

# Survey of Hospital Chargemaster Transparency

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## Abstract

**Background** In January 2019, the Centers for Medicare & Medicaid Services (CMS) required hospitals to list their standard charges (chargemasters) publicly in an effort to increase price transparency in health care. Surveying hospital chargemasters may be informative to assess the implementation of this rule and its utility to consumers.

**Objective** We aimed to compare hospital chargemaster data within a local hospital market where patients would reasonably try to shop or compare services.

**Methods** We identified and aggregated Dallas County hospital chargemasters available in a database compatible format in May 2019. We manually examined a convenience sampling of 10 common laboratory tests, medications, and procedures.

**Results** Thirteen hospital chargemasters were identified. Eleven hospitals had chargemasters available in a database compatible format (xlsx or csv). These 11 chargemasters were aggregated into a single file containing 155,576 chargeable items, prices, and descriptions. We observed heterogeneous names and descriptions of synonymous items across institutions, preventing automated comparisons. The examined items revealed a high variation in charges. The largest charge variation for laboratory tests examined included a 2,606% difference (partial thromboplastin time: \$18.70–506.00), for medications an 18,617% difference (5-mg tablet of amlodipine: \$0.23–43.05), and for procedures a 2,889% difference (circumcision: \$252.00–7,532.10). One institution accounted for 27% of the lowest prices and another accounted for 60% of the highest prices.

## Keywords

- ▶ price transparency
- ▶ chargemaster
- ▶ health policy
- ▶ Centers for Medicare & Medicaid Services
- ▶ U.S.

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**Conclusion** Chargemaster data presentation varied among the hospitals surveyed, making automatic comparison impossible. Chargemaster data are difficult to interpret for health care decisions. Refining the minimum requirements for publishing chargemaster data could increase their utility.

## Background and Significance

In January 2019, the Centers for Medicare & Medicaid Services (CMS) ruled that hospitals had to increase health care price transparency by publicly listing their standard charges (chargemaster) “via the internet in a machine-readable format” and updating “this information at least annually.”<sup>1</sup> Whereas chargemaster charges vary significantly across hospitals and have been documented as high as 10 to 20 times the allowable Medicare costs,<sup>2</sup> they do not necessarily reflect the total charge for an episode of care (i.e., the charge for an appendectomy vs. the individual charges for anesthesia, time in the operating room, sutures, etc.). Chargemaster charges also often do not reflect the out-of-pocket costs that insured patients incur. Private payers negotiate payment rates that are considerably lower than published charges and insured patients often pay a fraction of the negotiated payment. The amount that an insured patient pays out of pocket depends upon the cost-sharing structure of the insurance plan, such as co-pays, deductibles, and networks, in addition to the patient’s year-to-date spending. Insured patients’ health insurance literacy is varied<sup>3–5</sup> and, for the most part, insured patients are largely shielded from health care costs. Chargemaster charges, however, directly affect the consumer cost for uninsured, out-of-network, auto or casualty insurance, and workers’ compensation patients.<sup>6</sup> Chargemaster charges have been linked to surprise medical bills, such as through the practice of balance billing where out-of-network health care providers bill patients for the amounts not covered by their insurer; however, the frequency and magnitude of surprise medical bills is likely to lessen with the surprise billing legislation passed by Congress in December 2020 and due to be implemented in 2022.<sup>7</sup> Increased private insurance premiums have also been linked to chargemaster charges.<sup>8</sup> Researchers advocate for increased “price transparency” so that patients understand consumer costs prior to obtaining service. However, the empirical evidence on the effectiveness of these approaches is mixed.<sup>9–18</sup> The CMS chargemaster rule aimed to help patients understand their potential financial liability and enable comparison-shopping among hospitals. Hospitals are free to choose how they present the charges as long as they adhere to the aforementioned minimum requirements.<sup>19</sup> Therefore, the usability of charges or list prices for cross-hospital comparisons is unclear.

## Objectives

We aimed to explore how hospitals complied with the rule within a local hospital market where patients would reasonably try to shop or compare services. We hypothesized that hospitals would publish the chargemaster in a way that

would minimize their administrative burden and limit comparisons, which might reduce patient volume and revenue.

## Methods

To explore the rule’s utility for patients to comparison-shop medical services, we identified chargemasters published on the internet for Dallas County hospitals in May of 2019. We identified Dallas County hospitals by typing “Hospitals in Dallas County” into Google’s search engine and subsequently located hospital chargemasters by typing in the hospital name followed by “chargemaster” or “price.” We then navigated the hospital’s Web site for a chargemaster. Chargemasters available in a database compatible format (CSV, XLSX) were aggregated into a single file (see [▶ Supplementary Appendix](#), available in the online version) including chargeable items, prices, and descriptions.

We opted not to list hospitals by name, as our goal was not to compare institutions but to provide a general examination of the use and usability of the chargemaster in general. Readers interested in more detail may download the Appendix (available in the online version) and request the key for the organizations from the corresponding author.

A convenience sample of commonly ordered laboratory tests,<sup>20</sup> prescribed medications,<sup>21</sup> and therapeutic or diagnostic procedures<sup>22</sup> across a variety of medical specialties and readily identifiable based upon descriptions across the hospitals was selected for charge comparison. Multiple experts performed independent review of the data to ensure that like tests, medications, obtained consensus, and procedures were comparable. Authors SAA, CUL, and SM performed descriptive statistics on the charges and compared hospitals based on their overall ranking of charges within each category.

We elected not to publish the names of the hospitals; however, complying with rules for good scientific practice, all chargemaster data (including name of the hospitals) were stored and are available upon request from the corresponding author.

## Results

Thirteen hospital chargemasters were identified. One institution requires user affirmation of a disclaimer explaining the limitations of chargemaster data. Eleven hospitals provided data in a format compatible for aggregation. Of the hospitals that did not provide data in an accessible format, one published their chargemaster as a locked PDF from which the data could not be extracted. Another inaccessible chargemaster had web-based tables that were not downloadable. An attempt

to use web scraping (automatically pulling information from a Web site and processing it into a searchable format) resulted in blocked access to the Web site. We aggregated the 11 downloadable chargemaster files into a single file that included 155,576 chargeable items, their prices, and descriptions. The procedures and services listed in the chargemasters did not use standard terminologies, abbreviations, or codes, preventing the automation of price comparisons among institutions. None of the examined chargemasters had information on professional fees or discounts offered to self-pay patients.

We selected a convenience sample of common laboratory tests,<sup>20</sup> medications, and procedures across medical specialties to examine the charge variation among institutions (→Table 1). The items selected were not universally listed in all chargemasters. The least frequently listed laboratory test was Rh blood typing (8/11 institutions), the least frequently listed medications were omeprazole 20-mg and azithromycin 250-mg tablets (both 8/11 institutions), and the least frequently listed procedure included cesarean section (C-section; 4/11 institutions; →Table 1). There was high variation in the charges for the 10 laboratory tests (→Table 1). The charge for a partial thromboplastin time (2020 Medicare reimbursement: \$6.01)<sup>23</sup> ranged from \$18.70 to \$506.00, a 2,606% difference and an automated platelet count ranged from \$12.00 to \$362.00, a 2,917% difference. Two of the 11 hospitals (18%, hospitals 2 and 9) accounted for the lowest charge in 40% of the laboratory tests and 1 hospital (hospital 7) accounted for the highest charge in 80% of examined tests.

The 10 medications had the highest charge variance of the groups sampled across institutions (→Table 1). The charge for a single 5-mg tablet of amlodipine ranged from \$0.23 to \$43.05, an 18,617% difference. One institution (institution 1) accounted for the lowest charge in 80% of medications and one institution (institution 7) accounted for the highest charge in 90% of medications. Notably, institution 7 reported only brand name medications.

Procedures had the highest median charge of the three groups (\$775.40, compared with \$133.35 for laboratory tests and \$6.45 for medications). They had the smallest median percent difference of all three groups (347%, compared with 1,423% for laboratory tests and 8,494% for medications). The largest percent difference for a procedure was 2,889% for a circumcision, with charges ranging from \$252.00 to \$7,532.10. Two institutions accounted for 60% of the lowest charges (institutions and institution 9). One institution accounted for 30% of the highest charges (institution 3).

Across all 30 sampled charges, institution 1 accounted for 27% of the lowest charges and institution 7 accounted for 60% of the highest charges. Of the sampled laboratory tests, medications, and procedures, only two items had identical descriptions across all institutions: the laboratory tests for hemoglobin and for hematocrit. Descriptions with the largest variation for each grouping included 9 different descriptions for partial thromboplastin time, 6 different descriptions for 10-mg tablet of atorvastatin, and 10 different descriptions for computed tomography (CT) abdomen without contrast (→Table 2).

## Discussion

We identified and aggregated hospital chargemasters within a local regional market in an attempt to compare 10 common laboratory tests, medications, and procedures across institutions. Our findings highlight a high variation in chargemaster charges as well as heterogeneous descriptions for identical items across institutions. Similar findings have been reported by other recent studies using chargemaster data.

Since the implementation of the CMS price transparency rule, several studies have attempted to compare chargemaster charges among institutions for fewer items over larger geographic areas.<sup>24–26</sup> One study looked at six advanced diagnostic imaging services across the top 20 ranked hospitals in U.S. News and World Report.<sup>25</sup> Another study analyzed low-dose chest CT scans for lung cancer screening across 55 American College of Radiology accredited imaging centers across the United States.<sup>24</sup> A third study compared chargemaster data for four items across all 110 acute care hospitals in North Carolina. All studies found different hospital implementations of the chargemaster rule, marked variation in prices across institutions, and heterogeneous descriptions for items. Our study is the first to compare hospital chargemaster prices for common items *within a local hospital market* in an attempt to leverage the price transparency rule as intended for use by patients.

### Chargemaster Accessibility and Usability

Chargemaster data were available in a format amenable to comparison in 85% of the hospitals. This accessibility is similar to the study of North Carolina chargemasters where only 72% (79/110) were accessible.<sup>26</sup> Chargemaster files often used ambiguous terminology and lacked a common standard to describe charges. This was seen in a prior study with 19 different descriptions for head CT without contrast across 20 hospitals.<sup>25</sup> When comparing chargemaster items among Dallas County hospitals, we observed markedly heterogeneous descriptions of synonymous tests and services across institutions, which created several limitations.

One limitation is that the chargemaster items we compared may not actually reflect the same items as we intended. For example, for the data we collected about circumcisions, most hospital descriptions simply listed “circumcision” for this procedure. However, the large price variation we identified (\$252.00–7,532.10) may reflect the difference between an uncomplicated circumcision of a newborn in the newborn nursery and a circumcision of an older child/adult with phimosis in the operating room under anesthesia. These would reflect two different procedures; however, without further specifications, a consumer would not be able to discern this difference on the chargemasters. Additionally, for the items that we were not able to identify in a hospital’s chargemaster (→Table 1), we are uncertain as to whether this is because (1) the hospitals failed to publish their full chargemaster, (2) the hospitals did not offer the items, or (3) we simply could not find what we were looking for. For example, there were two hospitals that did not have charges listed for common medications—it can be assumed that this is because the institutions

**Table 1** Number of institutions reporting, median price, interquartile range (IQR), lowest price institution, highest price institution, and percent difference between lowest cost and highest price institution for common laboratory tests, medications, and procedures

	No. of institutions reporting	Median (\$)	IQR (\$)	Lowest price institution (ID)	Price from lowest price institution (\$)	Highest price institution (ID)	Price from highest price institution (\$)	Percent difference between lowest and highest price institution (%)	2020 Medicare reimbursement rate (\$)
<b>Laboratory test</b>									
Complete blood count	11/11	162.88	43.00	2	48.00	7	708.00	1,375	7.77
Hemoglobin	11/11	57.75	62.17	9	13.13	7	200.00	1,423	2.37
Hematocrit	11/11	58.00	57.58	9	13.13	7	189.00	1,339	2.37
Comprehensive metabolic panel	11/11	445.90	425.14	4	43.00	7	1,135.00	2,540	10.56
Automated platelet count	9/11	83.13	83.70	9	12.00	7	362.00	2,917	4.48
Troponin, quantitative	10/11	370.72	189.51	2	73.00	7	829.00	1,036	12.47
Blood typing (ABO)	10/11	107.10	163.39	2	54.00	10	341.61	533	2.99
Blood typing (Rh)	8/11	113.40	68.10	2	52.00	7	310.00	496	2.99
Prothrombin time	11/11	158.55	134.00	4	24.00	9	450.00	1,775	4.29
Partial thromboplastin time	11/11	145.00	128.53	9	18.70	7	506.00	2,606	6.01
<b>Medications</b>									
Atorvastatin 10-mg tablet	9/11	16.96	34.63	1	0.75	7	60.99	8,032	
Levothyroxine 88-µg tablet	9/11	3.25	3.28	8	1.25	7	14.47	1,058	
Omeprazole 20-mg capsule	8/11	12.28	12.02	1	1.16	7	114.53	9,773	
Lisinopril 10-mg tablet	9/11	4.05	7.34	1	0.17	7	21.64	12,629	
Amlodipine 5-mg tablet	9/11	6.38	10.05	1	0.23	7	43.05	18,617	
Azithromycin 250-mg tablet	8/11	29.91	28.87	4	5.91	7	228.75	3,771	
Zolpidem 5-mg tablet	9/11	19.88	16.37	1	0.98	6	56.1	5,624	
Furosemide 20-mg tablet	9/11	3.00	4.98	1	0.20	7	18.11	8,955	
Gabapentin 100-mg capsule	9/11	3.00	5.40	1	0.23	7	18.11	7,774	
Metformin 500-mg tablet	9/11	3.00	5.34	1	0.16	7	21.64	13,425	
<b>Procedures</b>									
Chest X-ray	11/11	447.00	222.00	2	182.00	3	719.00	295	
Ct abdomen w/o contrast	11/11	3,332.00	1,644.65	2	927.00	11	4,330.75	367	
Incision and drainage of skin abscess, simple	7/11	615.18	216.08	9	243.00	6	966.00	615	
Immunization administration	6/11	132.50	114.25	2	59.00	3	260.00	341	
C-section	4/11	4,372.00	2,000.96	11	2,890.00	1	6,669.83	131	
Circumcision	6/11	736.83	1,084.66	8	252.00	3	7,532.10	2,889	
Intubation	6/11	775.33	486.90	9	260.00	7	1,181.00	354	

Table 1 (Continued)

	No. of institutions reporting	Median (\$)	IQR (\$)	Lowest price institution (ID)	Price from lowest price institution (\$)	Highest price institution (ID)	Price from highest price institution (\$)	Percent difference between lowest and highest price institution (%)	2020 Medicare reimbursement rate (\$)
Colonoscopy	7/11	2,513.32	915.78	10	1,081.05	8	3,425.00	217	
Hemodialysis	10/11	2,184.21	1,414.63	4	1,125.00	8	4,515.00	301	
ECC	11/11	416.00	388.74	9	198.00	10	1,022.87	417	

Abbreviations: CT, computed tomography; ECG, electrocardiogram; IQR, interquartile range; Rh, rhesus; w/o, without.  
 Note: The 11 institutions included in the study were assigned numbers 1–11.

did not publish their full chargemasters. There were also several hospitals that did not list prices for common procedures; however, this may be related to the institution not offering the procedure (e.g., a rehabilitation hospital did not offer delivery or circumcision). Additionally, we noticed that one hospital that offered delivery services failed to list C-section charges in its chargemaster. It can be assumed either that the item was not published or that we (a team of medical experts) could not find it. Considering these limitations, we found our hypothesis confirmed that chargemasters published to meet the minimum requirements of the rule would be difficult for consumers to use and would not be conducive to easy comparison.

### Chargemaster Charge Variations

Exploring the chargemaster files in Dallas County, charges varied greatly across the 11 hospitals for the 30 services we examined. We found charge differences of more than 18,000% for one medication. We observed that some hospitals consistently had the highest and lowest prices. Although these specific price variations may not be generalizable to the rest of the United States, previous studies have identified high variation and prices across different items ranging from 56 to 4,916% difference across items and studies.<sup>24–26</sup> The study of chargemasters across North Carolina revealed a 358% variation across institutions (\$72.00–258.00) for a complete blood count with differential. This price variation was not as extreme as was identified in our local market (1,375% variation, \$48–708) for the same laboratory test.

A historic practice reimbursement model in Texas may have contributed to some of the price differences seen in our regional market. Until 2013, Texas Medicaid reimbursed inpatient stays based on a percentage of the hospital's standard charges for children's hospitals, state-owned hospitals, and rural hospitals.<sup>17</sup> Charges were directly linked to payments for certain hospitals and may have contributed to current chargemaster variations. The contribution of previous reimbursement practices on the variation of chargemaster charges across states is an area for future research.

### Chargemaster Charges versus True Costs to Insured and Uninsured Patients

Comparing the hospital chargemaster charges yields limited information for insured patients investigating their out-of-pocket costs. In some circumstances, a hospital with the highest chargemaster charge for a given laboratory test, medication, or procedure may actually have the lowest out-of-pocket cost for an insured patient. The a priori contract between the patient's insurance company and the hospital supersedes the chargemaster charge, and costs usually represent only a fraction of the chargemaster prices. Additionally, the chargemaster charges for individual hospital services fail to reflect that insurance companies reimburse hospitals with prenegotiated lump sums for diagnosis-related services (e.g., total shoulder replacement in lieu of individual components of care). Depending on the insurance plan and year-to-date health care spending, a patient will pay a fraction of the insurer's negotiated rate out of pocket,

**Table 2** Single greatest variation in description for sampled laboratory tests (partial thromboplastin time), medications (atorvastatin 10-mg tablet), and procedures (CT abdomen w/o contrast)

Laboratory test	Medication	Procedure
Thromboplastin time, partial, activated	Atorvastatin 10-mg tablet (×4)	CT abdomen w/o CM
Partial thromboplastin time (PTT)	Atorvastatin calcium 10-mg tablet	CT abdomen w/o dye (×2)
Thromboplastin time partial	Lipitor 10-mg tablet	CT scan, abdomen, w/o contrast
Thromboplastin time	Atorvastatin 10-mg tablet	CT abdomen w/o contrast
PTT (×4)	Atorvastatin calcium 10 mg	CT abdomen w/o contrast
Thromboplastin (PTT)	Atorvastatin tablet 10 mg	CT abdomen w/o contrast
PTT plasma fractions EA		CT abdomen w/o contrast
Thromboplastin time (APTT)		CT abdomen w/ contrast
Thromboplastin time partial		CT abdomen w/o contrast
		CT abdomen w/o contrast

Abbreviations: APTT, activated partial thromboplastin time; CM contrast medium; CT, computed tomography; PTT, Partial thromboplastin time; w/o without.

rendering the chargemaster irrelevant for most insured consumers.

Chargemaster charges potentially yield valuable information for a growing number of patients in the United States, who are uninsured or financially liable for large portions of the cost of their care (e.g., patients with high deductibles, or seeking out-of-network services or services not routinely covered by insurance, e.g., infertility treatments). The wide variation in charges demonstrates that the comparison of these chargemaster charges for some patients could represent the difference between financial well-being and medical bankruptcy. However, due to various hospital practices such as discounted cash prices, sliding scale payments, and charity care, chargemaster charges are only an estimation of actual costs to the uninsured. Unlike other studies that have found that some hospital chargemasters included information about expected costs for patients without insurance,<sup>25</sup> the hospital chargemasters we sampled did not include this information.

### Failure to Achieve Price Transparency

The CMS rule in its current form falls short of its stated goal of price transparency. Whereas charges for the same service vary across institutions, this information likely remains unattainable and unusable to most patients. It is likely that most patients lack the skills and health care insight to find and download the data, analyze them, and match chargeable items successfully to allow comparison-shopping for all of the tests, procedures, and medications that will be required during their care episode. The lack of consistent naming conventions for laboratory tests and procedures, the use of random abbreviations, and varied terminology require significant “sleuthing” and medical knowledge to match comparable items across institutions. Chargemasters are frequently not easily found on the hospitals’ Web sites, which frequently also lack search functionalities. In addition, some hospitals actively block the downloading of the chargemaster in violation of the rule’s spirit. Hospitals have even been found to have disclaimers discouraging users from using chargemasters to calculate out-of-pocket costs.<sup>26</sup>

### Improving Chargemaster Price Transparency

The utility of CMS’s 2019 Hospital Price Transparency rule could be improved by requiring institutions to publish chargemasters in a consistent manner across all hospitals and to use standard health care descriptors for communication, such as Healthcare Common Procedure Coding System (HCPCS) codes for procedures, RxNorm codes for medications, and Logical Observation Identifiers Names and Codes (LOINC) for laboratory tests, which would permit better price comparison. Further, publishing the total price of services for an episode of care (e.g., vaginal delivery) instead of the individual prices of items (e.g., anesthesia, oxytocin, fluids, room and board, and gauzes) would be more meaningful to patients. Finally, for insured patients, insurance companies could be required to provide pricing data and out-of-pocket costs for insured patients. This requirement could include information on insurance coverage, networks, co-payments, deductibles, and year-to-date health care spending to allow consumers comparison of out-of-pocket costs.

### Expanded Price Transparency Requirements for Hospitals

CMS released an expanded Hospital Price Transparency rule, which took effect in January 2021. The new rule increases the scope of published price information and mandates annual publishing of the charges for 300+ care services that patients can schedule in advance (“shoppable” services) and individual hospital items and services. Descriptions must include standard charges, gross charges, discounted cash prices, payer-specific negotiated charges, and payer de-identified minimum and maximum negotiated charges. Hospitals must also include a description of accounting or billing codes, such as HCPCS codes. Hospitals must display charges in a consumer-friendly manner and include an internet-based price estimator tool that allows health care consumers to estimate accurately the required payment amount in advance for the service.<sup>27</sup>

### Limitations of the Expanded Price Transparency Requirements

Although an improvement in the opinion of the authors, even the expanded Hospital Price Transparency rule for hospitals

will have limited utility to insured patients. Self-pay patients may have sufficient information to calculate out-of-pocket costs and to comparison-shop for care, whereas insured patients will not be able to use the pricing information without sufficient knowledge about their health insurance plans. These deficits are addressed in a proposed “Transparency in Coverage” rule that may benefit insured patients by requiring payers to publish real-time, personalized cost-sharing estimates allowing patients to determine their liability for covered health care items and services. This proposed rule requires payers to publish negotiated rates for in-network providers and allowed amounts paid to out-of-network providers<sup>28</sup> and would address many shortcomings of the initial 2019 Hospital Price Transparency rule. However, this rule will likely be ineffective unless strict publication guidelines are applied and enforced to make the publication of prices and out-of-pocket costs for consumers comparable and actionable. Further, if the novel price information and other required data are not presented in a clear and usable format, the proposed rule could inadvertently further obscure price transparency for patients. Hospitals contract with numerous health insurers, who in turn offer multiple health insurance plans, resulting in a plethora of negotiated prices for a single item. In the absence of defined publication guidelines including a terminology for payers, hospitals, and plans, the proposed rule will lead to varying implementation across institutions limiting usability and erecting barriers to price comparison.

The economist Peter Diamond showed that even a small “search cost” could undermine the competition on price.<sup>29</sup> Therefore, industries (such as health care) where comparison is difficult or costly can anticipate higher prices and profits.<sup>30</sup> Price comparison intuitively increases competition and reduces prices. However, if consumers—regardless of their reasons (e.g., personal choice, too much effort, unable to understand or use)—do not use price data to comparison-shop, publishing the data could paradoxically increase costs as hospitals and insurance companies become aware of negotiated rates by competitors that were once trade secrets with the ability to match competitors’ higher prices.

### Legal Challenges to Price Transparency

The new Hospital Price Transparency rule for 2021 has been met with litigation. The suit alleges the rule exceeds the agency’s statutory authority and violates the First Amendment by requiring public disclosure of prices negotiated with payers.<sup>31</sup> CMS predicts that for the first year, the total implementation burden on hospitals will be 150 person-hours and \$11,989.60 per hospital.<sup>27</sup> A federal judge ruled against the lawsuit; however, the plaintiffs plan to appeal this decision and seek expedited review.<sup>32</sup>

### Conclusion

Ultimately, the success of any price transparency rule depends on how easily accessible, usable, and understandable the price data are. We found current charges difficult to assess, compare, and apply to real-life scenarios to calculate

out-of-pocket costs, rendering their value less useful. As future iterations of this rule are implemented and health care price information becomes more readily available from hospitals and insurers, careful study will be needed to assess its usability and effect on price comparison and patients’ ability to shift care to lower-priced providers. Further, the effect of price comparison on patients’ personal financial burden, stimulating price competition and minimizing the wide variation in medical prices, health care spending, and health care outcomes will need to be evaluated.

### Clinical Relevance Statement

This manuscript details the implementation of a CMS price transparency rule requiring hospitals to publish their chargemasters and may be relevant to patients who are uninsured, receiving health care out of network (surprise billing), and with high deductible health insurance plans.

### Multiple Choice Questions

1. What did CMS require hospitals to publish in their 2019 price transparency rule?
  - a. Chargemaster prices.
  - b. Cash discount prices.
  - c. Insurance negotiated prices.
  - d. All of the above.

**Correct Answer:** The correct answer is option a, chargemaster prices.

2. What were the minimum requirements for hospitals to adhere to the 2019 price transparency rule?
  - a. Chargemasters had to be published in full.
  - b. Chargemasters needed to be updated at least annually.
  - c. Chargemasters needed to be published in a machine-readable format.
  - d. All of the above.
  - e. None of the above.

**Correct Answer:** The correct answer is option d, all of the above.

#### Protection of Human and Animal Subjects

This study did not include human or animal subjects.

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None.

#### Conflict of Interest

None declared.

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