

**Career Development Guidance and Mentorship during Anesthesia Residency Training:
An Internet Survey**

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Abstract

Background We conducted a survey of Anesthesiology residency programs in the United States to identify current practice regarding mentorship and teaching of topics related to career development.

Methods

Program directors for all currently accredited Anesthesiology residency programs (N=129 as of April 2016) were contacted by e-mail and invited to complete a short internet survey. Two follow-up e-mails were sent at one-week intervals to those who had not yet responded.

Results 59 program directors responded, yielding 53 complete responses, for an adjusted response rate of 41.1%. Program and practice management type (university versus other, hospital versus private) were not strongly associated with presence of a career development

Introduction

There is a considerable body of evidence showing that career development programs (CDP) in medicine can positively impact scholarly productivity and career satisfaction.¹ While career development and mentorship have frequently been related to success in research, it is likely that such guidance has an impact on other facets of one's practice such as clinical and educational skills. Career development and mentorship programs have also been shown to serve

curriculum (CDC). In general, larger residency programs (30 or more residents) and university-based programs were more likely to provide lectures on specific CDC topics. Whether residency program directors agreed or disagreed with the premise that instruction should be provided on other topics besides anesthesia, was unrelated to the presence of CDC in their programs.

Conclusions The results of this survey demonstrate that the establishment of a mentorship program (even a rudimentary one) may be the first step in creating a CDC. Apart from having a CDC program already in place, the strongest predictor of CDC content was the size of the residency program. Though there are training programs that openly stated on our survey that they do not have a CDC in place, some of these programs still provided lectures on one or more of the topics surveyed.

an important function in promoting integrity by teaching, clarifying, and modeling the rules of ethical conduct.²

While lack of skilled mentors and insufficient time for mentoring have been identified as barriers in establishing proper mentorship programs^{3,4}, additional barriers to mentorship which are unique to the field of anesthesiology remain unknown.

The purpose of this study is to identify whether something akin to mentorship and/or career guidance is currently occurring at residency training programs

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and, if so, what are the components of such a curriculum. Furthermore, the lack of national standards on the content of a career development curriculum (CDC) might be predicted to lead to a fair amount of heterogeneity. Thus, the purpose of this survey is to identify that level of heterogeneity with a focus on identifying the best aspects of each program. Finally, our survey seeks to identify national attitudes towards career development and whether the lack of interest and/or commitment by the program, or faculty, or the hospital may be the overwhelming barrier to the creation of such programs.

Methods

IRB Approval

This study was approved by the authors' university institutional review board (IRB). The requirement for written consent was waived by the IRB, although the relevant consent information about voluntariness and confidentiality were required to be provided to the respondent as the first page of the survey.

Survey development

The survey was constructed in two parts using adaptive questioning. After some initial questions regarding whether the program provided each resident with a dedicated mentor and protected non-clinical time for mentorship, Part I asked whether this residency program offered lectures on specific topics such as the benefits and drawbacks of academic

medicine versus private practice, the various fellowship programs with strengths/weakness of each, contract negotiation, anesthesiologists' salary or job offers, retirement plans, the difference between claims made versus occurrence-based malpractice insurance, or the difference between 1099 versus W2 income. If the respondent answered No to any of these questions, a secondary question was displayed asking about the reason this topic was not covered. Reasons included, for example, lack of trained faculty for this type of lecture, lack of time for presenting the lecture, lack of interest by faculty or the program in delivering the lecture, or lack of interest by residents to receive this lecture. The respondent could also answer "All of the above" or specify another reason using a text box for input.

Part II contained 5 questions about attitudes toward residency program responsibilities for teaching career development topics such as contract negotiation, malpractice insurance, health insurance, or retirement plans. Agreement with these statements were rated using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Order of item presentation was the same for all participants. Respondents were allowed to go back to a previous item to review or edit their response until the survey was submitted.

The survey was given in draft form to senior faculty in the first author's department to ask for comments. Minor revisions were made in accordance with these comments. The electronic version was tested by private email invitation to about half a dozen people before being released for use. No problems were identified during this piloting. The final version of the Survey is shown in Appendix 1.

Study sample

The original sample consisted of all anesthesia residency training programs in the United States. Seven of these programs were unaccredited as of April 2016, leaving 129 programs which were contacted. E-mail addresses and phone numbers of these directors were obtained from the AMA-sponsored residency website FREIDA (<https://www.ama-assn.org/life-career/search-ama-residency-fellowship-database>), as well as the individual

websites of each program. The targeted respondents were the directors of ACGME anesthesia residency programs in the United States. Where the email address given appeared to be that of an administrator or a generic address, an effort was made to find the email address of the program director from publicly available information on the internet.

Procedures

Invitations to participate in the survey were sent by email to each director of an anesthesia residency program in April 2016. Each e-mail contained an individualized link to the survey on the internet. These individualized links allowed tracking of individual respondents for alter follow-up, if needed. They also allowed an individual user to return and complete the survey later if his/her original entry was interrupted; but they did not allow multiple completions by the same user. The individualized survey link was valid for 60 days.

Follow-up email messages were sent one week later to those directors who had not yet responded. This follow-up email was signed by the department chair (Dr. T. J. Gan) of the Anesthesiology department at the authors' institution. A second email reminder was sent one week after that under the name of the first author. Follow-up phone calls were initially planned but later dropped, out of IRB concern that they might be seen as too intrusive.

The respondents were asked if they wished the results of the survey to be shared with them. There was a box to check at the end of the survey, and they were asked to provide an email address to send the results. These email addresses were stored with the survey response on the Qualtrics secure website. An automatic notification containing the requester's e-mail address was also sent to the study coordinator (RR) for response.

The survey itself was implemented using the Qualtrics platform (Provo, Utah: <http://www.qualtrics.com>). This is a secure, password-protected site approved by Stony Brook University IT Department. Responses to the survey were cumulated on Qualtrics and downloaded in SPSS format for analysis. Results are reported in accordance with the

recommendations given in the CHERRIES checklist for internet survey reports.⁵

Data Analysis

Data were analyzed by descriptive statistics (frequencies and percentages). To facilitate analysis, multi-level variables were recoded into dichotomous categories for analysis using 2x2 chi-squared test. Statistical significance was determined with Fisher's exact test, with significance level set at $P < .05$. Sample size considerations: Since we contacted the full set residency programs, no power analysis was conducted. We attempted to follow recommendations in recent primers on survey research in order to optimize rate of response.^{6,7} We anticipated at least a 40-50% response rate based on reports of prior surveys of this type.⁸⁻¹²

Results

Study Sample

Response Rate

We received 59 responses, resulting in a response rate of 45.7%. Six of these responses were incomplete, leaving 53 complete records for analysis; this gives us an adjusted response rate of 41.1%. Where information was available in an incomplete response, it was included in the analysis. Characteristics of the responding programs are presented in Table 1.

Evaluation of Response Bias

Forty-four programs responded to the initial e-mail and two follow-up requests within the designated period, for an initial response rate of 34.1%. We labelled this group "early responders" (responses received during April-May 2016). Random, non-deliberate contact at meetings and conferences with non-responders resulted in 15 additional responses, accounting for 25% of our total sample. We labelled this group "late responders" (responses received during June-September 2016).

We wished to ascertain retrospectively whether a response bias might have existed among the responders, such that programs which already had these courses would be more likely to respond early. It could have been that the 85 programs that had not yet responded "early" might differ in

some important respect, e.g. they had not implemented career development programs.

Among the “early” responders, 43% had CDC programs in place and 57% did not. Among these “late” responders, 6 of 15 (40%) offered CDC. There was no significant difference between early and late responders in provision of CDC curriculum.

Career Development Curricula in Anesthesiology Residency Programs

For all 23 of the residency programs with a CDC program in place, lectures were provided by their own anesthesia faculty. Four programs supplemented these lectures with content from another department in their university (2 programs) or an outside entity (2 programs).

Program directors were asked to rate their CDC programs. These ratings were quite normally distributed. CDC courses were rated as Adequate (30.4%), Very Good or Excellent (37.5%), Poor or Completely Ineffective = (32.2%).

Mentorship and CDC

Forty-seven of 56 programs responding (79.7%) provided a personal mentor for each resident. Among these programs, protected non-clinical time for mentoring was allotted in 36.2% of programs. Frequency of meeting with advisors specifically for mentorship purposes was highly variable: 2-3 times a year in 29.8%, quarterly in 8.5%, monthly in 1 program, and “at the discretion of the mentor” in the remainder.

The forty-seven programs with formal mentorship were evenly divided with respect to a formal CDC program: 23 (48.9%) had CDC and 24 (51.1%) did not. However, of the 9 programs without mentoring, none had a CDC program ($P=.007$ 2-sided). (See Figure 1).

Protected non-clinical time with mentees did not vary as a function of presence of a formal CDC program. Where a CDC program exists, just over a third (34.8%) of residency programs provide protected time for mentoring; where there is no CDC program, 9/24=37.5% provide protected mentorship time.

Curriculum Content by Residency Program Characteristics

Presence of Career Development Programs

We found a non-significant trend for review of career choice (academic vs. private practice) options to be linked with presence of CDC. In programs with CDC curricula, 50% of programs presented this information. But among programs without CDC curricula, only 26.3% offered lectures or presentations discussing the benefits and drawbacks of academic medicine ($P=.079$). An overview of the program characteristics associated with specific elements of CDC is given in Table 2.

Assessment of the strengths and weaknesses of various fellowship programs was provided in 52.2% of programs with CDC curricula and 38.7% of programs without such curricula (N.S.).

Contract negotiation is likely to be covered whether or not a CDC program is present. Lectures on this topic are given in 68.2% of programs with CDC and 61.3% of programs without CDC (N.S.).

Programs without CDC curricula are marginally less likely to discuss the differences in income type (20.0%) as compared to programs where CDC is present (42.1%) ($P=.09$).

Retirement plans for residents and/or attendings are covered in 61.9% of programs with CDC, whereas in the absence of CDC only 33.3% programs provide this information ($P=.041$). There was no significant difference found in the delivery of lectures on salary & job offers (65.2% vs 53.1%, $P=.269$, N.S.) or malpractice insurance (54.5% vs 51.6%, $P=.528$, N.S.)

Mentorship Program

Three-quarters (74.5%) of residency programs with dedicated mentors covered the relative benefits of academic medicine vs careers in private practice. Only 1 of 8 programs (12.5%) without dedicated mentors provided this information ($P=.002$ 2-sided). (See Figure 2)

Half (50.0%) of programs with dedicated mentors provided discussion of fellowship programs. However in programs

without dedicated mentors this information was much less likely to be presented (1/8 programs=12.5%) (P=.053).

Programs with dedicated mentors were more likely to review salary and/or job offers (63.8%) (P=.048), and contract negotiation (P=.019 2-sided). Presence of a formal mentorship program gave only a 51% likelihood of discussing retirement plans. However, the absence of a mentoring program led to a strong probability (7/8 = 87.5%) that retirement plans would not be discussed (P=.048).

Malpractice insurance was marginally more likely to be covered in programs with mentorship (57.8%, versus 2/8 = 25.0%, P=.092 1-sided). There was no difference between programs with and without formal mentorship in whether income types were likely to be addressed.

Residency Program Type (University vs Other)

University-based programs were more likely to discuss the benefits of academic careers (70.5% versus 44.4%) and evaluate the different fellowship programs (46.5% versus 33.3%) than non-university based, but these differences were not statistically significant.

University-based programs were marginally more likely to discuss salary and/or job offers (65.9% versus 33.3%, P=.075). Advice on contract negotiation was provided in over two-thirds (72.1%) of the university programs, versus only 2 of the “other” programs (P=.008 2-sided.)

A strong advantage for university-based programs was also found for malpractice insurance (P=.008 2-sided), and retirement plans (P=.003 2-sided). It is noteworthy that none of the non-university based programs covered the topics of retirement plans, or the difference between 1099 income versus W2 income.

Management Type (Hospital vs Private)

CDC programs are present in all types of management practices we surveyed (see Figure 3). Most of our survey data were provided by hospital-based programs, so we have more confidence in our conclusions relating to those types of practices.

CDC curricula were well represented in residency programs run by both management systems. We found no significant differences in curriculum content based on type of program

management, comparing hospital management and private groups.

Seventy percent of hospital-based programs provided discussions about careers in academia versus private practice, while of the 16 programs that were privately managed, just over half covered this topic (N.S.). The proportion of CDC curricula reviewing the strengths and weaknesses of various fellowship programs was 44.4% in hospital-based residency programs, and 43.8% in privately managed residencies. Job offers were discussed in about 60% of programs of both types. Contract negotiation was discussed in approximately two-thirds of each program type. Discussion of malpractice insurance, income type, and retirement plans did not differ as a function of management type.

Size of Residency Program (cutoff 30 residents)

We defined large programs as those having 30 or more residents (N=33) and smaller programs as having less than 30 residents (N=19).

Careers in private practice versus academic medicine were much more likely to be discussed in larger programs (78.8% versus smaller ones (42.1%), P=.014 2-sided). The strengths and weaknesses of various fellowship programs were marginally more likely to be reviewed by larger programs compared to smaller ones (53.1% versus 26.3%, P=.056).

Larger programs are more likely to discuss salary and/or job offers than smaller ones (69.7% versus 42.1%, P=.049). Similarly, contract negotiation was discussed by the great majority of larger programs (81.8%) compared to about a quarter (27.8%) of smaller programs (P<.001 2-sided). (See Figure 4)

Retirement plans were covered by over half (58.1%) of larger programs but only 16.7% of smaller programs (P=.007 2-sided).

Our data show a marginal difference between larger & smaller programs for discussion of malpractice insurance (P=.057). We found no difference in coverage of income types between programs of different sizes.

Questions on Attitude versus Practice

Attitude toward Teaching Anesthesia Only. Whether residency program directors agreed or disagreed with the premise that instruction should be provided on other topics besides anesthesia, was unrelated to the presence of CDC in their programs. As expected, program directors who felt that other topics should be included in resident education were more likely (26 of 32 programs, or 81.3%) to provide CDC content. However, 22 programs (40.7% of our 54 respondents) endorsed the idea that *only* anesthesia should be taught in anesthesia residency. Nevertheless, 19 of these (86.4%) had a CDC program in place.

University-based residency programs were equally likely to disagree with this proposition (37 of 44 programs = 81.5%) compared to non-university programs (8 of 10 programs = 80%).

Attitude toward Teaching Contract Negotiation. Opinion on this topic was fairly evenly divided, with 29 (55.8%) programs endorsing it and 23 (44.2%) opposing it. Among programs who agreed that this topic should be covered, 26 programs (89.7%) included contract negotiation in their CDC curriculum. Among those who disagreed, only 7 programs (30.4%) included related CDC content ($P < .001$ 2-sided). (See Figure 5).

Attitude toward Teaching Malpractice Insurance. Exactly half of our 52 respondents agreed that residency programs should teach about malpractice insurance. Four-fifths (80.8%) of those who agreed provided lectures on this topic, whereas only a quarter (26.9%) of those who disagreed provided this course content ($P < .001$).

Attitude toward Teaching Retirement Plans. Very few programs ($n=8$, 16%) endorsed lectures on retirement plans as part of CDC content, with 6 of those programs (75%) providing such lectures. Far more programs disagreed with inclusion of this topic ($n=42$, 84%). However, among those who disagreed, 38.1% still provided lectures on retirement plans ($P=.062$).

Discussion

Medical advances have increased the breadth and depth of what physicians are required to know during the training period. Anesthesia, once a 2 year residency, is now a 3 year residency with additional required rotations in the preoperative and postoperative setting, in addition to the traditional core rotations. In this paradigm, educating trainees about non-clinical matters related to their career such as contract negotiations, malpractice insurance, or retirement plans, is often overlooked.

Our survey viewed career development curriculums through the prism of a set of topics that anesthesia residents frequently encounter upon graduation: fellowships, job offers, malpractice insurance, retirement plans, and 1099 vs. W2 income. Making the assumption that an adequate career development curriculum (CDC) would, at a minimum, provide lectures on one or more of these topics, we sought to determine the characteristics of programs which have a formal CDC program, which of the aforementioned topics were lectured on, and whether there was a relationship between the establishment of such a program and delivery of these lectures. We also looked at which programs provided residents with some form of a mentorship program and what role that played in the development and execution of a CDC.

Mentorship

We asked the program directors to rate the quality of CDC programming in their departments. These ratings appear to be normally distributed, with approximately one third in each of the following categories: Very Good/Excellent, Adequate, Poor/Completely Ineffective. However, our survey did not allow for the assessment of these CDC programs from the residents' standpoint to determine which lectures, if any, were found useful by the trainees themselves. Neither was there any attempt to evaluate the quality of the mentoring received, from the point of view of the anesthesia trainees. These omissions are limitations of this study which deserve further research.

The results of this survey demonstrate that the establishment of a mentorship program (even a rudimentary one) may be the first step in creating a CDC. A formal CDC program is

far more likely to be present in programs which provide a formal mentoring relationship (23 of 47 programs, 48.9%) compared to programs which do not provide mentoring (0 of 9 programs). A mentorship program may serve as a useful catalyst to discuss matters related to career guidance. Overwhelmingly, programs which provided the trainee with a mentor were more likely to have lectures geared towards salary and job offers contract negotiation, retirement plans, and malpractice insurance. Mentors are often role models for trainees, and trainees are more likely to discuss those financial topics with their trusted mentor that often a medical trainee is not encouraged to discuss in an open lecture setting. The social stigma of a physician inquiring about financial matters may play a role in this paradigm, though our survey did not probe into such depth. Thus, the creation of a mentorship program, by providing the opportunity for lively and open discussion between mentor and mentee on matters related to the physician's post-residency career, may serve as a crucible for the development of actual lecture topics which can be delivered on a larger scale to the trainees.

Career Development Curriculum

Though there are training programs that openly stated on our survey that they do not have a formal CDC in place, some of these programs still provided occasional lectures or discussions on one or more of the following topics: fellowships, salary, malpractice insurance, retirement plans, and 1099 vs. W2 income. Not surprisingly, however, programs that claim to have a formal CDC in place trended more towards providing lectures on academic medicine and private practice versus programs that did not have a formal CDC in place. There was also a trend towards lecturing on 1099 vs. W2 income and retirement plans in training programs with a formal CDC, though the results were not completely significant. Interestingly, there were no significant differences found in the delivery of lectures on crucial topics such as fellowships, salary and job offers, contract negotiation, and types of malpractice insurance in programs with a formal CDC in place vs those without a formal CDC.

Impact of Anesthesia Residency Program Characteristics on CDC

University-based residency programs were more likely than other training venues to offer CDC lectures on contract negotiation, malpractice insurance, retirement plans, and (marginally) job offers and income types. However, they were not significantly more likely to discuss the choice of academic career versus private practice, or review the pros and cons of different fellowship programs.

Residency programs run by hospital or private management groups were equivalent in their coverage of these career development topics. We found no statistically significant differences in CDC content between these different practice models.

Apart from having a CDC program already in place, the strongest predictor of CDC content was the size of the residency program. Programs with 30 or more residents were significantly more likely to have content choice of career in academia or private practice, job offers, contract negotiation, and retirement plans. Larger programs were also marginally more likely to have lectures reviewing fellowship programs or malpractice insurance. Income types seem to be a neglected topic that may benefit from more attention on the part of course presenters.

Attitudes

The role of institutional attitudes towards the individual CDC topics cannot be understated. Programs that felt that it is the responsibility of the program to lecture on malpractice insurance and contract negotiations were far more likely to develop a lecture on these topics. However, agreement with the concept did not guarantee 100% compliance in practice. Among those who agreed, concordance was 81.3% for having a CDC program in place, 89.7% for a lecture on contract negotiation, and 80.8 for a lecture on malpractice insurance. In addition, it appears that agreement was also not a prerequisite for relevant course content, though the data supporting this is not as robust as one would want. For example, among the 22 programs offering a lecture on retirement plans, 16 (72.7%) program directors were not in favor of teaching on this topic.

Limitations

Our survey had its limitations. Firstly, most of our survey data were provided by university-based residency programs under hospital-based management, so we have more confidence in our conclusions relating to those types of practices. Secondly, we would have benefited from a higher response rate. However, a response rate of 40-50% is typical for prior surveys of anesthesia residency program directors.⁸⁻

¹² It may be hypothesized that a disproportionate number of the non-responders may have been institutions that do not have a CDC in place and so did not feel it was worth the time to complete the survey. We are aware that inclusion of these non-responders might have allowed some of our "trends" to be more conclusive. We took steps to address this issue, and found no difference between the early and late responders in the presence of a CDC. Thus we do not believe that our results are undermined by this type of response bias. Additionally, our survey did not allow for the assessment of these CDC programs from the residents' standpoint to determine which lectures, if any, were found useful by the trainees themselves. Furthermore, our inclusion of the topics of malpractice insurance, job offers, retirement plans, fellowships, and 1099 vs. W2 income was not based on any established criteria of what ought to be in a CDC. Rather, these topics were determined from anecdotal data that such discussions would be very useful for the anesthesia trainee prior to graduation. Additionally, our survey questions did not distinguish between lectures or group discussions on a particular topic versus 1:1 discussion between mentor & mentee; this may have led to some subjective interpretation and variability in the responses.

Conclusions

Several important conclusions can be drawn from the results of our survey. First, as previously mentioned, the role of mentorship cannot be understated in the establishment of proper CDC programs. By providing residents with a mentor, an open discussion on matters related to finances is allowed which serves as a catalyst for more formal discussion in the form of lectures, with the eventual establishment of a formal CDC. Second, while many programs do not have a CDC, there are still topics on this issue that are being discussed, though not as aggressively as in programs with a CDC. Bringing these lectures under the umbrella of CDC may increase the topics discussed at these programs.

Future research into this area should be designed to look at the outcomes of the programs with a CDC to determine if the residents find themselves better prepared in their post residency years to tackle these topics and what elements of the CDC are associated with a better outcome. Lastly, the definition of "outcome" must be determined. Is our collective goal in developing CDC to increase physician satisfaction or physician wealth or a combination of both?

Physicians are not immune from the conditions affecting non-physicians. In the climate of corporate medicine, increasing government oversight, and decreasing reimbursements, training programs must provide trainees with a basic foundation on which to build once they graduate from residency. Faulty choices early in the career may have long term ramifications for the trainee.

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Table 1. Characteristics of Residency Programs Responding to Survey. Values are N (% of Total). P-value is from Fisher Exact Test for 2x2 cross-tabulation. CDC: Career Development Curriculum. N. S.: not significant.

	CDC Present	CDC Absent	P-value (2-sided)
<i>Programs with Formal Mentorship Program:</i>			
Yes	23 (41.1%)	24 (42.9%)	
No	0 (0%)	9 (16.1%)	P = .007
<i>Residency Program Type:</i>			
University-based	18 (33.3%)	26 (48.1%)	
Other	4 (7.4%)	6 (11.1%)	N. S.
<i>Management Type:</i>			
Hospital	17 (31.5%)	21 (38.9%)	
Private	5 (9.3%)	11 (20.4%)	N. S.
<i>Residency Program Size:</i>			
< 30	8 (15.1%)	12 (22.6%)	
>= 30	13 (24.5%)	20 (37.7%)	N. S.

Table 2. Career Development Curriculum (CDC) Lecture Content as a Function of Residency Program Characteristics. Values are percent of programs including the specific lecture content. P-values are from Fisher Exact Test for 2x2 cross-tabulations, 1-sided.

+ P < 0.10 * P < 0.05 ** P < 0.01

	Academic Medicine vs. Private Practice	Fellowship Programs	Salary and/or Job Offers	Contract Negotiation	Income Types	Malpractice Insurance	Retirement Plans
<i>Programs with Formal Mentorship Program:</i>							
Yes	74.5% **	50.0% +	63.8%*	71.1% *	31.7%	57.8% +	51.2% *
No	12.5%	12.5%	25.0%	25.0%	12.5%	25.0%	12.5%
<i>Residency Program Type:</i>							
University-based	70.5%	46.5%	65.9%+	72.1% **	35.9% *	62.8% **	53.7% **
Other	44.4%	33.3%	33.3%	22.2%	0%	11.1%	0%
<i>Management Type:</i>							
Hospital	70.3%	44.4%	59.5%	61.1%	26.5%	50.0%	45.7%
Private	56.3%	43.8%	62.5%	68.8%	35.7%	62.5%	40.0%
<i>Residency Program Size:</i>							
>= 30	78.8% **	53.1% +	69.7%*	81.8% **	31.0%	63.6% +	58.1% **
< 30	42.1%	26.3%	42.1%	27.8%	26.3%	36.8%	16.7%

Figure 1. Provision of a dedicated mentor for each resident (Yes/No) in residency programs with (white bars) and without (red bars) CDC. Note that in the group that did not have dedicated mentors (labelled "NO" on the X-axis) there were no "Yes" responses; thus the white bar is absent for this category).

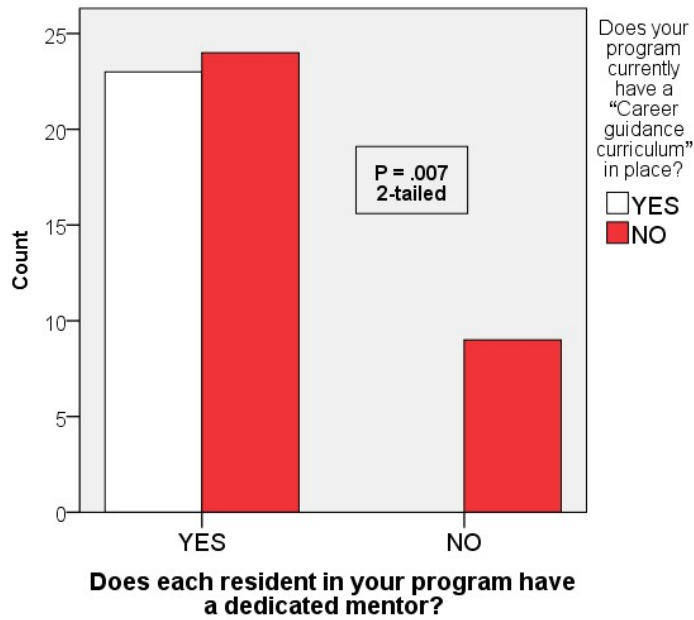


Figure 2. Provision of lectures on academic medicine vs. private practice (Yes/No) in residency programs with (white bars) and without (red bars) dedicated mentors.

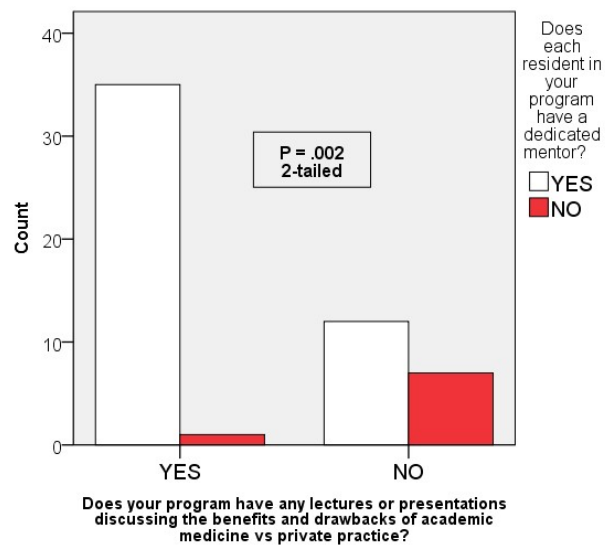


Figure 3. Presence of CDC (present = white bars, absent = hatched bars) in residency programs under different types of management.

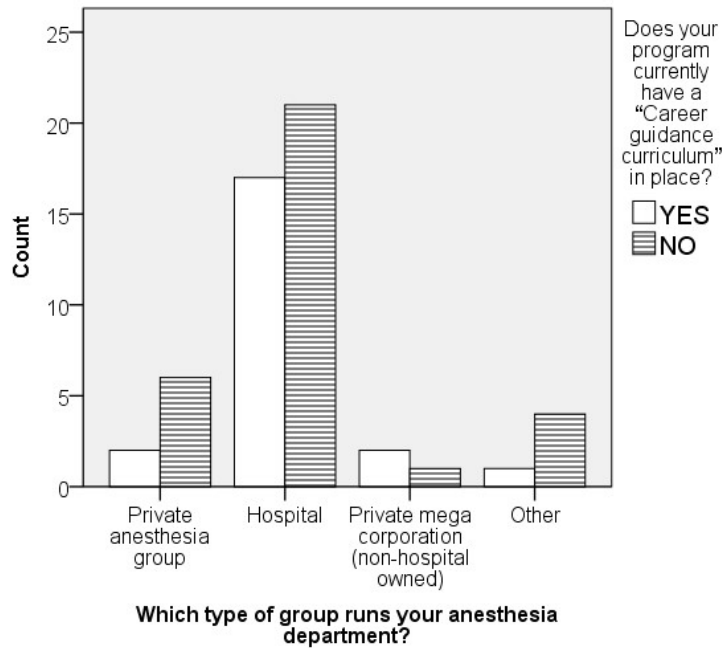


Figure 4. Provision of lectures discussing contract negotiation (Yes/No) by residency program size (small (<30 residents) = white bars, large (≥ 30 residents) = red bars).

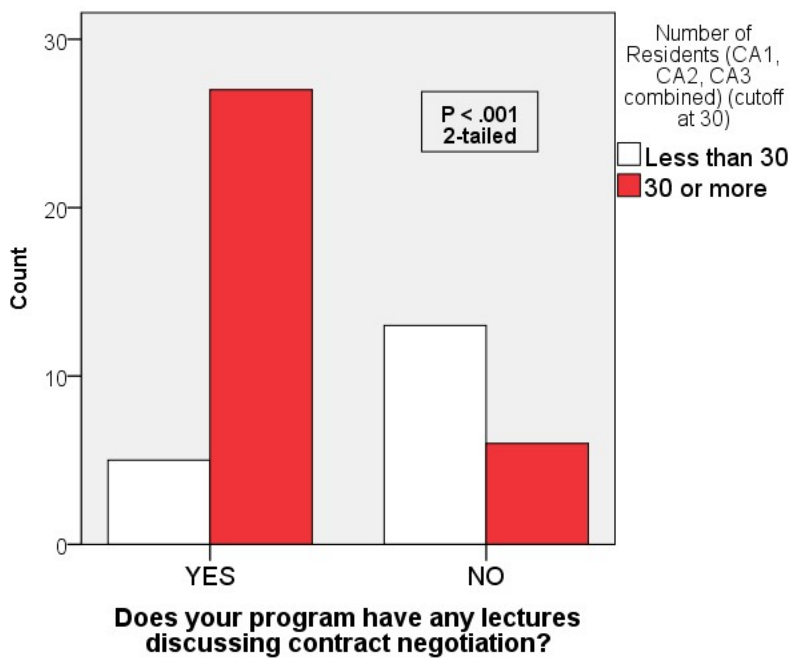


Figure 5. Effect of program director's opinion about provision of lectures on contract negotiation (green bars = agree, hatched bars = disagree or no opinion) on provision of lectures on contract negotiation (Yes/No).

