



Leaders in Urologic Education and Their Relationship to Industry: An Analysis of Sunshine Act Open Payments From 2014-2016

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OBJECTIVE	To examine trends in the financial relationship between biomedical companies and leaders in urologic education during the first 3 full calendar years since implementation of the Sunshine Act.
METHODS	All accredited American Urological Association (AUA) residency programs were identified using the AUA website. Urology program directors and department chairs of the affiliated institutions were identified using residency program or urology department websites. Urology journal editors who practice in the United States were identified using the SCImago Journal & Country Rank website. All identified individuals were categorized by urologic subspecialty and AUA region based on information stated on their corresponding websites. Payment data for each individual from 2014 to 2016 was accessed using the Centers for Medicare and Medicaid Services Open Payments website, and statistical analyses were performed to elucidate trends based on leadership position, urologic specialty, AUA region, payment type, and overall payments over time.
RESULTS	Out of the 239 urologists identified, 85%, 78%, and 91% received some sort of payment in 2014, 2015, and 2016, respectively. Department chairs accepted payments more readily than program directors and journal editors in all years. Average total payments for all urologists increased yearly, with mean general payments trending down and mean research payments trending up.
CONCLUSION	The Sunshine Act was passed in part to promote transparency of the physician-industry relationship. Though the proportion of urologic leaders accepting payments between 2014 and 2016 did not change significantly, increased public scrutiny could have contributed to the decrease in yearly general payments and the increase in yearly research payments. UROLOGY 123: 53–58, 2019. © 2018 Elsevier Inc.

The extent of financial relationships between physicians and the biomedical industry has been a long-standing subject of controversy.¹ An estimated \$57 billion was spent on marketing in 2004 by pharmaceutical companies in the United States, nearly double of what was spent on research and development.² In a national survey of 3167 physicians from various specialties, 94% reported some type of relationship with the pharmaceutical industry. Gifts were received by 83% of these physicians, and 28% received payments for consulting, speaking, or enrolling patients in trials.³

The implications of these relationships are not fully understood. Most studies describe negative impacts of pharmaceutical-physician relationships, such as physician tendency to alter their prescribing patterns, or an inability

to identify incorrect claims about a medication.¹ The impact of these relationships on resident education has also been questioned. Some have argued that industry profit motives are contradictory to physicians' goals of patient care, and therefore should be excluded from educational settings. On the other hand, these relationships may be essential in supporting research and education, and in bringing new technologies into practice.⁴ One survey of 81 residents and 196 faculty at a large medicine department revealed that over 60% of residents and faculty believed industry income or gifts could influence teaching.⁵

In March 2010, Congress signed into law the Sunshine Act, also known as Section 6002 of the Patient Protection and Affordable Care Act. The goals of this act are to encourage transparency about financial ties, provide information on nature and extent of relationships, identify relationships that can lead to the development of new technology, and to prevent inappropriate influence on research, education, and clinical decision making.⁵ The law requires manufacturers of drugs, devices, and biological or medical supplies covered by

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Medicare, Medicaid, or the Children's Health Insurance Program to report payments made to physicians and teaching hospitals to the Centers for Medicare and Medicaid Services (CMS). Examples of payments include consulting, speaking, gifts, travel, education, research, and charitable contributions. Reporting of physician and immediate family member ownership or investment interests in these manufacturers is also required.^{6,7} Implementation of the Sunshine Act began in August 2013, and as part of the CMS Open Payments program, all data are made publicly available on the CMS website.⁸

Our study sought to assess financial relationships between leaders in urologic education and industry utilizing the Open Payments database. Identification of industry relationships with urology program directors, department chairs, and journal editors is an important step in elucidating potential conflicts of interest and their influence on urologic education.

METHODS

All accredited American Urological Association (AUA) Urology Residency programs were identified using the AUA website.⁹ Program directors and department chairs were then identified utilizing respective residency program or urology department websites. These individuals were categorized into one of the following urologic subspecialties based on information obtained from department websites: oncology, endourology, pediatrics, female or neurourology, reconstructive, or male infertility and sexual dysfunction.

A search for all urology journals was performed on the Scimago Journal & Country Rank website, which is publicly-available portal based on the Scopus database.¹⁰ All chief journal editors that practice in the United States were also identified and categorized into urologic subspecialty.

Using the CMS Open Payments website, general payments, research payments, amount invested, and value of investments were identified from 2014 to 2016.⁸ Data from 2013 was not included in this study, due to only 5 months of payments having been reported that year. Mean total yearly dollar amounts (in USD) for each category of payment were calculated. These yearly means were then compared across leadership positions, as well as among urologic subspecialties. Yearly means were also compared across different regions, as defined by AUA sections. Total yearly payments are based on the sum of general and research payments, and do not include amounts invested by urologists in biomedical manufacturers, nor the value of interest, as

these categories do not describe physical payments made to urologists on a given year. The proportions of individuals receiving payment each year were also compared within these categories.

Furthermore, general payments were subdivided into the following categories: food and beverage, travel and lodging, consulting, education, continuing medical education (CME) speaking, and other, based on information reported on the Open Payments database. The "other" category includes payments such as gifts, royalties, and non-CME speaking engagements. The proportion of overall urologists receiving each payment type, as well as the value of the average annual payment within each of these payment categories were calculated.

Data were summarized using descriptive statistics. The chi-squared test was used to compare categorical variables. *P* values <.05 were considered significant. All analyses were performed using Excel 2016 (Microsoft Corporation, Redmond, WA).

RESULTS

A total of 137 residency programs were identified, from which 137 program directors and 132 department chairs were found. From 95 total urologic journals identified, 18 journals had a US-based urologist as chief editor, and therefore were included in this study. Total 239 individuals were identified. Of these, 55% were department chairs, 57% program directors, and 8% chief journal editors. In terms of urologic subspecialties, 20 (8%) are pediatric urologists, 23 (10%) endourologists, 138 (58%) urologic oncologists, 27 (11%) female or neurourologists, 8 (3%) reconstructive urologists, and 23 (10%) male infertility and sexual dysfunction specialists.

Of the 239 identified urologists, 85% received some form of payment in 2014, 78% in 2015, and 91% in 2016. A higher proportion of department chairs received payment in all years, with 89% in 2014, 81% in 2015, and 87% in 2016, compared to program directors and journal editors. Journal editors had the lowest proportion of received payments each year, with 75% receiving payments in 2014, and 70% in both 2015 and 2016. When categorized by subspecialty, female/neurourologists had the highest percentage of their group receiving payments for 2014 (96%), and reconstructive urologists had the highest in 2015 and 2016 with 100% having received a payment. Pediatric urologists proportionally received the fewest payments all years, with 70% in 2014 and 55% in 2015 and 2016 (Table 1).

Between 2014 and 2015, there was a significant decrease in the percentage of urologists in this cohort receiving payments, from 85% to 78% (-7%, *P* = .04). Overall, however, the percentage of urologist receiving payments rose between 2014 and 2016, to a nonsignificant degree (85%-91%, *P* = .07).

Table 1. Percentage of urologists receiving any payment

Position	2014	2015	2016	Change 2014-2016	<i>P</i> Value
Chair	89.39%	81.06%	87.12%	-2.27%	.57
Program director	86.13%	79.56%	83.21%	-2.92%	.50
Editor	75.00%	70.00%	70.00%	-5.00%	.72
Pediatric	70.00%	55.00%	55.00%	-15.00%	.33
Endourology	91.30%	86.96%	95.65%	4.35%	.55
Oncology	85.51%	78.26%	82.61%	-2.90%	.51
Female/Neuro	96.30%	96.30%	92.59%	-3.70%	.55
Reconstructive	87.50%	100.00%	100.00%	12.50%	.30
Infertility	78.26%	60.87%	69.57%	-8.70%	.50
Overall	85.36%	78.24%	90.79%	5.44%	.07

Department chairs, program directors, and journal editors all had a decrease, although these were not statistically significant. Journal editors had the greatest decrease (−5%, $P = .72$) and program directors the lowest (−3%, $P = .5$). When categorized by subspecialty, most had a decrease in industry involvement from 2014 to 2016, although these changes were not statistically significant. Pediatric urologists had the greatest percent decrease (−15%, $P = .33$). The percentage of reconstructive urologists and endourologists with some industry involvement increased in this time span. The highest increase was seen with reconstructive urologists, from 88% to 100% ($P = .3$) (Table 1).

The average total yearly payment for all urologists in this cohort increased each year, from \$16,801 in 2014 up to \$22,939 in 2016. Mean yearly general payment decreased each year, from \$8243 in 2014 to \$6232 in 2016. Conversely, overall annual mean research payments increased from \$8558 to \$16,707 (Table 2).

When categorized by position, journal editors had the highest average total yearly payment in 2014 (\$37,539), and department chairs the highest in both 2015 and 2016 (\$253,945 and \$34,497). Program directors received the lowest mean total annual payment in the first 2 years (\$11,536 in 2014 and \$9834 in 2015). Editors had received the lowest total annual payment in third year studied (\$17,443). Department chairs had the highest value of investment interest all 3 years up to \$2332 in 2014 (Table 2).

When urologic subspecialty was considered, reconstructive urologists had the highest mean total annual payments in 2014 (\$28,293) and urologic oncologists the highest in 2015 and 2016 (\$21,141 and \$31,971). Pediatric urologists had the lowest total average annual payment all 3 years, as low as \$1271 in 2016. Infertility specialists had the highest mean annual general payment all years, to as high as \$16,338 in 2015. The highest mean annual research payments were received by reconstructive urologists the first 2 years (\$20,409 in 2014 and \$15,441 in 2015), and urologic oncologists in 2016 (\$26,382). On average, reconstructive urologists invested the most with manufacturers in 2014 (\$1656), whereas infertility specialists invested the highest average amount in 2015 (\$2011), and urologic oncologists in 2016 (\$4). In terms of value from investments, pediatric urologists, female/neurourologists, and infertility specialists in this cohort had 0 investment value reported (Table 2).

When general payments were subcategorized by payment type, we found “Food and Beverage” to be most prevalent, with 80% of urologists in 2014, 73% in 2015, and 75% in 2016 receiving a payment in this category. The least common payment type received each year was in the form of CME speaking (1% being the lowest in 2016). In terms of average annual value of payments, the “Other” category had the highest value each year (the highest being \$3529 in 2014) and “CME Speaking” the lowest (the lowest being \$38 in 2016) (Table 3).

Regional breakdown by AUA Sections revealed that the Southeast Section had the highest average general payments for 2014 and 2015 (\$16,074 and \$11,367), and the Mid Atlantic Section the highest in 2016 (\$11,793). The Northeast Section received the lowest average general payments all 3 years, ranging from \$156.97 to \$235.68. Annual averages for research are highest in the New York Section in 2014 and 2015 (\$17,797 and \$38,162), and highest in the Mid Atlantic Section in 2016 (\$82,662). Research payments are lowest for New England in 2014 and 2016, and lowest for the Southeast Section in 2015 (Fig. 1).

Table 2. Mean annual payments

Position	2014					2015					2016				
	General	Research	Amount invested	Interest value	Total	General	Research	Amount Invested	Interest Value	Total	General	Research	Amount Invested	Interest Value	Total
Chair (132)	10,372	9062	870	2332	19,434	9033	16,801	652	579	25,834	7469	27,028	2	3027	34,497
Program director (137)	5264	6237	270	361	11,502	6335	3818	1007	493	10,153	4710	18,092	1	199	22,802
Editor (20)	10,180	27,358	360	239	37,539	11,239	7041	0	375	18,280	13,325	4117	0	296	17,443
Pediatric (20)	871	727	0	0	1599	115	1445	0	0	1561	107	1165	0	0	1271
Endourology (23)	17,620	3101	447	370	20,721	9786	3908	135	576	13,694	8618	643	0	257	9261
Oncology (138)	6603	11,225	730	2225	17,828	6653	14,908	573	561	21,561	5590	26,382	4	2922	31,971
Female/Neuro (27)	10,295	4516	0	0	14,811	10,444	3791	403	0	14,235	7523	7209	0	0	14,732
Reconstructive (8)	7883	20,409	1656	1770	28,293	3159	15,441	1659	1888	18,600	5731	5188	0	874	10,919
Infertility (23)	12,833	5448	0	0	18,282	16,338	761	2011	0	17,099	11,681	3398	0	0	15,079
Overall	8243	8558	520	1380	16,801	7651	10,124	638	442	17,774	6232	16,707	2	1741	22,939

Table 3. Subcategory percentage of urologists receiving payments and mean payments

	Year	Food and Beverage	Travel and Lodging	Consulting	Education	Other	CME	Total General	Research
% Receiving	2014	79.50%	28.45%	23.85%	23.85%	19.25%	2.09%	82.43%	21.34%
	2015	73.22%	23.85%	22.59%	17.99%	16.32%	2.51%	76.99%	17.57%
	2016	74.90%	23.85%	18.83%	24.27%	15.90%	1.26%	78.66%	21.76%
Mean	2014	\$527.06	\$1021.26	\$2536.79	\$487.89	\$3528.87	\$38.64	\$8243.00	\$8578.31
	2015	\$442.08	\$1174.29	\$2332.69	\$950.92	\$2412.02	\$116.59	\$7650.52	\$10,063.67
	2016	\$415.03	\$920.77	\$1656.32	\$486.60	\$2715.22	\$37.66	\$6231.64	\$16,707.31

DISCUSSION

We found that industry funding was common, with up to 91% of urologist receiving payments during the time course of this study. This is in line with a prior survey of

physicians in various specialties reporting 94% involvement with industry.³ One study using the 2013 Open Payments data investigated the financial relationships of colorectal fellowship program directors and faculty within

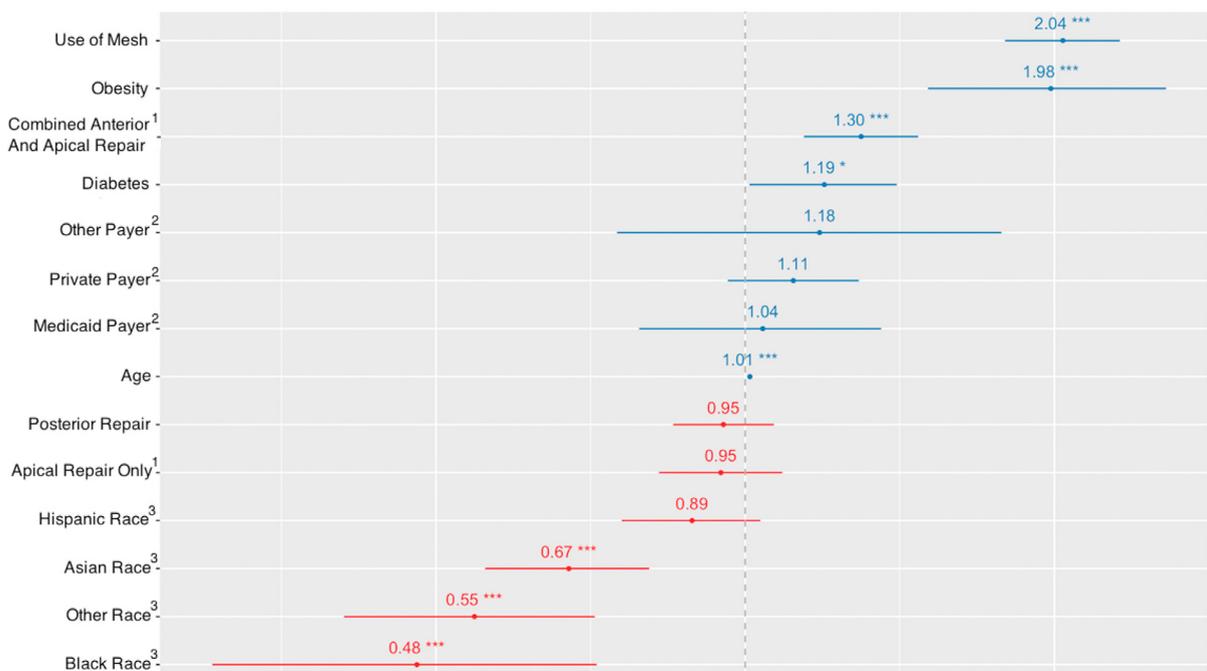


Figure 1. Mean regional payments trends. (Color version available online.)

those departments. It revealed that a higher percentage of program directors compared to other faculty (69% vs 59%) had received at least 1 payment from industry that year.¹¹

Another study utilizing the 2013 Open Payments data compared payments among various surgical subspecialties, including orthopedics, plastic surgery, ENT, neurosurgery, and urology.¹² Urologists overall were reported to have a 60% rate of industry involvement, the second highest rate when compared to the other subspecialties. Our data reveals a notably higher rate of involvement, which may suggest that urologists involved in urologic education have a greater degree of industry involvement than urologists in general. It must be noted, that this is not a direct comparison, as our study analyzed data from 2014 to 2016, not 2013. The figure reported for 2013 also may not accurately reflect urologist-industry relationships that year, as this data is based on 5 months of reporting only.

Comparison of yearly values between urologists involved in our cohort to both the specialty as a whole and all physicians may tell a clearer story. The urology general payment yearly mean reported by CMS ranges from \$3479 to \$3900 between 2014 and 2016. National averages are similar, ranging from \$3269 to \$3379. Our cohort is markedly higher each year for general payments, ranging from \$6231 to \$8243.

Overall mean annual payments in our study were greater than \$10,000 each year. This is notable in that when residents and faculty were surveyed on their perceptions of conflict of interest in medical education, 60% of respondents believed that industry income or gifts <\$10,000 could influence teaching.⁵ The true influence of industry involvement on education is unclear, however. In a survey of surgical residency program directors, more than 50% disagreed with the idea that industry compromises education, and a majority of program directors believed that industry in fact supports education.⁴ There exists significant contradictions among physicians as to the degree that industry relationships create conflict of interest. In 1 questionnaire, although 40% of physicians admitted that industry sponsorship of conferences could create conflicts of interest, 86% of these respondents did not believe their own practice was influenced.¹³ Patients, however, reach a more common consensus when it comes to industry-physician relationships. One survey of patient perception deduced that out of 192 participants, 59% indicated they would have less trust in their physician if they learned that their physician accepted gifts >\$100 or went on industry-sponsored trips.¹⁴

Delineating the types of relationships industry has with physicians is therefore more important than simply identifying the existence of a relationship. To that end, a subcategory analysis of general payments reveals that the largest percentage of urologists in our cohort received payments in the form of food and beverage, and the smallest percentage received payments for CME speaking and education. Additionally, a larger percentage received general payments each year compared to

research payments. The highest value payments were in research both years, however when looking at general payment subtypes, "Other" payments (gifts, royalties, non-CME speaking) outweigh both payments for education and CME speaking.

Of note, regional variability in the types of industry involvement is suggested by our findings. Urologists in this cohort belonging to the Northeast Section received the lowest general payments of any AUA Section all 3 years. The Mid Atlantic Section had the highest average payment for both the general and research categories in 2016. The reasons for these differences are unclear, but may include institutional culture, local regulations, varying political environments, or the influences of patient opinion.

In our cohort, the percentage of urologists involved with industry did not change significantly between 2014 and 2016. Although the total average annual payment itself increased, this is due to an increase in research payments, as general payments decreased during the time period. It is possible that greater attention by the public to industry-physician relationships in the time period preceding enactment of the Sunshine Act has spurred this trend. The requirement that all financial relationships between industry and physicians be reported and made publicly available may make some physicians hesitant to accept payments or develop new relationships with industry. Physicians may be concerned about disapproval from colleagues or the prospect of patients selecting a provider with fewer perceived conflicts of industry. Analysis of data from future years will provide further insight into whether our findings reflect a true downtrend in general payments, or if the decrease is simply a year to year variation.

An analysis of payments made to this cohort in the time period preceding enactment of the Sunshine Act would be valuable in order to more fully assess whether mandatory reporting has spurred change in the industry-physician relationship. Previous studies or adequate data in this regard are not available, however.

The rationale behind the Sunshine Act is to offer transparency as a means of limiting conflict of interest, by indirectly influencing the behavior of both physicians and those deciding whether or not to do business with them.¹⁵ This study adds to that transparency and reveals that a significant percentage of urologists involved in urologic education have a relationship with industry.

A limitation of this study was the overlap between the categories of job titles. For instance, several individuals were both program directors and department chairs. This confounds potential differences between the 2 groups, as the payments received by a single individual were factored into the averages for both.

CONCLUSION

Since the implementation of the Sunshine Act in 2013, several trends have emerged with regards to the financial ties between pharmaceutical companies and persons of

influence in urologic education. Between 2014 and 2016, the majority (up to 91% in 2016) of directors and chairmen of academic urologic programs and journal editors of urologic journals accepted some sort of industry payment. During this time period, the average total yearly payment received by these individuals increased from \$16,801 to \$22,939. However, nonresearch-related payments trended down while research-related payments trended up. While the exact impact of industry sponsorship on urologic education and practice remains to be determined, the Sunshine Act promotes transparency and the findings of this study allow patients to make more informed decisions when selecting their physicians.

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