

Letters

RESEARCH LETTER

Emergency Department Trauma Activation Fees by Payer Type

The 2021 Hospital Price Transparency Rule mandated hospitals to disclose their service prices to increase health care transparency and allow health care decision-making.¹ Health care services in the US are largely seen as market goods that can be compared before purchasing, yet this principle is not applicable in emergency settings. Trauma activation fees (TAFs) are billed to patients presenting to emergency departments using revenue codes 0681 to 0684 for trauma response levels I to IV, respectively,² theoretically reflecting patients' trauma severity. However, unlike consumer commodities, TAFs are unregulated.

Methods | To analyze TAF, in January 2023, we obtained list, cash, and negotiated prices of revenue codes 0681 to 0684 from Turquoise Health, a data platform used in prior hospital pricing research³ that collects hospital-disclosed price information. List (chargemaster) prices represent unregulated sticker prices for each service, applicable to all patients, including uninsured or out-of-network patients.⁴ Negotiated prices are predetermined amounts insurance pays hospitals. Cash prices are hospitals' expected fee without billing insurance.³ We used Rand Cost Report to limit facility type to general acute care hospitals. Hospitals without all TAF price categories were excluded. The University of California, San Francisco Institutional Review Board deemed this cross-sectional study exempt from review and informed consent because it is not human participant research. We followed the [STROBE](#) reporting guideline.

To evaluate patterns of TAF, we aggregated median prices at the hospital revenue code–price type level. We analyzed me-

dian (IQR), mean (SD), and 10th and 90th percentiles by revenue code and price type. Data analysis was performed in November 2023 using Stata/MP 18.0 for Mac (StataCorp LLC).

Results | We analyzed 3093 unique TAF observations across 761 unique hospitals in 49 states. For trauma response level I, median (IQR) list, cash, and negotiated prices were \$6607 (\$3334-\$10 750), \$2663 (\$1344-\$5617), and \$3431 (\$1995-\$6375), respectively (**Table 1**). Across medians, compared using Wilcoxon signed rank test, list price was higher than negotiated price across all activation levels, followed by cash price. Higher trauma response level generally corresponded with higher prices across price types, with ranges varying widely within each activation level. Across states, Michigan had the highest median (IQR) list price for level I activation at \$15 506 (\$11 479-\$15 506), while Connecticut had the highest median (IQR) list price for level II activation at \$52 677 (\$34 161-\$56 847) (**Table 2**).

Discussion | Within the same trauma level, along with list price variation identified in previous studies,⁵ we found wide TAF variations in cash and negotiated prices on both hospital and state levels. The findings illustrate substantial, and often irrational, variations within and across trauma activation levels, suggesting that price variations cannot be explained by trauma severity alone. Other research suggests hospitals charged markups (ratio of list prices over Medicare-allowable costs) of over 1000%.⁶ Uninsured patients, arguably among the most vulnerable to financial risk, are charged these prices and may be eligible to pay cash prices, yet few patients are aware because cash prices are not widely advertised. We found variability in cash prices across trauma activation levels. Moreover, the finding that negotiated prices were higher than cash prices may raise questions. One could argue that insured patients who are already paying insurance premiums should not pay more than cash prices.

Table 1. Statistics of Trauma Activation Fees by Price Type and Trauma Response Level

Trauma response level (revenue code)	Hospital (state) code	Measure	Price, \$		
			List	Cash	Negotiated
I (0681)	218 (41)	Median (IQR)	6607 (3334-10 750)	2663 (1344-5617)	3431 (1995-6375)
		10th-90th percentiles	1650-18 500	660-8193	900-11 661
		Mean (SD)	8502 (7592)	4179 (4383)	5025 (4758)
II (0682)	278 (40)	Median (IQR)	5842 (3245-8760)	2630 (1269-4949)	3288 (1894-5406)
		10th-90th percentiles	1484-17 966	758-12 140	1180-11 050
		Mean (SD)	8299 (9609)	4672 (6329)	5326 (9694)
III (0683)	266 (39)	Median (IQR)	5500 (3437-7674)	2939 (2015-4341)	2790 (2085-4565)
		10th-90th percentiles	2169-11 006	1217-5448	1389-6966
		Mean (SD)	6259 (4647)	3509 (2946)	3671 (2609)
IV (0684)	269 (28)	Median (IQR)	2544 (1391-3996)	1582 (796-2538)	1894 (1106-2690)
		10th-90th percentiles	719-6524	535-3298	551-4687
		Mean (SD)	3211 (2993)	1949 (1838)	2244 (1784)

Table 2. Trauma Activation Fee Comparison Across States^a

Median (IQR) price by trauma response level (revenue code), \$												
State ^a	I (0681)			II (0682)			III (0683)			IV (0684)		
	List	Cash	Negotiated	List	Cash	Negotiated	List	Cash	Negotiated	List	Cash	Negotiated
Michigan	15 506 (11 479-15 506)	3721 (3721-3722)	4736 (4150-6379)	10 298 (6035-12 267)	2944 (2944-4544)	4327 (3283-5257)	9846 (3750-9846)	2363 (2100-2363)	2635 (2297-4051)	2230 (1391-2230)	760 (535 940)	1150 (1025-1422)
Minnesota	7980 (4950-9103)	3511 (2663-8193)	3638 (2393-8490)	3962 (2434-4587)	2239 (1998-2515)	2488 (1866-2660)	3437 (2936-3567)	2212 (2212-2642)	2464 (2129-2790)	2313 (682-2544)	1707 (546-2154)	1704 (604-1987)
Wisconsin	4691 (433-9473)	2345 (281-6157)	4292 (344-6394)	3245 (3245-3245)	2109 (2109-2127)	2396 (2156-2517)	5361 (2781-5500)	3025 (1808-3025)	2308 (1571-2897)	3295 (2484-4370)	2622 (1648-3097)	2576 (1962-3092)
Texas	4507 (3223-5914)	2422 (1612-2479)	3290 (2095-3371)	8279 (7302-8481)	5089 (2556-5391)	4619 (3754-5391)	6785 (5151-7674)	4071 (2376-4492)	2608 (1666-3602)	2570 (1421-4548)	1612 (728-2152)	1799 (608-2428)
Arkansas	3558 (2030-4415)	2030 (1501-5498)	2477 (891-2626)	3149 (1302-3418)	1152 (513-4294)	2011 (876-2044)	4321 (2183-4322)	1149 (1132-1149)	1900 (1606-1972)	2791 (2293-3036)	764 (732-796)	1420 (1361-1479)
Nebraska	3120 (3120-3923)	1404 (1404-3040)	2340 (2340-5548)	1460 (1460-6064)	914 (914-4082)	1205 (1205-4208)	2393 (2082-2704)	1077 (937-1217)	1466 (1095-1801)	1836 (1143-6405)	1350 (852-2025)	1594 (1086-2690)
Connecticut	1124 (0.08-3013)	1124 (0.095-3013)	878 (0.09-2532)	52 677 (34 161-56 847)	34 240 (22 205-36 951)	22 915 (22 546-29 276)	23 455 (4488-31 291)	15 245 (4488-20 339)	13 454 (3526-13 783)	18 386 (13 599-23 219)	11 951 (8839-15 093)	9506 (7962-11 240)
States with at least 3 hospitals that post information for all 3 price types for all 4 revenue codes are included in the table. Only states reporting all 4 revenue codes are included to ensure that each state has sufficient data to accurately represent the distribution of trauma activation fees across trauma response levels and price types in each state.												

^a States with at least 3 hospitals that post information for all 3 price types for all 4 revenue codes are included in the table. Only states reporting all 4 revenue codes are included to ensure that each state has sufficient data to accurately represent the distribution of trauma activation fees across trauma response levels and price types in each state.

Study limitations include hospital-reporting errors and self-disclosed pricing inaccuracy; thus, we reported 10th and 90th percentiles rather than ranges. Consequently, the findings are conservative and do not reflect even a wider range of price variation for TAF. Additionally, incomplete reporting limited the sample size.

Nonetheless, trauma response levels are coded by a standard criterion,² yet prices vary up to 16 times between hospitals. The unexpected and pressing nature of trauma means patients are sent to the closest appropriate hospital and unable to compare prices as they do with nonemergency and shoppable medical services. Such pricing variations seem to disproportionately affect uninsured, most financially vulnerable patients. Interventions are needed to address appropriate health care pricing.

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