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INTRODUCTION

- Facial trauma continues to represent a significant health burden across the United States, with the emphasis of this study on the rural northeast region of Pennsylvania, the surrounding region, and Pennsylvania state as a whole
- The leading causes of facial trauma are often falls, mechanical or blunt forces, road traffic injuries, and interpersonal violence
- Literature suggests an increase in the incidence of facial trauma and with an aging population, the shifting demographics may lead to changes in treatment patterns and preferences, referral patterns, locations at which people seek treatment, and procedural coding
- Changes occurring may also lead to resident education shifting
- The health system evaluated spans across ten hospitals, servicing a large area with two of the hospitals as tertiary care centers and as primary referral locations

METHODS

- Surgical facial trauma procedures within a rural Northeast hospital system were identified using medical record numbers and operative CPT code data
- Acute surgical intervention, predominantly outpatient, procedures were analyzed to assess trends in demographics, fracture type, and overall trends
- Exclusion criteria consisted of non-acute or deferred and soft-tissue only injuries
- Data was analyzed over its implementation from 1/2019 through 9/2025.
- Descriptive statistics and predictive trend analysis was performed with comparison to regional and statewide trends through marketing data, such as PHC4, and other resources

RESULTS

Figure 1. Total Facial Trauma Procedure Volumes by Patient Age and Gender

Procedure Volumes by Patient Age and Gender		2020-2025	
Market	Age Group	% Change Female	% Change Male
Geisinger Service Area	0-17	-50%	-33%
	18-24	-86%	-67%
	25-34	-82%	-40%
	35-44	n/a	-48%
	45-64	-74%	-6%
	65-74	-40%	-57%
	75-84	n/a	-100%
	85+	n/a	-100%
Geisinger SA Total		-64%	-41%
Philadelphia HRR	0-17	100%	-20%
	18-24	-60%	-59%
	25-34	-57%	-13%
	35-44	67%	-14%
	45-64	-50%	-9%
	65-74	n/a	33%
	75-84	n/a	100%
	85+	n/a	n/a
Philadelphia HRR Total		-7%	-18%
Pittsburgh HRR	0-17	25%	50%
	18-24	-22%	-13%
	25-34	-73%	-36%
	35-44	40%	-24%
	45-64	-22%	57%
	65-74	200%	-25%
	75-84	0%	-67%
	85+	-100%	n/a
Pittsburgh HRR Total		-20%	-7%
Other		-15%	-12%
Total Pennsylvania		-28%	-19%

Figure 1. Facial trauma procedure volume by age and gender by comparing 2020 to 2025 data across the Northeast hospital referral regions as well as within in Philadelphia and Pittsburg, PA.

Figure 2. Pennsylvania Facial Trauma Procedure Trends

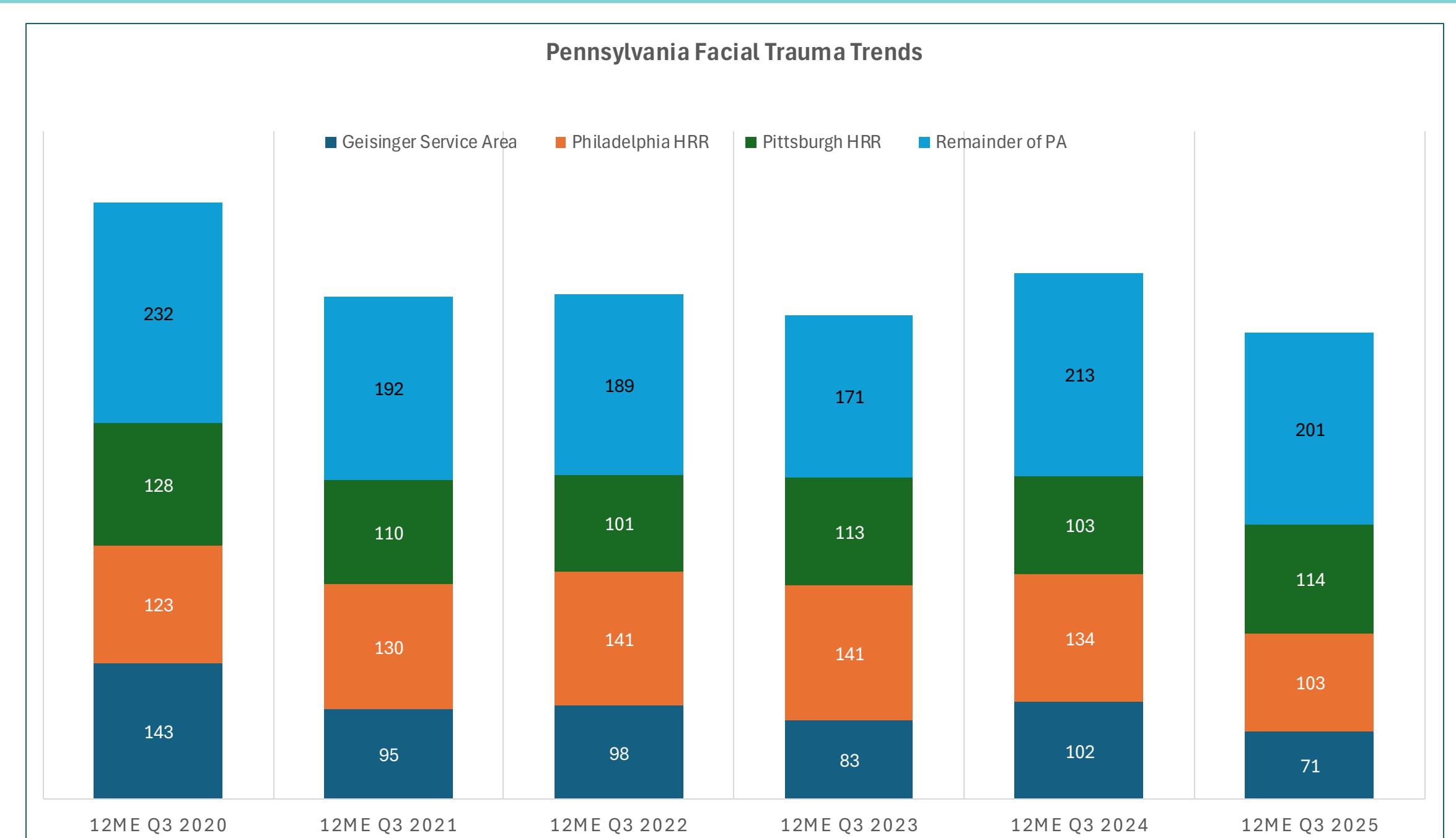


Figure 2. Facial trauma volume, data gathered from the outpatient procedure market data, demonstrates an overall downward trend across the service area from 2020–2025

Figure 3. Pennsylvania Facial Trauma Procedure Volume Trends

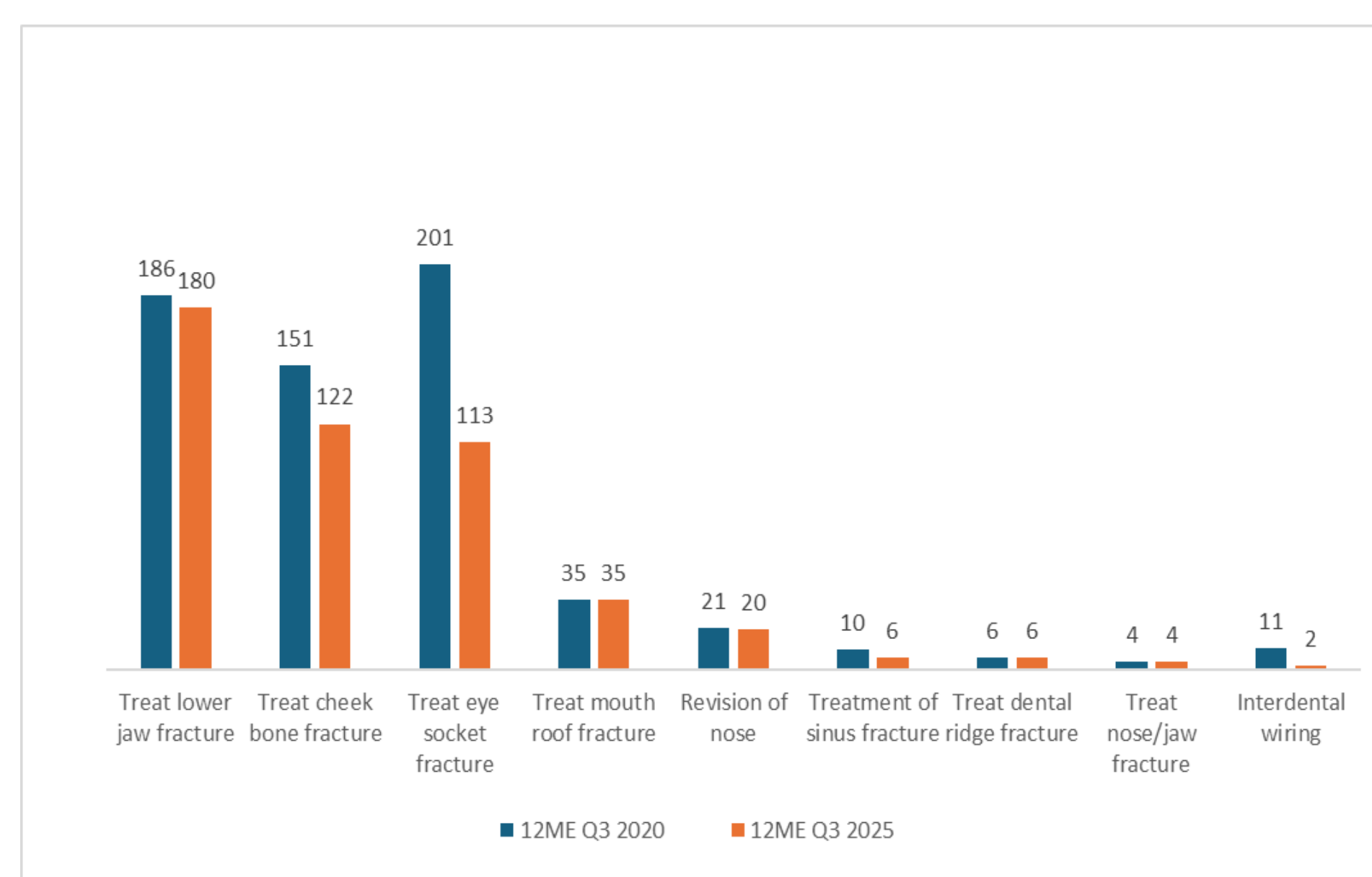


Figure 3. Through the utilization of PHC4 data, publicly available Pennsylvania statewide outpatient/ambulatory market data, a decreased procedure volume was observed. Even with a transient increase in 2024 as demonstrated in figure 2 compared to the prior year, statewide comparison data demonstrated a decline, a trend which is consistent with the ongoing reduction in the overall facial trauma outpatient procedure volume.

CONCLUSIONS

- Between the years of 2019 to 2025, facial trauma procedures have decreased with younger males in this region continuing to account for most of the facial trauma related procedures, contrary to national trends demonstrating aging women as the predominant demographic
- There was a small rebound of facial trauma procedures in 2024 but yet not a return to the levels seen in 2020
- An aging population suggests an increasing number of falls. However, this population also may be more likely to defer elective surgery.
- There needs to be further evaluation as to why this area of the country has decreasing facial trauma procedures yet national data demonstrates an increase in numbers across the U.S.
- Surgical residency training and types of cases completed may vary depending on location of residency program

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