BRIEF REPORT: Resident and Faculty Perceptions of Conflict of Interest in Medical Education

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OBJECTIVE: To determine resident and faculty perceptions of the pharmaceutical industry's influence on medical education.

DESIGN, SETTING, AND PARTICIPANTS: Anonymous survey of categorical residents and faculty in the department of medicine at a large, Midwestern, urban, independent academic medical center.

MAIN RESULTS: Eighty-one residents (69.2%) and 196 faculty (75.7%) responded to the survey. Residents believed that a significantly higher percentage of primary care and subspecialist faculty receives industry income or gifts compared to faculty respondents. Many faculty, and to a significantly greater degree residents, indicated that income or gifts influence the teaching of both internal attending physicians and visiting faculty in a variety of educational settings. The majority of residents (61.7%) and faculty (62.2%) believed that annual income or gifts less than \$10,000 could influence an attending physician's teaching. Most residents (65.4%) and faculty (74%) preferred that lecturers report all financial relationships with industry regardless of which relationships the lecturer believes are relevant.

CONCLUSIONS: Most internal medicine residents and their faculty perceive that industry influences teaching in different educational settings, and want teachers to disclose all of their financial relationships with industry. This information may guide further development of policies and curricula addressing industry relationships within graduate medical education.

KEY WORDS: conflict of interest; disclosure; medical education; pharmaceutical industry.

DOI: 10.1111/j.1525-1497.2005.04075.x
J GEN INTERN MED 2005; 20:357-359.

The pharmaceutical and medical device industry spends over \$13 billion annually marketing to physicians.¹ Industry funding supports clinical research, continuing medical education, and graduate medical education activities in academic medical centers.² Residents are willing to accept nominal gifts from the pharmaceutical industry, and residents and their faculty have surprisingly tolerant views of many industry marketing activities including those occurring within a teaching hospital.³ Some residency faculty accept nominal gifts from industry. Others participate in industry-funded research, serve on pharmaceutical speaker bureaus, or act as con-

sultants while also maintaining their teaching responsibilities.⁴ While previous studies document types of resident contact with industry or resident education about the pharmaceutical industry, no studies have defined resident and faculty perceptions of industry's influence on teacher-learner relationships.^{4,5} To determine the degree of resident- and faculty-perceived conflict of interest in an academic medical center, an anonymous and confidential questionnaire was distributed to internal medicine residents and faculty of a large urban teaching program.

METHODS

This study was conducted in the department of medicine at a large, Midwestern, urban academic medical center. The 117-resident sample contained 36 categorical residents each at the postgraduate year 1 (PGY-1), PGY-2, and PGY-3 levels; 7 residents in the internal medicine/emergency medicine residency program; and 2 chief medical residents. The faculty sample included 259 faculty; 40% were primary care faculty.

An anonymous survey was developed to assess resident and faculty perceptions of industry's influence on teaching. Content validity was addressed by assembling a multidisciplinary team consisting of a fellowship director with formal training in health services research (JDB), a doctoral-level education specialist with 10 years of graduate medical education experience and psychometrics including research and development of curriculum related to residents and the pharmaceutical industry (JLM), and 2 chief medical residents (AKK and PYW). The survey was pretested on 10 subspecialty fellows to assess for ambiguous, biased, or leading questions; they provided written feedback. Based on these results, 5 items from the original survey were revised. The final resident and staff surveys were identical with the exception of demographic questions. The research protocol and survey were approved by the medical center's Institutional Review Board.

In December 2002, surveys were placed in residents' mailboxes on 2 separate occasions, e-mail reminders were sent, and surveys were made available during resident conferences to encourage maximum participation. Faculty surveys were mailed through departmental mail on 2 separate occasions.

Data were entered into a computerized database (SPSS 12.0, SPSS Inc., Chicago, IL). Resident and faculty responses were compared using the independent samples *t* and the χ^2 tests. Statistical significance was set at $P < .05$.

RESULTS

Of 81 internal medicine residents (69.2%) who returned the survey, 32 were PGY-1, 20 PGY-2, and 29 PGY-3 or above. Of the 196 faculty (75.7%) returning the survey, 70 identified themselves as primary care physicians (67% response rate),

Accepted for publication October 21, 2004

In the past year, none of the authors has received income from the pharmaceutical industry or manufacturers of medical devices. JDB, JLM, and PYW acknowledge gifts/meals totaling less than \$10, and AKK acknowledges accepting meals at daily in-hospital educational conferences. All authors have financial ties to these industry sources as part of retirement savings and investment plans. An earlier version of this work was presented in part at the 2003 annual Society of General Internal Medicine meeting, Vancouver, British Columbia.

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119 as internal medicine subspecialty physicians (77% response rate), and 7 did not identify their specialty.

Residents estimated that a higher percentage of both primary care physicians and subspecialists received significant income or gifts from industry in the previous 12 months compared to all faculty respondents (primary care physicians, 22.7% vs 11.6%, $P < .001$; subspecialists, 36.6% vs 26.2%, $P = .005$). Subspecialty faculty respondents estimated that a higher percentage of primary care faculty received significant income or gifts from industry in the previous 12 months as compared to primary care faculty respondents (15.0% vs 6.9%, $P < .001$).

A greater percentage of resident responders compared to faculty believed that income or gifts influence the teaching of attending physicians in different educational settings. More residents than faculty believed that income or gifts from industry sources influence how attending physicians teach on rounds (46.9% vs 34.2%, $P = .06$), teach during in-hospital lectures and journal clubs (58.0% vs 30.1%, $P < .001$), and teach during out-of-hospital dinner lectures and journal clubs (80.2% vs 56.6%, $P = .001$). A high percentage of both residents and faculty believed that income or gifts from industry sources influence how visiting attending physicians teach during in-hospital lectures such as grand rounds (75.3% [residents] vs 59.7% [faculty], $P = .07$) and out-of-hospital dinner lectures and journal clubs (88.9% [residents] vs 72.4% [faculty], $P = .02$). There was no statistical difference detected among the resident responders according to PGY level.

The majority of residents (61.7%) and faculty (62.2%) believed that annual industry income or gifts less than \$10,000 could influence teaching by an attending physician (Fig. 1). There were no statistical differences between primary care and subspecialty physicians in response to this question.

When asked about their preferences for speakers/lecturers' reporting of potential conflicts of interest or financial relationships with industry, only 12 residents (14.8%) and 8 faculty (4.1%) felt reporting of potential conflicts of interest

was unnecessary. A minority of residents (19.7%) and faculty (19.4%) indicated that the speaker or lecturer should decide what relevant conflicts of interest to report. In total, 53 residents (65.4%) and 145 faculty (74%) preferred that all relationships with industry sources be reported. Furthermore, 21 residents (25.9%) and 61 faculty (31.1%) indicated that all financial relationships including their monetary value should be reported.

DISCUSSION

This study provides insight into resident and faculty perceptions of the influence of faculty-industry relationships on teaching. Familiarity with the faculty member and the learning venue impacts resident and faculty opinions of the degree to which industry influences medical education. While most residents and faculty agreed industry influence is at its highest during out-of-hospital events with visiting faculty, nearly half of the residents still believed there is industry influence during daily teaching rounds. This "venue-credibility" relationship suggests that faculty members face regular challenges to the perception of their teaching integrity.

We did not operationally define the term "significant gifts or income" within our survey, knowing that respondents would have different definitions; instead, we asked "the least amount of annual income or gifts from industry that could influence an attending physician's teaching". Most residents and faculty believed that annual gifts or income of less than \$10,000 could influence teaching, and 20% had a threshold of less than \$1,000. This is noteworthy considering the \$10,000 *de minimus* level currently referenced in the disclosure policies of several national organizations.⁶⁻⁸ While this monetary threshold may have been derived somewhat arbitrarily, the thresholds identified in this study could provide some evidentiary basis for future disclosure policies. On the other extreme, 8.6% of residents and 18.9% of faculty indicated that "no amount" of annual industry income or gifts could influ-

FIGURE 1. Annual amount of industry income or gifts that could influence teaching.

ence teaching, indicating the continuing need for resident curriculum and faculty development in the area of conflict of interest.

Importantly, nearly 3 out of 4 survey respondents desired disclosure of all financial relationships between teachers and industry, rather than just the relationships that teachers believe are relevant to educational topics. Although most educators would never knowingly misrepresent their financial relationships with industry, several reports note that individuals with conflicts of interest are often unable to remain objective due to an unintentional and unconscious, self-serving bias.^{9,10} Some residents and faculty desired no disclosure of teachers' relationships with industry. Although the reason for this is unknown, it may be another call for continued resident curriculum and faculty development. Biases may not be conscious or intentional, but denying that they exist prevents any effort to recognize their potential impact on medical education.

There were several limitations to our study. First, this survey involved a single department at 1 academic institution, which could limit generalizability. However, at the time of this survey, our academic institution was like many others, allowing industry representatives on campus, lacking formal curricula addressing physician-industry relationships, and permitting multiple opportunities for residents and faculty to interact with industry representatives. Second, our survey used a limited number of questions to maximize response rates and to ask a focused question, namely whether trainees and faculty *perceived* that industry influences medical education. Third, this study did not address whether industry influence is positive or negative. Clearly, it can be both. However, the literature is replete with evidence showing industry's influence in a direction favoring their own interests.¹¹⁻¹⁴ Finally, assessing actual influence would have been ideal, but was not done. This would have required reliance on unverifiable self-reports of personal income likely limiting response rates and candor. Whether or not teaching activities are actually influenced is not the main issue. Rather, the fact that both residents and their faculty *perceive* industry influence on medical education could be detrimental to the fundamental relationship between teachers and learners.

Whether full disclosure of faculty members' financial relationships with industry will improve or harm medical education remains unanswered. Instituting policies on full disclosure of financial relationships, however, could create a more transparent learning environment, fostering a greater sense of trust between teachers and learners. Limiting or banning industry income/gifts to teaching faculty is another potential strategy to enhance trust and is worthy of future study. In contrast, completely isolating residents from industry marketing activities during training is unlikely to prepare residents for future careers in which contact with industry is certain.¹⁵ However, curriculum development designed to help residents and faculty better understand and recognize industry influences may help learners gain insight into their own behaviors as well as those of their teachers.

Our study highlights important issues that should be contemplated by educators in residency training programs. Clinician-educators and training institutions should consider policies calling for full disclosure of all financial relationships with industry, and this disclosure should occur in all teaching venues. Learners want this information to discern conflicts of interest in order to make informed decisions about the practice of medicine.

The authors wish to thank Dr. Peter Coggan, Anne Dueweke, and Nicol Shamey for thoughtful review of the manuscript. This is an unfunded project in the Department of Internal Medicine at Henry Ford Hospital.

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