PYA COMPENSATION STUDY: SPOTLIGHT ON CARDIOLOGY

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INTRODUCTION

As America's baby boomer demographic ages, demand for medical specialists who serve this patient population is on the rise. Merritt Hawkins, a physician search firm, projects future physician deficits in a number of specialties that focus on, and treat, failing organs and symptoms of older patients; and in this regard, cardiology is cited as a critical specialty.[1] However, like their patients, cardiologists are aging, too. Based on the latest available information from the Association for American Medical Colleges (AAMC), nearly 60% of all cardiologists are 55 and over.[2] PYA's "Spotlight on Cardiology" infographic takes a keen look at market trends related to supply and demand for cardiologists and the effects that an aging population and other factors are having on cardiology compensation.

DEMAND FOR CARDIOLOGY SERVICES

Although there has been a decrease in the incidence of cholesterol and coronary heart disease since 1981, heart-related medical conditions still make up 4 of the top 10 chronic diseases in those aged 65 years and over.[3] Nearly 50% of the American population has at least one of the key risk factors (high blood pressure, high cholesterol, and smoking) for developing heart disease. Additionally, excessive alcohol use, diabetes, physical inactivity, poor diet, and obesity form the primary medical conditions and lifestyle choices that contribute to heart disease risk.[4] Obesity, in particular, can cause coronary artery disease, stroke, high blood pressure, and other cardiology-related issues.

Several years ago, *Health Affairs* reported on its evaluation of the demand for specialists in the U.S. The conclusion was that the aging population and growing disease burden will increase demand for cardiologists—second only to vascular surgery—**by as much as 18% each year between 2013 and 2025**.[5]

Apart from an aging, less healthy population, the demand for cardiologists is affected by the specifics around the practice of cardiology. Changes in cardiology testing and procedure utilization rates, as well as the introduction of new tools and techniques, also affect demand for cardiologists.

[1] https://www.merritthawkins.com/uploadedFiles/MerrittHawkins/Pdf/2017_Physician_Incentive_Review_Merritt_Hawkins.pdf.
[2] AAMC 2015 Physician Survey accessed at https://www.aamc.org/data/workforce/reports/458494/1-4- chart.html.
[3] https://www.ncoa.org/wp-content/uploads/10-Common-Chronic-Conditions-Older-Adults-ncoa.png.
[4] https://www.cdc.gov/heartdisease/facts.htm.
[5] https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2013.0714.

Additionally, research-based guidelines on when—or when not—to perform certain tests have helped to eliminate some cardiology testing.[6]

In a 2014 study, MedAxiom reported that key cardiology tests, such as the number of catheterizations, imaged stress studies, implantable cardioverter-defibrillators, and treadmill stress tests all declined on a "per new patient encounter" basis from 2008 to 2013. MedAxiom's 2017 study reported a decline in the use of stress echo tests, a leveling off of the use of the treadmill and SPECT,[7] and stability in the volume of catheterization; but that study showed an increase in percutaneous coronary intervention and the newer transcatheter aortic valve replacement techniques.[8] Less invasive surgical techniques, as well as the ability to perform some procedures in an outpatient environment, can alleviate some of the increased demand for cardiologists and allow a limited pool of cardiologists to treat a larger number of patients.

SUPPLY OF CARDIOLOGISTS

The AAMC reported that there were approximately 22,058 active cardiologists in the U.S. workforce in 2015, the tenth most of any physician specialty.[9] However, fewer medical graduates are now choosing cardiology as a specialty. Over a five-year period from 2010 to 2015, the number of cardiologists only increased by 1.1%, while the number of physicians overall increased by 7.7%.[10] Additionally, of the medical graduates seeking to specialize in cardiology, many eventually practice in urban settings, leading to greater "geographic maldistribution" in cardiology than in primary care. Fewer cardiologists are available to the most vulnerable patients, including those 65 years of age and older, and those residing in underserved areas of the country. When grouped by quartile, significant portions of the Midwestern and Western states have one-quarter to one-half the number of cardiologists per 100,000 patients ≥65 years of age compared with population-dense regions.[11]

The past decade has seen a large movement of cardiologists out of private practice and into an integrated setting, such as hospitals and health systems. Today, approximately 20% of cardiologists are in private practice as opposed to nearly 80% in 2008.[12] For the purposes of comparison, when considering the overall physician population in the U.S., about 58% of all physicians are currently in private practice.[13] This implies that, over the last decade, cardiologists may have moved into integrated settings at a higher rate than the average physician. Some reasons cited for this trend include an inability to compete with health systems that may be paid higher reimbursement rates, and the increase in the cost and efforts around the administrative aspects of patient care.[14]

There are many subspecialties within cardiology. Interestingly, only 27% of cardiologists in both private and integrated ownership models are non-invasive cardiologists, whereas roughly 38% and

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[6] https://www.medaxiom.com/clientuploads/documents/Workforce_Analysis.pdf.
[7] Single Photon Emission Computer Tomography is a noninvasive nuclear imaging of the heart.
[8] https://www.medaxiom.com/clientuploads/PDFs/Comp_Survey_Final_2017.pdf.
[9] https://www.aamc.org/data/workforce/reports/458514/1-9-chart.html.
[10] Ibid.
[11] Narang, Akhil: *The Supply and Demand of the Cardiovascular Workforce, Striking the right balance*: October 11, 2016, accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5351767/.
[12] https://www.medaxiom.com/clientuploads/PDFs/Comp_Survey_Final_2017.pdf.
[13] http://www.physiciansadvocacyinstitute.org/Portals/0/assets/docs/2016-PAI-Physician-Employment-Study- Final.pdf.
[14] Ibid.

20% are invasive and interventional cardiologists, respectively. The remaining 15% of cardiologists work under the electrophysiology subspecialty.[15] Another interesting trend in cardiology is the decline in part-time cardiologists—that number has declined in the last five years from 13% in 2012 to merely 7% in 2017. The MedAxiom 2017 survey suggests that these part-time physicians' reduced levels of productivity and the inability to take call, which is a significant burden for cardiologists, could be limiting practices' ability to absorb part-time cardiologists.[16]

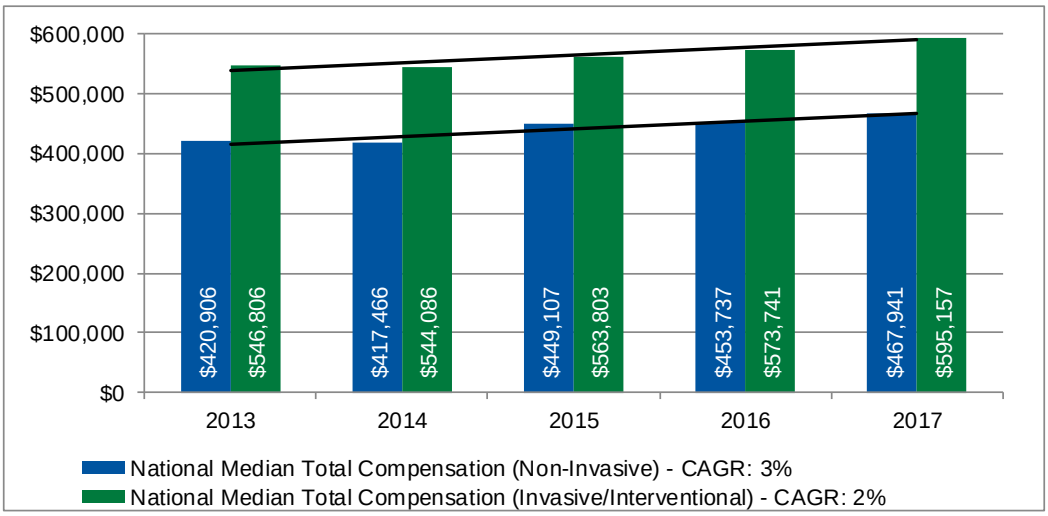
COMPENSATION

As indicated earlier, the aging population and an increase in the incidence of obesity and other risk factors have been increasing the demand for cardiac care. While this increase in demand is potentially tempered by a greater awareness of the importance of healthy lifestyles and preventive care, the number of physicians entering the field of cardiology may not be sufficient, thus potentially creating bottlenecks for patients. In fact, a study by Merritt Hawkins already shows that the average wait times for certain types of cardiac care appointments in major cities increased from 16.8 days to 21.1 days between 2014 and 2017.[17] However, some of this may be mitigated, in part, by more efficient care protocols and advancements in medical technology.

The interrelationship between demand and supply factors could impact physician compensation. PYA has reviewed and presented non-invasive cardiology and invasive/interventional cardiology benchmark data in the following figures to provide an illustration of recent trends.[18]

NATIONAL CLINICAL COMPENSATION BENCHMARKS

Figure I - Trends in Total Compensation - Cardiology[1]

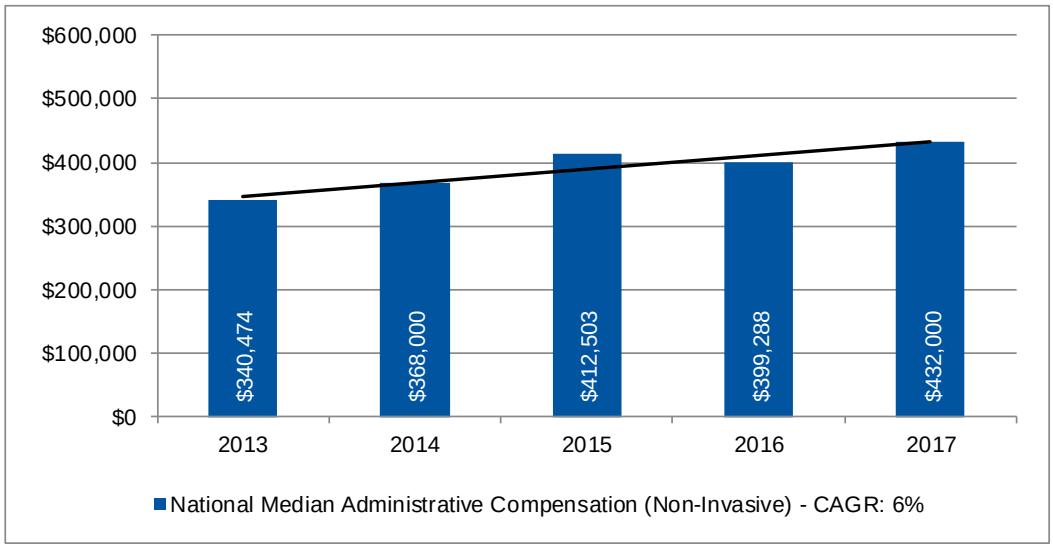


[1] The total compensation received by the physician reported as direct compensation which may include salary, bonus and/or incentive payments, research stipends, honoraria, profit-sharing, clinical medical directorships, call coverage, and voluntary salary reductions. The compensation reported excludes fringe benefits paid by the medical practice (e.g., retirement plan contributions and health insurance).
Note: CAGR = Compound Average Growth Rate.

[15] https://www.medaxiom.com/clientuploads/PDFs/Comp_Survey_Final_2017.pdf.
[16] Ibid.
[17] https://www.merritthawkins.com/uploadedFiles/MerrittHawkins/Content/Pdf/mha2017waittimesurvey PDF.pdf.
[18] Resources utilized include: AMGA Medical Group Compensation and Productivity Survey, MGMA Physician Compensation and Production Survey, MGMA Medical Directorship Compensation Survey, MGMA On-Call Compensation Survey, and SullivanCotter Physician Compensation and Productivity Survey Report.

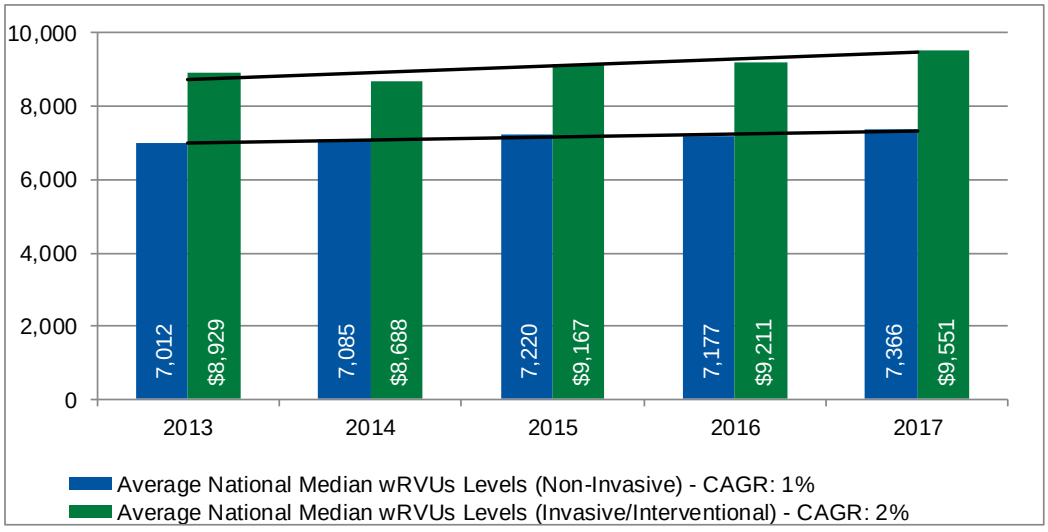
- As seen in ***Figure I***, total compensation for non-invasive and invasive/interventional cardiology was observed to grow at a compound annual growth rate (CAGR) of 3% and 2%, respectively, between 2013 and 2017. Interventional cardiologists also earned on average approximately 30% more than non-invasive cardiologists.

Figure II - Trends in Administrative Compensation - Cardiology



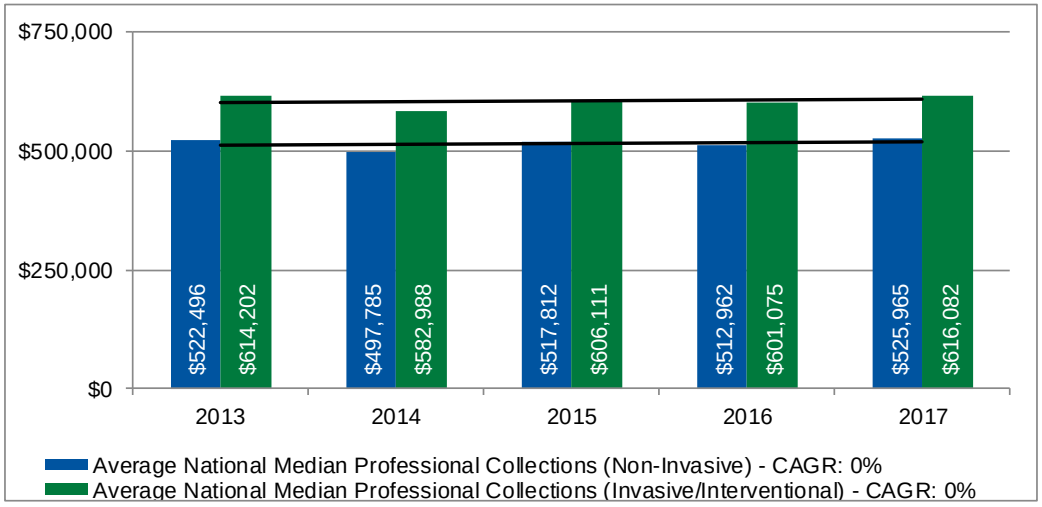
- Administrative compensation was observed to be lower than total compensation for non-invasive cardiology (invasive/interventional cardiology data was limited and hence not analyzed). However, it has grown at a faster annual rate (6%) than total compensation as illustrated in ***Figure II***.

Figure III - Trends in Physician Productivity as Measured by wRVUs - Cardiology



- Growth in physician work relative value units (wRVUs) matched growth in physician compensation over the last five years for invasive/interventional cardiologists as seen in ***Figure III***. For non-invasive cardiologists, wRVU levels only grew at 1% per year while compensation grew at 3% each year. This suggests that factors other than wRVU productivity may be driving the increase in non-invasive cardiology compensation.

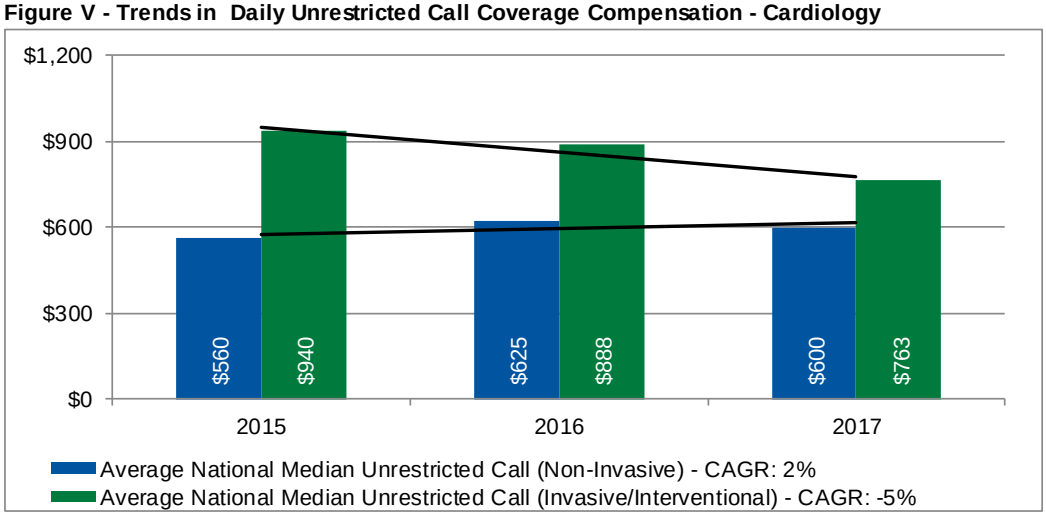
Figure IV - Trends in Physician Productivity as Measured by Professional Collections - Cardiology



- Even more striking is the fact that physician productivity, as measured in terms of professional collections, stayed flat over the last five years as indicated in ***Figure IV***. This was further supported by PYA's review of the Medicare professional fee reimbursement—which grew only slightly at 0.06%—for the top 20 procedures performed by cardiologists between 2015 and 2017.

- Finally, reviewing call compensation data, PYA noted some level of variability in compensation for unrestricted call coverage, increasing for non-invasive cardiologists, and decreasing for invasive/interventional cardiologists. As unrestricted call coverage compensation data for non-invasive cardiology was limited in 2013 and 2014, PYA looked at trends for 2015 through 2017 only. It is possible that, as call coverage data generally relies upon a smaller number of survey respondents (when compared to total compensation survey respondent numbers), the trends observed in ***Figure V*** below may not be a true representation of the trend in call compensation, especially in light of the upward trend in median overall compensation.

Figure V - Trends in Daily Unrestricted Call Coverage Compensation - Cardiology



Note: Data for 2013 and 2014 was limited for Non-Invasive Cardiology and hence has not been included.

CONCLUSION

Benchmark data seems to suggest that while compensation has increased, physician productivity for cardiologists has stayed relatively stable over the last five years. This suggests there are many factors which are influencing cardiology compensation besides physician productivity. These factors include, but are not limited to: a growing disease burden, an aging cardiologist and patient population, advances in technology, and physician sub-specialization within cardiology.

About PYA

PYA provides independent and objective valuation and consulting services to a broad range of healthcare organizations. We support our clients' many needs including physician employment arrangements, medical directorships, call coverage, and many other types of arrangements associated with various acquisitions and/or affiliations. PYA provides more than 1,200 fair market value opinions each year and has worked with hospitals, health systems, and other such organizations negotiating compensation arrangements in many specialties including cardiology.