



Surprise Out-of-Network Bills in Ambulance Encounters of Hand and Upper Extremity Patients

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Introduction

- Surprise billing (SB) occurs when patients are charged out-of-network fees at an in-network facility.
- The No Surprises Act of 2020 protects patients from surprise billing but does not cover ambulance services.
- **>70% of ambulance bills involve SB.**
- Risk of SB from ambulances originating from different locations has not been reported.
- **We aimed to assess the occurrence and magnitude of surprise billing across ambulance use originating from different locations for hand and upper extremity patients.**

Methods

- Data Source: 2015-2019 MarketScan Commercial Claims and Encounters Data.
- Inclusion Criteria: services within 30 days from ambulance services with known origins; only encounters including hand procedures were included.
- **Primary Outcome: SB, defined as encounters at in-network facility with out-of-network claims.**
- Analysis: Descriptive statistics and logistic regression to compare the risk of SB and associated financial risks.

Results

- We included **34,124** ambulance encounters requiring hand surgery procedures from 2015 to 2019 (Table 1).
- **27,971 (82.0%)** of the included ambulance encounters resulted in SB (Table 1).
- Risk of SB did not vary between ambulance services originating from different locations (Table 2).
- **Ambulance from hospitals** resulted in a **coinsurance difference of \$357 (96.0%)** between SB and non-SB encounters (Table 2, Figure 1).
- **Ambulance from medical facilities** resulted in a **net payment difference of \$3,560 (61.2%)** between SB and non-SB encounters (Table 2, Figure 1).

Table 1. Characteristics of Ambulance Encounters

| Variable | No Surprise Billing | Surprise Billing | P value |
|---|---------------------|------------------|---------|
| No. Encounters | 6,153 | 27,971 | |
| Origin of Ambulance, N (%) | | | |
| Home | 2,565 (41.7) | 12,709 (45.4) | <0.001 |
| Hospital | 493 (8.0) | 2,743 (9.8) | <0.001 |
| Medical Facility | 630 (10.2) | 2,749 (9.8) | 0.34 |
| Scene of Accident | 3,819 (62.1) | 16,214 (58.0) | <0.001 |
| Patient Payments, USD, Mean (SD) | | | |
| Coinsurance | 217 (489) | 412 (640) | <0.001 |
| Copay | 53 (99) | 81 (124) | <0.001 |
| Deductible | 381 (714) | 555 (907) | <0.001 |
| Insurance Payments, USD, Mean (SD) | | | |
| Net Payment | 3,472 (6,631) | 4,786 (8,606) | <0.001 |

Table 2. Surprise Billing Odds and Financial Risks across Origins of Ambulance

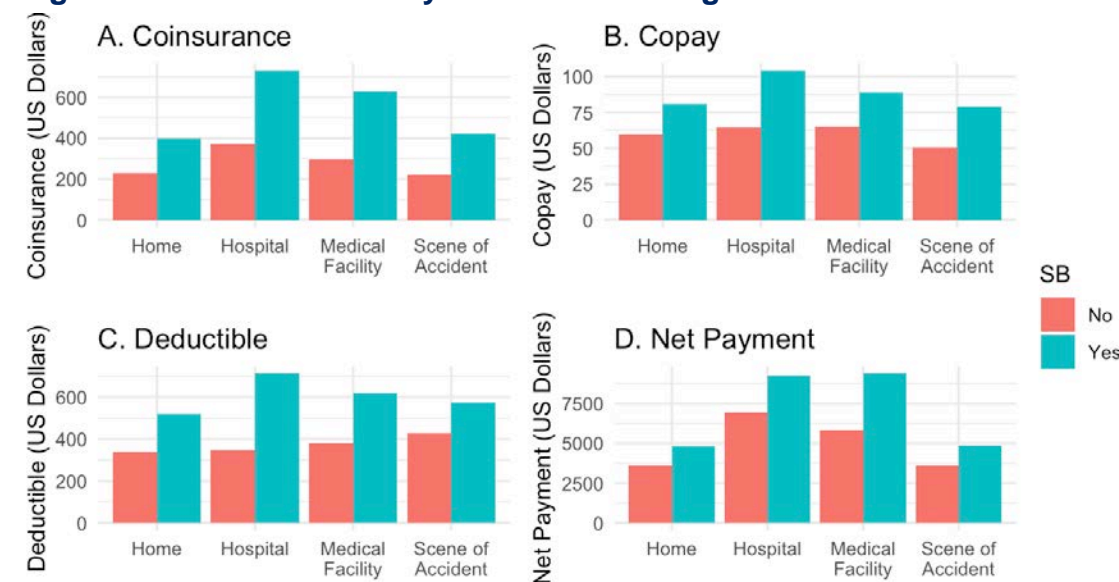
| Origin of Ambulance ^a | aOR (95% CI) ^b | Difference in Payments, USD (% Difference) ^c | | | |
|----------------------------------|---------------------------|---|------------|--------------|---------------|
| | | Coinsurance | Copay | Deductible | Net Payment |
| Home | 1.03 (1.01, 1.04) | 172 (75.7%) | 21 (36.0%) | 183 (54.3%) | 1,190 (33.0%) |
| Hospital | 1.03 (1.01, 1.04) | 357 (96.0%) | 39 (60.8%) | 366 (106.0%) | 2,259 (32.4%) |
| Medical Facility | 1.01 (0.99, 1.02) | 332 (112.9%) | 23 (35.9%) | 240 (63.3%) | 3,560 (61.2%) |
| Scene of Accident | 0.99 (0.98, 1.00) | 199 (90.2%) | 29 (57.0%) | 148 (34.7%) | 1,261 (35.1%) |

^aOrigins of ambulance were treated as binary variables.

^bModels were adjusted for length of encounter, patient sex, region, employment status, insurance type, and year.

^cDifferences in payments were calculated by subtracting mean non-SB payments from mean SB payments.

Figure 1. Differences in Payments across Origins of Ambulance



Limitations

- MarketScan data can only suggest which encounters were likely to result in SB.
- We excluded encounters missing billing modifiers.
- We did not analyze regional factors that may contribute to risks of SB.

Conclusion

- **More than 80% of ambulance encounters for hand patients resulted in SB.**
- Ambulance services originating from different locations did not vary in risks of SB for hand surgery encounters.
- Ambulance services from **hospitals** and **medical facilities** may pose notable financial hardships on patients undergoing hand surgery procedures due to **patient cost sharing**.
- Ambulance services from **medical facilities** may result in higher **insurance payments** to providers involved with ambulance encounters for hand patients.
- Policy makers should consider approaches to protecting hand surgery patients from SB due to ambulance use.

References

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