

Case 1- Time Line and Case Review

Event Identification: The Trauma Program Manager (TPM) at a Level IV facility is reviewing the care provided by an advanced practice provider (APP) to a major trauma patient as required by the State of MI trauma system. The TPM will conduct a primary review with referral to the Trauma Medical Director (TMD) for secondary review.

Primary Review by TPM:

History – On 5/17/18, EMS was called to the scene of a reported stabbing. The crew called the hospital while enroute saying they were responding to a stabbing with a reported large amount of blood. The ETA would be short after arrival to patient so wanted to give the hospital time to prepare. Fifteen minutes later EMS called to report that they were transporting a 23 year old male who had been stabbed in the right upper chest with an ice pick. A small amount of bleeding was noted. The patient was awake, alert, and somewhat belligerent. ETOH odor noted. VS were reported as: BP 122/70 P 104 R 20 GCS 15. ETA was 4 minutes

ED Timeline:

0150 – The patient arrives in the ED. The RN receives report from EMS and notes no changes from the prehospital information. The patient is awake, alert, and angry. Airway patent. Breathing non-labored but slightly diminished breath sounds noted on right. Color pale. The cardiac monitor shows sinus tachycardia. The 4 X 4 gauze placed over the wound had a small amount of blood. GCS 15. Breathalyzer .19 **Initial VS:** BP: 122/72 P: 108 R: 22 Pulse Ox: 93% T: 97.8 F

0154 – The APP examines the patient and charts results similar to the above findings. She then probes the wound as it appeared to be a relatively minor injury but was surprised to find it was deeper than anticipated. The APP orders transfer to a tertiary care facility, portable chest x-ray, and IV NS at 200cc/hour. The nurse starts the IV and calls X-ray.

0215 – The tertiary care facility is called and accepts the patient. He will be transferred by ground ambulance to the hospital 45” away. A new set of vital signs is recorded at this time and are as follows: BP 104/80 P 118 R 24 Oxygen saturations 96% with patient on 2L via NC.

0235 – The chest x-ray is available to view and shows a right hemothorax. The ED physician is called to come in to assist with the case. Updated VS: BP 100/82 P 122 R 24. An IV bolus of 1 liter is ordered.

0305 – The ED physician arrives and finds the patient drowsy but easy to arouse. Oxygen saturations are now 92% and the patient is changed to a non-rebreather mask. Breath sounds are now noted to be markedly diminished on right. Color remains pale. Updated VS as follows: BP 88/70 P 136 R 30.

Chest x-ray reviewed by the ED physician and a decision is made to place a chest tube on the right. O negative blood ordered and a second IV initiated. The nurse calls the night nursing supervisor to come and assist with the case. The tertiary care facility is provided an update on the patient’s condition. The decision is made to change the inter-facility transport method to air. The helicopter is enroute.

0335 – A 32 Fr chest is placed on the right and 350cc of frank red blood returns. The patient tolerated the procedure well. Current VS: BP 96/70 P 120 R 22 O negative blood is hung. A post-procedure x-ray demonstrated the chest tube was in good position.

0400 – Patient leaves the ED and is transported via helicopter.

Follow up from Tertiary Care Facility: The patient arrived at 0420 and was met by a fully assembled trauma team. The portable films from the referring facility were reviewed and a new chest x-ray obtained. VS were as follows: BP 110/70 P 104 R 24 Oxygen saturation 98% on non-rebreather. The patient was admitted to the hospital and was doing well at this time. Chest tube remained in place but was expected to be removed that day.

PIPS process timeline:

A primary case review was conducted by the TPM with referral to the TMD for secondary review. The TMD recommended sending the case to Trauma PIPS committee for tertiary level review. The TPM also noted the following filters to include as part of the review:

- Under triage (UT)
- ED length of stay
- Resuscitation guideline variation

Critical opportunities for improvement identified through the PIPS process included but are not limited to:

- Failure to activate the trauma team for penetrating injury to the chest (UT)
- ED length of stay greater than 60 minutes
- Guideline: (Initial Management of Major Trauma Patient Level IV Trauma Center)

Actions discussed in the tertiary review:

- Education to all members of the trauma team on the need to follow Red/Yellow criteria. Education would include renewed endorsement by TMD of need to follow the TTA criteria
 - Periodic reporting of UT to Trauma PIPS committee
- 1:1 counseling of APP who cared for patient. Include the positive of early recognition of need to transfer
- Holding a RTTDC course at the facility. Include penetrating injury case in RTTDC scenarios.

Describe evidence of event resolution (aka “loop closure”):

- After one year of monitoring 3 cases of penetrating injury presented to the facility. All were activated appropriately and transferred out within 60 minutes
- Quarterly reporting of UT demonstrates rates of less than 5%
- The review of patient care of subsequent cases provided by the APP demonstrated adherence to the guideline.



Michigan Statewide Trauma System Site Review Report

Case Summaries

Category: Transfer

(Please format case summary as follows):

Date of Service: 5/17/18
Level of Activation: None
ICU Patient: Yes No

Admission Service (if applicable): Transfer
Injury Severity Score (if available): 10

Case Summary:

Initial VS: BP: 122/72 **P:** 108 **RR:** 22 **T:** 36.7 **Pulse Ox:** 93% RA **Initial GCS:** 15

The case involved a young male that was stabbed in the chest with an ice pick. He came to the ED as a non-activation patient and was initially treated by the APP with tertiary care facility notified quickly for need of transfer. Over the course of the first hour a CXR was done revealing a hemothorax and the ED physician then became involved in the care and placed a chest tube 90 minutes after arrival. Due to the patients change in status and need for blood products, air medical was called and the patient was transferred after a two-hour ED stay.

PI Findings (clinical, system or process):

- Case underwent primary review by the TPM, secondary by the TMD and tertiary review in Trauma PIPS.
- Committee discussion with action plan for undertriage (UT), ED length of stay >60 minutes and resuscitation guideline variation.
- Action plan including education of trauma team members the necessity to follow Trauma Team Activation Criteria (TTA), periodic UT reporting, counseling of APP related to practice variation & consideration of Rural Trauma Development Course (RTTDC).

Reviewer Comments:

- The hospital's PI process accurately identified the issues in the case.
- The trauma committee notes documented the discussion of the issues and action plan.
- At the time of the review there was documentation of the PI process for the other penetrating cases that were monitored.
- There was also documented follow up from tertiary care facility with no additional PI issues noted.