

2018 Salary Survey of AMIA Members – Initial Findings

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SUMMARY

Background & Purpose: The Women in AMIA Academic and Career Advancement subcommittee conducted an AMIA-wide confidential online survey to collect information on informatics professionals' employment and salary. The goal of our survey was to describe the range of salaries for various informatics roles, to inform the AMIA community regarding salaries in informatics, after accounting for compensation context, and to facilitate activities aimed at ensuring fairness and transparency in compensation for all informatics professionals.

Methods & Respondents: The survey was launched through AMIA eNews on March 22, 2018 and closed on May 16, 2018. The survey included 34 questions that asked for information on demographics, education, salary and other forms of compensation, informatics expertise, and current informatics position. There were 225 respondents. We excluded from the current report those who reported that they did not currently have a salary or were retired (N = 21) or a salary of \$0 (N = 3). Among those who reported a current salary >0\$ (N = 201), 38% were physicians (N = 77), 63% (N = 126) were female, and 59% (N = 119) university faculty. We present summary statistics overall as well as stratified by physician status and gender.

Findings: The overall mean (standard deviation) salary of the biomedical informatics respondents in this study was \$181,774 (\$99,566) and the median (interquartile range) was \$165,000 (\$111,000-\$230,000). The unadjusted mean salary was higher for physicians (versus non-physicians), men (versus women), and those in non-academic (versus academic) settings among respondents. Among physicians, men had higher (\$23,135) mean salaries than women whereas among non-physicians women had slightly higher (\$391) mean salaries than men. Overall, respondents' mean salaries increased with more years in the informatics profession. There were no consistent differences in male versus female respondent mean salaries across years spent in the informatics profession, which contrasts with observations from a 2018 Healthcare Information and Management Systems Society (HIMSS) study that found larger gender gaps in pay in older compared to younger professionals (Observation 2, Graphic 4 from the [2018 HIMSS U.S. Compensation Survey](#)). Female respondents reported twice the number of career barriers compared to men, regardless of physician status. Top barriers included taking time off to raise a family and "other" career barriers. Overall, almost half of (43.3%) respondents reported leadership/senior positions as current job titles in their informatics-based position.

Conclusions & Future Directions: Our unadjusted analyses suggest that the difference in salaries observed in male compared to female respondents may be largest among physicians. However, the respondents to the AMIA 2018 Salary Survey may overrepresent those in leadership or more senior positions and these findings may not generalize to the entire population of informatics professionals. We plan to develop this work further into a publication or white paper where we will do a more detailed and complete analysis. Future analyses may

include investigations of part-time versus full-time professionals, a more thorough analysis of predictors of salary, and an analysis of the geographic distribution of respondents. Future surveys are also needed to examine informatics professionals' salaries over time, and demographic factors, including race/ethnicity and age. Based on these initial findings, future surveys may consider strategies for increasing participation for those in earlier stages of their careers to ensure that findings better reflect the full population of informatics professionals.

METHODS AND RESPONDENTS

The survey was launched through AMIA eNews on March 22, 2018 and closed on May 16, 2018. The survey included 34 questions that asked for information on demographics, education, salary and other forms of compensation, informatics expertise, and current informatics position. There were 225 respondents. We excluded from the current report those who reported that they did not currently have a salary or were retired (N = 21) or a salary of \$0 (N = 3). Among those who reported a current salary >0\$ (N = 201), 38% were physicians (N = 77), 63% (N = 126) were female, and 59% (N = 119) university faculty. We present summary statistics overall as well as stratified by physician status and gender. For analyses stratified by gender we excluded respondents who either did not report their gender or reported non-binary/other gender 4.5% (N = 9). For analyses stratified by physician-status we excluded 1 respondent who did not report this information.

RESULTS

OBSERVATION 1

- The overall mean (standard deviation) salary of the biomedical informatics respondents in this study was \$181,774 (\$99,566) and median (interquartile range) was \$165,000 (\$111,000-\$230,000).
- Unadjusted mean salary for **physicians was \$114,066 higher** compared to non-physicians
- Unadjusted mean salary in **men was \$40,722 higher** compared to women
- Unadjusted mean salary for **non-academic was \$37,160 higher** compared to those in academic settings (data not shown)

Salaries in US dollars of informatics professionals stratified separately by physician status and gender					
	Overall (N = 201)	Physician (N = 77)	Non-Physician (N = 123)	Male (N = 66)	Female (N = 126)
Salary, mean (SD)	181,774 (99,566)	252,208 (109,448)	138,142 (60,930)	206,091 (118,865)	165,369 (80,807)
Salary, median (Q1-Q3)	165,00 (111,000-230,000)	235,000 (196,000-304,000)	130,000 (98,000-175,000)	197,500 (125,000-250,000)	152,000 (105,000-215,000)
All unadjusted mean differences (i.e. physician vs non-physician and male vs female) were statistically significant ($p < 0.01$). Abbreviations: SD, standard deviation; Q1, quartile 1; Q3, quartile 3.					

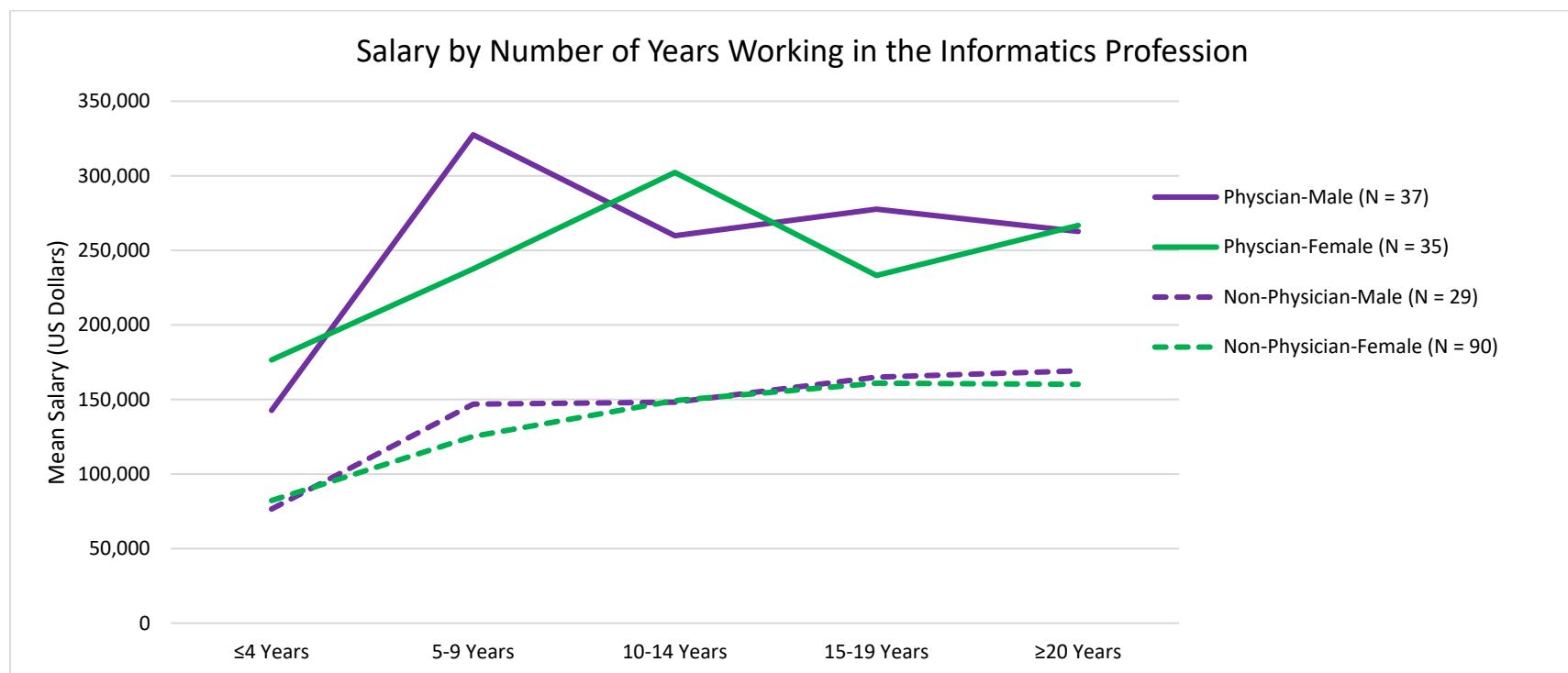
OBSERVATION 2

- **Unadjusted gender gap in pay was highest in physician respondents** (\$23,135 higher in male (vs female) physicians compared to \$391 higher in female (vs male) non-physicians).

Salaries in US dollars of informatics professionals stratified by both physician status and gender				
	Physician (N = 72)		Non-Physician (N = 119)	
	Male (N = 37)	Female (N = 35)	Male (N = 29)	Female (N = 90)
Salary, mean (SD)	259,649 (126,724)	236,514 (80,887)	137,759 (59,373)	138,150 (62,559)
Salary, difference in means (male vs female)	23,135		-391	
Salary, median (Q1-Q3)	240,000 (196,000-310,000)	235,000 (200,000-290,000)	120,000 (90,000-175,000)	129,500 (98,000-174,500)
Abbreviations: SD, standard deviation; Q1, quartile 1; Q3, quartile 3.				

OBSERVATION 3

- Overall, respondents' **mean salaries increased with more years in the informatics profession.**
- **Physicians consistently had higher mean salaries across all years spent in the informatics profession** compared to non-physicians.
- There were **no consistent differences in male versus female respondent mean salaries across years spent in the informatics profession**, which contrasts with observations from a 2018 HIMSS study that found larger gender gaps in pay in older compared to younger professionals ([2018 HIMSS U.S. Compensation Survey](#)).



Salaries of informatics professionals by number of years working in the informatics profession				
Number of years in informatics profession	Physician (N = 72)		Non-Physician (N = 119)	
	Male (N = 37)	Female (N = 35)	Male (N = 29)	Female (N = 90)
≤4 Years, N (%)	6 (16.2)	10 (28.6)	6 (20.7)	13 (14.4)
5-9 Years, N (%)	8 (21.6)	7 (20.0)	6 (20.7)	22 (24.4)
10-14 Years, N (%)	6 (16.2)	8 (22.9)	8 (27.6)	19 (21.1)
15-19 Years, N (%)	7 (18.9)	7 (20.0)	2 (6.9)	12 (13.3)
≥20 Years, N (%)	10 (27.0)	3 (8.6)	6 (20.7)	24 (26.7)
Salary in US Dollars-mean (SD)				
≤4 Years in informatics	142,667 (82,369)	176,500 (77,432)	76,500 (39,124)	82,231 (30,836)
5-9 Years in informatics	327,500 (187,695)	237,571 (87,432)	146,833 (39,225)	125,227 (51,778)
10-14 Years in informatics	259,833 (82,746)	302,250 (57,263)	148,125 (39,736)	149,237 (56,525)
15-19 Years in informatics	277,587 (144,741)	233,143 (37,782)	165,000 (91,924)	160,917 (73,185)
≥20 Years in informatics	262,700 (83,677)	266,667 (94,119)	169,167 (80,524)	160,125 (65,839)

Abbreviations: SD, standard deviation.

OBSERVATION 4

- Generally, **non-physicians reported more** areas of expertise compared to physicians
- **Clinical decision support was the top** area of expertise regardless of gender or physician status was

Areas of informatics expertise				
	Physician (N = 72)		Non-Physician (N = 119)	
	Male (N = 37)	Female (N = 35)	Male (N = 29)	Female (N = 90)
Total number of areas of expertise, mean (SD)	5.1 (2.7)	5.4 (2.9)	6.7 (3.8)	5.8 (3.3)
Top areas of expertise, N (%)				
1	Clinical decision support 33 (89.2)	Clinical decision support 27 (77.1)	Clinical decision support 20 (69.0)	Clinical decision support 39 (43.3)
2	Human computer interaction/Implementation 15 (40.5)	Implementation 26 (74.3)	Data science 16 (55.2)	Implementation 35 (38.9)
3	Knowledge representation 11 (29.7)	Standards 12 (34.3)	Data mining 14 (48.3)	Education 34 (37.8)
4	Clinical research informatics /Education/Standards 9 (24.3)	Clinical research informatics 11 (31.4)	Implementation 13 (44.8)	Clinical research informatics 32 (35.6)
5	Sociotechnical issues/Human factors/Data mining 7 (18.9)	Consumer health informatics/Human computer interaction 9 (25.7)	Human computer interaction 11 (37.9)	Consumer health informatics/Data mining/Data science 28 (31.1)

OBSERVATION 5

- **Female respondents on average reported twice the number of career barriers** compared to men, regardless of physician status
- **Taking time off to raise a family and “other” barriers were the top two barriers** for female physicians and non-physicians (regardless of gender). For male physicians the top two barriers were providing long-term care for a loved one and personal illness.
- “Other” barriers were later coded into the following categories: personal factors (N = 19), organizational factors (N =7), vague or un-codable (N= 2), and social factors (N = 1).

Career barriers				
	Physician (N = 72)		Non-Physician (N = 119)	
	Male (N = 37)	Female (N = 35)	Male (N = 29)	Female (N = 90)
Total number of barriers, mean (SD)	0.2 (0.5)	0.7 (0.8)	0.3 (0.5)	0.6 (0.7)
Top barriers, N (%)				
1	Providing long-term care for a loved one 3 (8.1)	Other barriers 8 (22.9)	Other barriers 4 (13.8)	Taking time off to raise a family 16 (17.8)
2	Personal illness 2 (5.4)	Taking time off to raise a family 6 (17.1)	Taking time off to raise a family 3 (10.3)	Other barriers 12 (13.3)
3	Taking time off to raise a family 1 (2.7)	Workplace racial/gender/sexual discrimination 5 (14.3)	Workplace racial/gender/sexual discrimination 1 (3.4)	Providing long-term care for a loved one 10 (11.1)

4	Other barriers 1 (2.7)	Providing long-term care for a loved one 4 (11.4)	Providing long- term care for a loved one 1 (3.4)	Workplace racial/gender/sexual discrimination 9 (10.0)
5	Workplace racial/gender/sexual discrimination 0 (0.0)	Personal illness 3 (8.6)	Personal illness 0 (0.0)	Personal illness 6 (6.7)

OBSERVATION 6

- One question asked about respondents' current job title in their current informatics-based position.
- There were 208 respondents to this question. Among respondents 42 (20.2%) were Directors (all levels), 26 (12.5%) were Chief Medical Informatics Officers, and 22 (10.6%) were full professors, suggesting that **respondents tended to overrepresent those in more senior or leadership positions.**