RESEARCH LETTER

Adherence to a Federal Hospital Price Transparency Rule and Associated Financial and Marketplace Factors

The federal Hospital Price Transparency Final Rule aims to increase health care price transparency and facilitate patient price shopping online. Hospitals are required to disclose 5 types of standard charges for all services in an accessible file and provide a consumer-friendly display for at least 300 shoppable services.[1] We evaluated adherence 6 to 9 months after the final rule effective date (January 1, 2021) across all US hospitals and its association with market- and hospital-level characteristics across acute care hospitals.

Supplemental content

Methods | We collected data on hospital characteristics and adherence to the final rule between July 1 and September 30, 2021, for all US hospitals that were registered with the Centers for Medicare & Medicaid Services and with an identifiable website.[2] We collected data on whether each hospital had posted all 5 required price types (gross charges, discounted prices, payer-specific negotiated prices, and minimum and maximum negotiated prices) in a machine-readable file, and a separate accessible display or price estimator for at least 300 shoppable items. Final rule adherence required that both conditions be met. Characteristics of all hospitals were compared between nonadherent and adherent facilities by calculating standardized differences, with values greater than 0.1 considered significant. Our measure of inpatient hospital market concentration, the Herfindahl-Hirschman Index (HHI), was collected for 185 of 929 core-based statistical areas using 2019 data.[3] The HHI categories include unconcentrated, moderately concentrated, and highly or very highly concentrated, with greater concentration denoting fewer hospitals accounting for a larger share of admissions within a geographic region. Examination of characteristics associated with final rule adherence was restricted to acute care hospitals because

Table 1. Characteristics of All Hospitals by Adherence to the Final Rule

Hospital characteristics	No. (%)		Standardized difference
	Nonadherent (n = 4939)	Adherent (n = 300)	
Urban vs rural[a]			
Rural	2188 (44.3)	120 (40)	0.09
Urban	2751 (55.7)	180 (60)	0.09
Hospital size (No. of beds)[a]			
Small (<100)	2550 (51.6)	163 (54.3)	0.05
Medium (100-300)	1456 (29.5)	82 (27.3)	0.05
Large (>300)	933 (18.9)	55 (18.3)	0.02
Emergency services capable[a]			
No	776 (15.7)	58 (19.3)	0.09
Yes	4163 (84.3)	242 (81.7)	0.07
Hospital type[a]			
Acute care	3053 (61.8)	170 (56.7)	0.10
Psychiatric	533 (10.8)	41 (13.7)	0.09
Critical access	1268 (25.7)	80 (26.7)	0.02
Children's	85 (1.7)	9 (3.0)	0.09
Hospital ownership[a]			
Local government	1094 (22.2)	67 (22.3)	0.00
Federal government	55 (1.1)	4 (1.3)	0.02
Private nonprofit	2456 (49.7)	160 (53.3)	0.07
Religious	311 (6.3)	15 (5.0)	0.06
Private for-profit	1023 (20.7)	54 (18.0)	0.07
Herfindahl-Hirschman Index score[b]			
Unconcentrated	642 (13.0)	59 (19.7)	0.18
Moderately concentrated	748 (15.1)	47 (15.7)	0.02
Highly or very highly concentrated	1087 (22.0)	51 (17.0)	0.13
Unclassified	2462 (49.8)	143 (47.7)	0.04

[a] Hospital characteristics as defined by Centers for Medicare & Medicaid Services.

[b] Market categories were based on definitions by the Federal Trade Commission. Markets with a Herfindahl-Hirschman Index score less than 1500 points were categorized as unconcentrated; those with a score between 1501 and 2500 points as moderately concentrated; and those with a score greater than 2501 points as highly or very highly concentrated.

Table 2. Factors Associated With Adherence to the Final Rule Among Acute Care Hospitals in a Multivariable Logistic Regression Analysis

Hospital characteristics	No. of acute care hospitals	Odds ratio (95% CI)
Total revenue, quartile[a]		
First (lowest)	696	1 [Reference]
Second	696	0.66 (0.38-1.14)
Third	696	0.91 (0.49-1.70)
Fourth (highest)	695	0.81 (0.42-1.96)
Total revenue per patient-day, quartile[b]		
First (lowest)	696	1 [Reference]
Second	696	0.54 (0.34-0.86)
Third	696	0.55 (0.34-0.89)
Fourth (highest)	695	0.53 (0.32-0.90)
Herfindahl-Hirschman Index score[c]		
Unconcentrated	473	1 [Reference]
Moderately concentrated	527	0.58 (0.35-0.96)
Highly or very highly concentrated	720	0.33 (0.19-0.56)
Unclassified	1063	0.65 (0.40-1.05)
Urban vs rural		
Rural	811	1 [Reference]
Urban	1972	1.86 (1.08-3.17)
Hospital size		
Small	813	1 [Reference]
Medium	1135	0.63 (0.30-1.33)
Large	835	0.59 (0.23-1.55)
Emergency services capable		
No	203	1 [Reference]
Yes	2580	1.58 (0.64-3.89)
Hospital ownership		
Government	424	1 [Reference]
Private nonprofit	1497	1.52 (0.91-2.54)
Religious	227	0.98 (0.44-2.19)
Private for-profit	635	0.63 (0.32-1.27)

[a] Total revenue was calculated as the sum of gross patient and nonpatient revenue from the hospital's 2020 Medicare Cost Report.

[b] Total revenue per patient-day was calculated by dividing total revenue by the number of total patient-days taken from the hospital's 2020 Medicare Cost Report.

[c] Market categories were based on definitions by the Federal Trade Commission. Markets with a Herfindahl-Hirschman Index score less than 1500 points were categorized as unconcentrated; those with a score between 1501 and 2500 points as moderately concentrated; and those with a score greater than 2501 points as highly or very highly concentrated.

different hospital types vary in characteristics and services provided. The missing indicator method was used for hospitals without HHI data. Information on hospital revenues based on 2020 Medicare Cost Reports and number of patient-days for acute care hospitals was obtained from the American Hospital Directory.[4] Logistic regression analysis included total revenue quartiles, revenue per patient-day quartiles, HHI categories, urbanicity, hospital size, emergency services, and hospital ownership as independent variables. Statistical significance was defined as a 95% CI that excluded 1. Analyses were conducted with SPSS version 23 (SPSS Inc). See the eMethods in the Supplement for additional details.

Results | Across 5239 total hospitals, 729 (13.9%) had an adherent machine-readable file but no shoppable display, 1542 (29.4%) had an adherent shoppable display but no machine-readable file, and 300 (5.7%) had both. There were 2668 hospitals (50.9%) without an adherent machine-readable file or a shoppable display. There was a significant difference in the proportion of adherent vs nonadherent facilities that were in unconcentrated and highly or very highly concentrated markets (**Table 1**).

There were 2783 of 3223 acute care hospitals (86%) with available revenue data. Total gross revenue had no significant association with final rule adherence (**Table 2**). In contrast, being in the first quartile (lowest) of revenue per patient-day was associated with greater rates of adherence than was being in other quartiles. Compared with being in unconcentrated markets, being in a moderately concentrated one (odds ratio, 0.58; 95% CI, 0.35-0.96) and highly or very highly concentrated one (odds ratio, 0.33; 95% CI, 0.19-0.56) was associated with worse adherence. Urban vs rural location was associated with better adherence to the final rule (odds ratio, 1.86; 95% CI, 1.08-3.17). Hospital size, emergency service capabilities, and hospital ownership were not associated with adherence.

Discussion | Adherence to the final rule price transparency mandate 6 to 9 months after its effective date was low. Acute care hospitals with lesser revenue per patient-day, within unconcentrated health care markets, and in urban areas were more likely to be transparent. Greater scrutiny of hospitals without these characteristics may be needed to ensure hospital price transparency. Because multiple factors affect revenue per patient-day, including patient acuity, operational expenses, and provision of specialty care, refining which financial determinants are associated with adherence is needed. Longer-term trends in hospital adherence and whether changes in penalties beginning in 2022 may lead to greater adherence remain to be elucidated.

Study limitations include that final rule adherence may have been underestimated, given that data abstraction was conducted during 3 months, and some hospitals may have disclosed standard charges during that time. Also, financial and HHI data for all hospitals were unavailable, as was revenue and marketplace concentration in non–acute care hospitals and in all geographic regions.

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Trends in Prescription Drug Launch Prices, 2008-2021

Prescription drug spending in the US exceeded half a trillion dollars in 2020.[1] Spending is driven by high-cost brand-name drugs, for which manufacturers freely set prices after approval.[2] Rising brand-name drug prices often translate to payers restricting access, raising premiums, or imposing unaffordable out-of-pocket costs for patients. We evaluated recent trends in prices for newly marketed brand-name drugs.

Methods | We identified drugs newly marketed from 2008 to 2021 within SSR Health, a database with quarterly wholesale acquisition cost (ie, list prices) and estimated net prices after manufacturer discounts for more than 1230 brand-name products.[3] For drugs with multiple dosage forms, we included the first marketed version. Price per unit was converted to price per year (or course of treatment, if <1 year) based on US Food and Drug Administration (FDA)-approved labeling; in cases of weight-based dosing, US population averages were used. Prices were converted to 2021 dollars using the Consumer Price Index for All Urban Consumers.

We used linear regression to estimate trends in mean launch prices, which were log transformed to improve normality and fit observed exponential trends. We adjusted for drug characteristics, including biologics vs small molecules, novel active ingredients vs reformulations, accelerated vs traditional FDA approval, Orphan Drug Act designation for rare conditions vs nonrare conditions, oncology vs nononcology indications, and oral vs injected vs other route of administration. In a secondary analysis, we included interaction terms between each characteristic and time to determine if trends varied between subgroups (2-tailed; $P < .05$). In another secondary analysis, we used estimated net prices after manufacturer discounts among non-Medicaid payers, if such estimates were available from SSR Health within 1 year after launch. Analyses were performed using SAS version 9.4 (SAS Institute Inc).

Results | We included 548 of 576 drugs (95%) first marketed in 2008-2021, excluding 3 diagnostics and 25 drugs for which we could not estimate price per year (eg, as-needed use). Overall, 357 (65%) were new molecules, 139 (25%) were biologics, 182 (33%) treated rare diseases, 64 (12%) received accelerated approval, 119 (22%) were oncologic agents, and 282 (51%) were orally administered (**Table**). The highest prices were among drugs for rare diseases (median, $168 441 [IQR, $78 291-$338 379] per year) and oncology drugs (median, $155 091 [IQR, $109 832-$233 916] per year).

Median launch prices increased from $2115 per year (IQR, $928-$17 866) per year in 2008 to $180 007 (IQR, $20 236-409 732) per year in 2021 (**Figure**). The proportion of drugs priced at $150 000 per year or more was 9% (18/197) in 2008-2013 and 47% (42/89) in 2020-2021. Unadjusted mean launch prices increased exponentially by 20.4% per year (95% CI, 15.3%-25.8% per year). Adjusting for drug characteristics, mean prices increased exponentially by 13.0% per year (95% CI, 9.4%-16.7% per year). Most drug characteristics were independently associated with launch price, and including interaction terms revealed that launch prices increased more quickly among biologics, drugs treating rare diseases, and nononcology drugs (Table).

Estimated net prices were available for 395 drugs (72%); these net prices were a median of 14% lower than the wholesale acquisition cost in 2008 and 24% lower in 2020. Net prices increased from a median of $1376 (IQR, $693-$10 897) in 2008 to $159 042 (IQR, $31 187-$380 509) in 2021. Adjusting for drug characteristics, mean net prices increased exponentially by 10.7% per year (95% CI, 6.3%-15.2% per year).

Discussion | From 2008 to 2021, launch prices for new drugs increased exponentially by 20% per year. In 2020-2021, 47% of new drugs were initially priced above $150 000 per year. Prices increased by 11% per year even after adjusting for estimated manufacturer discounts and changes in certain drug characteristics, such as more oncology and specialty drugs (eg, injectables, biologics) introduced in recent years. The study was