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Academic Influence and Its Relationship to Industry Payments in Orthopaedic Surgery

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Abstract

Background: The Hirsch index (h-index) quantifies research publication productivity for an individual, and has widely been considered a valuable measure of academic influence. In 2010, the Physician Payments Sunshine Act (PPSA) was introduced as a way to increase transparency regarding U.S. physician-industry relationships. The purpose of this study was to investigate the relationship between industry payments and academic influence as measured by the h-index and number of publications among orthopaedic surgeons. We also examined the relationship of the h-index to National Institutes of Health (NIH) funding.

Methods: The h-indices of faculty members at academic orthopaedic surgery residency programs were obtained using the Scopus database. The PPSA web site was used to abstract their 2014 industry payments. NIH funding data were obtained from the NIH web site. Mann-Whitney U testing and Spearman correlations were used to explore the relationships.

Results: Of 3,501 surgeons, 78.3% received nonresearch payments, 9.2% received research payments, and 0.9% received NIH support. Nonresearch payments ranged from \$6 to \$4,538,501, whereas research payments ranged from \$16 to \$517,007. Surgeons receiving NIH or industry research funding had a significantly higher mean h-index and number of publications than those not receiving such funding. Surgeons receiving nonresearch industry payments had a slightly higher mean h-index and number of publications than those not receiving these kinds of payments. Both the h-index and the number of publications had weak positive correlations with industry nonresearch payment amount, industry research payment amount, and total number of industry payments.

Conclusions: There are large differences in industry payment size and distribution among academic surgeons. The small percentage of academic surgeons who receive industry research support or NIH funding tend to have higher h-indices. For the overall population of orthopaedic surgery faculty, the h-index correlates poorly with the dollar amount and the total number of industry research payments. Regarding nonresearch industry payments, the h-index also appears to correlate poorly with the

number and the dollar amount of payments. These results are encouraging because they suggest that industry bias may play a smaller role in the orthopaedic literature than previously thought.