

# Compensation in Academic Medicine: Progress Toward Gender Equity

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**BACKGROUND:** Studies have documented substantial salary disparities between women and men in academic medicine. While various strategies have been proposed to increase equity, to our knowledge, no interventions have been evaluated.

**OBJECTIVE:** This paper aims to assess the effect of an identity-conscious intervention on salary equity.

**DESIGN:** This study shows comparison of adjusted annual salaries for women and men before and after an intervention.

**PARTICIPANTS/SETTING:** We studied full time faculty employed in FY00 ( $n=393$ ) and FY04 ( $n=462$ ) in one College of Medicine.

**INTERVENTION:** Compensation data were obtained from personnel databases for women and men, and adjusted for predictors. After verification of data accuracy by departments, comparable individuals within the same department who had different salaries were identified. The Dean discussed apparent disparities with department heads, and salaries were adjusted.

**MEASUREMENTS:** Total adjusted annualized salaries were compared for men and women for the year the project began and the year after the intervention using multivariate models. Female faculty members' salaries were also considered as a percent of male faculty members' salaries.

**RESULTS:** Twenty-one potential salary disparities were identified. Eight women received equity adjustments to their salaries, with the average increase being \$17,323. Adjusted salaries for women as a percent of salary for men increased from 89.4% before the intervention to 93.5% after the intervention. Disparities in compensation were no longer significant in FY2004 in basic science departments, where women were paid 97.6% of what men were paid.

**CONCLUSIONS:** This study shows that gender disparities in compensation can be reduced through

careful documentation, identification of comparable individuals paid different salaries, and commitment from leadership to hold the appropriate person accountable.

**KEY WORDS:** women; compensation; academic medicine; equity; faculty; salary.

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## INTRODUCTION

Numerous studies have documented salary disparities between women and men in academic medicine<sup>1–11</sup>. We have previously shown that faculty salaries for women were \$12,777 less than salaries for men in one College of Medicine, after adjusting for multiple factors including research and clinical productivity<sup>1</sup>. More recently, Ash et al.<sup>2</sup> reported a comparable salary deficit (\$11,691) among women in a national survey of faculty at 24 medical schools after adjustment for confounders. While some studies have attributed some of the gender difference in salary to choice of specialty<sup>3</sup>, disparities have been reported within a wide range of specialties, including emergency medicine<sup>4,5</sup>, general internal medicine<sup>6,7</sup>, family practice<sup>8</sup> and pediatrics<sup>8</sup>. Even in newer specialties, such as hospital medicine, women's salaries lag behind those of men, despite comparable work schedules and commitments<sup>9</sup>. These disparities have persisted over time. For example, in emergency medicine, the disparity between women and men's salaries was 13% in 1995, 17% in 1998, and 14.4% in 2001<sup>4,5</sup>.

Many of these studies, including our own, have suggested potential solutions to these disparities. For example, it has been proposed that regular, systematic monitoring of potential salary disparities, as well as of rank and track assignments and start-up packages, would help identify problems and indicate progress<sup>1,2,10</sup>. Other studies<sup>12,13</sup> have recommended that institutions provide greater transparency in compensation practices, as well as venues for addressing concerns about equity that did not stigmatize the person who complains. However, to our knowledge, no evaluation of the impact of potential solutions has been published.

This paper evaluates the impact of a salary intervention in one College of Medicine that was designed to reduce observed disparities in compensation between female and male faculty members.

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## MATERIALS AND METHODS

In 2000, at the urging of a group of female faculty members, the Dean of the College of Medicine (CoM) convened a committee to look into possible gender differences in faculty treatment. The research arm of this committee, called the GRACE (Generating Respect for All in a Climate of academic Excellence) Project, was charged with investigating gender disparities at the CoM, testing hypotheses for why they exist, and suggesting solutions. The Dean provided a half-time salary for a graduate research assistant and a computer to support this research; faculty effort was not compensated. As noted above, the research documented gender disparities in salary, even after adjusting for rank, track, degree, specialty, and leadership positions<sup>1</sup>. The data used to investigate salary differences in the GRACE project were used here to determine whether the disparities were reduced after implementation of an intervention.

### Data Collection

Compensation data were obtained from the University and CoM personnel databases soon after the end of each fiscal year from FY2000 through FY2004. Faculty were included in analyses for each year if they met the following criteria as of July 1 of that year: (1) primary appointment in the CoM; (2) on the tenure, research or clinical suffix track (which includes salaried, primarily clinical faculty); (3) rank of assistant, associate, or full professor; (4)  $\geq 50\%$  time; and (5) based in Tucson.

Data on potential predictors of salary were also obtained from these databases, including: gender, rank and number of years at that rank, track (tenure, clinical, or research track), degree (MD or PhD), administrative roles (section/division chief, department head), and type of "specialty" (categorized as basic science, generalist, nonsurgical specialty, surgical specialty). "Basic science" faculty were affiliated with the five basic science departments (Biochemistry, Cell Biology and Anatomy, Microbiology and Immunology, Physiology, and Pharmacology). Generalists included the department of Family and Community Medicine, the general Internal Medicine faculty, and the ambulatory Pediatrics faculty. Surgical specialties included faculty in Surgery, Orthopedic Surgery, OB/GYN, Anesthesiology, and Ophthalmology. All other faculty were categorized as nonsurgical subspecialists.

### The Intervention

The intervention, which consisted of three steps, was developed and refined over several years. In the data verification phase, the information listed above was entered into a spreadsheet for each department and sent to the department head for verification. Departments were requested to add missing leadership titles, to correct any changes in a faculty member's percent time, and to note any other errors in the data. Space was provided on the spreadsheet for department comments on particularly high (or low) salaries. For example, departments might note that the salary of a particular individual was determined by another unit, that the individual had major administrative responsibilities, or that he/she had high clinical or research productivity.

In the interpretation phase, spreadsheets were revised as appropriate by GRACE project staff, and two reports were prepared for each department. A rank/leadership report displayed (1) the proportion of faculty at each rank who were women, with national figures for each rank and department type provided for comparison<sup>14</sup>, and (2) the number of leadership positions in the department and the percentage of these held by women. The salary report listed all faculty in each department by rank, track, and degree, along with their annualized salary, gender, specialty, years in rank, and leadership positions, with national median salary for that rank and specialty provided for comparison. GRACE project staff then identified individual women on this report who were paid less than a man in the same department who was comparable in rank, track, specialty, and years at the rank. These reports were sent to the Dean.

In the action phase, the Dean sent a letter to each department head with the two reports, saying that potential salary disparities would be discussed during their regular annual evaluation. Department heads were asked to bring any necessary documentation to their annual evaluation. For this purpose, the evaluation meeting was divided into two components. In the first part, the Dean and the department head met one-on-one to discuss departmental progress in education, research, and service areas. For the second part, they were joined by the department's business manager and the CoM Associate Dean for Finance to discuss the salary data. This addition allowed any remaining questions about finances to be resolved on the spot. The department head was then given an opportunity to explain any discrepancies. Valid explanations included administrative responsibilities not identified in the database and variances in clinical income based on willingness to take call or extra clinical sessions. If the Dean was unconvinced, the head was directed to adjust the salary using departmental funds. The representation of women in the department and in leadership positions was also discussed. Departments with few leadership roles were encouraged to consider adding associate head positions or an executive committee, on which women might serve. The first complete intervention cycle utilized FY2002 data, with department head evaluations occurring in the summer of 2003.

### Data Analysis

Total salary for each faculty member, including base salary, incentives, and supplemental compensation from grants, was annualized and log-transformed to remove the effect of outliers associated with, for example, exceptional clinical billings. Geometric mean salary for men and women was determined for each year using analysis of covariance, after adjustment for potential predictors, as defined above. Adjusted salaries of female faculty were then calculated as a percentage of adjusted salaries of male faculty. Multiple linear regression models were used to determine statistical significance of differences by gender after adjustment for the other factors. To determine whether the intervention was associated with a reduction in gender disparity in salaries, data for FY2000 were compared with FY2004 data, the first fiscal year after the intervention was complete. SPSS<sup>15</sup>, a statistical software package, was used in analyses.

Funding for the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation of the manuscript was provided by the Dean's office.

**Table 1. Number of Faculty and Percent Female in Each Rank and Track, FY2000 and FY2004**

Rank	Track	FY2000 <sup>a</sup>		FY2004	
		No.	Female (%)	No.	Female (%)
Assistant	Research	30	43.3	46	43.5
	Clinical	85	44.7	94	41.5
	Tenure	39	41.0	43	46.5
Associate	Research	8	50.0	14	42.9
	Clinical	30	30.0	55	29.1
	Tenure	59	18.6	49	26.5
Full Professor	Research	9	33.3	9	33.3
	Clinical	10	20.0	24	13.0
	Tenure	123	11.4	129	14.0
Total	All tracks	393	28.0	463	29.8

<sup>a</sup>Figures for FY2000 differ slightly from those published previously<sup>3</sup> as they exclude a department which subsequently moved to another college

## RESULTS

The overall number of faculty increased from 393 in FY2000 to 462 in FY2004, but the proportion that were women remained relatively constant (28.0 vs 29.9% in those years, respectively). Table 1 shows the distribution of faculty by rank, track and gender in FY2000 and FY2004. There was a slight increase in the proportion of associate or full professors who were women in that period (38.1 to 44.5%). Similarly, the proportion of tenure track faculty that were women increased from 18.6 to 23.1%. There was little change in other characteristics of the faculty over the 5-year period as shown in Table 2. Nonsurgical subspecialists in clinical departments comprised the largest group of faculty in both years.

Using FY2002 data, GRACE project staff identified 26 (22.8% of women faculty) instances in which a woman was paid less than a man in the same department who was comparable in rank, track, specialty, and years at that rank. These potential disparities were noted in the materials sent to the Dean, and then from the Dean to the department head. Department heads were asked to consider the potential disparities and bring any necessary documentation to their annual evaluation.

Eight salaries were adjusted after consultation between the Dean and the department head. These adjustments, which averaged \$17,323, affected the salaries of 14.6% of women on the tenure track. Five of the women with equity adjustments were in basic science departments. Six of the remaining 13 women who did not receive equity adjustments had left the CoM before FY2004, although the reasons for their departures are not known.

Table 3 shows the adjusted mean salary for women and men, overall and by department type, and women's salaries as a percent of men's salaries for the years before and after the intervention. In FY2000 women's salaries were significantly lower than men's ( $p < 0.0005$ ), when they were paid 89.4% of what men were earned, after adjusting for rank, track, specialty, degree, leadership position, and years in rank. The disparity was similar for clinical and basic science departments, being 89.3% for clinical faculty ( $p < 0.003$ ) and 89.5% for basic science faculty ( $p < 0.05$ ). For FY2004, the gender difference in salaries was only statistically significant at the 0.05 level for the faculty

as a whole, when women's salaries averaged 93.5% of men's salaries. Despite substantial increases in salaries overall, the magnitude of the difference between women and men decreased from \$13,803 to \$10,334 in clinical departments and from \$8,273 to \$2,146 in basic science departments for FY2000 and FY2004, respectively. In fact, women in basic science departments made 97.6% of what men made in FY 2004, a difference of no statistical significance ( $p = 0.70$ ).

The representation of women in leadership roles also increased. In FY2000 when the project was begun, no department head positions were held by women, whereas in FY2004, there was one woman department head and one woman who was interim department head. In addition, the proportion of section/division chief positions held by women increased from 11.1% in FY2000 to 25.0% in FY2004.

## DISCUSSION

This study shows that documented gender disparities in salary can be reduced. The process entailed researching faculty salaries using institutional databases rather than self report; verifying the information with the departments; identifying individual women who appeared to be paid less than a comparable man in the department; reporting the results to the Dean, and incorporating the information into the department head's annual evaluation with the Dean. These efforts resulted in a demonstrable improvement in gender equity, with women's compensation increasing from 89% of compensation for men before the intervention to 93% after it was completed. Simultaneously, women's representation in leadership roles increased.

There were a number of false starts in developing a workable intervention. In the first pass, aggregate figures were provided to department heads without the data on which they were based. Further, both data on the faculty members' specialty and percent time, key predictors of salary, were unavailable for FY2000. These problems were corrected in later iterations. Having the departments review the data for accuracy has substantially increased the credibility of the process. The process will be improved in the future by including data on clinical and research revenues, which will provide more quantifiable measures of productivity.

Interventions proposed to remedy documented disparities can be categorized as either identity-blind or identity-conscious<sup>14,16</sup>. Most organizations try to ameliorate disparities using identity-blind practices, such as formal mentoring programs or flexible

**Table 2. Characteristics of CoM Faculty in FY2000 and FY2004**

Characteristic		FY2000		FY2004	
		No.	Percent	No.	Percent
Degree	MD	257	65.4	309	66.7
	PhD only	136	34.6	154	33.3
Specialty	Basic scientist	71	18.1	86	18.6
	Generalist	42	10.7	48	10.4
	Nonsurgical subspecialties	193	49.1	252	54.4
	Surgical subspecialties	87	22.1	77	16.6
Department	Basic Science	71	18.1	86	18.6
	Clinical	322	81.9	377	81.4

Table 3. Adjusted Mean Salary by Gender and Department Type, and Women's Salaries as Percent of Men's Salaries

Year	Department type	N <sup>a</sup>	Adjusted <sup>b</sup> mean salary		p value	Percent
			Male	Female		
2000	Total	375	\$117,598	\$105,148	0.0005	89.4
	Clinical	309	\$128,381	\$114,578	0.0025	89.3
	Basic sci.	66	\$78,759	\$70,486	0.049	89.5
2004	Total	445	\$132,770	\$124,108	0.045	93.5
	Clinical	363	\$145,479	\$135,145	0.078	92.9
	Basic sci.	82	\$88,206	\$86,060	0.70	97.6

<sup>a</sup>Data were not available on all variables for all faculty members for all years

<sup>b</sup>Salary adjusted for: rank, track, specialty, degree, department head or section chief, and years in rank

work schedules<sup>14,17,18</sup>, which are available to all employees<sup>16</sup>, practices consistent with policies that seek to ensure non-discrimination by prohibiting consideration of race and gender in decisions regarding pay, promotion, and hiring<sup>17</sup>. While most employees prefer identity-blind practices<sup>19</sup>, which they perceive as being “more fair,” research has shown that these practices are often ineffective in remedying discrimination<sup>14</sup>.

In contrast, identity-conscious solutions recognize that individuals are perceived differently depending on their race and gender, and purposefully incorporate this fact into their solutions<sup>14,16,17,19</sup>. Thus, identity-conscious approaches recognize that, since reward systems consistently (if unconsciously) take group membership into account, interventions designed to increase equity must also consider group membership. These practices are exemplified by programs that establish a women's interest group in the workplace, target women for management training, and examine salary and bonuses for discrepancies in pay. Organizations that used identity-conscious practices have been shown to have significantly more female employees and managers, and more employees of color than organizations that exclusively used identity-blind approaches<sup>14</sup>.

Several factors likely contributed to the success of the GRACE project. First, as a public university, salaries are public which fosters a tradition of openness about salaries that might not exist in a private CoM. Second, we used identity-conscious practices in our intervention. Since analyses at the group level documented gender differences in salaries<sup>1</sup> after controlling for other predictors, the salaries of individual women in the CoM were compared with those of men in the same department with comparable rank, track, etc. This provided a more focused solution than, for example, designing comprehensive compensation policies that prohibit use of gender as a criterion for determining salary, an identity-blind approach.

A third factor that undoubtedly contributed to the success of the project was that the administrations for both the CoM and the University were committed to working with advocacy groups to address gender disparities. Our intervention coincided with the campus-wide Millennium Project, an initiative to support women in higher education, which generated a great deal of attention and discussion locally. The President of the University was known for his commitment to diversity and equity. At the college level, support for the project took the form of salary for the research assistants hired each year and material support. Perhaps most important was the administration's willingness to provide the political will to make department heads accountable for disparities. Other research has documented that buy-in from the highest levels of

administration is crucial in implementing policies that seek to eliminate disparities between the sexes, particularly when identity-conscious approaches are used<sup>14</sup>.

Some previous researchers have suggested that the “moderate” amount of discrimination between male and female employees may be due to measurement error<sup>20</sup> and is of little consequence. However, this research, which demonstrates that implementing identity-conscious strategies can reduce gender disparities in compensation, suggests that measurement error is not the primary determinant of the disparities observed. The sheer magnitude of the adjustments, which averaged more than \$17,000, indicates that the disparities are hardly inconsequential. We would also argue that the impact of even smaller disparities is huge because disadvantage is often cumulative<sup>21</sup>. For example, using FY2000 figures<sup>1</sup>, a female faculty member's lifetime salary deficit compared to a male faculty member (assuming 6, 6 and 13 years, respectively, as assistant, associate and full professor) would be \$571,000 and \$330,000, for clinical and basic science faculty, respectively.

It must be acknowledged that the progress toward salary equity may not be definitively attributed to the intervention. First, the change may have been due to chance. For example, one study of income among primary care physicians noted that the gender disparity declined over time<sup>8</sup> in the absence of any intervention. However, after 10 years, women in that study were earning only 78% of what men earned, a much greater difference than existed after our intervention. Local publicity plus discussions of salary equity at department head meetings may have contributed to increases in some women's salaries. Third, some clinical departments initiated incentive plans that linked bonuses to clinical productivity, which may have improved some of the disparities. However, the disparities were most clearly reduced in the basic science departments, which did not have formalized incentive plans. Future research should follow faculty members longitudinally, to assess the effect of differences in starting salaries, childbearing, use of parental leave, and targeted interventions on gender differences in compensation.

Persistent disparities in salary not only affect women currently employed in academic medicine. They also influence perceptions of the desirability of a career in academic medicine among the next generation of women faculty. Women now comprise almost 50% of medical school graduates<sup>22</sup>, and yet only 38% of assistant professors are women. There may be multiple reasons for this “leak” in the pipeline, such as the availability of more flexible and lucrative options in private practice, but paying women less for comparable work can only exacerbate the leak. Salary disparities may also contribute to



the higher attrition rates among women<sup>13</sup>, who comprise only 28% of associate professors and 16% of full professors. These concerns are even more pronounced when one considers that a substantial shortage of physicians is anticipated in the next few decades<sup>23</sup>, which means that academia will need to compete even harder for women physicians who will have multiple career opportunities. Of course, salary equity is only one factor that needs to be addressed to attract women to academic medicine. Other measures, such as providing flexibility in tenure clocks, facilitating part-time work, and other family friendly policies, may be critical to the advancement and retention of women faculty<sup>24</sup>. Beyond the issues of justice, academic medicine simply cannot afford the potential loss of talent, productivity and leadership that will result from continuing gender disparities in faculty rewards.

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