pennsylvania TRAUMA SYSTEMS foundation

Opportunity for Improvement Definitions

Triage: Under

Triage: Over

Delay in Trauma Team Arrival

Delay in Trauma Team Notification

Richard Lopez DO
Kimberly Shoff RN

Rebecca Geyer RN
Gabrielle Wenger RHIT

Thank you to:

PIPS Committee membership for 2021 and 2022

Richard Lopez, DO- Chair
Kim Shoff, RN- Vice chair

Meg Ashton, RN
Cynthia Anthony, RN
Amy Clontz, RN
Leahna Cooney, MD
Linda Dibello, RN
Melinda Gallagher, RN
Sandi Garrett, RN
Renee Gorba, RN
Amanda Greenough, RN
Leda Heidenreich, RN
Ronen Elefant, MD
Cheryl Lansenderfer, RN
Ann Lewis, RN
Virginia Miller, RN
Tammy O'Connor, RN
Colleen Huber, RN
Mary Ann Yema, RN
James Yuschak, MD
Jennifer O'Berg, RN
Daniel Roesler, MD
Lars Sjoholm, MD
Nicole Olszewski, RN
Donald Penatzer, RN
Karen Novibilski, RN
Margaret Pejka, RN
Mary Wenger, RN

pennsylvania TRAUMA SYSTEMS foundation

Rebecca Geyer RN
Gabrielle Wenger RHIT

Objectives

- Define PA-V5 Trauma Registry® “Opportunities for Improvement” (OFI) related to ED Triage.
- Describe a process for evaluation of ED Triage.
- Determine if an OFI related to ED Triage requires review through Trauma Center PIPS Process.

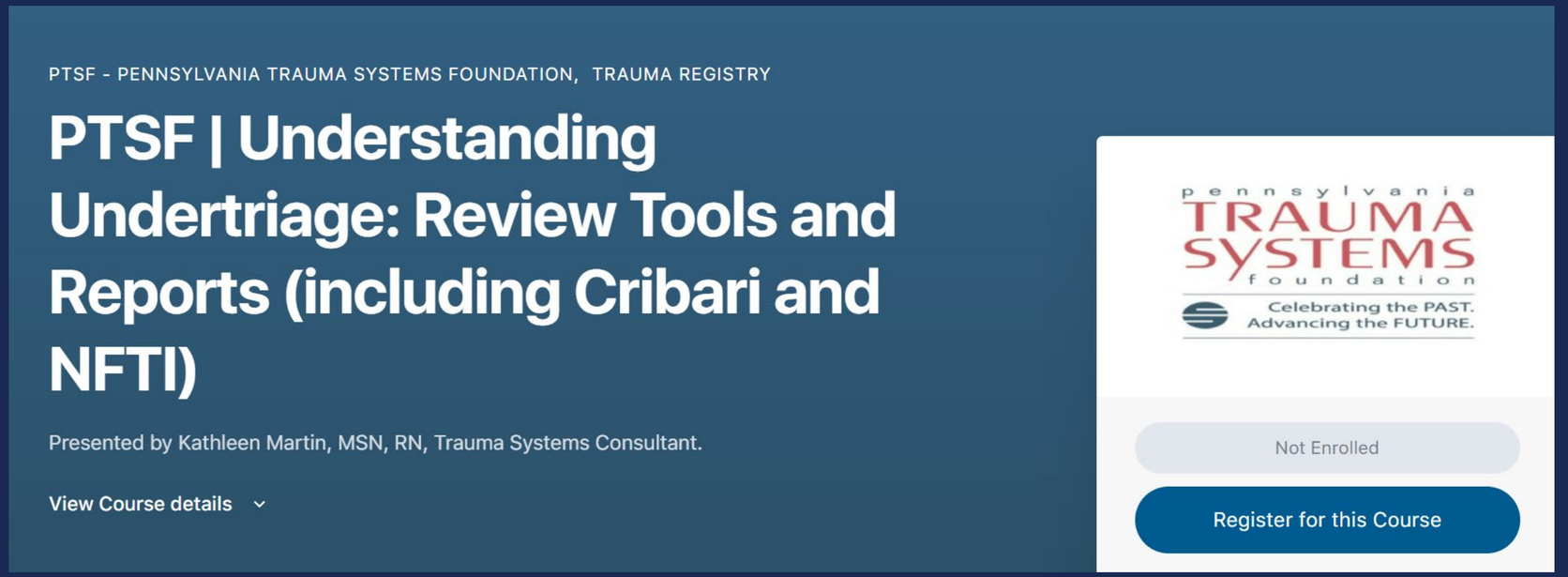
You are invited to participate in polling for this education:

Text REBECCAGEYER824 to 22333 once to join.

pennsylvania TRAUMA SYSTEMS foundation

Undertriage Education

www.ptsf.org Performance Improvement Education



pennsylvania TRAUMA SYSTEMS foundation

Cribari Matrix Review Method

	Not Major Trauma	Major Trauma	Total	
Highest Level TTA	A	B	C	Overtriage A/C x 100
Midlevel TTA	D	E	F	Undertriage =
No TTA	G	H	I	(E+H) / (F+I) x 100

Undertriage = ISS > 15, **NOT** Highest Level of Trauma activation

Overtriage = ISS ≤ 15, Highest Level of Trauma activation

PTSF Standards of Accreditation ADULT LEVELS I - III
Standard 6: PIPS Program

- **Undertriage** is defined as the "Limited or no activation with ISS 16-75 divided by the total patients with limited or no activation." **Benchmark: ≤ 5%**
- **Overtriage** is "Full trauma activation with ISS 0-15 divided by the total patients with full trauma activations." **Benchmark: ≤ 50%**

Rotondo MF, Cribari C, Smith RS. Monitoring Overtriage and Undertriage. *Resources for Optimal Care of the Injured Patient.* Chicago, IL: American College of Surgeons, Committee on Trauma; 2014:28

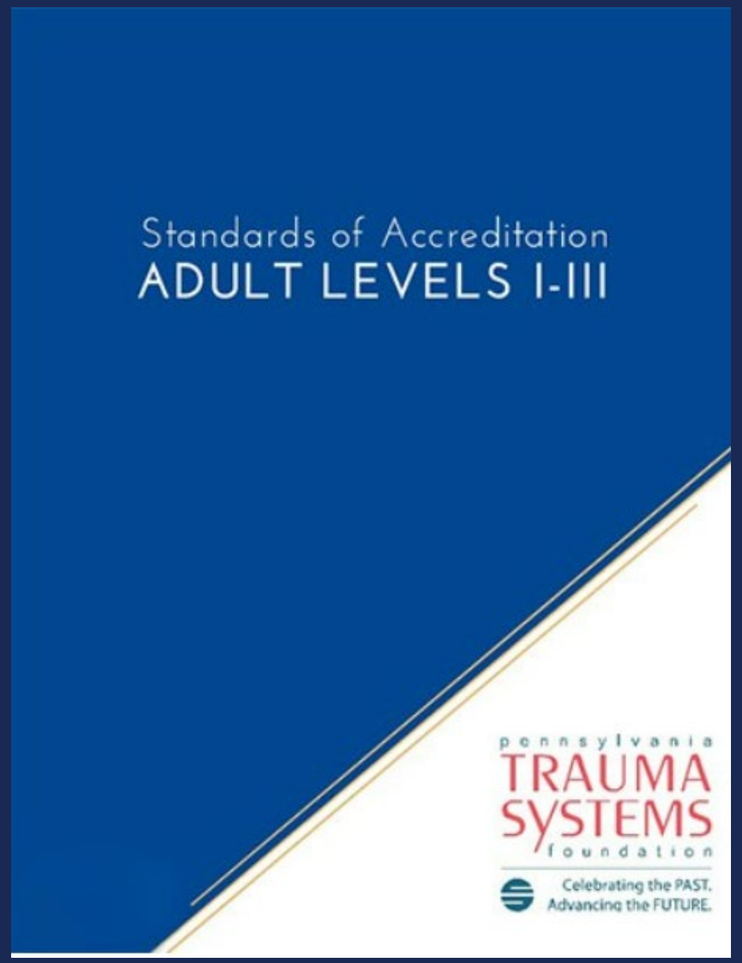
Need for Trauma Intervention (NFTI)
(Highest Level of Trauma Activation Required)

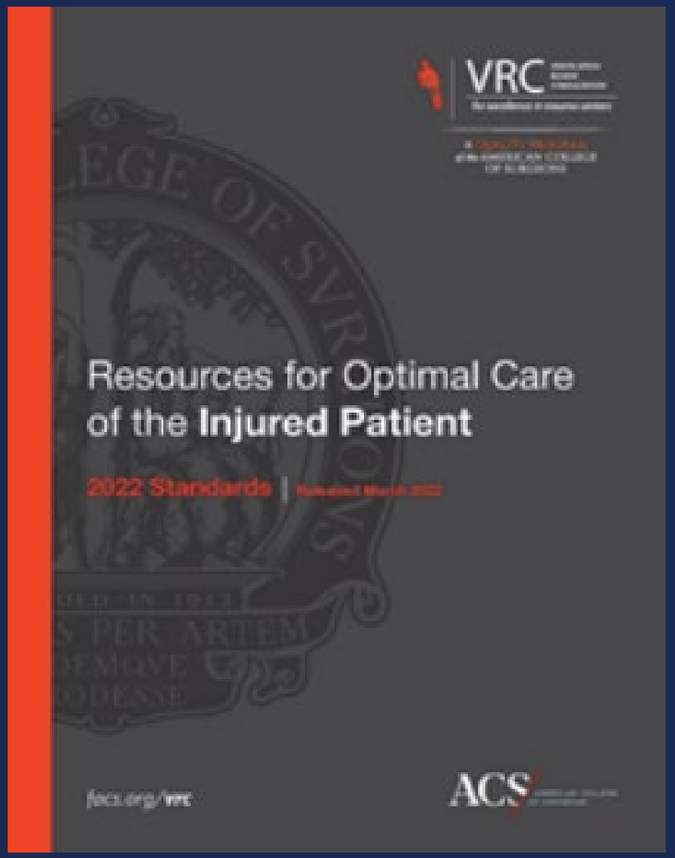
- Blood transfusion within 4 hours of arrival
- Discharge from ED to OR within 90 minutes of arrival
- Discharge from ED to interventional radiology (IR)
- Discharge from ED to ICU AND ICU length of stay at least 3 days
- Require mechanical ventilation during the first 3 days, excluding anesthesia
- Death within 60 hours of arrival

Roden-Foreman JW, Rapier NR, Yelverton L, Foreman, ML. Asking a Better Question: Development and Evaluation of the Need For Trauma Intervention (NFTI) Metric as a Novel Indicator of Major Trauma. *Journal of Trauma Nursing.* 2017 (24) 3: 150-157.

Roden-Foreman JW, Rapier NR, Foreman ML et al. Rethinking the Definition of Major Trauma: The Need for Trauma Intervention Outperforms Injury Severity Score and Revised Trauma Score in 38 Adult and Pediatric Trauma Centers. *Journal of Trauma and Acute Care Surgery.* 2019 (87)3: 658-665.

Standards





pennsylvania
TRAUMA
SYSTEMS
foundation

OFI definitions clarified

Triage: Over - Overestimating the level of injury; Trauma activation initiated that did not meet institution's Trauma Activation guidelines ~~–~~ or was evaluated to be over triage based upon Cribari matrix review method or other evidence-based review method.

Triage: Under - ~~Failing to initiate or upgrade to appropriate level of trauma activation based on institution's Trauma Activation guidelines.~~ A patient that:

- Was not activated (or upgraded) but should have been based upon activation criteria

or

- Was identified as Undertriage based upon Cribari matrix review method

or

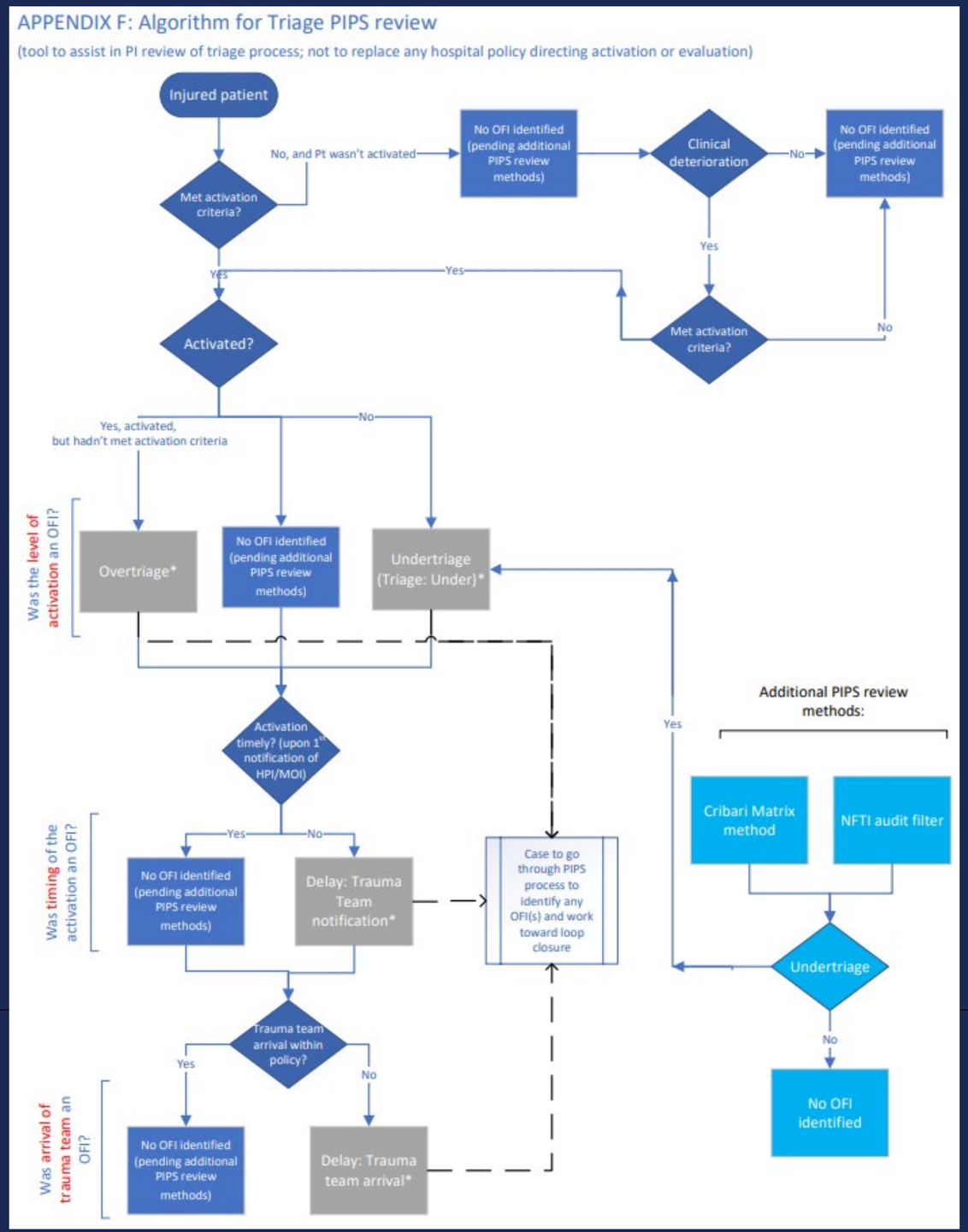
- Was identified as undertriage based upon PI review with other evidence-based method (i.e., Need for Trauma Intervention (NFTI)).

OFI definitions clarified

Delay: Trauma team arrival - Trauma Team arrival beyond the time expectation defined in your Trauma Team Response policy. Refers to provider arrival times. Does not apply to whether the level of activation was appropriate, as a delay in arrival can happen with a correct, or incorrect, activation level. OFI can also apply to delays in trauma team arrival for trauma consults.

Delay: Trauma team notification - Delay in initiating trauma team activation after patient arrival. For patients who initially did not meet the institution's Trauma Activation criteria but who were found upon further examination, laboratory, or diagnostic studies or who had clinically deteriorated after their arrival to meet the institution's Trauma Activation criteria as defined by your Trauma Team Response policy. All cases meeting this definition should be reviewed as part of your performance improvement plan. OFI can also apply to delays in trauma team notification for trauma consults.

Triage Algorithm



pennsylvania TRAUMA SYSTEMS foundation

Case Scenario #1

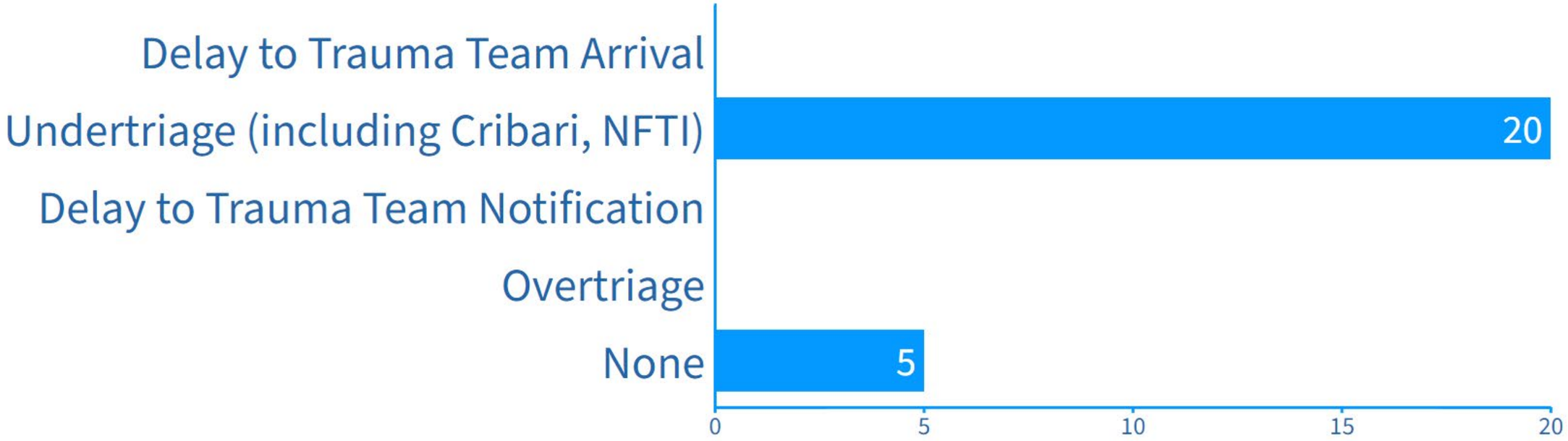
62yo F unrestrained driver in two vehicle MVC. +LOC.

EMS– absent breath sounds on right side, RR 20s, HR 120s-130s, first SpO2 80%, placed on NRB, continued respiratory distress, No needle decompression. C-collar placed.

Level 2 trauma activation.

Poll is full and no longer accepting responses

Does this case scenario meet any of the following PaV5 OFI definitions?



Powered by Poll Everywhere

Triage: Under

A patient that:

- was not activated (or upgraded) but should have been based upon activation criteria

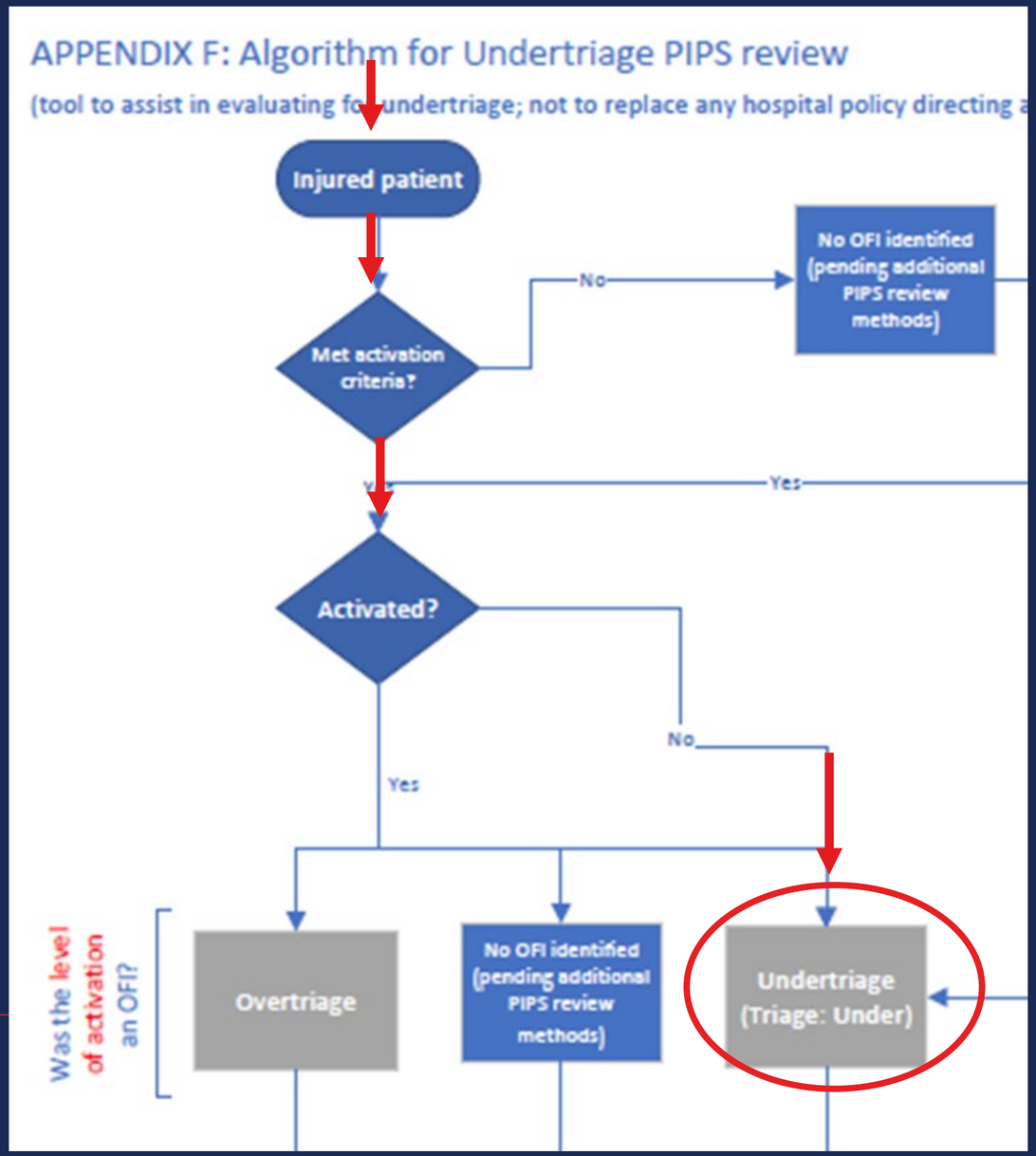
Or

- was identified as undertriage based upon Cribari matrix review method

Or

- was identified as undertriage based upon PI review with other evidence-based method (i.e., Need for Trauma Intervention (NFTI))

Algorithm Review



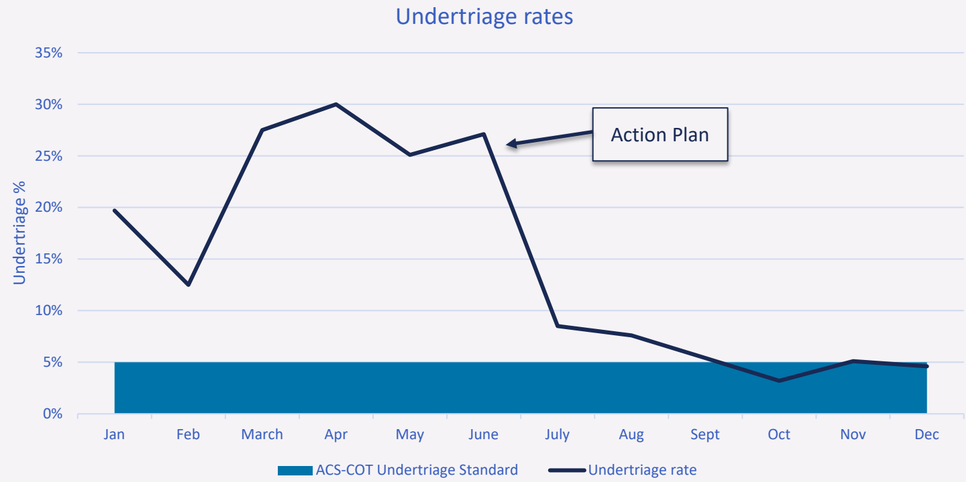
pennsylvania TRAUMA SYSTEMS foundation

OFI identified: Triage: Under

- Once any OFI is identified, the case will then go through your PI case review, as indicated in your PI plan.
- Action plan(s) will be established, implemented and tracked.
- Loop closure, and the ability to say that *this OFI is less likely to occur because during the x-month focused review, no further events occurred* (with data supporting this statement) is the goal

OFI identified: Triage: Under

- *Triage: Under is less likely to occur because during the 6 focused review, undertriage rates improved from averaging 20% to <10% for 6 consecutive months, with our target goal of <5% for the past 3 months.*



pennsylvania TRAUMA SYSTEMS foundation

Case Scenario #2

45yo M s/p MCC into brick wall (helmeted) unknown LOC.

EMS- GCS 15, remained hemodynamically stable, SBP 110 with 24 RR.

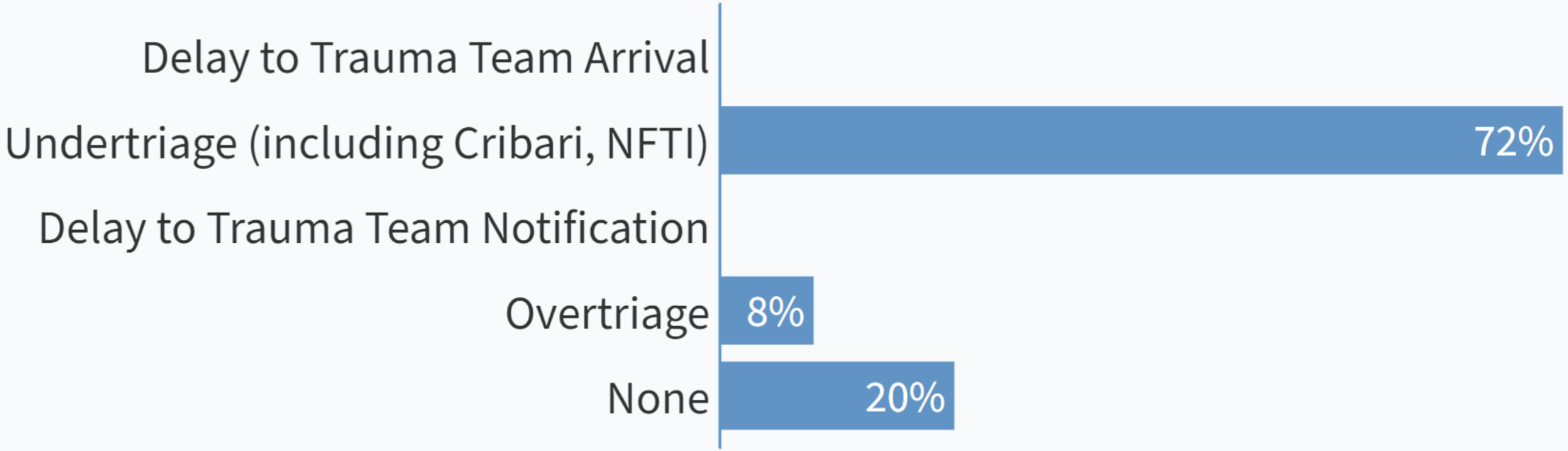
Repetitive questioning, amnestic to event.

Activated as Level 2 trauma activation. During trauma activation was hemodynamically stable, GCS 15.

ISS 22.

Poll is full and no longer accepting responses

Does this case scenario meet any of the following PaV5 OFI definitions?



Triage: Under

A patient that:

•was not activated (or upgraded) but should have been based upon activation criteria (motor score ≤5 meets criteria for highest level activation)

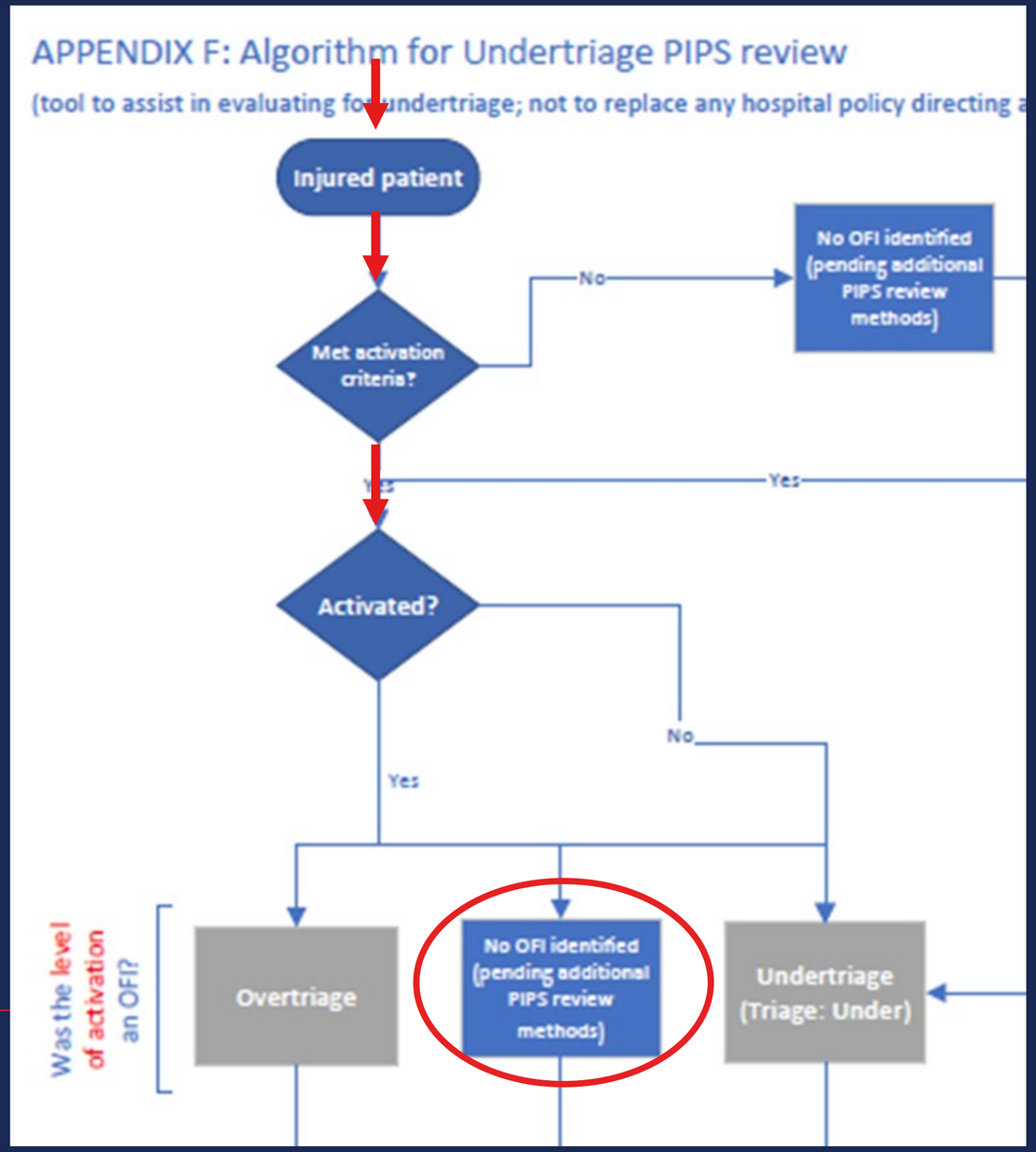
Or

•was identified as undertriage based upon Cribari matrix review method

Or

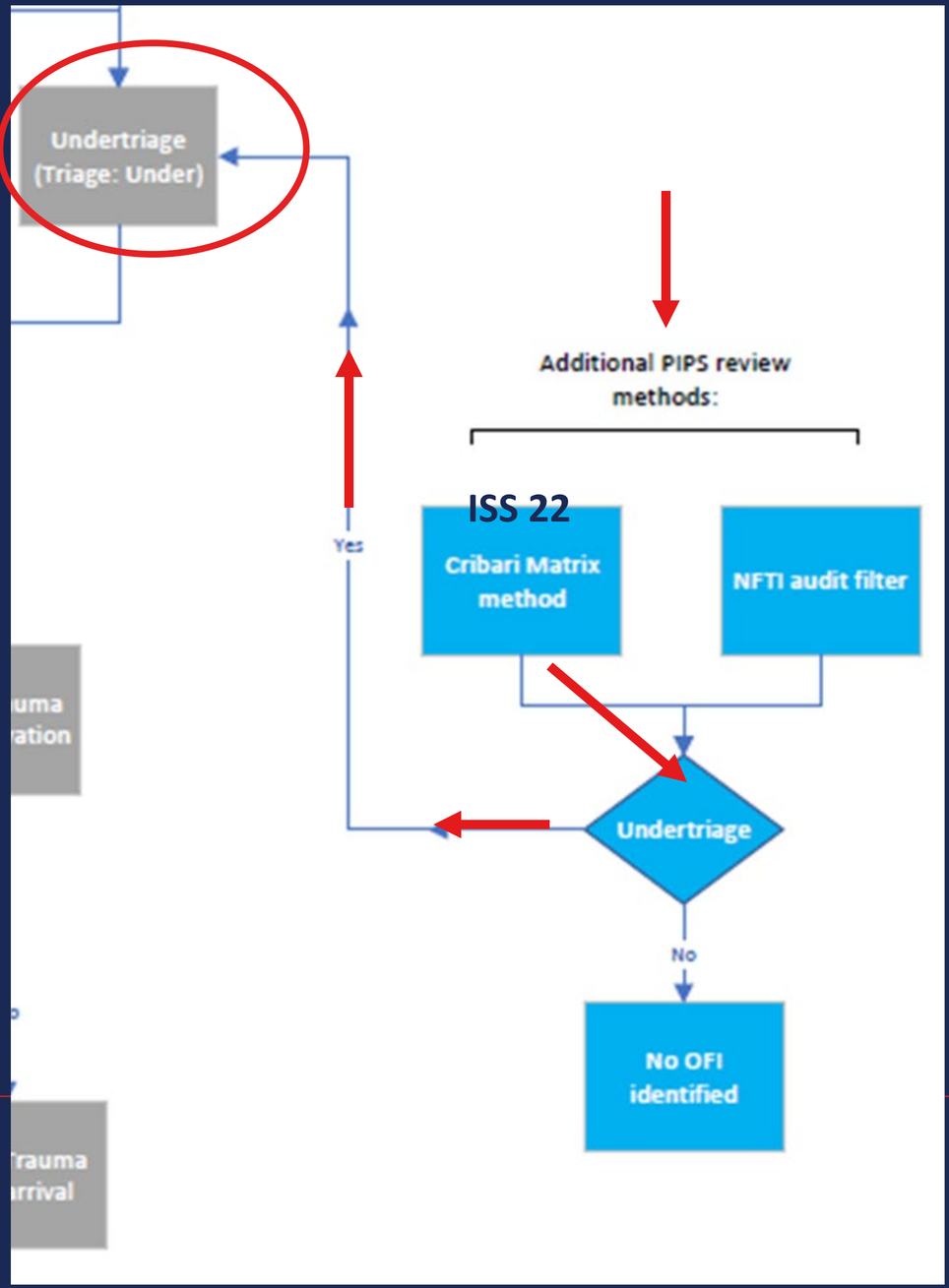
•was identified as undertriage based upon PI review with other evidence-based method (i.e., Need for Trauma Intervention (NFTI))

Algorithm review



pennsylvania TRAUMA SYSTEMS foundation

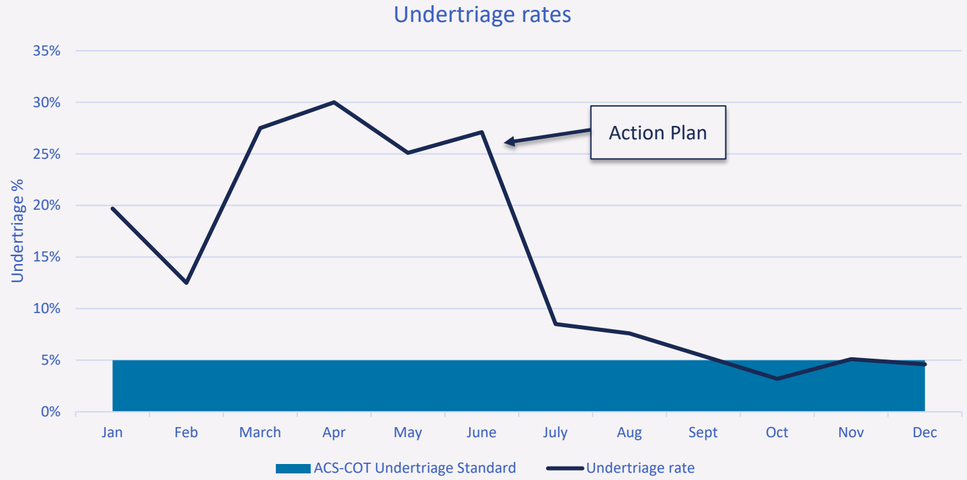
Algorithm review



pennsylvania TRAUMA SYSTEMS foundation

OFI identified: Triage: Under

- *Triage: Under is less likely to occur because during the 6 focused review, Cribari undertriage rates improved from averaging 20% to <10% for 6 consecutive months, hitting our target rate <5% for 3 months.*



pennsylvania TRAUMA SYSTEMS foundation

Case Scenario #3

84 yo male restrained passenger in T-bone MVC. + airbag, - LOC earlier in the day. Pt had initially gone home after the accident during which he had increasing right hip pain and EMS was called.

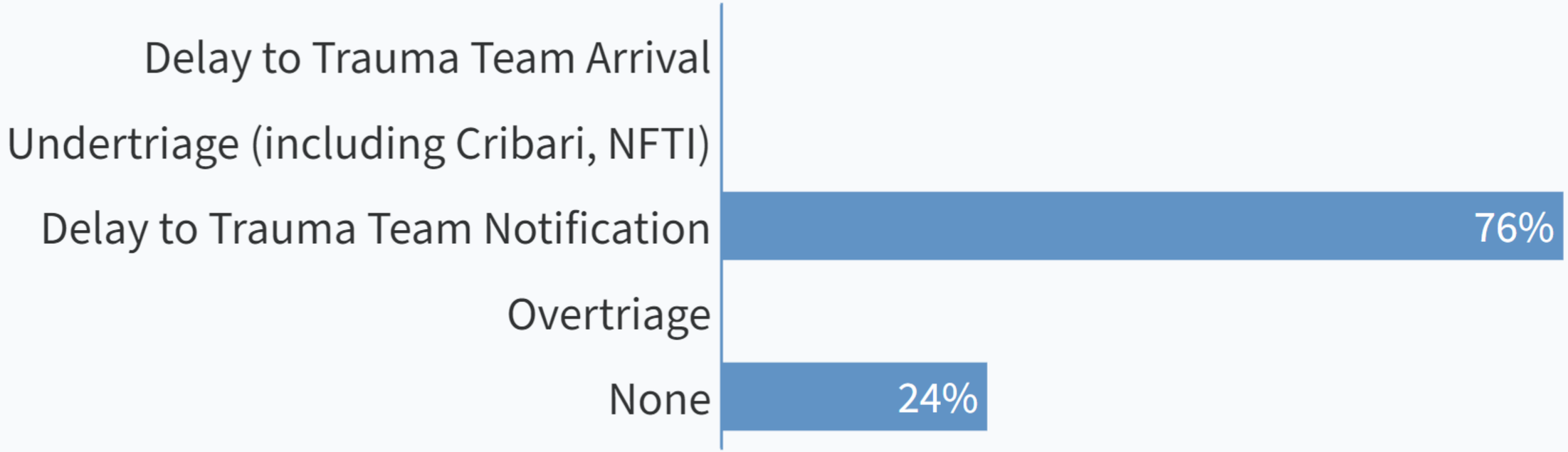
EMS: A&O, with GCS 15. MAEx4.

Arrived to ED and taken to a regular room for workup. Repeat VS (45 min later) showed BP 77/52 and SpO2 89% on RA.

Pt then moved to trauma bay and activated as a trauma alert. FAST exam + for free fluid in RUQ. MTP initiated as patient remained hypotensive.

Poll is full and no longer accepting responses

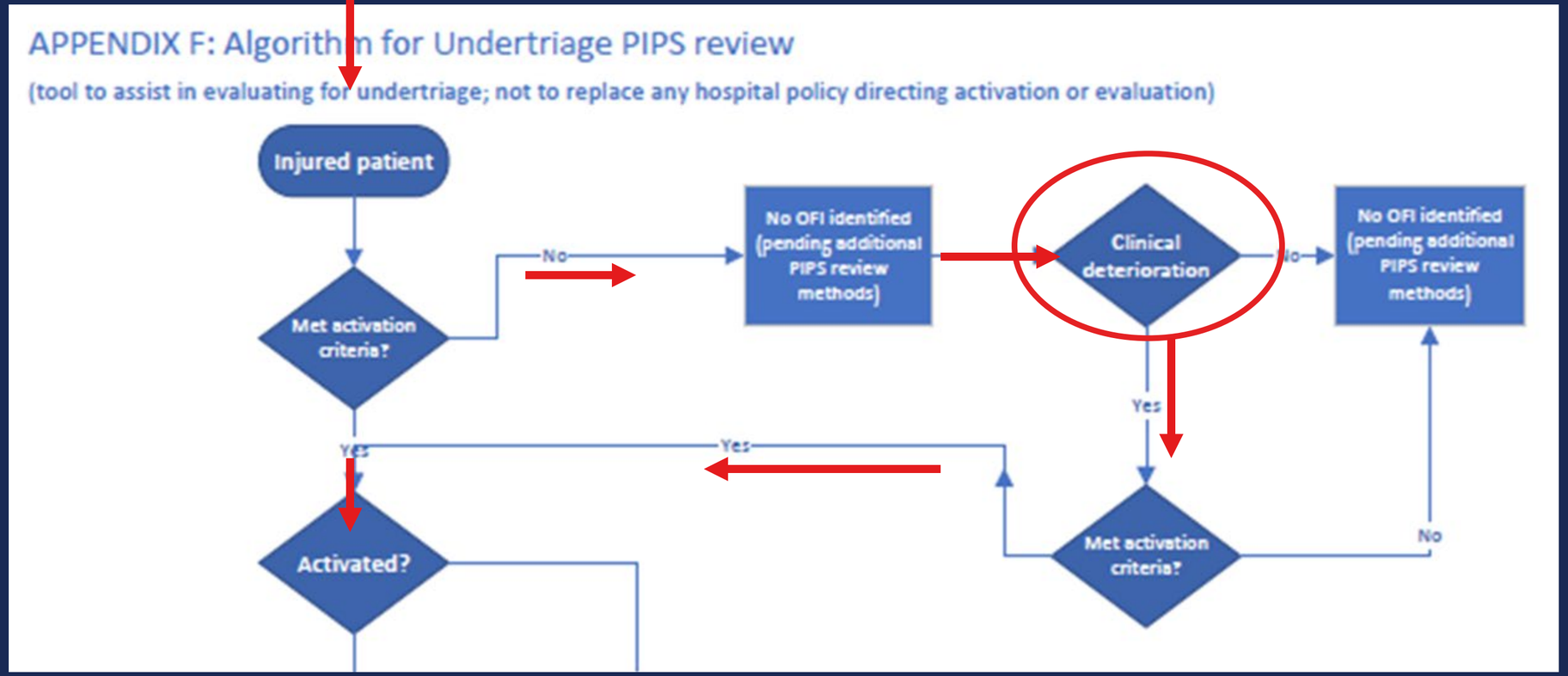
Does this case scenario meet any of the following PaV5 OFI definitions?



Delay: trauma team notification

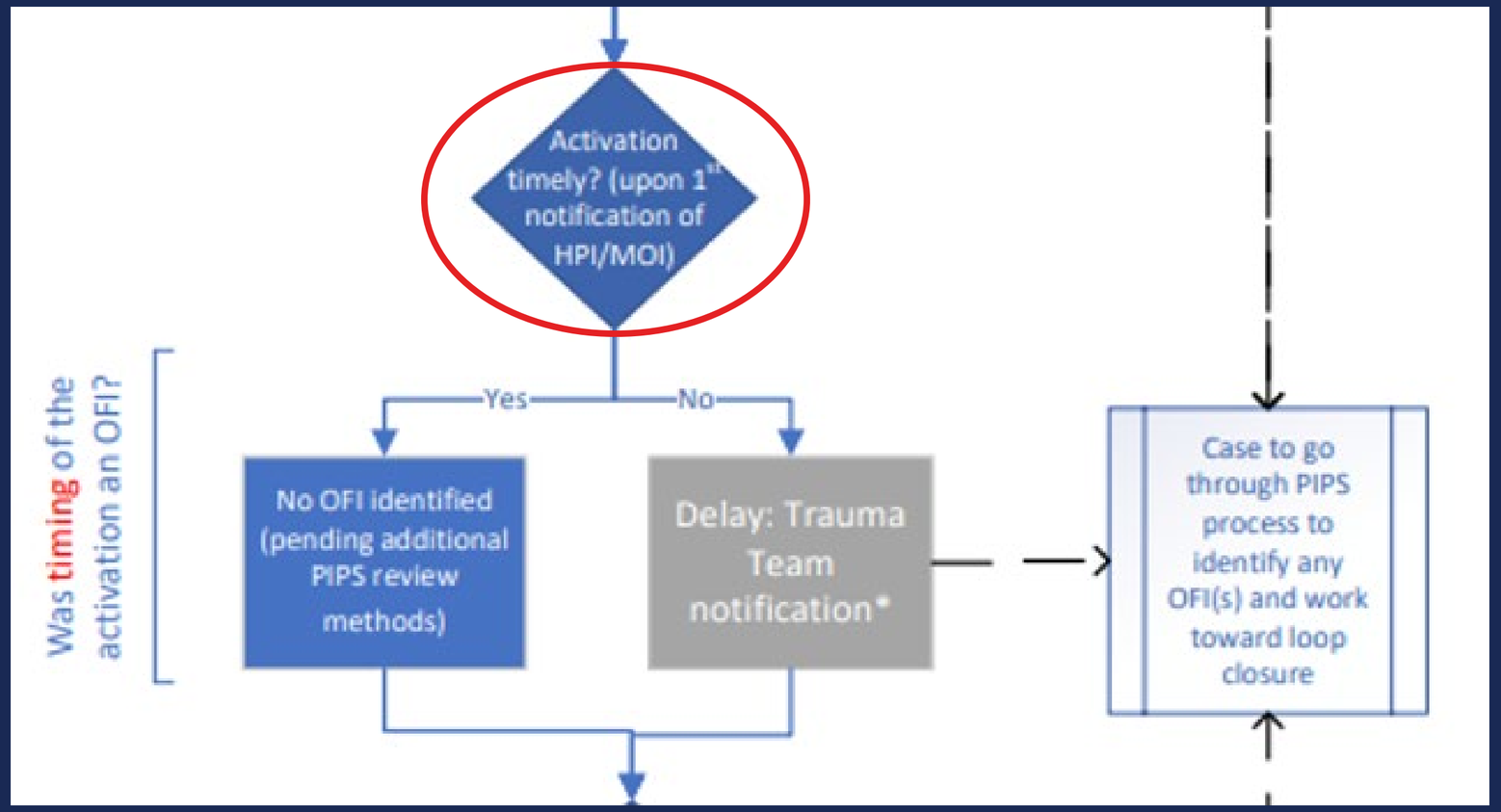
Delay: Trauma team notification: Delay in initiating trauma team activation after patient arrival. For patients who initially did not meet the institution's Trauma Activation criteria but who were found upon further examination, laboratory, or diagnostic studies or who had clinically deteriorated after their arrival to meet the institution's Trauma Activation criteria as defined by your Trauma Team Response policy. All cases meeting this definition should be reviewed as part of your performance improvement plan. OFI can also apply to delays in trauma team notification for trauma consults.

Algorithm review



pennsylvania TRAUMA SYSTEMS foundation

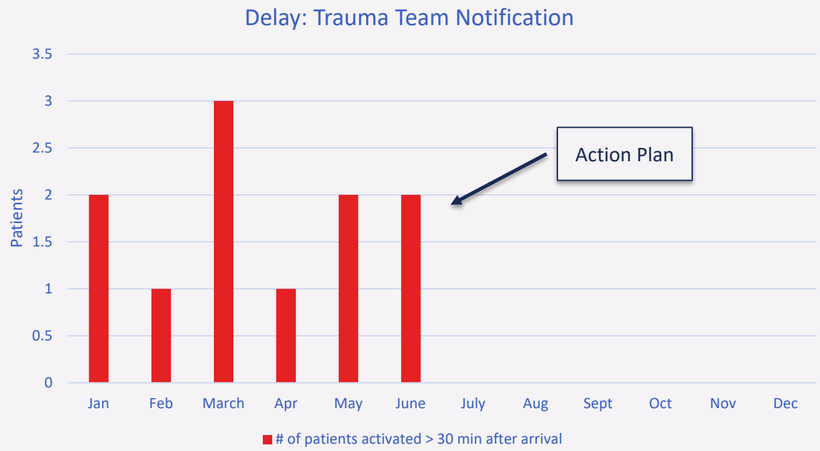
Algorithm review



pennsylvania TRAUMA SYSTEMS foundation

OFI identified: Delay: Trauma Team Notification

- *Delays in Trauma Team Notification is less likely to occur because during the 6 focused review, cases activated > 30 minutes after arrival decreased from 2/month to 0 cases in 6 months.*



pennsylvania TRAUMA SYSTEMS foundation

Case Scenario #4

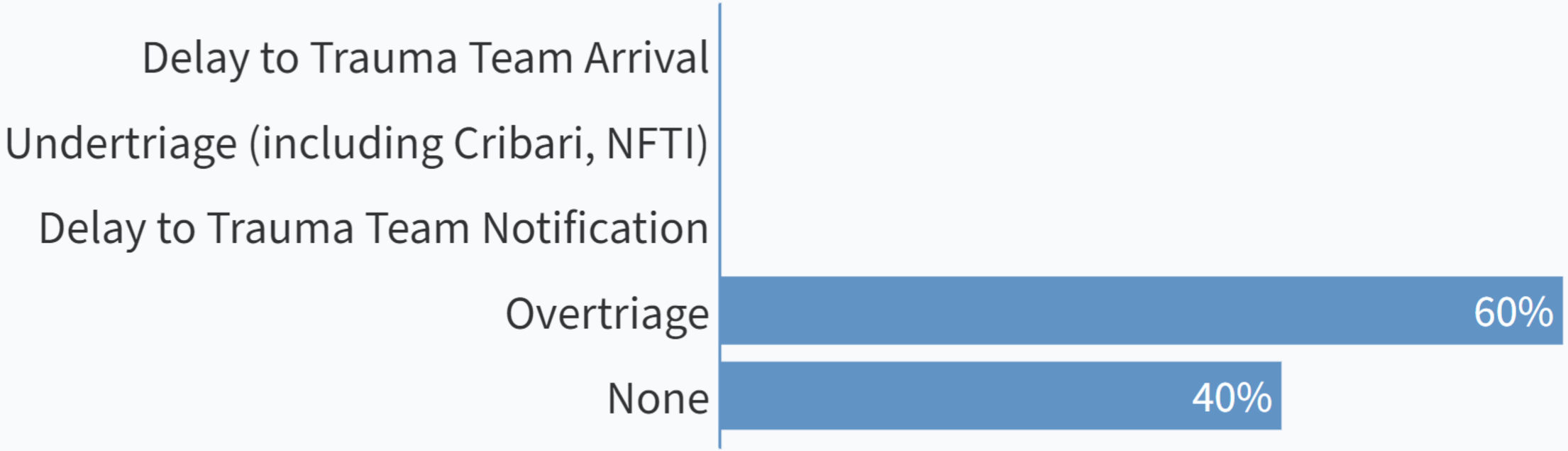
18 yo F MVC driver -SB +AB, Going 40 mph, involved in a head-on collision, with significant front-end damage.

EMS: One episode of desaturation enroute. Pt. c/o facial, abdominal, hip pain. EMS contacted Medical Command, requested Trauma Alert.

ED: Level 1 Trauma Alert. Pt. AAO w/collar in place on arrival. Moving all extremities equally with full strength. VS unremarkable. Soft abdomen, no intervention required. Imaging negative for fracture or abnormality. CXR clear. Multiple abrasions on face, extremities, ecchymosis on hip. Discharged to home.

Poll is full and no longer accepting responses

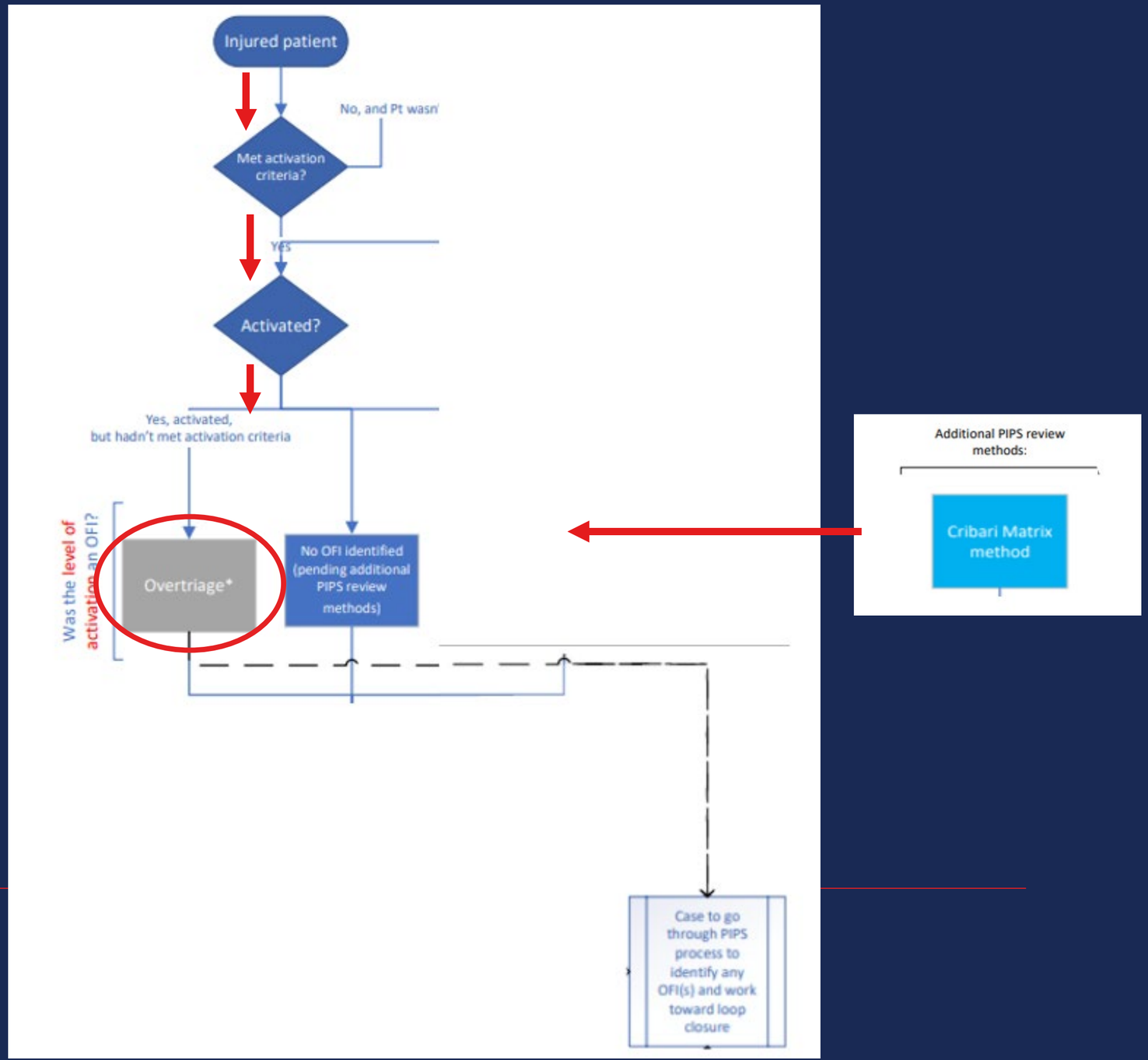
Does this case scenario meet any of the following PaV5 OFI definitions?



Triage: Over

Activation that didn’t meet activation criteria, or was evaluated to be over triage based upon Cribari matrix review method or other evidence-based review method

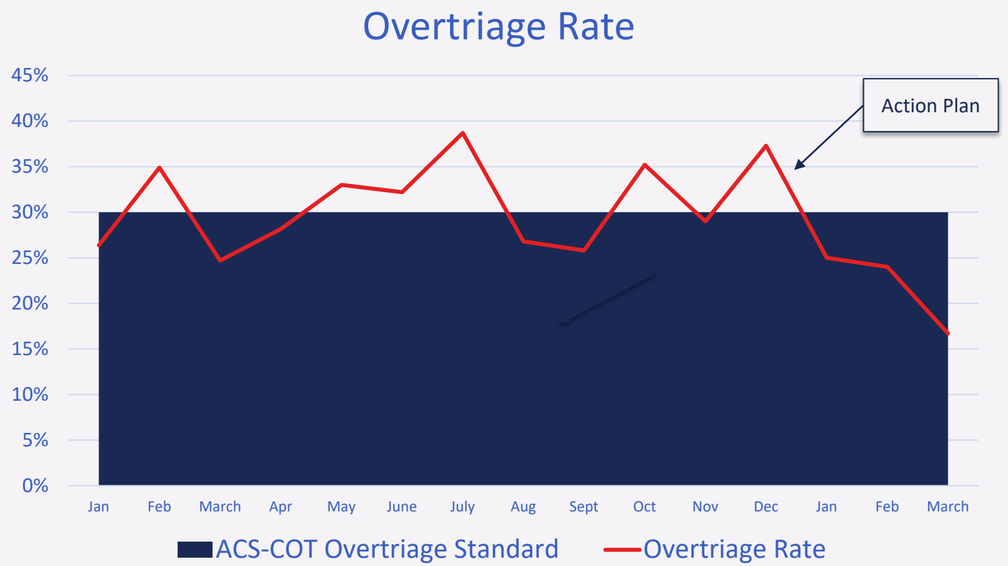
Algorithm review



pennsylvania TRAUMA SYSTEMS foundation

OFI identified: Triage: Over

- *Overtriage is less likely to occur because during the 6 focused review, overtriage rates decreased from 30% to 25%.*



pennsylvania TRAUMA SYSTEMS foundation

Case Scenario #5

50 y.o. male presents to ED via POV after an MVC. A&O x1. He states that he blacked out and has no recollection of the accident. VSS. Noted to have a forehead abrasion, PERRLA but sluggish. C-collar placed. Noted to have obvious deformity with significant swelling in the left wrist and hand with delayed capillary refill.

Level 1 Trauma Center- response time for highest level activation is < 15 minutes

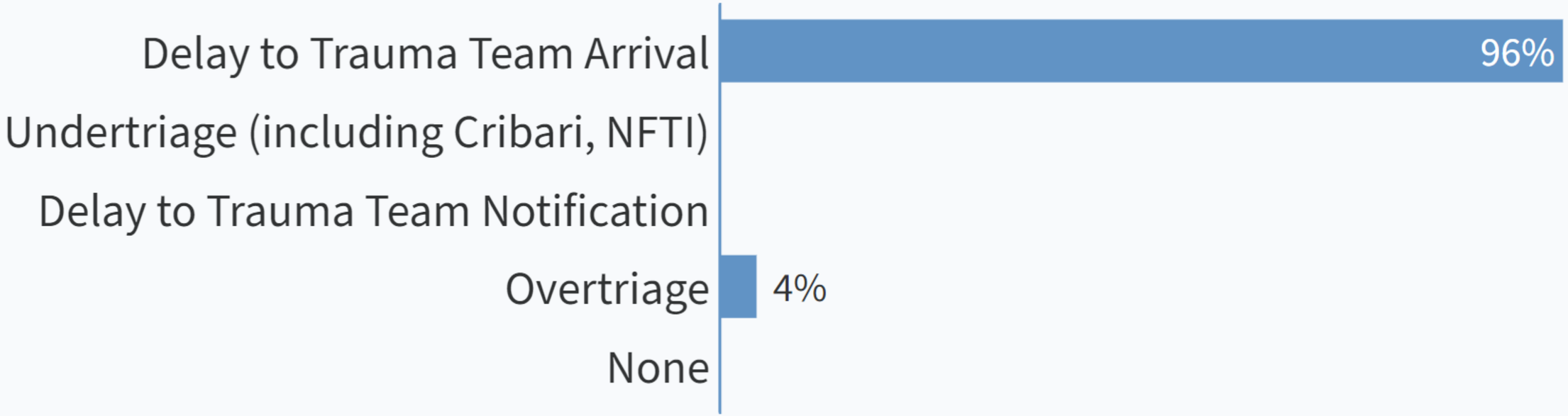
Activated as highest-level Trauma activation - Rationale: Physician Judgment.

The Trauma team was in the OR with a previously activated Trauma patient; back-up Surgeon was called. The back-up Trauma Surgeon arrived 22 minutes into the activation which was being run by the ED Attending and residents.

When poll is active, respond at **PollEv.com/rebeccageyer824**

Text **REBECCAGEYER824** to **22333** once to join

Does this case scenario meet any of the following PaV5 OFI definitions?

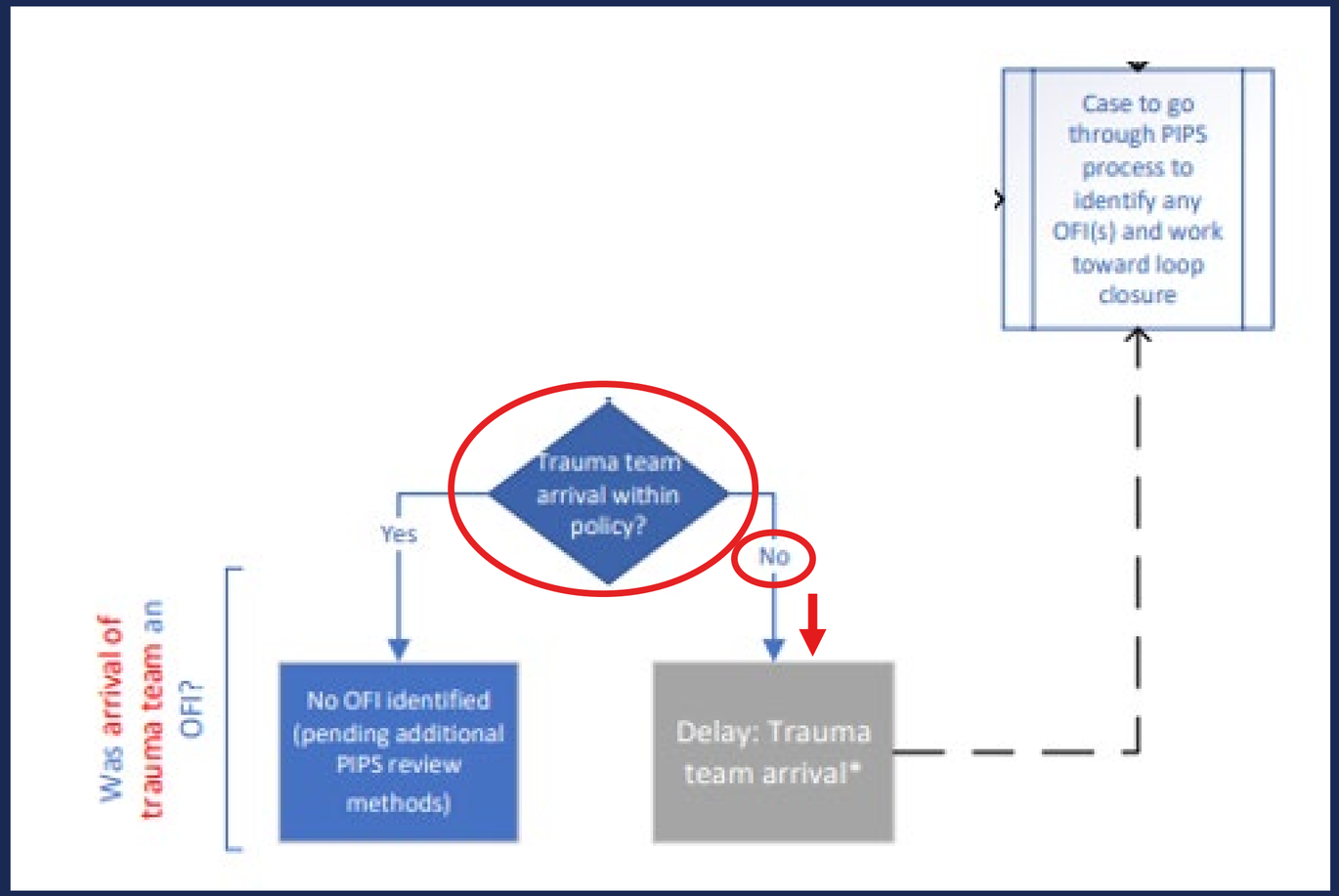


Delay: trauma team arrival

Delay: trauma team arrival: Trauma Team arrival beyond the time expectation defined in your Trauma Team Response policy.

Does not apply to *whether* the level of activation was appropriate, as a delay in arrival can happen with a correct, or incorrect, activation level. OFI can also apply to delays in trauma team arrival for trauma consults.

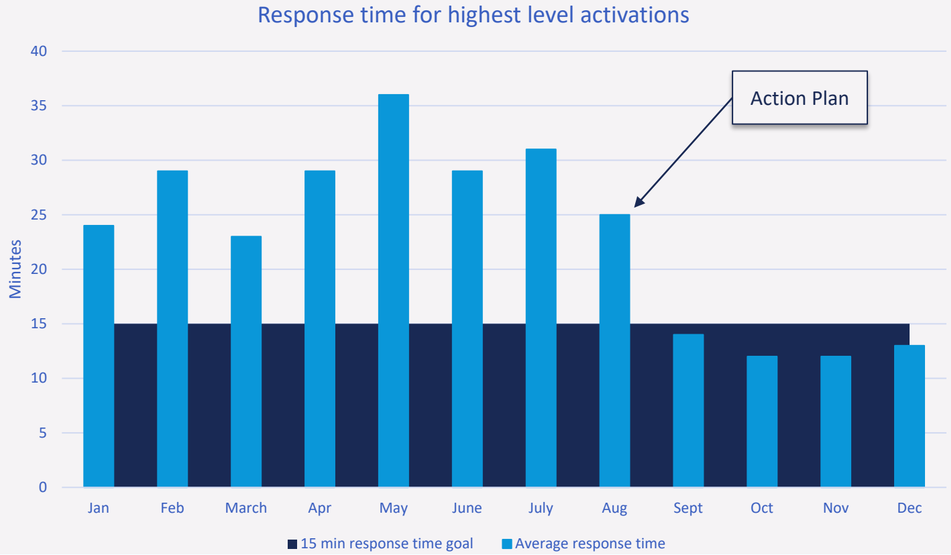
Algorithm review



pennsylvania TRAUMA SYSTEMS foundation

OFI identified: Delay: Trauma team arrival

- *Delayed response time is less likely to occur because during the 4-month focused review, response times decreased from 25 min to meeting the goal of < 15 min arrival times.*



pennsylvania TRAUMA SYSTEMS foundation

Summary

- PI review of triage is a key process within your PI program.

- Although the process of triage hasn't changed, review of the OFI definitions related to triage are beneficial to provide increased consistency of use across the state.

- As always, data is key to demonstrate loop closure of any PI event.

QUESTIONS?

pennsylvania TRAUMA SYSTEMS foundation

When poll is active, respond at **PollEv.com/rebeccageyer824**

What feedback do you have for the PIPS Committee regarding today's education?

No responses received yet. They will appear here...

References

- Morris RS, Karam BS, Murphy PB, et al. Field Triage, Hospital Triage, and Triage Assessment: A Literature Review of the Current Phases of Adult Trauma Triage. *Journal of Trauma and Acute Care Surgery*. 2021 (90)6: 138-145.
- **Pennsylvania Trauma Systems Foundation Outcomes Operational Manual: 2022**
- **Resources for Optimal Care of the Injured Patient 2014.** Chicago, IL: American College of Surgeons, Committee on Trauma
- Roden-Foreman JW, Rapier NR, Yelverton L, Foreman, ML. Asking a Better Question: Development and Evaluation of the Need For Trauma Intervention (NFTI) Metric as a Novel Indicator of Major Trauma. *Journal of Trauma Nursing.* 2017 (24) 3: 150-157.
- Roden-Foreman JW, Rapier NR, Foreman ML et al. Rethinking the Definition of Major Trauma: The Need for Trauma Intervention Outperforms Injury Severity Score and Revised Trauma Score in 38 Adult and Pediatric Trauma Centers. *Journal of Trauma and Acute Care Surgery.* 2019 (87)3: 658-665.
- Rotondo MF, Cribari C, Smith RS. Monitoring Overtriage and Undertriage. *Resources for Optimal Care of the Injured Patient.* Chicago, IL: American College of Surgeons, Committee on Trauma; 2014:28

pennsylvania
TRAUMA
SYSTEMS
foundation

We are Committed to Zero Preventable Deaths from Injury in Pennsylvania

Questions, please contact:

Rebecca Geyer, MSN, RN, TCRN
Director of Performance Improvement
Pennsylvania Trauma Systems Foundation
275 Cumberland Parkway, #234
Mechanicsburg, PA 17055
717-697-5512, Ext. 107
Cell: 740-683-6022
rgeyer@ptsf.org
www.ptsf.org