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DATAWATCH

One In Five Inpatient Emergency Department Cases May Lead To Surprise Bills

A surprise medical bill is a bill from an out-of-network provider that was not expected by the patient or that came from an out-of-network provider not chosen by the patient. In 2014, 20 percent of hospital inpatient admissions that originated in the emergency department (ED), 14 percent of outpatient visits to the ED, and 9 percent of elective inpatient admissions likely led to a surprise medical bill.

Consumer advocates, policy experts, and media reports have highlighted the damaging effects of surprise medical bills, which are bills a patient receives from an out-of-network provider that were unexpected or that came from an out-of-network provider whom the patient did not choose.[1–3] Surprise medical bills cause financial anxiety and have been linked to unavoidable medical debt.[4,5] The administration of President Barack Obama recently proposed rules requiring in-network hospitals to attempt to match patients with doctors who are in network for the patient's health plan.[6] A number of states are considering or have recently passed legislation to protect patients from surprise medical bills.[7]

However, limited research to date has measured surprise medical bills using medical claims data.[8,9] Most previous studies of surprise medical bills analyzed only survey data.[10,11] Medical bills cannot reveal patients' expectations. However, using a nationwide data set of medical claims, we found that 20 percent of hospital admissions that originated in the emergency department (ED) in 2014 were likely to lead to a surprise medical bill (Exhibit 1). Also in 2014, the most recent year for which data were available, 14 percent of outpatient ED visits and 9 percent of elective inpatient admissions were likely to lead to a surprise medical bill.

Study Data And Methods

We used data for 2007–14 from the Truven Health MarketScan Commercial Claims and Encounters Database, a nationwide claims database with information that describes treatment epi-

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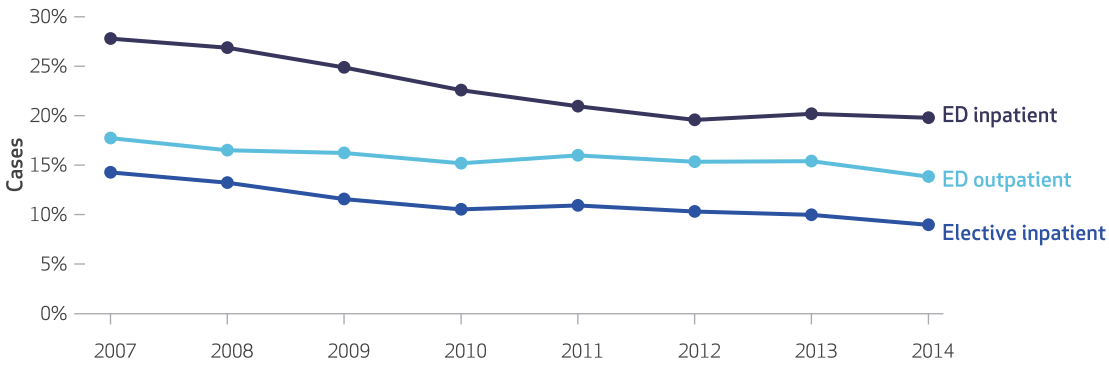
EXHIBIT 1

Percentage of hospital cases with potential surprise medical bills, 2007–14



SOURCE Authors' analysis of data for 2007–14 from the Truven Health MarketScan Commercial Claims and Encounters Database. **NOTE** ED is emergency department.

sodes for patients with employer-sponsored health insurance. The data include facility and physician claims and indicate if a provider was in the patient's insurance network and whether insurers ultimately paid providers on an in-network basis. The data allowed us to identify treatment episodes likely to lead to surprise medical bills—cases in which one or more providers were out of network and the patient was likely to be unaware of the provider's status or unable to choose an in-network provider for care instead. We restricted our sample to patients with health plans that gave patients incentives to use in-network providers.

We developed a taxonomy that used treatment categories to classify cases based on whether or not they were likely to lead to surprise medical bills (Exhibit 2). We could not determine the patient's knowledge of the provider's network status before treatment. However, past qualitative research suggests that most people assume that hospital-based physicians (for example, ED physicians) are in network if the hospital is in network.[12] Thus, we categorized emergency cases in which the hospital is in network but the ED or other hospital-based physicians[13] are out of network as likely to produce a surprise medical bill.

In addition, once a patient is admitted from the ED, the choice of other treating physicians is likely out of his or her control. Therefore, we classified as likely to produce a surprise medical bill those admissions through the ED in which the hospital and the ED physician are both in network, but another physician (not based in the hospital) who treats the patient is out of network. Finally, when an ambulance transports a patient to an out-of-network hospital for emergency care, we classified the case as likely to produce a surprise bill because the choice of the hospital is likely out of the patient's control.

Surprise medical bills could result from cases in which the hospital is out of network for emergency services and the patient arrives on his or her own (not by ambulance). However, these situations seem less likely to produce a surprise medical bill because some patients shop for emergency service providers.[14] Thus, it is a conservative approach to classify potential surprise medical bill cases as emergency cases in which the hospital is in network but at least one provider or service is out of network, and admissions in which the patient is transported to an out-of-network hospital via ambulance.

We considered elective inpatient admissions as likely to produce surprise medical bills if the hospital is in network and the primary physician is in network or not identified in the data, but at least one other provider or a service is out of network. Surprise medical bills could also arise in elective inpatient admissions when the hospital is in network and the primary physician is out of network. However, some reports of surprise medical bills describe patients who check the network status of the hospital and surgeon in advance of elective procedures.[2,5] In addition, some patients knowingly choose out-of-network hospitals or primary physicians for elective procedures. Excluding situations in which the hospital or primary physician is out of network should result in a conservative estimate of elective admissions likely to produce surprise medical bills.

The Truven database includes information about a sample of patients with employer-sponsored health insurance. Accordingly, we did not analyze potential surprise medical bills for patients with individual plans. Also, we could not observe providers directly billing patients for the remaining balance of the charged amount (a practice called "balance billing").

EXHIBIT 2

Treatment categories used to classify cases by potential surprise medical bill status

Treatment category	ED (inpatient and outpatient)	Elective procedure (inpatient)
All services are in network	No	No
Hospital is out of network and no ambulance is involved	No	No
Hospital is out of network and there is an ambulance claim	Yes	No
Hospital is in network, primary doctor is out of network	Yes	No
Hospital and primary doctor are in network, other doctor(s) or service(s) are out of network	Yes	Yes
Hospital is in network, primary doctor is unidentified in the data, but other doctor(s) or service(s) are out of network	Yes	Yes

SOURCE Authors' analysis. **NOTES** "No" means the case is not considered as one with a potential surprise medical bill. "Yes" means the case is considered as one with a potential surprise medical bill. ED is emergency department.

Study Results

In 2014, 20 percent of hospital inpatient admissions from the ED, 14 percent of outpatient visits to the ED, and 9 percent of elective inpatient admissions were likely to produce surprise medical bills (Exhibit 1). These rates have fallen since 2007, from nearly 28 percent, 18 percent, and 14 percent, respectively.[15] While all surprise medical bills involve an out-of-network claim, sometimes that claim is paid by the patient's health plan on an in-network basis. Nonetheless, the patient may receive a balance bill from the provider if the health plan pays less than the full charge. We found that in roughly 40 percent of inpatient admissions and slightly more than half of outpatient cases with potential surprise medical bills, all claims were paid on an in-network basis (for the percentages, see online Appendix Exhibits A2–4).[16]

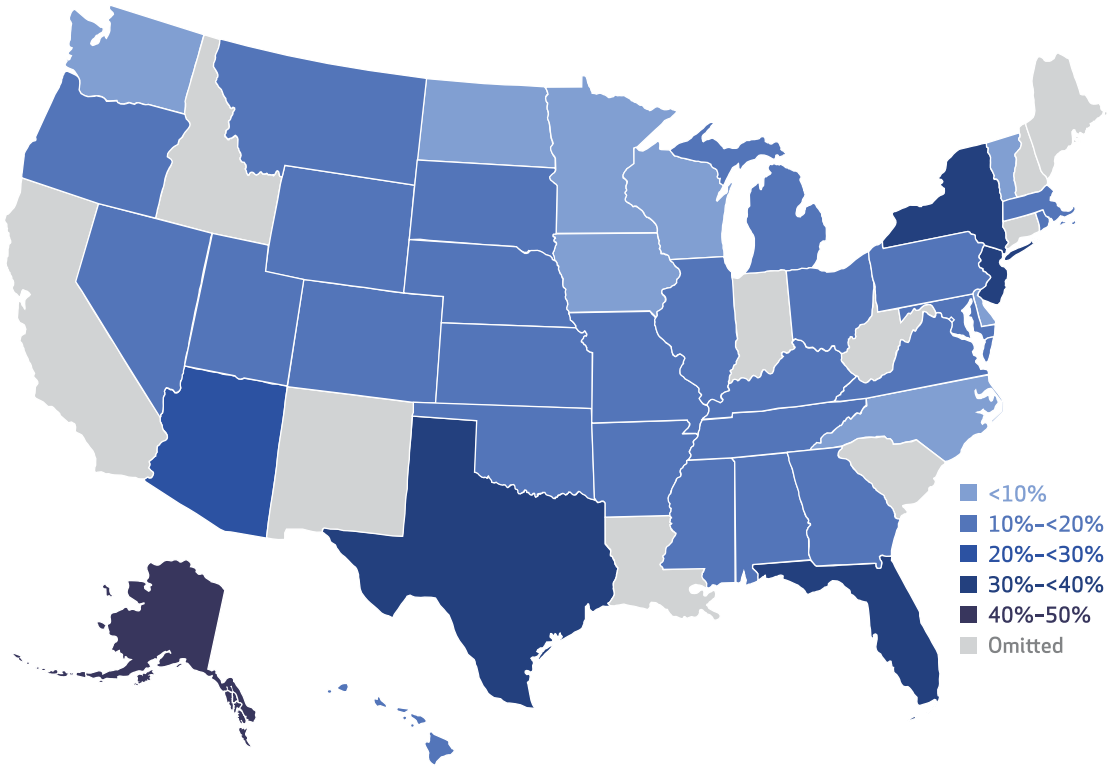
Percentages of hospital inpatient admissions from the ED with potential surprise medical bills differ markedly across states, with some of the highest rates in populous states such as Florida (37 percent), New York (35 percent), and Texas (34 percent) and some of the lowest in the upper Midwest (Exhibit 3).[17] This heterogeneity is apparent for inpatient elective admissions and ED outpatient visits as well (Appendix Exhibits A8–9).[16]

In more than half of cases involving ambulance transportation, the ambulance services were out of network, and in roughly half of these cases, some services were paid on an out-of-network basis (for a table of ambulance cases by network status, see Appendix Exhibit A1).[16]

The likelihood of receiving a surprise medical bill increases with the patient's age and the complexity of his or her diagnosis (for a table of potential surprise medical bill rates by diagnostic category, see Appendix Exhibit A7).[16] Furthermore, ED inpatient admissions are more likely than ED outpatient visits to produce a surprise medical bill. This suggests that the likelihood of receiving a surprise medical bill increases with the severity and complexity of a patient treatment episode. Consistent with this, we found that inpatient admissions likely to result in a surprise medical bill had longer lengths-of-stay

EXHIBIT 3

State levels of hospital inpatient admissions from the emergency department with potential surprise medical bills, 2014



SOURCE Authors' analysis of data for 2014 from the Truven Health MarketScan Commercial Claims and Encounters Database. **NOTES** We were prohibited from reporting data at the state level for the omitted states because Truven Health requires that, for the data to be published, there be at least three data contributors at the state level and that no single contributor make up more than 60 percent of the data at the state level. However, this requirement affects only data reported at the level of the state or a smaller area. Thus, the national totals we report reflect the data for all fifty states and the District of Columbia.

and more procedures and services, on average, compared to inpatient admissions not likely to result in such a bill (Exhibit 4).

Potential surprise medical bills can originate from services provided by many types of providers. For example, 17 percent of elective inpatient admissions that were likely to produce a surprise medical bill involved an out-of-network anesthesiologist, and 12 percent involved an out-of-network pathologist (Appendix Table A2).[16] However, most potential surprise medical bills were associated with non-hospital-based physicians (Appendix Tables A2–4).[16]

Discussion

This is one of the first studies to use a nationwide database of medical claims to investigate the prevalence of surprise medical bills. Survey respondents can be asked if they have received unexpected medical bills, but in our study we could not determine patients' expectations. However, we could analyze the conditions that are necessary for surprise medical bills to occur. Namely, we could observe patients treated by out-of-network providers in situations where the patient is likely to expect to receive in-network care or where the patient is likely unable to choose an in-network provider.

We found that roughly one in five inpatient ED admissions and roughly one in seven outpatient ED visits were likely to result in a surprise medical bill. So were almost one in ten elective inpatient admissions. These results are consistent with past surveys that found that, while most patients receive care from in-network providers, those who receive out-of-network care are often surprised by the bills for that care.[10,11]

Our data were sampled from patients with employer-sponsored health insurance, who account for 56 percent of the nonelderly population.[18] Many Marketplace plans have narrow hospital and physician networks, and many Marketplace customers are unaware of the network configurations of offered plans.[19,20] Thus, surprise medical bills may be more common for patients with Marketplace plans than for patients with employer-sponsored insurance.

The rate of potential surprise medical bills has fallen over time. This may be due to the increasing share of physicians who are employed by hospital systems or large group practices.[21] Typically, hospitals and their employed physicians jointly negotiate with health plans, making it unlikely that a hospital would be in network with a health plan if its employed physicians were out of network. Further research is needed to confirm that hospital employment of physicians is one cause of the decline in potential surprise medical bills over time.

We also found extreme variation in the rate of potential surprise medical bills across regions and states. Many states in the upper Midwest have low rates of such bills, but the cause is unclear. States that recently enacted legal protections for patients with surprise medical bills (such as Florida, New York, and Texas) have some of the highest rates of potential surprise medical bills. New Jersey enacted legal protections in 2007, early in our study period, but its rate of potential surprise medical bills in 2014 remained high. However, it is not clear whether legal protections are more likely to be enacted in states with structural factors that are conducive to surprise medical bills or whether enacting legal protections may increase the likelihood of surprise medical bills. Clearly, more research is needed to better understand the factors that promote or discourage surprise medical bills and how these factors vary by state.

Finally, we found that admissions of patients with more severe diagnoses were more likely to result in surprise medical bills. This is troubling because one objective of insurance is to offer proportionately more protection in situations that are extreme and costly.[22] However, our results suggest that prolonged exposure to relatively high numbers of physicians and services increases the likelihood that a patient will receive a surprise medical bill.

Conclusion

Patients with employer-sponsored insurance can receive treatment from out-of-network providers in situations where they likely expect their care to be in network or they are unable to choose an in-network provider, which leads to surprise medical bills and possibly to unavoidable medical financial burdens. More research is needed to better understand the factors that contribute to or could ameliorate this problem. ■

EXHIBIT 4

Average hospital lengths-of-stay and numbers of services, by potential surprise medical bill status, 2014

	Average length-of-stay (days)		Average no. of services	
Status	ED inpatient admissions	Elective inpatient admissions	ED inpatient admissions	Elective inpatient admissions
No	4.0	3.6	15.5	8.8
Yes	5.0	4.7	25.9	19.2

SOURCE Authors' analysis of data for 2014 from the Truven Health MarketScan Commercial Claims and Encounters Database. **NOTES** "No" means the admission is not considered as one with a potential surprise medical bill. "Yes" means the admission is considered as one with a potential surprise medical bill. Services exclude facility services, such as room and board. ED is emergency department.

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NOTES

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15 The time trend was significant ($p \leq 0.01$) for all three types of cases.

16 To access the Appendix, click on the Appendix link in the box to the right of the article online.

17 Our results for Texas, which show a high rate of potential surprise medical bills relative to most other states, are consistent with those of Stacey Pogue and Megan Randall (see Note 8). Our results for ED potential surprise medical bills in 2014 (both the nationwide rates of 14–20 percent and the wide variation across states) are consistent with those of Zack Cooper and Fiona Scott Morton (see Note 9).

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