The role of private funding of scientific endeavors in orthopedic surgery is significant [1-4]. This is due, in part, to the scarcity of traditional funding resources for biomedical research such as the National Institute of Health and the Orthopedic Research Education Foundation. As a result, the intellectual and financial partnerships between physicians and industry have been increasingly important to biomedical advances in orthopedic surgery [3,5]. These partnerships take on various forms, including research support, consulting agreements, intellectual/property rights, direct employment, and even part ownership. While proper validation of new technologies are important to physicians, industry, and the general public, the presence of private industry funding poses the potential for conflict of interest (COI) regarding the dissemination and unbiased critical evaluation of research studies [6-9].

Previous studies have demonstrated the potential for biases that may compromise the quality and integrity of industry-supported clinical research [2,7-9]. Close industry ties, such as direct financial relationships, may negatively influence the judgment of physicians who are responsible for the impartial publication, presentation, and interpretation of clinical trials [6]. As a result, major orthopedic surgical organizations, including the American Academy of Orthopaedic Surgeons (AAOS), have required author COI disclosures to foster transparency regarding physician-industry ties. In addition, recent government programs including the Open Payments program of the US Centers for Medicare & Medicaid Services, and legislation including the Physician Payments Sunshine Act of 2007 and the Patient Protection and Affordable Care Act of 2010 have reinforced the necessity for full financial disclosure [10]. Ostensibly, these disclosures are beneficial as they better inform the general public and academic community regarding possible sources of authorship bias [11-13].
Unfortunately, the guidelines for disclosure vary between organizations, and the ambiguity regarding the definition of COI may lead to confusion regarding full and appropriate physician reporting [14-16]. For example, an inclusive disclosure policy may require reporting all financial interactions with any corporate entity, whereas a limited definition may include only financial interactions that are directly or indirectly related to the presentation or journal article in question; these policies are also known as “global disclosure,” and “project-specific disclosure,” respectively [14,15].

Previous studies in the fields of sports medicine, spine surgery, and orthopedic trauma demonstrate discrepancies in COI disclosure made at separate academic meetings within the same year and between academic meetings and industry reports [14,17,18]. Arthroplasty surgeons and patients rely on unbiased reporting of scientific results regarding orthopedic implants; however, to date, there are no studies examining the discrepancies of COI disclosures at major arthroplasty meetings. The purpose of this study was to describe authors’ disclosures at 3 recent major arthroplasty conferences: the annual meetings of the AAOS, the American Association of Hip and Knee Surgeons (AAHKS), Hip Society (HS), and Knee Society (KS), and quantify the discrepancies between disclosure reporting between these academic meetings.

Material and Methods

Self-reported disclosures from the following 4 major arthroplasty annual meetings were compiled for use in this study: the 2012 annual meetings for the AAOS, the AAHKS, HS, and KS [19-22]. Self-reported disclosure data from the authors for each conference and the disclosure policies for each meeting were obtained from meeting programs. Notably, the AAOS required global disclosure from its participants, including “all financial relationships with any corporate entity” [19]. In contrast, the disclosure policies for AAHKS, HS, and KS were limited, requiring the disclosure of financial relationships “which relate directly or indirectly to the subject” of the presentation [20,21].

Pertinent characteristics recorded from each conference included: (1) total number of presenters, (2) number of presenters with financial disclosures, (3) number of disclosures per author (among authors with disclosures), (4) total number of companies/entities supporting each author (among authors with disclosures) and (5) percentage breakdown of each type of disclosure into 9 specific categories (ie, royalties, paid speaker, employee, paid consultant, nonpaid consultant, stock options, research support, other support, and publishers). As the AAOS had an inclusive policy, it was compared against the smaller specialty conferences with project-specific disclosure policies (AAHKS, HS, and KS). Authors who had presented at both the AAOS and at least one of the other meetings were identified and discrepancies (defined as a disclosure which was not made at the AAOS meeting [global disclosure policy], but which was made at one of the other meetings [project-specific policy]) were recorded.

Results

The total number of research presenters at the AAOS annual meeting was 5002, and of those who presented, 1649 (33.0%) had financial disclosures. The mean number of disclosures (among those who reported) was 4.01, with a range from 1 to 44. Most authors reported greater than 3 disclosures (n = 876, 53%), compared to 330 authors with 2 disclosures (20%), and 443 with 1 disclosure (27%). Despite this categorization, there was a progressive decrease in authors with increasing number of disclosures. Similarly, the mean number of companies/entities supporting each author (among those with disclosures), was 2.9, with a range of 1-33. Six hundred seventy-nine authors (41.2%) reported relationships with greater than 3 companies/entities, compared to 358 (21.7%) reporting 2 companies/entities, and 612 authors (37.1%) reporting one company/entity (Table 1). This also demonstrated a similar trend toward decreasing number of authors with increasing number of reported corporate affiliations per author. Regarding the specific type of disclosure, the most common type was paid consultant (51.5%), followed by research support (43.0%), paid speaker (34.8%), royalties (29.1%), stocks/ownership (27.9%), publisher (17.5%), unpaid consultant (11.7%), other support (11.0%), and employee (5.15%; Table 2).

The total number of presenters at the AAHKS annual meeting was 490, with 203 (41.4%) reporting disclosures, representing a total number of 879 disclosures. The mean number of disclosures was 4.33, with a range of 1-30. Forty-seven authors (23.1%) reported 1 disclosure, 37 (17.2%) reported 2 disclosures, and 121 (59.6%) reported greater than 3 disclosures (Table 1). The mean number of companies/entities supporting authors was 3.07, with a range of 1-25. Sixty-eight authors (33.5%) reported one corporate affiliation, 48 (23.6%) reported 2, and 87 (42.9%) reported greater than 3 corporate affiliations. Paid consultant was the most common form of disclosure (62.1%), followed by research support (46.8%), royalties (36.0%), paid speaker (34.0%), stocks/ownership (25.1%), publishers (14.3%), employee (5.9%), unpaid consultant (5.4%) and other support (5.4%; Table 2).

The total number of presenters at the AAHKS annual meeting was 490, with 203 (41.4%) reporting disclosures, representing a total number of 879 disclosures. The mean number of disclosures was 4.33, with a range of 1-30. Forty-seven authors (23.1%) reported 1 disclosure, 37 (17.2%) reported 2 disclosures, and 121 (59.6%) reported greater than 3 disclosures (Table 1). The mean number of companies/entities supporting authors was 3.07, with a range of 1-25. Sixty-eight authors (33.5%) reported one corporate affiliation, 48 (23.6%) reported 2, and 87 (42.9%) reported greater than 3 corporate affiliations. Paid consultant was the most common form of disclosure (62.1%), followed by research support (46.8%), royalties (36.0%), paid speaker (34.0%), stocks/ownership (25.1%), publishers (14.3%), employee (5.9%), unpaid consultant (5.4%) and other support (5.4%; Table 2).

The total number of presenters at the AAHKS annual meeting was 490, with 203 (41.4%) reporting disclosures, representing a total number of 879 disclosures. The mean number of disclosures was 4.33, with a range of 1-30. Forty-seven authors (23.1%) reported 1 disclosure, 37 (17.2%) reported 2 disclosures, and 121 (59.6%) reported greater than 3 disclosures (Table 1). The mean number of companies/entities supporting authors was 3.07, with a range of 1-25. Sixty-eight authors (33.5%) reported one corporate affiliation, 48 (23.6%) reported 2, and 87 (42.9%) reported greater than 3 corporate affiliations. Paid consultant was the most common form of disclosure (62.1%), followed by research support (46.8%), royalties (36.0%), paid speaker (34.0%), stocks/ownership (25.1%), publishers (14.3%), employee (5.9%), unpaid consultant (5.4%) and other support (5.4%; Table 2).

The KS meeting comprised 68 authors, with a majority (n = 51, 75.0%) reporting disclosures. The total number of disclosures was 300, resulting in a mean of 5.88 with a range of 1-17. Similar to the HS, a large majority of authors reported greater than 3 disclosures (n = 40, 78.4%), compared to 2 disclosures (n = 4, 7.8%) or 1 disclosure (n = 7, 13.7%; Table 1). The mean number of companies/entities supporting authors (among those who reported) was 3.15, with a range of 1-14. Thirty-nine authors (51.5%) reported 3 or more company affiliations, 17 authors (22.4%) reported 2, and 20 (26.3%) reported 1 corporate entity/company. Paid consultant was the most common form of disclosure (75.0%), followed by royalties (68.4%), research support (51.3%), paid speaker (34.2%), stocks/ownership (28.9%), publishers (19.7%), unpaid consultant (10.5%), other support (2.6%), and employee (1.3%; Table 2).

A total of 209 authors were represented at both the AAOS and AAHKS conferences. Of these, 79 (37.8%) were found to have discrepancies. The mean number of discrepancies was 2.42 with a range of 1-10. Twenty seven authors (34.2%) had greater than 3 discrepancies, 20 authors (25.3%) had 2 discrepancies, and 32 (40.5%) had 1 discrepancy. Despite the global disclosure requirement of the AAOS, 7 authors (8.8%) disclosed financial COIs to the AAHKS but none to the AAOS.

Eighty-four authors were represented at the AAOS and the HS meeting. Of these, 1 author (1.19%) was found to have one discrepancy.