OBSERVATION: BRIEF RESEARCH REPORT

Surprise Billing for Colonoscopy: The Scope of the Problem

Background: Despite clear-cut evidence that colorectal cancer screening reduces mortality, screening rates are suboptimal in the United States (1). Federal law eliminates consumer cost sharing for multiple methods of colorectal cancer screening, including colonoscopy when done by an in-network provider (2). However, some patients having screening incur considerable out-of-pocket costs because out-of-network bills are not included in federal mandates. "Surprise billing" articles are widespread in the research literature and lay press (3). To date, the frequency of unexpected patient costs for screening colonoscopy have yet to be rigorously quantified.

Objective: To estimate the prevalence, amount, and source of out-of-network claims for commercially insured patients having an elective colonoscopy.

Methods and Findings: A claims database from a large national insurer was queried for commercially insured patients aged 18 to 64 years who had a colonoscopy between 2012 and 2017 (3) (see **Table** footnote for Current Procedural Terminology [CPT] codes). Cases coded as elective with a stay of 1 day or shorter were included. The analysis was restricted to cases in which both the facility and the endoscopist were in-network. Colonoscopies were stratified into cases with visual inspection only and those during which an intervention was done (such as a biopsy). The primary outcome measure was the prevalence of out-of-network claims when the endoscopist and facility were in-network (that is, potential surprise bills). The secondary outcome was the amount of the potential surprise bill in these scenarios, calculated as the total out-of-network charges less the typical in-network price, a method used in prior research because claims data do not include the amounts billed to patients (3). The typical in-network price excluded expected patient cost sharing (for example, deductibles) and was price-standardized by the data vendor to reflect the national average payment for the same service.

Between 2012 and 2017, we identified 1 118 769 elective colonoscopies with in-network endoscopists and facilities; of these, 12.1% (95% CI, 11.2% to 13.1%) (n = 135 626) involved out-of-network claims (**Table**). The median potential surprise bill was $418 (interquartile range, $152 to $981). Out-of-network anesthesiologists were involved in 64% of cases (median potential surprise bill, $488 [interquartile range, $145 to $1186]); out-of-network pathologists were involved in 40% (median potential surprise bill, $248 [interquartile range, $153 to $554]). The likelihood of an out-of-network claim was significantly higher when an intervention was done during colonoscopy than in cases without intervention (13.9% vs. 8.2%; difference, 5.7% [CI for difference, 4.9% to 6.5%]). When interventions were performed, 56% of potential surprise bills involved anesthesiologists and 51% involved pathologists. In cases with visual inspection only, 95% of potential surprise bills involved anesthesiologists.

Discussion: Surveys consistently show that health care affordability is the top public policy issue in the United States. Specifically, "surprise bills," or unexpected charges for services presumed to be covered by insurance, are now the sub-

Table. Out-of-Network Billing in Colonoscopy Episodes*

Variable	All	Without Intervention	With Intervention	Difference (95% CI)†
When all providers are in-network				
Episodes, *n*	983 143	318 446	664 697	–
Median total charges (IQR), *$*	4946 (3348 to 7343)	3546 (2701 to 5046)	5845 (3966 to 8435)	2299 (2200 to 2399)
Median plan payment (IQR), *$*	2461 (1751 to 3558)	1853 (1452 to 2582)	2836 (2010 to 4020)	983 (937 to 1028)
Median plan out-of-pocket cost share (IQR), *$*	0 (0 to 476)	0 (0 to 214)	66 (0 to 595)	66 (56 to 76)
Episodes with potential surprise bill (95% CI), *%*	12.1 (11.2 to 13.1)	8.2 (7.3 to 9.1)	13.9 (12.8 to 15.0)	5.7 (4.9 to 6.5)
When a potential surprise bill is present				
Episodes, *n*	135 626	28 399	107 227	–
Median total charges (IQR), *$*	6301 (4328 to 9159)	4522 (3451 to 6263)	6906 (4774 to 9928)	2384 (2187 to 2581)
Median plan payment (IQR), *$*	3054 (2188 to 4275)	2293 (1790 to 3087)	3313 (2382 to 4622)	1019 (929 to 1109)
Median plan out-of-pocket cost share (IQR), *$*	110 (0 to 738)	0 (0 to 397)	183 (0 to 816)	183 (168 to 197)
Median out-of-network charges (IQR), *$*	1000 (562 to 1828)	1080 (706 to 1960)	954 (485 to 1800)	−126 (−187 to −65)
Median potential surprise bill (IQR), *$*	418 (152 to 981)	433 (132 to 1039)	416 (162 to 970)	−17 (−84 to 51)
By provider specialty				
Anesthesiologist				
Potential surprise bills involving provider, *n (%)*	86 976 (64)	26 875 (95)	60 101 (56)	−38.6% (−42.1% to −35.1%)
Median potential surprise bill (IQR), *$*	488 (145 to 1186)	438 (132 to 1039)	527 (180 to 1233)	89 (43 to 135)
Pathologist				
Potential surprise bills involving provider, *n (%)*	54 415 (40)	171 (1)	54 244 (51)	50% (46.4% to 53.5%)
Median potential surprise bill (IQR), *$*	248 (152 to 554)	21 (12 to 108)	249 (153 to 555)	228 (212 to 244)
Other				
Potential surprise bills involving provider, *n (%)*	7206 (5)	2880 (10)	4326 (4)	−6.1% (−9.3% to −3%)
Median potential surprise bill (IQR), *$*	368 (61 to 839)	402 (80 to 813)	359 (46 to 842)	−44 (−125 to 38)

IQR = interquartile range.
* Medians and IQRs are shown for all payment estimates. The following Current Procedural Terminology (CPT) codes were used to identify the cohort: 45380, 45384, 45378, 45382, 45383, 45385, 45381, 45379, 45386, 45387, 45388, 45389, 45390, 45391, 45392, 45393, and 45398.
† Differences in medians and 95% CIs of the difference were calculated using quantile regression in Stata 15 (StataCorp).

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ject of close scrutiny. The extent of out-of-network bills for surgical procedures has been described (3). However, to our knowledge, the prevalence, cost, and source of out-of-network bills for elective colonoscopy had not been previously reported.

Our findings show that nearly 1 in 8 commercially insured patients who had an elective colonoscopy between 2012 and 2017 incurred an out-of-network claim, averaging hundreds of dollars more than the typical insurance payment. Particularly concerning was that 1 in 12 procedures that did not have an associated intervention had an out-of-network claim. This outcome is disconcerting because Section 2713 of the Patient Protection and Affordable Care Act eliminates consumer cost sharing for screening colonoscopy (2) and because a recent Federal Reserve study reported that 40% of Americans do not have $400 to cover unexpected expenses (4).

These findings are subject to limitations. First, our estimates are derived from insurance claims, and we did not have detailed clinical information to supplement the billing data. Second, we could not determine the precise magnitude of a potential balance bill. As such, we used previously published methods to estimate potential financial liability (3).

High out-of-pocket costs are well-established deterrents to evidence-based care and contribute to patient dissatisfaction. To mitigate future effects on screening colonoscopy use, endoscopists and endoscopy facilities should ensure that they are partnering with anesthesia and pathology providers who participate in insurance networks. In the short term, endoscopists should also consider using established cost-saving strategies, such as conscious sedation and the "resect and discard" approach, to biopsy specimens (5). In the longer term, we must enhance ongoing reform efforts to remove consumer cost sharing for all clinically indicated care associated with colonoscopy. In the meantime, it is essential to develop tools that provide patients an estimate of their financial responsibility *before* their colonoscopy is done and better protect them from potential financial harm.

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