



Salary Trends Among Medical Professionals: 1998 - 2013

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The past 15 years have seen dominating headlines regarding the cost and structure of healthcare in the United States. One less discussed question is how the salaries for healthcare professionals have changed over the same period. To help examine this question, a study was conducted which compared the salary changes for a range of medical professionals extending from Medical Technicians to Physicians. All occupations used in this study were consistently tracked on a quarterly basis in ERI's Salary Assessor®.

The salaries of 113 occupations in the medical field were examined from October 1998 to October 2013. These occupations range from Medical Technicians with 2013 mean salaries in the low \$30,000 to Physicians with mean salaries over \$300,000. The salaries for all 113 occupations were tracked quarterly over the 15 year time span of the current study. All data were analyzed on a national basis. The occupations surveyed represent different sectors of the medical field: Medical Technicians, Medical Technologists, Nurses, Mid-level Providers, and Physicians. Medical technicians range from Dialysis Technicians to X-Ray Technicians. Medical technologists include Cardiopulmonary Technologists and Magnetic Imaging Technologists. Nurses include School Nurses and Emergency Room Nurses. Examples of Mid-level Providers are Nurse Practitioners and Physician Assistants. Physicians range in salaries from Optometrists who earn a mean salary of \$120,000 to Surgeons who earn over \$300,000. Because of this, it may be of use to consider Physicians in three groups: below \$200,000, \$200,000 to \$300,000, and above \$300,000. Examples of Physicians in each of these groups are Optometrists and Dentists between \$120,000 and \$200,000, Gynecologists and Psychiatrists between \$200,000 and \$300,000, and Radiologists and General Surgeons above \$300,000.

Percent Change

The analysis of percentage change revealed a curved rate of growth for medical professionals. Medical Technologists have seen the largest average salary increase over the past 15 years with an average annual growth rate of 2.6%. This is slightly higher than Medical Technicians and Nurses, who both saw salary growth at an annual rate of 2.3%. Mid-level Providers saw salary grow at a rate of 2.2%. Physicians saw an overall growth rate of 1.7%, which was lower than Mid-level Providers, Nurses, Technologists, and Technicians. In

examining the Physician salaries, it appears that there are further differences between the growth rates of Physicians depending on salary level. Specifically, it appears that Physicians in the \$200,000 to \$300,000 range grew at lower rates than lower and higher salary Physicians. Lower salary Physicians who earn below \$200,000 have seen their salaries increase at a rate of 1.9%. Physicians in the \$200,000 to \$300,000 range have seen salary grow an average rate of 0.6%. The highest paid Physicians (over \$300,000) have seen a higher rate in salary growth than mid-salary Physicians with an annual salary increase of 1.4% over the past 15 years and lower than the lower salary Physicians.

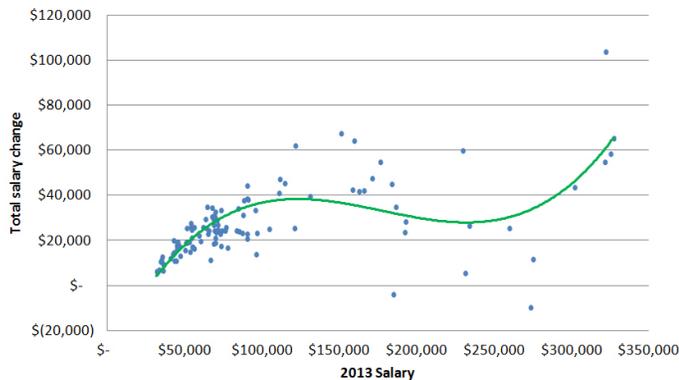
Figure 1. Annual Salary Change 1998-2013 vs 2013 Salary



Nominal Salary Change

In addition to an examination of percentage change, an analysis of the total salary change in nominal dollars was also conducted. A comparison of the two analyses revealed some interesting findings. First, in terms of percentage growth, Technician, Technologist, Nursing, and Mid-level Provider occupations appear to have grown at a higher rate than higher education medical occupations. However, higher salary medical professionals saw the largest dollar increase over the past fifteen years. This is not surprising as a similar percentage changes to higher and lower salaries will yield a greater dollar amount change to the higher salary. However, somewhat surprisingly, lower salary Physicians saw a nominal salary increase, which was higher than

Figure 2. Total Salary Change 1998-2013 vs 2013 Salary



the mid-salary Physicians. Physicians in the under \$200,000 range saw an increase of \$40,967 between 1998 and 2013. This is in contrast to the \$20,067 nominal salary increase seen by Physicians in the \$200,000 to \$300,000 range. This nominal level of salary growth is between that of Medical Technicians (\$16,473 nominal growth) and Nurses (\$25,778 nominal growth), two occupational categories which earn, on average, \$45,948 and \$74,572 respectively. This is less than the average salary of the \$200,000 to \$300,000 Physicians who had a mean salary of \$250,348 in October 2013. In this situation, the percentage increase on the larger salary is small enough that it is in the same range as the nominal increases for the smaller salaries.

Inflation

The average annual rate of inflation between 1998 and 2013 is 2.02% (BLS, 2013). When this inflation rate is considered in conjunction with medical professionals, an interesting demarcation is noted. Specifically, medical professionals from Technician to Mid-level Provider all saw salary growth at a rate that was higher than inflation. However, mean Physician salaries have seen salary growth at rates which have been lower than inflation.

Conclusion

The results of this study indicate that there has been considerable variance in the rates of salary change for medical professionals between 1998 and 2013. The most notable finding from this study is the differences in salary change for mid-salary Physicians in the \$200,000 to \$300,000 range. The salaries for this group appear to have grown at a slower rate than higher or lower salary Physicians. However, it should still be noted that the overall rate of growth for Physicians appears to have been lower than the rate of inflation.

Also of note are the rates of change for Technicians, Technologists, Nurses, and Mid-level Providers. The average occupation in each of these groups appears to have experienced salary growth between 1998 and 2013 at a rate which exceeds inflation. This finding is especially interesting when considered in relation to the growth of Physicians.

Table 1. Average Annual Growth: October 1998 - October 2013

Group	Percentage Change	Salary Change	2013 Salary
Medical Technicians	2.3%	\$16,473	\$45,948
Medical Technologists	2.6%	\$26,010	\$65,794
Nurses	2.3%	\$25,778	\$74,572
Mid-Level Providers	2.2%	\$29,234	\$88,008
Physicians \$100,000 - \$200,000	1.9%	\$40,967	\$152,341
Physicians \$200,000 - \$300,000	0.6%	\$20,067	\$250,348
Physicians Over \$300,000	1.4%	\$65,416	\$319,323



References

U.S. Bureau of Labor Statistics (2013). Consumer Price Index. Retrieved October 17, 2013 from:
<http://www.bls.gov/cpi/>

Appendix

Results

Percent Change vs. Salary

A series of regressions were conducted between the DV “Percent Change” and the IV “Salary.” Percent change was calculated as the Annual percent change between October 1998 and October 2013. The October 2013 salary was selected as the Independent variable because it is the most current salary data available for these occupations. The analysis was conducted in three steps to better account for the additional variance explained by each of the product terms.

First, a linear regression was conducted between the Percent Change and Salary. This analysis revealed a significant relationship between the mean annual percent growth and the mean salary for 2013, $F(1,111)=51.75$, $p<.0001$, $R^2=.32$; Salary: $t(1)=-7.19$, $p<.0001$.

Second, a quadratic regression was conducted which revealed a significant effect of the overall model, $F(2,110)=25.65$, $p<.0001$, $R^2=.32$. However, the individual terms did not yield significant results, Salary: $t(1)=-1.57$, $p=.12$; Quadratic term: $t(1)=-.14$, $p=.89$. The addition of the quadratic term did not yield an appreciable change in effect size: $\Delta R^2<.01$. Due to the incongruence between the model and product terms it made sense to further explore these differences by adding the cubic term.

A cubic regression was conducted between the “Percent Change” and “Salary.” The overall model indicated a significant relationship between the three salary parameters and the DV, $F(3,109)=29.52$, $p<.0001$, $R^2=.45$. There were significant relationships between the main effect, $t(1)=4.18$, $p<.0001$, Quadratic term, $t(1)=-5.04$, $p<.0001$, and Cubic term, $t(1)=5.07$, $p<.0001$. The addition of the cubic term resulted in a $\Delta R^2=.13$.

Nominal Change vs. Salary

For the second set of analyses, a cubic regression was conducted between the DV “Nominal Change” and the IV “Salary.” Nominal Change was calculated as the nominal salary change between 1998 and 2013 in the Salary Assessor product. The October 2013 salary was selected as the Independent Variable because it is the most current salary data available for these occupations. Similar to the previous analyses, this cubic analysis was conducted in a stepwise fashion to better understand the contribution of each product term.

First, a linear regression was conducted between Nominal Change and Salary. This analysis revealed a significant relationship between the total salary change from 1998 to 2013 and the 2013 salary, $F(1,111)=45.44$, $p<.0001$, $R^2=.29$; Salary: $t(1)=6.74$, $p<.0001$.

Second, a quadratic regression was conducted which revealed a significant effect of the overall model, $F(2,110)=24.64$, $p<.0001$, $R^2=.32$. The main effect for Nominal Change yielded a significant main effect of $t(1)=3.30$, $p=.0013$. However, the quadratic term did not yield significant results, Quadratic term: $t(1)=-1.74$, $p=.09$. The addition of the quadratic term resulted in a $\Delta R^2=.02$. Due to the relationship uncovered in the previous regressions it made sense to further explore these differences by adding the cubic term.

A cubic regression was conducted between the “Nominal Change” and “Salary.” The overall model indicated a significant relationship between the three salary parameters and the DV, $F(3,109)=37.33$, $p<.0001$, $R^2=.51$. There were significant relationships between the main effect, $t(1)=7.53$, $p<.0001$, Quadratic term, $t(1)=-6.84$, $p<.0001$, and Cubic term, $t(1)=6.61$, $p<.0001$. The addition of the cubic term resulted in a $\Delta R^2=.18$.