



# Provider Characteristics and Pre-Transfer Costs of Potentially Avoidable Transfers for Pediatric Facial Fracture Patients within UPMC

Shirley X. Liu, MS <sup>1</sup>; Lucille G. Cheng, BA <sup>1</sup>; Nicolás M. Kass, BA <sup>2</sup>; Angel Dixon, BS <sup>2</sup>; Anne E. Glenney, BA <sup>2</sup>; Jesse A. Goldstein, MD <sup>2</sup>

1. University of Pittsburgh School of Medicine; Pittsburgh, PA. 2. Department of Plastic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA.

## Background

- Pediatric facial fractures, while rare, necessitate prompt and specialized medical attention
- Pediatric facial trauma patients are often **"inappropriately" transferred** to specialized children's hospitals despite capacity for referring hospital to manage care
- Potentially Avoidable Transfers (PAT)**, defined as a patient with a length of stay less than one day, no admission, no surgery, and no emergent procedure performed after transfer, are **costly for patients, their families, and hospital systems**

## Objectives

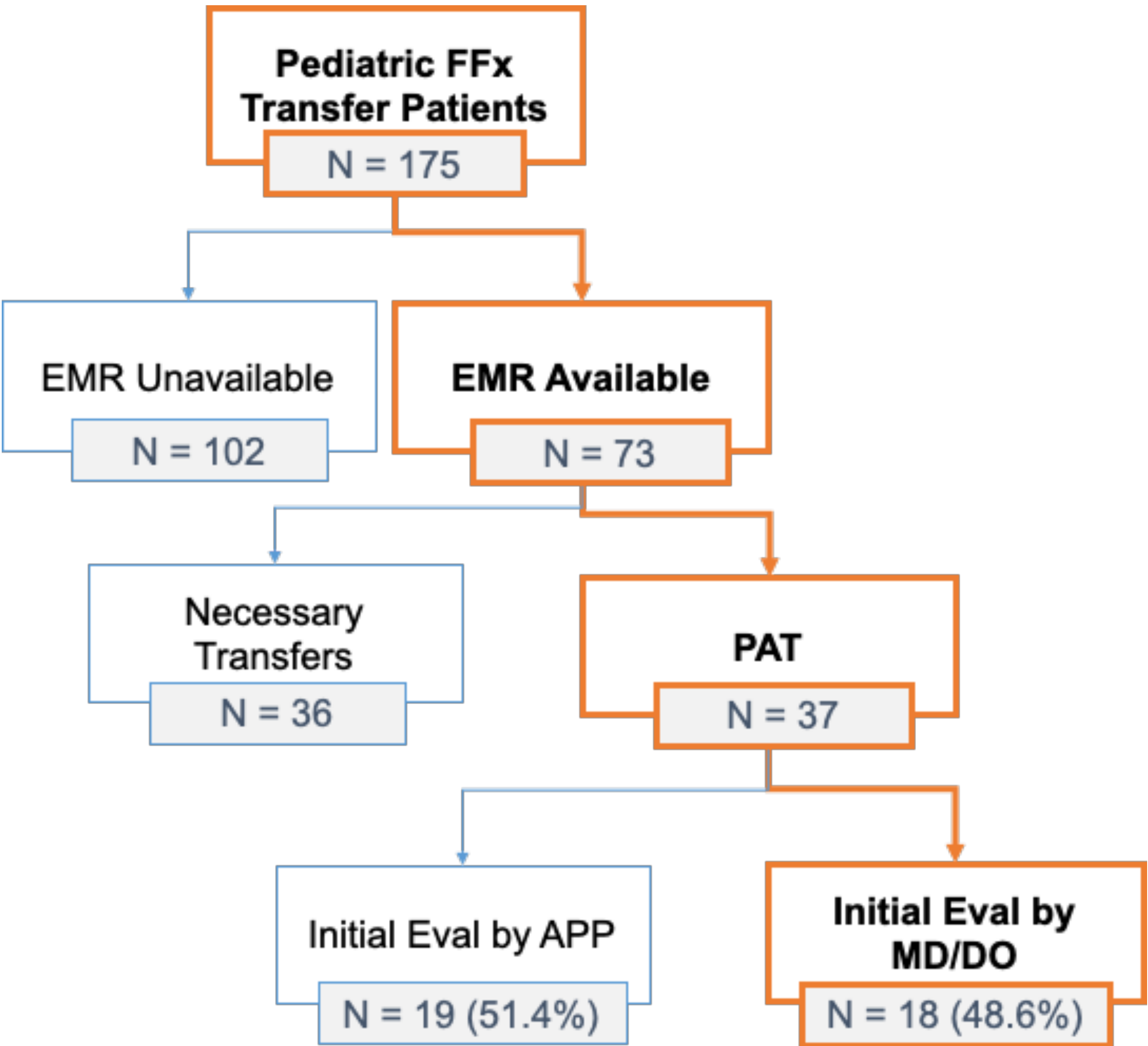
- Elucidate the provider and facility characteristics associated with PAT
- Estimate the costs of PAT borne by patients

## Methods

Retrospective cohort study from 2006 – 2021 of patients ≤18 years of age with facial fracture diagnosis. Analysis and data utilized:

- Multivariable logistic regression
- Odds ratio analysis
- UPMC Charge Description Master file
- DHS ambulance fees

## Results



## Imaging Costs at Different Types of Facilities

| Imaging/Facility      | Level 1/2 | Non-Trauma Center |
|-----------------------|-----------|-------------------|
| CT head               | \$7,583   | \$1,576           |
| CT maxillofacial      | \$4,357   | \$1,136           |
| CT cervical spine     | \$4,357   | \$375             |
| CT chest/abdomen      | \$4,357   | \$400             |
| X-ray of facial bones | \$1,018   | \$268             |

**\$6,332**

Total estimated pre-transfer cost, including imaging and transportation expenses

**\$5,845**

Mean pre-transfer imaging cost

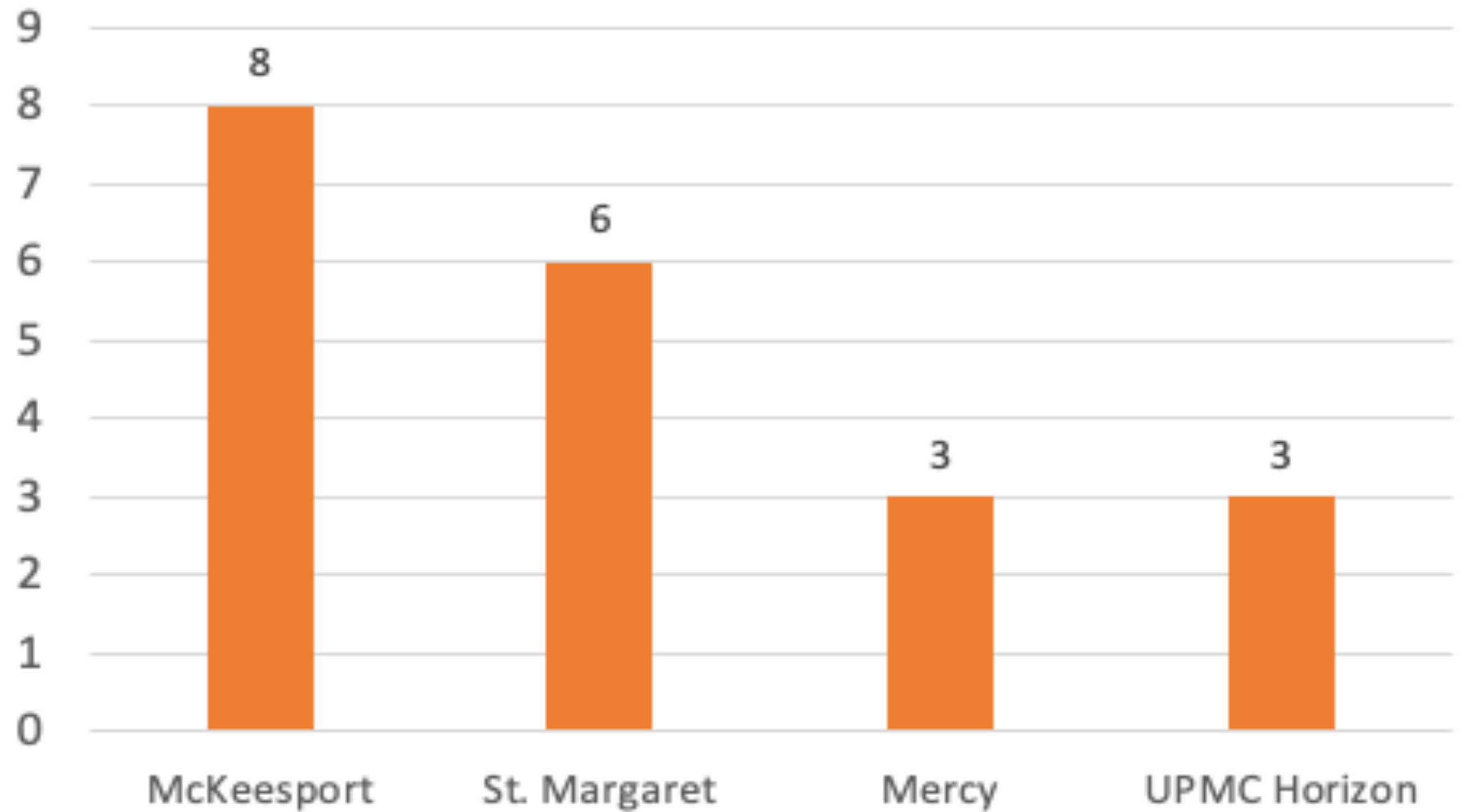
**\$487**

Mean estimated transportation cost

## Predictors of PAT

| Characteristic             | OR   | 95% CI        | p-value |
|----------------------------|------|---------------|---------|
| Provider credentials       | 3.17 | [1.17, 8.54]  | 0.0128  |
| Pre-Transfer Facility Type | 3.20 | [0.99, 10.31] | 0.0242  |

## Top Four Sites with Highest Number of PAT



## Conclusions

- PAT is associated with initial presentation to advanced practice providers, as well as to non-trauma center hospital Eds
- Three out of four facilities with the highest number of PAT are non-trauma centers
- Our findings highlight provider and facility characteristics that are potential avenues for alleviating the burden from PAT

## Limitations/Future Directions

- Limitation:** Costs were estimated based on charges and published ambulance fees, which might not be lower than the actual costs incurred
- Next Steps:** Identify opportunities for community outreach and provider education to minimize PAT numbers and improve patient experiences

## Contact

Shirley Liu  
University of Pittsburgh School of Medicine  
Email: xil383@pitt.edu