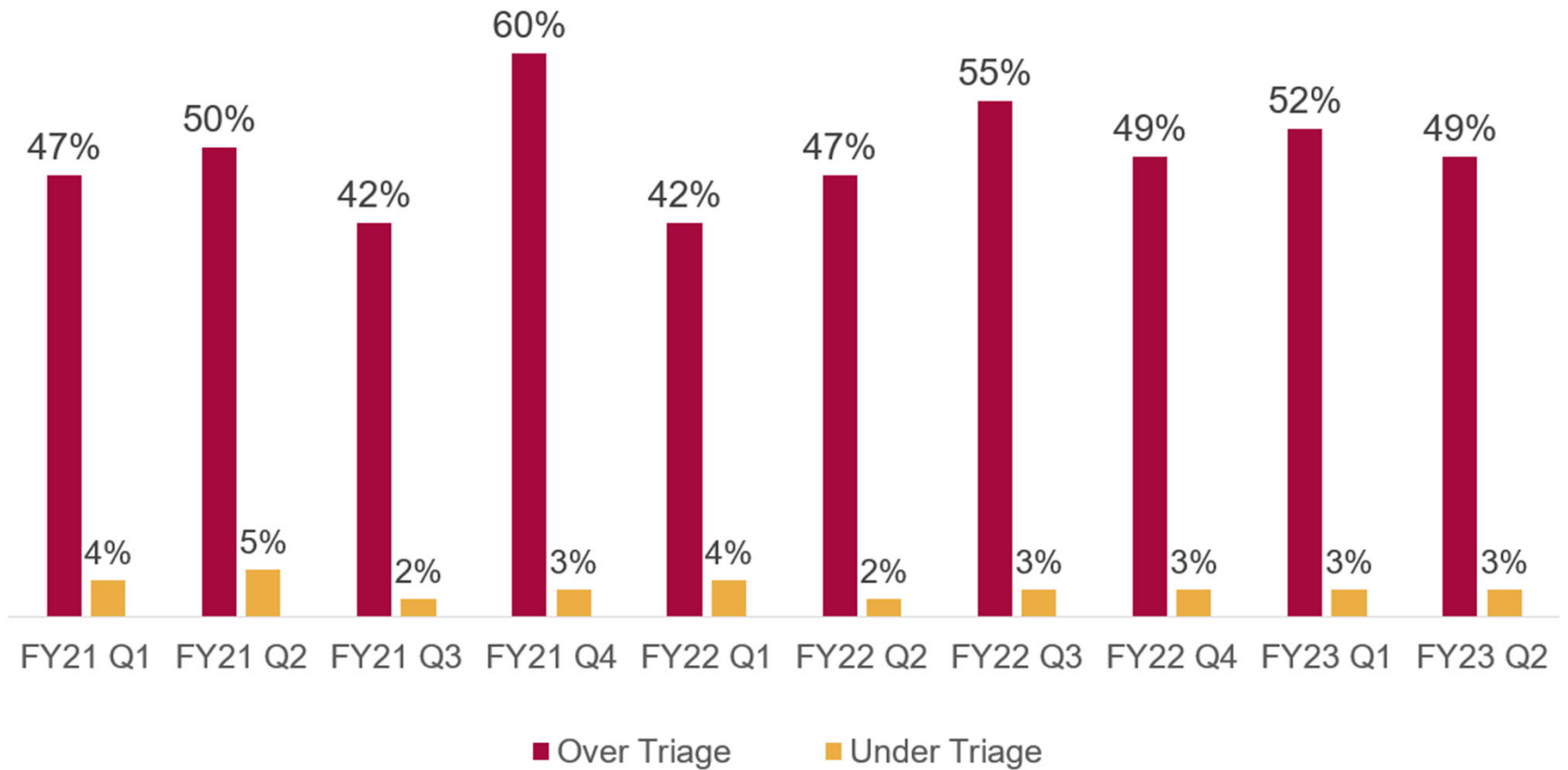
N 2021 = 2292  
N 2022 = 1345 (Through July)  
(Totals include all trauma patient encounters)

# Matrix Method for Under/Overtriage

<b>Year</b>				
<b>Under/Overtriage MATRIX</b>				
<b>CRITERIA MET</b>	<b>NOT MAJOR TRAUMA (ISS &lt; 15)</b>	<b>MAJOR TRAUMA (ISS &gt; 15)</b>	<b>TOTAL</b>	
<b>HIGHEST LEVEL TTA</b>	<b>262</b>	<b>183</b>	<b>445</b>	<b>OVER TRIAGE 59%</b>
<b>MIDLEVEL TTA</b>	<b>245</b>	<b>60</b>	<b>305</b>	<b>UNDER TRIAGE 13%</b>
<b>NO TTA</b>	<b>782</b>	<b>96</b>	<b>878</b>	

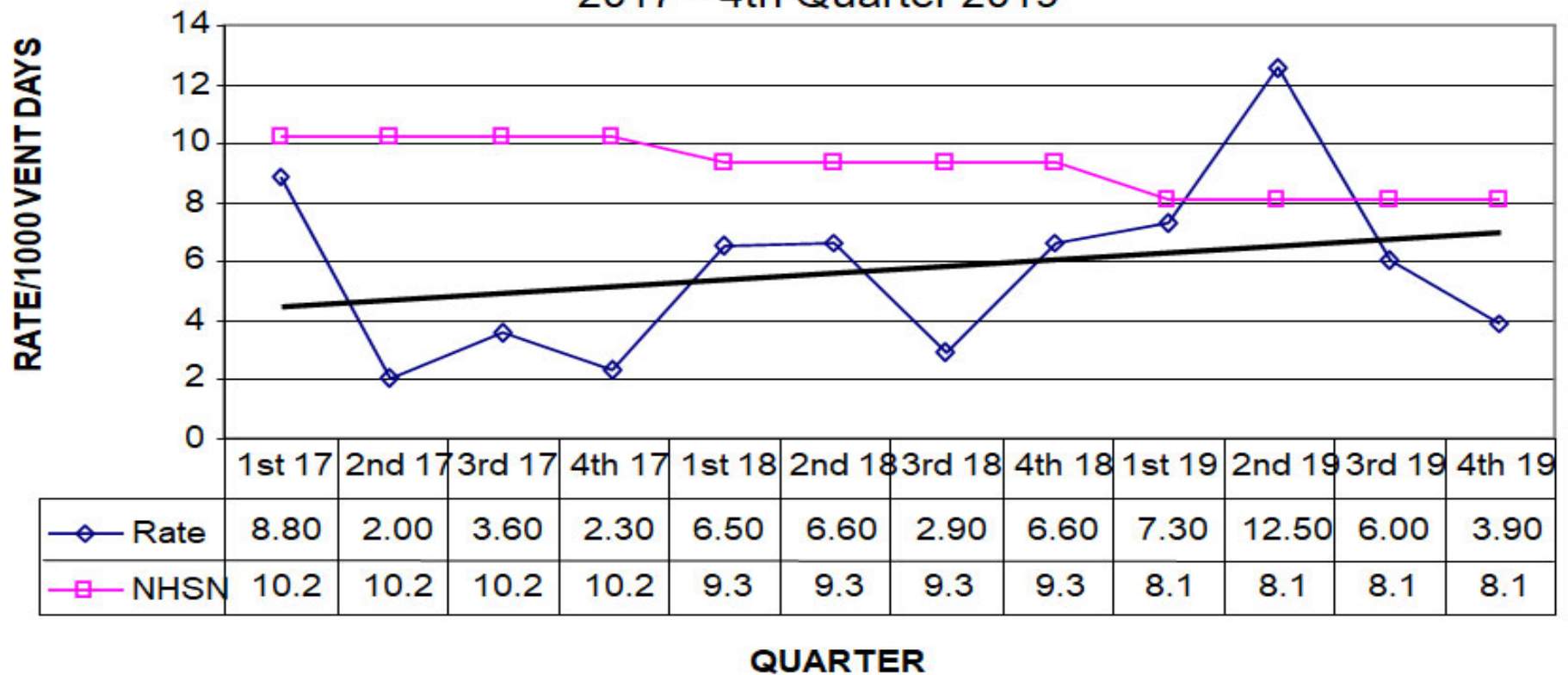
## Retrospective NFTI Triage Review

### Under/Over Triage by Quarter



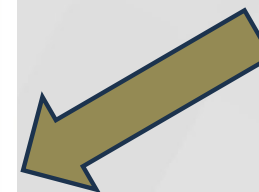
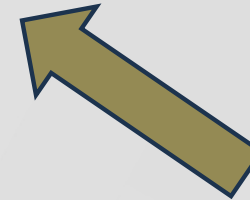
# Line Graphs

ICU VENTILATOR ASSOCIATED PNEUMONIA RATE  
2017 - 4th Quarter 2019



# Comprehensive Stroke Center

Performance Indicator	Benchmark	Oct-Dec 21 FY22 Q2	Jan 22 F22 Q3	Feb 22 F22 Q3	Mar 22 F22 Q3	Apr 22 F22 Q4	May 22 F22 Q4	Jun 22 F22 Q4	Jul 22 F23 Q1	Aug 22 F23 Q1	Sep 22 F23 Q1	Oct 22 F23 Q2	Nov 22 F23 Q2
# Ischemic Strokes		174	60	66	71	63	64	76	63	45	73	65	69
# Hemorrhagic Strokes		42	23	18	12	15	22	12	6	13	11	15	17
# TIAs		51	8	12	12	9	15	14	21	13	7	8	13
# Other/Stroke Unspecified		5	24	22	27	24	27	15	32	24	9	1	2
<b>TOTAL</b>		<b>272</b>	<b>115</b>	<b>118</b>	<b>122</b>	<b>111</b>	<b>128</b>	<b>117</b>	<b>122</b>	<b>95</b>	<b>100</b>	<b>89</b>	<b>101</b>
# Patients Presented < 3 hours		48	10	14	17	11	20	17	14	8	10	14	14
# Patients Presented > 3 < 6 hours		15	6	2	0	3	7	8	3	7	3	0	7
<b>Stroke Core Measures</b>													
DVT Prophylaxis within 48 hours	85%	99%	100%	98%	100%	100%	98%	100%	100%	97%	98%	100%	100%
Discharged on Antithrombotics	85%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Patients with Atrial Fibrillation Discharged Anticoagulation Therapy	85%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Arrive at Hospital within 2 hours and tPA administered within 3 hours	85%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Antithrombotic Medication by hospital day 2	85%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
% of patients with LDL >70 who are discharged on statin	85%	98%	100%	100%	100%	100%	97%	100%	100%	100%	100%	100%	100%
Screen for Dysphagia	85%	93%	91%	85%	93%	92%	96%	88%	88%	87%	85%	88%	86%
Stroke Education-5 items	85%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Plan for Rehabilitation was Considered	85%	100%	100%	100%	100%	100%	98%	97%	100%	100%	100%	100%	100%
<b>Internal Tracking</b>													
Percentage of Time from Order to Imaging Scan Read w/in 45 minutes	85%	92%	95%	91%	93%	94%	97%	97%	97%	97%	96%	93%	96%
Percentage of Time from Order to Lab Results Reported w/in 45 minutes	85%	90%	92%	86%	89%	91%	94%	95%	97%	95%	93%	92%	90%
Percentage of Time from Order to EKG Results Reported w/in 45 minutes	85%	88%	89%	82%	96%	81%	88%	83%	94%	94%	83%	88%	90%



Dashboards, such as the one on the left, are excellent for *internal* use.

## ED Geriatrics Dashboard

	FY21 Avg	FY22 Avg	FY23 Avg	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023
<b>Geriatric Census</b>	2152	2431	2498	2519	2557	2394	2491	2476	2544	2506
<b>Rate of Geriatric Admission</b>	66.5%	59.4%	55.2%	55%	56%	57%	54%	56%	56%	53%
<b>Rate of geriatric ED revisits within 30 days</b>	54%	44%	42%	43%	47%	45%	39%	42%	41%	41%
<b>Rate of geriatric ED revisits within 14 days</b>	29%	26%	25%	25%	28%	28%	25%	23%	23%	24%
<b>FALLS/SYNCOPE</b>										
<b>Fall/Syncope Cases</b>	341	366	370	364	353	339	373	391	400	369
<b>Rate of Fall-Risk Assessment for Fall/Syncope Cases</b>	1%	6%	3%	4%	3%	3%	4%	4%	3%	2%
<b>URINARY CATHETERS (NOT INCLUDING STRAIGHT CATHETERS)</b>										
<b>Total Urinary Catheter Orders</b>	86	91	104	80	104	95	88	113	130	115
<b>Rate of Urinary Catheter Orders</b>	4.0%	3.8%	4.1%	3.2%	4.1%	4.0%	3.5%	4.6%	5.1%	4.6%
<b>MEDICINE MANAGEMENT</b>										
<b>Medication History Reviews Completed</b>	918	675	697	615	746	754	713	607	686	761
<b>Rate of Discharge Encounters with Completed Medication History Review</b>	1%	1%	2%	2%	1%	2%	2%	1%	2%	2%
<b>Rate of Admit Encounters with Completed Medication History Review</b>	64%	69%	72%	69%	73%	73%	75%	70%	71%	76%
<b>High-Risk Medications Noted in Encounter</b>	233	298	283	342	197	120	233	351	352	386
<b>DELIRIUM</b>										
<b>Delirium Diagnoses</b>	107	109	115	110	114	101	118	110	130	124
<b>Rate of Encounters Receiving bCAM Screening</b>	-	33%	46%	61%	62%	62%	63%	56%	57%	55%
<b>DEMENTIA/COGNITIVE DECLINE</b>										
<b>Dementia/Cognitive Decline Diagnoses</b>	32	52	46	48	49	44	47	58	45	32
<b>GENE INTERVENTION</b>										
<b>Geriatric Encounters Including Visit with GENE Nurse</b>	-	73	77	81	70	83	77	81	81	69
<b>Rate of Discharge Encounters Including Visit with GENE Nurse</b>	-	78%	89%	78%	91%	93%	97%	88%	82%	97%
<b>Admissions Avoided with GENE Nurse's Assistance</b>	-	12	7	3	8	3	9	8	8	12
<b>GERIATRIC CARE COORDINATION</b>										
<b>Patients Referred to GCC</b>	-	206	189	186	200	180	221	192	232	NA
<b>Total Successful Resource Connections by GCC</b>	-	64	57	60	59	51	52	54	61	NA
<b>TLC</b>										

# Trauma Patients Readmitted within 30 Days of Discharge

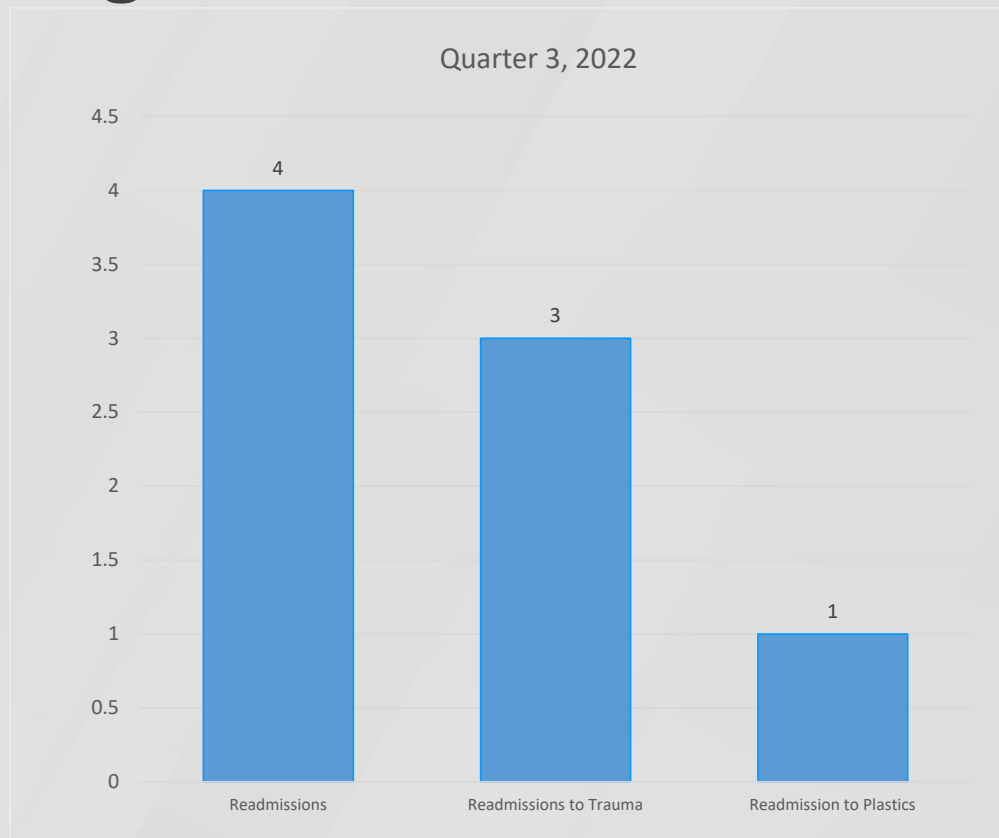
## Conclusions:

4/389 (1%) trauma patient were readmitted within 30 days of discharge during the 3rd quarter of 2022

- 4/4 patients were readmitted to the floor
  - 1/4 – readmitted to Trauma 1-day post-AMA for swallow study, trach recannulation; case reviewed in QI Committee re: capacity prior to AMA and education provided by Psych Chair: **Potentially Preventable**
  - 1/4 - readmitted to Trauma for wound infection and skin grafting s/p laceration repair: education provided in committee re: earlier involvement of hand in complex lacerations: **Potentially Preventable**
  - 1/4 – readmitted to Plastics for skin necrosis: 2<sup>nd</sup> level review determined standard of care was followed: **Not Preventable**
  - 1/4 - readmitted to Trauma for pain control; education in committee re: optimization of pain control prior to discharge: **Potentially Preventable**

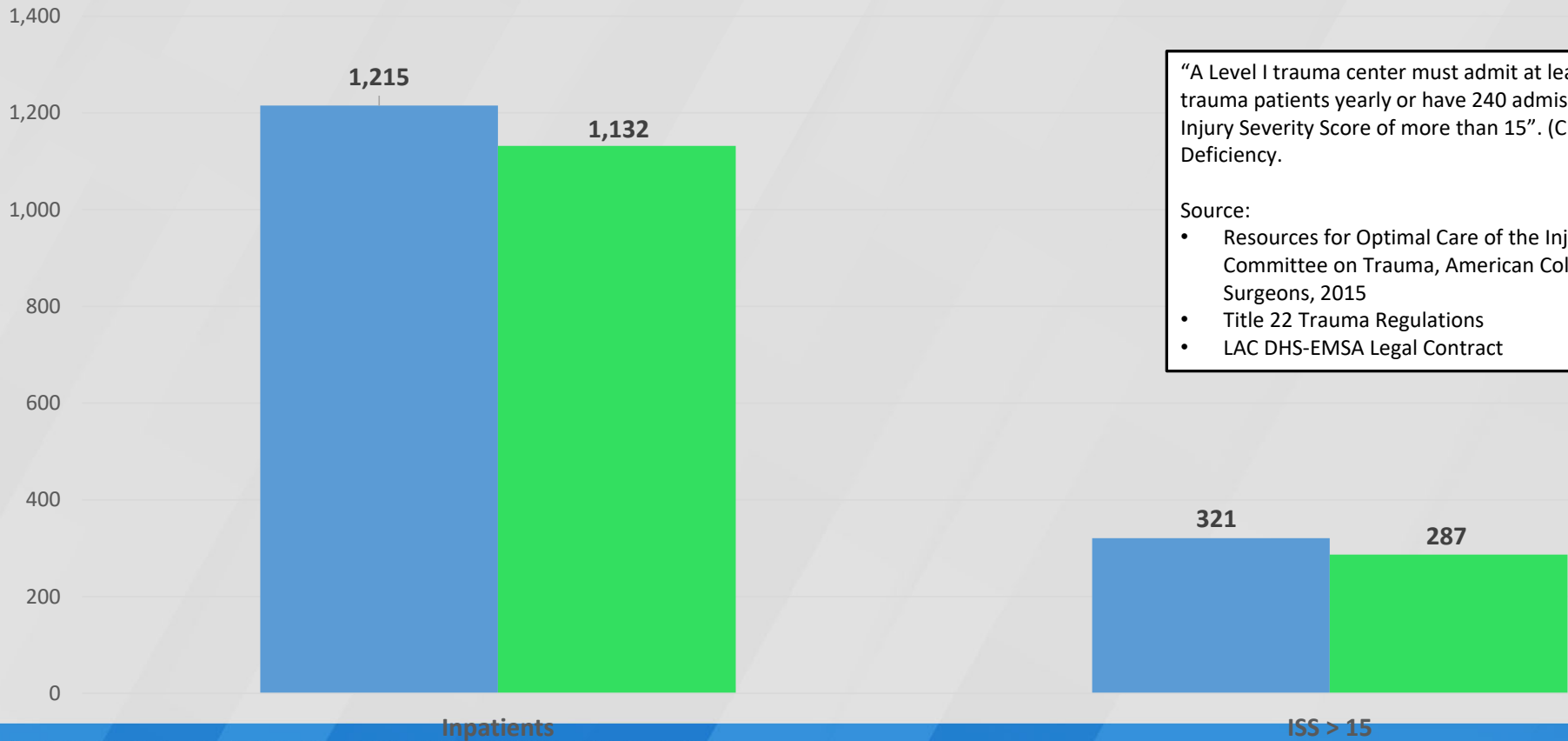
## Recommendations / Action Plan:

- Continue to monitor all trauma patients readmitted to CSMC within 30 days of discharge



## Total Trauma Inpatients With an ISS Greater Than 15 January – December: 2022 vs. 2023

■ 2022 ■ 2023



“A Level I trauma center must admit at least 1,200 trauma patients yearly or have 240 admissions with an Injury Severity Score of more than 15”. (CD 2–4) Type I Deficiency.

Source:

- Resources for Optimal Care of the Injured Patient, Committee on Trauma, American College of Surgeons, 2015
- Title 22 Trauma Regulations
- LAC DHS-EMSA Legal Contract

Inpatients

ISS > 15

## Alcohol Screening and Intervention

81%

AUDIT-C Compliance

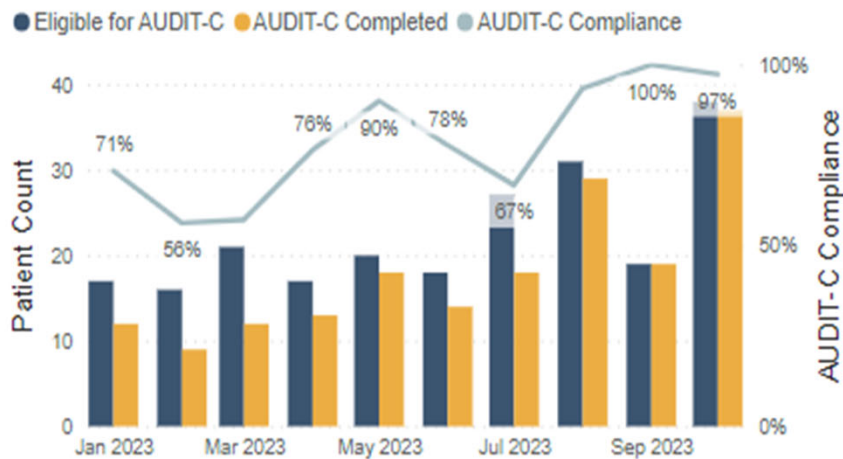
181

AUDIT-C Completed

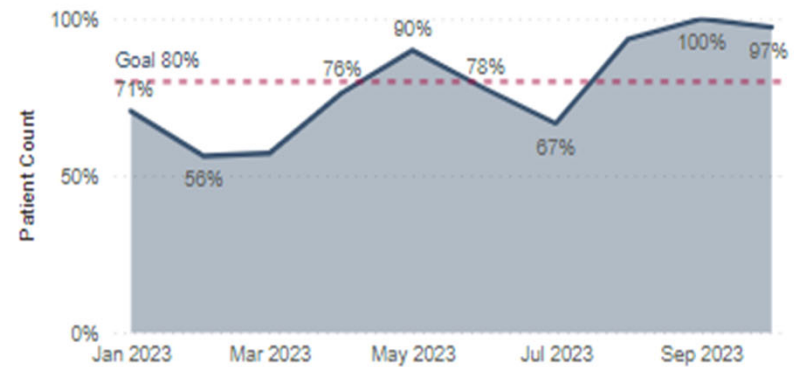
224

Eligible for AUDIT-C

Audit-C Compliance



Audit-C Compliance



181  
AUDIT-C Completed

14  
AUDIT-C Positive

## Rolling 12 Months Audit C Completion Rates

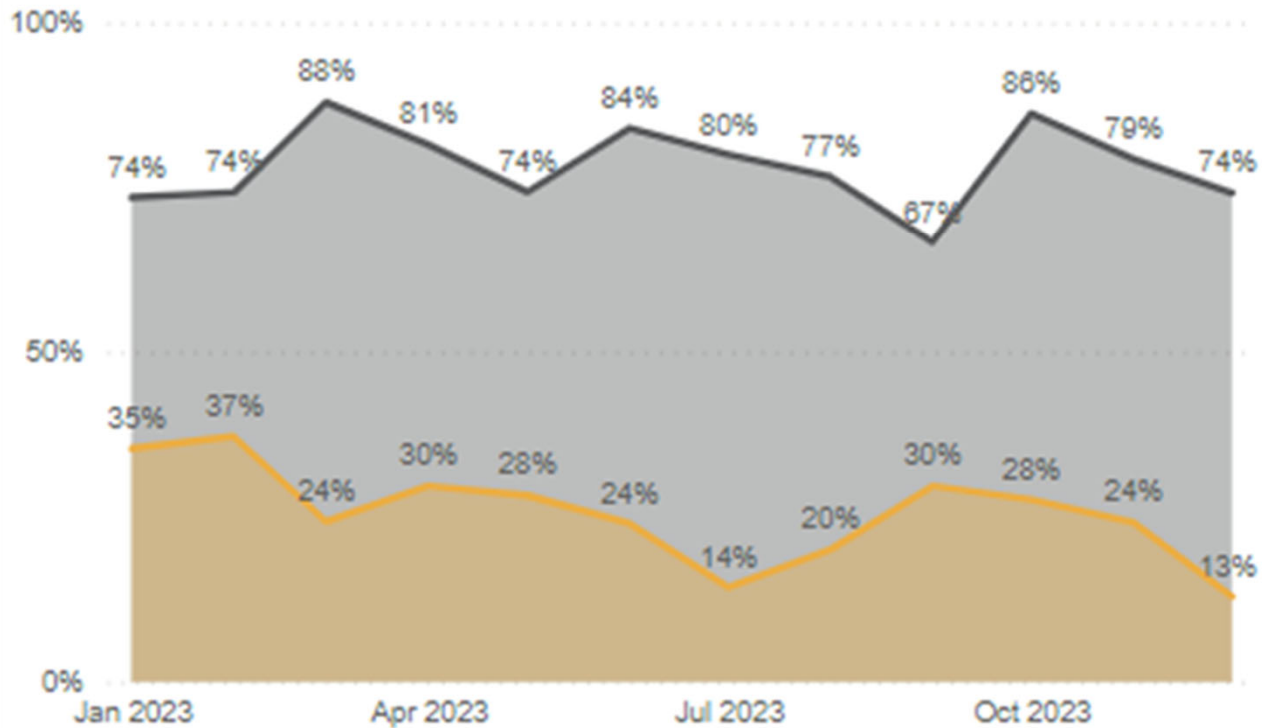


869  
Geriatric Patients

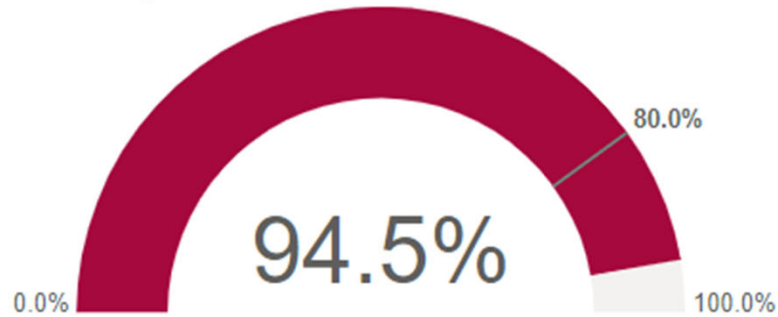
53%  
% Geriatric Patients

### % Geriatric Non-Surgical Admissions

● % NSA due to SLF ● % NSA with Isolated Hip Fx

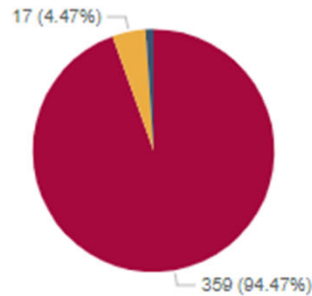


### % Trauma Surgeon FTTA Present < 15 minutes



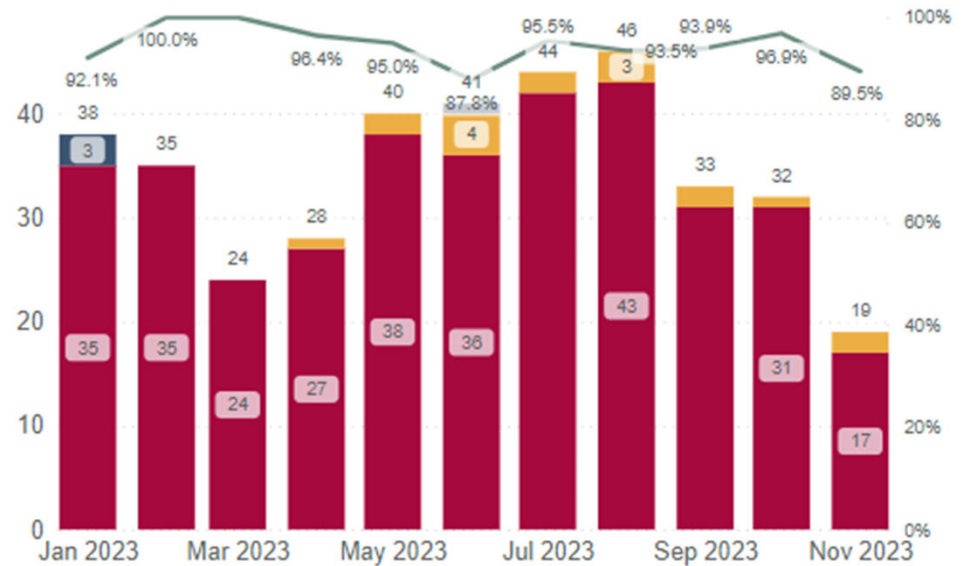
### TS FTTA Arrival Times

● TS Arrival < 15 min ● TS Arrival > 15 min ● TS Arrival Not Documented



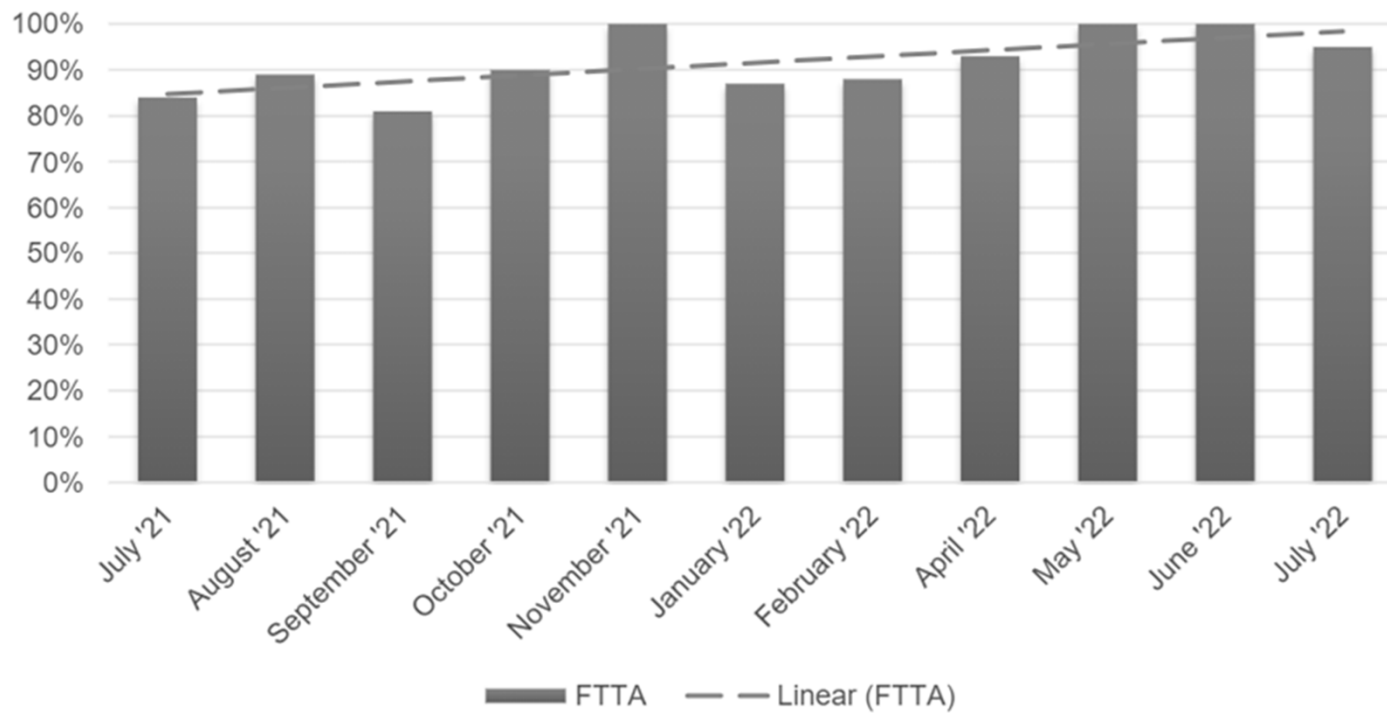
### TS FTTA Response Times

● TS Arrival < 15 min ● TS Arrival > 15 min ● TS Arrival Not Documented ● TS Response Compliance

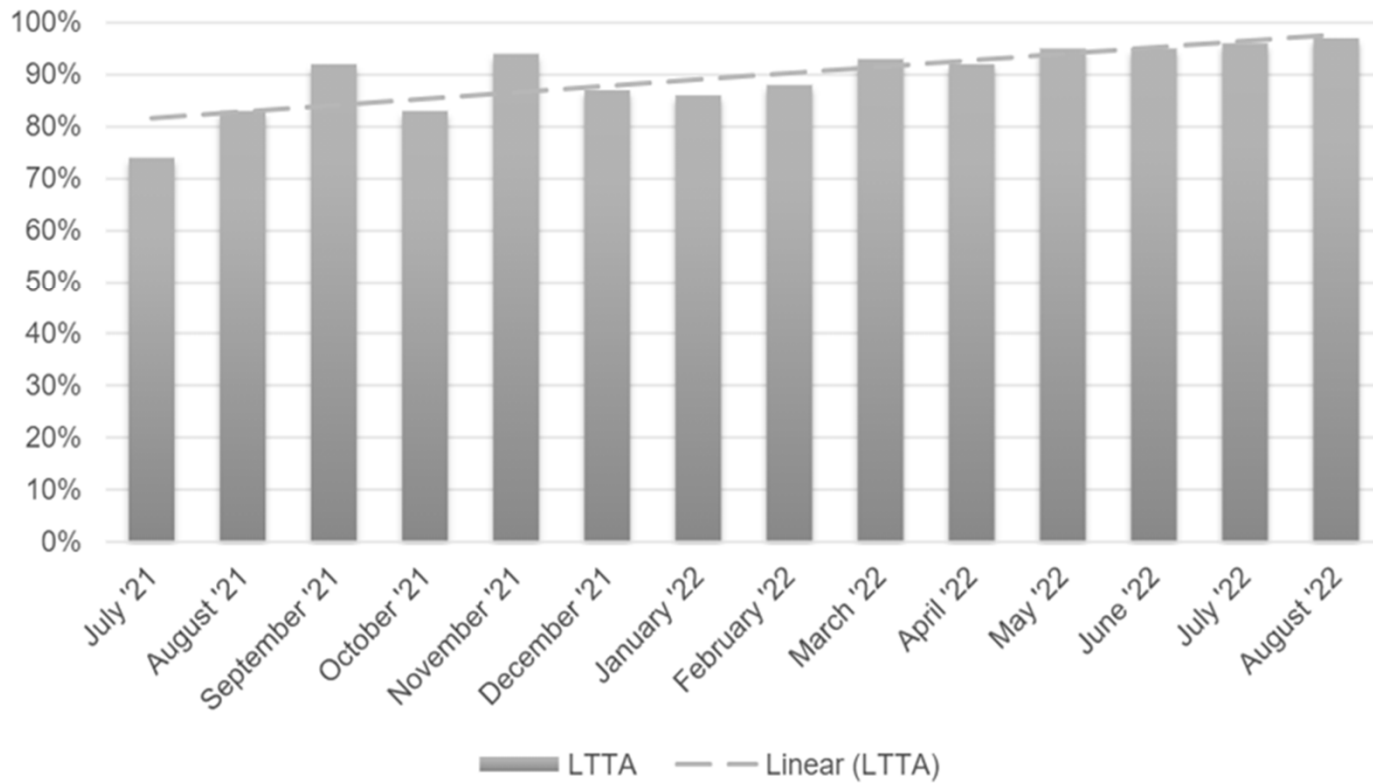


**303** TS Arrival PTA      **17** TS Arrival > 15 min      **4** Not Documented      **95.6%** TS Response PTA

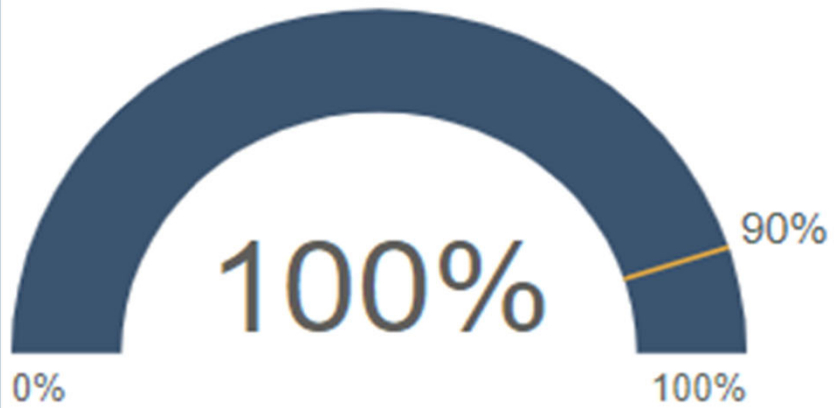
## Full Trauma Documentation Audit Completion Rate July 2021-August 2022



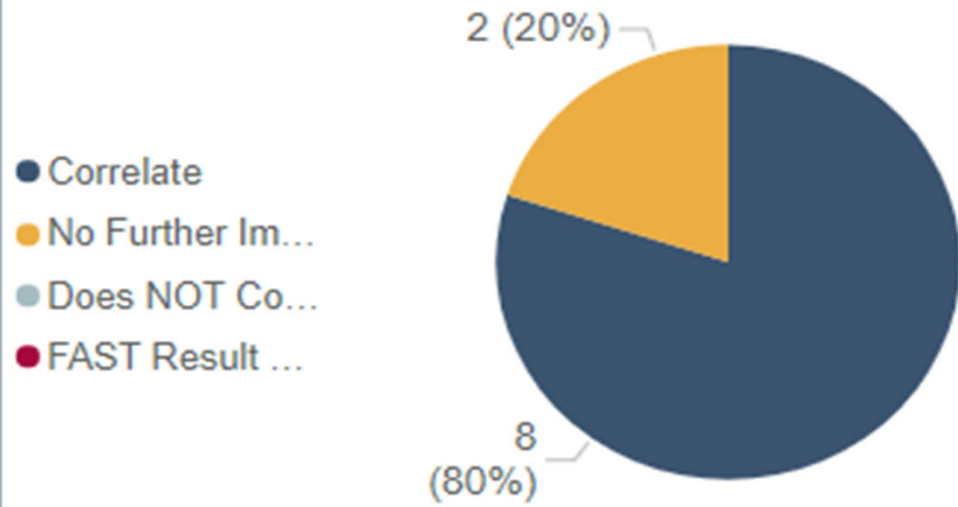
## Limited Trauma Documentation Audit Completion Rate July 2021-August 2022



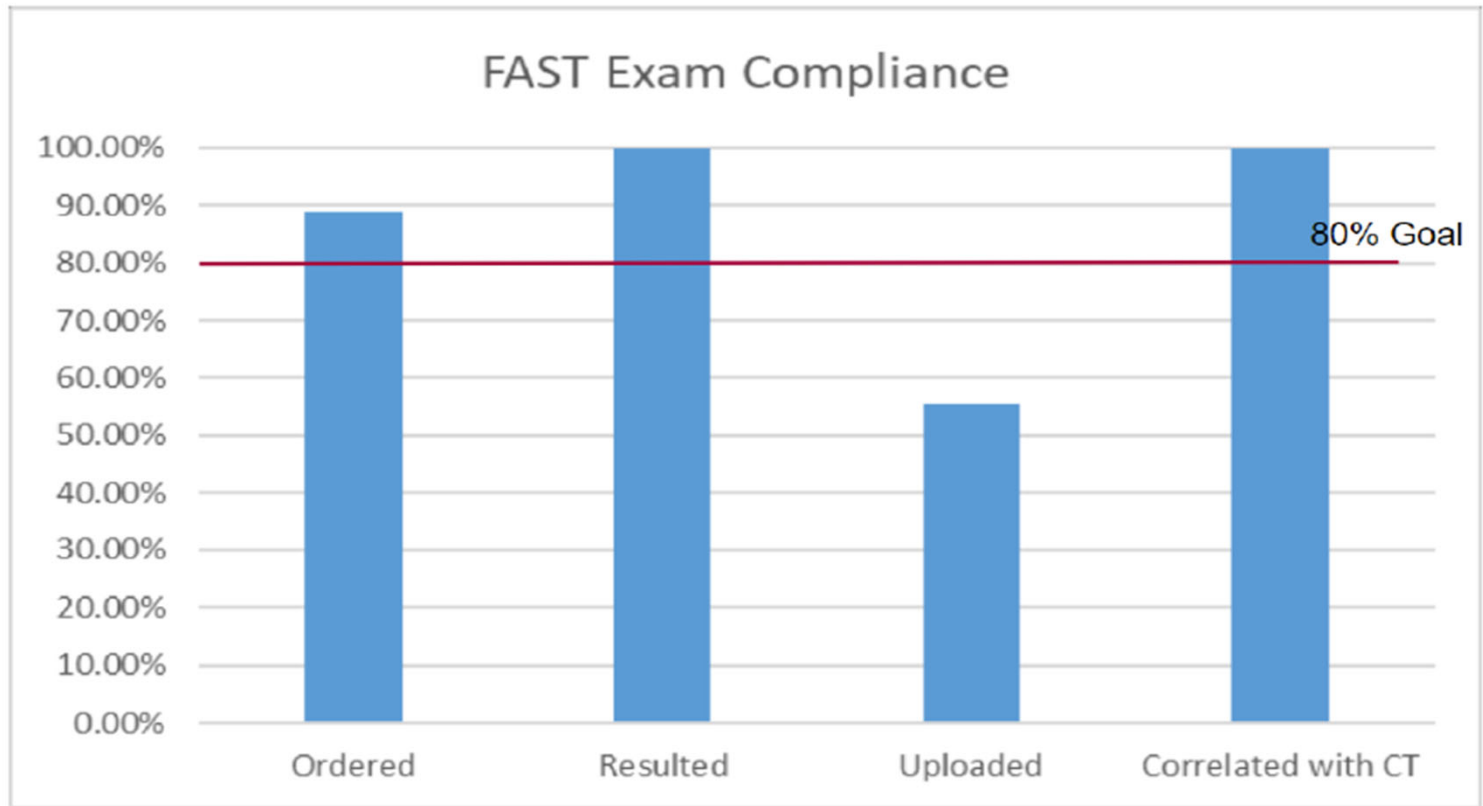
### FAST Correlation Goal



### FAST Correlation



## FAST Compliance Jan - Dec 2023



**TRAUMA STATS:**

**1,400** trauma, burn and emergency general surgeries performed

**6,000** trauma patients cared for at MetroHealth

An additional 1,000 trauma patients were operated on by other specialties:

- Orthopedics
- Neurosurgery
- Vascular
- General Surgery
- Plastic Surgery
- Urology
- ENT
- Ophthalmology
- Oral Surgery

**70%** of our trauma activations discharged home

**4,000** trauma patients cared for through our partnerships

**MetroHealth Trauma and Burn Geographical Reach in Ohio**



 EMS partnerships continued excellent transport and care of our patients

**75%** of patients were brought direct from scene

**25%** of patients were transferred from other facilities

**Most Common Injuries for Trauma Activations**

<b>42%</b>	<b>22%</b>	<b>8%</b>	<b>3%</b>	<b>3%</b>
Falls	Motor Vehicle Accidents	Gun Shot Wounds	Motorcycle Accidents	Burns

(MetroHealth, 2021)

## 2021-22 YEAR IN REVIEW AUSTRALIA

### DEMOGRAPHICS

**9,102** severely injured



**34%**  
occurred on the  
WEEKEND

median  
**AGE 52**

**73%**  
MALE

### CAUSE OF INJURY

**4.0%**  
penetrating  
trauma  
<1% BURNS

**44.9%** TRANSPORT  
RELATED

**94.2%**  
BLUNT  
trauma

**38.6%**  
FALLS

### PLACE OF INJURY

**43.1%** streets &  
highways

**31.8%** home

### PRE-HOSPITAL



**69.5%** direct  
from scene  
to definitive  
HOSPITAL



Median time  
from injury  
to definitive care  
**1hr 36mins**

### HOSPITAL



Median time  
spent in ED  
**4hrs 42mins**

**MEDIAN**  
length  
of stay  
**7 days**



**32.3%**  
admitted  
to ICU

median ICU  
length of stay  
**4.0 DAYS**



### OUTCOMES



**9.4%**  
in-hospital  
deaths

**57.8%**  
of deaths  
aged 70+

**9.6%** of deaths  
OCCURRED IN ED



**65.2%** discharged home



**16.6%** to rehabilitation

(Australia New Zealand Trauma Registry, 2022)

## Summary of Trauma Statistics 2018-2022

**5,611**

Number of Trauma Patients

**1,028**

Number of Trauma In-Patients

**80.58%**

Blunt Injury

**60.44%**

Male

**22.05%**

Age 25-34 is a major group

**32.54%**

Fall is the highest cause of injury

**35.27%**

The top number of inpatients is the Orthopedic

**74.22%**

Most of trauma severity is ISS 0-9

**0.68%**

In-Patient Mortality

**99.32%**

Discharge and transfer to home country

(Royal Phnom  
Penh Hospital,  
2024)

# Benchmarks and Measurements: Outcome Data

- Functional status on discharge (FIM Scores)
- Results of patient satisfaction surveys
- Complication rates
- Compliance with practice management guidelines
- Mortality and morbidity
- Severity-adjusted mortality and morbidity
- Unplanned return to OR
- Unplanned upgrade to an intensive care unit
- Unplanned hospital readmission
- Surgical wound infections
- Organ donation activity

# Risk Adjusted Benchmarking

- Required at Level I, II, and III centers verified by ACS
- Methodology for risk adjusted performance and benchmarking
- Goals
  - Develop data elements to measure processes of care
  - Standardize care management via trauma centers nationally
  - Uniform defined audit filters and universally accepted data definitions
  - On-line education available

# Summary

- Plan carefully when creating a report
- Understand your target audience
- Ensure your data is accurate
- Use clear labeling and appropriate types of graphs to display the data
- Practice presenting the reports

# Pre-Course Module 3

## Best Practice: Trauma PIPS Classification



# Objectives

1

Review trauma PIPS classification systems

2

Explore the benefit of using the classification system in PIPS

3

Discuss how Trauma PI Classification Systems can advance your trauma PIPS plan

## Jorie Klein, MSN, MHA, BSN, RN

“A written trauma performance improvement plan has the opportunity to integrate multidisciplinary stakeholders of all levels into a formalized mechanism that evaluates and monitors all phases of trauma care from the prehospital setting to the trauma center through to discharge to create a continuous learning environment designed to improve care and outcomes.” Jorie Klein



# The Evolution of “Trauma Taxonomy”

Trauma  
taxonomy

Trauma event  
classification

Goal:  
A national  
standardized  
nomenclature  
for trauma PI  
event  
classification

# Where Did the Concept of “Taxonomy” Come From?



The Joint Commission, Division of Research developed a common terminology and classification schema to:

1. Promote consistency in reporting
2. Facilitate root cause analysis



The National Quality Forum endorsed this taxonomy.

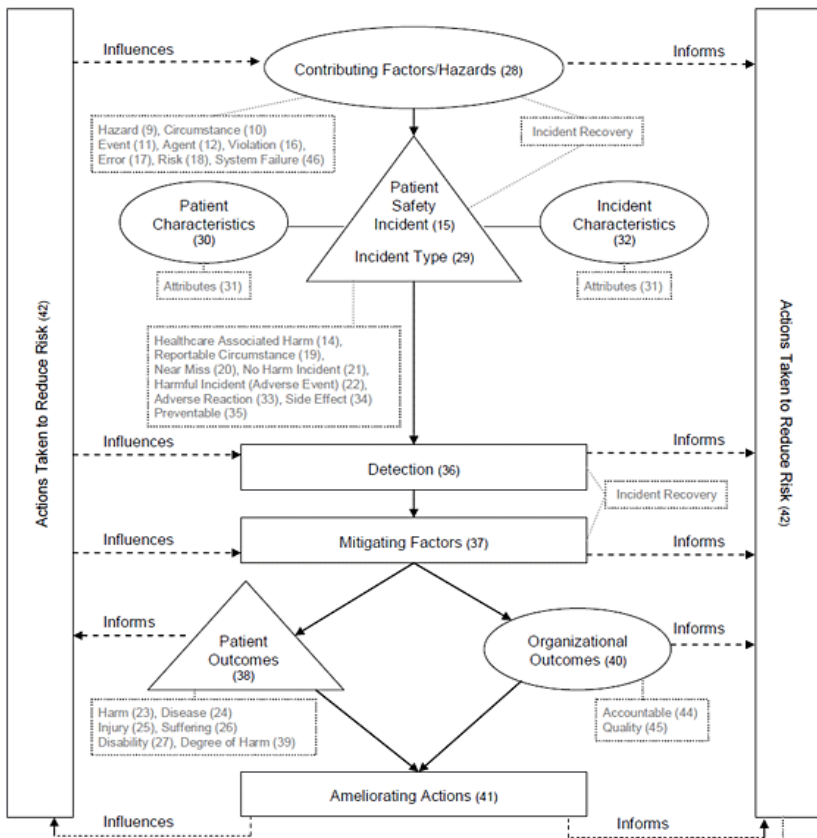
(Ivatury, et al., 2008)

### Conceptual Framework for the International Classification for Patient Safety

Classification (1), Concept (2)  
Class (3), Semantic Relationship (4)

Patient (5), Healthcare (6)  
Health (7)

Safety (8)  
Patient Safety (13)



- System Resilience (Proactive & Reactive Risk Assessment)
- Clinically meaningful, recognizable categories for incident identification & retrieval
- Descriptive information
- Relevant key concepts with preferred terms

# Conceptual Framework for the International Classification for Patient Safety

# Utilizing Trauma PIPS Classification System



**Trauma PI classification processes lead to best practice models**



**Currently, a national data dictionary for trauma PI classification is not available**



**Models of trauma systems and centers have successfully integrated PI classification processes**



**Advantages of utilizing a trauma PI classification process**

- Promotes optimal tracking, monitoring, reporting
- Creates common terminology
- Assists in prioritizing and defining the urgency of PI

# 5 Categories of the Classification

**Impact:** *outcome or effect of the event (level of harm)*

**Type:** *processes that led to the event*

**Domain:** *the location and time of the incident (event/issue)*

**Cause – factors:** *system & human factors leading to the event*

**Prevention or mitigation:** *corrective action plan*

# Subcategories

- Each category has subcategories
- This enables more accurate classification of the PI events
- Some classification models have an extraordinarily large number of categories
- Start simple
  - Keep it clear
  - Ensure adherence to definitions
  - Ensure process is electronic (in the trauma registry)
  - Promotes consistency and more accurate PIPS reporting

# **Event Impact: What is the Impact or Level of Harm?**

**EVENT = IMPACT to PATIENT**

Consideration of Reoccurrence to Patients

**URGENCY**

# Near Miss

# Levels of Harm

---

**No Harm** – Standard of care provided with some deviations with no impact to the patient.

---

**No Detectable Harm** – Event occurred but did not reach or impact patient; no treatment necessary.

---

**Minimal Harm** – Impact to patient, is **symptomatic, symptoms are mild, loss of function is minimal or intermediate** but short term, and **no or *minimal intervention necessary*** (extra observation, investigation review, minor treatment) is required.

# Levels of Harm

---

**Moderate Harm** – Patient is **symptomatic, requiring an intervention (e.g. operative intervention, therapeutic treatment)**, and increase in the length of stay, or **causing long term loss of function; requires higher level of care**; expected to resolve prior to discharge

---

**Severe Harm** – Patient is symptomatic, requiring ***life-saving intervention*** or major **surgical/medical critical care intervention**, shortening life expectancy or causing major permanent or long-term harm or loss of function; error in judgment, deviation from practice, system delays; impact quality of care; quality of life

---

**Death** – death was caused or brought forward by the event

# Levels of Harm Aligned with Level of Review

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
Moderate Harm	Patient outcome symptomatic requiring intervention (i.e. operative, therapeutic treatment)	Tertiary Review in conjunction with hospital quality
Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm	No symptoms detected; no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Event Type



**COMMUNICATION**



**PATIENT MANAGEMENT  
(COORDINATION OF  
CARE)**



**CLINICAL MANAGEMENT  
(CLINICAL DECISIONS OR  
PERFORMANCE)**

# Type of Event: Examples

## Communication

- Inaccurate or incomplete information
- Incomplete interpretation of a result
- Missing documentation
- Hand-off

## Patient management

- Delegation
- Follow-up
- Referral or consultation
- Utilization of resources
- Delayed system response
- Excellent response

## Clinical management

- Correct, timely procedure
- Wrong procedure
- Untimely procedure
- Sequencing of interventions
- Protocols not followed
- Management guidelines not followed
- Post interventions
- Follow through
- Excellent care

# Domain: Where, When, Who

## Where

- Prehospital
- Transfer
- Hospital unit
- Hospital follow-up

## When or Period-in-Time

- Weekday
- Weekend

## Who

- Medical Staff
- Nursing
- Ancillary
- Prehospital / Transfer
- Other

# Examples of Domain

## Setting

- Prehospital
- Initial facility
- Transfer process
- Trauma center
- Post hospital

## Patient population

- Less than 15 years of age
- Greater than 65 years of age
- Anticoagulation therapy
- Transferred in
- Transferred out
- Preexisting disease

## Period

- Weekday
- Weekend
- Holiday
- Mass gathering

## Staff

- Physician
- Nursing
- Technician
- Therapist
- Students
- Out of hospital

# Factors Leading to Event (Contributing Factors)

Structure and processes

System response

Human factors

- Provider
- Staff
- Patient

# Examples of Factors Leading to Event

## Structure / Process

- Resource management
- Organizational culture
- System response
- Registration issues
- IT continuity
- Equipment availability / failure
- Facility interruption
- Medication management

## Staff / Provider

- Technique
- Priority setting, sequencing of care
- Judgment
- Failure to escalate chain of command
- Protocol or guideline compliance
- Regulatory compliance
- Credentialling
- Behavior
- Other

# Examples of Factors Leading to Event

## Patient

- Uncooperative or noncompliant
- AMA
- Left without being seen (LWBS)
- Left before treatment completed (LBTC)
- Injury severity
- Injury sequela
- Pre-existing disease
- Abuse history
- Other

# Prevention or Mitigation (Action Plan)

- Prevent reoccurrences
- Decrease the impact to the patient
- Improve safety precautions
- Improve continuum of care or continuity of care
- Referrals
- Selected initiatives

# Example Case

72-year-old arrives hypotensive, signs of class III shock, GCS 11, pelvic fracture, femur fracture, suspected abdominal injuries. Trauma surgeon request two unit of PRBCs STAT, and INR. Blood transfusion is initiated 45 minutes after the order.

SECONDARY LEVEL OF REVIEW:

EVENT IDENTIFIED:

LEVEL OF HARM CONFIRMED: None; None Detected; Minimal; Moderate; Severe; Death

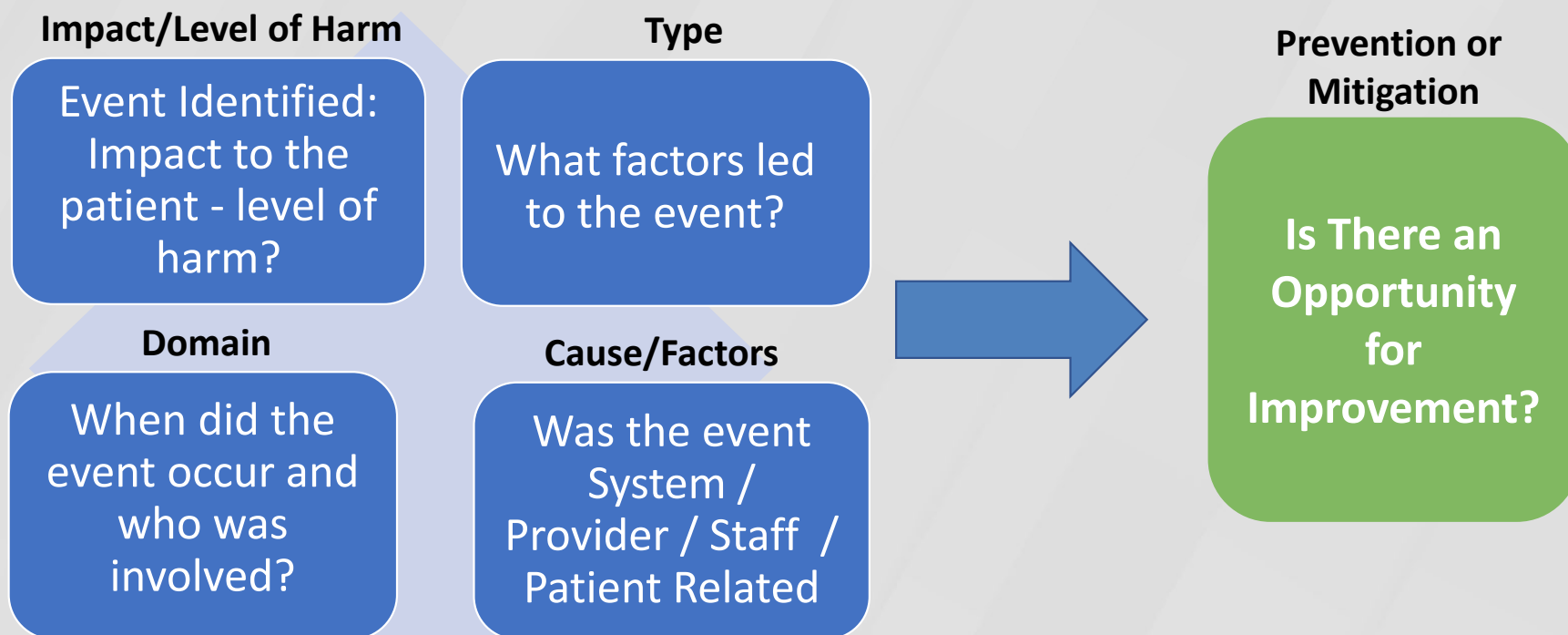
TYPE: Communication Patient Management Clinical Management

DOMAIN: Where \_\_\_\_\_ When \_\_\_\_\_ Who \_\_\_\_\_

System Related Event	Provider Related
Patient Related	Staff Related

SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT

# Processes of PI Review



# Principles



**Each event or measure must have a definition**



## **Example:**

### **Event: Appropriateness of Prehospital Triage (9004)**

Trauma patient taken to non-trauma center initially from scene or not made appropriate level prior to arrival given prehospital history.

### **Event: Appropriateness of ESD Triage (9005)**

Inappropriate level of activation by RN or physician based on current trauma activation criteria.

### **Event: Out of RAC Scene (9006)**

Incident scene outside of the North Central Texas Trauma Regional Advisory Council (NCTTRAC) coverage area.

### **Event: Out of RAC Transfer (9007)**

Transfer in from outside NCTTRAC coverage area.

# Event Classification in Action - Registry

	Issue	Type	Factors	Harm	Action Taken	Action Item Status
1	MISTRIAGE	COMMUNICA	NA	MINIMAL	COMM.PI,EDU	0
2	AKI	DEPARTMEI				

(From Patterns, REVIEW\_IMPACT)

Option	Description
NONE	No detectable harm
MINIMAL	Minimal harm
MODERATE	Moderate harm
SEVERE	Severe harm
DEATH	Death
B	Blank
NOT	Not Done
NA	Not Applicable
UNK	Unknown

## Impact / Level of Harm

Classification fields **should rarely be blank, not done, NA, or unknown.**

Exception examples – event was closed in primary/secondary and secondary/tertiary fields are not needed, or the critique is only used for tracking purposes.

(eg. EMS runsheet requests, autopsy requests, etc)

## Type

	Issue	Type	Factors	Harm	Action Taken
1	MISTRIAGE	COMMUNICA	NA	MINIMAL	COMM.PI,EDU
2	AKI	DEPARTMEI			

Category of Review (From Patterns, REVIEW\_C...

Option	Description
COMMUNICATION	Communication
PATIENT.MGMT	Patient Management
CLINICAL.PERF	Clinical Performance
PATHWAY	Protocol/ guideline/ pathway de
EQUIPMENT	Equipment/Supply failure
B	Blank
NOT	Not Done
NA	Not Applicable
UNK	Unknown

# Event Classification in Action - Registry

	Issue	Location	Review Type	Primary Review Date	Primary
1	MISTRIAGE	ED	TE.REVIEW	10/11/2023	NA
2	AKI		COMM		

(From Patterns, REVIEW\_LOCATION) <NURSING\_STATION>

Code	Description
7N	7 North (Old 7E,7S,7W)
8N	8 North (Old 8E,8S,8W,4W)
AMA	Against Medical Advise
ANGIO	ANGIOGRAPHY
BOARDER_ED	ED Boarder
CATH_LAB	CARDIAC CATH LAB 1H
CCU	Coronary Care ICU
CLINIC	S&W CLINIC
CT	CAT SCAN
CTICU	CardioThoracic Surgical ICU
DAY	DAY SURGERY
<b>ED</b>	<b>EMERGENCY DEPARTMENT</b>
EMS	PREHOSPITAL
EMS2	INTERFACILITY TRANSPORT AGENCY
ENT	ENT CLINIC (INPATIENT CONSULT)
EP	ELECTROPHYSIOLOGY LAB
EP_LAB	EP LAB 1H
FLOOR	Floor
FLOURO	FLOUROSCOPY
GSC_SHORTSTAY	TEH GSC SHORT STAY
HOME	Home
HOS	HOSPICE S&W
ICU	ICU
IR	Interventional Radiology
JAIL	Jail

Buttons: OK, ?, Print, Search, EXIT

## Cause / Factors

	Issue	Type	Factors	Harm	Action Taken	Action Item Status
1	MISTRIAGE	COMMUNICA	PROVIDER	MINIMAL	COMM.PI,EDU	0
2	AKI	DEPARTMEI				

(From Patterns, REVIEW\_FACTORS)

Option	Description
DISEASE	Disease related
SYSTEM	System related
<b>PROVIDER</b>	<b>Provider related</b>
B	Blank
NOT	Not Done
NA	Not Applicable
UNK	Unknown

Buttons: OK, ?, Print, Search, Copy, Paste, EXIT

Classification fields **should rarely be blank, not done, NA, or unknown**.  
 Exception examples – event was closed in primary/secondary and secondary/tertiary fields are not needed, or the critique is only used for tracking purposes.

(eg. EMS runsheet requests, autopsy requests, etc)

Domain

# Event Classification in Action - Registry

## Prevention / Mitigation

	Issue	Type	Factors	Harm	Action Taken	Action Item Status	Secondary Review Date
1	MISTRIAGE	COMMUNICA	PROVIDER	MINIMAL	COMM.PI,EDU	0	10/11/2023
2	AKI	DEPARTMEI					

Review Actions (From Patterns, REVIEW\_ACTION)

Option	Description
COMM.PI	Communication process improvement
DISC	Counseling/Disciplinary
EDU	Education
ENHANCE.RESOURCES	Enhanced resources/ facilities
REF.EXTERNAL	Refer to OSH or EMS
NOTIFY	Notification
NONE	No Action
OTHER	Other
POLICY	Policy/ Guideline/ Pathway
REF.PRIMARY	Refer to Primary
REF.APS.CPS.FORENSICS	Refer to APS/CPS/Forensic
REF.COMMITTEE	Refer to any hospital committee
REF.DEPT	Refer to specific unit/floor or care speciality
REF.MM	Referred to M&M conference
REF.PROVIDER	Refer to Physician/ Provider
REF.QUALITY	Refer to hospital peer review, RCA, etc
REF.REGIONAL	System PI, RAC
REF.SECONDARY	Refer to TMD or designee
REF.TERTIARY	Trauma Peer Review
TPM	Referred to Trauma Program Manager
TREND	Trend
VIDEO	Video Review
B	Blank
NOT	Not Done
NA	Not Applicable

Classification fields **should rarely be blank, not done, NA, or unknown.**

Exception examples – event was closed in primary/secondary and secondary/tertiary fields are not needed, or the critique is only used for tracking purposes. (eg. EMS runsheet requests, autopsy requests, etc)

# Event Classification in Action - Registry

## *PI Classification in the Registry from Start to Finish!*

	Issue	Issue Description	Issue Date	Reviewer	Location	Primary Review Date	Primary Review Description	Primary Reviewer	Type	Factors
1	MISTRIAGE				ED				COMMUNIC PROVIDER	
2	AKI								DEPARTMEI	

	Issue	Harm	Action Taken	Action Item Status	Secondary Review Date	Secondary Review Description	Secondary Reviewer	Determination	Death Determination
1	MISTRIAGE	MINIMAL	COMM.PL.EDU	0 (Open/Closed)	10/11/2023				NA
2	AKI								

	Issue	Tertiary Review Date	Tertiary Review Description	Quaternary Review Date	Quaternary Review Description	Loop Closure	Loop Closure Date
1	MISTRIAGE					Summary	
2	AKI						

Classification fields **should rarely be blank, not done, NA, or unknown**  
 Exception examples – event was closed in primary/secondary and secondary/tertiary fields are not needed, or the critique is only used for tracking purposes.  
 (eg. EMS runsheet requests, autopsy requests, etc)

# Classification of PI Events



## Example Tool

### **Classifications**

- Event / Morbidity / Mortality Without Opportunity for Improvement
- Event / Morbidity / Mortality With Opportunity for Improvement
- Event / Morbidity / Mortality With Regional Opportunity for Improvement
- Unable to Determine

### **Recommendation**

- Standardized process
- Regional, State, National American College of Surgeons
- Standardized tool
- Electronic or fillable form

# Practice 1

69-year-old female is admitted to the floor following a MVC with identified injuries that include a mild TBI, right rib fractures of 4 - 6, and a grade II splenic laceration. At 3 am on HD2, she develops respiratory distress and decompensates. Her BP is 92/72, HR 110, and R 30. The team responds and she is moved to the ICU for continuous monitoring. It is noted that her IS equipment is still in the plastic packaging. IS was ordered on hospital admission every four hours while awake.

What is the event(s)?

What level of harm occurred?

- No harm
- No detectable harm
- Mild harm
- Moderate harm
- Severe harm

What is the Type and Domain

What is the setting, time of day?

What are the contributing factors?

# Practice 1

69-year-old female is admitted to the floor following a MVC with identified Injuries that include a mild TBI, right rib fractures of 4 - 6, and a grade II splenic laceration. At 3 am on HD2, she develops respiratory distress and decompensates. Her BP is 92/72, HR 110, and R 30. The team responds and she is moved to the ICU for continuous monitoring. It is noted that her IS equipment is still in the plastic packaging. IS was ordered on hospital admission every four hours while awake.

## **What is the event?**

Hypotensive, tachypnea, failure to follow physician orders

## **What level of harm occurred?**

Moderate – admitted to higher level of care, no rescue effort

**Type:** Patient Management

**Domain:** Where, When, Who

Night shift, general floor, nursing staff

## **What are the contributing factors?**

Failure to recognize injury impact to geriatric patient; orders not initiated

## Practice 2

A 72-year-old male involved in a MVC is admitted to the floor. His injuries include a stable pelvic fracture, right forearm fracture, and lacerations to the face. His wife was also in the crash, and he continues to try and check on her. He was not cooperative with treatment. On HD2 at 4 am he complains of chest pain and is having difficulty breathing. The trauma team is notified. He requires intubation and is moved to the unit. It is noted his upper torso has petechiae. Review of his care notes that he did not receive the DVT prophylaxis. A CT of the chest the following morning identifies a saddle PE.

What is the event?

What level of harm occurred?

- No harm
- No detectable harm
- Mild harm
- Moderate harm
- Severe harm

What is the Type:

What is the Domain: Where, When, Who

What are the contributing factors?

## Practice 2

A 72-year-old male involved in a MVC is admitted to the floor. His injuries include a stable pelvic fracture, right forearm fracture, and lacerations to the face. His wife was in the crash, and he continues to try and check on her and was not cooperative with treatment. On HD2 at 4 am he states he has chest pain and is having difficulty breathing. The team is notified. He requires intubation and is moved to the unit. It is noted his upper torso has petechiae. Review of his care notes that he did not receive the DVT prophylaxis. A CT the following morning identifies a saddle PE.

### **What is the event?**

Potential PE; failure to follow trauma management guidelines; family communication

### **What level of harm occurred?**

Severe – rescue occurred

**Type:** Communication; Patient Coordination; Clinical Management

**Domain:** General floor, Night shift, ED, Nursing Staff

### **What are the contributing factors?**

Failure to follow trauma management guidelines, failure to recognize injury impact

## Practice 3

A five-year old male is brought in by the father. Father states he ran over the child as he was backing out of the driveway. He did not see him playing behind his pickup. His across the room assessment identifies a listless, pale child. He is moved to the trauma room. His HR is 146. His respirations are shallow. His skin is pale and mottled. Breath sounds are absent on the left and chest has visual tire marks across the chest. He is intubated. The team is unable to place peripheral IVs and thirty minutes into the resuscitation an IO is placed in right tib-fib. The team is unable to find the appropriate chest tube size for the child, and an ETT 9 mm is utilized. The patient is moved to CT scan and the evaluating physician requested transfer.

What events are identified?

What is the level of harm?

- No harm
- No detectable harm
- Mild harm
- Moderate harm
- Severe harm

What is the Type:

What is the Domain: Where, When, Who

What are the contributing factors?

## Practice 3

A five-year old male is brought in by the father. Father states he ran over the child as he was backing out of the driveway. He did not see him playing behind his pickup. His across the room assessment identifies a listless, pale child. He is moved to the trauma room. His HR is 140. His respirations are shallow. His skin is pale and mottled. Breath sounds are absent on the left and chest has a visual tire marks across the chest. He is intubated. The team is unable to place peripheral IVs and thirty minutes into the resuscitation an IO is placed in right tibfib. The team is unable to find the appropriate chest tube size for the child, and an ETT 9 mm is utilized. The patient is moved to CT scan and the evaluating physician requested transfer.

What events are identified?

Resuscitation issues – injury severity, delayed IO placement, failure to have appropriate pediatric equipment (Pediatric Readiness Assessment)

What is the level of harm?

Moderate vs severe

Type: Patient Management; Clinical Management

Domain: Resuscitation, emergency department, day shift, day staff

What are the contributing factors?

System: pediatric trauma training, pediatric equipment, and pediatric readiness

Human Factors: Delayed IO

# What is the URGENCY?

# Urgency

01

## Practice Case 1

- Moderate level of harm – intervention and moved to higher level of care

02

## Practice Case 2

- Severe level of harm - rescue intervention

03

## Practice Case 3

- Moderate level of harm - delayed IO, equipment availability

## Building Trauma PIPS Best Practices

- Implement trauma PIPS plan that aligns with TOPIC principles
- Create a collective understanding of the PIPS process
- Select appropriate and meaningful performance measures
- Utilize ACS and Lead Agency requirements for classifying events
- Utilize PI classification systems built into your trauma registry software
- Definitions are required for **every** classification level
- Evaluate outcomes

# Trauma PIPS Classification System Summary



Classify trauma PIPS events according to Impact (Level of Harm) , Type, Domain, Cause, Prevention



Level of Harm = URGENCY



Adhere to ACS and Lead Agency PIPS requirements



Align with TOPIC principles and the levels of review



Creates Trauma PIPS best practice

# Questions

Trauma PIPS Classification  
System



# Module 1: PIPS Plan & Roles & Responsibilities



## Tracy Cotner-Pouncy, MSN, RN, TCRN

*“The Trauma PIPS Plan is your roadmap, without it, the team would be lost. The importance of everyone having a copy of the roadmap (Trauma PIPS Plan) ensures that the team gets to the destination together, successfully.”*

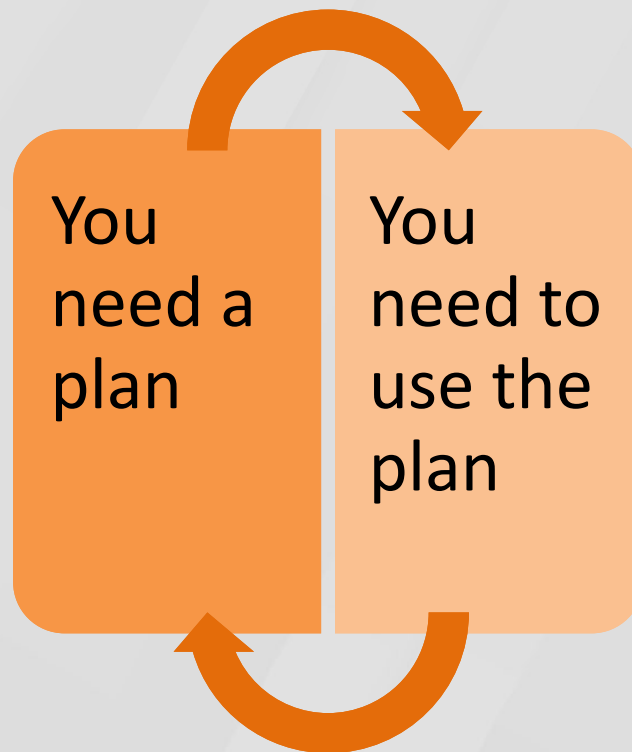


# The Trauma PIPS Plan

This is the Compass



# The Trauma PIPS Plan



# Development of a PIPS Plan

PIPS principles are universal

Foster a continuous learning environment

Ensure patient-centered care

Create a culture of high reliability

Promote a culture of safety

Set in Evidence based practice

Non-punitive analysis of events

Teamwork and Transparency

# Trauma Performance Improvement Plan

Establishes authority and structure

Establishes opportunity for continuity

Offers blueprint for the operational processes of PI

Establishes events for review

Defines the levels of review

# Key Considerations In Developing A PIPS Plan

Annual trauma volume

Hospital bed capacity

Trauma center  
verification/designation/  
accreditation level

Academic  
Community  
Rural

Environmental/  
geographic challenges

Contingency Planning &  
Response to  
Internal/External Threats

# *The Plan* is the Solid Foundation For All Things Performance Improvement

**Roadmap** for implementing and sustaining a Trauma PIPS program

- Provides an educational tool for new staff
- Reviewed and updated annually
- Assures continuity and expectations of all members
- Linked to Hospital Quality Department PIPS plan
- Linked to State/Region PIPS Plan
- Consistent adherence supports survey readiness
- Include how confidentiality of information is maintained

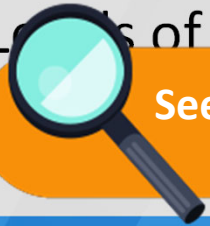
# Emerging Technology



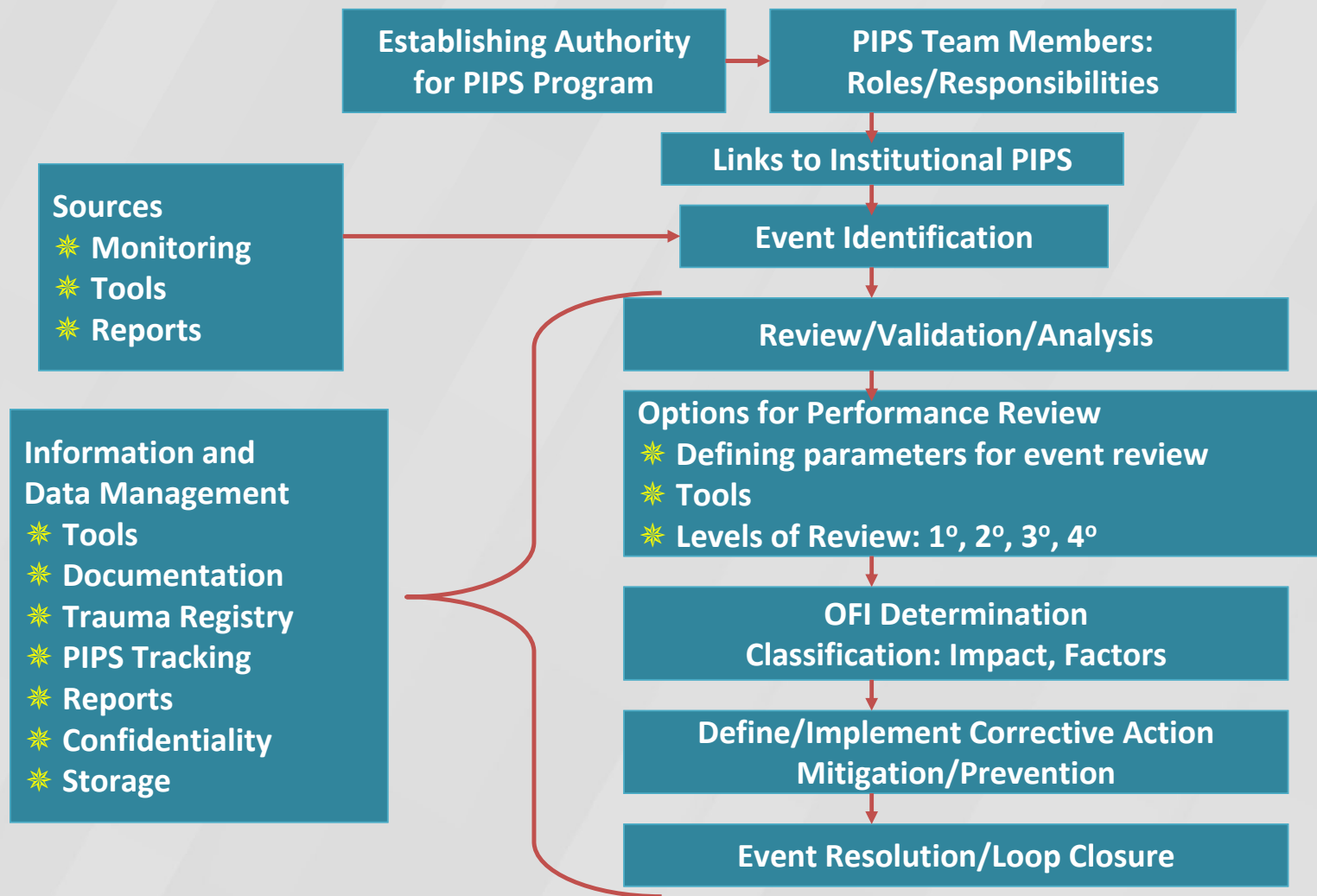
- Understand pros and cons to utilizing technology in PIPS
- Learn about discoverability of emerging technology
- Define use of emerging technology in PIPS Plan

# Components of a Trauma Center PIPS Plan

- Philosophy/Mission/Vision
- Authority/Scope
- Indicators/Audit Filters
- Event Identification
- Data Management/Benchmarking
- Committee Structure
- Team Members
- Roles/Responsibilities
- Levels of Review
- Peer Determinations
- Classification
- Corrective Action Plans and Implementation
- Event Resolution and Re-evaluation (using specific monitoring and metrics)
- Confidentiality
- Integration into Hospital PIPS process
- Mentoring/Coaching



See the TOPIC Manual Appendix  
for more information



**Do you have a written Trauma PIPS plan?  
If so, how do you use it?**

# Trauma PIPS Plan Template

Scan the QR Code



# Donald Jenkins, MD, FACS



**“The PI plan gives programmatic authority to the trauma program across every discipline and department to find areas of opportunity to improve patient care in a non- punitive manner which more often than not benefits more uninjured patients than injured ones.”**

# Member Roles

Should be defined in Trauma PIPS Plan



# Trauma Medical Director Roles and Responsibilities

- Has authority to direct the PIPS plan
- Directs development of evidence-based practice guidelines
- Selects cases for PIPS committees and referrals
- Analyzes PIPS trends and physician profiles
- Directs PIPS correspondence
- Leads peer review discussions
- Moderates peer review determinations/judgments

# Trauma Medical Director Roles and Responsibilities

- Provide input to Mitigation/Prevention Plan
- Follow up with absent Trauma Surgeons and Liaisons
- Elevate to Medical Staff Peer Review
- Assure a process to disseminate key information to absent members with documentation
- Follow up provider related counseling
- Follow up with trauma privilege issues

# Trauma Medical Director Contract

Agreement with  
Trauma Center and  
Liaison to Hospital  
Leadership

Hours Dedicated to  
Performance  
Improvement & Survey  
Readiness

Authority for trauma  
care from prehospital to  
hospital discharge

Hrs. Dedicated to PIPS  
Forums

- Operations Committee
- Trauma Peer Review
- System Participation & Dev.
- Regional System Participation

On-call Schedule  
Trauma Management  
Guidelines  
Case Reviews  
Credentialling

Emergency  
Preparedness  
Responsibilities

# Associate/Assistant Trauma Medical Director

- Same credentials as the TMD (ATLS, Board Cert, etc)
- It is NOT a shared position
- May chair meetings in TMD absence
- Usually heavily involved in PIPS
- Reviews data and analyzes PIPS trends
- Lead focused PI projects
- Reviews CPGs

# Trauma Program Manager Roles and Responsibilities

- Ultimately responsible for PIPS through the Trauma Continuum
- Directs implementation of PIPS plan, defined tools & processes
  - Ensures validation of registry data
  - Identifies, monitors trends, tracks, analyzes, PIPS data
  - Manages follow-up on PIPS system issues and peer review issues
  - Facilitates event resolution/loop closure
- Oversight of the Trauma Registry

# Trauma Program Manager Roles and Responsibilities

- Coordinates various PIPS committee meetings
- Participates in peer review discussions & meetings
- Responsible for the meeting minutes
- Participates in operationalizing practice guidelines
- Represents trauma program on hospital and system committees

*NOTE: many of these items may be shifted to a Trauma PI Coordinator*



# Trauma PI Nurse

- The TPM needs to advocate for dedicated staff support to fulfill the mandatory requirements for PIPS at a trauma center
- The Trauma PI Coordinator
  - Is usually an RN with trauma clinical experience
  - Reports to the TPM
  - Meets routinely with the TPM and TMD
- Will handle many details of the PIPS process supporting the TMD and TPM
- Facilitates Hospital-wide collaboration around trauma

# Trauma Registry Professionals

- Responsible for concurrent, validated data to drive PIPS
- Completes 80% registry profiles within 60 days of discharge
- Responsible for data reporting
- Assists in data visualization
- Assists in tracking loop closure
- Understanding of benchmarking

# Trauma Surgeons & Liaisons Roles & Responsibilities

- Structured orientation to PIPS plan and process
- Understand defined *event* reviews, definitions of complications, and the language of defined judgment or review determination
- Report identified *events* and occurrences to trauma team
- Shared responsibility for review of cases being presented at the PIPS meeting
- Participate in peer review discussion and determinations
- Participate in developing corrective action plans
- Providing routine feedback (weekly, monthly, annually)

# Ancillary Trauma Members

- Administration
- Nursing Unit Leaders (ED, ICU, OR, Floor, etc.)
- Quality/Risk Management
- Information Technology (IT)
- Telemedicine Representative
- Pre-hospital/EMS
- Regional Council Representation
- Respiratory therapy
- Lab/Blood Bank
- Radiology
- Pharmacy
- Nutrition
- Rehabilitation
- Disaster Preparedness
- Case Management
- Research

# Summary

- The PIPS Plan is the foundation to the PIPS Process defining all aspects of the trauma PIPS program.
- Each member of the Trauma Services team has unique roles and responsibilities in relation to the trauma PIPS process.

# Module 2: Event Identification and Levels of Review

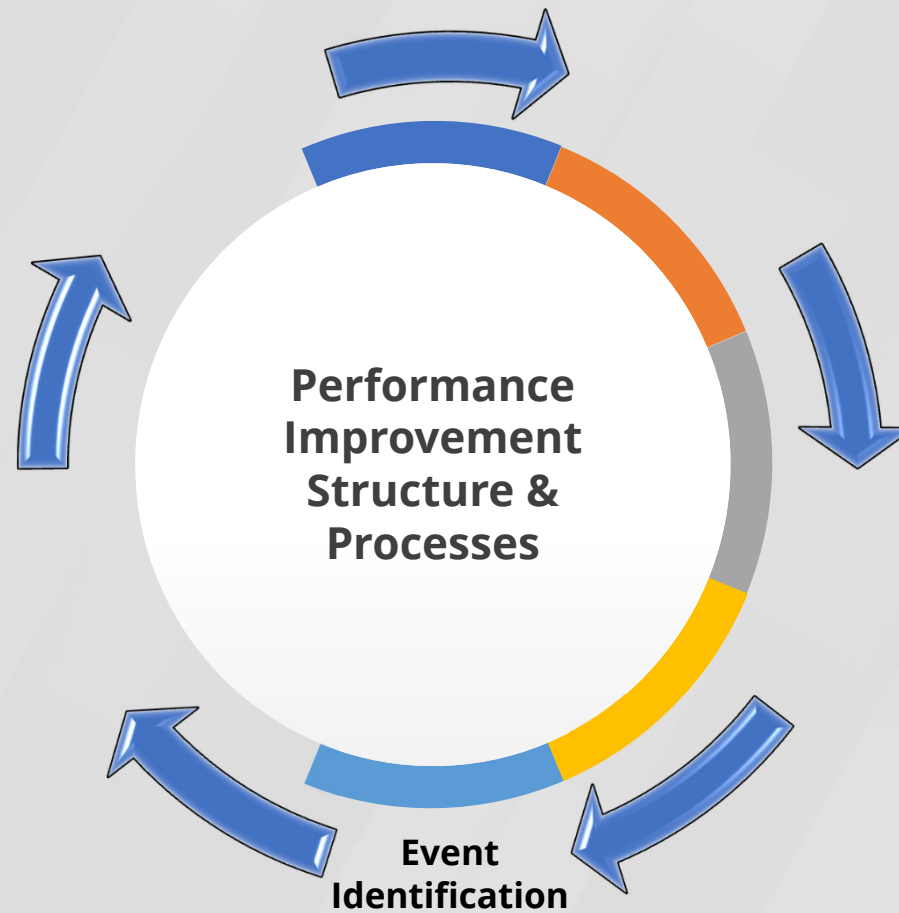


# Sarah Mattocks, MSN, RN, TCRN, NE-NC

“I consider the Trauma Performance Improvement (PI) plan as the foundation of the PI program structure. In any structure, the foundation is the most crucial component. Without a solid and high-quality foundation, any structure becomes worthless. However, with a high-quality foundation (an up-to-date and utilized PI plan), the PI program becomes a structure that ensures patients receive high-quality care in a continuous learning environment.”



# Event Identification



# What is an Event?

**Event** - Variation in clinical care or system response; an occurrence that has led to or could potentially lead to a poor outcome

Defining features of an event:

- Data definition adherence
- Relates to system, clinician, and/or patient factors
- Identified through case & registry review
- Requires validation
- Define the impact of event on patient, system, and/or team
- **Goal: Improving Processes and Patient Outcomes**



## What is Necessary for Event Identification

- Leadership
- Medical Staff Endorsement
- Multidisciplinary
- Personnel Resources
- Technology

# Sources of Event Identification

## Internal

Medical Records  
Staff Referral  
Daily Rounds  
PI Activities/Meetings  
Risk/Quality  
Patient Feedback  
Registry Activities

## External

Air Medical/EMS  
Referral Center  
Transfer In/Out  
Transfer/Communication Center  
Survey/Accreditation Reports  
Patient Family  
Community Feedback  
Autopsies

# Where Did the Event Occur?

## Non-Hospital

Pre-hospital  
Transferring Center  
Rehab  
Outpatient Facility  
Patient Family  
Nursing Home  
Other

## Hospital

Resuscitation  
Radiology  
Lab/Blood Bank  
OR  
PACU  
ICU  
Step-down  
Med-surg (general care)

# When Did the Event Occur?

## Event Timing

Date

Day (holiday/weekend)

Shift

Shift Change

Mass Casualty Event

# Who was Involved?

## Individuals Involved

Physicians/Providers

Nurses

Therapists

EMS

Radiology Tech

Blood Bank/Phlebotomy Staff

Others

# Concurrent vs. Retrospective Review Event Identification

## • Concurrent

- Affects care at the point of service
- Data retrieved immediately to impact positive change
- More efficient and timely feedback provided

## Retrospective

- Allows for evaluation of the full scope of the issue
- Delay to providing feedback
- Potentially negative outcomes/ events can occur despite best efforts

**Concurrent PI review of cases is best practice – programs should strive to be concurrent**

# Case Study: *Concurrent Review in Action*

- 65-year-old female is admitted with a non-operative pelvic fracture
- On post trauma day six she develops a DVT
- Retrospective Review of Event
  - Twenty-eight days after admission this case is reviewed by a Trauma Nurse Coordinator (TNC)
  - TNC notes that the patient was not placed on VTE prophylaxis until post trauma day four, which is a clinical practice guideline variance
  - Patient develops DVT on post trauma day six
- Concurrent Review of Same Event
  - Post trauma day two, a TNC rounding with the multidisciplinary team notes that the patient was not on VTE prophylaxis and asks the rounding team to address
  - The team reviews, finds no contraindication, the patient is then placed on appropriate prophylaxis
  - No DVT was developed

# How Are You Tracking Events?

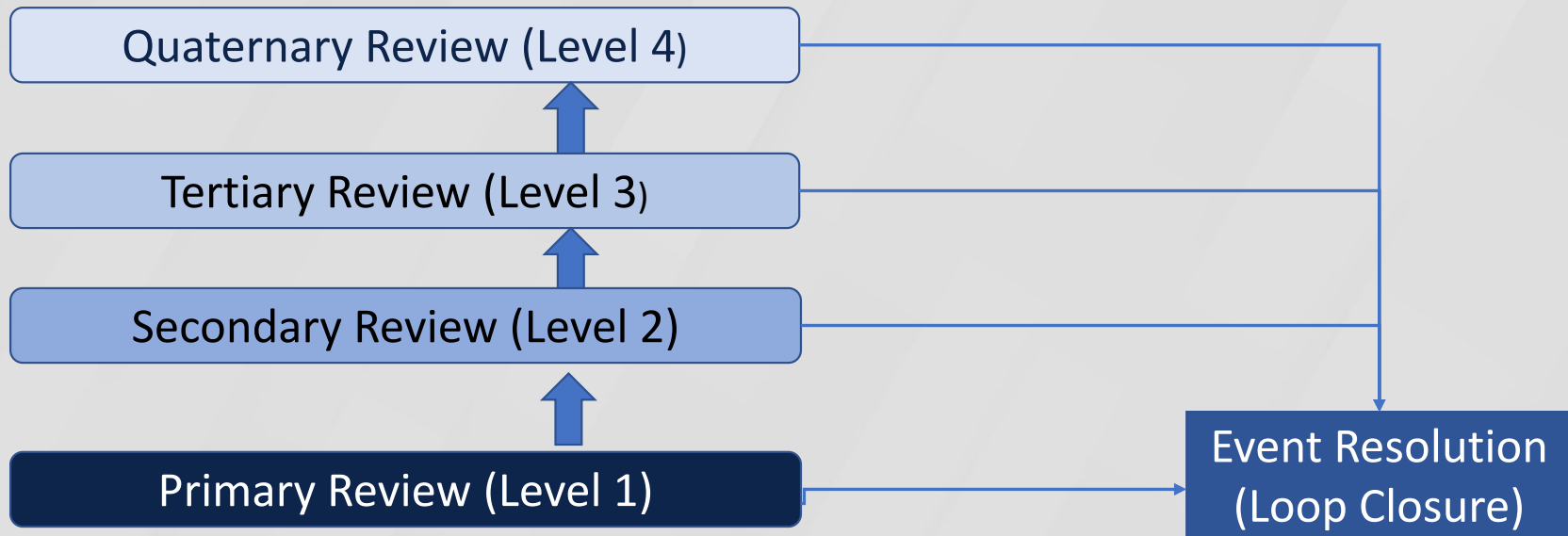
- Electronic
  - Using registry
  - Spreadsheet
- Paper form
- Paper form then entered in registry
- Other
- Artificial Intelligence (AI)
  - Requires validation / human review



# Validation of Performance Improvement Events



# Levels of Review



**\*\*Event resolution (loop closure) can occur at any level\*\***

# Primary Level of Review

## Key Step of this level of Review - Finding the events

- Concurrent event identification
- Verification and validation of actual event
  - Review electronic medical record
  - Development of timeline
  - Confirmation of all involved
- Immediate resolution and feedback
- Events may be closed or trended at this level
- Determination if it needs further review
- Establish electronic PIPS tracking system to show event addressed/action/closure

# Secondary Level of Review

## **Key Step at this level of Review - Triaging events**

- Encompasses a complete investigation of the events
- Review by TMD and/or TPM
- Further review of electronic medical record may be completed
- Review any additional information
- Event may be closed at this level
- Provide feedback
- May require referral

# Tertiary Level of Review

## Structured review by formal committee

- Trauma Multidisciplinary Peer Review Committee
- Trauma Operational Process Performance Committee

## Key Steps at this level of review

- Peer review determination
- Forum to address system/process issues
  - ***Critical to this level*** of review is action plan development

# Components of Structured Tertiary Review

- Efficacy, efficiency, and safety of care
- Provide focused education
- Provide peer review
- System vs. Provider cause
- Team performance
- Contributing factors
- Identify opportunities for improvement
- Corrective recommendations/actions
- Close loop and document to Trauma PIPS

# Which Cases Could Be Forwarded to a PIPS Meeting?

## Potential Criteria

- Select events, near miss
- Select based on clinical significance
- All indicators
- All complications
- All deaths
- Unexpected outcomes
- Systems issues
- Sentinel events
- CPG non-compliance
- Policy/protocol non-compliance
- Special populations
- If no fallouts, consider collated outcomes reports

**The cases that must go to tertiary review should be described in your PIPS plan and the PIPS team should be aware of what the criteria are.**

# Quaternary Level of Review

- **Trauma System Case Review**
  - Completed with other system trauma centers
- **Additional Options**
  - External peer review
  - Subject matter expert
    - Neurosurgery
    - Orthopedics

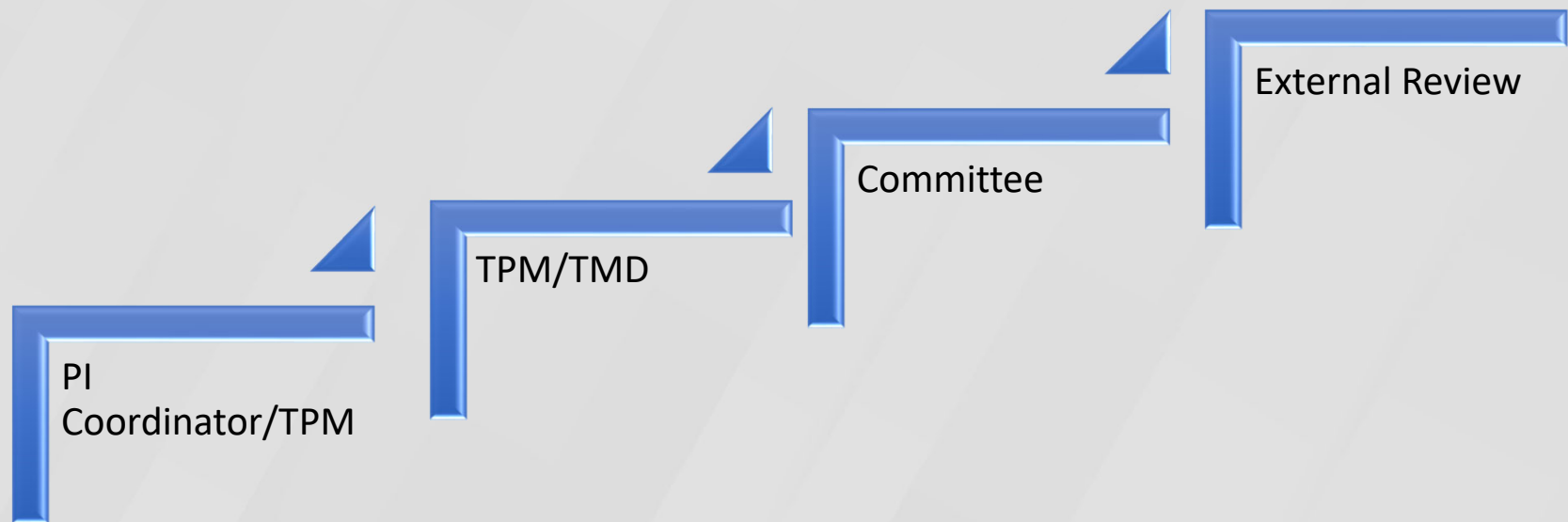


# Key Questions in Event Evaluation

- What was the outcome?
- Were standards of care followed?
- Was supervision adequate?
- What were the pre-existing conditions?
- Were trauma practice management guidelines and protocols followed?
- What were the circumstances surrounding the event?
- Who was involved and what safety goals were related?
- Were system failures present?
- Were there knowledge and skill variations?
- Were there associated performance or behavioral events?

# Aligning Levels of Review

Pre-assigning levels of review in the Performance Improvement Plan can streamline processes significantly.



# Alignment of Events

- Define the “event” and “level of review” in the Performance Improvement Plan

## *Example: Acute Kidney Injury*

- Validate event meets definition
- Collect data using specific questions to aid review
- Review at appropriate level based upon PI plan
  - If patient harm is present should be elevated to tertiary level review

## ***Alignment of events streamlines PI processes***

*\*The alignment process will be discussed in a later module in this course*

# Summary

- Multiple ways exist to identify PI events
- Concurrent monitoring is best practice and therefore recommended
- Tracking system tools are required for event analysis
- Systematic classification for PIPS events will aid in process improvement
- Pre-identifying and assigning levels of review to specific events (i.e. death, complication) can streamline the review process

# Module 3: Audit Filters, Performance Metrics, and Clinical Practice Guideline Variance



# Kathleen Martin, MSN, RN

Trauma Performance Improvement is the foundation for ensuring the best evidence-based care to the injured while reducing mortality and morbidity. The goal is to identify opportunities for improvement at the point of care delivery to the patient that could potentially result in harm to a patient. Resolving these events and preventing them from happening to future similar patients before they result in harm to a patient is our responsibility. Sharing the Trauma PI plan with all members of your team and administrators assists with providing the resources necessary to attain and sustain an optimal Trauma Performance Improvement Plan with appropriate authority to effect change across multiple departments.



# Are You a “Good” Trauma Center?

- A trauma center should provide safe, efficient, and effective care to the injured patient
- Processes for identifying adverse events and implementing subsequent corrective action plans—measurable through patient outcomes—are inherent cornerstones of continuous performance improvement and patient safety (PIPS).
- “Event resolution, outcomes improvement, and assurances of patient safety (“loop closure”) must be readily identifiable through structured PI initiatives.”\*



\* American College of Surgeons Committee On Trauma. *Resources for Optimal Care of the Injured Patient, 2022 (7<sup>th</sup> edition)*. Chicago:

# Define Adverse or Sentinel Event in PI Plan

- Event that results in harm by acts of commission or omission rather than by the patients' underlying disease
- An event that reaches a patient and results in: Death, harm and intervention is required to sustain life
- An unexpected occurrence involving death, serious physical or psychological injury, or risk thereof

## Examples

- **Unplanned clinical occurrence**
  - intubation, return to OR, move to ICU
- **Therapeutic misadventure**
  - an injury or an adverse event caused by medical management
- **Hospital-acquired events**
- **Iatrogenic complication or injury**

## Hospital Events

**Hospital Events** are defined in the National Trauma Data Standard (NTDS)

## Audit Filters

**Audit/Process Filters** assist with monitoring the process of care relative to standards of care to improve efficiency, increase effectiveness or reduce real or potential harm

Must have defined criteria and metrics to measure

## Performance metrics

**Performance Metrics** are based on evidence-based processes and treatments known to get the best results for a condition or illness

## Clinical Practice Guidelines Compliance

**Clinical Practice Guideline** compliance analysis

# Events

## Rate based

- Frequency of specific events
- Occurrence (numerator) divided by the total number of cases (denominator)

## Case reviews

- Review of specific cases where an audit filter was triggered
  - Time to interventions (CT, IR, OR)
  - Pediatric trauma in a non pediatric trauma center
  - Specific to your institution (spinal cord injury, burn, damage control)

## Concurrent/Point of Care Review

- Events should be reviewed concurrently on daily rounds/morning report

# 21 NTDS Hospital Events

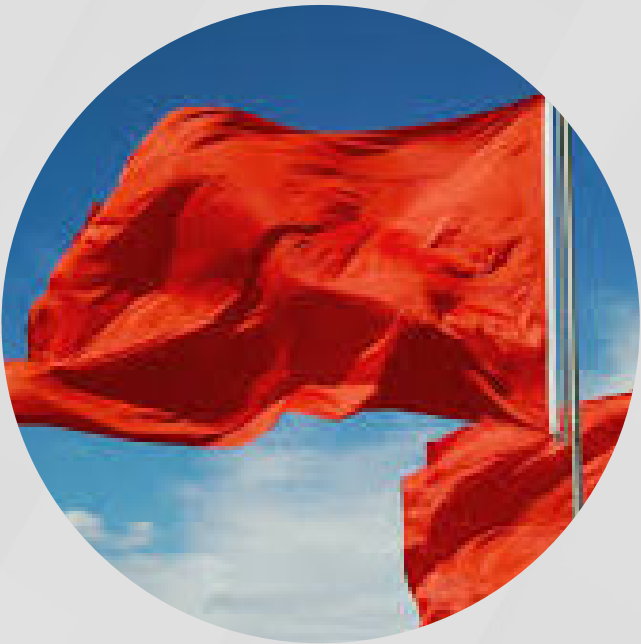
- 18 complications events
- 3 process events



ACUTE KIDNEY INJURY (AKI) .....
ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS) .....
ALCOHOL WITHDRAWAL SYNDROME .....
CARDIAC ARREST WITH CPR.....
CATHETER-ASSOCIATED URINARY TRACT INFECTION (CAUTI).....
CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTION (CLABSI) ..
DEEP SURGICAL SITE INFECTION .....
DEEP VEIN THROMBOSIS (DVT).....
DELIRIUM .....
MYOCARDIAL INFARCTION (MI).....
ORGAN/SPACE SURGICAL SITE INFECTION .....
OSTEOMYELITIS.....
PRESSURE ULCER.....
PULMONARY EMBOLISM (PE) .....
SEVERE SEPSIS .....
STROKE/CVA .....
SUPERFICIAL INCISIONAL SURGICAL SITE INFECTION .....
UNPLANNED ADMISSION TO THE ICU .....
UNPLANNED INTUBATION .....
UNPLANNED VISIT TO THE OPERATING ROOM .....
VENTILATOR-ASSOCIATED PNEUMONIA (VAP).....

[2025 National Trauma Dataset Data Dictionary](#)

# Audit Filters



- Tools that assist with monitoring processes of care relative to standards of care
- Triggering an audit filter does not imply “bad” care
- Audit filters prompt a review (red flag)
- Not all events rise to a need for deep review
- Surveillance of care is a netting system

# Audit Filters

- Must be clearly defined in the PI Plan
- Definitions are based on accepted standards of care/practice
- Should be valuable and relevant to your patient population
- Custom institutional audit filters must have a data dictionary
- Incorporated into the trauma PI Plan and reviewed at least **annually**



# Audit Filters

## Required

- Regulatory agency
- State/Lead agency
- Regional/Hospital Health System

## Institution Specific

- As defined by your trauma program
  - Defined in a custom data dictionary
- May vary with changes in population, volume, and geospatial considerations

# Performance Metrics

- Performance metrics focus efforts which utilize data to improve the healthcare delivery process
- **Process measures**
  - System operations and processes
  - Institutional measures (e.g. time to CT, time to IR/OR)
- **Outcome measures**
  - Clinical/patient focused
  - Quantitative/benchmarks (e.g. VTE rates)



*What Are Your Program's Audit Filters, Performance Metrics or CPG compliance?*

# Performance Metrics

Mortality rates

Autopsy rate

Organ donation  
and solid organ  
rates

Trauma surgeon  
response to the ED

Trauma team  
activation criteria  
compliance

Compliance with  
Neurosurgical,  
Orthopedic and IR  
response times

# Performance Metrics

## Over/under triage

- Cribari matrix and Need for Trauma Intervention (NFTI) tools

## Admission to non-surgical service

- Nelson score review tool

## Transfers out: Emergent, Urgent or Routine

- Timing

# Performance Metrics

Diversion/Bypass Hours

Anesthesia Availability

Response Time of  
Operating Room and  
PACU Staff When  
Responding from  
Outside the Hospital

Rate of Change in  
Radiology  
Interpretation:  
RAD-PEER

Response Time Of CT  
(30 Min), MRI (60 Min)  
and IR (30 Min)

Transfers to Higher  
Level of Care Within  
the Institution

# Pediatric Performance Metrics

## Requirement

> 100 Pediatric patients admitted per year – must have pediatric specific PIPS  
< 100 Pediatric patients per year – each case needs to be reviewed for appropriateness of care

## Performance Metrics

Solid Organ Injury Management  
Head Injury Outcomes  
Resuscitation (Fluid)  
DVT Prophylaxis  
Non-Accidental Trauma Assess  
Radiation Exposure

## Institution Specific

Delays in vascular access  
Screening and brief intervention if over 12 years old  
Physician coverage in the PICU  
Delays in transfer

# Pediatric Readiness in ED

- All trauma centers must evaluate its Emergency Department pediatric readiness and submit EIIC
- PI Plan must include pediatric specific audit filters and process to collect and analyze
- Must have a plan to address any deficiencies



[Checklist & Toolkit • EIIIC \(emscimprovement.center\)](https://www.emscimprovement.center)

### Pediatric Readiness in the Emergency Department

This checklist is based on the American Academy of Pediatrics (AAP), American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA) 2018 joint policy statement "Pediatric Readiness in the Emergency Department," which can be found online at: <https://pediatrics.aappublications.org/content/pediatrics/142/5/e20182459.full.pdf>. Use this tool to check if your hospital's emergency department (ED) has the most critical components listed in the joint policy statement.

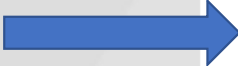
Administration and Coordination of the ED for the Care of Children	ED Policies, Procedures, and Protocols
<p><input type="checkbox"/> Policies, procedures, and protocols for the emergency care of children in the emergency department specify who specifies training and experience in the evaluation and management of the critically ill child.</p> <p><input type="checkbox"/> ...</p>	<p>Policies, procedures, and protocols for the emergency care of children in the emergency department specify who specifies training and experience in the evaluation and management of the critically ill child.</p> <p><input type="checkbox"/> ...</p>
<p><b>Guidelines for the QI/PI in the ED</b></p> <p><input type="checkbox"/> The QI/PI plan includes pediatric-specific indicators</p> <ul style="list-style-type: none"> <li>- Data are collected and analyzed</li> <li>- System changes are implemented based on performance</li> <li>- System performance is monitored over time</li> </ul> <p>Please see the guidelines/toolkit for additional details.</p>	<p>pediatric-specific needs within the care domains, including:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Medications, vaccines, equipment, supplies and trained providers for children in disasters</li> <li><input type="checkbox"/> Pediatric surge capacity for injured and non-injured children</li> <li><input type="checkbox"/> Decantamination, isolation, and quarantine of families and children of all ages</li> <li><input type="checkbox"/> Minimization of parent-child separation</li> <li><input type="checkbox"/> Tracking and reunification for children and families</li> <li><input type="checkbox"/> Access to specific behavioral health therapies and social services for children</li> <li><input type="checkbox"/> Disaster drills include a pediatric mass casualty incident at least every two years</li> <li><input type="checkbox"/> Care of children with special health care needs</li> </ul>

The QI/PI Plan includes pediatric specific indicators

Data are collected and analyzed

System changes are implemented based on performance

System performance is monitored over time



# Trauma Patients Transferred-out to Another Acute Care Facility

## Conclusions:

5/418 (1%) trauma patients transferred from St. Elsewhere to another acute care facility in Quarter 4, 2023

5/5 patients deemed medically stable for transfer:

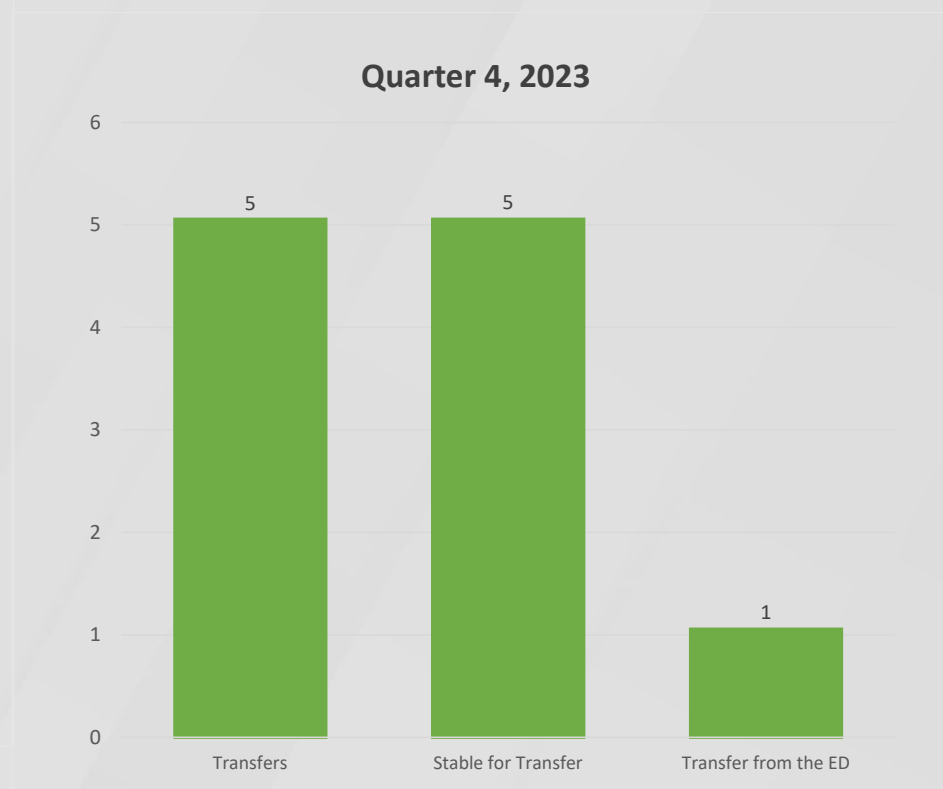
- 4/5 transferred from the floor for further rehab therapy and discharge planning per health plan request, no further acute care needs related to injury:

**No OFI**

- 1/5 transferred from the ED for treatment of incidental finding of pneumonia on CXR; did not require admission for the care of injuries (isolated rib fracture): **No OFI**

## Recommendations / Action Plan:

- Continue to monitor this audit filter monthly



# Interventional Radiology Response Times: 1st Quarter, 2022

## Conclusions:

- There were 400 trauma patients during the 1st Quarter of 2022
- 2/400 (0.5%) required Interventional Radiology on an emergent basis
- 0/2 trauma patients were in Interventional Radiology in 30 min
- 0/2 had sustained hypotension while waiting for IR
- 1/2 required OR while waiting for IR
- 1/2 required additional blood product transfusions while waiting for IR
- 1/2 patients had NTDB complications (AKI, DVT, Deep SSI)
- 0/2 patients expired
- Average time from IR order placed in Epic to patient arrival in IR: 130 minutes

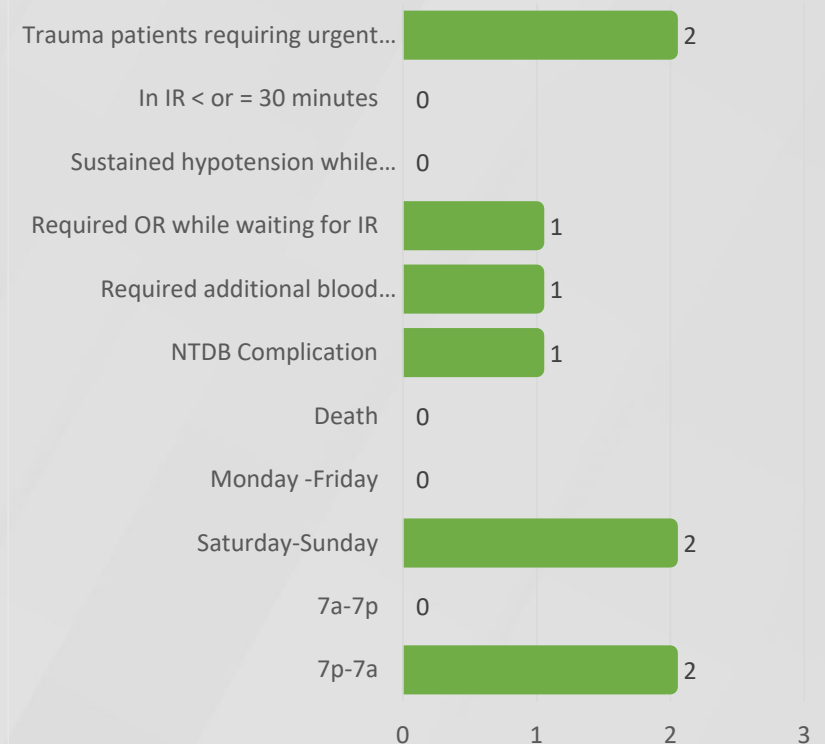
## Recommendations / Action Plan:

- Continue to monitor response times for Interventional Radiology
- Continue to monitor trauma patients requiring emergent Interventional Radiology procedures for complications and outcomes

## Criteria:

- A qualified radiologist must be available within 30 minutes to perform complex imaging studies or interventional procedures. *American College of Surgeons, 2014*
- The clock starts when the call is made requesting the service. *Clarification Document, 2017*

## IR Response Times: 1st Quarter, 2022



# Examples of Audit Filter and Drill Downs Questions

Defined in the PI Plan

NTDB event definition is hyperlinked

Drill down questions are programmed into your PI section of your registry

Audit filter is hyperlinked to the policy or CPG at your institution

## Example: Open Fracture CPG

- Injury details documented
- Antibiotics within 1 hour of arrival?
- Went to OR for irrigation and drainage or washout within 24 hours?

***Everyone abstracting, reviewing and presenting will present the SAME information each time.***

# Drill Down Tool for Events/Audit Filters

Event/Audit Filter/CPG	1° or 2° Level Review	Review Questions	Review Questions	Review Questions	Review Questions
Event: Deep Vein Thrombosis	1 or 2	Did patient receive chemoprophylaxis if not contraindicated according to CPG? (ordered, dispensed, administered)	Were sequential compression devices ordered and in place if not contraindicated?	Was chemoprophylaxis initiated/reinitiated after O.R. if not contraindicated?	If DVT developed, was it treated according to CPG?
CPG: Massive Transfusion Protocol	1 or 2	Received more than 1 L of crystalloid	Patient's arrival time MTP activation time  Activated by whom?  Activation Criteria/which triggers were met?	Was process for ending the MTP and return of unused blood done according to guideline?	What were the component blood ratios? 1st 8 hours & 1st 24 hours?

# Geriatric Performance Metrics

Identification of vulnerable geriatric patients

Identification of patients who will benefit from the input of a health care provider with geriatric expertise

Prevention, identification, and management of dementia, depression, and delirium

Process to capture and document what matters to patients, including preferences and goals of care, code status, advanced directives, and identification of a proxy decision maker

Medication reconciliation and avoidance of inappropriate medications

Screening for mobility limitations and assurance of early, frequent, and safe mobility

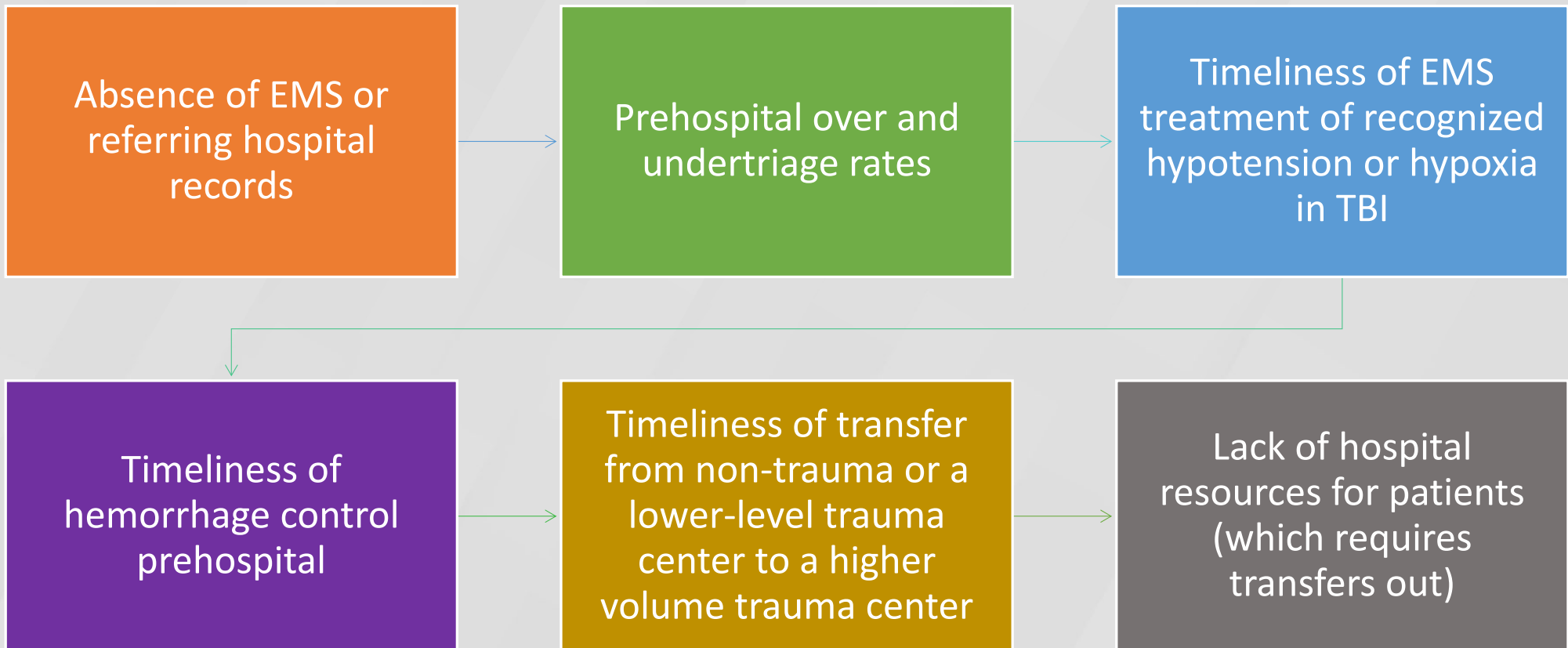
[https://www.facs.org/media/rddahzbb/geriatric\\_guidelines.pdf](https://www.facs.org/media/rddahzbb/geriatric_guidelines.pdf)

# Trauma PI Dictionary:

*Future similar patients are less likely to experience this event because...*

<b>Benchmark Goal % (If applicable)</b> Report out forum & cadence	<b>Code/Audit Filter Name</b> Definition <a href="#">Hyperlinked resources</a>	<b>Level of review required</b> Who can close the event?	<b>Essential information (include in discussion)</b> Hospital day number format: HD # MM/DD/YYYY	<b>Standard verbiage or Considerations</b> Appropriate per policy/guideline/SOP Inappropriate/OFI/review details	<b>OFI &amp; Event Resolution</b> Action Plan: Include timeframe Event Resolution
TQIP Odds Ratio <1  Trauma Operation Meeting  Quarterly	<b>COMP_REV</b>  100% Hospital Event Review using:  <a href="#">2024 NTDS Definitions</a>	L1 - When treated appropriately per guidelines TNC, TPM  L2 TPM, TMD	<a href="#">Refer to Hospital Event PI audit filter/critiques resource</a>	<b>L1 Review:</b> [date] NTDB *Hospital Event* hospital event criteria reviewed. Appropriate interventions per standard of care. Does not Meet/Meets NTDB reporting criteria.  [date] NTDB *Hospital Event* hospital event criteria reviewed. *Details* Referred to L2 for further discussion of hospital event. <b>Cases Referred to L2 Review:</b> [date] TMD and TPM discussed NTDB *Hospital Event* hospital event criteria. *Details* *Does not meet/Meets NTDB reporting criteria* Appropriate *Hospital Event* management. <b>OR</b> (date) TMD and TPM discussed NTDB *Hospital Event* hospital event criteria. *Details* *Does not meet/Meets NTDB reporting criteria* *Hospital Event* management. Referred to L3 for further discussion.	<b>OFIs</b>  Action Plan Specific to the event  <b>Event Resolution</b> <b>Justification:</b> Will continue to trend all NTDB hospital events for future reporting per PI plan and TQIP reporting cycle.

# Trauma System Performance Metrics



[Martin KD, Dorlac WC. Trauma system performance improvement: a review of the literature and recommendations. \*J Emerg Crit Care Med.\* 2019;3:14.](#)

# Collecting, Monitoring, Reporting

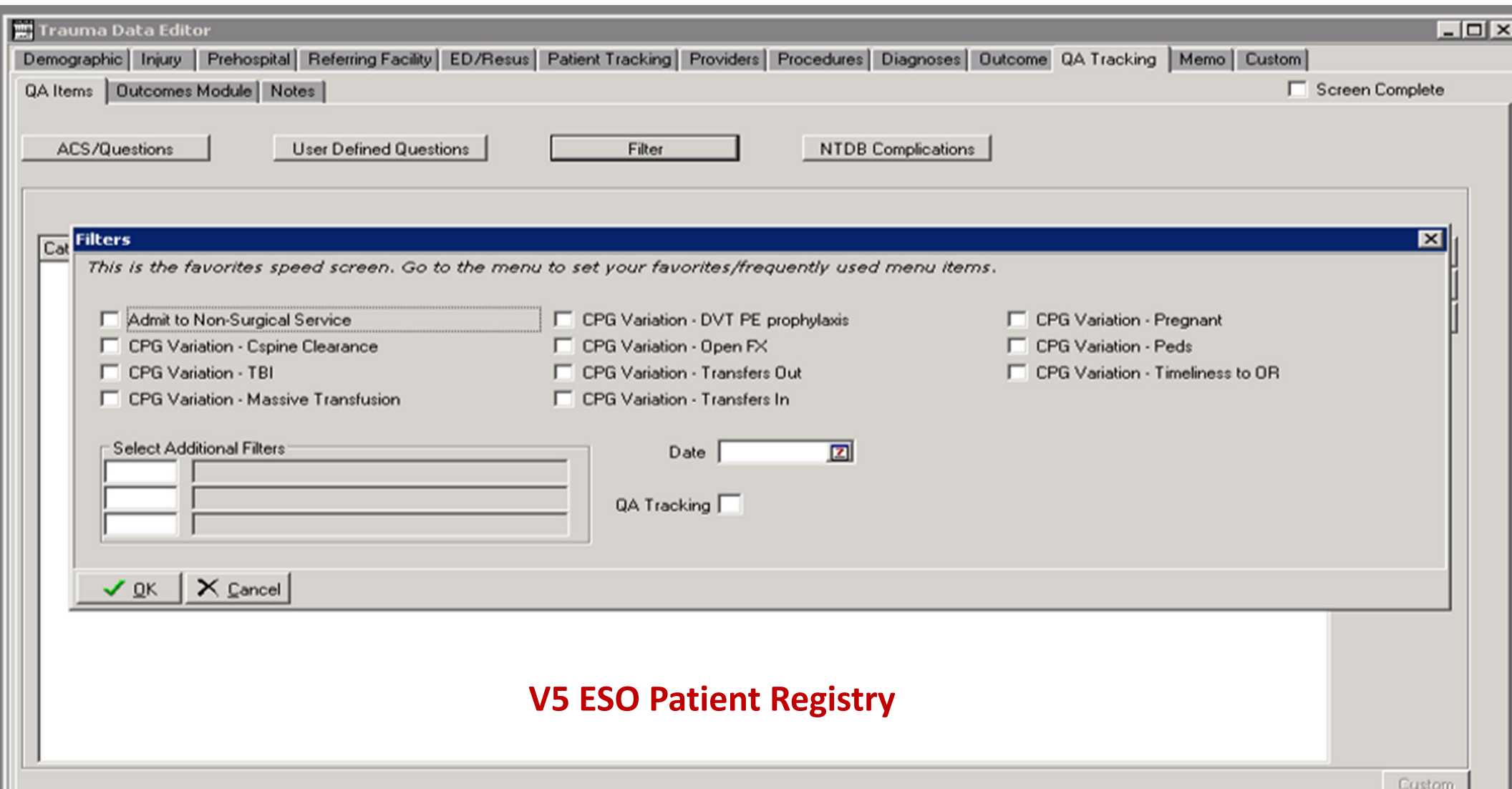
- **Collecting**
  - Audit filters ideally are collected concurrently
- **Monitoring**
  - Use your trauma registry to monitor compliance results
  - Use a calendar for reporting data
- **Reporting**
  - Monthly performance dashboard reports
  - Quarterly reports to Trauma Committee
  - Annual report to hospital leadership



# Using the Trauma Registry PI Screens

- Ideal as a repository for all PIPS activities
  - Patient specific
  - Events
  - Case Management
  - Levels of Review
  - Corrective Actions
  - Resolution/Loop closure dates
  - Trauma Program specific
- Daily monitoring of specific audit filters (morning handoff report, daily rounds, EMR rounds)





## V5 ESO Patient Registry

# Performance Improve (PI): Events Section with Validation Screen

PI Section allows for tracking of hospital events, meetings associated with events, referrals, and the Case Management section to track Primary, Secondary, Tertiary, and Quaternary Levels of Review.

The screenshot shows the ESO Patient Registry interface. The top navigation bar includes 'eso', 'TOPIC, Society of Trauma Nursing', 'Abstraction UNLOCKED', and 'Performance Improvement OPEN'. The main content area is titled 'Performance Improvement' and 'Events'. A specific event is highlighted: 'Acute Kidney Injury (AKI) OCCURRED: 08/28/2023 @ 21:30'. Below this, there is a table for 'Event Information & Documents' and a section for 'Associated Meetings'. A 'Validate Encounter' modal is open on the right, showing submission organizations (ITDX, NTDB, TQIP) and a list of issues to be resolved, such as 'Rec10009', 'Rec10010', 'Rec10011', and 'Rec10012'. A red text overlay at the bottom of the screenshot reads 'ESO Patient Registry'.

Trauma registry data validation is built directly into the application and follows the local Regional, State, and National data validation standards. Registry professionals have access to real-time validation.

Patient Data Name: Patient, Test A MRN: 121212 ID: DEMO\*1012018


Tracking Number: DEMO Institute Number: 1012018

Restore Missing Data All Data Edits Search Fields Search Record

- Initial Data Entry
  - Trauma Log
    - NTDB / TQIP eli
    - Primary Trauma
    - Last Name:
    - First Name:
    - M.I.
    - TTA (HIGHEST)
    - MRN
    - Patient Number/
    - Trauma Number
    - Hospital Arr Dat
    - ED DC Date
    - Hospital DC Date
    - Cause Code
    - Hospital Transfe
    - Referring Hospit
    - Transport Data
    - ED Disposition
    - Admit Service
  - Demographic

NTDB / TQIP eligible?		
Primary Trauma Service Type		
*Last Name:	Patient	
*First Name:	Test	
*M.I.	A	
TTA (HIGHEST) level		
*MRN	121212	
Patient Number/CSN		
Trauma Number	DEMO	
*Hospital Arr Date		
*ED DC Date		
*Hospital DC Date	12/31/1967	
Cause Code	FALL	
*Hospital Transfer		

CDM Buttons



Explicit Comorbidities

Explicit Complications Comorbidities View

Complications View Complications View

Explicit Negative Table Explicit Negative Table

Trauma Log (Created: 13:20:11 22 JAN 2008) (Code Group: ENTER\_TRAUMA\_LOG\_GROUP)

Finalize Compare Records Critiques Reviews Edits

Severity DC Stats Changes Document Vault

Field Map Record Status NTDS Errors

Date Sequence Check

**CDM Trauma Base**

# Reporting Calendar Example

Trauma Reports Calendar M=Monthly, Q=Quarterly, S=Semi-annual, A=Annual	Review Schedule	Systems/ Operations	Peer Review	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Trauma Admission volume	M	M		X	X	X	X	X	X	X	X	X	X	X	X	12
Mortality	M		M	X	X	X	X	X	X	X	X	X	X	X	X	12
Non Surgical Admission Rate	M	M		X	X	X	X	X	X	X	X	X	X	X	X	12
Direct Admissions	M	Q			X			X			X			X		4
Transfers IN	M	Q				X			X			X			X	4
Transfers OUT	M	Q		X			X			X			X			4
Ortho response times	Q		S				X						X			2
Trauma Diversion Hours	A				X											1
<b>Total Metrics Reported</b>		<b>6</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>63</b>

# Clinical Practice Guideline Compliance

- Evidence-based guidelines to reduce variation in practice
- Road map for clinical decision making
- Trauma Centers must
  - develop and implement CPGs
  - track compliance
  - monitor effect on outcomes
  - Review as evidence is discovered and revise every 3 years at a minimum

**Guidelines**

**east**  
Eastern Association for the Surgery of Trauma

**Western Trauma Association**

Home About Us Annual Meeting Foundation Membership

American College of Surgeons > Quality Programs > Trauma Quality Improvement Program (TQIP) > ACS TQIP Best Practice Guidelines

**ACS TQIP Best Practice Guidelines**

The ACS TQIP Best Practice Guidelines aim to provide recommendations for managing patient populations or injury types with special considerations to trauma care providers. The Trauma Quality Improvement Program (TQIP) Best Practices Project Team and a panel of guest experts from appropriate specialties, work together over the course of the year to create each guideline. The guidelines are created from evidence-based literature when available and consensus of the group when evidence is lacking.

These guidelines are created by leading health care professionals in each field, and provide a valuable resource for trauma centers everywhere.

**Guidelines**

- Child Abuse, Elder Abuse, and Intimate Partner Violence
- Geriatric Trauma Management
- Imaging Guidelines
- Management of Orthopaedic Trauma
- Management of Traumatic Brain Injury
- Massive Transfusion in Trauma
- Palliative Care

**ACS TQIP** TRAUMA QUALITY IMPROVEMENT PROGRAM

Trauma Quality Improvement Program (TQIP)

- Level I & II TQIP
- Level III TQIP
- Pediatric TQIP
- TQIP Collaboratives
- Fees and Invoices
- TQP Participant Hub
- TQIP Education Portal

# Clinical Practice Guidelines Development

Select a significant guideline that meets your patients' needs

Select an interdisciplinary work team and a clinical champion

Clarify purpose, scope, and outcome goals of the guideline

Gain consensus from all stakeholders

Assess scientific evidence

Define metrics to measure compliance before you implement

Provide education and insert into order sets

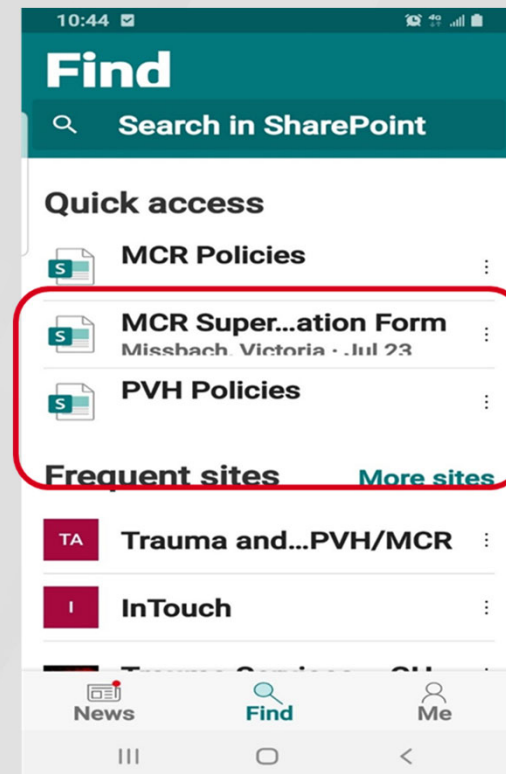
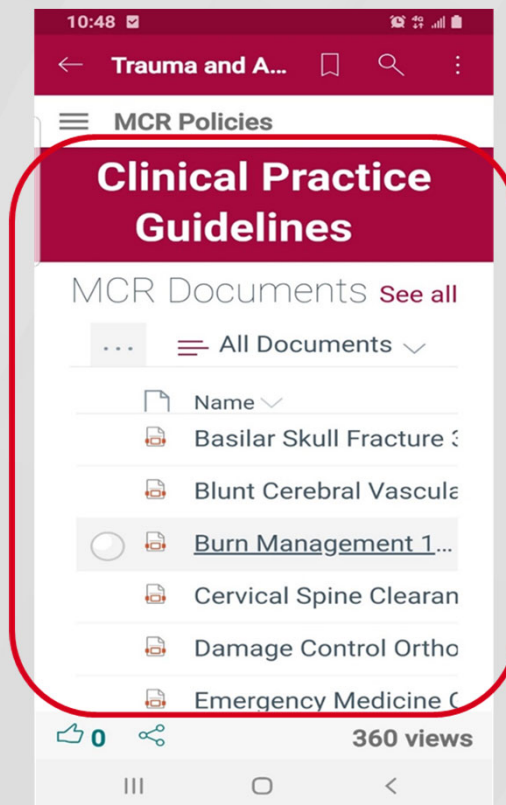
Implement

# Clinical Practice Guideline Implementation

- All stakeholders must be educated on the use of guidelines prior to implementation
- Stakeholders also must have immediate access to review and reference these guidelines in daily clinical practice
- Where is the guideline located?
- Hospital intranet
- Associated with order sets
- Pocket cards for EMS
- App for Residents
- Posters in Trauma Resus or ICU
- App

# How to Access Guidelines

- Use the resources that are available to you
- Web or cloud based
  - Hospital intranet
  - Microsoft Teams Site
  - SharePoint
- Phone app
- Order set “pops up” for ordering
- Posters



# Drill Down/Performance Metrics CPG: Examples

CPG	Drill Down Questions
<b>Rib Fracture CPG</b>	<i>Was a Forced Vital Capacity or Incentive Spirometry ordered in the ED?</i> <i>Was a Forced Vital Capacity or Incentive Spirometry performed in the ED?</i> <i>Did the patient meet criteria to be admitted to the ICU?</i> <i>Was the Rib Fracture CPG treatment followed?</i>
<b>Rapid Reversal Anticoagulants</b>	<i>Did the patient meet criteria for anticoagulant alert?</i> <i>What type of anticoagulant was the patient on?</i> <i>What was the reversal agent given?</i> <i>Was CPG Rapid Reversal treatment followed?</i>
<b>Massive Transfusion Protocol</b>	<i>What was EMS crystalloid volume administered in mL?</i> <i>What was the ED crystalloid volume administered in mL?</i> <i>What was the OR crystalloid volume administered in mL?</i> <i>What was the ICU crystalloid volume administered in mL?</i> <i>10+ RBCs only: was an ionized calcium obtained?</i>

# Clinical Practice Guidelines: Tracking Compliance

- Rotate tracking; CPG of the month
- Customize trauma registry elements as needed to collect data compliance metrics
- Provider/department/unit specific analysis as needed
- Non-compliance: look for reasons

# CPG Tracking Tools

## Who will track the CPG?

- Trauma Registry Professionals
- Trauma PI Coordinator
- Advanced Practitioner NPs/PAs
- ED Nurses/ICU Nurses
- Blood Bank MTP ratios
- Physician

## How will it be tracked?

- Trauma Registry
- PI Registry
- Electronically in spreadsheet
- Pulled from EMR
- Concurrent tracking with real time audits (ED flowsheet)

# Metrics for measuring Spine Injury CPG Compliance

- Your team defines elements of the Best Practices Guidelines to monitor through the PIPS processes
- Work with Liaisons to achieve consensus on metrics
- Approved data elements are integrated into the existing Trauma PIPS Plan to monitor compliance
- Compliance is monitored on an ongoing basis

[https://www.facs.org/media/k45gikqv/spine\\_injury\\_guidelines.pdf](https://www.facs.org/media/k45gikqv/spine_injury_guidelines.pdf)

# Reporting CPG Compliance

## Display Options

- Multiple ways to display data
- Depends on the audience
- 1 CPG at a time
- 1 CPG compliance along with complication incidence
- All CPGs at once, grouped by month/quarter/year
- Peer Review Meeting

## Integration

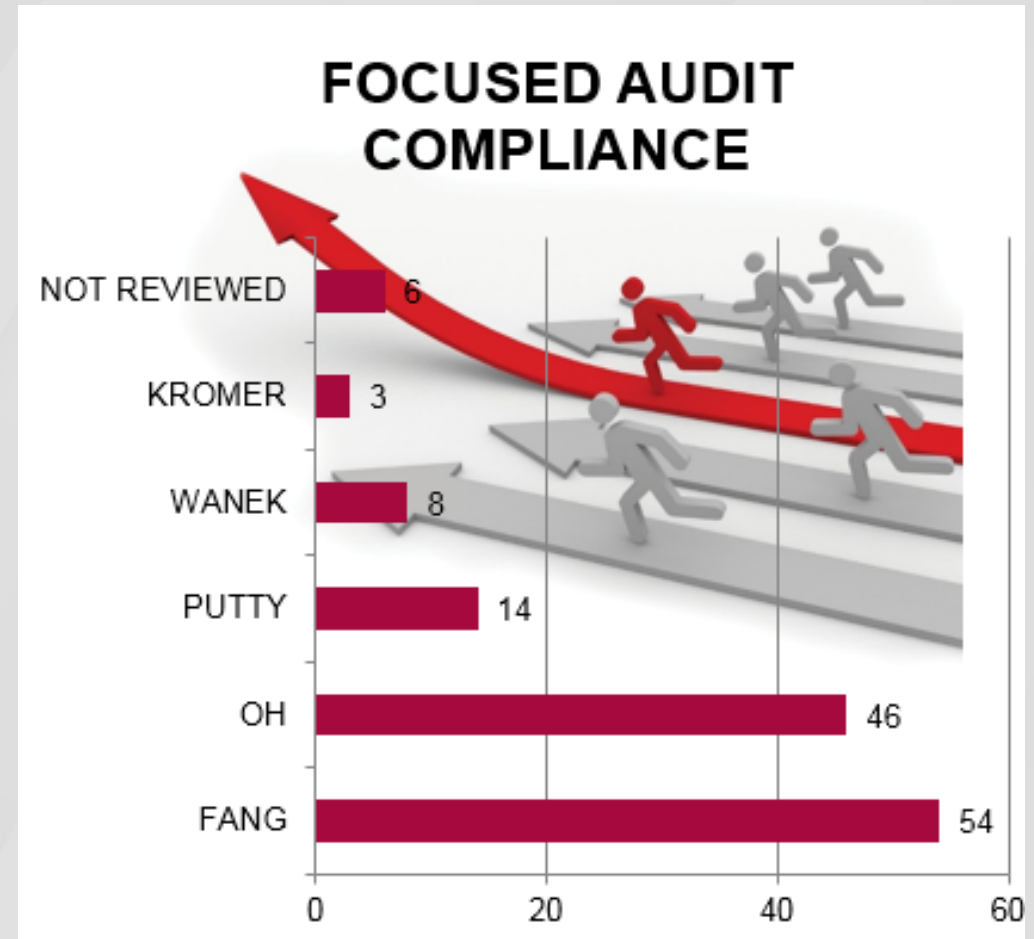
- Trauma Systems Meeting
- Hospital Quality Committee
- Itemize: Provider or System Related
- Classification
  - Compliant
  - Non-compliant (variance)
    - Acceptable
    - Not acceptable

# CPG Tracking Compliance: Dashboard Example

	2018	2018	2018	2018	2018	2018	2019	2019	2019	2019	2019	2019	Rolling FY 19
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	YTD
% VAP	0.00%	0.00%	0.86%	0.78%	0.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.22%
<b>CPG Compliance</b>													
BCVI	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	ND	ND	ND	ND	ND	ND	100.00%
BSF	83.33%	100.00%	100.00%	60.00%	100.00%	80.00%	ND	ND	ND	ND	ND	ND	87.22%
Facial Fx	100.00%	85.71%	100.00%	100.00%	100.00%	90.90%	ND	ND	ND	ND	ND	ND	96.10%
Geriatric Hip Fracture	ND	ND	ND	ND	ND	ND	100.00%	92.31%	100.00%	100.00%	100.00%	ND	98.46%
MTP Crystalloid Limited ( ≤ 1 L)	80.00%	100.00%	100.00%	75.00%	100.00%	NA	100.00%	NA	0.00%	100.00%	100.00%		83.89%
MTP Ratio (1:1:1) All	60.00%	33.34%	80.00%	75.00%	50.00%	100.00%	33.34%	NA	50.00%	50.00%	50.00%		58.17%
MTP Ratio (1:1:1) ≥ 4 RBC	100.00%	100.00%	100.00%	100.00%	100.00%	ND	50.00%	NA	0.00%	100.00%	50.00%		77.78%
MTP Ratio (1:1:1) ≥ 6 RBC w/in 4 h	0.00%	NA	100.00%	100.00%	100.00%	NA	0.00%	NA	NA	100.00%	50.00%		64.29%
MTP Ratio (1:1 or 1:2) ≥ 6 RBC	100.00%	NA	100.00%	100.00%	100.00%	NA	100.00%	NA	NA	100.00%	100.00%		100.00%
MTP Cryo Replace (≥ 10 RBC)	ND	ND	ND	ND	ND	ND	100.00%	NA	NA	ND	100.00%		100.00%
Open Fx (Abx ≤ 60 min)	28.57%	100.00%	66.67%	75.00%	85.71%	60.00%	100.00%	85.71%	42.86%	83.33%	54.54%	88.89%	72.61%
Open Fx Tdap Administered	ND	ND	ND	ND	ND	ND	100.00%	50.00%	83.33%	100.00%	100.00%	100.00%	88.89%
Rap Rev of Acoag	75.00%	91.67%	85.71%	100.00%	71.43%	100.00%	100.00%	80.00%	100.00%	100.00%	100.00%	100.00%	91.98%
Rib Fx	66.67%	50.00%	80.00%	75.00%	100.00%	80.00%	91.67%	100.00%	55.56%	66.67%	92.86%	80.00%	78.20%
Unstable Pelvic Fx	NA	NA	100.00%	NA	0.00%	NA	NA	NA	NA	NA	100.00%	100.00%	75.00%
VTE Chemoprophylaxis Rate	58.88%	66.91%	72.36%	68.57%	63.30%	59.65%	68.10%	65.85%	67.59%	68.75%	70.25%	70.59%	66.73%

## Increasing CPG Compliance

- Review with providers and staff at monthly meetings
- Reinforce the 'performance metrics' that are key to the guideline
- If everyone is having a problem with the guideline, then perhaps revision or appropriate education session is needed
- Competition in our health care delivery system has reached the conclusion that vigorous competition among health care providers "promotes the delivery of high-quality, cost-effective health care."



From CMS, [https://www.justice.gov/archive/atr/public/press\\_releases/2008/237153a.htm](https://www.justice.gov/archive/atr/public/press_releases/2008/237153a.htm)

# Summary

- Audit filters and performance metrics capture variances in all levels of trauma centers
- Institutions should choose discretionary audit filters relevant to their patient population and define performance metrics in a PI Dictionary
- A plan for monitoring and reporting the PIPS activities of the trauma center is a vital component of the overall trauma program
- CPG variance tracking evaluates compliance and reasons for non-compliance

# Module 4: Tertiary Level of Review: Committee Forums



## Joann Burrington, MBA, BSN, RN

“Trauma Performance Improvement committees provide a forum for leaders from all disciplines and service lines that touch an injured patient, to communicate openly with the common goal of improving outcomes. This open communication provides the foundation for a highly reliable organization, a successful trauma program, and achieving event resolution in a timely manner.”



# Trauma Committees

Required Committees

Committee Membership

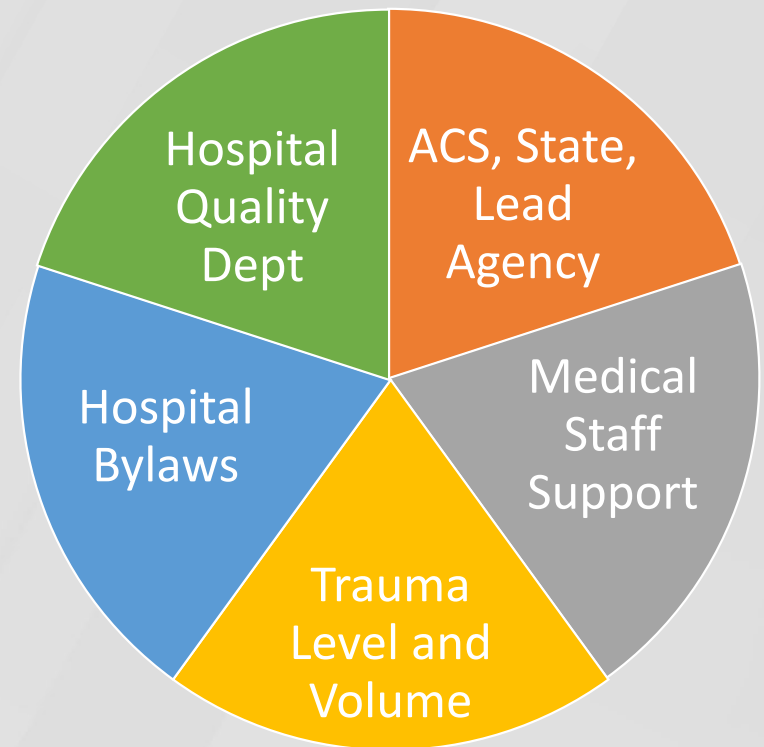
Agendas & Minutes

Optional Committees

Meeting Platforms

# Trauma Committee Structure

- Defined by trauma center level and volume
- Defined by ACS, State Regulations, and the Lead Agency
- Driven by Hospital/Medical staff bylaws
- Supported by medical staff and quality department



# Trauma Committee Structure

## Required Committees

- Multidisciplinary Peer Review
- Trauma System/Operations Meeting

## Optional Committees

- Morbidity and Mortality (M&M) Conference
- Pre-Hospital Trauma Review
- Specialty Peer Review

# Required Trauma Committees: (Clinical vs Operational)

## Multidisciplinary Peer Review

- Clinical review of care
  - Mortality
  - Adverse Events
  - Complications
- Audit filter fallout
- Deviations from protocols or CPGs
- Review of clinical data
- Physician centered
- Review of meeting attendance compliance
- Led by TMD

## Trauma System/Operations Committee

- Process focused
- Designation/verification readiness
- Administrative oversight
- Team centered
- Led by TMD or TPM
- Review of operational data
  - Diversion
  - ED length of stay
  - Pre-hospital
  - Admissions vs Transfers

**Must have separate meeting agendas, minutes, and attendance**

# Committee Goals

Develop a culture that promotes both system and patient care improvements

Aligns with national standards

Review the performance and patient safety of the trauma center systems

Review of objective data and processes to improve patient care

# Trauma Multidisciplinary Peer Review Committee

# Trauma Multidisciplinary Peer Review Committee Members (Level I and II)

- Trauma Medical Director (60%)
- Trauma/General Surgeons\*
- Liaisons
  - Orthopedics\*
  - Neurosurgery\*
  - Emergency Medicine\*
  - Anesthesia\*
  - Critical Care\*
  - Radiology\* / Interventional Radiology
- Sub-specialty representatives
- Medical Examiner
- Physical Medicine & Rehabilitation
- Trauma Program Manager
- Trauma Registrar/PI Coordinator
- Providers involved in case

**\* *Minimum 50% attendance***

# Multidisciplinary Peer Review Committee Members (Level III)

- Trauma Medical Director (60%)
- Liaisons
  - Orthopedics\*
  - Emergency Medicine\*
  - Anesthesia\*
  - Radiology\*
- Specialty Services (Ortho/Neuro)\* (if indicated)
- Trauma Program Manager
- Trauma Registrar



*\* Minimum 50% attendance*

Refer to Designating Agency for attendance requirements

# Trauma Surgeons & Liaisons Roles & Responsibilities

- Structured orientation to PIPS plan and process
- Understand defined *event* reviews, definitions of complications, and the language of defined judgment or review determination
- Report identified *events* and occurrences to trauma team
- Shared responsibility for review of cases being presented at the PIPS meeting
- Participate in peer review discussion and determinations
- Participate in developing corrective action plans
- Providing routine feedback (weekly, monthly, annually)

# Trauma Multidisciplinary Peer Review Committee Considerations

- All or select deaths
- Select occurrences
- Sentinel events
- Problem trends
- Unusual or uncommon cases
- Unexpected outcomes
- TQIP reports with drill down information



*Great Saves!*

# Trauma Multidisciplinary Peer Review Committee Agenda

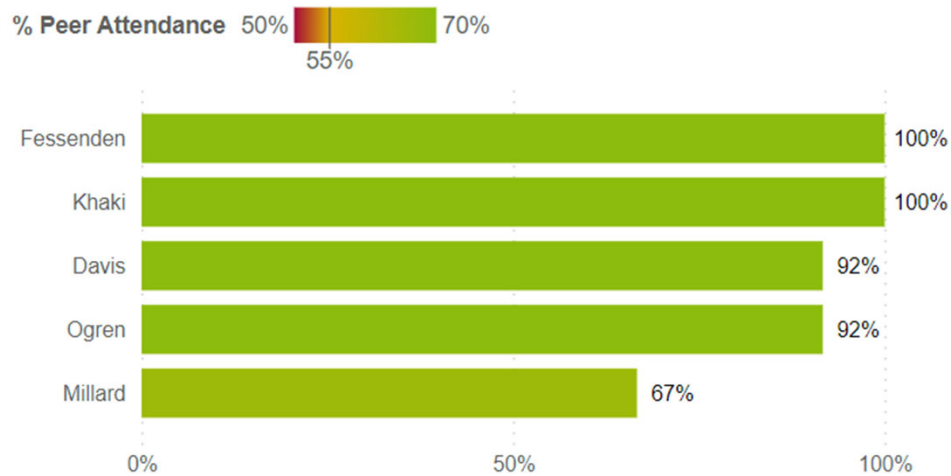


**Example in TOPIC Manual**

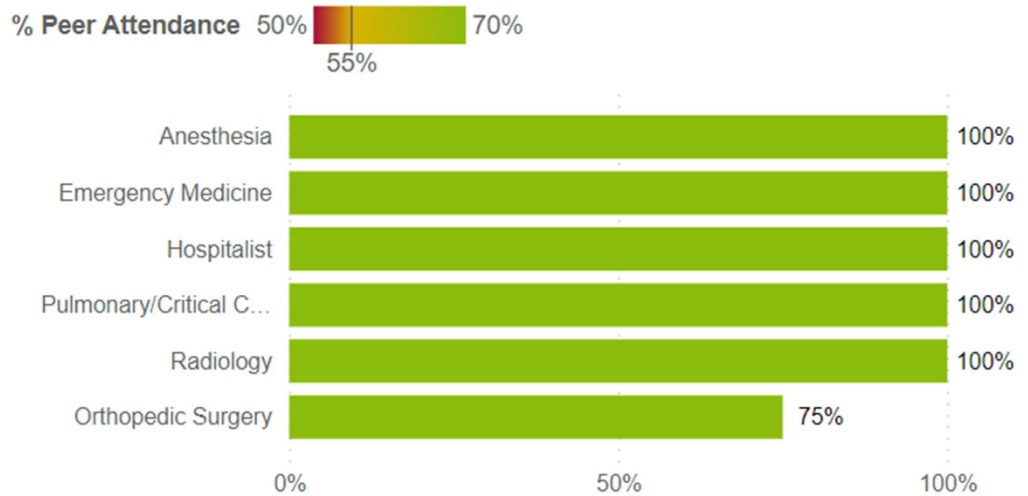
Trauma Center Trauma Multidisciplinary Peer Review Committee Agenda Date		
Called to Order By: TMD	Time:	Adjourned:
Welcome – Housekeeping Announcements		All
Approval of Minutes		All
Review of Attendance		TMD
Consent Agenda		TMD
Case Reviews <ul style="list-style-type: none"> <li>• Case Review 1 – Mortality</li> <li>• Case Review 2 – Complication</li> <li>• Case Review 3 – Deviation from CPG</li> </ul>		All
Trauma Data <ul style="list-style-type: none"> <li>• Volume</li> <li>• Trauma Team Activations</li> <li>• Response Times               <ul style="list-style-type: none"> <li>• Trauma Surgeons</li> <li>• Neurosurgery</li> <li>• Orthopedics</li> <li>• Interventional Radiology</li> </ul> </li> <li>• Nonsurgical Admissions</li> <li>• Complications</li> <li>• CPG Compliance</li> </ul>		PowerPoint Presentation
Open Forum		All
Next Meeting		Informational
Adjourn		

# PIPS Documentation – Attendance

## TACS Providers Peer Attendance for last 12 months



## Liaison Peer Attendance for last 12 months



# Monthly Summary of Cases Reviewed

Level 1  
Trauma PI Nurse or  
Program Manager

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Level 2  
Trauma Medical Director

---

Level 3  
PIPS Forum

---

Reviewed: 100

Reviewed: 20

Reviewed: 5

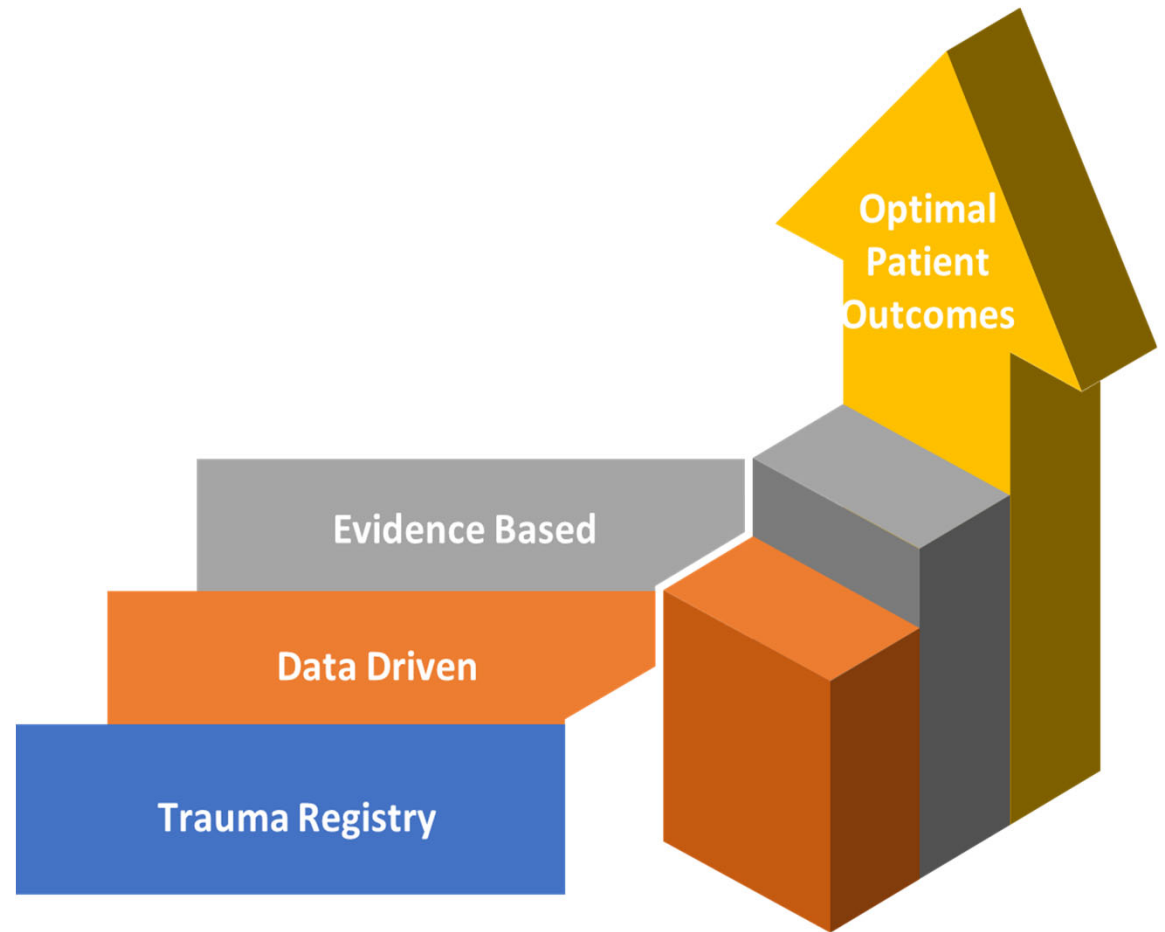
# PIPS Documentation – Consent Agenda Template

Mortality/Hospice Review					
Date	Name	Age	MRN	MOI	Classification
Events without Opportunity for Improvement (OFI)					
Date	Name	Age	MRN	Event	Action/Resolution
Hospital Events/Complications					
Date	Name	Age	MRN	Event	Action/Resolution

# Consent Agenda – Example

Trauma #	Event	Determination	Details
0001	Non-Surgical Admission	Care appropriate without OFI	84F transferred from outside facility s/p GLF with right hip fracture. Admit to Internal Medicine with an Orthopedic consult. Tertiary completed by Trauma. Appropriate NSA.
0002	Transfer Out	Care appropriate without OFI	36M with 20% TBSA transferred to Burn Center. Appropriate burn care performed. Follow-up information from Burn Center received and reviewed with no OFI.
0003	Rib Fracture CPG Deviation	Care appropriate without OFI	49F fall, boarded in the ED with rib fx x2. FVC obtained, multimodal pain medications ordered. HD1 PT/OT evaluation, Anesthesia placed ESP catheter, FVCs monitored BID. Discharged HD3. No OFI identified.
0004	Documentation	Care appropriate with OFI	22M trauma transfer for accidental GSW to LUE. Hand Surgeon consulted, no note found in medical record, treatment recommendations found in Trauma notes. Targeted follow-up with consulting provider, medical record updated.

# Peer Review Presentation



**Trauma Center  
Trauma Multidisciplinary Peer Review Committee  
Minutes  
September 26, 2023**

Called to Order By: TMD	Time: 0800	Adjourned: 0900										
	Discussion											
Welcome	Sign-in per QR code on first slide											
Approval of Minutes	Approved by Radiology liaison. Seconded by TS. Unanimous approval without edits											
Review of Attendance	Attendance graph attached.											
Consent Agenda	Consent agenda presented (see attached). No discussion brought forward on any listed case. All cases closed per committee.											
Case Reviews	<p>Case Review</p> <table border="0"> <tr> <td>Trauma Registry #</td> <td>Name</td> <td>MRN</td> <td>DOS</td> <td>Indicator</td> </tr> <tr> <td>ABC123</td> <td>Doe, John</td> <td>0123456</td> <td>9/23/2023</td> <td>Mortality</td> </tr> </table> <p>Reviewed by: TS &amp; Anesthesiology liaison Case summary:</p> <p>Discussion points:</p> <ol style="list-style-type: none"> <li>Thoracotomy CPG compliance – Thoracotomy was done after 20 min pre-hospital CPR with blunt mechanism. CPG not followed. TS for case was not aware of CPR time. Discussion occurred regarding the futility of thoracotomy on blunt trauma. Consensus from group to follow CPG in place.</li> <li>Airway management – Anesthesiology liaison reviewed airway management and deemed appropriate. No OFI identified.</li> </ol> <p>Just Culture (Peer OFI) Caregiver is accountable. Coaching – TMD reviewed CPG with TS</p> <p>Determination: Anticipated mortality with OFI</p> <p>Opportunities for Improvement: (Future similar patients are less likely to have this problem because...)</p> <ol style="list-style-type: none"> <li>Follow Thoracotomy CPG</li> </ol> <p>Actions:</p> <ol style="list-style-type: none"> <li>TMD to review case and CPG with TS</li> <li>Review and re-education on Thoracotomy CPG to trauma team in next team meeting on 10/5/2023</li> </ol> <p>Loop Closure: 6 months of data demonstrating Thoracotomy CPG compliance</p>		Trauma Registry #	Name	MRN	DOS	Indicator	ABC123	Doe, John	0123456	9/23/2023	Mortality
Trauma Registry #	Name	MRN	DOS	Indicator								
ABC123	Doe, John	0123456	9/23/2023	Mortality								
Peer Review Action Item Follow-Up	Reviewed compliance to TBI CPG for 6 months – 100% compliance											
Trauma Data	See attached PowerPoint											
Open Forum	<ul style="list-style-type: none"> <li>Next ATLS course is Dec 1<sup>st</sup></li> <li>Annual Trauma Conference will be held on Jan 14<sup>th</sup></li> <li>Next meeting: Oct 24, 2023</li> </ul>											

# Trauma Multidisciplinary Peer Review Committee Minutes



**Example in TOPIC Manual**

# Case Presentation Documentation Example

Trauma Registry #	Name	MRN	DOS	Indicator
ABC123	Doe, John	0123456	9/26/2023	Mortality

**Reviewed by:** TS & Anesthesiology Liaison

**Case summary:** 58yo male was an unrestrained driver in a single car rollover. CPR per EMS. King tube per EMS for airway control.

## Discussion points:

1. Thoracotomy CPG compliance – Thoracotomy was done after 20 min pre-hospital CPR with blunt mechanism. CPG not followed. TS for case was not aware of CPR time. Discussion occurred regarding the futility of thoracotomy on blunt trauma with prolonged down time. Consensus from group to follow CPG in place.
2. Airway management – Anesthesiology liaison reviewed airway management and deemed appropriate. No OFI identified. Committee concurred.

**Just Culture** (Peer OFI): Caregiver is accountable. Coaching – TMD reviewed CPG with TS

**Determination:** Mortality with OFI

## Opportunities for Improvement:

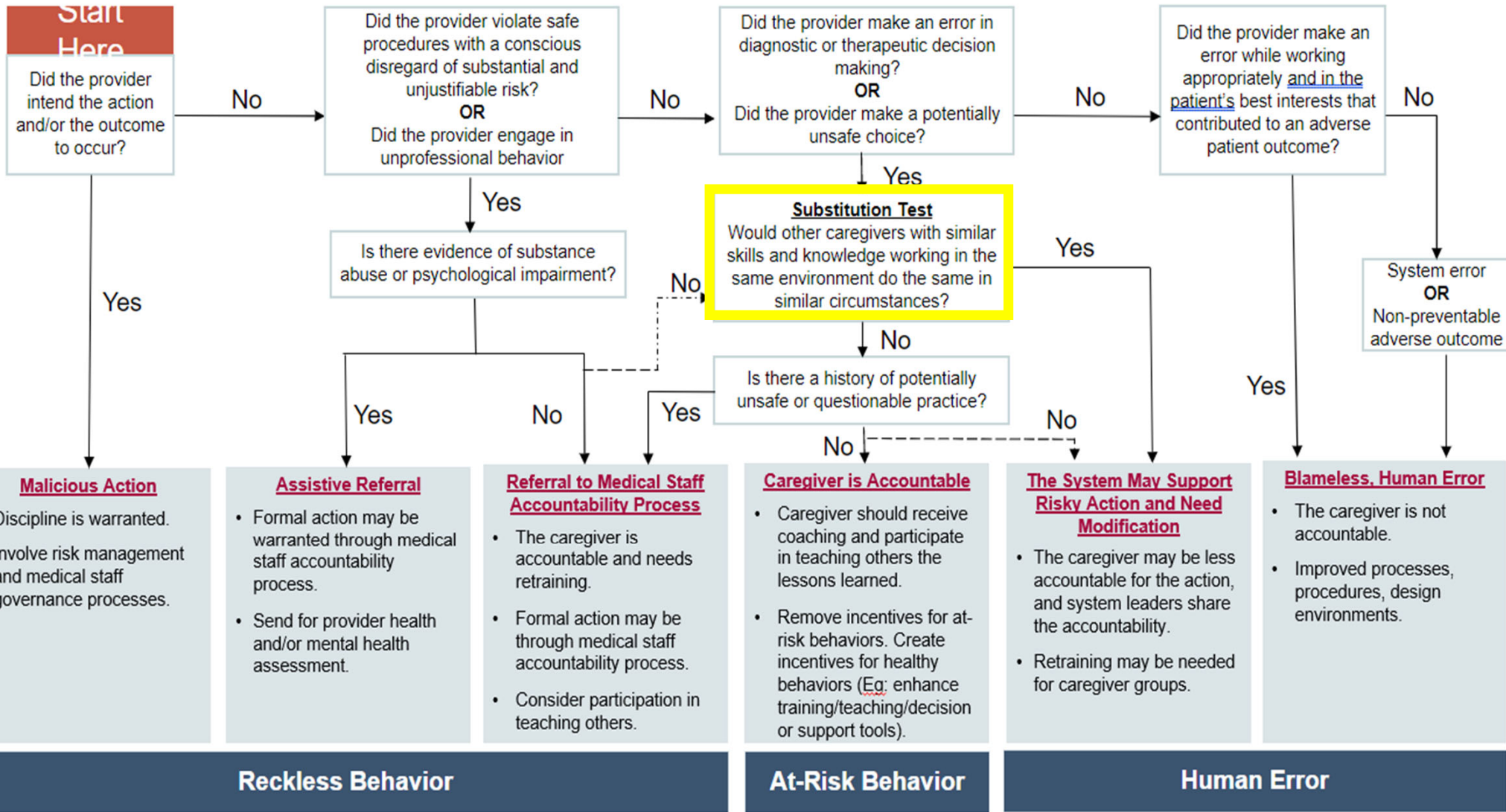
(Future similar patients are less likely to have this problem because...)

1. Follow Thoracotomy CPG

## Actions:

1. TMD to review case and CPG with TS
2. Review and re-education on Thoracotomy CPG to trauma team at next team meeting on 10/5/2023

**Loop Closure:** 6 months of data demonstrating Thoracotomy CPG compliance



# Pearls for Documenting Minutes

01

Use titles  
versus names

02

Capture spirit  
of discussion,  
does not need  
to be word for  
word

03

For data slides,  
use notes to  
document  
discussion  
which will be  
attached to the  
minutes

04

Ensure that  
committee  
members that  
cannot attend  
get the  
information  
missed

05

Remember to  
have a  
Confidentiality  
disclaimer on  
all PIPS  
documentation

# Contents of a PI Case File Example

- Case summary
- Events identified
- Registry data
- Correspondence regarding event or care
- Referrals for review and follow up / action
- Meeting minutes with determinations
- Corrective action(s)
- Documentation of event resolution



# Trauma System/Operations Committee

# Multidisciplinary Trauma Operations Committee Members

- TMD / TPM
- Trauma Surgeons
- Anesthesia
- Specialty liaisons
- Radiology/IR
- Critical Care
- Pediatrics
- Rehabilitation
- Administration
- Nursing Unit Leaders
- Trauma Registrar
- Pre-hospital/EMS
- Respiratory therapy
- Lab/Blood Bank
- Quality/Risk Management
- Pharmacy
- Nutrition
- Information Management
- Telemedicine Representative
- Research

**Membership is based on trauma care and services provided.**

# Trauma System/Operational Committee Agenda



Example in TOPIC Manual

Trauma Center Trauma System/Operations Committee Agenda Date		
Called to Order By: TMD/TPM	Time: 0800	Adjourned: 0900
TOPIC	Presenter	Action
Welcome – Housekeeping Announcements	TMD	Intro
Approval of Minutes	TMD	Action
Leader Updates	CEO/CNO	Info
State/Regional Trauma Update	TMD/TPM	Info
Old Business <ul style="list-style-type: none"> <li>• Interfacility Transport</li> <li>• SBIRT consult</li> </ul>	COO TPM	Info Info
New Business <ul style="list-style-type: none"> <li>• New ACS 2022 Standards</li> <li>• FAST Exams</li> </ul>	TMD	Info Action
Trauma Data		Info
Trauma Updates <ul style="list-style-type: none"> <li>• Injury Prevention</li> <li>• Outreach</li> <li>• Trauma Education</li> <li>• Research</li> <li>• ED</li> <li>• OR</li> <li>• Radiology</li> <li>• Blood Bank</li> <li>• Rehab</li> <li>• Case Management</li> <li>• EMS</li> <li>• Disaster Preparedness</li> </ul>	IP TPM TPM TMD ED OR Radiology BB Rehab CM EMS Disaster Coordinator	Info Info Info Info Info Info Info Info Info Info Info Info
Open Forum	All	Info
Announcements	All	Info
Next meeting:	TMD	Info

**Trauma Center**  
**Trauma Multidisciplinary Peer Review Committee**  
**Agenda**  
**September 26, 2023**

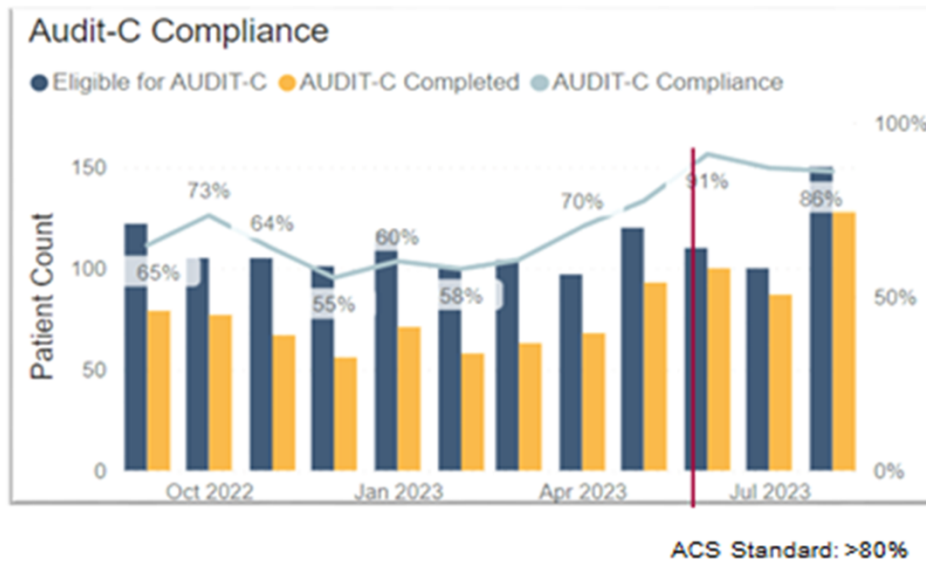
Called to Order By: TMD/TPM	Time: 0802	Adjourned: 0900
Welcome – Housekeeping Announcements	Sign in via QR code	Info
Approval of Minutes	Motion per Research Rep. Second by Rad Liaison. Approved per consensus	
Leader Updates	<ul style="list-style-type: none"> <li>COO reported that 2 new ambulances were purchased and 17 new EMS staff trained in Aug to assist with IFT</li> <li>CNO announced opening of 4 additional bed on 4South</li> <li>Director reported on implementation timeline for new Trauma Registry product</li> </ul>	Info
Old Business	<ul style="list-style-type: none"> <li>Per COO report above, will continue to monitor x6mo</li> <li>Approved mBIG CPG presented to committee. Will monitor compliance x3mo</li> <li>SBIRT compliance – see attached PP with notes</li> </ul>	Open Open Open
New Business	<ul style="list-style-type: none"> <li>New ACS 2022 Standards</li> <li>FAST exams</li> </ul>	Info Closed
Trauma Data	See PP slides with notes	Info
Trauma Updates	<ul style="list-style-type: none"> <li>See PP slide with upcoming IP events</li> <li>See PP slide with outreach report</li> <li>See PP slide with upcoming educational opportunities</li> <li>No new research projects at this time</li> <li>New Director, Nurse Nancy, starts on Oct 2<sup>nd</sup></li> <li>New sterilization process started Sept 1<sup>st</sup> with no issues</li> <li>CT 1 in ED will be down for upgrade on Sept 28<sup>th</sup> for 2 hours</li> <li>No new info. See PP slide for Blood utilization</li> <li>Representative not present</li> <li>CM reinforced focus on SBIRT</li> <li>Monthly EMS trauma education going well</li> </ul>	Info Info Info Info Info Info Info Info Info Info Info
Open Forum	No further discussion	
Announcements	Trauma Symposium on Nov 2-3, flyer attached	Info
Next meeting:	October 24, 2023	

# Trauma System/Operational Committee Minutes



**Example in TOPIC Manual**

## Trauma Operations Data Examples



# Documentation of Trauma Data Discussions

### Focused PI Project:

Below ACS standard for Jan-Apr 2023. Workgroup consisting of Trauma, Case Management/SW, ED nursing, and Inpatient Nursing met in early May. Education provided in May. Over 80% compliance for June-Aug 2023. Continue to monitor and report out monthly.

Discussion: COO asked if there are any ongoing barriers that need to be addressed. CM Director acknowledged that SW staffing in the ED is paramount for staying in compliance. TPM stated that ongoing education will be provided to both ED and inpatient nursing staff for new staff coming on board.

# PIPS Forums – Data Reporting

## Multidisciplinary Peer Review

- Physician Response times
- Mortality rate
- Complication rates
- CPG compliance

## Trauma System/Operations Committee

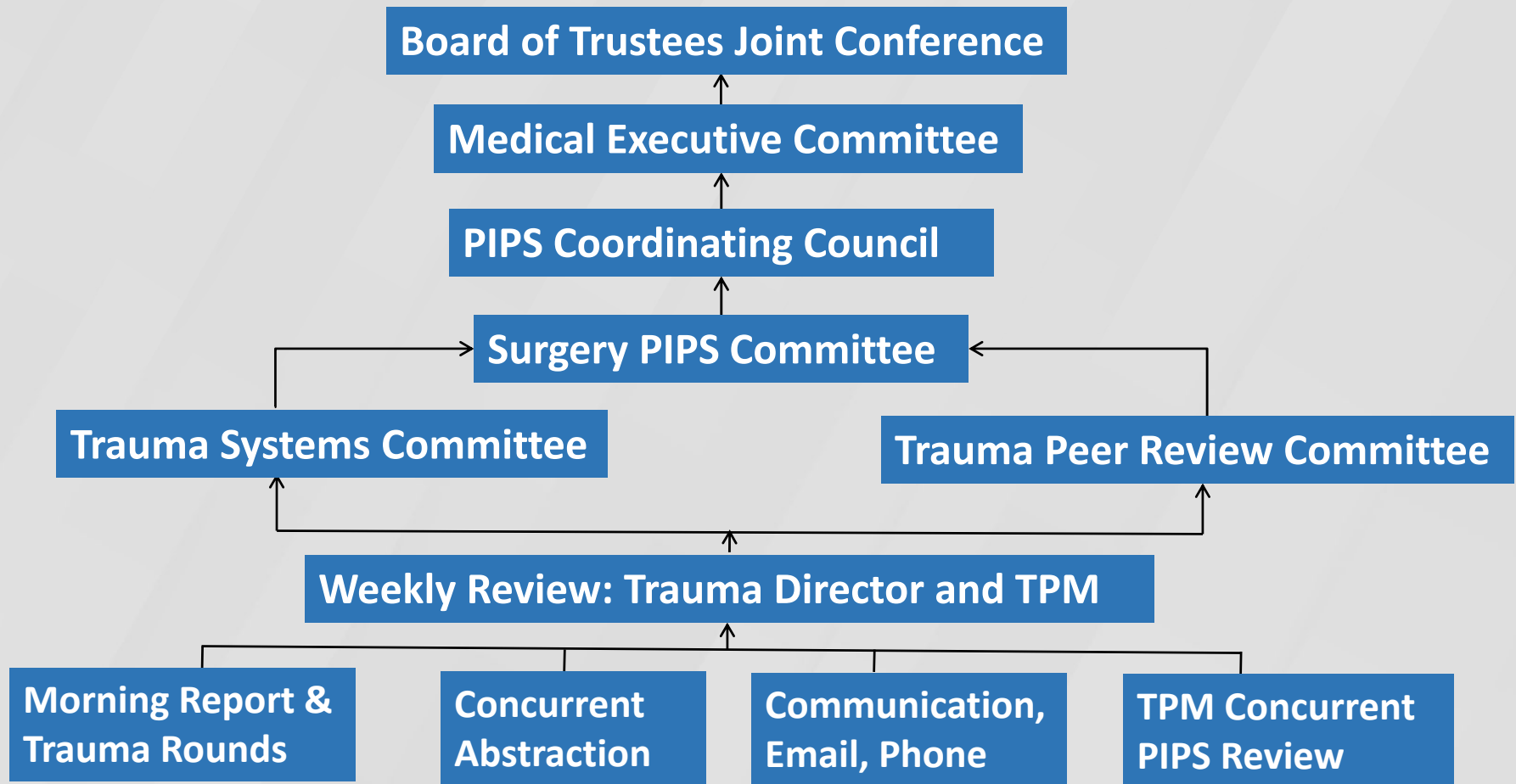
- Volume
- Admissions & Transfers
- ED Length of Stay
- Trauma Team Activations
- Over & Under Triage
- NSA rates
- Injury Prevention

# Trauma PIPS Integration with Hospital Quality

- Integration of Hospital Quality into the Trauma PIPS *Plan*
  - Trauma Program integrated into overall institutional reports
  - Present Trauma Committee reports to Hospital Quality
- Sharing of Common language for event classification
- Event awareness across departments
  - Avoid “silos”
- Halo effect on rest of hospital with a well functioning Trauma PIPS program



# Example Line of Authority for Trauma PIPS Process



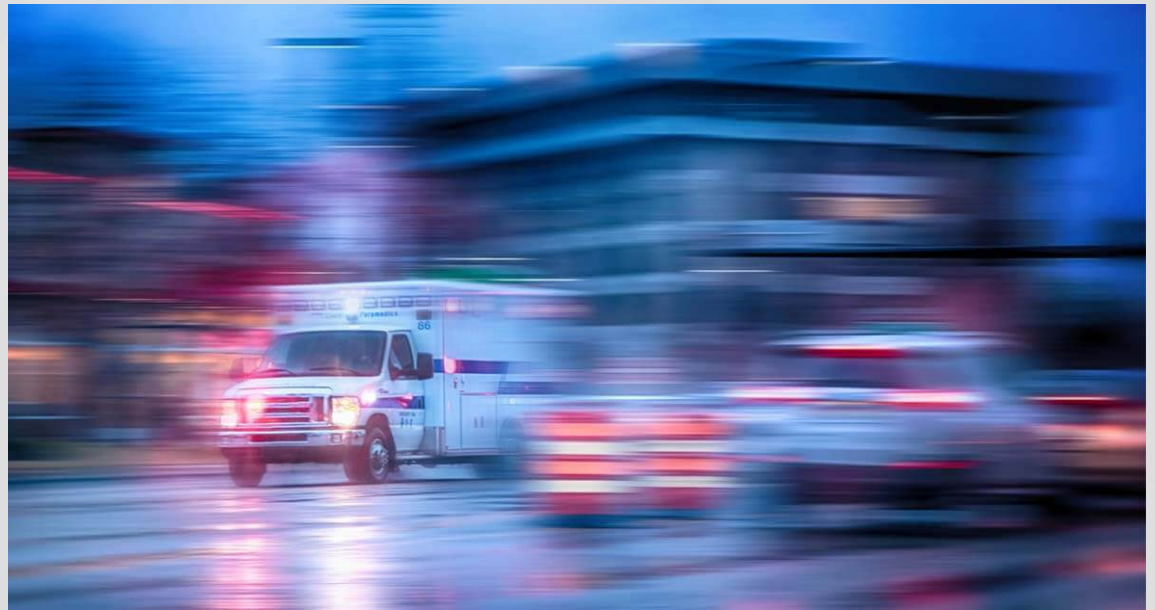
# Optional Committees

# Trauma Morbidity & Mortality Conference

- Must not take the place of the Multidisciplinary Trauma Peer Review Committee
- May “augment” your trauma PIPS processes
- May feed cases to Multidisciplinary Trauma Peer Review Committee
- Understand your state’s discoverability for PIPS
- Ensure you have meeting documentation including attendance

# Prehospital Trauma PIPS Committee

- Advantages:
  - Interface with prehospital agencies
  - Open dialogue between prehospital agencies and the trauma center
  - Review prehospital care
  - Improved patient care

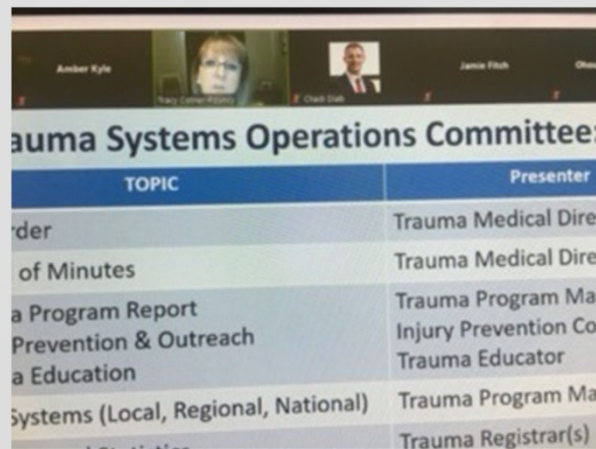


# Meeting Platforms

- In-person Meetings
- Sign-in sheets
- Electronic vs Paper Agendas & meeting documents



- Hybrid Meetings
- Attendance
- Follow process for virtual meetings



A screenshot of a meeting agenda for the "Trauma Systems Operations Committee". The agenda is presented in a table format with two columns: "TOPIC" and "Presenter".

TOPIC	Presenter
Order	Trauma Medical Director
Minutes	Trauma Medical Director
Trauma Program Report	Trauma Program Manager
Injury Prevention & Outreach	Injury Prevention Coordinator
Trauma Education	Trauma Educator
Trauma Systems (Local, Regional, National)	Trauma Program Manager
Registration	Trauma Registrar(s)

- Virtual Meetings
- Ensure only invited committee members are on the meeting
- Attendance can be done through a QR code
- Access to consent agenda prior to the meeting
- Consider requiring camera during meeting

# Use of Information Technology in Trauma PIPS Meetings

- Email notifications and agendas
- LCD screen/computer with link to EMR, Labs, Radiographic image
- Teleconferencing or video teleconferencing



# How to Run a Meeting

- Focus and re-focus on the purpose and objectives
- Members have a collective identity and responsibility for supporting PIPS
- Chair of the meeting is well prepared
- Professional courtesy (what cases are on the agenda)
- Never “sandbag” people



# PIPS Data Storage and Protection of Confidentiality

- Ensure all PIPS information is secured
- Examples:
  - Robust trauma data and PI security policy
  - Locked offices
  - Locked files
  - All PIPS information contains the State language for peer review protection / confidentiality



# Confidentiality Notice Example:

This document may contain privileged and confidential peer review, risk management, and/or quality management information pursuant to the Colorado Professional Review Act, C.R.S. 12-30-201, et seq., the Colorado Hospital Licensing law, C.R.S. 25-3-109, the Quality Management Programs law, C.R.S. 25-35-904, and other corresponding provisions of federal and state law. Please maintain the strict confidentiality of this information. If you are not the intended recipient, you are notified that any disclosure, copying, distribution, electronic storage or use of this communication is prohibited. If you received this communication in error, please notify us immediately by e-mail, attaching the original message, and delete the original message from your computer and any network to which your computer is connected.

# Summary

- Committee structure must be defined in your PI Plan. Distribute your PI Plan to your trauma team members so that everyone understands the trauma PI process.
- Multidisciplinary Peer Review and Trauma System/Operations Committees must be in place with separate agenda, minutes, and attendance.
- Membership should be defined in your PI Plan and each member should understand their role and responsibility to the committee.
- PI meetings should include documentation of robust case reviews as well as comprehensive data reporting.
- Clear confidentiality and security measures must be in place to protect your PI documentation.

# Module 5: Data Management - Supporting a Data-Driven Trauma PIPS Process



# Jessica Cofran, MSN, RN, TCRN, CSTR, CAISS

“High quality trauma data is the cornerstone of all trauma performance improvement. The trauma registry is an invaluable tool that facilitates informed insights into the unique needs of the trauma center and the population served. It is essential that trauma programs have an in-depth understanding of the trauma registry, data management, and data implementation concepts to ensure the development of effective performance improvement initiatives that improve outcomes for injured patients at the local level and beyond.”

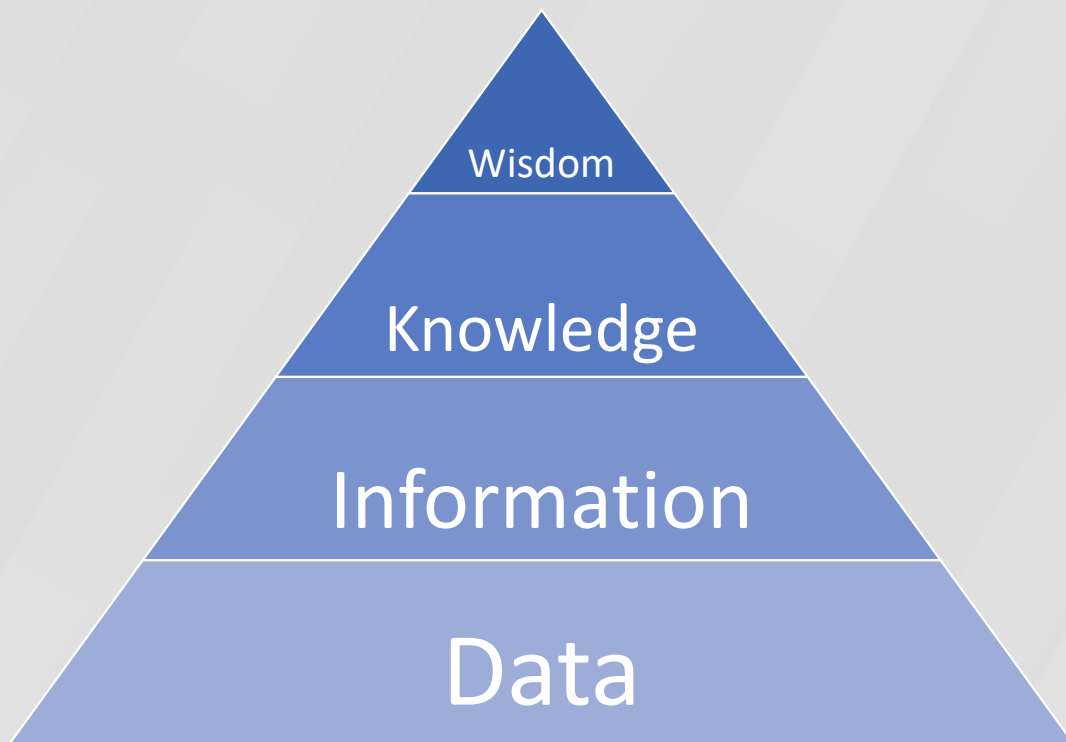


# Purpose of the Trauma Registry

Repository of clinical data utilized to ensure that all aspects of trauma center and trauma systems are data driven and evidence based



# Trauma Registry Data is Foundational



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Application	Insights that drive performance improvement initiatives
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Context	Measures of performance, compliance
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Meaning	Organized data, volumes, counts
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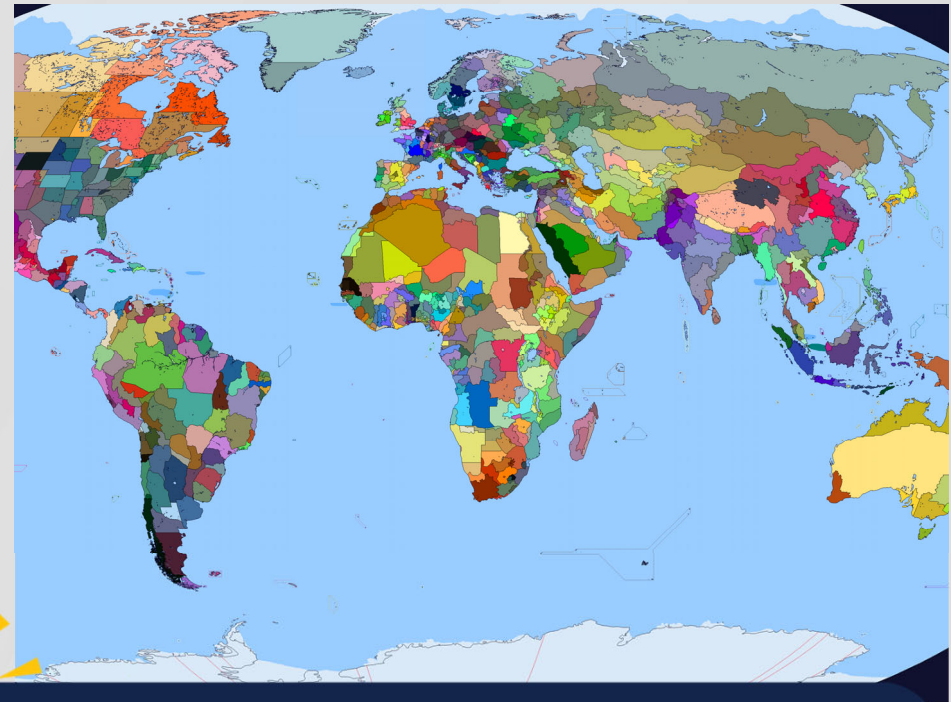
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Raw Data	Record level data
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# Regional, State, and National Trauma Registries

- Valuable component of an effective trauma system
- Aggregate of registry data from participating trauma centers and hospitals
- Regional and State trauma registries used for trauma system PIPS
  - Needs assessment
  - Epidemiologic purposes
  - Region and State-wide research

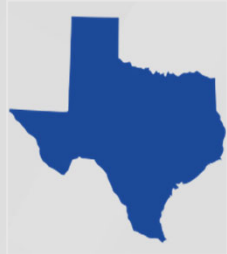


*Know your facility participation*

# Trauma Data Dictionary



National Trauma  
Data Standard  
(NTDS)



State



Local



Facility-  
specific

- Essential tool for ensuring data accuracy and consistency
- Data elements are clearly defined
- Definitions are key to data analysis interpretation
- Trauma programs may need to collect additional data elements to inform PI initiatives

# Trauma Registry Functions

Support PIPS  
Process

Evaluate Care

Operations

Injury  
Prevention

Designation and  
Verification

Regulatory  
Requirement

Research

Finance

# Trauma Registry Requirements

1

## Data must be collected and analyzed

- High-quality
- Accurate
- Reliable

2

## Data collection must be timely

- At a *minimum*, 80% of cases must be entered within 60 days of discharge
- States may require a tighter deadline
- **Concurrent abstraction is best practice**

3

## Data must be submitted to local, regional, and national regulatory bodies

# Trauma Registry Software

- Essential for optimal trauma program functionality
- Should be trauma registry vendor/database
- Supports data validity and reliability
- Has robust report writing capabilities
- TPM must have a thorough understanding of the software capabilities
  - Data interoperability
  - PI tracking
  - Benchmarking
  - And more. . .



*Education is included in the price*

# Protection of the Trauma Data

## Ensure data is always secure

- Physically locked office and desk space
- Password protection
- Remote work agreements

## Develop and maintain a trauma data security policy

- Ensure consistency with hospital data security policies

## Limit access to the trauma registry

- To protect patient privacy and ensure integrity of the data
- Recommend TPM, TMD, and trauma staff only

# Trauma Data Requests

## Trauma Data Request Form

- Data use agreement
  - Privacy
  - Credit the registry
- Purpose
- Inclusion and Exclusion criteria
- Timeframe
- Data elements are needed
- Research Requests
  - Institutional Review Board (IRB) determination
  - Study protocol

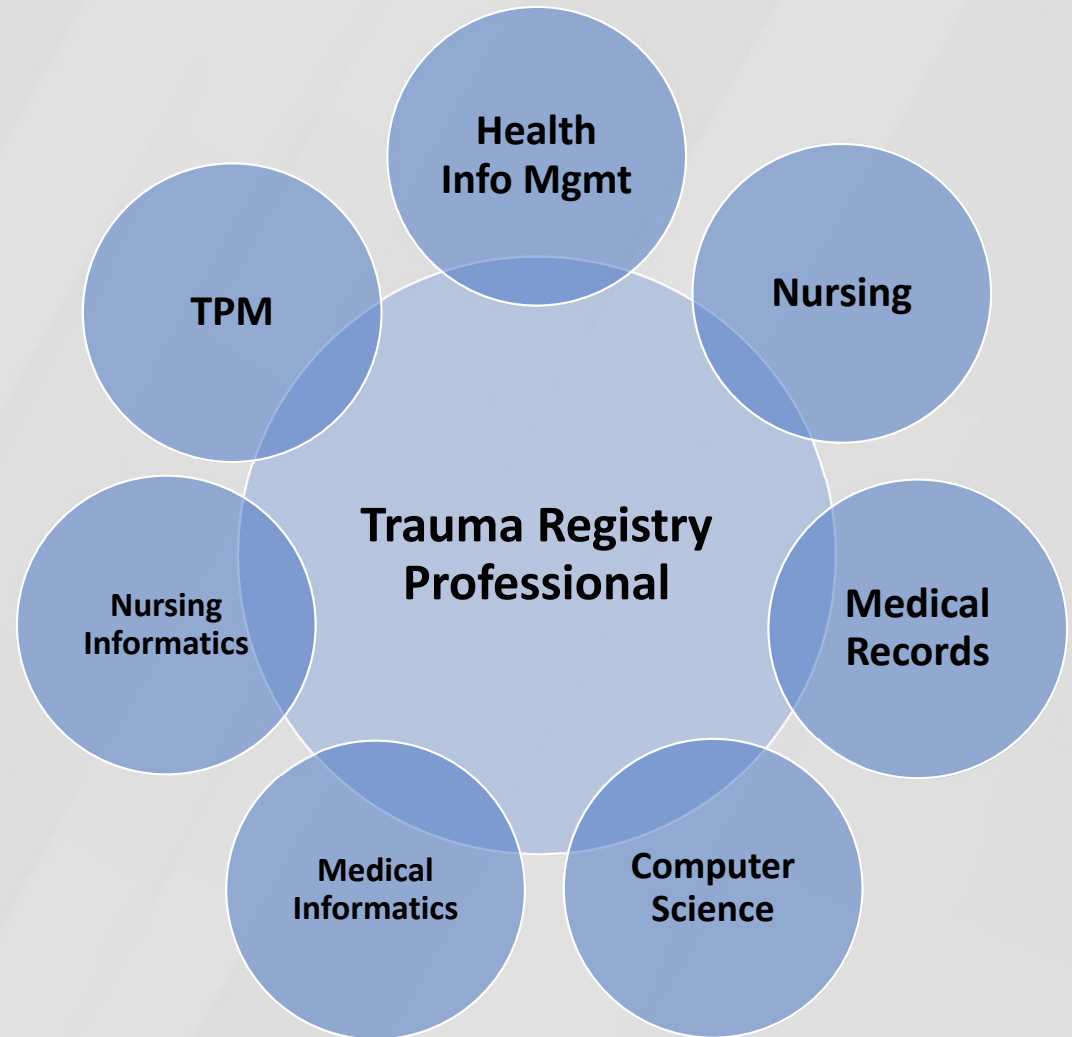
## Trauma Data Request Process

- Defined for your facility
- Submission of the trauma data request form
  - Electronic
  - Paper
- Approval of the request by trauma program leadership
- Report writing and validation
- Sharing report output

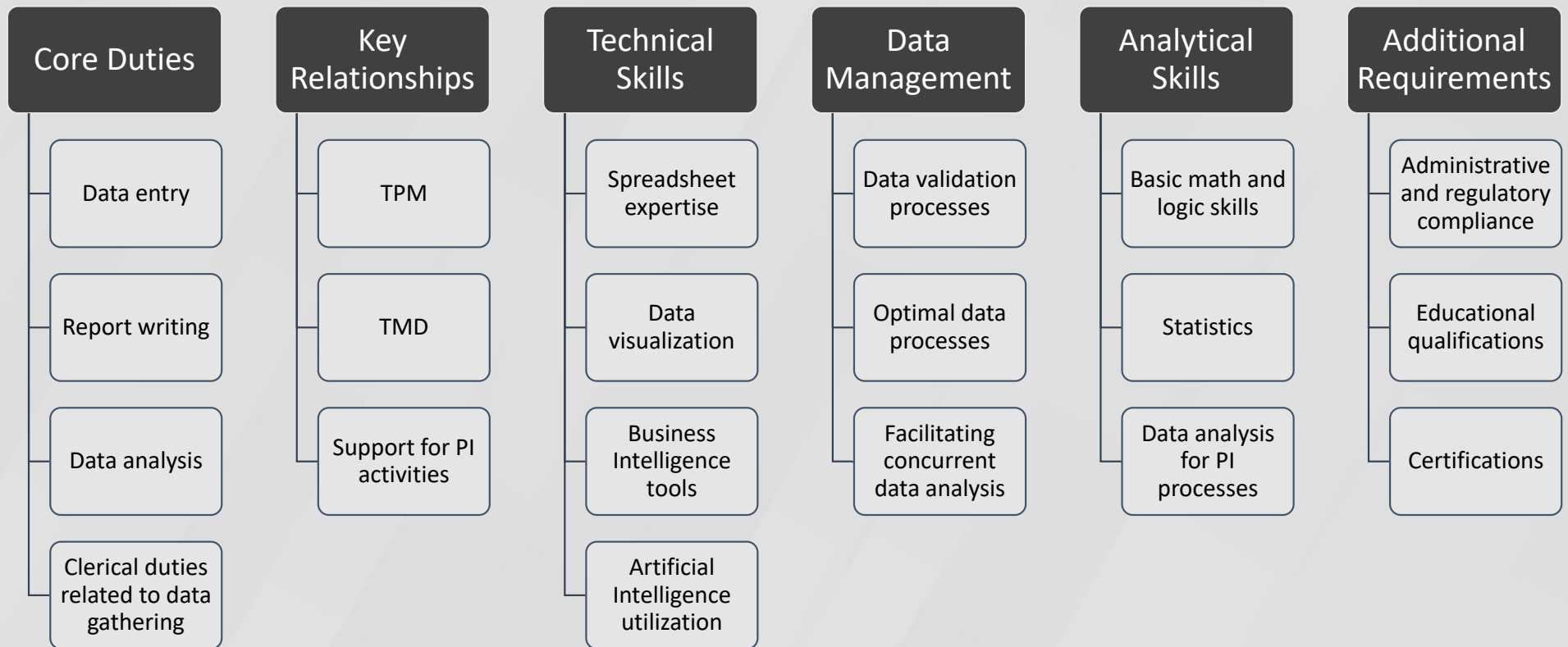
# Trauma Registry Professional (TRP)

## Diverse Professional Background

- Health Information
- Nursing
- Paramedics
- Informatics



# Trauma Registry Professional (TRP) Job Description



# Trauma Registry Professional (TRP) Education and Training Requirements

- Trauma Registry Course
  - Abstraction
  - Data Management
  - Reports and Report Analysis
  - Data Validation
  - HIPAA
- AAAM Injury Scaling Course for the version used at your center
- Trauma ICD-10 course every 5 years
- Continuing education

\*Education and Training Requirements apply to ALL staff performing registry duties, including outsourced registry staff

# Trauma Registry Certifications



## CAISS

### Certified Abbreviated Injury Scale Specialist

- Formally identifies expertise in collection and application of AIS injury information
- Sponsored by Association for the Advancement of Automotive Medicine (AAAM)
- 5-year certification
- May be a regulatory requirement



## CSTR

### Certified Specialist in Trauma Registry

- Formally identifies expertise in basic trauma registry knowledge
- Sponsored by the American Trauma Society (ATS)
- 4 year certification

# Trauma Registry Professionals (TRP) Day



The American Trauma Society

Today, we honor the dedicated professionals behind the scenes, meticulously recording and analyzing data that saves lives every day. Happy National Trauma Registry Professionals Day! Your commitment to accuracy and efficiency ensures that healthcare teams can deliver the best care possible. Thank you for your vital contributions to improving trauma care worldwide. [#ATSTrauma](#) [#TraumaSurvivors](#) [#ThisIsTraumaRegistry](#)

**Trauma Registry Professionals Day**

Annual Celebration:  
1st Wednesday in May

[#THISISTRAUMAREGISTRY](#)



- Recognizing the TRP as a key contributor to the trauma program
- First Wednesday in May
- Social media campaigns and activities

# TRP Support of Trauma PIPS



---

**Ensure accuracy, validation, and concurrency of trauma registry data**

---

Concurrent identification of hospital events, deaths, and trends in care

---

Facilitates identification of PI opportunities and progress through routine report analysis (weekly, monthly, annually)

---

Collaborates to develop data strategies that drive PI initiatives

---

Maintains risk-adjusted benchmarking data requirements

---

Meeting the trauma system PIPS requirements

---

# TRP Integration into the Trauma Program

## TRP Integration

- Daily/weekly clinical rounds
- Trauma Systems/Operations Committee
- Multidisciplinary Trauma Peer Review (when appropriate)
- Other educational opportunities

## Involved in trauma PIPS

- Event Identification
- Data element updates
- Data Validation and Reporting

## Educate your team on TRP role

- Responsibilities of TRP
- Registry inclusion criteria
- Audit filter collection
- PI committees and reports

# Staffing Considerations

Goal: Create and sustain a concurrent data process

- Must maintain and appropriate staffing ratio
  - 1 FTE per 400-600 registry entries
- Consider program needs
  - Volume
  - Acuity
  - Which data elements are collected?
    - NTDB, State, Facility-specific
  - Other duties assigned to the TRP
  - Research
  - Back-log in the registry

# Work Models

## On-site

- Daily Engagement with trauma program staff
- Integrated into the program

## Remote

- Participate in trauma program virtually
- Requires robust oversight by the TPM
- Need to ensure data security

## Hybrid

- Onsite and virtual engagement with the trauma program
- Need to ensure data security

# Staffing Models

## Traditional

- Trauma Registry personnel dedicated to the trauma program
- Registry processes tailored to the trauma program

## Centralized Registry

- Hospital system may centralize registry staff to serve multiple trauma programs
- Standardization of registry processes
- Data management and oversight must still be provided by TPM

## Outsourcing

- Requires close supervision and data validation
- TRP must be engaged in the team and PIPS process
- May be valuable to relieve backlog

# Concurrent Data Process Concepts

Staffing	Ensure appropriate trauma registry professional staffing ratios
Resources	Maintain a current data dictionary
Processes	Optimize work processes with appropriate hardware and software support
Workflows	Revitalize outdated trauma data workflow processes
Planning	Plan carefully and aggressively for an appropriate trauma data model
Oversight	Monitor and provide careful oversight to the trauma registry staff to support their roles and responsibilities
Considerations	Consider the acuity and volume at your center
Requirements	Understand the data requirements
Monitor	Monitor trauma registry processes and efficiency

# Monitoring Trauma Registry Processes Record Completion (example)

Trauma Registry Professional	TRP 1	TRP 2	TRP 3	TRP 4	Grand Total
Blank Data Fields	1	5	0	11	17
Completed Records	47 (90%)	64 (82%)	29 (60%)	54 (87%)	194 (80.8%)
Total Records	52	78	48	62	240

# Why Validate Your Trauma Data?

The process of developing, implementing, and refining a registry data validation system is integral to optimal trauma registry operations.



**Goal: significant reduction / complete elimination of avoidable errors**

Protetch, J, Chappel, D. (2008) Trauma Registry Data Validation: Building Objectivity. *Journal of Trauma Nursing*, 15 (2), 67-71.

# Data Validation is...

- A multi-step process to ensure the trauma registry data is correct; to prove or disprove accuracy
- A review of data for completeness and appropriateness with the elimination of erroneous values
- The process of identifying suspicious or invalid data points, variables, and data values
- Utilizes internal and external means to identify data quality

# Data Quality Plan

- Framework that describes how the trauma program ensures the data is accurate.
  - What are the program's data validation processes, and how are they accomplished
- Based on your program structure may be integrated into the performance improvement plan or stand-alone document
- Regulatory requirement

# Data Governance

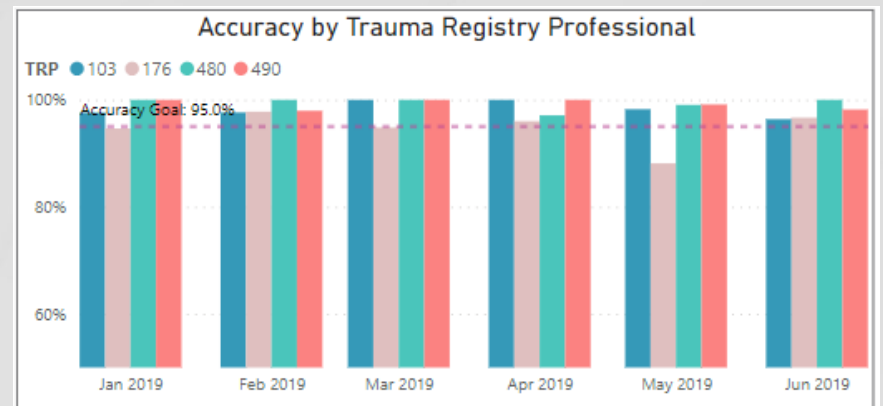
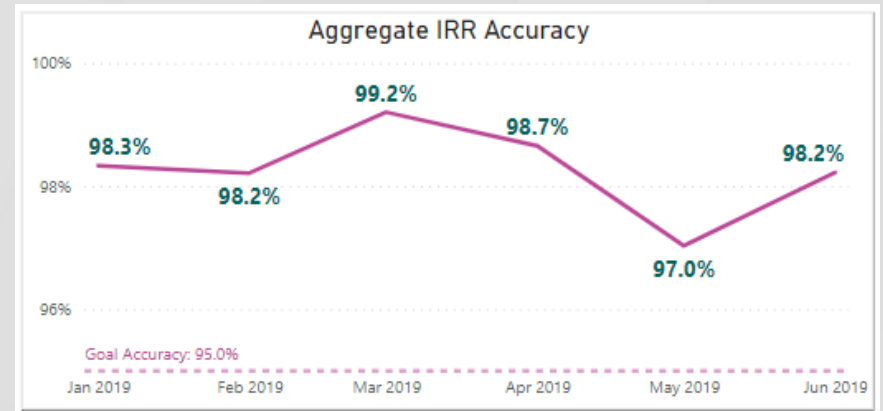
- What do you do when you find issues/concerns?
  - The registry staff and TPM should discuss the findings to reinforce educational opportunities
  - Who makes data corrections?
  - Will data require re-submission?
  - What corrective actions make sense for the issues you find?

# Reporting Data Accuracy

- Monitor data accuracy
- Accuracy Goal is 95%
- Give timely feedback to registry staff when there is opportunity
  - “Report card”
  - Break down by sections
    - Procedure coding, injury coding, pre-existing conditions, etc

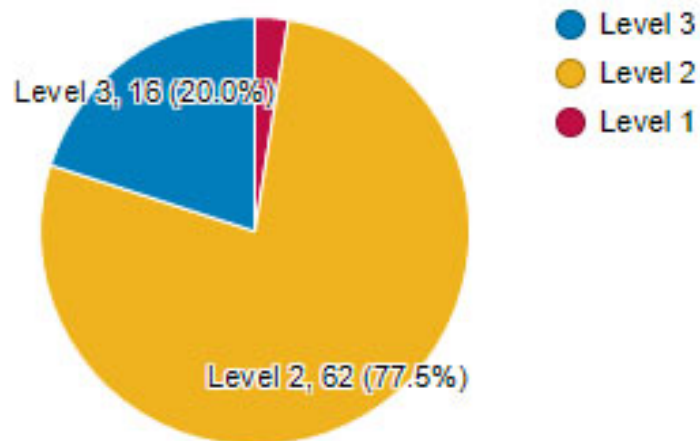


See the TOPIC Manual Appendix for more information



# Data Submission

## Validation Alert Summary



- Data is submitted to national, regional, or state registries at a regular interval
- Requires in-depth knowledge of the data dictionary and trauma registry software
- Includes a post-submission validation process

# Summary

- The trauma registry is the foundation of the trauma program and should drive trauma performance improvement
- Maintain appropriate staffing levels, training, and continuing education according to regulatory requirements
- Develop and maintain a concurrent data collection and analysis process
- Integrate the trauma registry staff into the various aspects of the trauma program such as rounds, education, and case conferences
- Data validation and a robust data quality plan is essential to trauma registry management and data implementation

# Module 6: Developing Effective Action Plans for Quality Improvement in Trauma Care

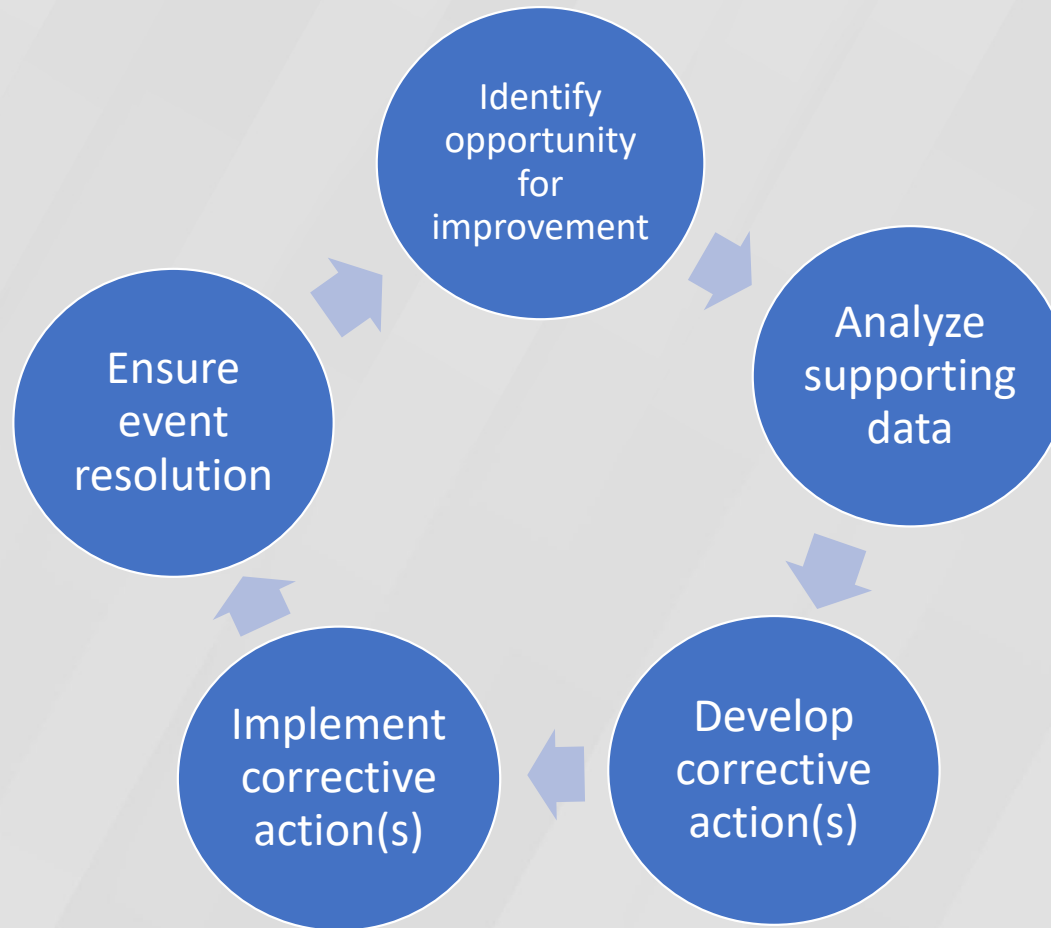


# Eileen M. Bulger MD, FACS

"A robust performance improvement program is critical to ensuring optimal care for injured patients. The TOPIC course provides a roadmap for trauma program managers and trauma medical directors to implement an effective program in their trauma center"



# Action Plan Process



# “SMART” Action Plans

SPECIFIC

What do you want to do and Who will do it?

MEASURABLE

How will you know when you’ve reached it?

ACHIEVEABLE

Is it in your power to accomplish?

REALISTIC

Can you realistically achieve it?

TIMELY

When, exactly, do you want to achieve it?

# Mitigation or Prevention

**Mitigation:** Corrective actions are a reaction to problems that have already occurred

- The event may have a chance of occurring again
- Mitigation recognizes an event may/will occur again and seeks to lessen the consequences

**Prevention:** Corrective actions are initiated to stop potential problems from occurring

- Prevention seeks to truly eliminate future events

**TOPIC**



# CLASS DISCUSSION

# Mitigation and Prevention

What are some examples of “prevention” and “mitigation” that you might use in your trauma hospital?

## PREVENTION:

Education on new equipment rapid infuser staff education and training. This could include providing ongoing education on best practices for patient care, such as proper hand hygiene techniques or safe patient handling  
implement standardized protocols and guidelines for specific patient populations or procedures

## MITIGATION:

- develop a robust system for tracking and analyzing patient outcomes and complications. regular reviews of patient charts, as well as tracking specific quality metrics
- clear process in place for responding to adverse events or complications. This could include a rapid response team that can quickly assess and stabilize patients who experience a sudden deterioration,

# Appropriately Match the Corrective Action to the Issue

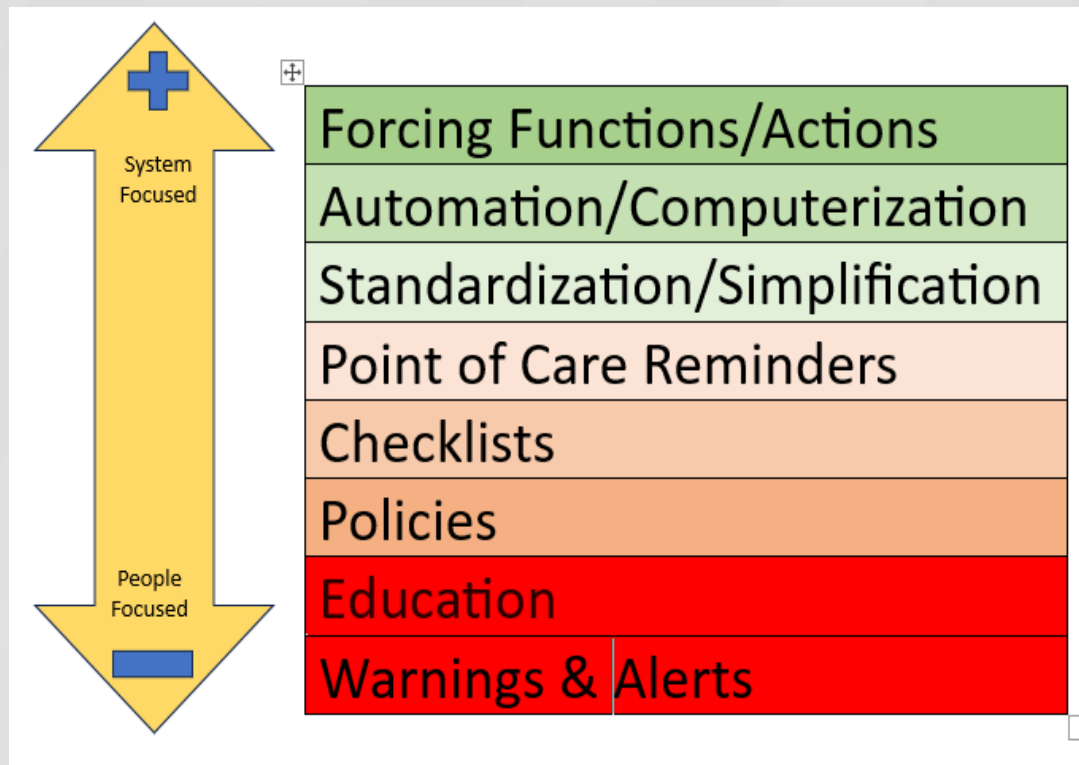
Specific Issue

```
graph TD; A[Specific Issue] --> B[Appropriate Corrective Action]; B --> C[Safe Patient Care and Prevention of Future Occurrences];
```

Appropriate Corrective Action

Safe Patient Care and Prevention of Future Occurrences

# Hierarchy of intervention effectiveness: What Works...What Doesn't



More Effective



**Most**  
Effective  
**Hardest** to  
Implement

**Least**  
Effective  
**Easiest** to  
Implement

Less Effective

# Focused Workgroup

## Many actions start with a focused workgroup

- Keep focus specific to an identified issue
- Time limited
- Champion
- Key stakeholders
- Complete data analysis
- Evidence-based information
- Develop plan, accountability, and deadlines



**Keep the Workgroup Focused...Routine status reports “up” to Trauma Systems-Operations Committee**

# Forcing Functions/Actions

Intervention  
Effectiveness

**HIGH**

**Establishing systems or actions that only allow a provider to do something in one way or in the correct way**

- Re-engineering of valve attachments on anesthesia machines that physically prevent connecting a nitrogen tank to an oxygen line
- Hard stop in medical record medication orders
- Increase or adjustments to staffing patterns and coverage
- Purchase of new equipment
- Cohorting trauma patients in one specific location

# Automation/Computerization

Intervention  
Effectiveness **HIGH**

## Automating activities or using computerization can reduce variation and subjective provider related actions

- Protocols/Practice Management Guidelines linked to orders in EMR
- Auto-faxing discharge summary to PCP
- Consider what systems could be modified to direct providers to the right actions?
- May require collaboration and unusual partnerships

# Standardization/Simplification

Intervention Effectiveness **MODERATE**

**Standardizing care via protocols/CPG reduces variation. Redesigning existing protocols to simplify provider actions**

- Evidence-based practice
- Decrease variation in practice/outcomes
- Consider how you will measure adherence and effectiveness
- Can you standardize or simplify existing processes to minimize potential quality issues?
- There are multiple resources available
  - American Association for the Surgery of Trauma (AAST)
  - Eastern Association for the Surgery of Trauma (EAST)
  - Pediatric Trauma Society (PTS)
  - Western Trauma Association (WTA)



# POC Reminders / Checklists

Intervention  
Effectiveness **MODERATE**

**What can be done at the bedside or during direct patient care that could prevent an event or mitigate the impact?**

- Team Timeouts/huddles
- Check lists
- Handoff reports every shift

## **Policies and Procedures can standardize care or activities.**

- Policies and procedure manuals need to be easily accessed.
- P&P's can become outdated or difficult to keep in sync with changing practice.
- How do you ensure that all providers know the policies?
- Policies that can support trauma QI efforts
  - Medication reconciliation
  - Infection control measures
  - Fall prevention programs

# Education

Intervention  
Effectiveness **LOW**

## Many avenues to provide education

- Patient teaching rounds
- M&M / Peer Review / teaching conferences
- Visiting professors/nurses
- Trauma Grand Rounds
- Journal clubs
- Case presentation
- Hospital newsletters
- Social Media
- Unit posters/ storyboards
- Video options
- Internal Online Education

## Education as a primary action plan

Can your registry/PI database track the educational events and document the following...

- What are you teaching?
- Who are you providing education to?
- When did you provide the education?
- Is this a one-time or recurring event?
- How will you measure/evaluate the impact or effectiveness of the education?



Education is typically incorporated into many other action plans strategies  
Remember that education efforts alone are a weaker, low value intervention

# Warnings & Alerts

Intervention  
Effectiveness **LOW**

**Alerting staff to potential issues/events has decreasing effectiveness over time.**

Bundling these strategies with other highly effective actions may help.

- Popup alerts in the medical record
- Signs and posters
- Alarms on monitors



Staff can quickly become immune to routine warnings and alerts will ignore/bypass over time

# Addressing Individual Performance Issues

## Individual Counseling

### Performance events

- Difficult
- Necessary
- Limited effectiveness
- Time sensitive
- Face to face

### Delivered by:

- Trauma Director
- Section Chief
- Administrator

## Privilege/Credentials Review

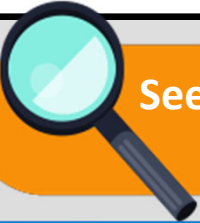
- Critical Step
- Includes trended events
- Consistent with medical staff bylaws
- Consistent with policies for remediation
- Integration into hospital PIPS program
- OPPE – Ongoing Professions Practice Evaluation



**Most events are systems related not behavioral**

# Ongoing Professional Practice Evaluation Example

<p><b>Trauma PI &amp; Peer Review:</b>  <i>Deaths per individual surgeon for this report are defined as those patients that died in ED, died in OR, or died in ICU within 24 hours:</i></p>				<p>The TMD and TPM must ensure that PI issues are appropriately attributed to a provider.</p>
<i>Category</i>	<i>Provider Related</i>	<i>System Related</i>	<i>Total</i>	
<i>Mortality without opportunity for improvement</i>				
<i>Mortality with opportunity for improvement</i>				
<i>SAE – deaths</i>				
<i>Total deaths</i>				
<p><i>General Clinical Care Comments:</i></p>				

 See the TOPIC Manual Appendix for more information

# Corrective Strategies and Actions

- Decide on a Strategy... Preventive or Mitigating?
- Internally managed or external review?
  - Many strategies start with a focused work group
  - Issues that cannot be addressed internally may benefit from an external review
- Regardless of strategy...lean towards actions that are highly effective
  - Highly Effective: Forcing Functions/Automating Systems
  - Moderately Effective: Protocols, POC reminders, checklists
  - Less Effective: Education, Warnings and Alerts



Regardless of the strategy or action, be mindful of addressing DEI considerations in your plans

# External Review

Involving an external provider/organization is a pathway to identify a strategy or action plan to address a quality issue.

- American College of Surgeons
- Local EMS Agency
- Specialty group from another hospital
- Consultant (subject matter expert)
- Lead hospital in a health care system
- Specialty focused review, e.g., Neurosurgery
- Mock surveys

# Trauma PI Includes the Whole Team

- PI monitoring and interventions apply to the entire Trauma Team
- Processes established to deal with non-physician provider related issues
- Include All staff that interface with the patient. A hallmark of a highly reliable organization
- Departmental leadership in each area/unit have responsibility to monitor and intervene



## Michael Glenn, RN

“An effective and efficient PI program doesn’t just happen... it takes individual and team effort, education and an understanding of best practices...and that is what TOPIC is all about”



# What are the Best Practices for Effective PI Action Plan Strategies?...

A structured format – what are you going to do, what is your specific outcome, who is responsible, when is it due, what are you doing

Written (formalized) – documented so that a reviewer, or your successor knows what you did, how you did it, etc.

SMART – Specific, Measurable, Achievable, Realistic, Timely

Matching the strategy to the issue, Hierarchy of effectiveness

Re-evaluate and confirm resolution... how are you going to close the loop?

# Summary

- Action Plans can be used for Prevention or Mitigation
- Utilize SMART goals concepts for Action Plan development
- Focus on Action Plans with high effectiveness
- Action Plans are NOT Event Resolution/Loop Closure

# Module 7: Event Resolution/Loop Closure



# Brian J. Eastridge, MD, FACS



*"The Trauma Outcomes and Performance Improvement Course is uniquely transformative, instilling our team with the mindset and tools to critically analyze our actions, refine our skills, and elevate our care standards, ensuring that every decision we make and every action we take is informed, precise, and impactful toward the ultimate goal of optimal outcomes for our injured patients."*

# Objectives

- Define event resolution/loop closure
- Describe 3 conditions of loop closure
- Discuss pitfalls in achieving loop closure



Event resolution/loop closure: OFI less likely to occur for the next patient

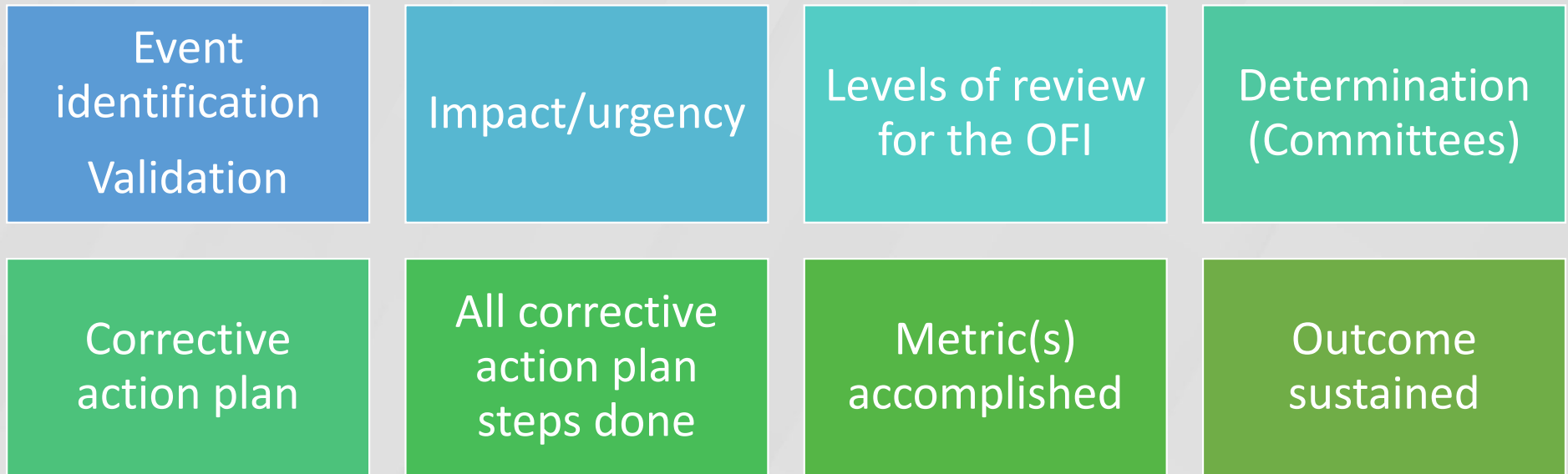


3 conditions of loop closure: corrective action plan accomplished, intended metrics achieved, outcome sustained



Pitfall in loop closure: stopping the PI process too soon

# Steps in the Process



# Periodic Reporting

It should not be cited as an action plan for event resolution

If periodic reporting (formerly called “track and trend”) is needed, consider using a calendar as a reminder

Plan to revisit the event in order to establish loop closure

Tracking and trending is not considered loop closure

Loop closure improves culture, increasing engagement, and decreases burnout

# Three Conditions to Show Event Resolution

- All steps in the corrective action plan have been implemented
- The intended measurable outcome (metric) has been achieved
- The intended measurable outcome has been sustained for a time interval that reflects the frequency of the event

**There is no partial loop closure: all or none**



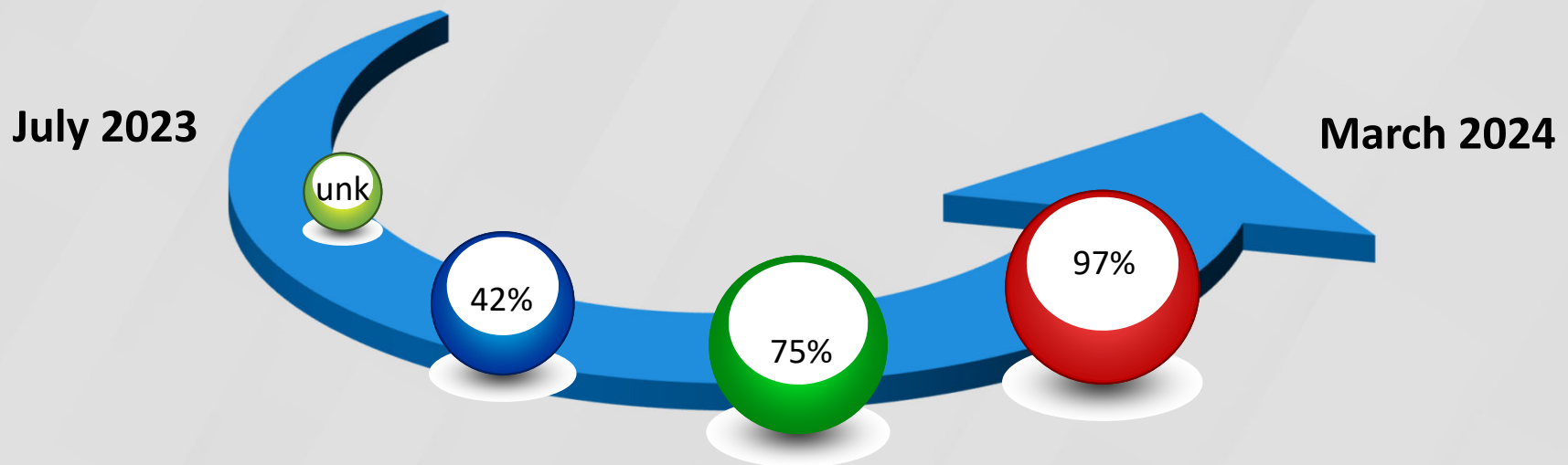
# Metrics to indicate initial steps to loop closure

- 90% compliance with VTE practice guideline
- 90% compliance with antibiotics < 1 hour
- 85% correct trauma flowsheet documentation
- 80% of femur fractures fixated within 24 hours
- Less than 5% under triage



# Event: Trauma Flowsheet Documentation

*Goal statement: Trauma flowsheet documentation will be  $\geq 95\%$  compliant within 6 months*



- Redesign FS with key area shading
- Add physical assessment & response to intervention checkboxes
- Train/train the trainer
- Implement Real Time
- Audit flowsheets (end of each shift)
- Tie audits to staff evaluations
- Emphasize goal

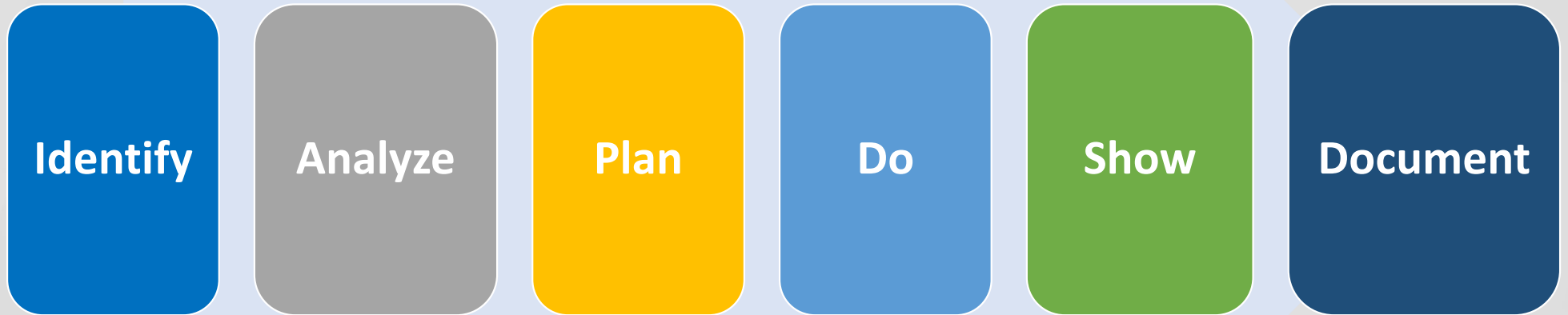
# Key questions for event resolution

- Were the corrective action steps accomplished?
  - Did the corrective actions work?
- Have the SMART objectives been met?
  - Has the intended overall outcome been achieved?
- Has the intended outcome been sustained?

# Set Bold Metrics & Show Sustainability

- By time W, decrease % of patients admitted to a non-surgical service: < 10% and sustain for 6 months
- Within the next X time (days or months), increase compliance with surgeon response time: > 80% and sustain for 3 months
- By time Y, decrease time to antibiotic administration to < 1 hour: 90% and sustain for YY
- By time Z, decrease time to transfer-out of critical patients to < 2 hours: 90% and sustain for \_\_\_\_ (number of patients or percent)

# Event Resolution Process





# IDENTIFY

- Identify/validate event, enter into PI system
- Define patient impact
- Determine opportunity for improvement

# Example of Identification Documentation

EVENT REVIEW	
<b>PRIMARY LEVEL OF REVIEW</b>	
IDENTIFIED EVENT:	
Date Event(s) Identified or Referred:	
Timeline Documentation/Validation:	
LEVEL OF HARM: <input type="checkbox"/> None <input type="checkbox"/> None Detected <input type="checkbox"/> Minimal <input type="checkbox"/> Moderate <input type="checkbox"/> Severe <input type="checkbox"/> Death	
Primary Level of Review Completed By:	Date of Review:
PLAN: Managed by Trauma Program Manager:	Date:

- ***Ideally this will be done in the registry using a review tool.***
- ***An example is in the manual addendums.***



# ANALYZE

- Analyze context of OFI using registry data & benchmarks
- Identify contributing factors: system, clinician, patient
- Associate system related event to patients

**SECONDARY LEVEL OF REVIEW**

EVENT IDENTIFIED:

LEVEL OF HARM CONFIRMED:  None  None Detected  Minimal  Moderate  
 Severe  Death

System-Related Event	Provider-Related Event
Patient Related Event	Staff-Related Event
Regional Event	

SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT



# ACT

- Define PI team charge (goals)
- Appoint a PI team to develop action plans
- Delineate timeline with specific steps with specific owners
- Identify an end point (metric) for resolution

# System Operations Meeting Minutes

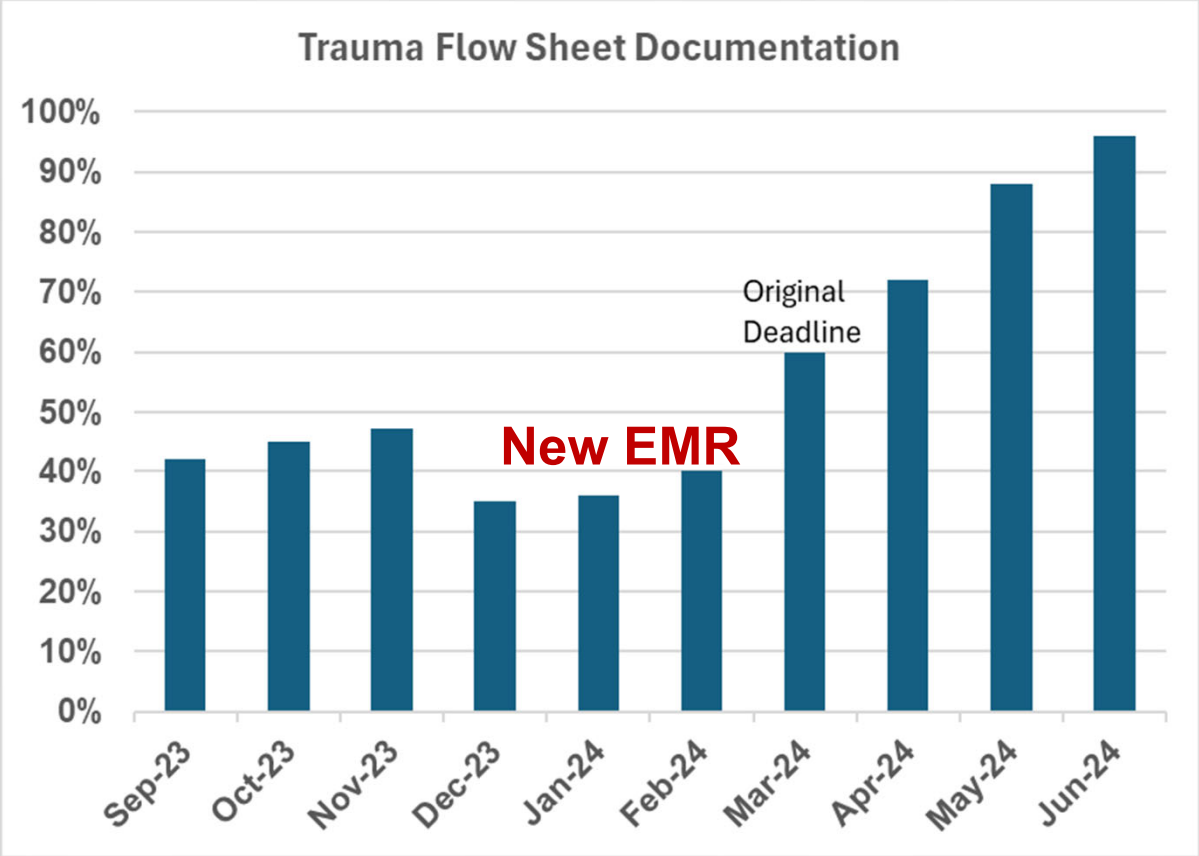
Operations Committee Item	Report	Barriers & Actions
ED Updates	<ul style="list-style-type: none"><li>• Trauma documentation</li><li>• Redesign of trauma flow sheet completed.</li><li>• Have changed to electronic charting</li></ul>	<p>Need to identify scribe to enter data into EMR in real time.</p> <p>Expect delays as new documentation is brought online and training can be implemented.</p>



## DO

- Implement corrective action plan
- Determine that all action plan steps have been accomplished
- Assess effectiveness of the plan

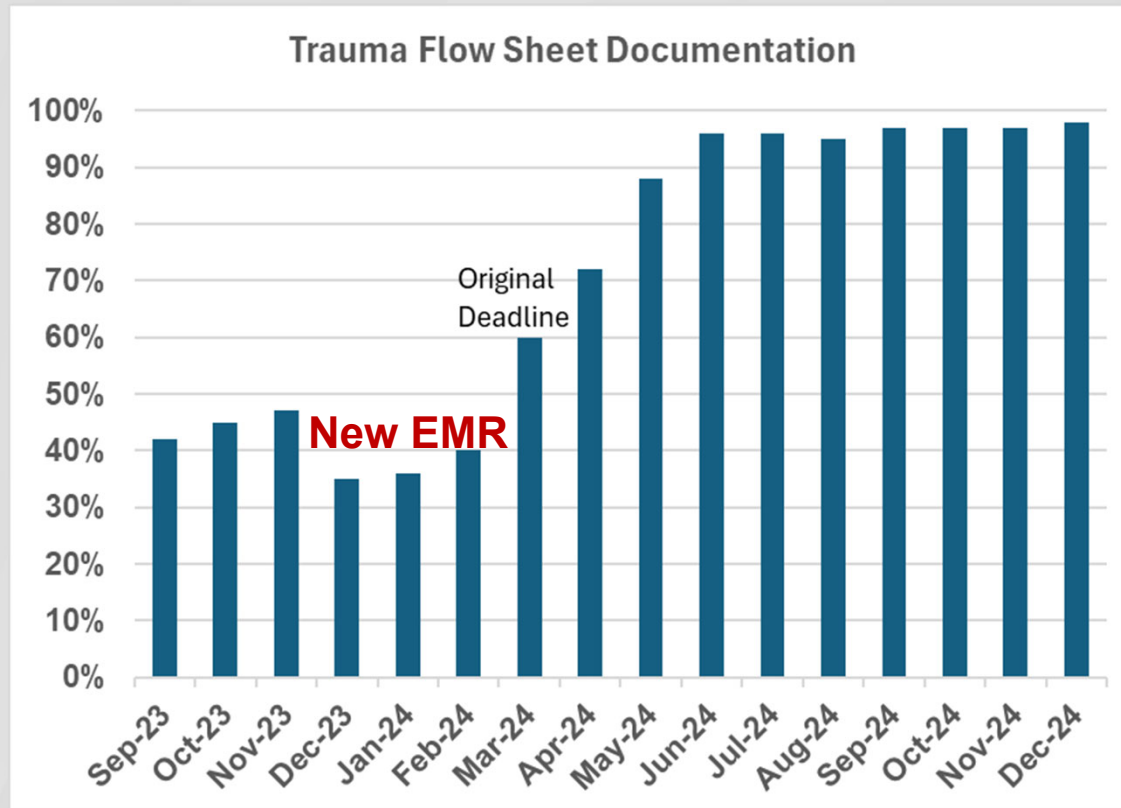
# Effect of Delays in Timeline 7/1/24 Update



# SHOW

- Demonstrate that all plan steps have been performed as intended
- Show that metrics have been met
- Monitor for set time (depends on event frequency)
- Demonstrate sustained change

# Updated Timeline Completion for TFS Documentation 12/31/24 Update



# DOCUMENT

- Document all actions in the PI tracking system date of completion
- Document results

# Admit to Non-Surgical Service: High %

- Level III Trauma Center
- 70% of admits over the age of 65
- 37% admit to NSS
- 1 TPM/PI Coord, 1 Registrar
- Implemented **Nelson Score**
- Customized trauma registry to calculate the 7-point score

## NELSON SCORE

1 point	Age >65 years
1 point	3 or more comorbidities
1 point	ISS<10
1 point	MOI ground level fall
1 point	No ICU admission
1 point	No surgical intervention
1 point	No blood products



See the TOPIC Manual Appendix  
for more information

# Actions & Loop Closure

- Developed NSS CPG with broad input
- Implemented NSS CPG
- Trained ED, trauma, orthopaedics, & hospitalist clinicians on CPG
- Demonstrated utility of Nelson score for identifying at-risk trauma patients
- Decreased NSS rate to < 10% over 3 months
  - No patients with Nelson score 1-3 had NSS admission
- Met review requirement for NSS admissions

## Nelson score & review level

Score 6-7	1 <sup>o</sup> Level review
Score 4-5	2 <sup>o</sup> Level review
Score 1-3	3 <sup>o</sup> Level review



See the TOPIC Manual Appendix  
for more information

# Event: Under Triage

- Level II Trauma Center
  - 1 TPM, 1 PI coord, 2 registrars
- Under triage event identified through concurrent PI process
- Level 1: drill down on case, non-compliant with activation CPG
- Level 2: TPM & TMD discussed, high impact; reviewed with ED team
- Level 3: peer review, event with OFI, system & ED clinician

Is this loop closure?



**Keep reviews together in PI file**

# Actions & Loop Closure

- Trauma Activation CPG reviewed and found to be evidence current
- Over/under triage data reviewed
- TMD reviewed Trauma Activation CPG with ED clinician
- TMD held Trauma Activation simulations with ED clinical teams
- ED Trauma Activation CPG non-compliance at 3 months: 0% for team and specific clinician

Is this loop closure?



**Keep actions/results together in PI file**

# Connecting Actions to Loop Closure

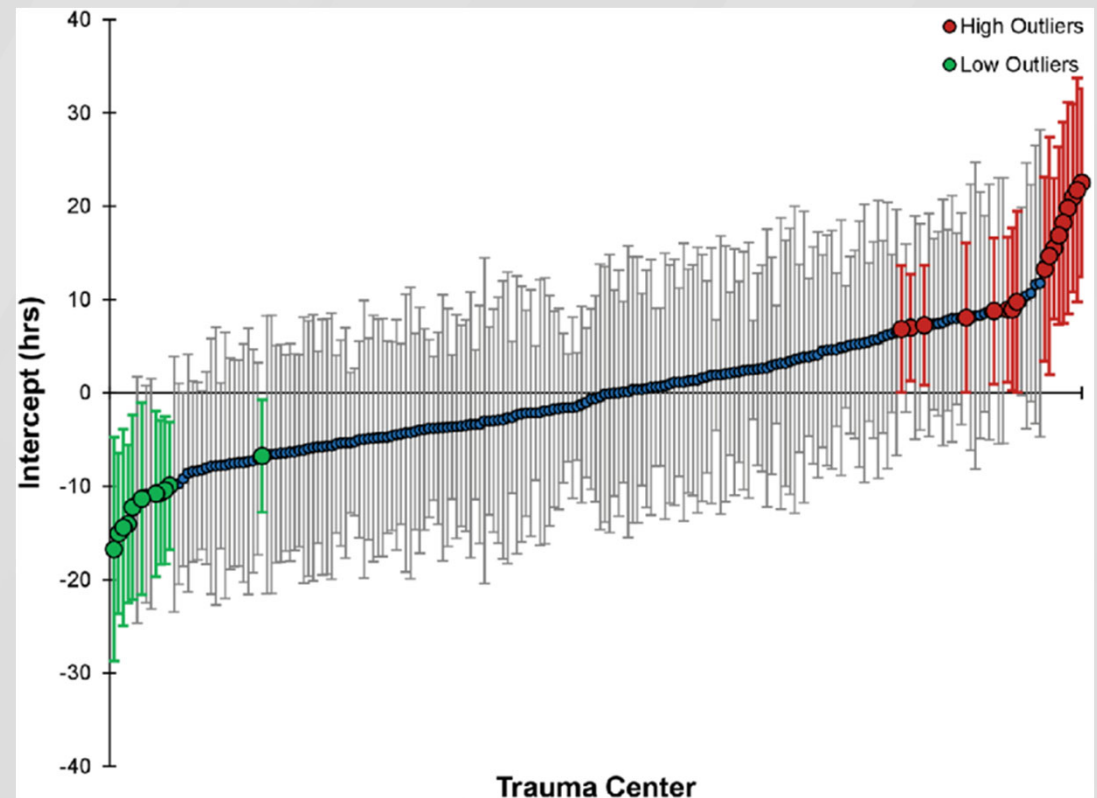
- **Documentation of surgeon & anesthesia response times**
  - Improved trauma response documentation following implementation of new swiping-in process to 95%, sustained for 6 months
- **High rate of VTE events**
  - Decreased VTE rate with increased CPG compliance and new order set, VTE rate below TQIP O:E ratio
- **Extended length of stay at referring facilities**
  - Reduced length of stay at referring centers for critically injured patients to < 2 hours following Rural Trauma Team Development course delivery and inclusion of referring centers in PI process

# Connecting Actions to Loop Closure

- **Extended length of time to get blood products in ED for MTP**
  - Reduced time to implement MTP after placement of trauma bay blood refrigerator by 10 minutes, now immediate and sustained for 15 MTPs
- **Risk-adjusted benchmarking outlier: time to femur fixation is twice as long as national average**
  - Worked with Orthopedics and Operating Room leadership to ensure OR availability within 12 hours, no outliers over 6 months

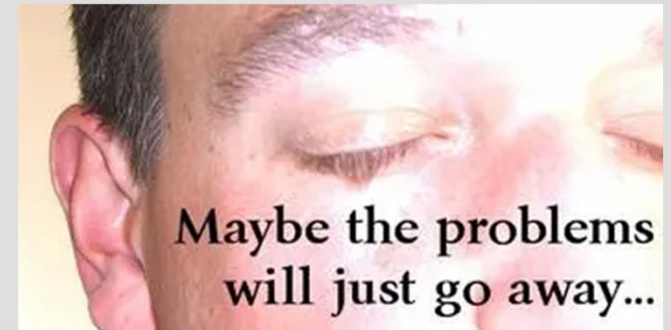
# Risk-adjusted Benchmarking TQIP Report

- High outliers
- Timing for hemorrhage control is much longer than average
- Review registry for hemorrhage cases to ensure data definitions are followed
- Use TQIP driller to review cases and move through PI process
- Assess results in next TQIP report



# Unsuccessful Event Resolution

- Misunderstanding determination or corrective action plans for loop closure
- Stagnant or ineffective action plans
- Failure to involve appropriate departments in action plan
- Limited staff accountability
- Limited hospital support to improve system
- Competing priorities





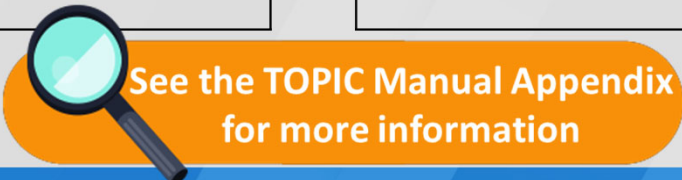
# Documentation

- Use “issue/case folder” to keep PI reviews, corrective action plans, & results for loop closure
- Capture discussion in minutes
- Include new CPG, implementation, and compliance over time
- Graph data showing sustained metric improvements
- Show how sustained change has made care better for the next patients under similar circumstances

# PERFORMANCE IMPROVEMENT PATIENT SAFETY PLAN REVIEW PROCESS Page 1

EVENT REVIEW
<p><b>PRIMARY LEVEL OF REVIEW</b></p> <p>IDENTIFIED EVENT:</p> <p>Date Event(s) Identified or Referred:</p> <p>Timeline Documentation/Validation:</p> <p>LEVEL OF HARM:   <input type="checkbox"/> None   <input type="checkbox"/> None Detected   <input type="checkbox"/> Minimal   <input type="checkbox"/> Moderate   <input type="checkbox"/> Severe   <input type="checkbox"/> Death</p> <p>Primary Level of Review Completed By:</p> <p>Date of Review:</p> <p>PLAN: Managed by Trauma Program Manager:</p> <p>Date:</p>

<b>SECONDARY LEVEL OF REVIEW</b>	
<p>EVENT IDENTIFIED:</p> <p>LEVEL OF HARM CONFIRMED:   <input type="checkbox"/> None   <input type="checkbox"/> None Detected   <input type="checkbox"/> Minimal   <input type="checkbox"/> Moderate   <input type="checkbox"/> Severe   <input type="checkbox"/> Death</p>	
System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event
Regional Event	
<p>SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT</p>	



# PERFORMANCE IMPROVEMENT PATIENT SAFETY PLAN REVIEW PROCESS Page 2

**SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):**

System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event
Regional Event	-

Additional Discussion:

Reviewed by Trauma Medical Director:  
Date:

Closed by Medical Director:  YES  NO

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**  
**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:**  
Date: \_\_\_\_\_

**Trauma Peer Committee Review:**  
Date: \_\_\_\_\_  
Reason for Referral to Peer Review:  
Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:**  
Date:  
Reason for Referral to Multidisciplinary System Committee:  
Departments Involved:  
Subspecialty Service Involved:  
Opportunity for Improvement Identified: \_\_Yes \_\_No  
See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# PERFORMANCE IMPROVEMENT PATIENT SAFETY PLAN REVIEW PROCESS Page 3

## QUATERNARY/FOURTH LEVEL OF REVIEW

Referred to:

Date:

Reason for Referral:

OPPORTUNITIES FOR IMPROVEMENT:

## CLASSIFICATIONS

- Determination:  Event/Morbidity/Mortality without Opportunity for Improvement
- Event/Morbidity/Mortality with Opportunity for Improvement
- Event/Morbidity/Mortality with Regional Opportunity for Improvement
- Unable to Determine

## SELECTED ACTION PLAN (SMART GOAL FORMAT:

**Established workgroup:**

Date: \_\_\_\_\_ Goal:

**Develop / Revise Management Guideline:**

Date: \_\_\_\_\_ Goal:

Other:

Date: Goal

## DEFINE DATA MONITORED TO TRACK CORRECTIVE ACTION PLAN'S PROGRESS AND NEEDED CHANGE:

Frequency of Reporting to Trauma Systems

Committee:  Monthly  Quarterly  Other

If "Other," please define:

Updates:

## PERFORMANCE IMPROVEMENT PATIENT SAFETY PLAN REVIEW PROCESS Page 3

**EVENT RESOLUTION ACHIEVED:**  YES  NO

**DATE ACHIEVED:**

**RESOLUTION DEFINED BY:**

Comments:

Additional Actions Defined:

### Action Plan

+ Add Action Plan

#### Loop Closure

Loop Closure Status

1 - Open

Loop Closure Date

MM/DD/YYYY

Loop Closure Time

HH:MM

#### Case Documents

Add Document

### Upload Case Document

Close X

Choose File

Maximum File Size: 6mb.  
Allowed File Types: JPEG, JPG, PNG, PDF, DOC, DOCX, CSV, XLS, XLSX, TXT, MSG

Filename

Over and Under Triage Graph.pdf

Document Name

Over and Under Triage Graph.pdf

Document Type

7 - Supporting Documentation

Related Action Plans

Upload Document

### Action Plan

#### Loop Closure

Loop Closure Status

1 - Open

Loop Closure Date

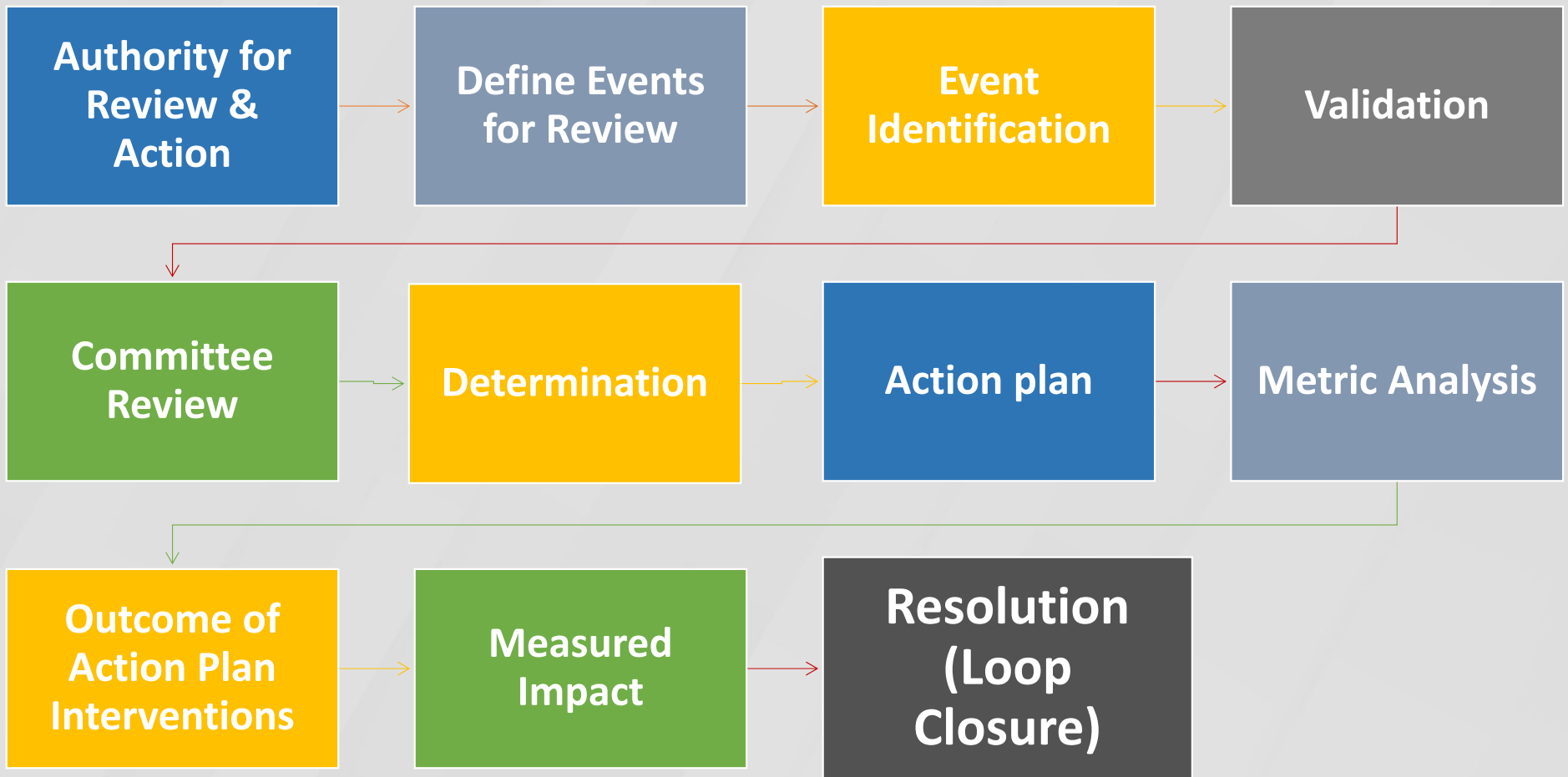
MM/DD/YYYY

Loop Closure Time

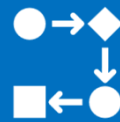
HH:MM

#### Case Documents (1)

Document Filename	Case Document Name	Case Document Type	Case Document Action Plan	Uploaded By	Case Document Date	Case Document Time
Over and Under Triage Graph.pdf	Over and Under Triage Graph.pdf	Supporting Documentation	--	--	07/16/2024	15:15



# Summary



Event resolution/loop closure:  
OFI less likely to occur for the  
next patient



3 conditions of loop closure:  
corrective action plan  
accomplished, intended metrics  
achieved, outcome sustained



Pitfall in loop closure: stopping  
the PI process too soon

# Module 8: Case Scenarios

SCENARIOS

# Scenario 1: Multitrauma

# Scenario 1

**Level III trauma center with Neuro capabilities, eighteen miles from Level II, twenty bed ED with two resuscitation rooms. 40 miles from a Level I**

- 2119** EMS on scene MVC 42 y.o. male rollover in culvert, required extrication, BP 107/83, HR 139, R 22, GCS 5, RTS 6, BVM, 1 IV.  
Scene time 27 minutes, communication with hospital highest level TTA
- 2132** Arrival at hospital, ED MD at bedside, trauma surgeon at bedside  
Intubated, OGT, Foley, 2<sup>nd</sup> IV, chest tube on L due to absent breath sounds  
BP 119/68, HR 118, R Vent, SaO2 100%, T 34.2, GCS 3
- 2150** Chest film and extremity films completed
- ED physician and Trauma Surgeon review films, identify extremity fractures and PTX
- Labs CBC, CHEM, Coag, AMAL, UA, UDS, ETOH
- 2203** CT scans of head, c-spine, chest, abdomen, pelvis
- 2400** Awaiting CT scan read from radiology

# Scenario 1

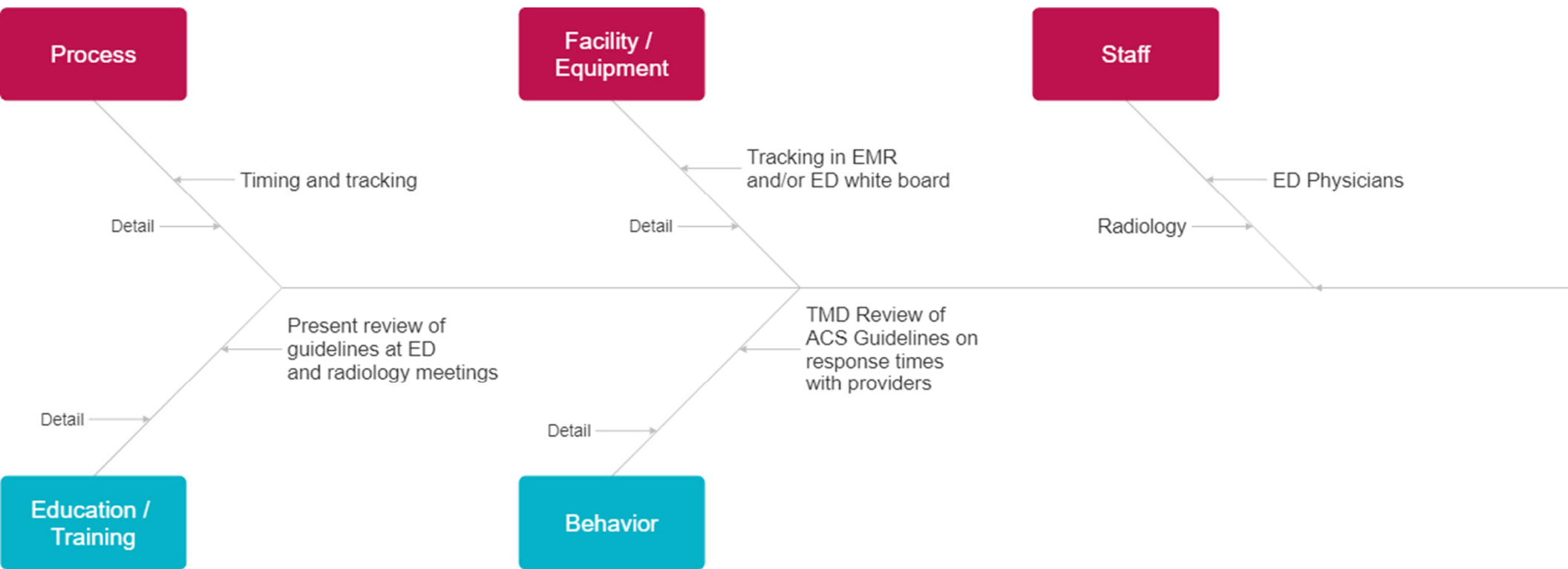
- 0025** CT scan read available and reviewed with surgeon. Injuries identified:
- Multiple rib fractures bilaterally
  - NOS intercranial injury, SAH with +LOC
  - Displaced dens fx
  - Concussion and edema of c-spine
  - Injury of brachial plexus, oblique fx of L radius, injury to abducent L nerve
  - Bilateral lung contusions, Sub-Q emphysema
  - Skull fracture
  - PTX, displaced clavicle fracture, displaced scapula fracture
  - Fx of manubrium
  - Fx L5
  - Contusion to knees bilaterally
  - Displaced bi-malleolar fracture

# Scenario 1

- 0030** Orthopedic surgery and neurosurgery consulted
- 0125** Admitted to ICU with multisystem trauma by trauma; orthopedic evaluated patient for evaluation of left extremity, recommending OR intervention; neurosurgery evaluated patient and ordered repeat head CT scan in 8 hours
- 0810** CT head repeated, no progression of injury, continue to monitor
- HD #2** OR with orthopedics for ankle stabilization  
Nutrition, Social Services, PT, OT, Speech Therapy consulted  
Family communication and involved in plan of care
- HD #3** CT head repeated, no progression of injury, continue to monitor, neurovascular assessment of left ankle and extremity continuing hourly
- HD #7** OR fixation of clavicle and scapula

# Scenario 1

- HD #8** Remains in the ICU, intubated, Nutrition, PT, OT, Speech Therapy, Social Services, orthopedics, and neurosurgery continue in care of the patient.  
Social work is working with family for LTAC placement
- HD #10** Pressure ulcer to R buttock and R heel identified  
Wound care addressed
- HD #11** Transferred to LTAC



Were standards of care met?  
ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

# Performance Improvement Patient Safety Plan Review Process

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

- Delay in consulting ortho and neurosurgery.
- Delay in radiology reads

System Related:

- Potential for multi-injured patient transfer
- Developed pressure ulcer

Patient or Staff Related: None

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

- Delay in consulting orthopedics and neurosurgery. Evidence of injuries upon arrival and with plain films.
- Delay in radiology reads. Radiologist expected to be in house within 30 minutes of notification. Took over 2 hours to obtain reads.
- Multi-injured patient with hospital stay of 11 days, discharged to LTAC.
- Developed pressure ulcer

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review for review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
Moderate Harm	Patient outcome symptomatic requiring intervention (i.e. operative, therapeutic treatment)	Tertiary Review in conjunction with hospital quality
Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Levels of Review

Event	Primary	Secondary	Tertiary
<b>PROVIDER</b> <ul style="list-style-type: none"> <li>• Delay in consults</li> <li>• Delay in radiology reads</li> </ul>	<ul style="list-style-type: none"> <li>• Review by Trauma program staff</li> <li>• Develop Timeline</li> </ul>	<ul style="list-style-type: none"> <li>• Review by TMD</li> <li>• Review with emergency physician                             <ul style="list-style-type: none"> <li>○ Evidence of injuries upon arrival and with plain films</li> </ul> </li> <li>• Review by radiology.                             <ul style="list-style-type: none"> <li>○ Radiologist expected to be in house within 30 minutes of notification. Took over 2 hours to obtain reads</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Peer Review Committee</li> <li>• System Committee</li> </ul>
<b>SYSTEM</b> <ul style="list-style-type: none"> <li>• Should this multi-injured patient have been considered for transfer</li> <li>• Developed pressure ulcer</li> </ul>	<ul style="list-style-type: none"> <li>• Review by TPM</li> <li>• Confirmed development of pressure ulcer</li> </ul>	<ul style="list-style-type: none"> <li>• Reviewed by TMD</li> <li>• Referred to nursing</li> </ul>	<ul style="list-style-type: none"> <li>• System Committee</li> </ul>

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected

Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
<ul style="list-style-type: none"> <li>Should this multi-injured patient have been considered for transfer               <ul style="list-style-type: none"> <li>Review transfer guideline</li> </ul> </li> <li>Developed pressure ulcer               <ul style="list-style-type: none"> <li>Referred to nursing</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Delays review by TMD</li> <li>Review with emergency physician               <ul style="list-style-type: none"> <li>Evidence of injuries upon arrival and with plain films</li> </ul> </li> <li>Review by radiology               <ul style="list-style-type: none"> <li>Radiologist expected to be in house within 30 minutes of notification. Took over 2 hours to obtain reads</li> </ul> </li> </ul>
Patient-Related Event	Staff-Related Event

### SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT

Delays in radiology - referred to radiology liaison, report at Peer Review

Delays in consults - review policy on consults with ED physicians, report at Peer Review

Transfer guidelines – review, present to operations committee

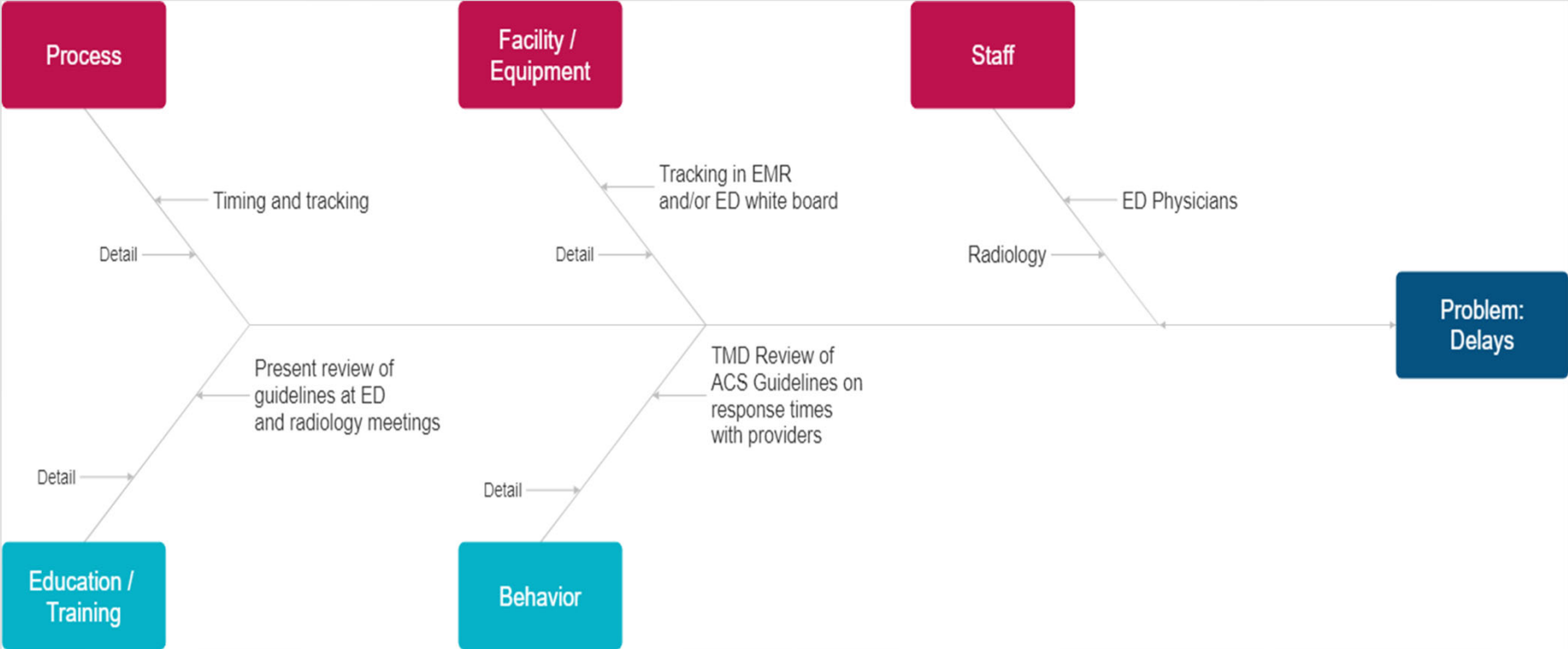
Developed pressure ulcer – refer to nursing, present to operations committee

## Standardized Review Tool Example

### Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# Fishbone Diagram



# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

<b>SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):</b>	
<b>System-Related Event</b>	<b>Provider-Related Event</b>
Review and make suggestions on possible alterations to transfer guidelines within 30 days.	TMD has discussion and reviews time to consultation of specialists with emergency physician and surgeons. Establish guideline for time to consultations and begin to monitor physician-compliance, with goal of achieving 90% compliance to time to consultation within 90 days.
Review current requirements for skin evaluation and documentation with nursing leadership and IT to establish tool for compliance in the EMR within 60 days with a goal of 90 % compliance to new documentation within 60 days after rollout .	Radiology director overview of the importance of arrival times and need for notification of findings to ED and/or trauma surgeon within 15 minutes of completion of scan with 80% compliance within 60 days.
<b>Patient-Related Event</b>	<b>Staff-Related Event</b>
Additional Discussion:	
Reviewed by Trauma Medical Director:	
Date:	
Closed by Medical Director: <input type="checkbox"/> YES <input type="checkbox"/> NO	

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:** Date: \_\_\_\_\_

**Trauma Peer Committee Review:** Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:** Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified:  Yes  No

See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

## Action Plan

+ Add Action Plan

### Loop Closure

Loop Closure Status req

1 - Open



Loop Closure Date req

MM/DD/YYYY



Loop Closure Time req

HH:MM

### Case Documents

Add Document

## Action Plan

### Loop Closure

Loop Closure Status req

1 - Open



Loop Closure Date req

MM/DD/YYYY



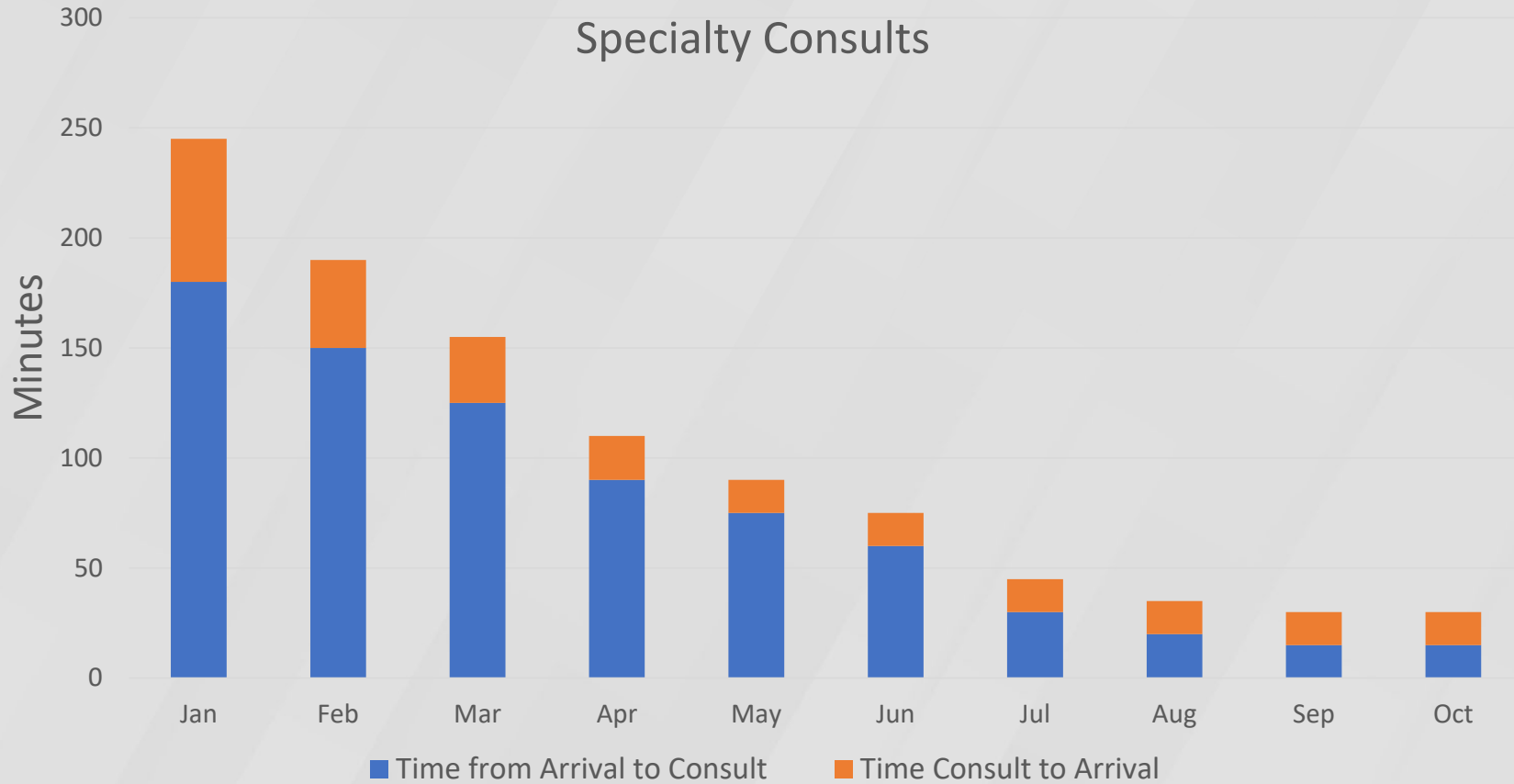
Loop Closure Time req

HH:MM

### Case Documents (1)

Document Filename	Case Document Name	Case Document Type	Case Document Action Plan	Uploaded By	Case Document Date	Case Document Time
Over and Under Triage Graph.pdf	Over and Under Triage Graph.pdf	Supporting Documentation	--	--	07/16/2024	15:15

# Graphic Example



# Event Resolution

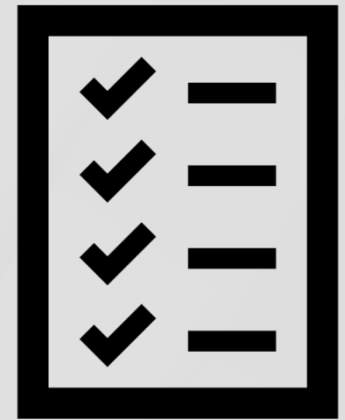
- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Examples of Data to Achieve Resolution

- Time to consult was decreased to within 15 minutes by 70% after 60 days and by 90% at 90 days
- Notification of radiology reads were completed within 20 minutes after 60 days and continued for the next 90 days
- Skin evaluation documentation reviewed with leadership within 30 days. Taken to forms and EMR group to make suggested changes
  - Remains in committee

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Scenario 2: Burn

# Scenario 2

## Level I Trauma Center

- 0800** EMS responds to a house fire. When the scene is clear they identify a 45-year-old male involved in the house fire with extensive burns.
- 0825** EMS leaves to transfer the patient to the nearest hospital, a Level I trauma center. The nearest burn center is 20 minutes away.
- 0845** Arrived to Level I trauma center. ATLS protocol initiated. The trauma team quickly assessed and stabilized the patient's airway, breathing, and circulation.
- 0850** Extensive burns as well as the obvious deformities and instability of the patient's legs, indicating fractures were noted.
- Estimated burns to approximately 60% of his total body surface area (TBSA), primarily involving his torso, arms, and legs. He also suffered several palpable long bone fractures in his lower extremities.
- 0900** Despite the clear need for prompt transfer to a dedicated burn center, the trauma center opted to keep the patient for observation.

## Scenario 2

HD #1 **0800** rounds

Over the past 24 hours, the patient's condition deteriorated - his burns became more complicated, he developed sepsis, and his fractures were not properly immobilized.

**0900** Patient transferred via ALS transport to the regional burn center.

Follow-up letter from burn center:

Upon arrival, patient's prognosis was guarded due to delays in transfer and treatments.

HD#1 Infused fluid volume was inadequate. Patient only received 75% of what he should have.  
Sepsis addressed with changes in antibiotics.

HD#2 Surgical repair of fractures with wound vac applied by orthopedics.

HD#5-9 Gangrenous changes evolved in the right lower extremity despite vigorous wound care.

HD#10 Below the knee amputation was done.

HD#14 Patient discharged to acute care rehab with expectation of return to home upon completion of therapy.

# Key Questions in Case Evaluation

Were trauma PMGs, ATLS and other protocols followed?

Was the system response appropriate?

Were the center's response times appropriate?

What were the pre-existing conditions?

What were the circumstances surrounding the event?

Who was involved and what safety goals were related?

Were there knowledge and skill variations?

Were staffing and resources appropriate?

Were standards of care met? ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

- Compliance to ABA burn criteria for transfer
- Required notification of burn center upon arrival of patients with extensive burns and trauma
- Delayed transfer to burn center

System Related:

- Compliance to ABA burn criteria for transfer of burns to burn center

Patient or Staff Related:

- Staff who decided to keep patient

Regional:

- EMS guidelines for transport of burn patients

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

- Decision to keep burn patient who met ABA burn criteria for transfer

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
Moderate Harm	Patient outcome symptomatic requiring intervention (i.e. operative, therapeutic treatment)	Tertiary Review in conjunction with hospital quality
Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Levels of Review

Event	Primary	Secondary	Tertiary
<b>PROVIDER</b> <ul style="list-style-type: none"> <li>Compliance to burn transfer guidelines</li> <li>Delay in transfer</li> </ul>	<ul style="list-style-type: none"> <li>Review by Trauma program staff</li> <li>Develop Timeline</li> <li>Review of letter from burn center</li> </ul>	<ul style="list-style-type: none"> <li>Review by TMD</li> <li>Review with emergency physician</li> </ul>	<ul style="list-style-type: none"> <li>Peer review for physician decisions</li> <li>Operations Committee – burn guidelines</li> </ul>
<b>SYSTEM</b> <ul style="list-style-type: none"> <li>Compliance to burn transfer guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Review by Trauma Program staff</li> <li>Develop Timeline</li> <li>Review of letter from burn center</li> </ul>	<ul style="list-style-type: none"> <li>Review by TMD, TPM</li> <li>Review with emergency department and ICU nursing leaders</li> </ul>	<ul style="list-style-type: none"> <li>Operations /System Committee (summary no identifiers)</li> </ul>
<b>STAFF</b> <ul style="list-style-type: none"> <li>Physician deciding to keep burn patient who met ABA criteria for transfer</li> </ul>	<ul style="list-style-type: none"> <li>Staff identified</li> </ul>	<ul style="list-style-type: none"> <li>Reviewed by TMD</li> <li>Reviewed by emergency physician</li> </ul>	<ul style="list-style-type: none"> <li>Peer review for decision making process</li> <li>Operations Committee – burn guidelines</li> </ul>
<b>REGIONAL</b> <ul style="list-style-type: none"> <li>Street to destination protocols for burns</li> </ul>	<ul style="list-style-type: none"> <li>20 minutes from burn center but chose Level I that took same amount of time</li> </ul>	<ul style="list-style-type: none"> <li>Review by TMD</li> <li>Will take to Regional Medical Control meeting for review</li> </ul>	<ul style="list-style-type: none"> <li>Report results of Medical Control to committees</li> </ul>

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected  
 Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
<ul style="list-style-type: none"> <li>Compliance to ABA burn guidelines               <ul style="list-style-type: none"> <li>Review guideline</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Compliance to ABA burn guidelines               <ul style="list-style-type: none"> <li>Review guideline</li> </ul> </li> <li>Delay in transfer</li> </ul>
Patient-Related Event	Staff-Related Event
	<ul style="list-style-type: none"> <li>Decision making process regarding ABA guidelines</li> </ul>
Regional Related Event	
EMS street to destination protocols	

### SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT

Delays in burn transfer – review ABA guidelines

Transfer guidelines – review ABA transfer guidelines, present to peer and operations committee

Decision making process regarding burns

EMS Triage protocol for burns – take to regional medical control for review

## Standardized Review Tool Example

# Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):	
System-Related Event	Provider-Related Event
Re-educate and quiz staff on ABA transfer guidelines within 30 days with 100% of staff achieving a minimum score of 80% on the quiz	Re-educate and quiz staff on ABA transfer guidelines within 30 days with 100% of staff achieving a minimum score of 80% on the quiz
Provide funding for ABLIS certification of 30% of emergency department staff (nurses and physicians) within 90 days	Adherence to ABA burn transfer guidelines of 95% for the next 5 burn patients
Patient-Related Event	Staff-Related Event
	Hierarchy of decision making on transfers developed with 95% adherence for next 5 burn patients
Regional Related Event	
Refer to regional EMS control for review of burn transport guidelines	
<p>Additional Discussion: Who gets the burn education, how will that be monitored for compliance, can it be built into annual competency, etc.?</p> <p>Reviewed by Trauma Medical Director: _____ Date: _____</p> <p>Closed by Medical Director: <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:** Date: \_\_\_\_\_

**Trauma Peer Committee Review:** Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:** Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified:  Yes  No

See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# Event Resolution

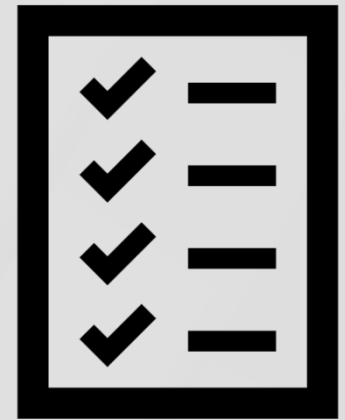
- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Examples of Data to Achieve Resolution

- Inservices for staff on ABA transfer guidelines was completed within 30 days to 100% of staff. Quiz scores were all 90-98%.
- ABLS certification of emergency department staff (nurses and physicians) within 90 days is 35%.
- The next 5 burn patients with TBSA > 20% were all appropriately transferred to the regional burn center.

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Scenario 3: Abuse

## Scenario 3

- Mom presents to an outside ED with her 3-month-old following a head injury sustained while changing. Reports the child rolled off the changing table when she stepped away for a moment, approximately a 3-foot fall, the day prior.
- Vital signs are stable, baby has a boggy spot on the left parietal skull, is fussy but no neuro deficits. Triage nurse feels patient meets ESI 3 and they wait in the waiting room for 3 hours before leaving without being seen.
- They now present at your Level II trauma center later that evening with the same complaints.

# Scenario 3

## Your Hospital:

- 1700** Friday evening, patient arrives at your hospital.
- 1705** Patient triaged and placed directly in a room due to mom reporting continued fussiness since fall.
- 1710** Physical exam reveals boggy spot on the left parietal skull, a small bruise on the left thigh and another on the right scapula.
- 1730** The nurse completes her initial exam and vitals and reports a concern for abuse to the ED physician. Patient is sent for a head CT.
- 1750** During the CT is shift change and the nurse and physician both handoff to a new team. The abuse concern is not passed along or evaluated.
- 1810** The CT is negative, and the patient's mother is ready for discharge.

## Scenario 3

- 1815** The ED social worker noticed the patient on the tracking list and goes to speak with the mother. The mother states the fall happened with her boyfriend while she was at work.
- 1830** The SW reports the inconsistent story, delayed presentation, and concerning bruising to the current ED physician who orders a skeletal survey, which is positive for a healing rib fracture.
- 1850** Patient is admitted for child abuse workup and DCS report. The SW notified the trauma program of the near miss the following day.

# Key Questions in Case Evaluation

Were trauma PMGs, ATLS and other protocols followed?

Was the system response appropriate?

Were the center's response times appropriate?

What were the pre-existing conditions?

What were the circumstances surrounding the event?

Who was involved and what safety goals were related?

Were there knowledge and skill variations?

Were staffing and resources appropriate?

Were standards of care met? ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

# Performance Improvement Patient Safety Plan Review Process

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

- Delay in consulting ortho and neurosurgery.
- Delay in radiology reads

System Related:

- Potential for multi-injured patient transfer
- Developed pressure ulcer

Patient or Staff Related: None

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

- Delay in consulting orthopedics and neurosurgery. Evidence of injuries upon arrival and with plain films.
- Delay in radiology reads. Radiologist expected to be in house within 30 minutes of notification. Took over 2 hours to obtain reads.
- Multi-injured patient with hospital stay of 11 days, discharged to LTAC.
- Developed pressure ulcer

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review for review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
Moderate Harm	Patient outcome symptomatic requiring intervention (i.e. operative, therapeutic treatment)	Tertiary Review in conjunction with hospital quality
Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected  
 Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event

**SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT**

## Standardized Review Tool Example

# Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

<b>SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):</b>	
System-Related Event _____	Provider-Related Event _____
Patient-Related Event _____	Staff-Related Event _____
Additional Discussion:	
Reviewed by Trauma Medical Director:	Date:
Closed by Medical Director: <input type="checkbox"/> YES <input type="checkbox"/> NO	

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee**

Date: \_\_\_\_\_

**EMS Performance Improvement Committee:**

Date: \_\_\_\_\_

**Trauma Peer Committee Review:**

Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:**

Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified:  Yes  No

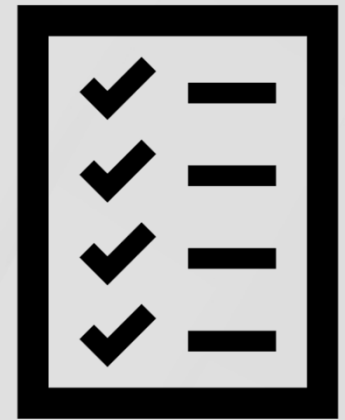
See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# Event Resolution

- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Scenario 4: Pregnant

# Scenario 4

## Level II trauma center with full trauma capabilities and Level III verified Maternity Center. Level I trauma center 45 miles away

- 1830** A 28-year-old female, 30 weeks pregnant, is transported to a Level II trauma center via EMS after being involved in a high-speed motor vehicle collision. The patient was the restrained driver, and the airbags deployed. Pre-hospital assessment revealed a patent airway, decreased breath sounds on the right, and a tender abdomen. Vital signs were stable. Pre-hospital called for medical command and was instructed to bring the patient directly to the trauma bay. Alpha Level Trauma Activated.
- 1840** Patient arrived at Level II trauma center. The trauma team arrived and assumed care. ATLS assessment confirmed a patent airway, decreased breath sounds on the right, and a tender abdomen. Fetal heart tones were present but difficult to auscultate. Two large-bore IVs with LR were initiated, and the patient was placed on a fetal monitor.
- 1850** Portable chest and pelvic x-rays were completed. The chest x-ray showed a small right-sided pneumothorax, and the pelvic x-ray was negative for fractures.

# Scenario 4

- 1910** The patient was transported to CT for imaging of the head, cervical spine, chest, abdomen, and pelvis. The fetal monitor accompanied the patient to CT.
- 1945** The patient returned to the trauma bay. CT scans revealed a small liver laceration and trace free fluid in the abdomen. The fetal monitor showed intermittent decelerations.
- 2015** The trauma team consulted OB/GYN and general surgery. Both teams agreed to admit the patient for observation and serial abdominal exams. Continuous fetal monitoring was ordered.
- 2100** The patient was transferred to the ICU for close monitoring. Vital signs remained stable, but the fetal monitor continued to show intermittent decelerations.
- 2200** The OB/GYN team was called to assess the patient due to the persistent fetal decelerations. An emergency C-section was being considered.

# Key Questions in Case Evaluation

Were trauma PMGs, ATLS and other protocols followed?

Was the system response appropriate?

Were the center's response times appropriate?

What were the pre-existing conditions?

What were the circumstances surrounding the event?

Who was involved and what safety goals were related?

Were there knowledge and skill variations?

Were staffing and resources appropriate?

Were standards of care met? ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

# Performance Improvement Patient Safety Plan Review Process

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

System Related:

Patient or Staff Related:

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
Moderate Harm	Patient outcome symptomatic requiring intervention (i.e. operative, therapeutic treatment)	Tertiary Review in conjunction with hospital quality
Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected  
 Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event

**SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT**

## Standardized Review Tool Example

# Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):	
System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event
<p>Additional Discussion:</p> <p>Reviewed by Trauma Medical Director: _____ Date: _____</p> <p>Closed by Medical Director: <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:** Date: \_\_\_\_\_

**Trauma Peer Committee Review:** Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:** Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified:  Yes  No

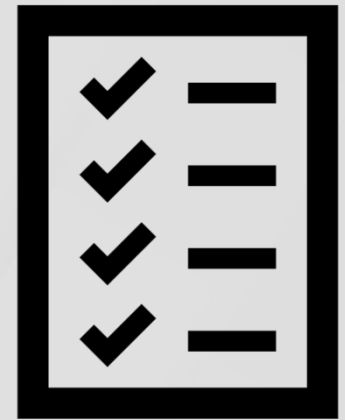
See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# Event Resolution

- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Scenario 5: Elderly Mortality

# Scenario 5

**Level III trauma center with Neuro capability, ~ 900 trauma patients/year, 22 miles from Level II, and 60 miles from a Level I**

- 1930** An 82-year-old female was transported to a Level III trauma center via EMS after a fall from standing at her assisted living facility. The patient was initially alert and oriented with a GCS of 15. She complained of head and neck pain. Pre-hospital care included cervical spine immobilization and transport.
- 1945** The patient arrived at the ED and was assessed by the ED physician. Vital signs were stable. Neurologic exam revealed no focal deficits. The physician ordered cervical spine and head CT scans.
- 2015** The patient returned from CT. Nursing assessment documented a GCS of 14, with the patient now confused and lethargic.
- 2045** The radiologist called the ED to report the CT findings. The cervical spine CT was negative, but the head CT revealed a small subdural hematoma. No repeat neurologic assessment was performed by the ED physician.

## Scenario 5

- 2130** The patient's mental status continued to decline. The nurse documented a GCS of 12. No physician notification occurred.
- 2200** The ED physician reassessed the patient and noted the decline in mental status. A stat repeat head CT was ordered, revealing an expanding subdural hematoma with midline shift.
- 2230** The on-call neurosurgeon was consulted and accepted the patient for emergent transfer and surgery at Level II trauma center since this Level III did not have the equipment or a ready OR for any neurosurgical procedures. However, no critical care bed was immediately available at the receiving hospital and transfer was denied.
- 2330** The patient's GCS declined to 8. She was intubated for airway protection.

# Scenario 5

- 0030** The Level II receiving hospital notified Level III that an ICU bed was now available the patient was transferred to them.
- 0145** The patient underwent emergent craniotomy for evacuation of the subdural hematoma at the Level II hospital.
- 0700** The patient remained comatose post-operatively with a GCS of 3T. The family elected to withdraw care. The patient expired.

# Key Questions in Case Evaluation

Were trauma PMGs, ATLS and other protocols followed?

Was the system response appropriate?

Were the center's response times appropriate?

What were the pre-existing conditions?

What were the circumstances surrounding the event?

Who was involved and what safety goals were related?

Were there knowledge and skill variations?

Were staffing and resources appropriate?

Were standards of care met? ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

# Performance Improvement Patient Safety Plan Review Process

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

System Related:

Patient or Staff Related:

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
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Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected  
 Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event

**SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT**

## Standardized Review Tool Example

# Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

**SECONDARY LEVEL OF REVIEW:  
DEFINED CORRECTIVE ACTION  
PLAN(S):**

System-Related Event

Provider-Related Event

Patient-Related Event

Staff-Related Event

Additional Discussion:

Reviewed by Trauma Medical Director:

Date:

Closed by Medical Director:  YES  NO

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:** Date: \_\_\_\_\_

**Trauma Peer Committee Review:** Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:** Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified: \_\_Yes \_\_No

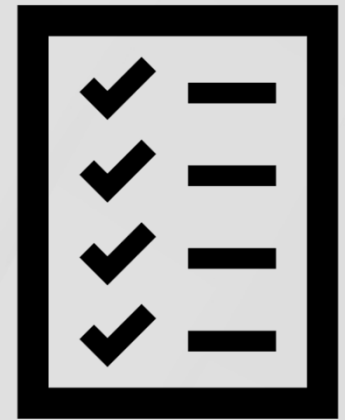
See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# Event Resolution

- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Scenario 6: Telemedicine

# Scenario 6

**Rural trauma center, 60 miles from a Level II, 52 miles from a Level III, and 120 miles from a Level I Telemedicine services are used for resuscitations and high acuity events in the emergency department.**

- 1620** EMS arrives on scene of a motor vehicle accident to find a 35-year-old male who is unconscious and has sustained severe head trauma, multiple fractures, and has a seat belt sign across his chest and abdomen.  
EMS is provided by a volunteer service.
- 1630** EMS provides report to ED who immediately alerts the Telemedicine team at their Level I trauma center of the incoming trauma.
- 1632** APP is standing by at the rural center and has requested lab, x-ray, and CT scan to respond to the highest trauma activation. ED physician is notified and on the way.
- 1640** Telemedicine physician is consulted and states to call for a helicopter for transfer, as it takes approximately 35 minutes for the helicopter to arrive to that location.

## Scenario 6

- 1645** EMS arrives with a 35-year-old male after a motor vehicle accident. He is unconscious and has sustained severe head trauma, multiple fractures, and possible internal bleeding.
- 1650** ATLS protocol is managed by the ED family physician and one APP. X-rays are done of chest and extremities. Chest negative. Open fracture of left lower extremity and deformed left upper extremity.
- 1655** FAST exam is completed. Positive for blood in the abdomen.  
Telemedicine physician guides physician and APP in stabilization of fractures and fluid management.
- 1710** Helicopter arrives and transports patient to Level I trauma center.

## Scenario 6

**1745** Patient arrives at Level I trauma center with trauma team, neurosurgeon and ED physicians at bedside. OR has a room available and ready to open.

Patient undergoes surgeries, ICU stay and is discharged home on HD#12.

***How do you follow-up with your transferring hospitals?***

***Is Telemedicine included in both Level I and transferring hospital PI meetings?***

# Key Questions in Case Evaluation

Were trauma PMGs, ATLS and other protocols followed?

Was the system response appropriate?

Were the center's response times appropriate?

What were the pre-existing conditions?

What were the circumstances surrounding the event?

Who was involved and what safety goals were related?

Were there knowledge and skill variations?

Were staffing and resources appropriate?

Were standards of care met? ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

# Performance Improvement Patient Safety Plan Review Process

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

System Related:

Patient or Staff Related:

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
Severe Harm	Patient outcome symptomatic requiring LIFE SAVING intervention	Tertiary Review in conjunction with hospital quality
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No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected  
 Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event

**SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT**

## Standardized Review Tool Example

# Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

<b>SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):</b>	
System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event
<p>Additional Discussion:</p> <p>Reviewed by Trauma Medical Director: _____ Date: _____</p> <p>Closed by Medical Director: <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:** Date: \_\_\_\_\_

**Trauma Peer Committee Review:** Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:** Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified: \_\_Yes \_\_No

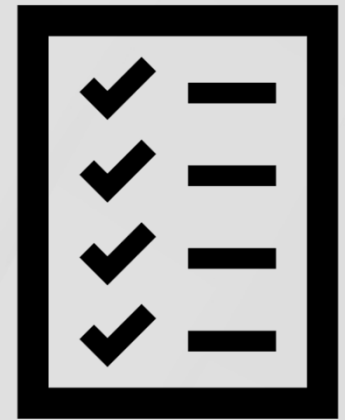
See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# Event Resolution

- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Scenario 7: Community- Based Outreach

# Scenario 7

## Setting

- Remote job site that is at least an hour from a care facility.

## Staffing

- Job site has well equipped emergency first aid station capable of monitoring vital signs, basic wound care, defibrillator, and O2

## Provider

- All workers at the site are required to maintain basic first aid or first responder and CPR training due to the remoteness of the site

## External Resources

- Telemedicine services are available through a connection with the company's health care provider

# Scenario 7

- John, a 38-year-old construction worker, was working on a job site when a large piece of equipment fell and crushed his right leg. The impact caused severe trauma, with compound fractures and significant bleeding. John's co-workers called emergency services immediately, but due to the remote location of the job site, it would take at least an hour for an ambulance to arrive.
- Thinking quickly, the site foreman grabbed the tablet they used for telemedicine consultations with the company's contracted healthcare provider. He began a video call with the on-call doctor, describing the extent of John's injuries in detail. However, the poor cellular reception at the remote site caused the video feed to be intermittent and the audio quality to be poor, making it difficult for the doctor to fully assess the situation.

# Scenario 7

- The doctor, unable to be physically present, guided the foreman and other workers through emergency trauma procedures via the video call to the best of his abilities. Under the doctor's remote supervision, the workers splinted John's leg to stabilize the fractures and applied tourniquets to control the bleeding. They monitored John's vital signs of heart rate, BP and respirations, and kept him conscious and calm until the ambulance arrived.
- The telemedicine consultation allowed the workers to provide critical emergency care that likely saved John's life before the paramedics could reach the remote job site. Though John sustained serious injuries, the quick thinking and the doctor's expert guidance via telemedicine proved invaluable in the initial trauma response.

# Key Questions in Case Evaluation

Were trauma PMGs, ATLS and other protocols followed?

Was the system response appropriate?

Were the center's response times appropriate?

What were the pre-existing conditions?

What were the circumstances surrounding the event?

Who was involved and what safety goals were related?

Were there knowledge and skill variations?

Were staffing and resources appropriate?

Were standards of care met? ACSCOT, Hospital, State

Were there associated performance or behavioral events?

What was the outcome?

# Performance Improvement Patient Safety Plan Review Process

## EVENT REVIEW

### PRIMARY LEVEL OF REVIEW

#### IDENTIFIED EVENT:

Provider Related:

System Related:

Patient or Staff Related: None

**Date** Event(s) Identified or Referred:

#### Timeline Documentation/Validation:

**LEVEL OF HARM:**  None  None Detected  Minimal  Moderate  Severe  Death

**Primary Level of Review** Completed By: Sue Smith, TPM

Date of Review:

**PLAN:** Managed by Trauma Program Manager:

Date:

Secondary review for review by TMD

# Levels of Harm and Outcome

Level of Harm	Outcome Definition	Suggested Follow Up/ Review
Death	Unexpected mortality	Tertiary Review in conjunction with hospital quality
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Minimal Harm	Patient outcome symptomatic requiring minimal or no intervention (i.e. observation, minor treatment)	Primary and Secondary Level Review
No Harm/ Near Miss	No symptoms detected, no treatment required	Primary and Secondary Level Review

**\*\*Level of harm and outcome should be related and factored into the level of review and follow up\*\***

# Standardized Review Tool Example

## SECONDARY LEVEL OF REVIEW

### EVENT IDENTIFIED:

**LEVEL OF HARM CONFIRMED:**  None  None Detected  
 Minimal  Moderate  Severe  Death

System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event

**SECONDARY LEVEL OF REVIEW: IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT**

## Standardized Review Tool Example

# Classifications

- Event/Morbidity/Mortality Without Opportunity for Improvement
- Event/Morbidity/Mortality With Opportunity for Improvement
- Event/Morbidity/Mortality With Regional Opportunity for Improvement
- Unable to Determine

# **CORRECTIVE ACTION(S)**

# Appropriately Match the Corrective Action to the Issue



Specific Issue, that is **Measurable**



Achievable and **Realistic** Corrective Action, Data Analysis



Time bound for Safe Patient Care and Prevention of Future Occurrences

<b>SECONDARY LEVEL OF REVIEW: DEFINED CORRECTIVE ACTION PLAN(S):</b>	
System-Related Event	Provider-Related Event
Patient-Related Event	Staff-Related Event
<p>Additional Discussion:</p> <p>Reviewed by Trauma Medical Director: _____ Date: _____</p> <p>Closed by Medical Director: <input type="checkbox"/> YES <input type="checkbox"/> NO</p>	

**REFERRED FOR TERTIARY/THIRD LEVEL OF REVIEW**

**Regional Advisory Council Performance Improvement Committee** Date: \_\_\_\_\_

**EMS Performance Improvement Committee:** Date: \_\_\_\_\_

**Trauma Peer Committee Review:** Date: \_\_\_\_\_

Reason for Referral to Peer Review:

Subspecialties Involved:

DISCUSSION:

OPPORTUNITIES FOR IMPROVEMENT:

**Trauma Multidisciplinary System Committee Review:** Date:

Reason for Referral to Multidisciplinary System Committee:

Departments Involved:

Subspecialty Service Involved:

Opportunity for Improvement Identified:  Yes  No

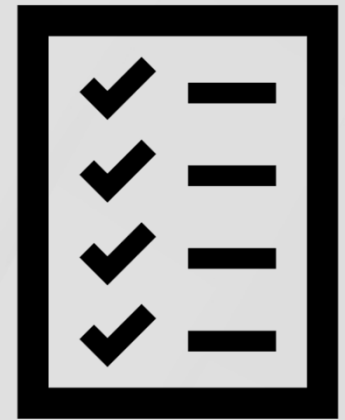
See Multidisciplinary System Committee Agenda and Minutes for Meeting (Date):

# Event Resolution

- You have outcomes established for corrective actions.
  - What data will you collect?
  - What is your measurable, percent or volume?
- What time frame will you use to show sustainability/event resolution?
  - Who Initiates Closure?
- Where do you document resolution?
  - How Is It Documented?

# Documenting Loop Closure

- Details of case in trauma registry
- Upload documents to the registry or keep in a single file on a trauma shared drive
- Add minutes, summary of discussions with trauma team members, letters, graphs, etc. to registry or single file folder for each event on a shared drive



# Key Issues of the Scenarios



Monitor outcomes of action plan



Report at the Operations Committee – no patient identifiers



Maintain documentation in specific file



Trauma Operations meeting minutes should define – event closed and the data to support this action

**End of Course**

**Open Discussion**

**Questions?**

Questions

Evaluations

Feedback

Mentorship