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Administrative Chief Residents – How Are They Chosen and Does It Matter?

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Abstract

Background: There is no literature on the administrative chief resident (ACR) in surgery or disparities of this leadership position.
Objectives: The aim of this study is to examine the rates of perceived female and minority leadership at the resident level.
Patients and Methods: After institutional review board (IRB) approval, a pilot survey was sent to surgical residents and faculty at a single university surgical program. The survey was revised based on small group feedback and a specialist in study design. It was then sent to all US surgical residents and program directors, and analyzed using Survey Monkey.
Results: There was a 10% resident response rate, 22% program director, most from a program with 50% female residents. 71% report no clear ACR policy, 64% believe the position appointed. Half report less than 25% female ACRs, 54% zero minority ACRs. Program directors reported more female ACRs, but similar lack of selection policy. 54% believe ACR receives a stipend. 31% report more than 75% went into academics.
Conclusions: Although most surgical programs train 50% female residents, residents perceive that fewer than 25% ACRs are female. ACRs in the United States are often receiving a stipend and going into academic practice. Programs should keep diversity in mind in appointing ACR.

Keywords: Women in Surgery, Leadership, Residency, Surgical Leadership, Women in Academic Medicine

1. Background

The underrepresentation of women and minorities fulfilling leadership roles in academia has been well documented. Multiple studies have shown an increasing presence of women and minorities in medical school and academic medicine (1, 2). In recent years the number of women graduating from medical school has reached approximately 50% (2, 3). The proportion of women in surgical residency has increased less rapidly, but has reached approximately 30% - 40% (1, 4). However, in general, the number of women in academic leadership roles is not increasing proportionately as of 2012 only 16% of faculty is female and only 7% of full professors are women (5).

Explanations for these discrepancies are multifactorial, but have occasionally been described with "sticky floor" or "glass ceiling" analogies to explain the lack of women in decision-making roles, despite of the presence of qualified women to fulfill them. The "glass ceiling" describes barriers to advancement due to organizational bias for men, by inadvertently excluding women from mentorship or networking (3). The "sticky floor" suggests that the discrepancy is due to women not advancing as quickly, thus having an overrepresentation at the lower leadership levels (6). Some argue that the reason women are not advanced, is that they are not as productive as men; however, this has been disproven by studies controlling for numbers of publications, grants, and teaching awards, and women are still not advanced equally (2, 7).

There is evidence that women choose academic careers more often than men; in the years between 1979 and 1997 more women than expected held a faculty position at some point after medical school graduation (2). This would support the "pipeline" the idea that there are more women will be coming into leadership, it will just take time as the higher rates of female medical students, subsequently surgical residents, join the ranks. Unfortunately, this has not been the case (2, 6-10). There is also evidence that women tend to be well represented in the program or assistant program director role, but not the chair or division chief position that carries hiring and business responsibilities (11).

Most of these studies have been at the attending level

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(12, 13). If the pipeline theory were true for women and minorities, their representation in leadership positions at lower tiers, such as residency where numbers are increasingly proportional, would be expected to be equal.

2. Objectives

We hypothesize that the pipeline theory does not explain leadership in academic surgical institutions, and that women and minorities are underrepresented in resident leadership as well as upper tier faculty appointments. Here we aim to examine perceptions regarding diversity of leadership, specifically of the administrative chief position, in general surgical residencies throughout the United States.

3. Patients and Methods

The design of this study was an anonymous survey that was sent to surgeons practicing in a training environment in order to assess patterns and perceptions surrounding the position of administrative chief resident. An institutional review board is a governing body for research in the United States. Each university or organization has a review board this board's primary role is to maintain safety in human studies. After obtaining institutional board approval at the university of California San Diego (UCSD IRB number 140188), a 27-question pilot survey was sent via email to surgeons practicing at UCSD at the attending and resident level in the departments of general surgery, plastic surgery, neurosurgery, urology, orthopedic surgery, head and neck surgery.

Questions were developed by the senior authors SLR and SLB, who are general surgery attending surgeons at UCSD. They were modified with the assistance of authors AW and DT. The first survey was tested at UCSD only, and questions were modified using the survey's results and feedback via open forum. The survey was revised with the input from VM who is a psychologist with extensive experience in survey design. The revised survey was 20 questions long (Boxes 1 and 2). After revision, the survey was sent via email to program directors within the United States, who were asked to forward it to their department, as well as take the survey themselves.

The survey was sent twice. It asked respondents to focus on the last 5 years at their respective institutions. The completed surveys were sent anonymously to a website (Survey Monkey). Answers were compiled without any identification of the respondents. Survey Monkey was used to analyze the results. The results of resident surveys were analyzed, and a separate subset analysis of program directors was performed.

4. Results

4.1. Demographics

The pilot survey was sent to a group of 143 surgeons. A total of 53 (37%) surgeons responded to this pilot survey. 33 (62%) of respondents identified themselves as general surgeons, 8 (15%) urologists, 6 (11%) head and neck surgeons (ENT), 4 (8%) neurosurgeons, 1 (2%) orthopedic surgeons, and 1(2%) plastic surgeons. 27 (51%) respondents were faculty and 26 (49%) were residents.

The final survey was sent to roughly 1000 resident surgeons with 107 respondents, an estimated 10% response rate, and 235 program directors with 58 respondents (22% response rate). Table 1 presents the demographics of the final study. Residents were 56% male, program directors who responded were 63% male. 2% of resident respondents had 5 residents in their program, 17% had 5 - 20 residents, 53% had 20 - 50 residents, and 28% had more than 50 residents.

4.2. Survey Results

Most (70) respondents reported that 50% of the residents in their department were women (65%). 29% reported their program was 25% women, and 6% reported 75% women, as depicted in Figure 1. 81 (76%) respondents reported that 25% of the residents in their department were minorities and 14% reported that 0% of the residents in their department were minorities. 16% of program directors ran programs of more than 50 people; 68% reported that 50% of their residents were female, 91% reported that 25% of their residents were ethnoracial minorities.

103 respondents reported their department had an ACR (96%). 75 (71%) reported that there is no clearly stated policy on how the ACR is chosen. 65% of program directors (PDs) reported that there was no clear policy on how the ACR is chosen 46% of the PDs cited appointment, and 33% reported cycling ACRs. 68 (64%) of residents believe that the process is appointment, 9% there is an application process, 15% nomination by colleague, and 11% a rotational appointment with each resident having a fixed time as ACR.

Figure 2 represents the percentage of ACRs that have been women and minorities, according to resident perception. 49% of respondents report less than 25% of ACRs have been women, and 54% report less than 25% of ACRs have been minorities. PDs responded very differently ($P < 0.05$) - 57% of PDs report 50% female ACRs over the past 5 years. Figure 3 represents the percentage of female and minority ACRs as perceived by the program directors. Statistical analysis comparing resident versus PD reported rates for female ACR revealed P values of 0.002 and 0.02, for survey responses that women are the ACR 25% or 50% of the time respectively.

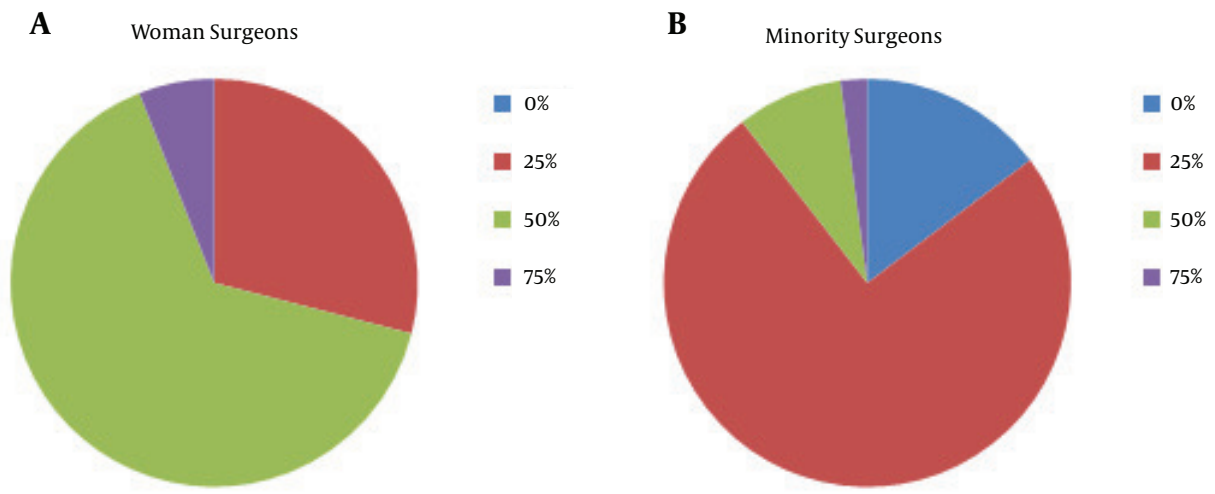

Figure 1. The demographics of Survey Respondents' Surgery Residency Programs, Through Self-Reporting

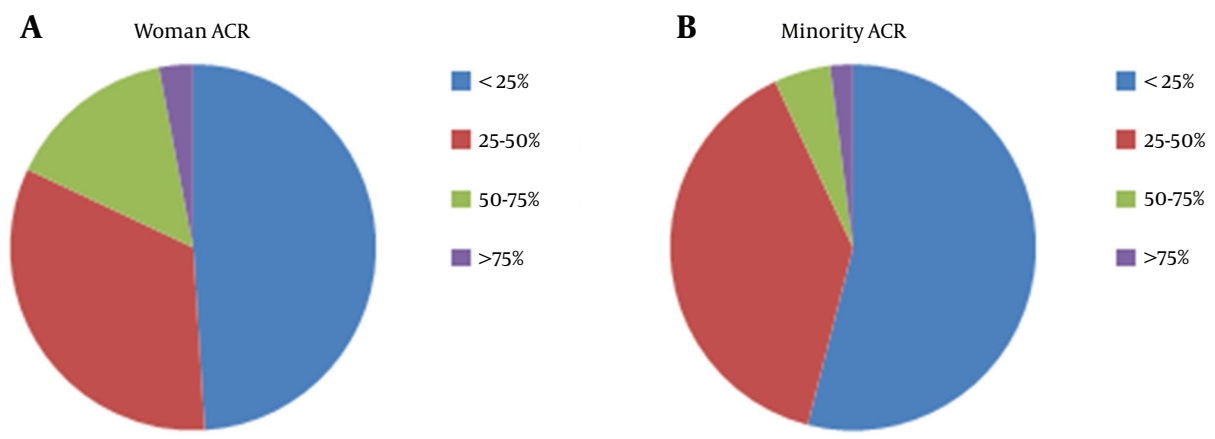

Figure 2. Resident Perception of the Percentage of Administrative Chief Residents That Have Been Women and Minorities

Figure 4 represents the patterns of practice that respondents believe their ACRs have gone into following surgical residency graduation. 16% of respondents reported that no ACRs went to academics, 19% reported 25% went on to academia, 34% reported that 50% of their ACRs went on to academia, and 31% reported that 75% or more of their ACRs went into academic practice. This trend is the reverse for ACRs going in to community and rural practice. PDs reported that prior ACRs went into academic and community practice at similar rates, even though resident perception is strongly skewed that ACRs go to academic practice. Figure 5 presents the PDs responses on this topic.

Most survey respondents (49%) believe that designing a call schedule is the most important responsibility of the administrative chief. 30% believe troubleshooting resident issues most important, 12% find teaching above their peers, 3% think resident conference scheduling, and 7% believe meetings and committees such as residency review to be the most important. Program directors felt that designing a call schedule was the most important responsibility. 28% of resident respondents feel that the most important personal characteristic of the ACR is being well respected by their peers. Next were 24% felt that being fair/unbiased, 23% being organized, 14% being committed to the job, and 11% being well respected by faculty were the most important personal characteristics. Program directors felt that being organized was the most important trait of an ACR.

Only 29% (30/107) respondents reported that their ad-

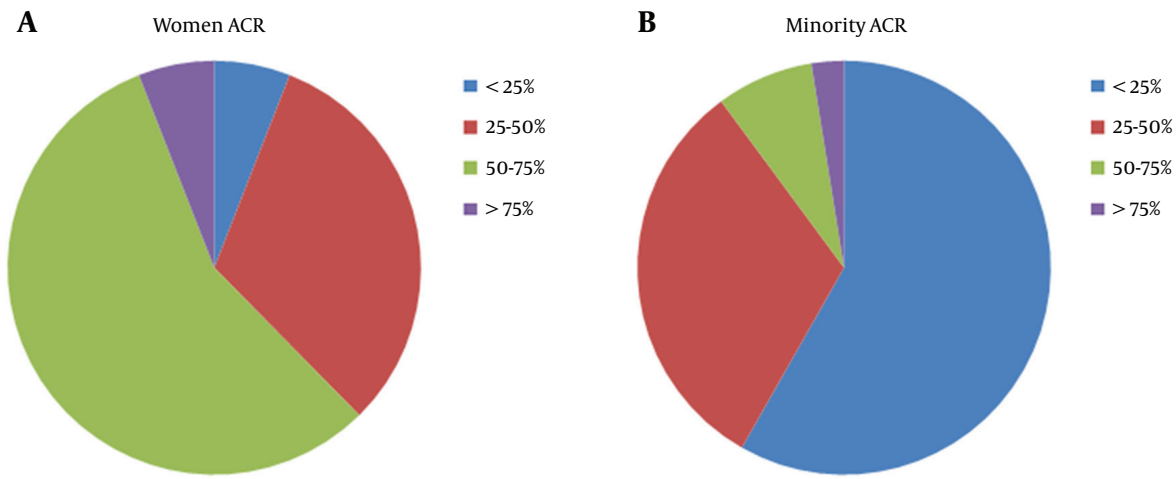

Figure 3. Program Director Perception of the Percentage of Administrative Chief Residents That Have Been Women and Minorities

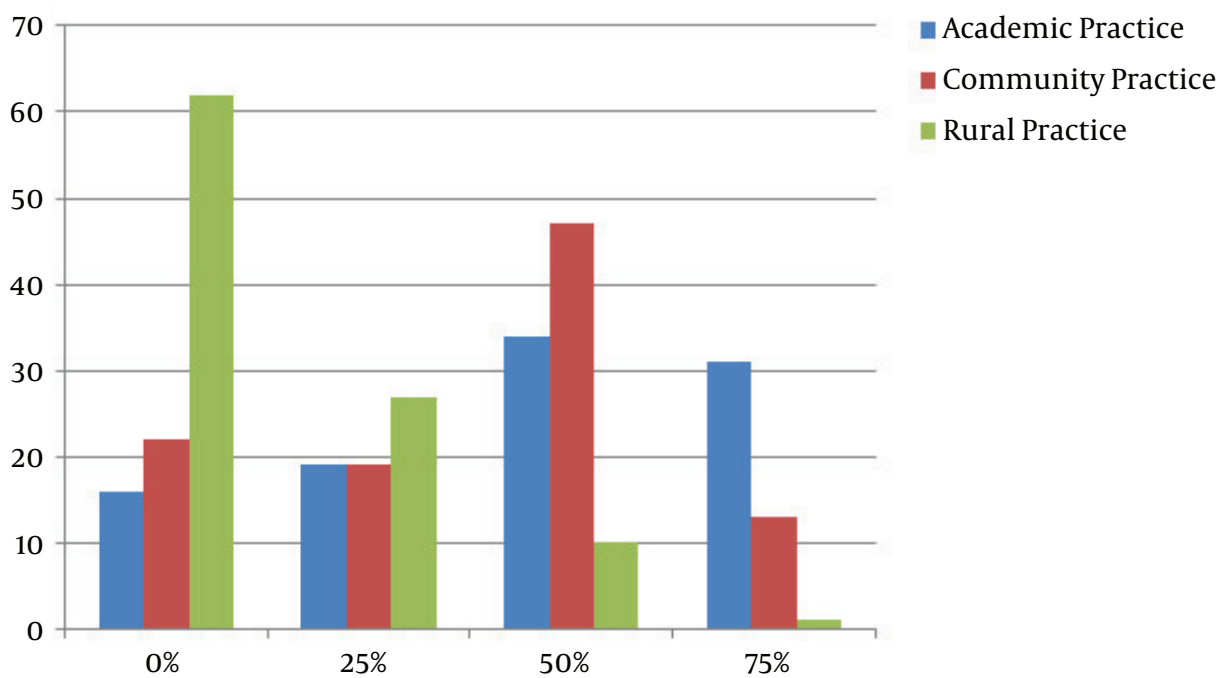

Figure 4. Practice Patterns of Past Administrative Chief Residents, as Perceived by Survey Respondents

ministrative chief resident is offered departmental training. 54% report that the administrative chief resident receives a stipend. 54% of PDs also reported the ACR received a stipend, but still 56% report there is no formal training.

5. Discussion

The current study demonstrates a similar trend of underrepresentation of women and minorities in surgical resident leadership positions, as is well documented for attending surgeons. While the majority (65%) of resident

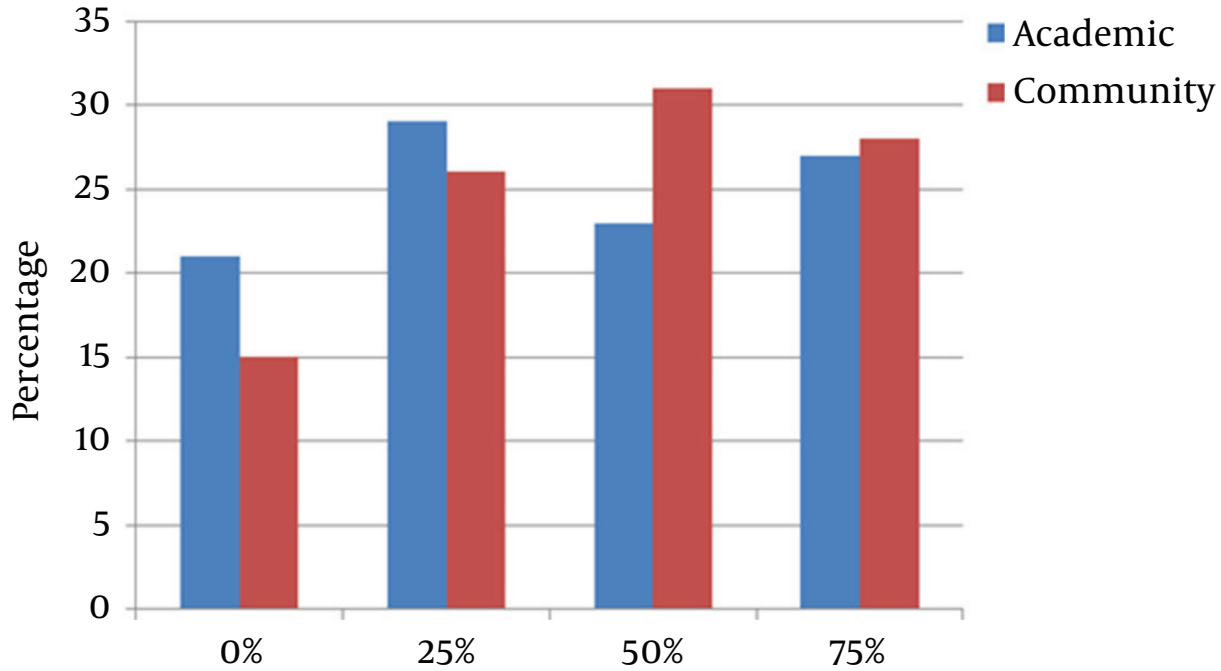

Figure 5. Practice Patterns of Past Administrative Chief Residents, as Reported by Program Directors

respondents report that 50% of the surgical residents are women, half (49%) indicated that less than one-quarter of their ACRs have been women. There is a similar finding for minority surgery residents. Interestingly, program directors report 50% women residents as well as 50% women ACRs. This implies that residents perceive a disparity at this level as well, and the results challenge the pipeline theory. Given greater gender balance in residency, the pipeline theory expects that women in leadership positions at the resident level would be proportional. However, our survey demonstrates that instead of having a proportional number of female ACRs (i.e. 30% - 50%), the representation of women residents as ACR in each department was lacking.

Sociologists have examined the patterns of women and minorities in business and found no good explanation for how gender and cultural differences affect advancement (14). Some propose the structure of an organization determines individual behavior more than an one's intrinsic character, emphasizing the importance of understanding how power structures relate to inequity in the workplace (15). In a survey study published by Sexton et al., all respondents agreed or strongly agreed that the leadership structure of surgery is hierarchical (1). This hierarchical structure has been cited as a possible barrier to academic advancement of women in medicine; (16) high-level academic leaders atop the hierarchy often have an indeterminate tenure, leading to advancement schemas that lack transparency (1). Such traditionally hierarchical appointment systems may, in part, explain the bottleneck effect that hinders advancement of women (16) since biases and discrimination have an opportunity to play a greater role when transparency is lacking (14). While the position of ACR is typically only one year, a similar lack of transparency 71% of resident participants and 46% of program directors indicating that ACR is determined by appointment may perpetuate a lack of female leadership in this position.

This missed opportunity early in a woman's career may have lasting implications. ACR is a position in which the resident often works closely with the program director and chairman as a resident liaison. Being appointed ACR is commonly regarded as an excellent leadership opportunity and many suggest that ACRs go on to hold important administrative positions in their careers (17). Alpert et al. report, as compared with non-chief residents, former chief residents surveyed were more likely to consider themselves leaders, have received honors and held more leadership positions. Predictors of leadership were chief resident status, male gender, and honors received (17). Similarly, in a study of attendings, having been a chief resident was associated with being named an excellent role model

(18). These studies imply that serving as an ACR may be an indicator or stepping stone to future academic leadership. The results of the current study indicate a similar possibility the majority of respondents reporting that the ACR receives a stipend and goes into academic practice. Whether the ACR career path is actually more academic than other residents (not so according to program directors), residents certainly believe that ACRs are more academically inclined.

A potential limitation of this study and survey studies in general is a combination of sampling and response bias. Respondents that feel there is an injustice that needs addressed may be more inclined to take time to answer the survey, thus skewing the results. This is a possible explanation for the discrepancy between responses of residents and program directors. Another potential bias is questioner reliability, the questions could be leading in nature, although this was controlled for by using an outside expert in study design. Further potential bias exists because residents chosen for the ACR position likely exhibit personal attributes that make them more inclined to academic success, which may overestimate the implied importance of ACR appointment to attaining a leadership position. Another limitation is the low response rate – accountability is difficult to achieve when reaching residents nationally via email. There is no perceived benefit to spend time filling out a survey amidst a busy surgical resident schedule. Furthermore, the actual response rate cannot be accurately calculated because it is unknown how many program directors or residency coordinators actually forwarded the study email, or how many residents actually read the email. An alternative method of delivery is a survey following the American board of surgery in-training exam, this is a captive audience, but is very tightly regulated. Last, the low response rate and sampling bias may explain the resident-program director discrepancy as well. If one program had 30 respondents, this could skew the results. It is possible that the program director responses are more accurate; however there is still an important message in this. The perception that residents hold regarding the resident leadership ACR position is noteworthy.

5.1. Conclusions

Although most surgical programs in the country train 50% female residents, most residents report less than 25% female ACRs over the last 5 years. A similar trend exists for minorities. ACRs in the United States are often receiving a stipend and going into academic practice. ACR is a position that most feel commands respect, and grants potential monetary and career advantages; programs should keep diversity in mind in appointing the administrative chief resident.

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Footnotes

Authors' Contribution: Anna Weiss designed the survey and wrote the manuscript. Damini Tandon designed the survey. Katherine C. Lee provided critical revisions to the manuscript. Bindu Chandrasekaran designed the survey. Nicole Lopez designed the survey and provided critical revisions to the manuscript. Sonia L. Ramamoorthy designed the survey and provided critical revisions to the manuscript, and Sarah L. Blair designed the survey and provided critical revisions to the manuscript. Vanessa Malcarne is a psycologist with extensive experience in survey design who helped revise the survey.

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Box 1. [Part 1] Survey Administered

Question and Responses
1. With what department are you affiliated? (choose 1)
General surgery
Plastic surgery
Neurosurgery
Urology
Orthopedic surgery
ENT Surgery
2. What is your position within the department? (choose 1)
Faculty
Resident
3. What is your gender?
Male
Female
4. What is your age?
25 - 40
40 - 55
55 - 70
> 70
5. How many residents are in your department's program? (choose 1)
< 5
5 - 20
20 - 50
> 50
6. What percentage of the residents in your department are women? (choose 1)
0
25
50
> 75
7. What percentage of the residents in your department are of an underrepresented minority? (choose 1)[a]
0
25
50
> 75
8. Is there an administrative chief resident in your department?
Yes
No
9. Is there a clearly stated policy on how the administrative chief is chosen in your department?
Yes
No
10. To your best knowledge, what is the method for choosing the administrative chief resident in your department? (choose 1)
By appointment
Application process
Nomination by colleagues
Rotational (each resident gets a chance for a fixed time)

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Table 1. Demographics of Resident Respondents

Variable	Results, No. (%)
Gender	
Male	60 (56)
Female	47 (44)
Program size	
5	2 (2)
5 - 20	18 (17)
20 - 50	57 (53)
> 50	30 (28)
Percentage of residents that are women	
0	0 (0)
25	31 (29)
50	70 (65)
75	6 (6)
Percentage of residents that are minority	
0	15 (14)
25	81 (76)
50	9 (8)
75	2 (2)