

# The Burden of COVID-19 on Surgeons' Financial Relationship with the Industry

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**Summary:** The healthcare system has been greatly affected by the coronavirus disease 2019 (COVID-19) pandemic. The aim of this study was to compare pre-COVID-19 and post-COVID-19 payments between industry and medical providers for all surgeons and subspecialized surgeons. Payment information was obtained from the Open Payments Program database for the 2019 and 2020 reported periods for three physician groups: all physicians, all surgeons, and each surgical subspecialty. Comparison and analysis of payment amount and type between these years was performed for each cohort. Physicians experienced a 36% decrease in industry payments with surgeons experiencing a 30.4% decrease. All surgical subspecialties, including plastic surgery ( $-30.5\%$ ;  $P < 0.01$ ), experienced a significant decrease in industry payments except for transplant surgery, trauma surgery, and neurological surgery. Charitable contributions and compensation for services other than consulting were the only payment types that increased from 2019 to 2020. The COVID-19 pandemic has significantly impacted industry physician payments across all medical and surgical fields with payment decreases across almost all surgical subspecialties. (*Plast Reconstr Surg Glob Open* 2023; 11:e4825; doi: [10.1097/GOX.0000000000004825](https://doi.org/10.1097/GOX.0000000000004825); Published online 17 February 2023.)

## INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic presents an ongoing challenge for the American healthcare system and its workforce. On a national level, adaptations have been made, including the introduction of telehealth systems in place of in-person encounters, and the postponing or canceling of elective procedures to focus efforts and resources toward COVID-19 relief. In doing so, hospitals have sacrificed assumed revenue sources while simultaneously spending more on the expansion of critical care and emergency department initiatives.<sup>1</sup>

The Physician Payments Sunshine Act mandates the disclosure of all drug, device, and other industry-related payments involving physicians. These may include, but are not limited to, payments due to ownership, research,

travel, and academic activities. This information is stored in the Open Payments Program database (OPP). Implementation of the Sunshine Act has promoted greater transparency within the healthcare system. Monetary transactions among physicians and industry can now be compared and critiqued. Individual physicians have also become more aware of their role among industry and can look up their personal interactions as any public figure could by searching the OPP database (<https://openpaymentsdata.cms.gov/search>). The aim of the following study is to compare pre- and post-COVID-19 payments between industry and medical providers for all physicians, surgeons, and surgical specialties using the OPP database. The authors hypothesize that the number of payments for all physicians, surgeons, and surgical specialties, as well as all industry payment types, will be significantly decreased following the COVID-19 outbreak.

## METHODS

Data were retrieved on July 14, 2021, from the Centers for Medicare and Medicaid Services Open Payments database,<sup>2</sup> which captures industry-related payments made to physicians (payments >\$10). The study population consisted of all allopathic and osteopathic (MD and DO) physicians practicing in the United States, including Alaska and Hawaii, but excluded those occurring in other countries or United

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Received for publication June 23, 2022; accepted December 19, 2022.

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DOI: [10.1097/GOX.0000000000004825](https://doi.org/10.1097/GOX.0000000000004825)

**Disclosure:** The authors have no financial interest to declare in relation to the content of this article.

States minor outlying islands. The OPP does not include resident physicians but does include fellows and all those who have finished training. Payments made to physicians outside the United States, or physicians who indicated ownership or investment interests (involving the recipient physician or their immediate family members) in the applicable manufacturers, or group purchasing organizations were excluded from this study. Payment information was collected for the 2019 and 2020 reporting periods. Physician-level payments were aggregated using unique physician identification numbers.

The sum, mean, SD, and number of payments in each subcategory were calculated for the years of 2019 and 2020. General payments were compared between the pre-pandemic year (2019), and the pandemic year (2020), using data from 2019 to calculate relative differences. Relative differences were calculated for comparison. Mann Whitney U test was used for the statistical analysis of the data. All statistical analyses were performed on R software (R Foundation, Vienna, Austria), and the level of significance was set at a *P* value less than 0.05.

## RESULTS

Total payment to all surgeons decreased from \$2,227,060,804 with 9,969,744 payments reported in 2019, to \$1,433,932,658 with 5,455,693 payments in 2020 (Table 1). This represents a relative difference in total payment of -36% (*P*<0.0001).

Table 2 depicts the breakdown of payments for surgeons based on their subspecialty and the relative differences from 2019 to 2020 for the different subspecialties ranging from -64.65% (thoracic surgery) to +2.29 (neurological surgery). Except for the changes in neurological surgery, transplant surgery, and trauma surgery, all other specialties saw a statistically significant decrease from 2019 to 2020 industry payment based on the Mann-Whitney U test.

### Takeaways

**Question:** Have payments from industry to surgeons changed because of the COVID-19 pandemic?

**Findings:** Total payments to almost all surgical subspecialties have significantly decreased. The nature of payments has also changed.

**Meaning:** The COVID-19 pandemic has resulted in an unprecedented hit on the financial relationship between industry and surgeons. Continuous monitoring is required to evaluate for recovery of this relationship.

**Table 1. Payments to All Surgeons in 2019 and 2020**

	Financial Year 2019	Financial Year 2020
Number of surgeons included	96,350	79,320
Number of unique payments	1,383,363	692,371
Total amount of payments (in US dollars)	1,013,292,843	706,869,348
Average total amount and SD (per unique physician, in US dollars)	10,516.79 (274,494.53)	8911.62 (148,432.50)
Median total amount and interquartile range (per unique physician, in US dollars)	354.83 (109.69–1581.15)	177.42 (54.63–837.90)

Table 3 presents the breakdown of payments based on the different nature of payment. Most payments were for royalty or license in both 2019 and 2020. Charitable contribution and compensation for services other than consulting, including serving as faculty or as a speaker at a venue other than a continuing education program, were the only payment types that increased from 2019 to 2020. Table 4 presents the top payment categories across each subspecialty in 2019 and 2020.

**Table 2. Payments to All Surgeons by Surgical Specialty in 2019 and 2020 in US Dollars**

Specialty	Financial Year 2019				Financial Year 2020				Relative Differences (%)	<i>P</i>
	Total Payments	%	Average Payment	SD	Total Payments	%	Average Payment	SD		
General surgery	77,990,994.25	7.70	354.68	12,151.15	43,856,601.73	6.20	436.15	4273.35	-43.77	<0.0001
Neurological surgery	89,470,037.74	8.83	1062.07	21,345.45	91,522,091.38	12.95	2031.48	82,955.23	2.29	0.2002
Ophthalmology	68,226,879.66	6.73	348.03	19,648.05	37,699,759.27	5.33	336.90	7091.38	-44.74	<0.0001
Oral & maxillofacial surgery	567,322.88	0.06	385.15	1719.11	306,830.04	0.04	537.36	3256.05	-45.92	0.0188
Orthopaedics	588,989,394.00	58.13	1585.50	101,583.52	436,137,629.00	61.70	2363.15	42,213.05	-25.95	<0.0001
Otolaryngology	15,141,176.39	1.49	215.38	9272.10	6,466,816.55	0.91	186.40	1453.03	-57.29	<0.0001
Plastic surgery	47,929,752.87	4.73	665.28	39,061.46	33,319,238.14	4.71	1112.64	59,910.93	-30.48	<0.0001
Thoracic surgery	63,481,003.92	6.26	878.02	138,251.34	22,441,818.51	3.17	659.22	28,268.68	-64.65	<0.0001
Transplant surgery	1,674,174.10	0.17	439.42	1264.95	1,100,703.43	0.16	582.07	1736.36	-34.25	0.7366
Trauma surgery	1,140,739.70	0.11	317.93	1308.40	610,696.21	0.09	373.51	1670.55	-46.46	0.1712
Urology	40,415,122.98	3.99	186.26	6921.23	23,257,764.23	3.29	212.25	3739.16	-42.45	<0.0001
Vascular surgery	18,266,245.06	1.80	256.50	3596.13	10,149,398.77	1.44	267.45	3774.62	-44.44	<0.0001

**Table 3. Nature of Payments to All Surgeons in 2019 and 2020, and Relative Differences in US Dollars**

Nature of Payments	Total Payments in 2019	Total Payments in 2020	Relative Differences (%)	P
Charitable contribution	123,212.11	150,924.18	22.49	0.1198
Compensation for services other than consulting, including serving as faculty or as a speaker at a venue other than a continuing education program	19,597,710.00	53,095,620.78	170.93	<0.0001
Compensation for serving as faculty or as a speaker for a nonaccredited and noncertified continuing education program	4,988,903.76	1,563,388.33	-68.66	<0.0001
Compensation for serving as faculty or as a speaker for an accredited or certified continuing education program	1,519,246.43	788,766.26	-48.08	<0.0001
Consulting Fee	156,750,799.00	11,397,938.00	-92.73	<0.0001
Current or prospective ownership or investment interest	54,434,779.03	42,571,219.52	-21.79	0.0003
Education	39,243,619.01	28,897,804.85	-26.36	<0.0001
Entertainment	60,416.40	13,422.30	-77.78	0.0007
Food and beverage	45,411,896.46	19,813,373.60	-56.37	<0.0001
Gift	4,936,132.69	1,414,289.33	-71.35	<0.0001
Grant	7,971,155.67	7,909,073.76	-0.78	<0.0001
Honoraria	11,597,669.42	6,033,167.10	-47.98	<0.0001
Royalty or license	429,422,369.00	414,621,974.00	-3.45	0.8668
Travel and lodging	60,855,542.04	16,016,943.19	-73.68	<0.0001

**Table 4. Top Payment Groups (Based on Total Amount of USD Spent) in 2019 and 2020 per Surgical Subspecialty**

Subspecialty	Financial Year 2019	Financial Year 2020
General surgery	Consulting fee	Education
Neurological surgery	Royalty or license	Royalty or license
Ophthalmology	Compensation for services other than consulting, including serving as Faculty or as a speaker at a venue other than a continuing education program	Consulting fee
Oral and maxillofacial surgery	Consulting fee	Royalty or license
Orthopaedics	Royalty or license	Royalty or license
Otolaryngology	Consulting fee	Consulting fee
Plastic surgery	Royalty or license	Royalty or license
Thoracic surgery	Current or prospective ownership or investment interest	Consulting fee
Transplant surgery	Consulting fee	Consulting fee
Trauma surgery	Consulting fee	Consulting fee
Urology	Compensation for services other than consulting, including serving as Faculty or as a speaker at a venue other than a continuing education program	Consulting fee
Vascular surgery	Consulting fee	Consulting fee

**DISCUSSION**

The Physician Payments Sunshine Act and the OPP have allowed for the public reporting of payments made between industry and medical providers. Analysis and comparison of payments from 2019 and 2020 revealed that total payments made between industry and all physicians and surgeons decreased significantly. Following the pandemic outbreak, most hospitals enacted health safety guidelines recommending the rescheduling or canceling of routine and elective procedures to decrease patient and provider viral exposure. Consequently, significant practice changes occurred, including a 60% decline in office-based interactions within the first month of the pandemic, and overall hospital losses estimated at \$323.1 billion dollars for the 2020 year.<sup>3</sup> With precipitous declines in provider services across all medical and surgical specialties,<sup>4</sup> we hypothesized that industry-provider payments would decrease as well. In fact, our analysis showed just that. Our study found that industry payments decreased

significantly to all surgeons and the majority of individual surgical specialties when analyzed discretely.

In addition, our analysis showed that the nature of industry payments to physicians has also changed. Before COVID-19, typical industry payments included funding of travel fees, consultation services, grants, and educational activities. With physicians consumed by COVID-19 relief efforts, many activities outside patient care were postponed or canceled due to deployment in intensive care units and emergency departments. Many educational initiatives such as weekly case conferences and societal meetings were moved to virtual platforms.<sup>5</sup> Although these innovative solutions allowed for a certain degree of continued learning, minimal (if any) industry funding was required, as attendance did not necessitate expensive travel-related costs.

On the other hand, post-COVID-19 payments for charitable contributions and compensation for services other than consulting have increased. This trend

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parallels that of charitable donations from all American citizens during 2020, which totaled a record \$471 billion dollars, representing a 3.8% rise from the previous year.<sup>6</sup> An increase in payments related to serving as faculty at another institution, unrelated to continuing medical education, may have occurred due to cross-institutional collaboration and teaching provided by pandemic and acute care experts. The sharing of important skill sets with smaller community hospitals and the education of physicians without similar training backgrounds has been beneficial in pandemic management and health system resilience.<sup>7</sup>

Regarding different subspecialties, neurosurgery was the only specialty with an increase (2.29%), maybe related to the fact that neurosurgery even before the pandemic had only small year-to-year changes.<sup>8</sup> For plastic surgery, we observed a decrease in overall payments but an increase in average payment per transaction in 2020, which means that fewer transactions were made but for a higher amount of money, potentially related to the decrease of small transactions, such as the ones for trips or meals.

The present study is not without limitations. Conclusions are limited by the cross-sectional nature of the study. In addition, while we captured the majority of physician to industry financial relationships, we did not differentiate the volume or value of payments based on geographic location or academic institutions.

### CONCLUSIONS

The COVID-19 pandemic has resulted in an unprecedented financial challenge for both the healthcare system as a whole and for individual medical fields. As quantified by the OPP database under the Physician Payments Sunshine Act, physician industry payments have significantly decreased for all surgeons, and most surgeons practicing in subspecialized fields. By comparing across different specialties and analyzing overall trends regarding type of industry payments, we can understand which physicians were most affected by COVID-19 and extrapolate how this will affect their practices moving forward.

### ACKNOWLEDGMENTS

*The authors thank Yanyu Zhang for performing all statistical analysis related to this study. This study conforms to the Declaration of Helsinki ethical principles for medical research.*

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