Institutional Academic–Industry Relationships

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Context Institutional academic–industry relationships have the potential of creating institutional conflicts of interest. To date there are no empirical data to support the establishment and evaluation of institutional policies and practices related to managing these relationships.

Objective To conduct a national survey of department chairs about the nature, extent, and consequences of institutional–academic industry relationships for medical schools and teaching hospitals.

Design, Setting, and Participants National survey of department chairs in the 125 accredited allopathic medical schools and the 15 largest independent teaching hospitals in the United States, administered between February 2006 and October 2006.

Main Outcome Measure Types of relationships with industry.

Results A total of 459 of 688 eligible department chairs completed the survey, yielding an overall response rate of 67%. Almost two-thirds (60%) of department chairs had some form of personal relationship with industry, including serving as a consultant (27%), a member of a scientific advisory board (27%), a paid speaker (14%), an officer (7%), a founder (9%), or a member of the board of directors (11%). Two-thirds (67%) of departments as administrative units had relationships with industry. Clinical departments were more likely than nonclinical departments to receive research equipment (17% vs 10%, $P=.04$), unrestricted funds (19% vs 3%, $P<.001$), residency or fellowship training support (37% vs 2%, $P<.001$), and continuing medial education support (65% vs 3%, $P<.001$). However, nonclinical departments were more likely to receive funding from intellectual property licensing (27% vs 16%, $P=.01$). More than two-thirds of chairs perceived that having a relationship with industry had no effect on their professional activities, 72% viewed a chair's engaging in more than 1 industry-related activity (substantial role in a start-up company, consulting, or serving on a company's board) as having a negative impact on a department's ability to conduct independent unbiased research.

Conclusion Overall, institutional academic–industry relationships are highly prevalent and underscore the need for their active disclosure and management.

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INSTITUTIONAL ACADEMIC–INDUSTRY relationships (IAIRs) exist when academic institutions, or any of their senior officials, have a financial relationship with or financial interests in a public or private company.[1-4] For example, a series of case studies conducted in 2003 at 4 institutions showed that all had received money from companies at the institutional level and 3 had received several million dollars a year over 5 or more years to support research and education on campus.[5]

Similar to relationships between individual faculty members and industry,[6-13] relationships between academic institutions and industry, when they conflict—or have the appearance of conflicting—with the core missions of academic medical centers create an institutional conflict of interest,[1,2] which exists when a department chair supervises faculty who conduct research for companies with which the chair has a personal financial relationship.[5] In the face of these and other institutional conflicts of interest, there have been calls for the establishment of policies and practices for disclosure, evaluation, and management of IAIRs.[1,2,14] However, no national data exist that might describe the extent of IAIRs and inform the development of policy.

The purpose of this study was to describe the nature, extent, and consequences of IAIRs by conducting a national survey of medical school department chairs. The attitudes and experiences of department chairs are significant because they manage the primary organizational structure of medical schools and teaching hospitals. Hence, they are an important set of stakeholders and informants in any discussion of medical school budgets and mission, control significant amounts of resources, and wield considerable influence over the content of medical education and the careers of department members. Thus, the views and experiences of these leaders in academic medicine are both relevant and should be in-

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structive in developing principles and practices for addressing IAIRs and for evaluating their consequences on stated institutional missions.

METHODS

Population and Sampling

The source of the data for this study was a national survey of department chairs in the 125 accredited allopathic medical schools and the 15 largest independent teaching hospitals in the United States. The 15 independent teaching hospitals were those that received the largest amount of funding from the National Institutes of Health in 2004. We included these independent teaching hospitals because they often conduct more research than many medical schools. A total of 140 institutions were included in the study.

At each institution, we sampled 4 clinical department chairs (medicine, psychiatry, and 2 randomly selected clinical department chairs). We focused our study at the department level because departments are key actors in academic centers, and in pretesting, we found that department chairs reported high levels of confidence in their ability to accurately answer questions about IAIRs. We purposefully sampled chairs of medicine and psychiatry because these departments are often large and are likely to have funding from industry to support their educational activities. Also, at each institution we selected the chair of the department of microbiology and a randomly selected nonclinical chair. We purposefully selected all chairs of departments of microbiology because these are often among the largest nonclinical departments in medical schools. Using lists of department chairs from the Association of American Medical Colleges (AAMC) and information from the institutions, we were able to identify 131 chairs of medicine, 122 chairs of psychiatry; and 244 other clinical chairs; 112 chairs of microbiology and 142 other nonclinical chairs. Differences between the number of expected chairs and those actually located were due to missing data at the AAMC or because the institution did not have a department or a current department chair.

Survey Design and Testing

The survey instrument was developed based on a pilot study involving case studies of 4 universities, 12 additional interviews with current and former department chairs, and a review of the literature.[5] Cognitive interviews were conducted to pretest the instrument for uniformity in comprehension and for respondent comfort with the response tasks.[15] The protocol was approved by the Institutional Review Board at the Massachusetts General Hospital prior to administration.

Data Collection

The survey was administered between February 2006 and October 2006. The initial survey was sent via e-mail from the AAMC. All nonrespondents to the e-mail solicitations received 2 reminder e-mails encouraging their participation, approximately a month apart. In July 2006, all remaining nonrespondents were sent a written survey and a postage-paid return envelope. A final mailed survey packet was sent to all remaining nonrespondents along with a letter from the AAMC encouraging their participation. No financial incentives were offered for completion of the survey.

Measures and Variables

We aimed to assess the frequency with which department chairs personally and departments as entities have relationships with industry. We asked whether the department chair had served as an officer, paid consultant, or member of a board, advisory board, or speaker's bureau as a result of his/her relationship with industry or whether the chair had received compensation that included honoraria, stock options, travel subsidy. The response categories were yes or no. In assessing department relationships with industry, we asked whether the department received such support as unrestricted funding for department operations, grant support for graduate students, support for hosting research seminars. We also asked whether the department received discretionary funds to provide faculty bonuses, journal subscriptions, software purchase, or clinical equipment. The response categories were yes or no.

To further assess the effect of a chair's personal relationship with industry, we asked chairs to rate the extent to which it impacted such areas as class offerings, research grants, institutional resource acquisition, faculty retention, and new faculty recruitment. The response categories were "large negative effect," "small negative effect," "no effect," "small positive effect," and "large positive effect," "not applicable," and "don't know."

Similarly, we asked about the effect of relationships between industry and the respondent's department as an administrative unit. For analyses regarding the perceived effects of IAIRs, we excluded chairs who did not have any personal relationships with industry. Similar exclusions were applied for the analyses of the perceived risks and benefits of relationships between departments as administrative entities and industry.

To assess whether the department's relationship with industry affected medical education and research, we asked: "On balance, please assess the benefits and detriments" industry support has on a "department's ability to provide independent, unbiased education and training" (the words "independent, unbiased" were set in bold on the questionnaire). Chairs were asked to make their assessment for unrestricted educational grants for less than $10 000, between $10 000 and $100 000, and more than $100 000. For restricted educational grants (eg, for a specific topic, event, or series) for the same amount ranges; "restricted" was not further defined. Response options included: "Benefits outweigh detriments by large amount," "Benefits outweigh detriments by small amount," "No effect on balance (ie, benefits=detriments)," "Detriments outweigh benefits by small amount," and "Detriments outweigh benefits by large amount."

Second, to assess the impact of IAIRs on research independence, we

asked: "On balance, please assess the relative benefits and detriments of the following types of industry support with respect to a department's ability to pursue independent, unbiased research." Chairs were then asked to pick one of the following options: "When a department chair serves on a board for one or more companies," "When a department chair consults for one or more companies," "When a department chair has substantial personal ownership and/or personal role in technology start-up(s)," "When a department chair participates in more than one of the preceding three." Response options were identical to the questions above.

Analyses

The statistical analyses took into account both the sampling design, which included the sample weighting for the differential sampling fractions, and differential nonresponse by department strata. The sampling fraction was computed as the sample size divided by the total number of chairs in each of the strata. This was for the departments of medicine, psychiatry, and microbiology because we surveyed all chairs in these strata (sampling with certainty). The response probability was computed as number of respondents divided by the sample size in each of the strata. The weight associated with each respondent was computed as the inverse of the product of the sampling fraction and the response probability. The weights were further adjusted to sum up to the population sizes within each strata to produce national estimates. Both unweighted and weighted analyses were conducted. The results obtained from the weighted analyses were virtually identical to those obtained from the unweighted analyses. Hence, only the latter are presented. As appropriate, significance ($P<.05$) was tested using the χ^2 test of independence (categorical variables) or *t* test for comparing means. All *P* values were 2-sided. All analyses were conducted using SPSS statistical software version 15 (SPSS Inc, Chicago, IL).

Table 1. Professional and Department Characteristics of Respondents[a]

Personal Characteristics	No. (%) All	Clinical	Nonclinical	*P* Value[b]
Sex				
Men	399 (89)	264 (90)	135 (86)	.15
Women	51 (11)	28 (10)	22 (14)	
Interim or acting chair				
Yes	44 (10)	28 (10)	16 (10)	.84
No	405 (90)	264 (90)	141 (90)	
No. of years as chair				
0-3	112 (26)	75 (26)	37 (24)	.07
4-5	65 (15)	48 (17)	17 (11)	
6-10	125 (28)	86 (30)	39 (25)	
>11	137 (31)	78 (27)	59 (39)	
Department characteristics, mean (SD), No.				
Faculty	65 (111)	88 (131)	23 (23)	<.001
Medical students	103 (137)	140 (148)	30 (63)	<.001
Residents and fellows	48 (66)	65 (71)	7 (21)	<.001
Graduate students	15 (23)	11 (25)	22 (16)	<.001
Postdoctorate fellows	16 (40)	16 (48)	16 (22)	.93
External research funding, $ in millions	12 (28)	15 (34)	7 (9.8)	<.001
Funding by source, mean (SD), $ in millions				
Government funding	9.4 (21)	11.3 (26)	6.1 (9.2)	.004
Industry	2.1 (5.6)	2.9 (6.8)	478 000 (1)	<.001
All other sources	1.8 (5)	2.3 (6.2)	650 900 (951 300)	<.001

[a] Numbers vary due to item nonresponse.
[b] *P* value comparing clinical vs nonclinical.

RESULTS

Of the 751 department chairs in the sample, 63 were determined to be ineligible because they were duplicates or no longer held the position of chair. Of the remaining 688 eligible chairs 459 completed a survey yielding a response rate of 67% using the minimum response rate calculation number 1 of the American Association for Public Opinion Research.[16] The response rate for clinical chairs was 66.6% (300 out of 450 eligible) and 66.8% for chairs of nonclinical departments (159 out of 238 eligible).

Characteristics of Respondents

Overall, 89% of respondents were men, and 10% were interim or acting chairs (TABLE 1). Respondents' tenure as chair ranged from less than 3 years (26%) to more than 11 years (31%). The differences between clinical and nonclinical chairs and departments are shown in Table 1.

Chairs' Personal Relationships With Industry

TABLE 2 shows the frequency of chairs' personal relationships with industry in the last year. In the year before the survey, chairs had served at a rate of 27% for each category as a paid consultant for a company, as a member of a scientific advisory board, or both; 7% as an officer or executive of a company; 9% as a founder of a company; 11% as a member of a board of directors of a company; and 14% on a speakers' bureau. Clinical chairs were significantly more likely than nonclinical chairs to have served on a speakers' bureau (21% vs 2%, $P<.001$).

Twenty-eight percent of respondents received personal compensation for participating in a meeting, 21% for their own university-based research, 19% for speaking at a CME event, and 16% for travel to attend professional meetings. Furthermore, 6%

reported owning equity in companies, and 3% reported receiving personal compensation for writing papers or reports. Of these various types of relationships, clinical chairs were significantly more likely than nonclinical chairs to have participated as a faculty member or as a speaker for CME activities (26% vs 6%, $P<.001$). Conversely chairs of nonclinical departments were significantly more likely than clinical chairs to receive payments as a result of royalties, licenses, and milestone recognition (20% vs 7%, $P<.001$). When considered together, 60% of department chairs had some form of personal relationship with industry.

Departments' Relationships With Industry

TABLE 3 shows relationships between departments as administrative entities and industry. Overall 80% of clinical departments had at least 1 form of relationship with industry compared with 43% of nonclinical departments ($P<.001$). Clinical departments were significantly more likely than nonclinical departments to receive research equipment (17% vs 10%, $P=.04$), unrestricted funds (19% vs 3%, $P<.001$), support for research seminars (36% vs 13%, $P<.001$), support for residency and fellowship training (37% vs 2%, $P<.001$), support for department-administered CME (65% vs 3%, $P<.001$), discretionary funds to purchase food and beverages in the department (51% vs 12%, $P<.001$), support for professional meetings (30% vs 8%, $P<.001$), and subscriptions to professional journals (8% vs 2%, $P=.01$). Nonclinical departments were significantly more likely to receive money from licensing of intellectual property developed by researchers in the department (27% vs 16%, $P=.01$).

Perceived Effects of Industry Relationships

FIGURE 1 illustrates chairs' opinions about the effects of departmental relationships (as administrative units) with industry on departmental functions and activities. Chairs whose department had at least 1 IAIR (n=301) between 37% and 78% reported that the departmental industry relationship(s) had no perceived effect on any of their department functions. In terms of the positive effects, 52% of chairs whose department had at least 1 IAIR perceived that those IAIRs had a positive effect on their ability to provide educational offerings in their department. Clinical departments differed significantly from nonclinical departments only for responses about providing educational offerings; 57% of clinical chairs rated their IAIRs as having a positive effect compared with 29% of nonclinical chairs ($P<.001$; data not shown in Figure).

Table 2. Frequency of Department Chairpersons' Relationships With Industry in the Last Year[a]

	No. (%)			
	All	Clinical	Nonclinical	*P* Value[b]
In your most recent year of service as department chair, did you have any of the following personal relationships with companies related to your professional expertise or your administrative responsibilities as chair?				
Officer or executive	30 (7)	17 (6)	13 (8)	.31
Member of a board of directors	49 (11)	33 (11)	16 (10)	.71
Paid consultant	122 (27)	78 (27)	44 (28)	.75
Member of a scientific advisory board	121 (27)	84 (29)	37 (24)	.24
Member of the speakers' bureau	63 (14)	60 (21)	3 (2)	<.001
Founder of a company	38 (9)	21 (7)	17 (11)	.19
In your most recent year of service as department chair, did you receive any of the following from companies related to your professional expertise or your administrative responsibilities as chair?				
Funding (through your university) for own university/hospital research	93 (21)	58 (20)	35 (22)	.56
Personal compensation (such as honoraria) from industry for writing reports or papers	13 (3)	6 (2)	7 (5)	.14
Personal compensation (such as honoraria) from industry for participating as faculty/speaker in CME activities	86 (19)	76 (26)	10 (6)	<.001
Personal compensation (such as honoraria) for your participation in meetings, conferences, or other activities	126 (28)	85 (29)	41 (26)	.50
Personal equity or stock options in industry in exchange for your professional services or intellectual property	25 (6)	15 (5)	10 (6)	.59
Personal royalties, patent licenses, milestone payments, or similar	50 (11)	19 (7)	31 (20)	<.001
Personal gifts such as tickets to cultural or sporting events	5 (1)	4 (1)	1 (1)	.48
Free or subsidized travel, professional time, meals, lodging, or other personal expenses associated with attendance at meetings or conferences related to your area of professional expertise	71 (16)	49 (17)	22 (14)	.43
≥1 of the above relationships	271 (60)	181 (62)	90 (57)	.34

[a] Numbers vary due to item nonresponse.
[b] *P* value comparing nonclinical vs clinical with a χ^2 test.

Chairs' responses for the perceived effects of their personal industry relationships on departmental functions were very similar to their responses for department relationships (Figure 1). More than two-thirds of all chairs with a personal relationship with industry reported that their personal relationships had no effect on the various types of departmental functions. A similar percentage claimed that there was no effect on their personal financial status. On no measure did more than 6% indicate that their IAIRs had any negative effects.

Chairs responded to a limited set of questions regarding the impact of certain types of IAIRs on the ability of departments to provide independent, unbiased education and training. For unrestricted educational grants, 69% felt that grants up to $10 000 benefited the department's ability to provide independent, unbiased education and training; 45% reported an overall benefit for unrestricted grants of more than $100 000. For restricted grants, 53% responded that grants up to $10 000 were, on balance, beneficial (FIGURE 2). However, only 27% reported that restricted grants of more than $100 000 enhanced a departments' ability to provide independent, unbiased education.

When asked about the impact of chairs' personal relationships on a department's ability to pursue independent, unbiased research, the majority of chairs (72%) considered a chair having a substantial role in a start-up to have a negative effect on a department's ability to pursue independent research. Chairs were more divided about the impact of consulting or serving on a company's board, although engaging in more than 1 of these 3 activities was viewed as having a negative impact on a department's abilities to conduct independent unbiased research by 72% of respondents (FIGURE 3).

COMMENT

The study provides, to our knowledge, the first comprehensive empirical portrait of department-level IAIRs in academic medical centers in the United States. Overall, these data suggest that IAIRs are highly prevalent, with 67% of departments and 60% of department chairs having relationships with industry.

Chairs with individual relationships most often served on speakers' bureaus and as industry consultants. These findings likely reflect companies' desire to establish relationships with individuals who have substantial expertise or professional status in their fields of research and patient care. Still, a wide variety of relationships, including equity, royalties, and travel expenses, was evident. Given that department chairs hold faculty appointments these relationships are likely subject to the annual faculty disclosure processes mandated by the federal government for federally funded research and thus are likely to be known and reviewed by the institution.

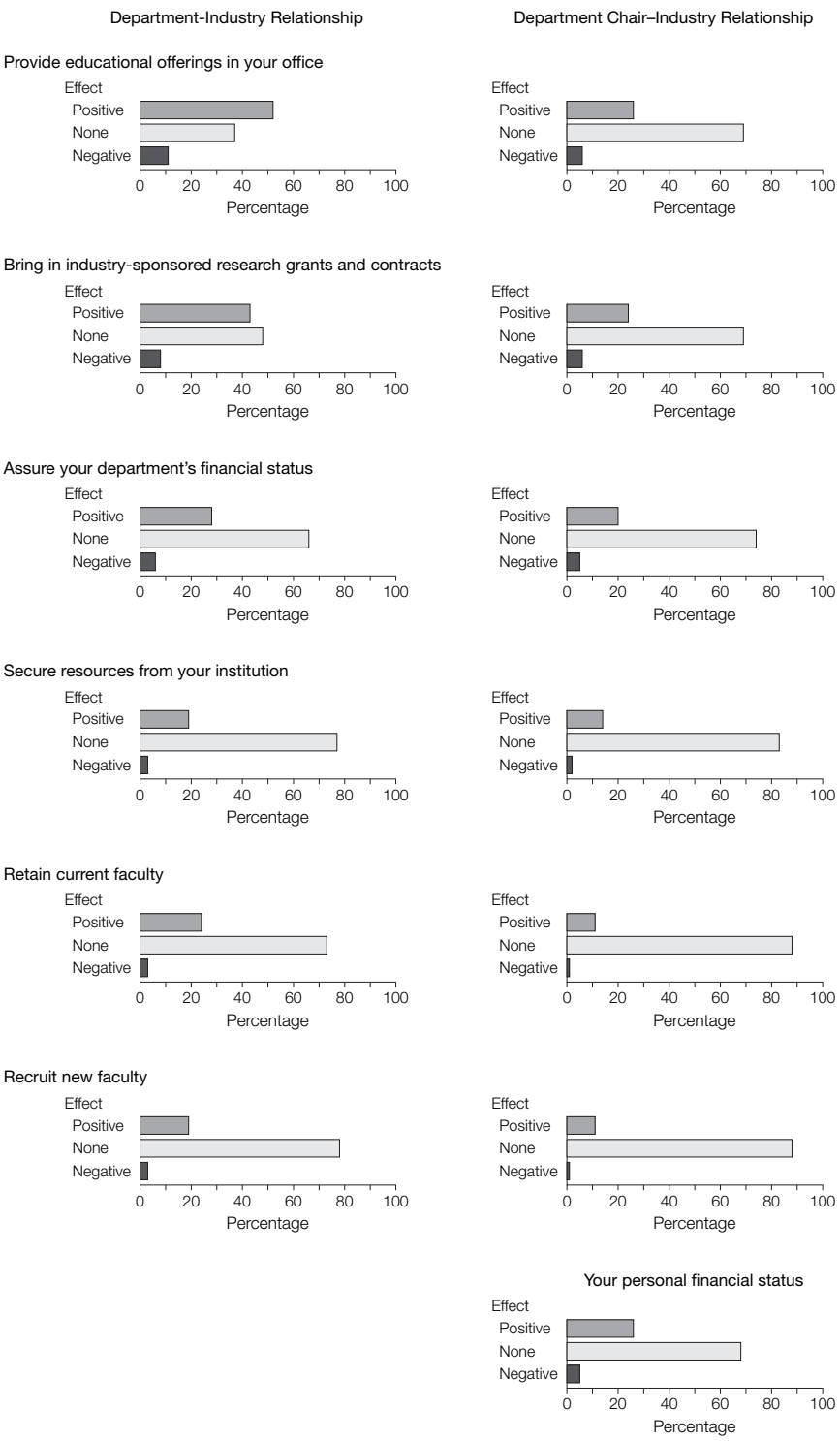
Relationships between industry and departments as administrative entities differed for clinical and nonclinical departments. Industry appears more likely to gain access to scientific resources controlled by nonclinical depart-

Table 3. Characteristics of Department Relationships as Entity in the Last Year[a]

	No. (%)			*P* Value[b]
	All	Clinical	Nonclinical	
In the last year has industry provided your department either directly or indirectly through your university with any of the following resources that you as chair control?				
Research equipment	63 (14)	48 (17)	15 (10)	.04
Unrestricted funding for department operations	57 (13)	53 (19)	4 (3)	<.001
Research support awarded to the department, which is in turn distributed to faculty (not including industry grants given directly to faculty)	41 (9)	32 (11)	9 (6)	.06
Support for students or postdoctorates	59 (14)	44 (16)	15 (10)	.09
Money from licensing or transfer of intellectual property, products, and services developed by researchers in your department	86 (20)	45 (16)	41 (27)	.01
Support for department research seminars	123 (28)	103 (36)	20 (13)	<.001
Support for residency or fellowship training	107 (25)	105 (37)	2 (2)	<.001
Support for continuing medical education administered by your department	190 (46)	186 (65)	4 (3)	<.001
In the last year has industry provided your department with discretionary funds that are used to support any of the following?				
Faculty bonuses	2 (0.5)	1 (0.3)	1 (0.6)	.65
Food, beverages	166 (38)	148 (51)	18 (12)	<.001
Support for travel and meetings	99 (22)	86 (30)	13 (8)	<.001
Journal subscriptions	27 (6)	24 (8)	3 (2)	.01
Software	11 (3)	9 (3)	2 (1)	.24
Research equipment (or other research infrastructure)	51 (12)	39 (14)	12 (8)	.07
Clinical equipment (stethoscopes, etc.)	13 (3)	12 (4)	1 (1)	.04
≥1 of the above relationships	301 (67)	233 (80)	68 (43)	<.001

[a] Numbers vary due to item nonresponse.
[b] *P* value comparing nonclinical vs clinical with a χ^2 test.

Figure 1. Perceived Effect, If Any, of Industry Relationships With Academic Departments and Department Chairs



Perceptions are based on reports from department chairs whose department or administrative unit has a relationship with at least 1 industrial entity or from department chairs who have a relationship with at least 1 industrial entity. Data represent collapsed response categories. Numbers vary due to item nonresponse.

ments since nonclinical departments were more likely to receive money from licensing, the transfer of intellectual property, products, and services developed by researchers in their departments. These revenues, which are usually negotiated in advance (and sometimes by a technology transfer office with little input from a department) and require no deliverable beyond what is included in the agreement, pose potential conflicts of interest only if department personnel continue to engage in research that could add value to the product.

Certain types of relationships between clinical departments and industry appear to be far more extensive than between nonclinical departments and industry. Clinical departments are significantly more likely than nonclinical departments to receive discretionary funding to purchase research equipment and money to support departmental operations, research seminars, graduate medical education, and continuing medical education. Although we did not ask about the amount of money departments receive for these uses (because in pretesting we found chairs were unable to give reliable estimates), the prevalence of these relationships among clinical departments in medical schools suggests that departments may rely on such support. Such reliance, in turn, may influence a department's willingness to engage in research or educational activities that could be harmful the industry partner.

The frequency of relationships between departments and industry around medical education is worthy of emphasis. The finding that 65% of clinical departments receive industry funds for continuing medical education and 37% for residency and fellowship training suggest that industry has made substantial inroads into graduate and continuing medical education in the United States. This finding is not surprising given that two-thirds of the costs of continuing medical education in medical schools and teaching hospitals is paid for by drug and medical device com-

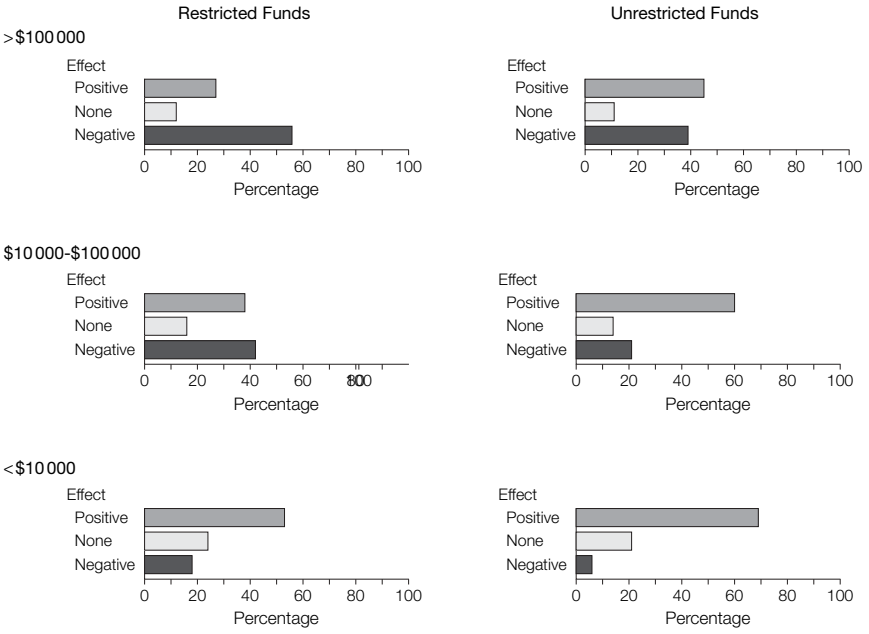
panies.[17] Furthermore, more than half of chairs whose departments have relationships with industry believe these types of IAIRs have an overall positive effect on their ability to provide educational offerings in their department suggesting that IAIRs likely play an important role in supporting some aspects of the education and research missions of academic medical centers.

However, IAIRs are a cause for concern if they have a negative effect on the ability of medical institutions to offer unbiased educational experiences for faculty and trainees.[18] Our results suggest that department chairs consider both the size of a gift and whether it is restricted when judging the possible detrimental influence on independent education and training. Almost 20% of chairs deemed a restricted grant from industry of less than $10 000 detrimental to a department's ability to offer independent unbiased medical education and training, while 42% responded this way for restricted grants between $10 000 and $100 000. When asked about unrestricted gifts, however, only 6% considered a gift of less than $10 000 detrimental and 21% considered an unrestricted gift between $10 000 and $100 000 detrimental.

These findings illustrate the common misconceptions that small gifts are less influential than larger gifts and that unrestricted gifts are less influential than restricted gifts. However, research in human behavior has shown that even small gifts and ones without restrictions can influence actions without being tied to explicit demands.[19] The belief that the benefits of unrestricted and/or small gifts tend to outweigh the detriments may unintentionally make medical school leaders less vigilant about ensuring independent unbiased curricula and research. For instance, one of the most frequent forms of IAIRs involved clinical departments receiving discretionary funds to purchase food and beverages. Increasingly, medical educators have recognized that even these small gifts come at the expense of real or perceived independence from industry influence.[5,14,15] The finding that more than half of department chairs with relationships between their department as an administrative entity and industry felt that these relationships had no effect on their departmental finances, their ability to recruit or retain faculty, or to secure resources from their institution is puzzling. If the majority of IAIRs have no effect on these important functions of departments, then why do they exist? It is possible that these IAIRs have effects that we did not measure or that chairs may be unwilling to admit that industry funding exerts any effect that could be construed as influence.

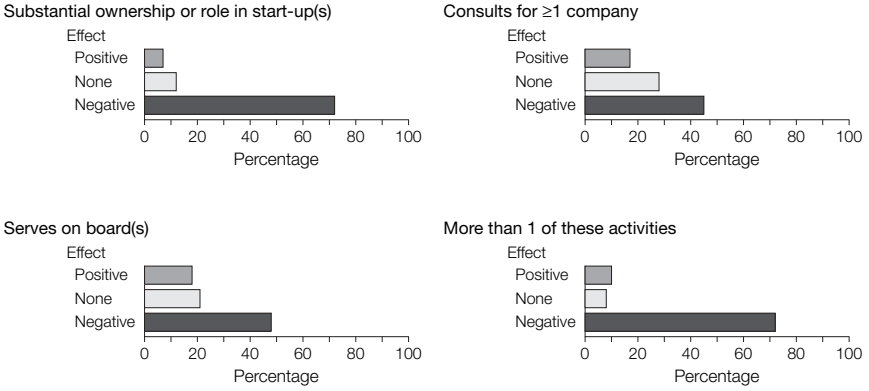
This study has several limitations. First, social desirability bias may cause some individuals to underreport that which may be viewed as negative; thus, our data on the frequency of relationships likely underestimates the true fre-

Figure 2. Perceived Impacts of Department-Industry Relationships on Providing Independent, Unbiased Education and Training by Type and Amount of Funding



Numbers vary due to item nonresponse.

Figure 3. Respondents' Views of Chairs' Personal Relationship With Industry on Providing Independent Unbiased Research



Numbers vary due to item nonresponse.

quency of IAIRs in medical schools and teaching hospitals. Findings related to the perceived consequences of IAIRs may be subject to this bias as well, in that chairs may be unwilling to report that IAIRs had negative effects (or even any effect) on their behavior or that of their department. Second, besides social desirability, the wording of survey items may have influenced responses. For instance, "restricted" and "unrestricted" grants were not further defined and may have been interpreted variably. Because the survey was anonymous in nature—an important strategy for maximizing response rates—we were unable to link department responses to individual schools and, as a result, were unable to conduct institutional-specific analyses.

Third, we did not collect data on IAIRs that occur at the level of the medical school, hospital, or university as organizational entities, nor did we study the personal industry relationships of other institutional officials such as deans, provosts, presidents, or trustees. If industry relationships are as frequent among these other organizational entities and institutional officials as they are at the department level, the potential for institutional conflicts of interest is likely to be substantial. Additional research should address this issue. Finally we found that 52% of the chairs in our sample were from public institutions and 48% were from private institutions. This distribution among nonrespondents was similar (46% public and 54% private). This data suggests that chairs in private institutions responded at a slightly lower rate than their representation in the sample. However, clinical and nonclinical department chairs responded at almost identical rates. It is unclear what impact, if any, this has on our findings.

This study presents the first empirical data showing that IAIRs are frequent in medical schools and teaching hospitals and thus deserving of attention. Future research is needed to better understand the impact of IAIRs on the independent unbiased performance of the education and research missions of medical schools, the management and disclosure of these relationships at the institutional level, and the impact of institutional policies. Failure to address the existence and influence of industry relationships with academic institutions could endanger the trust of the public in US medical schools and teaching hospitals.

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Study concept and design: Campbell, Weissman, Ehringhaus, Goold, Moy.
Acquisition of data: Campbell, Weissman, Goold, Moy.
Analysis and interpretation of data: Campbell, Weissman, Goold, Rao, Moy, Feibelmann.
Drafting of the manuscript: Campbell, Weissman, Ehringhaus, Goold, Moy, Feibelmann.
Critical revision of the manuscript for important intellectual content: Campbell, Weissman, Ehringhaus, Goold, Rao, Moy, Feibelmann.
Statistical analysis: Goold, Rao.
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Study supervision: Campbell.
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