Fringe Benefits Among US Orthopedic Residency Programs Vary Considerably: a National Survey

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Abstract *Background:* Residency programs compete to attract applicants based on numerous factors. Previous research has suggested that medical students consider quality of life among the most important factors in selecting a program. One aspect of workplace quality of life is the cadre of non-monetary benefits offered to employees. However, with federal funding for graduate medical education (GME) under consideration for spending cuts, the source and continuation of such benefits may be in question. *Questions/Purposes:* This study aimed to determine the level and variability of benefits beyond standard salary and insurance options available to trainees at US orthopedic residency programs and to assess the source of funding for those benefits. *Methods:* A 26-question survey investigating various benefits and funding sources was circulated by email to all ACGME-accredited orthopedic residency programs. *Results:* The survey was sent to 153 programs and 69 responded (45%). The majority offers their residents discretionary funds (77%) and conference funding (96%), most of which comes from the department, followed by the hospital or GME funding. Forty-one percent of respondents permit their residents to moonlight. The majority of respondents provide

meal stipends (93%), free parking (71%), gym benefits (63%), surgical loupes (53%), and maternity/paternity leave beyond vacation time (55%). No statistically significant differences were found among top ranked residencies, top ranked orthopedic hospitals, or academic centers compared to their counterparts. *Conclusion:* While some benefits are commonly offered, there is great variation in the availability and level of others. However, these differences were independent of program and hospital reputation as well as academic center status. Departments currently bear a substantial amount of the cost of these benefits internally.

Keywords fringe benefits · orthopedic residency programs · national survey

Introduction

While there is well-recognized competition among applicants for orthopedic residency spots, programs similarly compete to attract top candidates. Previous research has made clear that residency applicants base their choices of programs on a number of variables. Studies in multiple fields of medicine have investigated the importance of various factors without a clear consensus [9, 12]. For example, quality of life was found to be the highest rated factor among general surgery candidates in a 2009 survey study [12]. However, a 2012 study of Japanese and US general surgery applicants found that educational factors outweigh lifestyle in selection of a residency program [7]. Several other factors have also been shown to be of great import to candidates. For example, the presence of international rotations was demonstrated to be an important factor among candidates by studies in multiple fields [4, 10]. Another study found a program's "friendliness" to be the largest influence among emergency medicine applicants [3]. While previous studies have not explicitly suggested that employee benefits are a leading influence in applicant decisions, such benefits likely contribute to other top ranking factors such as resident

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Table 1 Survey and response options

Questions	Response Options
1. Are residents offered a discretionary fund to purchase textbooks, surgical loupes, pay for professional society memberships, etc.?	Yes/no
2. What is the total yearly funding available to residents through a discretionary account?	Less than \$500, \$500 to \$1000, \$1001 to \$2000, greater than \$2000, N/A
3. Where are discretionary funds sourced?	Department, hospital/GME, alumni, other, N/A (check all that apply)
4. Are residents provided with tablets (i.e., iPads or comparable devices)?	Yes/no
5. Are tablets purchased for residents by department, hospital, and/or alumni funds?	Department, hospital/GME, alumni, other, N/A (check all that apply)
6. Are residents provided with surgical loupes?	Yes/no
7. Are surgical loupes purchased for residents by department, hospital, and/or alumni funds?	Department, hospital/GME, alumni, other, N/A (check all that apply)
8. What other hardware does your program provide? (i.e., Operating room lead, laptops, Blackberries...)	Please list
9. Does your residency program have designated meetings/courses for residents to attend that are funded by the department? (Examples could include AO basic course as a junior resident, Miller Review course as a chief resident)	Yes one course per year or more, yes less than one course per year, no residents may attend courses but are responsible for the cost
10. Are there additional funds available to residents to present original research at meetings/conferences?	Yes/no
11. How much additional funding per event is available for residents to present at meetings/conferences?	Less than \$500, \$500 to \$1000, \$1001 to \$2000, greater than \$2000, N/A
12. Where does additional funding for meetings/conferences come from?	Department, hospital/GME, alumni, other, N/A (check all that apply)
13. How many weeks of vacation are residents allowed per year? (PGY-2 and above if different vacations apply for interns.)	Free text numeric response
14. Is there additional time available for academic pursuits such as courses and conferences?	Yes/no
15. How much additional time (in days) is available for meeting or course attendance?	Free text numeric response
16. What are the requirements for presenting at a meeting?	Must be a national meeting, must present original research, other (check all that apply)
17. Are residents provided meal stipends?	Yes/no
18. Who provides funding for meal stipends?	Department, hospital/GME, alumni, other, N/A (check all that apply)
19. Which residents are eligible to receive meal stipends?	All residents, residents taking in-house call, residents taking home call, N/A, other (check all that apply)
20. What is the approximate yearly amount of funds provided for meal stipends for each resident?	Free text numeric response
21. Is parking provided for residents at your institution free of charge?	Yes/no
22. If there is a fee for parking, what is the yearly amount (\$)?	Free text numeric response
23. Do residents have the opportunity to earn extra income during residency (moonlighting)?	Yes/no
24. If moonlighting is available, what is the maximum dollar amount that residents can earn per shift?	Please estimate the maximum amount.
25. Are residents offered gym membership at a free/discounted rate?	Yes/no
26. Are residents offered maternity/paternity benefits?	Yes/no, If so please describe:

Table 2 Summary of results

	Count	Percent
Responded to survey?	69	45
Provide discretionary funds?	53	77
Permit moonlighting?	28	41
Provide meal stipends?	64	93
Provide conference funding?	66	96
Provide time off for academic pursuits?	62	90

satisfaction and “happiness/quality of life” [9, 12]. However, applicants may find it difficult to learn about employee benefits due to concerns that asking questions on the topic will make them appear to be interested in the “wrong” things. To our knowledge, data on resident benefits has not been reported in the literature, and there are no established minimum requirements. We hypothesize that the amount and type of benefits offered differ substantially among orthopedic training programs.

Employee benefits can be a substantial investment for any organization, including residency programs. The majority of financial support for residencies comes in the form of graduate medical education (GME) funding, which is provided primarily by the federal government through Medicare payments. This funding source has recently gained increasing national attention as a potential target for government spending cuts [15]. The National Commission on Fiscal Responsibility and Reform has proposed a 60% reduction in the GME funding provided through Medicare in an effort to reduce the federal deficit [1]. With this tenuous GME funding situation, we hypothesize that residency programs may find it necessary to use internal departmental funds to cover a number of expenses, including many resident benefits, even those related to education.

The purpose of this study is to test the two aforementioned hypotheses by, first, determining the level and variability of benefits beyond standard salary and health/malpractice insurance options available to trainees at US orthopedic residency programs and, second, by assessing how much of the funding for those benefits is provided by orthopedic departments themselves compared to external

sources such as the hospital system, dedicated alumni gifts, or industry.

Materials and Methods

A 26-question multiple choice and short answer survey (Table 1) was reviewed by our home institution’s internal review board and granted exemption. The survey was administered via *Google Forms* (Google Inc. Mountain View, CA, USA) and emailed to all Accreditation Council for Graduate Medical Education (ACGME)-accredited orthopedic residency program directors. At least six reminders were sent over the course of 44 business days to programs that had not yet responded. In these cases, program coordinators were also emailed if contact information was readily available online. In the case of programs submitting multiple survey responses with varying answers, only the last survey received was included in our analysis.

To better characterize variation among programs, three comparisons were made. First, residency programs at academic centers were compared to community-based programs. Second, residency programs at the 25 “Top-Ranked Hospitals for Orthopedics” as reported by *U.S. News & World Report* were compared to the remaining programs [14]. Lastly, residency programs listed among the 25 “Top-Ranked Residencies for Orthopaedic Surgery” by *Doximity.com* on the basis of reputation were compared to the remaining programs [5]. The methodology used by *U.S. News & World Report* and *Doximity.com* involves extensive survey circulation to professionals in the field to assess the reputation of each institution. Of note, the questionnaire used by *Doximity.com* was adapted from the tool designed and employed by *U.S. News & World Report* [6].

Data was managed and tables/figures were assembled using Microsoft Excel (Microsoft Corp., Redmond, WA, USA). Statistical analysis was performed using SPSS software (IBM Corp., Armonk, NY, USA). All variables collected were nominal or ordinal and were compared using chi-squared tests except in cases with small expected values (i.e., which violate the assumptions of chi-squared testing); in these cases, a two-tailed Fisher’s exact test was used for variables with two categories and a likelihood ratio was calculated for variables with three or more categories. An alpha level of 0.05 was used to determine statistical significance.

Fig. 1. Discretionary funding amount/year and source. **a** Bar graph depicting the percentage of programs reporting discretionary funding levels of zero or within each of four prespecified ranges. **b** Pie chart depicting the percentage of programs reporting each of five funding sources for their discretionary funding.

Fig. 2. Conference funding amount and source. **a** Bar graph depicting the percentage of programs reporting conference funding levels of zero or within each of four prespecified ranges. **b** Pie chart depicting the percentage of programs reporting each of five funding sources for their conference funding.

Results

Forty-five percent (69/153) of programs responded to the survey within the data collection timeframe. Most programs provide residents with discretionary academic funds, meal stipends, and funding as well as time off of work for conferences and educational courses (Table 2).

Discretionary educational funds are offered by 77% (53/69) of responding programs. The quantity of this funding is variable, ranging from \$0 to greater than \$2000 (Fig. 1a). Of the 53 programs that provide discretionary funds, 51 reported the annual amount: nine offer between \$1 and \$500, 13 offer between \$500 and \$1000, 27 offer between \$1001 and \$2000, and two programs offer annual educational funding exceeding \$2000. The funding source for discretionary educational accounts is exclusively provided by the department at 42% of programs, hospital/GME funds at 23% of programs, and mixed funding sources at 25% of programs (Fig. 1b). The three most popular combinations of mixed funding for a discretionary account are department, hospital/GME, and alumni giving (7%), department and hospital/GME funds (5%), and department and alumni funding (5%).

Academic support to attend conferences, seminars, or other educational courses is provided by 96% (66/69) of responding programs. Eighty-four percent of respondents report that there is at least one designated course or meeting per year of residency that trainees are scheduled to attend. Eighty-two percent of programs mandate that residents must present original research to qualify for supplemental funds for conference attendance, and 44% require that the conference must be a national meeting.

Ninety percent of programs provide additional non-vacation time (average 5.5 days/year) to attend academic conferences or courses. This is in addition to an average of 3.3 weeks of vacation per year with a reported range of two to four weeks. Eleven programs report that the amount of additional time allotted for conferences or courses is determined on a case-by-case basis, typically at the program director's discretion. Funding per conference ranges from \$0 to over \$2000 with most programs offering between \$1001 and \$2000 dollars (Fig. 2a), and the source is typically internal department funds (Fig. 2b). Hospital/GME funds only contribute to conference attendance at 9% of programs. Less common sources included alumni giving, donations, and industry grants.

Moonlighting is permitted in some form by 41% (28/69) of responding programs. The amount of additional funds that residents can earn while moonlighting per shift reportedly varied from \$50 to \$1600 with an average estimate of \$468 per shift.

The majority of respondents provide surgical loupes (53%) and meal stipends (93%), while a minority provide tablets (41%). Yearly meal stipends reportedly range from \$50 to \$20,000 with an average of \$2371. Meal stipend eligibility is typically reserved for on-call residents (59%), but some programs offer this to all residents in the form of a monthly allowance. Orthopedic departments typically fund tablets and loupes using internal funds, while the hospital or GME funds are more commonly used for meal stipends (Fig. 3). When queried regarding “additional hardware,” 15 programs indicated that they provide personal operating room lead aprons and/or thyroid shields, two provide smart

Fig. 3. Supplemental benefits and funding source. Stacked bar graph depicting the percentage of programs providing various supplemental benefits (tablets, surgical loupes, and meal stipends) as well as the percentage reporting each of five funding sources.

Table 3 Comparison on basis of “US News & World Report” ranking of Top 25 Orthopedic Hospitals

Benefit	% or most common response		P value
	Top 25 hospitals (n = 8)	Remainder of programs (n = 61)	
Discretionary funds	88%	75%	0.67
Amount of discretionary funds per year	\$1001–\$2000	\$1001–\$2000	0.62
Moonlighting permitted	63%	38%	0.26
Meal stipends	100%	92%	1.00
Conference funding offered	88%	97%	0.31
Amount of funding per conference	\$500–\$1000 or >\$2000 ^a	\$1001–\$2000	0.16
Additional time off for academic pursuits	90%	88%	1.00

^aEqual numbers of “Top 25 Orthopedic Hospitals” reported providing \$500–\$1000 and over \$2000 for conferences/courses

phones, one provides laptops (MacBook Air, Apple Inc., Cupertino, CA, USA), one provides lead eyewear, one provides dictation headsets, and one provides e-library access (these latter three items were not specifically suggested in the questionnaire, so these counts may underrepresent the true prevalence as other respondents may not have thought to volunteer this information).

Other benefits provided by the majority of respondents included free parking (71%), free or discounted gym memberships (63%), and maternity/paternity leave beyond vacation time (55%). Among programs without free parking, the average annual fee is \$740. When available, maternity/paternity leave ranges from one to eight weeks, with several programs citing compliance with the Family and Medical Leave Act. Only one program reported a difference between maternity and paternity policies, affording six weeks and ten days of leave, respectively.

Respondents included eight residency programs listed within the “Top 25 Hospitals for Orthopedics” by *U.S. News & World Report* [14], 13 programs listed within the “Top 25 Orthopaedic Residencies” by *Doximity.com* [5], and 58 academic centers along with 11 community-based programs. Each of these groups was compared to their counterparts on seven relevant data points, and no statistically significant differences were found (Tables 3, 4, and 5).

Discussion

This survey study investigated the current level, variation, and funding sources of employee benefits offered to trainees at US orthopedic surgery residency programs. The response rate of 45% is on par with similar prior studies [2, 8, 11]. Our results suggest that, while some benefits are commonly offered, there is great variation in the availability and level of others. Additionally, our results make it clear that departments are bearing a substantial amount of the cost of these benefits.

In addition to funding for conference attendance and presentations, the most common benefit offered to residents at US orthopedic residency programs is a meal stipend. We observed a wide range in the amount of meal stipends provided by programs with an average of \$2371 (though the upper and lower ends of the reported range appear to be outliers and we speculate they may be attributable to typos or respondents reporting weekly or daily funds rather than yearly stipends as requested). Discretionary educational funds for the purchase of books and other academic pursuits were another popular offering. Somewhat surprising to the investigators was the prevalence of moonlighting opportunities and the amount of additional income offered for these pursuits. Further research may be beneficial by investigating where residents are moonlighting and what their responsibilities are during these shifts.

Table 4 Comparison on basis of “Doximity.com” ranking of Top 25 Orthopedic Residencies by reputation

Benefit	% or most common response		P value
	Top 25 residencies (n = 13)	Remainder of programs (n = 56)	
Discretionary funds	85%	75%	0.72
Amount of discretionary funds per year	\$1001–\$2000	\$1001–\$2000	0.54
Moonlighting permitted	54%	38%	0.28
Meal stipends	92%	93%	1.00
Conference funding offered	92%	96%	0.47
Amount of funding per conference	> \$2000	\$1001–\$2000	0.14
Additional time off for academic pursuits	92%	89%	1.00

Table 5 Comparison on basis of academic center status

Benefit	% or most common response		P value
	Academic centers (n = 58)	Community programs (n = 11)	
Discretionary funds	74%	91%	0.23
Amount of discretionary funds per year	\$1001–\$2000	\$1001–\$2000	0.35
Moonlighting permitted	38%	55%	0.33
Meal stipends	91%	100%	0.59
Conference funding offered	95%	100%	1.00
Amount of funding per conference	\$1001–\$2000	\$500–\$2000 ^a	0.31
Additional time off for academic pursuits	90%	91%	1.00

^aEqual numbers of community-based programs reported providing \$500–\$1000 and \$1001–\$2000 for conferences/courses

Although 69 programs responded to the survey, only 56 answered the question regarding maternity and paternity benefits. Of these respondents, 55% offered maternity and/or paternity benefits. Programs reported offering between one and six weeks of leave, and only six stipulated that they provided paid leave. Numerous respondents cited their policy as being compliant with the Family and Medical Leave Act. This federal act governs “all public and private elementary and secondary schools, and companies with 50 or more employees” and mandates that employers provide 12 weeks of unpaid leave to eligible employees [13]. The discrepancy between federal law and the responses we gathered is interesting and warrants further investigation.

This study has several limitations. The response rate of 45% means that our results may not accurately represent US orthopedic residencies, especially if there is a response bias. For example, program directors from institutions with stronger benefit offerings may have been more inclined to respond to the survey. Additionally, it is not explicitly clear based on existing literature how strongly residency candidates value the benefits examined here. While prior literature has shown that “quality of life/happiness” matters to applicants, no studies have demonstrated if or how much the benefits studied here contribute to that metric. Looking forward, future research investigating this relationship would be helpful in better understanding the dynamics of the residency application process. Additionally, studies examining fringe benefits in more detail will likely be of value. For example, differences in moonlighting opportunities, particularly in the setting of work hour restrictions, remain unclear. Similarly, our survey did not ascertain whether meal stipends are paid in cash or coupons, which may represent large differences to both trainees and program directors. Lastly, several basic benefits were not included in this study such as salary, health plans, and malpractice coverage. While these figures are likely more available to applicants, variations among programs are not well understood and may merit future research.

In conclusion, our results suggest that, while some fringe benefits are commonly offered to orthopedic trainees, there is great variation in the availability and level of others. However, this variability is not associated with rankings as a “Top 25” orthopedic hospital [14] or residency program [5] nor with academic center status. Our results make it clear that departments are bearing a substantial amount of the cost of these benefits internally, a potentially tenuous situation

with increasing consideration of federal spending cuts from graduate medical education.

Compliance with Ethical Standards

Conflict of Interest: R. Carter Clement, MD, MBA, Erik Olsson, MD, Prateek Katti, BS and Robert J. Esther, MD, MSc have declared that they have no conflict of interest.

Human/Animal Rights: This article does not contain any studies with human or animal subjects performed by the any of the authors.

Informed Consent: N/A

Required Author Forms Disclosure forms provided by the authors are available with the online version of this article.

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