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To unionize, or not to unionize? A comparison of integrated plastic surgery residency program benefits

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Abstract

Background Residency unionization provides increased leverage for trainees to negotiate compensation and benefits. However, no study to date has compared the benefits offered between unionized versus non-unionized hospital systems with integrated plastic surgery residencies.

Methods Data was collected on unionization status and residency benefits (including salary, health insurance, and stipends) for the 2023–2024 post-graduate training year from all ACGME-accredited integrated plastic surgery residency programs via program websites, the American Medical Association (AMA) FREIDA Residency and Fellowship Database, and direct contact with the Accreditation Council for Graduate Medical Education (ACGME) office or plastic surgery residency coordinators. Statistical analysis for continuous and discrete variables was performed via Wilcoxon Two-Sample and Fischer exact tests, respectively.

Results A total of 23% (20/85) of the integrated plastic surgery programs included in the study were unionized. There were no differences between unionized versus non-unionized programs for number of residents per year (2.75 versus 2.3, $p=0.08$), city population (median 595,386, IQR 1,305,930; median 241,952, IQR 521,660; $p=0.09$), or top 40 Doximity Program Reputation (50% vs. 46.2%, $p=0.76$). Unionized programs had a higher base salary for PGY-1 (mean \$72,809, SD \$7,988 versus mean \$65,008, SD \$5,792; $p=0.0001$). However, this trend reversed once salary was standardized for cost of living, with non-unionized residents having significantly higher salaries (mean \$59,357, SD \$7,407 versus mean \$49,464, SD \$8,045; $p<0.0001$). Unionized residents had more vacation days per year (mean 20.4, SD 6 versus 17.9, SD 3.8; $p=0.039$), more days of parental leave (mean 38.5, SD 15.3 versus mean 30.3, SD 9.7, $p=0.04$), and a higher proportion of on-site child-care (12/16, 75% versus 20/49, 40.8%; $p=0.018$), housing (8/14, 57.1% versus 4/47, 8.5%; $p=0.0003$), and cell phone stipends (11/12, 91.7% versus 19/41, 46.3%; $p=0.0053$). In comparison, non-unionized programs offered a higher proportion of parking stipends (38/49, 77.6% versus 6/16, 35.3%; $p=0.0014$).

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Conclusion While non-unionized residents have higher standardized salaries, unionized residents have a higher proportion of competitive benefits including housing stipends, number of vacation days, and in-house childcare. This information may aid medical students in selecting future residency programs with benefit packages that would best fit their lifestyle.

Clinical Trial Number Not applicable.

Keywords Benefits, Union, Residency, Medical student, Graduate medical education

Background

With a 58.8% success rate in the 2024 Match, integrated plastic surgery residency is perennially one of the most competitive training programs [1]. While multiple studies have focused on what residency programs seek in applicants [1–3], fewer studies have elucidated how trainees make their personal rank lists [4]. One such study found that trainees undervalued factors that predicted stress and burnout, prioritizing rank list factors such as program reputation and location over program culture and lifestyle [4]. Though limited to one match class of a single institution, this study highlights the importance of advising medical students to include lifestyle factors in their decision-making process to better predict long-term match happiness [4].

Beyond clinical training, there are numerous other components that impact resident health and well-being including salary and benefits, time-off, parental leave and childcare, and health insurance coverage. Information on these factors can be difficult for medical students to find. Plastic surgery residents are committed to working long hours, with some salaries lower than nurses and respiratory therapists, for six or more years [5]. These stresses, coupled with the additional challenges of the COVID-19 pandemic, spurred a wave of unionization in 2019 that has shown no signs of slowing [6].– [7] At the institutional level, residents attribute their motivation to unionize to increased leverage when negotiating compensation and benefits [6].– [7] For example, the Resident and Fellow union at the University of Washington secured the right for pregnant residents to reject 24-hour shifts [6].

Despite the growing trend, few studies have directly compared benefits between unionized and non-unionized programs. One cross-sectional survey of general surgery residents from 2019 revealed that while unionization may offer improved vacation and housing stipend benefits, the presence of a union was not associated with improved burnout, educational environment, or salary [8]. In contrast, a 2023 cross-sectional analysis of benefits across dermatology residencies utilizing publicly available information demonstrated that unionized programs had higher salaries, but no significant differences in vacation days [9]. Meanwhile, non-unionized dermatology programs offered significantly more stipends than their unionized counterparts [9]. Comparison of residency benefits between unionized and non-unionized programs has yet to be completed in other specialties. With this study, we aim to describe differences in residency benefit packages for residents in integrated plastic surgery programs at unionized versus non-unionized institutions.

Methods

A total of 87 integrated plastic surgery residency programs in the United States were identified via Doximity. Residency metrics, including size, location, Doximity reputation (determined via physician-eligible survey), and Doximity research output (based on collective alumni H-index) were also collected via Doximity. Program unionization status was determined via official residency program websites, internet searches yielding social media posts on plastic surgery program accounts, verifiable news articles, and examination of participating hospitals on the Committee of Interns and Residents union website.

Benefits were defined as salary, "traditional benefits" such as number of available leave days, insurance, and retirement plans, and "fringe benefits" such as stipends for technology, research, and meals, and coverage of licensing fees, childcare, free parking, and gym membership. Residency benefits were determined via careful examination of a combination of program websites, the American Medical Association (AMA) Fellowship and Residency Electronic Interactive Database (FREIDA), and direct contact via email or phone call with the Accreditation Council for Graduate Medical Education (ACGME) office or plastic surgery program coordinators at the corresponding institution. If a program was identified to have a benefit, further details were collected as available. For example, if a program stated they provided a housing stipend, we attempted to identify the amount of stipend provided. Licensing stipends included coverage of study materials and board fees (such as the United States Licensing Exam Step 3 Exam). Technology stipends included coverage of items such as loupes and headlights. In comparison, educational stipends included educational conferences (e.g., Intern Boot Camp, Duke Flap Course), research conferences, funds to study at other institutions, and other activities determined by the residency program to be educational. When calculating the amount of educational stipend per program (total

amount per resident for all of residency), we excluded all support associated with research conference presentations prior to analysis. This is because some programs covered all research presentation costs (and therefore did not include research conference funds as part of their educational stipend totals), while other programs only provide residents a set amount for research conferences each year. Resident salary, adjusted by cost of living, was standardized via the Forbes cost-of-living calculator [10], which functions by comparing cost of living between two places and yields the necessary salary to maintain quality of life if moving from one location to another. The Kansas City metropolitan area was selected as the baseline for comparison as the tool (1) requires a baseline city to compare to, (2) Kansas City is close to the average cost of living in the United States, and (3) this is the city of the institution performing this analysis. Any city included on the Forbes website could function as this baseline.

Data management and statistical analyses were performed using SAS software (version 9.4) (Copyright (c) 2002–2012 by SAS Institute Inc., Cary, NC, USA. All Rights Reserved). Categorical variables were summarized with percentages and continuous variables were summarized by medians, means, and standard deviation. The chi-square test was used to make global comparisons of categorical variables across the unionized versus non-unionized programs. In instances where 50% of the cells had expected counts of less than 5, Fisher's Exact test was used. As all the continuous variables had a skewed distribution, a non-parametric Wilcoxon Two-Sample Test was used to compare the means across unionized versus non-unionized programs. Two-sided p-values less than 0.05 were considered statistically significant.

Results

Demographic and geographic breakdown

Of the 85 programs included in this study, 23.5% (20/85) were unionized, while the remaining 76.5% (65/85) were not. Unionized programs tended to be larger, with an average residency class size of 2.75 (SD 1.1) compared to 2.3 (SD 0.9) of non-unionized programs ($p = 0.08$). There was no significant difference between city populations of unionized and non-unionized program locations (mean 1,334,692, SD 2,002,746 versus mean 855,096, SD 1,785,891; $p = 0.31$). Most unionized programs were located on either the west (50%, 10/20) or east (35%, 7/20) coasts, represented by the map in Fig. 1.

Fig. 1. Map of United States shaded according to number of unionized plastics programs per state.

Unionized programs did have a significantly higher proportion of schools in the top 40 for Doximity Research Output (15/20, 75% versus 26/65, 40%; $p = 0.013$). However, there was no significant difference in the proportion of unionized and non-unionized programs with a top 40 plastic surgery Doximity Reputation (10/20, 50% versus 30/65, 46.2%; $p = 0.76$), (Table 1).

Salary, leave, and traditional benefits

On average, the post-graduate year (PGY)-1 salary was higher at unionized institutions than at non-unionized

Fig. 1 Geographical spread of unionized programs.

Table 1 Demographics of included integrated plastic surgery residency programs stratified by unionized and non-unionized status

Demographics	Unionized Programs	Non-Unionized Programs	*P*-Value
Number of Programs, n (%)	20 (23.5)	65 (76.5)	
Residents per year, median (IQR)	3.0 (1.5)	2.0 (1.0)	0.08
City Population, median (IQR)	595,386 (1,305,930)	241,952 (521,660)	0.09
Top 40 Doximity Reputation (%)	10 (50)	30 (46.2)	0.76
Top 40 Doximity Research Output, n (%)	15 (75)	26 (40)	0.013

Table 2 A comparison of residency benefits between unionized and non-unionized included integrated plastic surgery residency programs

Benefits	Unionized Programs	Non-Unionized Programs	*P*-value
PGY-1 Salary, median (IQR)	72,170 (10,670)	64,009 (6,599)	0.0001
PGY-1 Salary with standard COL, median (IQR)	48,619 (8,796)	60,741 (7,407)	< 0.0001
Holiday Pay, n (%)	2 (16.6)	2 (5.5)	0.23
Vacation Days per year, median (IQR)	20 (8)	18 (5)	0.02
Sick Leave Days per year, median (IQR)	12 (3)	11.3 (3)	0.097
Parental Leave Days per year	30 (10)	30 (0)	0.04
On Site Child-Care, n (%)	12 (75)	20 (40.8)	0.018
Subsidized Child-Care, n (%)	5 (33.3)	12 (27.9)	0.69
HSA Availability, n (%)	7 (63.6)	22 (44.9)	0.074
Dental benefits with no additional charge, n (%)	11 (55)	22 (40)	0.25

PGY = post-graduate year COL = cost of living SD = standard deviation IQR = interquartile range HSA = Health Savings Account

programs ($72,809, SD $7,988 versus $65,008, SD $5,792; $p = 0.0001$). However, once salary was adjusted for cost-of-living, PGY-1s at non-unionized programs had significantly higher adjusted salaries ($59,357, SD $7,732 versus $49,464, SD $8,045; $p < 0.0001$) (Table 2).

There was no significant difference in regards to presence of holiday pay between unionized or non-unionized programs (2/12, 16.6% versus 2/39, 5.1%; $p = 0.23$). Unionized programs, on average, had a greater number of vacation days per academic year (20.4, SD 6 versus 17.9, SD 3.8; $p = 0.039$), sick leave days (12.4, SD 4 versus 10.9, SD 4; $p = 0.097$), and days of paid parental leave (38.5, SD 15.3 versus 30.3, SD 9.7; $p = 0.04$) compared to non-unionized programs. Unionized programs also had a significantly higher proportion of hospital systems offering on site child-care (12/16, 75% versus 20/49, 40.8%; $p = 0.0018$). There was no difference, however, in the proportion of unionized versus non-unionized programs offering subsidized child-care (5/15, 33.3% versus 12/43, 27.9%; $p = 0.69$). In terms of healthcare, there was no significant difference between proportion of unionized or non-unionized programs offering a Health Savings Account (HSA) (7/11, 63.6% versus 22/49, 44.9%; $p = 0.074$) nor dental benefits at no additional charge (11/20, 55% versus 22/55, 40%; $p = 0.25$).

Fringe benefits

Housing stipends were provided to a significantly higher proportion of unionized programs compared to non-unionized programs (8/14, 57.1% versus 4/47, 8.5%; $p = 0.0003$). Of the six unionized programs for which the amount of housing stipend was able to be identified, the average amount was $6,714, with a standard deviation of $3,711. At one of these six institutions, the stipend was noted to already be included in the resident's salary. We were only able to determine the housing stipend amount for one non-unionized program, which was $10,000. Cell phone stipends were more frequently provided by unionized programs (11/12, 91.7% versus 19/41, 46.3%; $p = 0.0053$). However, only 36.4% (4/11) of these unionized programs were confirmed to provide full coverage of the phone. Partial coverage was provided by 27.3% (3/11) of programs, and of the remaining four purported to offer a cell phone stipend, the amount was unable to be determined. Conversely, 57.9% (11/19) of non-unionized programs providing cell phone stipends covered the total cost, 10.5% (2/19) covered the partial cost, and the remaining programs did not make this data available.

A higher proportion of non-unionized programs had the benefit of parking stipends compared to their unionized counterparts (38/49, 77.6% versus 6/17, 35.3%; $p = 0.0053$). The parking stipends at non-unionized programs more frequently covered the entire cost of parking (35/38, 92.1%), while those at unionized programs provided discounts (3/6, 50%) or unknown stipend amounts (2/6, 33.3%) more frequently. There was no significant difference between unionized and non-unionized programs in regards to presence of on-call meal stipends (16/18, 88.9% versus 48/52, 92.3%; $p = 0.64$). Of the 12 programs where the information was available, the average biweekly meal stipend amount for unionized programs was $94 (SD $94) compared to $56.6 (SD $33.3) for non-unionized programs. There was no significant difference between unionized and non-unionized programs in regards to gym memberships (4/10, 40% versus 17/45, 37.8%; $p = 1.0$).

Unionized and non-unionized programs had no difference in the proportion of programs providing licensing stipends (14/16, 87.5% versus 22/36, 64.7%; $p = 0.18$). Unionized programs however had a higher tendency to cover all licensing fees (9/16, 64.3%) when compared to

Table 3 A comparison of the proportion of stipends between unionized and non-unionized included integrated plastic surgery programs

Stipends	Unionized Programs	Non-Unionized Programs	*P*-value
Housing, n (%)	8 (57.1)	4 (8.5)	0.0003
Parking Stipend, n (%)	6 (35.3)	38 (77.6)	0.0014
Cell Phone, n (%)	11 (91.7)	19 (46.3)	0.0053
On-Call meals	16 (88.9)	48 (92.3)	0.64
Gym Membership, n (%)	4 (40)	17 (37.8)	1.0
Licensing, n (%)	14 (87.5)	22 (64.7)	0.18
Technology, n (%)	9 (52.9	25 (67.6)	0.30
Education, n (%)	15 (93.8)	43 (95.6)	1.0

Table 4 A comparison of residency stipend amounts between unionized and non-unionized included integrated plastic surgery programs

Type of Stipend	Unionized Program	Non-Unionized Program
Housing, Median (IQR) N	$6,100 ($6,913) 6	$10,000 ($0) 1
Parking, n (%) Free Discount Unknown	1 (16.6) 3 (50) 2 (33.3)	35 (92.1) 1 (2.6) 2 (5.3)
Cell Phone, n (%) Free Discount Unknown	4 (36.4) 3 (27.3) 4 (36.4)	11 (57.9) 2 (10.5) 7 (36.8)
On-Call meals Median (IQR) N	$60 ($36) 7	$58 ($36) 5
Licensing, n (%) Free Discount Unknown	9 (64.3) 0 (0) 5 (35.7)	8 (36.4) 2 (9.1) 12 (54.5)
Technology Mean, SD N	Unable to Calculate 0	$2,300, $1838 2
Education Median (IQR) N	$7,200 ($5,000) 11	$7,200 ($4,800) 15

non-unionized programs (8/22, 36.4%). There were also no significant differences between unionized and non-unionized programs in regards to technology (9/17, 52.9% versus 25/37, 67.6%; $p = 0.30$), and educational (15/16, 93.8% versus 43/45, 95.6%; $p = 1.0$) stipends. We were unable to find any data quantifying the amount provided to residents for technology stipends at unionized programs, while 2 non-unionized programs provided this data for an average of $2,300. Both unionized (mean $8,145, SD $3,348) and non-unionized programs (mean $7,800, SD $4,159) provided significant educational stipends to residents. Data related to stipends are represented in Tables 3 and 4.

Discussion

Significant differences in resident salaries and benefits were identified between programs at unionized and non-unionized programs. Similar to Kanwar et al., [9] initial salaries of residents at unionized institutions were significantly higher than non-unionized institutions by approximately $8,000. While Kanwar et al. did not specifically quantify the difference as adjusted for cost-of-living in salary reporting between dermatology programs, they did note that unionized programs in their study had a significantly higher cost of living index covariate (127, SD 20.5 versus 100.5 SD 12.3; 0.006) than non-unionized programs. After "standardizing" the salaries in our study by cost-of-living, non-unionized programs were found to have significantly higher wages by approximately $10,000. This is consistent with findings from Brajcich et al. that unionization was not associated with higher salaries for general surgery residents [8]. Of note, no salary standardization was performed in that study [8]. Even if we accounted for the average amount of unionized housing stipends (present at 57.1% of unionized programs) of $6,700 dollars, non-unionized integrated plastic surgery residents would still receive higher paychecks. Furthermore, when looking at state income taxes (which range from 0 to 13.3%), unionized programs tended to be in states with higher state income tax rates like California (8 unionized programs, income tax rate 13.3%), which further decreases the paycheck of residents at unionized programs [11]. While a resident's ultimate effective tax rate is multifactorial, what seems clear is that a higher base salary does not clearly translate to improving take home pay when adjusted for cost of living. Ultimately, this suggests that unionization status does not guarantee a higher take-home pay.

Unionization at institutions does appear to correlate with certain benefits. Programs at unionized institutions have, on average, significantly more vacation days per year, a higher proportion of on-site childcare, and a higher proportion of housing and cell phone stipends. The finding of more vacation days at unionized institutions agreed with Brajcich et al.'s finding that unionized programs more frequently offered 4 weeks instead of 2–3 weeks of vacation (OR 19.18 [95% CI 3.92–93.81] [8]. While numbers were too low to perform statistical analysis comparing stipend amounts between unionized and non-unionized programs, unionized programs tended to provide more on-call meals in addition to larger educational stipends on average. The sole measurable benefit held by more non-unionized programs, as collected by this study, was parking stipends. As many unionized programs are located on the coast in metropolitan areas, there are geographical nuances that may account for these differences rather than unionization (e.g. it is less expensive to park in the Midwest than in a coastal city).

Evidence is mounting through large cross-sectional survey data in 2024 that employers concerned with their worker's mental health should focus on modifying work schedules, pay, and benefits after identifying no concrete benefit from wellness initiatives [12]. While Brajcich et al. found no difference in resident burnout between unionized and non-unionized programs, this study focused on data collected before a significant number of programs unionized during the COVID pandemic, and looked specifically at general surgery residents [6, 8]. There is room for further study to investigate whether improved resident benefits have a positive effect on well-being now that a larger number of institutions have unionized.

The least anticipated and most surprising discovery in this study was the difficulty in finding resident salary and benefits for every integrated plastic surgery program, despite reaching out directly to graduate medical education offices and program administrators. While the Association of American Medical Colleges (AAMC) provides an annual survey of resident/fellow stipends and benefits [13], this report is not institution specific and therefore not helpful for prospective residents when making their rank lists. We advocate for transparency of resident benefits and propose each integrated plastic surgery program provide applicants with a sheet delineating the benefits offered at their program (Fig. 2).

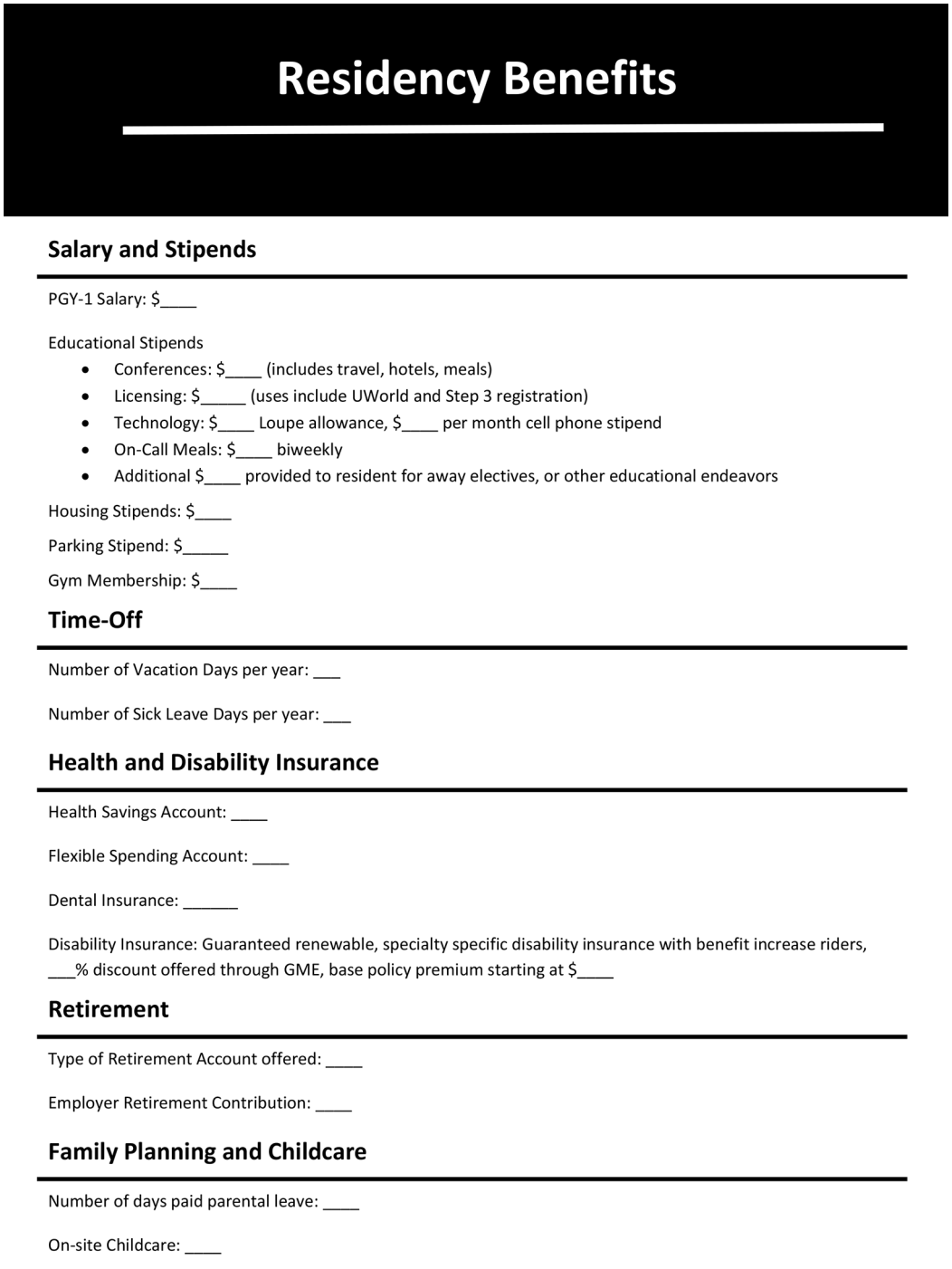
Fig. 2. Blank benefit sheet that could be filled out to reflect program benefits and provided to prospective residents upon interview day.

Discussing salary and benefits during residency program interviews can provide additional burden on an already stressful process, and having a standardized benefit sheet readily available on-line could help applicants to obtain necessary information to more effectively assess program fit and assist applicants in informed decision making during the rank list process.

This study is limited as it relies on program website data being up to date. While we attempted to address this limitation by requesting missing information from the graduate medical education office and coordinators, a response was not always received. As a result, the unionization status of two programs was unable to be determined and these programs were excluded from the study. Furthermore, we were unable to ascertain the presence or absence of certain benefits at every institution. We therefore chose to exclude programs for which information on specific variables was unavailable for those specific analyses. We were unable to collect data regarding retirement benefits for unionized versus non-unionized programs as websites were not clear on if retirement benefits listed were for employees only, or for employees *and* residents. For example, at this institution employees are eligible for a 403b and a 457, while residents are only eligible for a 457 retirement account. Newly unionized programs presented additional challenges as the union contracts may still be awaiting incorporation into residency training program benefits. While this study contributes to our understanding of what quantifiable benefits correlate with the unionization of institutions, a study that compares residency benefits at institutions pre-and post-unionization would help elucidate the chicken versus the egg debate regarding unionization. Stated another way, are certain cities or locations primed to unionize so that salaries and benefits can be boosted in an attempt to keep up with cost of living, or is it that in certain cities, unionization has already occurred across many other industries leading to increased cost of living in those cities and pressure for residency programs to follow suit and unionize? Regardless of which it may be, our findings suggests that greater absolute salary does not go as far at these institutions once adjusted for cost of living. However, certain fringe benefit offerings which may be important to many applicants largely seem to be more generous at programs at unionized institutions.

Conclusions

While non-unionized residents have higher standardized salaries, unionized residents have a higher proportion of competitive fringe benefits including housing stipends, number of vacation days, and in-house childcare. As medical students select their future training programs, consideration of the unionization status may assist them in determining benefit availability as currently, resident benefit information is not centrally available and can be hard to find. As such, institutions might consider providing a standardized 'benefit' sheet to applicants on interview day to better assist students with informed decision making when creating their rank lists, and we have provided an example benefit sheet template that could aid in increasing transparency for prospective residents.



Residency Benefits

Salary and Stipends

PGY-1 Salary: $____

Educational Stipends

- Conferences: $____ (includes travel, hotels, meals)
- Licensing: $_____ (uses include UWorld and Step 3 registration)
- Technology: $____ Loupe allowance, $____ per month cell phone stipend
- On-Call Meals: $____ biweekly
- Additional $____ provided to resident for away electives, or other educational endeavors

Housing Stipends: $____

Parking Stipend: $_____

Gym Membership: $____

Time-Off

Number of Vacation Days per year: ___

Number of Sick Leave Days per year: ___

Health and Disability Insurance

Health Savings Account: ____

Flexible Spending Account: ____

Dental Insurance: _____

Disability Insurance: Guaranteed renewable, specialty specific disability insurance with benefit increase riders, ___% discount offered through GME, base policy premium starting at $____

Retirement

Type of Retirement Account offered: ____

Employer Retirement Contribution: ____

Family Planning and Childcare

Number of days paid parental leave: ____

On-site Childcare: ____

Fig. 2 Proposed blank benefit sheet.

Abbreviations

ACGME	Accreditation Council for Graduate Medical Education
AMA	American Medical Association
FREIDA	Fellowship and Residency Electronic Interactive Database
PGY	post-graduate year
HAS	Health Savings Account
AAMC	Association of American Medical Colleges

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Author contributions
Dr. KG led the project, coordinating with the principal investigators and the rest of the team and authoring the majority of the paper. RH directed data collection, collected one third of the data, edited the manuscript, and prepared the draft for submission. ER contributed an equal amount of data collection and aided in manuscript review and editing. SCV collected the final

third of the data. NN completed the entirety of data analysis. Drs. RK and CJ reviewed the manuscript and provided their expertise on resident education to offer impactful edits.

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Data availability
The data that support the findings of this study are not openly available but is available from the corresponding author upon reasonable request. Data are located in controlled access data storage at the University of Kansas School of Medicine.

Declarations

Ethics approval and consent to participate
Not applicable.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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