



Trend in Industry Payments to Otolaryngologists in the United States during the COVID-19 Pandemic: A Seven-Year Analysis of the Open Payments Database from 2014 to 2020

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Abstract

The Open Payments Database, a legal-binding transparency was initiated in 2010 in the United States, and since then, an increasing trend in the industry payments to otolaryngologists was observed a few years after the enactment. This study evaluated the influence of the COVID-19 pandemic on the trend in non-research payments to otolaryngologists in the United States between January 2014 and December 2020. A total of 12,618 otolaryngologists received 55,067 general payments totaling \$80,019,175 between 2014 and 2020. The payments per physician and the number of physicians receiving payments declined by -63.3% (95% Confidence Interval [95% CI]: -70.1% – -55.0%, p<0.001) and -63.7% (95% CI: -64.8% – -62.5%, p<0.001) at the beginning of the COVID-19 pandemic, respectively, while there was a recovery trend of 6.4% (95% CI: 5.9%-6.9%, p<0.001) monthly increase in number of physicians receiving payments.

Keywords: COVID-19; Poisson distribution; Otolaryngologists

Introduction

Growing public demand towards transparency in financial relationships between industry and physicians led to the creation of the Open Payments Database, a legal-binding transparency initiative in 2010 [1]. Although the Open Payments Database was expected to decrease financial transactions from industry by putting public pressure on the transactions there was an increasing trend in the industry payments to otolaryngologists in the United States a few years after the enactment [1-4]. Also, a number of studies have shown that otolaryngologists were influenced by industry payments in favor of companies in the United States [5]. The sudden, urgent COVID-19 pandemic could have restricted the financial relationships between industry and otolaryngologists, but there was lack of evidence assessing the trend in industry payments during the COVID-19 pandemic.

Materials and Methods

This study evaluated the influence of the COVID-19 pandemic on the trend in non-research payments to otolaryngologists in the United States. All general payments made to the otolaryngologists between January 2014 and December 2020 was extracted from the Open Payments Database. The trends in payments before and during the COVID-19 pandemic were estimated by the Interrupted Time Series (ITS) analysis using the Generalized Estimating Equation (GEE) models with the panel-data of monthly payments at physician level. Since the payment distribution was highly skewed, the negative binomial regression GEE model for the per-physician payments and linear log-linked GEE model with Poisson distribution for the number of physicians receiving payments were used [6]. As the national emergency concerning the COVID-19 pandemic was declared in the United States on March 13th, 2020, we divided the study period into before (January 2014 to February 2020) and during the pandemic (March to December 2020). To adjust the seasonal fluctuation trend, month

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Table 1: Characteristics of annual general payments to otolaryngologists between 2014 and 2020.

Variables	Year							Relative change rate (95% CI), %		Overall
	2014	2015	2016	2017	2018	2019	2020	Average annual change	2014-2019 vs. 2020	
Total payments, \$	8,805,212	9,899,228	1,4750,881	11,324,192	11,156,255	16,777,185	7,306,221	–	–	80,019,175
Number of physicians with payments, n	7,907	7,963	8,003	8,190	8,323	8,337	6,344	1.2*** (0.9–1.5)	-25.1*** (-26.3– -23.9)	12,618
Payments per physician, \$										
Median (IQR)	170 (62-411)	166 (65-444)	175 (68-507)	161 (65-425)	176 (69-440)	192 (78-520)	114 (41-274)	10.1*** (4.3–16.2)	-56.2*** (-65.6– -44.3)	164 (63-431)
Average (SD)	1,114 (6,136)	1,243 (8,110)	1,843 (16,635)	1,383 (10,407)	1,340 (9,537)	2,013 (28,786)	1,156 (9,315)			1,454 (14,850)

*P<0.05, **P<0.01, ***P<0.001

Abbreviations: 95% CI: 95% Confidence Interval; IQR: Interquartile Range; SD: Standard Deviation

variables were included in the ITS models. The magnitude and trends in industry payments were also annually analyzed using descriptive statistics and the GEE models with panel-data of annual payments per physician.

Results

A total of 12,618 otolaryngologists received 55,067 general payments totaling \$80,019,175 between 2014 and 2020. The payments per physician and the number of physicians receiving payments declined by -63.3% (95% confidence interval [95% CI]: -70.1% – -55.0%, p<0.001) and -63.7% (95% CI: -64.8% – -62.5%, p<0.001) at the beginning of the COVID-19 pandemic, respectively (Figure 1). However, the recovery trend was recorded at 6.4% (95% CI: 5.9%–6.9%, p<0.001) monthly increase in number of physicians receiving payments, while the monthly payments per physician remained stable (relative monthly change rate: 1.2% [95% CI: -3.5%–6.2%], p=0.63). The yearly total payment increased from \$8,805,212 in 2014 to \$16,777,185 in 2019, with an average relative annual increase rate of 10.1% (95% CI: 4.3%–16.2%, p<0.001) in payments per physician. However, the annual payments per physician and number of physicians receiving payments decreased by -56.2 (95% CI: -65.6 – -44.3, p<0.001) and -25.1% (95% CI: -26.3%–23.9%,

p<0.001) in 2020 compared to those between 2014 and 2019 (Table 1).

Discussion

This seven-year analysis of the Open Payments elucidated that the industry payments to otolaryngologists decreased by more than sixty percent at the beginning of the COVID-19 pandemic. Considering that there were recovering trends in payments and that development and rapid roll-out of novel COVID-19 vaccine led to prompt resuming economic activities in the United States, the payment declines due to the COVID-19 pandemic could be considered temporary. Despite several limitations of this study, such as non-inclusion of otolaryngologists without payments and non-inclusion of payments for ownership and research, we conclude that the decline in payments in 2020 may be temporally due to the COVID-19 pandemic and further research is required to assess the recovery trend after the pandemic.

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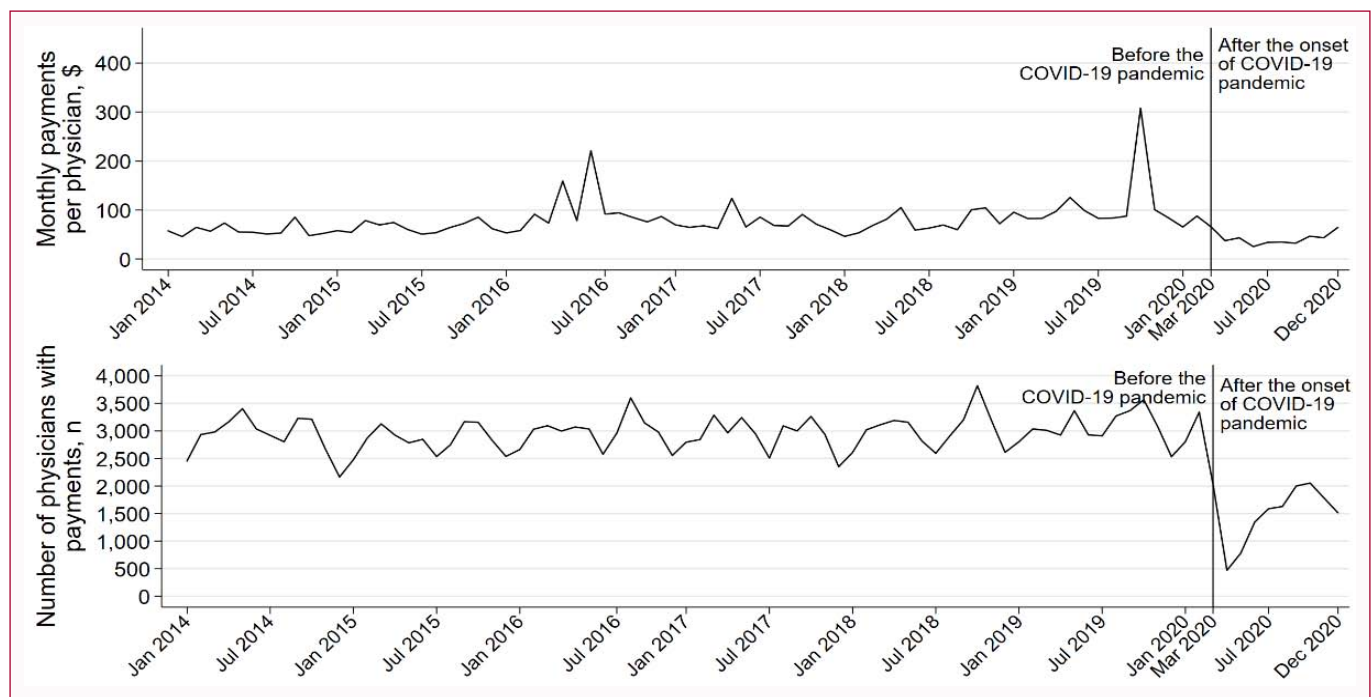


Figure 1: Monthly trend in general payments per physician and number of physicians with payments between 2014 and 2020 in otolaryngology in the United States.

dispensing pharmacy, outside the scope of the submitted work. Dr. Tanimoto also received personal fees from Bionics Co. Ltd, a medical device company, outside the scope of the submitted work.

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