# Utilization of Trauma Advanced Practice Providers in Transfer Center Communication

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## Disclosures

- No disclosures



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## Objectives

- Recognize criteria 4-1 of the American College of Surgeons (ACS)
- Describe the role of the Trauma Transfer Center Advanced Practice Provider (TCAPP) in the transfer process
- Identify opportunities for referring hospital intervention with the guidance of the TCAPP

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## Background

- OhioHealth trauma services
  - Including Grant Medical Center (Level I) and Riverside Methodist Hospital (Level II)
- Combined the facilities treat over 11,000 trauma patients per year including over 3,700 inter-hospital transfers
- The previous transfer process was cited as a weakness during an ACS site visit

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# Background

- Criteria 4-1
  - ACS cites that “physician to physician communication is essential” prior to transfer to a trauma center
- The previous process allowed for “auto acceptance” of trauma patients where provider to provider communication was optional
- OhioHealth petitioned the ACS requesting that trauma trained advanced practice providers (APPs) could be used in the place of a physician at a trauma center
- Approval was granted for a pilot program which would report the outcomes back to the ACS

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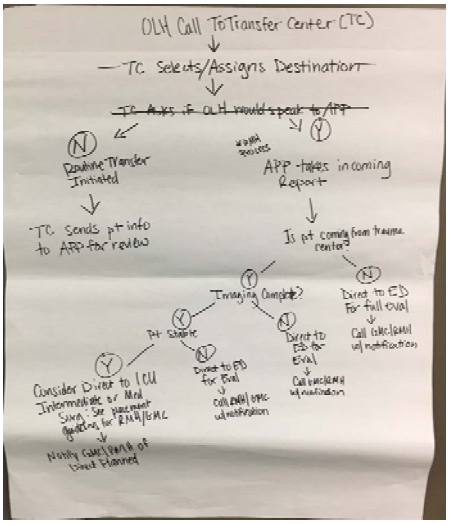
# Project Planning

- Gained approval from the ACS
- Identified key stakeholders
- Identified important outcomes
- Gained organizational approval for positions
- Determined algorithm for transfer process
- Created training module for APPs
- Implemented the TCAPP process
- Data collection
- Ongoing process improvement (TCAPP 2.0)

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## Project Planning

- Stakeholders
  - National Level: ACS
  - System Level: Trauma Clinical Guidance Council, transfer center, organizational administration
  - Hospital Level: Trauma medical directors, Trauma surgeons, Trauma APPs, residents, nursing staff, ED providers, trauma registry, unit managers

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## TCAPP Role and Education

- Dedicated TCAPP 24/7
- Immediately available for Transfer Center calls
- FTEs split between 2 hospitals within the system
- TCAPP answers calls for 2 trauma centers
- TCAPP also provides support to the trauma team while covering transfer center calls
- ATLS certified providers
- Education on target outcomes provided

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## Transfer Process

| Referring Hospital | Transfer Center (TC) | Provider –to-Provider |
|---|---|---|
| Calls to initiate inter-hospital transfer | TC nurse initiates & facilitates provider-to-provider communication | On-Call TCAPP discusses any patient care recommendations with referring provider |

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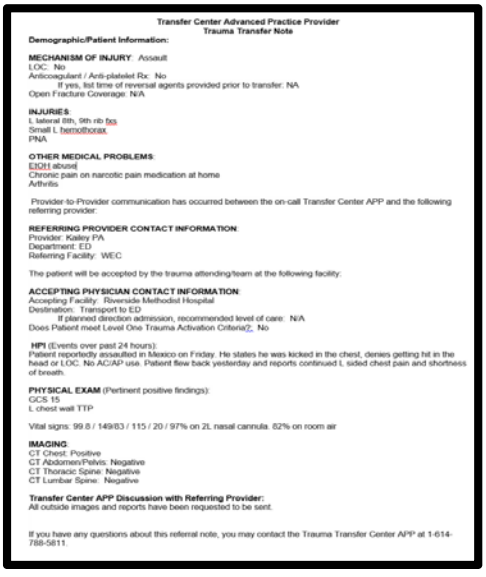
## Transfer Process

- TCAPP documents note in the medical record
- Note is visible to all care teams throughout the system



**Transfer Center Advanced Practice Provider**
**Trauma Transfer Note**

**Demographic/Patient Information:**

**MECHANISM OF INJURY**: Assault
LOC: No
Anticoagulant / Anti-platelet Rx: No
If yes, list time of reversal agents provided prior to transfer: NA
Open Fracture Coverage: N/A

**INJURIES**:
L lateral 8th, 9th rib fxs
Small L hemothorax
PNA

**OTHER MEDICAL PROBLEMS**:
EtOH abuse
Chronic pain on narcotic pain medication at home
Arthritis

Provider-to-Provider communication has occurred between the on-call Transfer Center APP and the following referring provider:

**REFERRING PROVIDER CONTACT INFORMATION**:
Provider: Kailey PA
Department: ED
Referring Facility: WEC

The patient will be accepted by the trauma attending/team at the following facility:

**ACCEPTING PHYSICIAN CONTACT INFORMATION**:
Accepting Facility: Riverside Methodist Hospital
Destination: Transport to ED
If planned direction admission, recommended level of care: N/A
Does Patient meet Level One Trauma Activation Criteria?: No

**HPI** (Events over past 24 hours):
Patient reportedly assaulted in Mexico on Friday. He states he was kicked in the chest, denies getting hit in the head or LOC. No AC/AP use. Patient flew back yesterday and reports continued L sided chest pain and shortness of breath.

**PHYSICAL EXAM** (Pertinent positive findings):
GCS 15
L chest wall TTP

Vital signs: 99.8 / 149/83 / 115 / 20 / 97% on 2L nasal cannula. 82% on room air

**IMAGING**:
CT Chest: Positive
CT Abdomen/Pelvis: Negative
CT Thoracic Spine: Negative
CT Lumbar Spine: Negative

**Transfer Center APP Discussion with Referring Provider:**
All outside images and reports have been requested to be sent.

If you have any questions about this referral note, you may contact the Trauma Transfer Center APP at 1-614-788-5811.

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# Outcomes

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## Outcomes

- Rate of provider to provider communication
- Rate of reversal of anticoagulation for intracranial hemorrhage
- Rate of antibiotic administration for open fractures
- Accuracy of triage to the highest level of trauma activation

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# Outcomes

- Data collected from January to April of 2018
- 1,145 patients transferred to the level I (*n*=799) and level II (*n*=345) centers during that time period

| | Pre TCAPP | Post TCAPP |
|---|---|---|
| Age, mean (SD) | 55.1 (22.8) | 54.3 (22.4) |
| ISS | 8.5 (7.1) | 8.5 (7.2) |
| Length of Stay | 4.4 (5.9) | 4.0 (4.5) |
| Sex | | |
| Male, n (%) | 508 (55.8) | 485 (42.4) |
| Female, n (%) | 403 (44.2) | 657 (57.4) |

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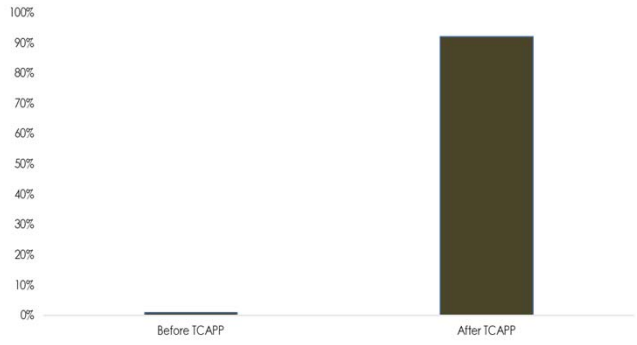
# Provider to Provider Communication

- 92% rate of provider to provider communication
  - 90% TCAPP
  - 2% Trauma Surgeon
- 8% missed calls
  - On another transfer call
  - Transfer center forgot to include TCAPP
  - Inappropriate triage

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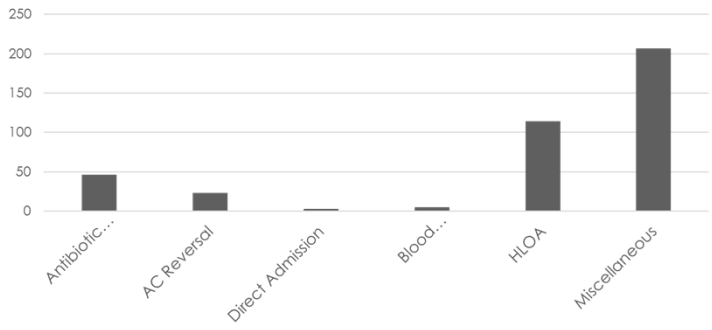
# TCAPP Recommendations

- 398 recommendations made
- No difference in triage accuracy to the highest level activation from ED physician to TCAPP

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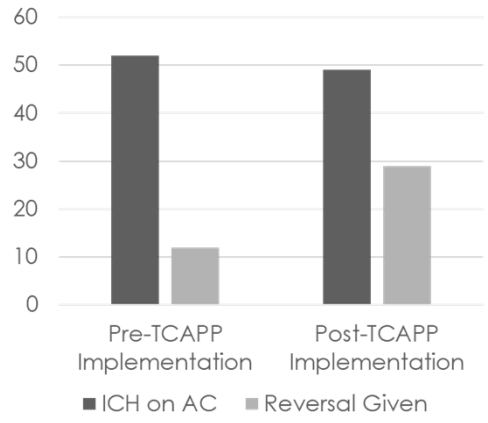
# Anticoagulation Reversal for Intracranial Hemorrhage

- Pre TCAPP rate 23%
- Post TCAPP rate 59%
- *p*=0.0002
- 4.8 times more likely

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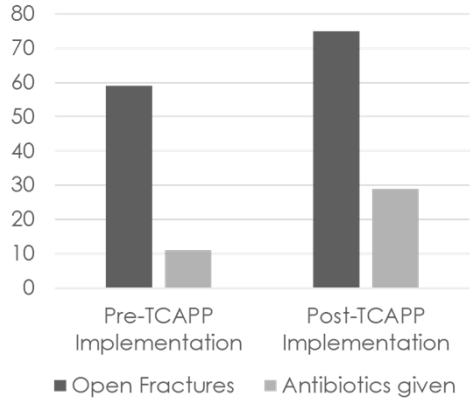
# Antibiotic Administration for Open Fractures

- Pre TCAPP rate 18%
- Post TCAPP rate 38%
- *p*=0.012

- 2.8 times more likely

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# Limitations

- Difficult to evaluate overall cost comparison
- Manual data extraction makes ongoing data collection difficult
- Initial data set was only for four months
- Difficult to associate with overall improvement of outcomes
- Direct admissions were only accepted from referring trauma centers

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# Next Steps (TCAPP 2.0)

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## Next Steps (TCAPP 2.0)

- Evaluate feasibility of:
  - Improving communication related to estimated time of arrival (ETA) for highest level activation
  - Outpatient referral/ management of isolated injuries: concussion, facial fractures, rib fractures etc.
  - Futility of care
  - Increasing rate of direct admissions

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## Next Steps (TCAPP 2.0)

- Improving communication related to ETA for highest level activation
  - TCAPP began asking for ETA during call for highest level activation
  - If no ETA available, call back is being requested
  - Trauma surgeon and/or receiving campus provided with estimated ETA
- Improving triage for all levels of trauma activation

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## Next Steps (TCAPP 2.0)

- Outpatient referral/ management of isolated injuries: concussion, facial fractures, rib fractures etc.
  - High likelihood that additional injuries and/or unidentified injuries may exist
  - Lack of screening for severity of concussion
  - More than half of patients with facial fractures had operative intervention during initial hospitalization

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# Next Steps (TCAPP 2.0)

- Futility of Care
  - APPs not comfortable with making this determination



# Next Steps (TCAPP 2.0)

- Direct Admission
  - Developing algorithm for patients with minor injuries
    - Avoid duplication of services
    - Streamline trauma care
    - Decrease the cost of care

# Questions

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