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.
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. 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.

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. 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 SCI-mago Journal & Country Rank website, which is publicly-available portal based on the Scopus database. 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. 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 proportions 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/neurologists 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 70% in both 2015 and 2016. When categorized by specialty, 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).

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Chair</td>
<td>89.39%</td>
<td>81.06%</td>
<td>87.12%</td>
<td>−2.27%</td>
<td>.57</td>
</tr>
<tr>
<td>Program director</td>
<td>86.13%</td>
<td>79.56%</td>
<td>83.21%</td>
<td>−2.92%</td>
<td>.50</td>
</tr>
<tr>
<td>Editor</td>
<td>75.00%</td>
<td>70.00%</td>
<td>70.00%</td>
<td>−5.00%</td>
<td>.72</td>
</tr>
<tr>
<td>Pediatric</td>
<td>70.00%</td>
<td>55.00%</td>
<td>55.00%</td>
<td>−15.00%</td>
<td>.33</td>
</tr>
<tr>
<td>Endourology</td>
<td>91.30%</td>
<td>86.96%</td>
<td>95.65%</td>
<td>4.35%</td>
<td>.55</td>
</tr>
<tr>
<td>Oncology</td>
<td>85.51%</td>
<td>78.26%</td>
<td>82.61%</td>
<td>−2.90%</td>
<td>.51</td>
</tr>
<tr>
<td>Female/Neuro</td>
<td>96.30%</td>
<td>96.30%</td>
<td>92.59%</td>
<td>−3.70%</td>
<td>.55</td>
</tr>
<tr>
<td>Reconstructive</td>
<td>87.50%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>12.50%</td>
<td>.30</td>
</tr>
<tr>
<td>Infertility</td>
<td>78.26%</td>
<td>60.87%</td>
<td>69.57%</td>
<td>−8.70%</td>
<td>.50</td>
</tr>
<tr>
<td>Overall</td>
<td>85.36%</td>
<td>78.24%</td>
<td>90.79%</td>
<td>5.44%</td>
<td>.07</td>
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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 annual payment each year, as low as $1271 in 2016. Infertility specialists had the highest mean 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, reconstructive 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).
DISCUSSION

We found that industry funding was common, with up to 91% of urologists 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. One study using the 2013 Open Payments data investigated the financial relationships of colorectal fellowship program directors and faculty within

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

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

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.

References