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doi: https://doi.org/10.57709/12528289

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Do Financial Incentives Make a Difference? A Study of Dual Eligible Medicare Advantage Primary Care Providers and Quality Gaps in Care for the Dual Eligible Population

by

Estevan Rodriguez

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Executive Doctorate in Business

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY

ROBINSON COLLEGE OF BUSINESS

2018

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ACCEPTANCE

This dissertation was prepared under the direction of the *ESTEVAN RODRIGUEZ* Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the J. Mack Robinson College of Business of Georgia State University.

Richard Phillips, Dean

DISSERTATION COMMITTEE

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Dr. Patricia Ketsche

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ACKNOWLEDGEMENTS

I am thankful for the support of my dissertation advisors, Dr. Karen Loch (Chair), Dr. Patricia Ketsche, and Dr. William Custer for their assistance in motivating me and making this research possible. Additionally, I am grateful to the 2016 Executive Doctorate in Business (EDB) cohort and faculty and staff at Georgia State University EDB for their assistance. Special mention also goes to Ms. Shalini Gopalkrishnan for her statistical knowledge and support.

I dedicate this research to my parents who have guided me from their eternal resting place. I must also acknowledge the healthcare community and my health plan peers for their tireless work and efforts in making quality a primary concern.

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ABSTRACT

Do Financial Incentives Make a Difference? A Study of Dual Eligible Medicare Advantage Primary Care Providers and Quality Gaps in Care for the Dual Eligible Population

by

Estevan Rodriguez

August 2018

Chair: Dr. Karen Loch

Major Academic Unit: Executive Doctorate in Business

The regulatory arm of the Center for Medicare and Medicaid Services (CMS) strictly tracks quality compliance via Healthcare Effectiveness Data and Information Set (HEDIS) reporting, which captures rich data in order to drive value-based healthcare delivery. Health plans are empowered to drive quality results via performance-based contracting, and have instituted financial incentive agreements to improve care delivery for the Dual Eligible Medicare Advantage (MA) patient population. As a result, there is enhanced focus on Dual Eligible MA quality, which has received pronounced attention lately.

As a way to improve Dual Eligible MA Primary Care Provider (PCP) quality, financial incentives have been offered by health plans with the expectation of building a high performance, quality driven network. Specific quality measures outlined in this study are identified in relation to the targeted, incentivized providers. A primary objective of the financial incentives is adherence to quality standards monitored by the health plans. Focused healthcare literature has also laid the groundwork for this study. Motivation theory serves as the theoretical lens to answer the question, “Do financial incentives make a difference?” Regulatory pressures continue to shape the healthcare environment. This study focuses on pre-financial incentive and

financial incentive periods to assess the positive or negative relationship financial incentives have on Dual Eligible MA PCP quality.

Findings show that Dual Eligible MA PCP quality on average is not improving as a result of financial incentives. Dual Eligible MA PCP quality gap rates as measured by Dual Eligible MA PCP HEDIS quality gaps divided by Dual Eligible MA patients assigned did not show decline, but rather an increase (i.e., 1.90 in 2010 to 2.30 in 2014). This is supported for all quality measures selected in this study. Assessment of HEDIS gaps using a quantitative approach further contributes to the practical healthcare landscape that bridges the gap between theory and practice. Analysis of Dual Eligible MA PCP characteristics, i.e., structure, specialty, and gender, also elicits the need for continued research along the motivation frontier.

INDEX WORDS: Financial Incentive, Motivation Theory, Dual Eligible Medicare Advantage Primary Care Provider (MA PCP), Healthcare Effectiveness Data and Information Set (HEDIS), Quality.

I INTRODUCTION

I.1 Quality in Health Care

For purposes of this study, quality is defined per clinical definition as the conformance and performance to standardized, established measures (Tamimi and Sebastianelli, 1996). Dual Eligible Medicare Advantage (MA) patients, or Low Income Seniors, are under strict requirements when selecting a Dual Eligible MA plan as the networks are serviced by providers who serve not only an aged population, but an economically disadvantaged one as well. The guidelines patients must meet are strict and involve Medicaid requirements in order to participate in the program. The major implications to members are that services must be performed by participating Dual Eligible MA PCPs acting as their gatekeepers of healthcare. The benefit to the patient is that any costs not covered under the Dual Eligible MA plan are picked up by Medicaid resulting in no out-of-pocket costs to the patient. On the provider side, he or she must accept Medicare payment rates, and must promise to hold patients harmless for payment of services provided.

The availability of practice-based support has changed dramatically. For instance, software tools to track care opportunities via Electronic Medical Records (EMR) have assisted in reducing the administrative burden for countless primary care providers serving patients with complex conditions such as Diabetes and Cancer. Historical claim data is available to track and trend levels of care and provides details to unveil quality concerns.

The financial incentives paid by health plans to Dual Eligible MA PCPs are operationalized by Healthcare Effectiveness Data Information Set (HEDIS) measures of which these benchmarks are used to measure performance based on dimensions of care and service. Sixteen (16) measures normally serve as benchmarks tied to financial incentive programs but this

varies by health plans. Five (5) of the measures tied to Diabetes and Cancer screenings are selected for this study. Many opportunities exist to improve healthcare quality. One of these opportunities is the option to use the power of the financial relationships between health plans and PCPs to encourage quality. This, in addition to the many tools available for practicing Dual Eligible MA PCPs, builds a needed foundation for support.

I.1.1 *Quality in the U.S. – Why is it a Problem?*

Nationally, Medicare Advantage plans (including Dual Eligible plans) for the periods of this study have seen significant consolidation per research done by the Kaiser Family Foundation (See Figure 1. Average Number of Medicare Advantage Plans Available to Beneficiaries 2009-2015 below). There has been a thirty-eight percent (38%) reduction in Medicare Advantage health plans between calendar years 2009 – 2015 (Kaiser Family Foundation, 2015). This is problematic due to a demand-supply situation. For example, the decrease in number of plans creates an unanticipated reduction of Dual Eligible MA PCPs needed to satisfy a growing patient population. Simply, with too few PCPs in the supply chain and too many patients increasing demand, quality suffers.

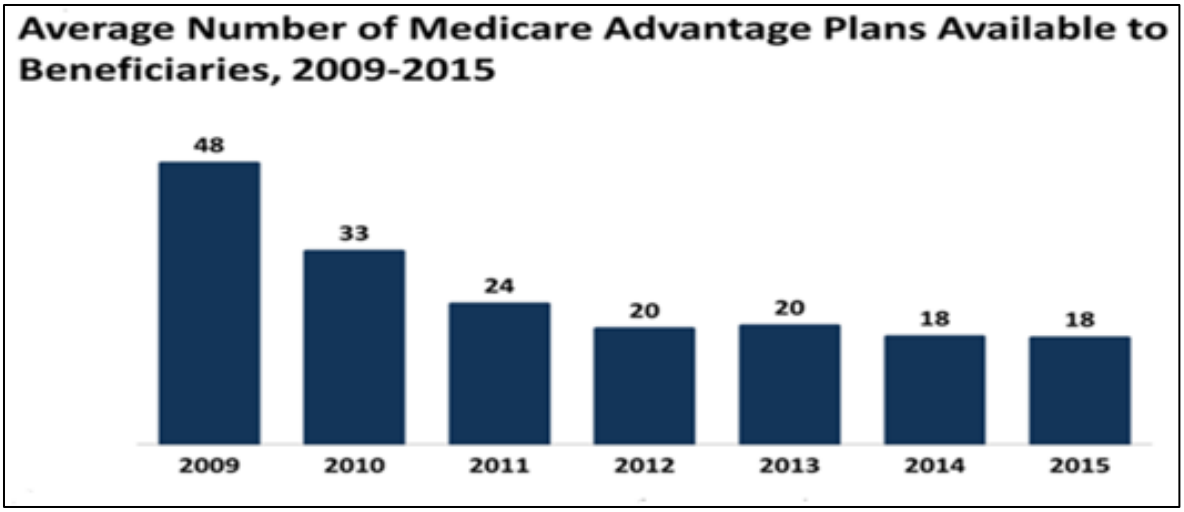

Figure 1 Average Number of Medicare Advantage Plans Available to Beneficiaries 2009-2015, Kaiser Family Foundation
(Source: http://kff.org/medicare/issue-brief/medicare-advantage-2015-data-spotlight-overview-of-plan-changes).

Added to the mix, the Dual Eligible MA PCP community has witnessed the transition to new payment structures, i.e., Pay-for-Performance (P4P) models designed to both control costs and advance quality. Under a P4P reimbursement model, some of the PCP's compensation is tied to the ability to meet agreed upon quality benchmarks. As health plans and Dual Eligible MA PCPs transition to a P4P payment model, quality gaps in care receive increased attention along with an increased demand for quality improvement. Furthermore, there has been significant national and local growth of Medicare Advantage and Dual Eligible MA membership year-over-year as evidenced by enrollment details below (See Figure 2. National Medicare Advantage Enrollment in 2014 Exceeds Projections by 6 Million Beneficiaries and Table 1. Arizona Dual Eligible Medicare Advantage Enrollment Growth). Projected demand of new patients under Medicare Advantage was significantly under-estimated by over six (6) million patients (Kaiser Family Foundation, 2014). The impact is coming into focus as quantitative analysis emerges related to PCP quality.

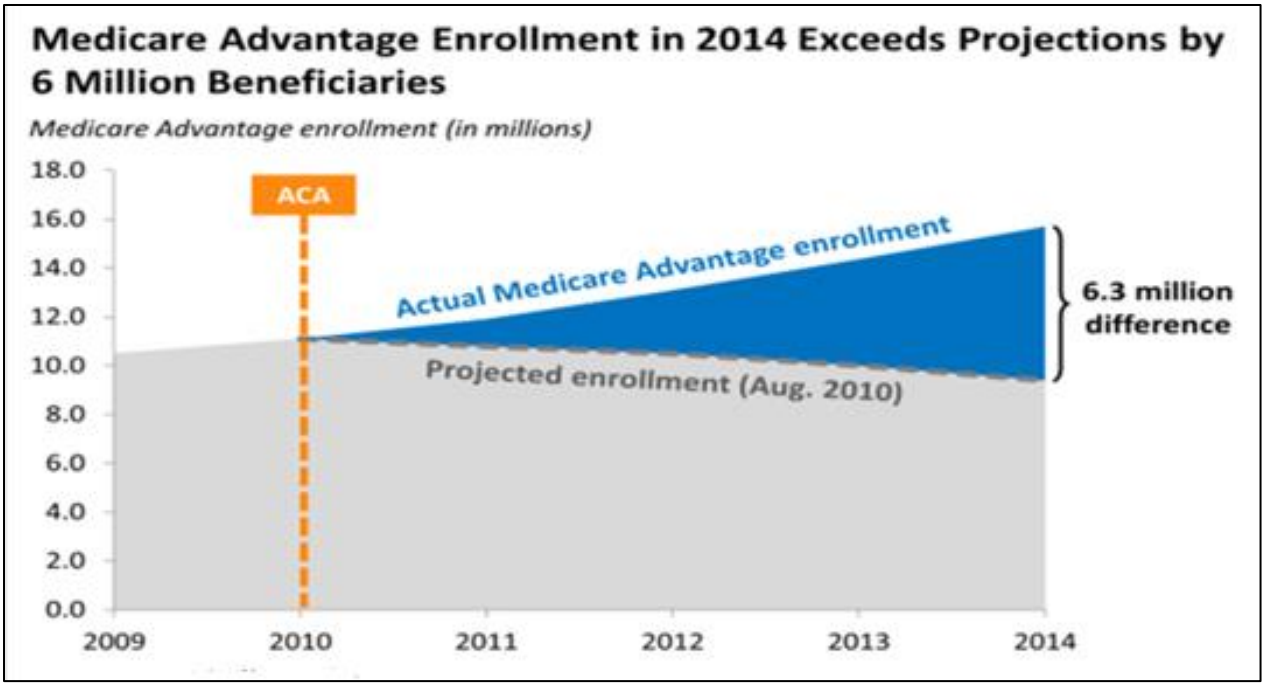

Figure 2 National Medicare Advantage Enrollment in 2014 Exceeds Projections by 6 Million Beneficiaries
(Source: Kaiser Family Foundation, 2014).

Table 1 Arizona Dual Eligible Medicare Advantage Enrollment Growth
(Source: www.cms.gov and UHC, 2015).

Year	2010	2011	2012	2013	2014
CMS Data (AZ MA enrollment - www.cms.gov, 2015)	189,062	193,118	Excluded from study period	214,769	220,406
Year-over-Year Growth		**2.15%**		**11.21%**	**2.62%**
Dual Eligible MA Enrollment – Male	2,388	3,095	Excluded from study period	5,699	4,635
Dual Eligible MA Enrollment – Female	5,572	5,196	Excluded from study period	10,981	9,532
Dual Eligible MA Enrollment – Total	7,960	8,291	Excluded from study period	16,680	14,167
Year-over-Year Growth		**4.16%**		**101.18%**	**-15.07%**

As the MA patient enrollment growth trend continues, disruption in the healthcare landscape results due to fewer exited MA health plans and the enrollment constraints in the Dual Eligible MA PCP provider market. The Dual Eligible MA patient growth trend in Arizona in 2013 increased by over one hundred and one percent (101%) (See Figure 3. Arizona Dual Eligible Medicare Advantage Enrollment Growth above). The dominant networks are forced to deal with this significant enrollment demand. As a result Dual Eligible MA PCP quality is increasingly difficult to maintain and quality gaps in care do not seem to be improving. Burns and Pauly (2018) in their healthcare research found P4P did not have a positive impact on outcomes and "…found little evidence of changes in quality" (Burns and Pauly, p. 72-73, 2018). Given the rapid enrollment growth trend, this problem strikes a chord in the healthcare community. There is great pressure to advance quality while keeping up with patient demand both nationally and locally in Arizona.

Healthcare models are constantly evolving in today's dynamic Dual Eligible MA PCP setting. The shift to value-based payment methods (i.e., P4P) has changed in the healthcare marketplace. Conrad and Christianson (2004) support this view in their study on the changing dynamics. They further add that a new conceptual mindset is needed that considers the evolving complex framework. Moving from the macro perspective, claim data from a specific plan of practicing Arizona Dual Eligible MA PCPs provides further visibility to the issue. Dual Eligible MA PCPs, health plans, and patients see room for quality improvement.

As the demand for quality grows, payers engage in a variety of incentives such as benefit reduction for patients, jeopardized roster assignment for payers, and increased oversight in an effort to improve the use of evidence based practices. In turn, health plans consider how they can motivate participating providers towards higher quality. As greater scrutiny is placed on quality,

health plans want to know if financial incentives, as a motivating factor, matter. Efforts are underway that seek to motivate higher quality. Financial incentives serve as a mechanism to motivate quality and are directly tied to HEDIS quality improvement.

At odds in the healthcare landscape are the Dual Eligible MA PCPs who are challenged with not only the complexity of treating an aging population, but additionally with administrative pressures due to HEDIS quality tracking that can increase the administrative burden associated with providing the patient's care. In the highly regulated healthcare system, there are many checks and balances needed to ensure quality. Specific Dual Eligible MA PCP services, such as routine healthcare visits and screenings, ensure proper delivery of care and quality gap closure which is required in the pay-for-performance landscape.

I.2 Quality Initiatives

I.2.1 *Private Sector*

The private sector, for health insurance purposes, relates to individual and or group coverage, commonly referred to as "Commercial" coverage. For the sake of this study, the private sector is out of scope, but is a category worth brief mention. Private plans are also available to supplement Medicare insurance coverage for services referred to as "gaps" not covered by traditional Medicare. These Medicare members pay for the services they receive at private fee for service rates per the benefit agreement they enroll in.

Medicare has two distinct components: Part A, which covers inpatient hospital care, skilled nursing facility, hospice, lab tests, surgery, and home healthcare and Part B, which covers medical services deemed medically necessary and preventive services. Private sector members normally comply with, and are engaged in the care delivered by their providers. Problems start to

emerge when diving into the public Dual Eligible MA segment, which this study further investigates.

I.2.2 *Public (Dual Eligible) Sector*

As the extent of new healthcare legislation further unfolds, the importance of primary care quality remains an extremely relevant topic in the public sector (Baker, Hopkins, Dixon, Ridout, and Geppert, 2004). This empirical examination adds further clarity to the quality dilemma facing the healthcare industry. Similarly, this study focuses on a public Dual Eligible MA PCP network in Arizona to consider the relationship financial incentives have on quality. The Dual Eligible MA PCP structure, specialty, and gender are analyzed with specific focus on HEDIS quality measures related to Cancer and Diabetes screenings.

HEDIS measures provide specific quality information. A research opportunity has been granted given the identified MA patient growth trend, movement from Fee-for-Service to P4P, and contractual performance requirements in healthcare (See figure 3. Fee-for-Service Transition to Pay-for-Performance below).

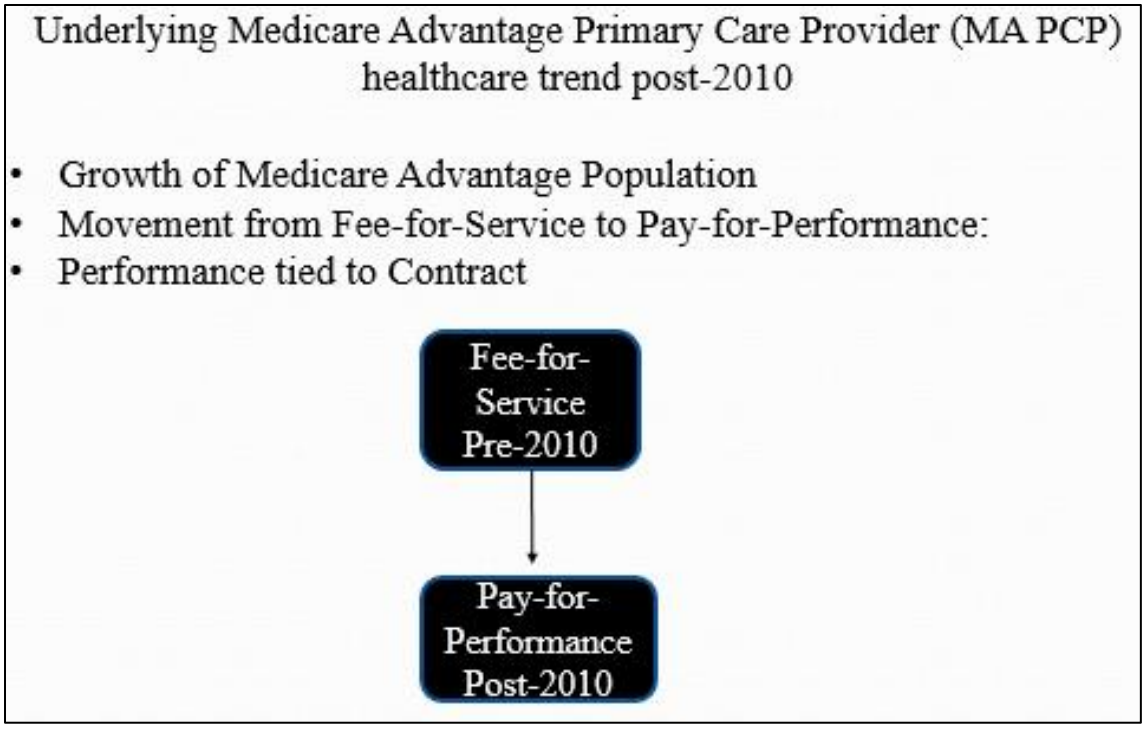

Figure 3 Fee-for-Service Transition to Pay-for-Performance
(P4P).

I.3 Specific Dual Eligible Medicare Advantage Plan

United Healthcare (UHC) is a leading Dual Eligible Medicare Advantage health plan serving the MA population both in Arizona and nationally. Dual Eligible MA PCP claims track quality by assessing adherence to guidelines in the provision of care. We rely on a subset of these measures to provide insight into quality by tracking the five (5) HEDIS quality measures in this study. UHC uses this data to ensure quality standards of care are being met. Procedures impacting quality are easily acquired from the claim details to see trends. Open HEDIS care gaps tied to the quality measures are analyzed for reporting purposes. While this study is limited to five (5) measures, other measures that are reported via claim submission could also be analyzed for added benefit and future research. For incentive purposes, the sixteen (16) measures listed in Table 2. HEDIS Quality Measures below are generally tied to a financial incentive. While not all

the measures in this study are included for review, the five (5) selected are important as they provide useful insight into chronic conditions, such as Diabetes and Cancer, faced by the Dual Eligible MA population and vital for disease management.

Table 2 HEDIS Quality Measures
(www.ncqa.org, 2015)

HEDIS QUALITY MEASURES
Measures - Included in Study 1) Breast Cancer Screening 2) Colorectal Cancer Screening 3) Blood Sugar Screening 4) Eye Exam Screening 5) Kidney Disease Screening
Measures - Excluded from Study 6) Adult BMI Assessment 7) Care for Older Adults – Medication Review 8) Care for Older Adults - Functional Status Assessment 9) Care for Older Adults - Pain Assessment 10) Osteoporosis Management in Women who had a Fracture 11) Controlling for Blood Pressure 12) Rheumatoid Arthritis Management 13) High Risk Medication 14) Medication Adherence for Diabetes Medications 15) Medication Adherence for Hypertension 16) Medication Adherence for Cholesterol

Motivation theory suggests that financial incentives result in improved quality, or lower HEDIS quality gaps. The pre-financial incentive and financial incentive details observed can be used to show whether financial incentives matter with respect to quality gap reduction or not.

I.4 Research Questions (RQ)

RQ1: Are financial incentives as implemented within one Dual Eligible MA network associated with higher likelihood of Dual Eligible MA PCP attainment of predetermined benchmarks for quality on five (5) specific HEDIS measures; namely 1) Breast Cancer Screening, 2) Colorectal Cancer Screening, 3) Blood Sugar (HbA1c) Screening, 4) Eye Exam Screening, and 5) Kidney Disease Screening?

RQ2: To what extent are structure, specialty, and gender associated with quality improvement in the study period?

II LITERATURE REVIEW (THEORETICAL FRAMING) AND HYPOTHESES

The healthcare literature provides the theoretical framing for this study. There is comprehensive literature specific to financial incentives and selected to inform on the topic of motivation for quality by Dual Eligible MA PCPs. Adding focus to the specialized Dual Eligible MA PCP segment provides insight into the Value Based Purchasing landscape where providers are incentivized for performance. Greater attention is being placed on the Dual Eligible MA PCP segment as a result of transition to alternative payment models that put providers at some risk for the high cost of caring for Dual Eligible MA enrollees (Damberg, Sorbero, Lovejoy, Martsolf, Raaen, and Mandel, 2014).

Based on Motivation Theory, Herzberg, Maussner, and Snyderman (1959) state in their book "Motivation to Work" that "…it is possible to set up large groups that differ significantly with respect to some specific variable or group of variables. These groups can then be compared in an attempt to discover the relationship between these variables and various other measures" (Herzberg, et al., p. 11). Using this framework, the assertion of the hypotheses can be investigated using specific pre-financial incentive and financial incentive HEDIS quality data.

The term motivation as defined by Merriam-Webster is used as it relates to this study:

> "The act or process of giving someone a reason for doing something: the act or process of motivating someone; the condition of being eager to act or work; the condition of being motivated; a force or influence that causes someone to do something" (Source: http://www.merriam-webster.com. November 2015).

Classic theory with respect to motivation by Herzberg (1959, Motivation-Hygiene Two-Factor Theory) lends exceptional value to this research. His theory advances the understanding and complexity of motivation. Using the accepted definition above and Motivation Theory as a guide, this study assists in understanding the relationship financial incentives have on Dual

Eligible MA PCP quality. I have selected Herzberg's theory to examine pre-financial incentive and financial incentive quality from an extrinsic motivation perspective.

Herzberg's Two Factor Theory and concept of Extrinsic (Hygiene) factors are useful in this examination. Herzberg, Mausner, and Snyderman (1959) suggest that "hygiene and motivation and the relationship of these complexes of factors to the behavior of men (or women) has many implications for practice" (Herzberg, et al., p. 119). Further analysis at the individual Dual Eligible MA PCP level with identification of HEDIS gaps provides an observable relationship over time.

Analysis of detailed pre-financial incentive and financial incentive data is useful in assessing changes in quality. Theoretical framing along with empirical data adds further relevance to this study. The relationship between extrinsic (hygiene) factors and quality can provide useful assessment quantitatively. Interestingly, literature is mixed with respect to P4P, i.e., paying for quality. Herzberg, et al. (1959) also point out that "overemphasis on hygiene is not enough" (Ibid. p. 131-132). Figure 4. Motivation Theory Model below adapts Herzberg's Two-Factor Motivation Theory as the selected framework to this study.

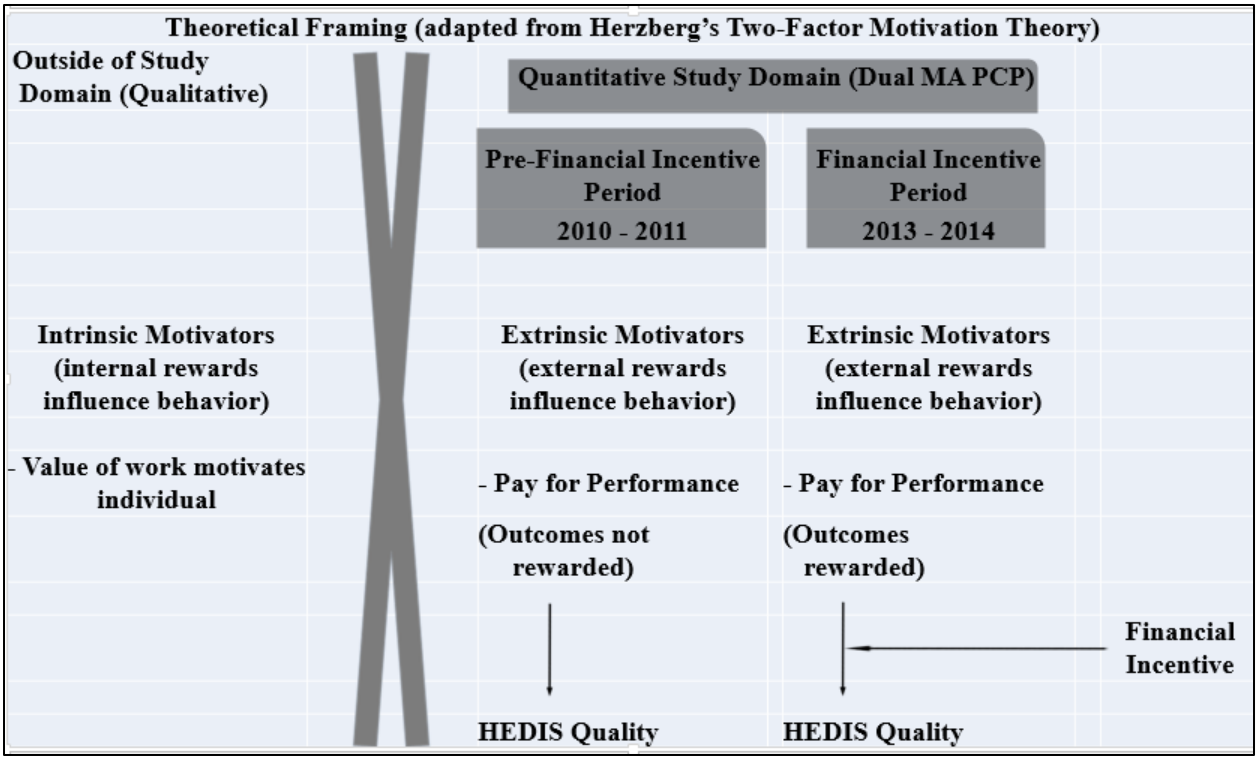

Figure 4 Motivation Theory Model.

Improving quality gaps is a top priority in the healthcare industry. The health plans' goal of ensuring quality and rewarding the Dual Eligible MA PCPs with a financial incentive is not so clear. The examination of HEDIS measures opens opportunities to investigate the relationship financial incentives have on healthcare quality. Also useful in this analysis is viewing the relationship through the lens of structure, specialties, and gender along with underlying characteristics associated to the Dual Eligible MA PCPs. This area has been scrutinized carefully to add further insight. Literature has generated much needed inquiry regarding healthcare quality.

Health plans are intending to shape the desired provider behaviors. Herzberg, Mausner, and Snyderman (1959) indicate that future research needs to investigate individual level effects that determine motivation (Herzberg, et al., p. 100). At the forefront, researchers must look at what the statistical data shows while considering Motivation Theory in an empirical healthcare setting.

Evidence in the given literature suggests that effectiveness of financial incentives are limited when it comes to improving quality. Various studies aligning to the healthcare segment and quality lend further credence to the analysis. Studies that indicate where P4P is working or not working is essential in contextualizing the findings to lend support to an empirical analysis.

Existing literature reviewed in relation to financial incentives in healthcare include but are not limited to research by the following studies presented here. Literature has been reviewed on the topic of structure, specialty, and gender:

II.1 Structure

Town, Wholey, Kralewski, and Dowd (2004) state that "outcomes are not under control of providers and the link of pay to performance is not always observable" (Town, et al., p. 86S). Important elements of structure were identified to "inform relative to incentive effects" (Ibid. p. 99S). These authors ask "How does the incentive context affect the desired behavior?" and "Given the incentive context, how much can incentives affect the desired behavior?" (Ibid. p. 112S). They identify specific concerns in development of theory about incentives and indicate motivation needs to be considered relative to incentive research.

Mehrotra, Pearson, Coltin, Kleinman, Singer, Rabson, and Schneider (2007) conducted interviews (N = 79) and their findings indicate that incentives are "tied to improved (HEDIS) quality and that structure is important" (Mehrotra, et al, p.252 - 253). They concluded however that "incentives improving quality is unclear" (Ibid. p.254). Their findings suggest positive association between P4P and HEDIS measures. A large percentage of respondents reported moderate to very important impact on performance (thirty six percent 36%) and moderate to significant impact on the group (fifty six percent 56%). Interestingly, a small percentage (twelve percent 12%) of providers feel quality of care is an issue (Ibid. p. 252). These authors also point

out the importance of structure in relation to quality. Group characteristics are highlighted in their study to emphasize the understanding of incentive and quality optimization. Additionally, they showed that financial incentives can be used "…as a mechanism to improve clinical quality" and suggest that pay for performance incentives are "…viewed as a cornerstone of efforts to improve quality" (Ibid. pp, 252-253).

Korda and Eldridge (2011) recognized that obtaining healthcare value relies on incentives and integrated patient care. (Korda and Eldridge, p. 277). These authors, in their broad literature review, found evidence for improved quality and lower healthcare costs under the Federally Qualified Healthcare (FQHC) and Patient Centered Medical Home (PCMH) models. They noticed less influence and control of PCPs in PCMH and FQHC settings resulting in improved quality and lower cost. PCMH and FQHC structures are enabled to see large numbers of Dual Eligible MA patients. The evidence is mixed with regard to P4P and there is a noted unintended consequence of "…inappropriate measures and objectives, competing or uncoordinated efforts, insufficient or inappropriate incentives, and excessive focus on the reward" (Ibid., p. 282). In their literature review, they conclude with respect to payment of incentives that the healthcare providers must "translate, apply, and align to serve the challenging populations" (Ibid., p. 286).

Van Herck, de Smedt, Annemans, Remmen, Rosenthal, and Sermeus (2010) conducted a literature review identifying teams of providers and individual providers explicitly receiving incentives was conflicting as to effectiveness. "Some studies reported groups performed better on P4P than individual practices while others reported the opposite." (Van Herck, et al, p. 7). In their systematic literature review of P4P effects of one-hundred twenty-eight (128) studies between 2004 and 2009 with one-hundred and eleven (111) studies in a primary care setting, their review found highest rates of improvement and clinical effectiveness for chronic care, such

as Diabetes, after P4P implementation. The studies reported positive results. They also identified a "…positive relationship between P4P performance effects and an organizational culture that supports the coordination of care." (Ibid. pp. 6-7). These authors identify the need for further research on the domain of patient-centeredness. They also found that "Pay-for-Performance (P4P) did not have negative effects on patients before and after identified for performance." (Ibid. p. 4-5). They advise to use caution in evaluating P4P in the healthcare landscape due to variability of the findings in their review.

Petersen, Woodard, Urech, Daw, and Sookanan (2006) whose study synthesis (N = 17) found marginal support for incentives in their study. They also pointed out that "very few articles lend support that incentives improve quality" (Petersen, et al., p. 268). These authors provide further insight into the area of financial incentives in their systematic literature review of empirical studies between 1980 and 2005. They argue per their review of seventeen (17) studies that performance payments can have a positive effect on measures of quality in healthcare. These authors examined quality and found "partial or positive effects of financial incentives on 7 of 9 studies" for breast cancer screening and blood sugar screening quality (Significance P = .02) (Ibid. p. 267). Their findings suggest statistically improved quality when comparing rates before and after a quality incentive program. This method is similarly undertaken for this current empirical study. Notably, structures per the authors' study design played a key role in the examination of quality in their study. They developed a relevant proposed research agenda to study incentives in healthcare. The authors suggest structure adds relevance to the domain of healthcare quality. Interestingly, "adverse selection" (avoiding ill patients) and "gaming behavior" were uncovered that are a current unintended consequence of incentive programs enhancing the need for monitoring (Ibid. p.268).

Conrad and Perry (2009) whose Behavior/Economist view of evidence (empirical study, N = 10, focused on preventive services) identified "positive, but mixed" incentive effect findings (Conrad and Perry, p. 362-363). These authors consider a blending of microeconomics, agency theory, behavioral economics, and cognitive psychology in their view on the topic of financial incentives motivated by a conceptual framework. The economist view seeks to maximize patient health subject to provider constraints and limited resources. The authors developed propositions as predictors of financial incentive effects on clinical quality. They argue that motivation for improved quality can be impacted by size, certainty, and frequency of incentives from an economic perspective on quality. Based on the synthesis of peer-reviewed data they conclude that, “properly designed, selective financial incentives can improve quality of health services on the dimensions of structure, process, and outcome” (Ibid. p. 365).

Opposing views regarding paying for quality are also part of the literature selected. For instance, Burns and Pauly (2018) suggest that "the impact of both payment and organizational models is weak" (Burns and Pauly, p. 57) and Himmelstein, Ariely, and Woolhandler (2014) indicate performance worsens with rewards, and rewards undermine motivation with respect to tasks with high intrinsic motivation. These authors conducted a meta-analysis (N = 128) and found that, “Studies have shown that monetary rewards can undermine motivation (negative effects) and worsen performance” (Himmelstein, et al., p. 203). Their study offers a compelling argument against financial incentives given the shift to P4P and the need for further research focused on HEDIS quality in the practical healthcare setting. They also state that, “People respond to rewards which underlie P4P programs that aim to upgrade health care quality and efficiency by offering carefully tailored financial incentives for desirable behaviors” (Ibid. p. 203). These authors noted slim and mixed evidence of benefits on improvement regardless of

widespread embrace of P4P and concluded that incentives can certainly change healthcare, but not necessarily for the better. For instance, these authors claim that paying for quality is toxic and "undermines motivation and worsens performance" (Ibid. p. 203). They suggest that evidence is slim despite provider support and that "variation in performance is caused by variation in motivation and incentive pay is unlikely to improve performance" (Ibid. p. 204). Rice (2015) also suggests that research finds that health plans "struggle to find models that improve quality" (Rice, p. 2) and that there is "no evidence pay-for-performance works" (Ibid. p. 3).

While extrinsic factors are not enough to support quality, Herzberg (1959) suggests their absence can lead to behavioral dissatisfaction and should be seen as an important factor. Kaplan, Brady, Dritz, Hooper, Linam, Froehle, and Margolis (2010) whose study synthesis (N = 47) found incentives aligned to quality improvement showed positive results (Kaplan, et al., p. 523). However, these authors shed light on mixed results regarding quality in the literature review analyzing differing contexts inclusive of motivation to change as an important factor. Aspects of context considered in their research include characteristics of individuals and motivation within an inner setting involving structure, networks, and climate. For example, in situations where the "tension for change or the degree to which individual's believe the current situation requires change" (Kaplan, et al., p. 501), contextual factors were found to have significant, positive association with respect to quality improvement. They found that "practices with greater capacity to change (motivation + ability) delivered preventive services to eligible patients at higher rates (pre/post change)…and they showed a significant interaction between motivation and ability" (Ibid. p. 518).

Hypothesis (H1): HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC structures decreased, i.e., improved quality care, in the financial incentive period.

II.2 Specialty

Hunt, Kreiner, and Brody (2012) conducted an interview study of FQHC specialty providers (N = 58) the sample of which included physicians, nurse practitioners, and physician assistants active in primary care to assess clinical care issues focused on Diabetes and Hypertension. The authors identified an alarming trend regarding chronic disease management reported by the Centers for Disease Control and Prevention (CDC) between 1998 – 2003 (10 million increased cases for Diabetes and 22 million increased cases for Hypertension). They suggest that P4P incentives further increase problems related to patient care, for example, in the "aggressive use of pharmaceuticals" (Hunt, et al., p. 453).

Baker, Hopkins, Dixon, Ridout, and Geppert (2004) added a quantitative approach and found that financial incentives can contribute to provider quality for six (6) HEDIS measures focused on cancer, Obstetric, and diabetes care by "…including efforts to educate patients, the development of reminder systems, and the use of financial incentives" (Baker, et al., p. 25). These authors quantitatively examined variation of quality for twenty-one (21) HMOs in an urbanized California setting. Selection of HEDIS measures from the National Committee on Quality Assurance (NCQA) provide needed data to determine its influence on quality. They suggest providers and plans "work together and not alone to impact quality" (Baker, et al., p.20). Their study found that health plans have an influence on provider quality ($p < .05$).

Rosenthal, Landon, Howitt, Song, and Epstein (2007) in their interview (N = 27) case study on incentives found that incentives can have positive effect on behavior. They suggest that

"paying for higher quality is fairer than paying for quantity of services" (Rosenthal, et al., p. 1679). These authors examined the initial hypotheses stating that "payers with greater market share and larger incentives find P4P more effective and that P4P…leads to concerns to simply pay more to providers…of high quality; and P4P increase incentives to avoid challenging patients" (Ibid. p. 1675). Dealing with a difficult Dual Eligible MA population adds to the difficulty further complicated by growth which is out of the control of the providers. Patients assigned may be a mix to include non-compliant individuals further impacting the quality deterioration.

The respondents in the Rosenthal, et al. (2007) study found it too early, at the time of their study, to expect changes in performance due to significant challenges in identifying the impact on performance. They did note a positive impact for providers with higher market share along with higher rewards. They also identified three important motivators to sustain P4P: 1) formulation of the right mix, 2) fairness in paying for quality, and 3) transparency of performance. Furthermore, they argue "…due to benchmark performance on quality measures, incentives can in theory change provider behavior" (Ibid. p. 1680).

Friedberg, Safran, Coltin, Dresser, and Schneider (2010), whose study incorporated simulation models, found that mean HEIDS scores of various providers serving vulnerable populations did not improve. Their study found that providers (N = 438) serving low socioeconomic patients had lowest performance scores (Friedberg, et al., p. 929). These authors found that "…performance-based payments may disproportionately flow away from practices caring for vulnerable populations" (Ibid. p. 931). They analyzed mean 2007 HEDIS data for economically vulnerable patients and found modest disparity among the measures for economically vulnerable populations. For example, the gap between cancer screening measures,

i.e., breast cancer screening was seventy seven percent (77%) and colorectal cancer screening was sixty percent (60%); for diabetes screening measures, i.e., eye exam screening was seventy four percent (74%) and cholesterol screening was eighty eight percent (88%). The authors concluded that "It is possible that within practice disparities could worsen if practices do not receive the resources necessary to improve the care delivered to vulnerable populations (Ibid. pp. 929-930). Also, there is noted within practice flexibility for the studied Dual Eligible MA population, but health plan guidelines prevent care outside of provider assignment leading to added difficulty in gap closure of screening measures.

Hypothesis (H2): M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible quality gap rates improved in the financial incentive period.

II.3 Gender

Conrad and Christianson (2004) suggest from their literature synthesis that financial incentives are a "black box" that needs to be penetrated. The authors suggest that factors or predictors that influence quality outcomes need further investigation. Factors such as structure, specialty, and gender characteristics are relevant in this examination. Using the practical healthcare landscape and previous healthcare financial incentive research as a guide, this study will further the investigation of financial incentives with respect to motivation of quality in the P4P landscape. An important gap in the model has been identified stating that, "There is important literature …that addresses aspects of …motivation and the relationship to the application and effects of incentives" (Conrad and Christianson, p. 58S). They also found that "…a major cause of compromised patient care was due "systemic failure in care delivery and financial incentives in the present environment" (Ibid. p. 44S). The authors are not suggesting

that quality incentives compromise care, but rather that the overarching financial incentives in the system are not aligned with improving care.

Hoff (2010) advanced the claim that women are the "new face of primary care" (Hoff, p. 133) due to their ability to nurture, have dialogue, and connect with patients emotionally. This is especially important for the Dual Eligible segment and females are poised to meet the demand.

Hypothesis (H3): Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.

III STUDY DESIGN

Medicare Advantage plans have existed since the 1970s. In general, health plans offer Part A (hospital coverage) and Part B (medical coverage) and, depending on the health plan, have a deductible and co-pay. Dual Eligible MA PCPs also need to accept traditional Medicare, and be participating in the network of the Dual Eligible MA health plan in order to see its members. Generally, Medicare Health Maintenance Organizations (HMOs) are relatively similar in nature, but differ with regard to the benefits offered. Dual Eligible MA health plans reward Dual Eligible MA PCPs with financial incentives for achieving HEDIS quality standards, and reward the members with reduced copays and enhanced benefits over and above traditional Medicare as a way to increase enrollment. The basic types of plans are HMOs and Preferred Provider Organizations (PPOs). Complexity occurs very quickly in distinguishing between these two, but for the sake of this study the main focus is on the HMO Dual Eligible MA PCP provider segment.

Table 3 Study Criteria

Criteria	Included in this study	Excluded from this study
Health Plan	United Healthcare (UHC)	Non-United Healthcare Plans excluded
Period	Years 2010 through 2014	Year 2012 (Transition period)
Patient Selection	Maricopa County (Arizona) Dual Eligible Medicare Advantage patients	Medicare Advantage patients in Arizona who were: 1. Not dually eligible for Medicaid 2. Not residents of Maricopa County
HEDIS Measures	Five (5) HEDIS Quality Measures focused on Cancer and Diabetes Screening	Eleven (11) HEDIS Measures excluded but opportunities exist for further examination (part of incentive agreement)
Providers	UHC Participating Dual Eligible MA PCPs in pre-financial incentive & incentive periods (N = 1,252)	Non-participating Dual Eligible MA PCPs or UHC participating, but not in all years of study period.

Included in this study are only Dual Eligible MA PCPs with claim activity in both the pre-financial incentive and financial incentive periods (i.e., calendar years 2010 through 2014), serving the urban Arizona (Maricopa County) Dual Eligible MA segment, and limited to five (5) HEDIS quality measures applicable to a financial incentive.

Excluded from this study are non-participating Dual Eligible MA PCPs or those participating, but not in all years of interest, non-United Healthcare plans, calendar Year 2012 (i.e., transition period), activity related to HEDIS measures not selected for this study, and non-Dual Eligible MA patients, and, or those residing outside of Maricopa County, Arizona (See Table 3. Study Criteria).

The Dual Eligible MA PCPs selected will contribute further understanding of the financial incentives' impact on quality. The providers selected consist of one thousand two hundred and fifty two (1,252) individual Dual Eligible MA PCPs who were in the health plan for both the pre-financial incentive and financial incentive periods. Dual Eligible MA PCPs who were added to the plan during the study period are excluded from this study as well. Practices that were enrolled but had turnover of Dual Eligible MA PCPs were also excluded from the data set. Dual Eligible MA PCPs include any provider who is assigned a Dual Eligible MA patient and provides care in the course of their duties and includes Medical Doctors and Doctors of Osteopathic Medicine which include Family Practice, General Practice, and Internal Medicine providers, and Midlevel providers which include Nurse Practitioners and Physician Assistants.

The study design provides a simple view of the variables selected and activity can be measured by claim data for each individual provider. The objective of the financial incentive both in theory and method is to reduce quality gaps.

Table 4 Study Design

Study Design						
Dependent Variable:	Independent Variables:	Controls:				
Total Dual Eligible Medicare Advantage HEDIS gaps (Numerator):	Dummy Data:	Dual Eligible MA PCP Structures:	Dual Eligible MA PCP Specialties:	Dual Eligible MA PCP Practice Size:	Dual Eligible MA PCP Gender:	Premium Designation
1) Breast Cancer Screening	Prefinancial Incentive (2010-2011)	1) Single Specialty	1) Family Practice	Count of Dual MA PCPs within practice	Female = 1	Yes = 1
2) Colorectal Cancer Screening	Financial Incentive (2013-2014)	2) Multispecialty	2) General Practice			
3) Blood Sugar Screening	Transition Period (2012) excluded	3) Federally Qualified Health Center	3) Internal Medicine			
4) Eye Exam Screening		4) Patient Centered Medical Home	4) Nurse Practitioner			
5) Kidney Disease Screening			5) Physician Assistant			
Dual Eligible Medicare Advantage patients assigned (Denominator)						

Dual Eligible MA PCP and MA patient information is de-identified in order to maintain provider and patient confidentiality. Claim filters for office based services are set so that only specific Dual Eligible claims are analyzed to capture quality gaps year-over-year for the study period. Claims for services outside of the office-based setting are removed from the sample such as those for Hospital-based, Emergency Room, and facility claims. Additionally, only services performed in an urban (i.e., Maricopa County) Arizona office-based setting are considered, so rural claim activity is excluded.

III.1 Single Specialty (Structure)

Single Specialty Dual Eligible MA PCPs that care for the MA patients, offer their services to the aging population many of which may have increased demands due to complex chronic care conditions, such as Cancer and Diabetes. They are often required to coordinate care outside of their practice. Dual Eligible MA PCP patient panels continue to grow year-over-year in the Dual Eligible segment and the providers servicing them have struggled to keep pace with growth. Between 2011 and 2013, for example, three thousand five hundred and seventeen (3,517) UHC Dual Eligible MA patient assignments grew to six thousand nineteen (6,019) in Maricopa County, Arizona alone for the Single Specialty Dual Eligible MA PCP network. This assignment represents an average Dual Eligible growth rate of seventy one percent (71%) over pre-financial incentive enrollment period (See Appendix B. Descriptive Data – Dual Eligible MA PCP Structures, p. 75).

III.2 Multispecialty (Structure)

Certain Dual Eligible MA PCP practices have found success with combining their practice with specialized care divisions. In the Dual Eligible MA PCP landscape, where care often involves complex coordination of benefits, this structure is very popular. A Multispecialty approach has the benefit of owning the care of the patient with little need to refer the patient outside of their practice.

In Arizona, patient assignments for the Multispecialty Dual Eligible MA PCP network, in 2011 assignments increased from four thousand seven hundred and seventy four (4,774) to ten thousand six hundred and sixty one (10,661) in 2013 resulting in a one hundred and twenty three percent (123%) increase over pre-financial incentive enrollment period. (See Appendix B. Descriptive Data – Dual Eligible MA PCP Structures, p. 75).

III.3 Federally Qualified Health Centers (FQHC) (Structure)

This structure came about in the 1990s to meet the demands of expanding patient populations with primary care quality specifically in mind. This provider type is federally funded by the Social Security Act. It is unique in that it provides physician services for at-risk populations from a community benefit perspective. The Dual Eligible MA PCPs in this structure offer enhanced services to the Dual Eligible MA population in underserved areas. This is extremely beneficial for the patients that need expanded services, such as eye care, dental services, and, or hearing services, which the FQHCs must provide based on requirements.

The designation as an FQHC is open to both Single Specialty and Multispecialty Dual Eligible MA PCPs who meet specific regulatory requirements. In Arizona, FQHC designated Dual Eligible MA PCP network for both segments witnessed patient assignment growth from 2011 with three thousand eight hundred and sixty five (3,865) Dual Eligible MA patients to five thousand seven hundred and fifty seven (5,757) Dual Eligible MA patients in 2013 resulting in a growth rate of forty nine percent (49%) (See Appendix B. Descriptive Data – Dual Eligible MA PCP Structures, p. 75).

III.4 Patient-centered Medical Home (PCMH)

These distinct structures are a transformation of the clinic setting that offer Clinical Case Management (CCM) to provide an enhanced benefit to ensure quality and collaboration in the Total Care Management approach for the Dual Eligible MA patient population. This structure allows for strategic patient-centered focus. While it seems that this structure is growing in popularity, not enough information was present for analysis during the study period, and this area of focus can be the topic for future research.

III.5 Independent and Control Variables

Dummy (Independent) variables for pre-financial incentive and financial incentive periods are used to separate the data. Controls at the individual provider level are assigned for Single Specialty, Multispecialty, FQHC, and PCMH structures. Family Practice, General Practice, Internal Medicine, Nurse Practitioner, and Physician Assistant specialty variables are assigned at the individual level as well. Additional controls for Gender, Size identified by provider count, and Premium Designation are also added for analysis before and after financial incentive implementation.

III.6 Dependent Variable (DV)

The following five (5) HEDIS quality gap measures, namely (1) Breast Cancer Screening, (2) Colorectal Cancer Screening, (3) Blood Sugar (HbA1c) Screening, (4) Eye Exam Screening, and (5) Kidney Disease Screening are selected per review of financial incentive criteria specifically applicable to the Dual Eligible MA population. Selection is also based on claim data available for the periods under review. While other HEDIS measures exist, the data available relate to verifiable gaps in this study period for the measures selected. Other measures, such as those pertaining to pediatric, obstetric/gynecologic and pharmacy services, are beyond the scope of this study and therefore excluded.

The measures selected for analysis are at the individual provider level; furthermore, these measures receive focused attention since gap closure in these areas have a significant impact on Dual Eligible MA PCP quality, and ultimately, on the cost of care. The total gaps identified will represent the numerator in the analysis. The denominator will consist of total Dual Eligible MA patients assigned. Also, the denominator for Breast Cancer Screening is adjusted to only include

female Dual Eligible MA patients. The various Dual Eligible MA patient counts are at the individual provider level.

IV ANALYSIS AND RESULTS (BEFORE AND AFTER FINANCIAL INCENTIVE PERIOD)

T-Test analysis of pre-financial incentive and financial incentive periods was conducted to measure the averages of the quality gap rates year-over-year controlling for the variables per the study design using SPSS Statistics 24. Regression analysis was also done to further test the extent to which quality is improving or not in the financial incentive period. Analysis was further done to determine if structures, specialty, and gender were predictive indicators of quality.

IV.1 T-Test (before and after Financial Incentive period)

H1: HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.

An independent-samples T-Test was conducted to evaluate the hypothesis that HEDIS Dual Eligible MA PCP quality gap rates decreased in the financial incentive period. The mean HEDIS financial incentive period Dual Eligible MA PCP quality gaps per Structures are as follows:

Single Specialty Dual Eligible MA PCP gap rate mean (M = 2.094, sd = 1.107) was statistically significantly different (t = -4.175, df = 1895.257, two-tailed p = 0.000) from that of Dual Eligible MA PCP pre-financial incentive Single Specialty gap rate mean (M = 1.861, sd = 1.33). This implies evidence against the null hypothesis suggesting that the Single Specialty Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented.

Multispecialty Dual Eligible MA PCP gap rate mean (M = 2.084., sd = 1.205.) was statistically significantly different (t = -6.237, df = 3076.386, two-tailed p = 0.000) from that of

Dual Eligible MA PCP pre-financial incentive Multispecialty quality gap rate mean (M = 1.818., sd = 1.178.). This implies evidence against the null hypothesis suggesting that the Multispecialty Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented.

FQHC Dual Eligible MA PCP quality gap rate mean (M = 2.067, sd = 1.196) was statistically significantly different (t = -4.201, df = 2016.063, two-tailed p = 0.000) from that of Dual Eligible MA PCP pre-financial incentive FQHC gap rate mean (M = 1.833, sd = 1.317). This implies evidence against the null hypothesis suggesting that the FQHC Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented (Details in Appendix C. T-Test (before and after Financial Incentive period), p. 80, adapted from Burns and Burns, 2008).

H2: M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible MA PCP quality gap rates improved in the financial incentive period.

An independent-samples T-Test was conducted to evaluate the hypothesis that HEDIS Dual Eligible MA PCP quality gap rates decreased in the financial incentive period. The mean HEDIS financial incentive period Dual Eligible MA PCP quality gaps per Specialty are as follows:

Family Practice Dual Eligible MA PCP quality gap rate mean (M = 2.066, sd = 1.134) was statistically significantly different (t = -4.07, df = 2066.492, two-tailed p = 0.000) from that of Dual Eligible MA PCP pre-financial incentive Family Practice gap rate mean (M = 1.856, sd = 1.208). This implies evidence against the null hypothesis suggesting that the Family Practice

Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented.

General Practice Dual Eligible MA PCP quality gap rate mean (M = 2.549, sd = 1.176) was statistically significantly different (t = -4.038, df = 125.048, two-tailed p = 0.000) from that of Dual Eligible MA PCP pre-financial incentive General Practice gap rate mean (M = 1.794, sd = 0.961). This implies evidence against the null hypothesis suggesting that the General Practice Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented.

Internal Medicine Dual Eligible MA PCP quality gap rate mean (M = 2.052, sd = 1.175) was statistically significantly different (t = -3.062, df = 1308.563, two-tailed p = 0.002) from that of Dual Eligible MA PCP pre-financial incentive Internal Medicine gap rate mean (M = 1.845, sd = 1.28). This implies evidence against the null hypothesis suggesting that the Internal Medicine Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented.

Nurse Practitioner Dual Eligible MA PCP quality gap rate mean (M = 2.254, sd = 1.201) was statistically significantly different (t = -4.665, df = 578.99, two-tailed p = 0.000) from that of Dual Eligible MA PCP pre-financial incentive Nurse Practitioner gap rate mean (M = 1.775, sd = 1.278). This implies evidence against the null hypothesis suggesting that the Nurse Practitioner Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented.

Physician Assistant Dual Eligible MA PCP quality gap rate mean (M = 2.016, sd = 1.214) was statistically significantly different (t = -2.347, df = 891.035, two-tailed p = 0.019) from that of Dual Eligible MA PCP pre-financial incentive Physician Assistant gap rate mean (M

= 1.819, sd = 1.287). This implies evidence against the null hypothesis suggesting that the Physician Assistant Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented (Details in Appendix C. – T-Test (before and after Financial Incentive period), p. 80, adapted from Burns and Burns, 2008).

H3: Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.

An independent-samples T-Test was conducted to evaluate the hypothesis that HEDIS Dual Eligible MA PCP quality gap rates decreased in the financial incentive period. The mean HEDIS financial incentive period Dual Eligible MA PCP quality gaps for Gender are as follows:

Male Dual Eligible MA PCP quality gap rate mean (M = 2.177, sd = 1.182) was statistically significantly different (t = -7.591, df = 2689.625, two-tailed p = 0.000) from that of Dual Eligible MA PCP pre-financial incentive Male gap rate mean (M = 1.829, sd = 1.196). This implies evidence against the null hypothesis suggesting that the Male Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period.

Female Dual Eligible MA PCP quality gap rate mean (M = 1.984, sd = 1.152) was statistically significantly different (t = -2.761, df = 2282.338, two-tailed p = 0.006) from that of Dual Eligible MA PCP pre-financial incentive Female gap rate mean (M = 1.843, sd = 1.296). This implies evidence against the null hypothesis suggesting that the Female Dual Eligible MA PCP quality gap rate did not improve in the financial incentive period and, in fact, evidence that quality was worse after financial incentives were implemented (Details in Appendix C. – T-Test (before and after Financial Incentive period), p. 80, adapted from Burns and Burns, 2008).

Specific Dual Eligible MA PCP HEDIS quality data for the observable periods have been analyzed and compared. Pre-financial incentive and financial incentive period analysis (See Table 5. Summary of Findings. T-Test below) identifying the practice data across the periods.

Table 5 Summary of Findings. T-Test before and after Financial Incentive period

Hypotheses		T-Test	Results
H1 (Structure)	HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.		Not supported
	Single Specialty	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.861) < Financial Incentive Gap Rate Mean (2.094)	Failed to support
	Multispecialty	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.818) < Financial Incentive Gap Rate Mean (2.084)	Failed to support
	FQHC	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.833) < Financial Incentive Gap Rate Mean (2.067)	Failed to support
H2 (Specialty)	M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible MA PCP quality gap rates improved in the financial incentive period.		Not supported
	Family Practice (M.D.)	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.856) <	Failed to support

		Financial Incentive Gap Rate Mean (2.066)	
	General Practice (M.D.)	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.794) < Financial Incentive Gap Rate Mean (2.549)	Failed to support
	Internal Medicine (M.D.)	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.845) < Financial Incentive Gap Rate Mean (2.052)	Failed to support
	Nurse Practitioner (Midlevel)	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.775) < Financial Incentive Gap Rate Mean (2.254)	Failed to support
	Physician Assistant (Midlevel)	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.819) < Financial Incentive Gap Rate Mean (2.016)	Failed to support
H3 (Gender)	Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.		Not supported
	Female	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.843) < Financial Incentive Gap Rate Mean (1.984)	Failed to support
	Male	Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.829) < Financial Incentive	Failed to support

		Gap Rate Mean (2.177)	

IV.2 Correlation

A set of Pearson correlations were computed to determine if there were any significant relationships between the variables in this study, i.e., at, or greater than 0.70 Pearson Correlation suggesting common variability, and at, or below 0.20 suggesting little or no common variability. Cases of significant correlations are identified in Appendix D and shaded in gray. Multispecialty and Single Specialty are perfectly, negatively correlated suggesting they move in opposite directions. Structures indicates a strong negative relationship based on the unique characteristics of each resulting in the perfect negative correlation. Also, Dual Eligible MA PCP options fall within these two categories.

Other noted variables with high correlation are Blood Sugar and Eye Exam Screening. This is also not surprising since these measures, controlling for Dual Eligible MA PCP patient assignment, move positively within the screening regimen. These HEDIS measures are also positively tied to their Diabetic grouping (See Appendix D – Correlation, p. 89).

IV.3 Regression (before and after Financial Incentive period)

The following results were obtained per multiple regression analysis performed on quality controlling for patients assigned as the dependent variable to test r squared and effect size of controlling variables, namely structure, specialty, and gender. Using SPSS to analyze HEDIS quality over time, multiple regression was used to fit data into the model.

H1: HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.

From a Dual Eligible MA PCP perspective, Single Specialty structure r square and adjusted r square values are 0.298 and 0.294 and account for approximately twenty-nine percent (29%) of variability in the model. The controls within this structure do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); this also further supports the T-Test finding that Dual Eligible MA PCP financial incentive period quality has not improved. Premium Designation, a designation added to providers to reflect high levels of patient satisfaction, added to the analysis was significant however ($b = -1.519$, $p = 0.000$) in the model as a predictor of lower gaps. This variable is added to the multivariate analysis and measures patient satisfaction of the Dual Eligible MA PCP which is determined annually per survey results.

From a Dual Eligible MA PCP perspective, Multispecialty structure r square and adjusted r square values are 0.426 and 0.424 and account for approximately forty-two percent (42%) of variability in the model. The controls within this structure do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.724$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Multispecialty Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, FQHC structure r square and adjusted r square values are 0.334 and 0.332 and account for approximately thirty-three percent (33%) of variability in the model. The controls within this structure do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.659$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Dual Eligible MA PCP financial incentive period gap

rates did not improve within the financial incentive period and, in fact, evidence that quality was worse (See Appendix E. Regression Results (before and after Financial Incentive period), p. 92. Adapted from Burns and Burns, 2008).

H2: M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible MA PCP quality gap rates improved in the financial incentive period.

From a Dual Eligible MA PCP perspective, Family Practice specialty r square and adjusted r square values are 0.350 and 0.348 and account for approximately thirty-five percent (35%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.579$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Family Practice Dual Eligible MA PCP financial incentive period gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, General Practice specialty r square and adjusted r square values are 0.448 and 0.421 and account for approximately forty-two percent (42%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.329$, $p = 0.000$) in the model as a predictor of lower gaps. Multispecialty and Gender were also significant predictors of quality both with low p-values ($p < 0.05$). From a Dual Eligible MA PCP standpoint General Practice specialty do seem to improve quality, but based on T-Test finding and relatively low effect sizes, it is not indicative that

General Practice Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse within the financial incentive period.

From a Dual Eligible MA PCP perspective, Internal Medicine specialty r square and adjusted r square values are 0.388 and 0.385 and account for approximately thirty-eight percent (38%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.704$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Internal Medicine Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, Nurse Practitioner specialty r square and adjusted r square values are 0.401 and 0.394 and account for approximately thirty-nine percent (39%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.653$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Nurse Practitioner Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, Physician Assistant specialty r square and adjusted r square values are 0.394 and 0.389 and account for approximately thirty-nine percent (39%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Gender ($b = -0.136$, $p = 0.043$) and Premium Designation were significant however ($b = -1.659$, $p = 0.000$) in the model

as a predictors of lower gaps, but not to the extent that the financial incentive quality improved. This further supports the T-Test finding that Physician Assistant Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse (See Appendix E. Regression Results (before and after Financial Incentive period), p. 92. Adapted from Burns and Burns, 2008).

H3: Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.

From a Dual Eligible MA PCP perspective, Female Gender r square and adjusted r square values are 0.365 and 0.362 and account for approximately thirty-six percent (36%) of variability in the model. The controls within Female gender do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); interestingly and worth mentioning, Physician Assistant specialty ($b = -0.132$, $p = 0.027$) and Premium Designation are significant however ($b = -1.672$, $p = 0.000$) in the model as a predictors of lower gaps. These were not enough to reflect improvement, but do appear to be improving quality. This also further supports the T-Test finding that Female Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, Male Gender r square and adjusted r square values are 0.382 and 0.38 and account for approximately thirty-eight percent (38%) of variability in the model. The controls within Male gender do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.616$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Male Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse (See Table 6.

Summary of Findings. Regression below and Appendix E. Regression Results (before and after Financial Incentive period), p. 92. Adapted from Burns and Burns, 2008).

Table 6 Summary of Findings. Regression before and after Financial Incentive period

Hypotheses		Regression	Results
H1	HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.		Not supported
(Structure)	Single Specialty	Dual Eligible MA PCP r square and adjusted r square 0.298 and 0.294 (29% of variability)	Failed to support
(Structure)	Multispecialty	Dual Eligible MA PCP r square and adjusted r square 0.426 and 0.424 (42% of variability)	Failed to support
(Structure)	FQHC	Dual Eligible MA PCP r square and adjusted r square 0.334 and 0.332 (33% of variability)	Failed to support
H2	M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible MA PCP quality gap rates improved in the financial incentive period.		Not supported
(Specialty)	Family Practice (M.D.)	Dual Eligible MA PCP r square and adjusted r square 0.350 and 0.348 (35% of variability)	Failed to support
(Specialty)	General Practice (M.D.)	Dual Eligible MA PCP r square and adjusted r square 0.448 and 0.421 (42% of variability)	Failed to support
(Specialty)	Internal Medicine (M.D.)	Dual Eligible MA PCP r square and adjusted r square	Failed to support

		0.388 and 0.385 (39% of variability)	
(Specialty)	Nurse Practitioner (Midlevel)	Dual Eligible MA PCP r square and adjusted r square 0.401 and 0.394 (39% of variability)	Failed to support
(Specialty)	Physician Assistant (Midlevel)	Dual Eligible MA PCP r square and adjusted r square 0.394 and 0.389 (39% of variability)	Failed to support
H3	Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.		Not supported
(Gender)	Female	Dual Eligible MA PCP r square and adjusted r square 0.365 and 0.362 (36% of variability)	Failed to support
(Gender)	Male	Dual Eligible MA PCP r square and adjusted r square 0.382 and 0.38 (38% of variability)	Failed to support

Further analysis within the financial incentive period is done to determine the extent to which the financial incentives have on quality relative to structure, specialty, and gender. These analyses and the findings are presented below:

V ANALYSIS AND RESULTS (WITHIN FINANCIAL INCENTIVE PERIOD ONLY)

V.1 T-Test (within Financial Incentive period only)

H1: HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.

An independent-samples t-test was conducted to evaluate the hypothesis that HEDIS Dual Eligible MA PCP quality gap rates decreased in the financial incentive period. The mean HEDIS financial incentive period Dual Eligible MA PCP quality gaps per Structures are as follows:

Single Specialty 2013 Dual Eligible MA PCP gap rate mean (M = 1.898, sd = 1.167) was statistically significantly different (t = -5.168, df = 826.674, two-tailed p = 0.000) from that of 2014 Single Specialty Dual Eligible MA PCP gap rate mean (M = 2.285, sd = 1.012). This implies evidence against the null hypothesis suggesting that the Single Specialty Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period.

Multispecialty 2013 Dual Eligible MA PCP gap rate mean (M = 1.861., sd = 1.253.) was statistically significantly different (t = -7.727, df = 1630.51, two-tailed p = 0.000) from that of 2014 Multispecialty Dual Eligible MA PCP quality gap rate mean (M = 2.311., sd = 1.109.). This implies evidence against the null hypothesis suggesting that the Multispecialty Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period.

FQHC 2013 Dual Eligible MA PCP quality gap rate mean (M = 1.892, sd = 1.26) was statistically significantly different (t = -4.493, df = 898.202, two-tailed p = 0.000) from that of 2014 FQHC Dual Eligible MA PCP gap rate mean (M = 2.244, sd = 1.101). This implies evidence against the null hypothesis suggesting that the FQHC Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period (Details in Appendix C. T-Test (within Financial Incentive period only, p. 86, adapted from Burns and Burns, 2008).

H2: M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible MA PCP quality gap rates improved in the financial incentive period.

An independent-samples t-test was conducted to evaluate the hypothesis that 2013 HEDIS Dual Eligible MA PCP quality gap rates decreased in 2014. The mean HEDIS financial incentive period Dual Eligible MA PCP quality gaps per Specialty are as follows:

Family Practice Dual Eligible MA PCP 2013 quality gap rate mean (M = 1.827, sd = 1.169) was statistically significantly different (t = -6.951, df = 1024.501, two-tailed p = 0.000) from that of 2014 Family Practice Dual Eligible MA PCP gap rate mean (M = 2.305, sd = 1.045). This implies evidence against the null hypothesis suggesting that the Family Practice Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period.

General Practice 2013 Dual Eligible MA PCP quality gap rate mean (M = 2.303, sd = 1.327) was not statistically significantly different (t = -1.727, df = 64, two-tailed p = 0.089) from that of General Practice 2014 Dual Eligible MA PCP gap rate mean (M = 2.795, sd = 0.962). This implies evidence suggesting that the General Practice Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was flat or unchanged in the financial incentive period.

Internal Medicine 2013 Dual Eligible MA PCP quality gap rate mean (M = 1.865, sd = 1.245) was statistically significantly different (t = -4.14, df = 643.542, two-tailed p = 0.000) from that of 2014 Internal Medicine Dual Eligible MA PCP gap rate mean (M = 2.239, sd = 1.071). This implies evidence against the null hypothesis suggesting that the Internal Medicine Dual

Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period.

Nurse Practitioner 2013 Dual Eligible MA PCP quality gap rate mean (M = 2.012, sd = 1.282) was statistically significantly different (t = -3.502, df = 279.013, two-tailed p = 0.001) from that of 2014 Dual Eligible MA PCP Nurse Practitioner gap rate mean (M = 2.496, sd = 1.066). This implies evidence against the null hypothesis suggesting that the Nurse Practitioner Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period.

Physician Assistant 2013 Dual Eligible MA PCP quality gap rate mean (M = 1.843, sd = 1.258) was statistically significantly different (t = -3.044, df = 442.327, two-tailed p = 0.002) from that of 2014 Dual Eligible MA PCP Physician Assistant gap rate mean (M = 2.189, sd = 1.146). This implies evidence against the null hypothesis suggesting that the Physician Assistant Dual Eligible MA PCP quality gap rate did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period. (Details in Appendix C. T-Test (within Financial Incentive period only, p. 86, adapted from Burns and Burns, 2008).

H3: Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.

An independent-samples t-test was conducted to evaluate the hypothesis that HEDIS Dual Eligible MA PCP 2013 quality gap rates decreased in 2014 for both genders. The mean HEDIS financial incentive period Dual Eligible MA PCP quality gap rates per Gender are as follows:

Male 2013 Dual Eligible MA PCP quality gap rate mean (M = 1.996, sd = 1.241) was statistically significantly different (t = -5.683, df = 1322.537, two-tailed p = 0.000) from that of 2014 Male Dual Eligible MA PCP gap rate mean (M = 2.358, sd = 1.092). This implies evidence against the null hypothesis suggesting that the Male Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period.

Female 2013 Dual Eligible MA PCP quality gap rate mean (M = 1.731, sd = 1.19) was statistically significantly different (t = -7.65, df = 1139.261, two-tailed p = 0.000) from that of 2014 Female Dual Eligible MA PCP gap rate mean (M = 2.237, sd = 1.054). This implies evidence against the null hypothesis suggesting that the Female Dual Eligible MA PCP quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse in the financial incentive period (Details in Appendix C. T-Test (within Financial Incentive period only, p. 86, adapted from Burns and Burns, 2008). Specific Dual Eligible MA PCP HEDIS quality data for the observable periods have been analyzed and compared. Financial incentive period analysis (See Table 7. Summary of Findings. T-Test (within Financial Incentive period only) below) identifying the data as follows:

Table 7 Summary of Findings. T-Test within Financial Incentive period only

Hypotheses		T-Test	Results
H1 (Structure)	HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.		Not supported
	Single Specialty	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.898) < 2014 Financial Incentive	Failed to support

		Gap Rate Mean (2.285)	
	Multispecialty	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.861) < 2014 Financial Incentive Gap Rate Mean (2.311)	Failed to support
	FQHC	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.892) < 2014 Financial Incentive Gap Rate Mean (2.244)	Failed to support
H2 (Specialty)	M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual Eligible MA PCP quality gap rates improved in the financial incentive period.		Not supported
	Family Practice (M.D.)	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.827) < 2014 Financial Incentive Gap Rate Mean (2.305)	Failed to support
	General Practice (M.D.)	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (2.303) <= 2014 Financial Incentive Gap Rate Mean (2.795)	Failed to support (unchanged)
	Internal Medicine (M.D.)	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.865) < 2014	Failed to support

		Financial Incentive Gap Rate Mean (2.239)	
	Nurse Practitioner (Midlevel)	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (2.012) < 2014 Financial Incentive Gap Rate Mean (2.496)	Failed to support
	Physician Assistant (Midlevel)	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.843) < 2014 Financial Incentive Gap Rate Mean (2.189)	Failed to support
H3 (Gender)	Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.		Not supported
	Female	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.731) < 2014 Financial Incentive Gap Rate Mean (2.237)	Failed to support
	Male	2013 Dual Eligible MA PCP Pre-Financial Incentive Gap Rate Mean (1.196) < 2014 Financial Incentive Gap Rate Mean (2.358)	Failed to support

V.2 Regression (within Financial Incentive period only)

The following results were obtained per multiple regression performed on quality controlling for patients assigned as the dependent variable to test r squared and effect size of

variables with respect to structure, specialty, and gender. Using SPSS to analyze HEDIS quality over time, multiple regression was used to fit data into the model.

H1: HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.

From a Dual Eligible MA PCP perspective, Single Specialty structure r square and adjusted r square values are 0.479 and 0.474 and account for approximately forty-seven percent (47%) of variability in the model. The controls within this structure do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.644$, $p = 0.000$) in the model as a predictor of lower gaps. General Practice and Gender were also significant predictors in the analysis but at small effect sizes. This also further supports the T-Test finding that Single Specialty Dual Eligible MA PCP financial incentive period quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, Multispecialty structure r square and adjusted r square values are 0.587 and 0.584 and account for approximately fifty-eight percent (58%) of variability in the model. The controls within this structure do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.984$, $p = 0.000$) in the model as a predictor of lower gaps. FQHC and Size were significant predictors in the analysis as well but at small effect sizes. This also further supports the T-Test finding that Multispecialty Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA PCP perspective, FQHC structure r square and adjusted r square values are 0.564 and 0.56 and account for approximately fifty-six percent (56%) of variability in the model. The controls within this structure do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.953$, $p = 0.000$) in the model as a predictor of lower gaps. Internal Medicine and Physician Assistant controls were significant in the analysis but at small effect sizes. This also further supports the T-Test finding that FQHC Dual Eligible MA PCP gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse (See Appendix E. Regression (within Financial Incentive period only), p. 108. Adapted from Burns and Burns, 2008).

H2: M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty quality gap rates improved in the financial incentive period.

From a Dual Eligible MA perspective, Family Practice specialty r square and adjusted r square values are 0.509 and 0.506 and account for approximately fifty-one percent (51%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.81$, $p = 0.000$) in the model as a predictor of lower gaps. Single Specialty and Size were significant in the analysis as well but at small effect sizes. This also further supports the T-Test finding that Family Practice Dual Eligible MA financial incentive period quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA perspective, General Practice specialty r square and adjusted r square values are 0.527 and 0.479 and account for approximately forty-eight percent (48%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.56$, $p = 0.000$) in the model as a predictor of lower gaps. Multispecialty and Gender were significant predictors of quality both with low p-values ($p < 0.05$) but at small effect sizes. Single Specialty was also significant in the analysis but at small effect size as well. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p>0.05$). This also further supports the T-Test finding that General Practice Dual Eligible MA financial incentive period quality gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA perspective, Internal Medicine specialty r square and adjusted r square values are 0.544 and 0.539 and account for approximately fifty-four percent (54%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.887$, $p = 0.000$) in the model as a predictor of lower gaps. This also further supports the T-Test finding that Internal Medicine Dual Eligible MA gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse

From a Dual Eligible MA perspective, Nurse Practitioner specialty r square and adjusted r square values are 0.595 and 0.586 and account for approximately fifty-nine percent (59%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.924$, $p = 0.000$) in the model as a predictor of lower gaps. This also

further supports the T-Test finding that Nurse Practitioner Dual Eligible MA gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse

From a Dual Eligible MA perspective, Physician Assistant specialty r square and adjusted r square values are 0.613 and 0.608 and account for approximately sixty-one percent (61%) of variability in the model. The controls within this specialty do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Gender ($b = -.163$, $p = 0.028$) and Premium Designation were significant however ($b = -2.007$, $p = 0.000$) in the model as a predictors of lower gaps, but not to the extent that the financial incentive quality improved. Multispecialty and Size were also significant in the analysis but at small effect size. This further supports the T-Test finding that Physician Assistant Dual Eligible MA gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse (See Appendix E – Regression Results, p. 108. Adapted from Burns and Burns, 2008).

H3: Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.

From a Dual Eligible MA perspective, Female Gender r square and adjusted r square values are 0.547 and 0.543 and account for approximately fifty-four percent (54%) of variability in the model. The controls within Female Gender do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); interestingly and worth mentioning, Physician Assistant specialty ($b = -0.188$, $p = 0.005$) and Premium Designation are significant however ($b = -1.889$, $p = 0.000$) in the model as a predictors of lower gaps. FQHC and Size were also significant in the analysis but at small effect sizes. This also further supports the T-Test finding that Female Dual Eligible MA gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse.

From a Dual Eligible MA perspective, Male Gender r square and adjusted r square values are 0.548 and 0.545 and account for approximately fifty-five percent (55%) of variability in the model. The controls within this gender do not appear to be strong predictors of quality given small effect size and high p-values ($p > 0.05$); Premium Designation was significant however ($b = -1.86$, $p = 0.000$) in the model as a predictor of lower gaps. Multispecialty and General Practice were significant in the analysis but at small effect size. This also further supports the T-Test finding that Male Dual Eligible MA gap rates did not improve within the financial incentive period and, in fact, evidence that quality was worse (See Table 8. Summary of Findings. Regression (within Financial Incentive period only) below and Appendix E – Regression Results, p. 109. Adapted from Burns and Burns, 2008).

Table 8 Summary of Findings. Regression within Financial Incentive period only

Hypotheses		Regression	Results
H1	HEDIS Dual Eligible MA PCP quality gap rates for Single Specialty, Multispecialty, and FQHC Structures decreased, i.e., improved quality care, in the financial incentive period.		Not supported
(Structure)	Single Specialty	Dual Eligible MA PCP r square and adjusted r square 0.479 and 0.474 (47% of variability)	Failed to support
(Structure)	Multispecialty	Dual Eligible MA PCP r square and adjusted r square 0.587 and 0.584 (58% of variability)	Failed to support
(Structure)	FQHC	Dual Eligible MA PCP r square and adjusted r square 0.564 and 0.56 (56% of variability)	Failed to support
H2	M.D. (i.e., Family Practice, General Practice, and Internal Medicine) and Midlevel (i.e., Nurse Practitioner and Physician Assistant) Specialty Dual		Not supported

	Eligible MA quality gap rates improved in the financial incentive period.		
(Specialty)	Family Practice (M.D.)	Dual Eligible MA PCP r square and adjusted r square 0.509 and 0.506 (51% of variability)	Failed to support
(Specialty)	General Practice (M.D.)	Dual Eligible MA PCP r square and adjusted r square 0.527 and 0.479 (48% of variability)	Failed to support
(Specialty)	Internal Medicine (M.D.)	Dual Eligible MA PCP r square and adjusted r square 0.544 and 0.539 (54% of variability)	Failed to support
(Specialty)	Nurse Practitioner (Midlevel)	Dual Eligible MA PCP r square and adjusted r square 0.595 and 0.586 (59% of variability)	Failed to support
(Specialty)	Physician Assistant (Midlevel)	Dual Eligible MA PCP r square and adjusted r square 0.613 and 0.608 (61% of variability)	Failed to support
H3	Both Gender Dual Eligible MA PCP gap rates will be lower in the financial incentive period.		Not supported
(Gender)	Female	Dual Eligible MA PCP r square and adjusted r square 0.547 and 0.543 (54% of variability)	Failed to support
(Gender)	Male	Dual Eligible MA PCP r square and adjusted r square 0.548 and 0.545 (55% of variability)	Failed to support

VI ANALYSIS AND RESULTS: IMPLICATIONS

Given the results of this study, the analyses suggest Dual Eligible MA gap rates are increasing for structures, specialties, and gender. This additionally indicates financial incentives do not result in improved quality. With room for improvement, some interesting albeit concerning findings were identified. The average Dual Eligible MA patient growth rates in the financial incentive period were very high across structures, specialties, and gender with some well above two hundred percent (200%) (See Appendix B. Descriptive Data – Dual Eligible MA PCP Specialties, p. 80). This is problematic for the Dual Eligible MA PCPs especially considering the difficult population they serve. Further analysis is recommended to look at other HEDIS quality measures since this study is limited to five (5) measures leaving room to expand the research to include all 16 HEDIS measures as part of more comprehensive financial incentive program evaluation.

An interesting finding relative to female providers also stood out. The number of female patients assigned to structures and specialties is significant. For instance, in 2014, the Female Dual Eligible MA patient percentage for structures hovers between sixty-seven percent (67%) and seventy-two percent (72%); for specialties the range is between forty percent (40%) and sixty-three percent (63%) (See Appendix B. Descriptive Data, pp. 75-80). While there could be further investigation to determine the growth trend of Females as Dual Eligible MA PCPs, valuable literature has come to the forefront that speaks to Females in the PCP landscape.

Literature by Hoff (2009) suggests,

> "In a primary care world where patients are sicker, have multiple chronic conditions, experience fragmented care through a myriad of individual specialists, and suffer from behavioral disorders in vast numbers, the best clinicians nurture, dialogue, and connect with patients on an emotional level. The research says that women primary care physicians are more likely to have the mix of personality and motivation to meet this demand. Women are the future face of primary care" (Hoff, p. 133).

Additionally, Female Dual Eligible MA PCPs have lower quality gap rates compared to the Males within the financial incentive period (See Table 9. Dual Eligible MA PCP Gap Rates 2010-2014 below). Given this finding, additional research should also examine the possible inter-relationship between the patients' gender and the care providers' gender and its impact on quality care gaps.

Table 9 Dual Eligible MA PCP Gender Gap Rate Analysis

GENDER	DUAL FEMALE PCP	DUAL FEMALE PATIENTS	TOTAL DUAL PATIENTS	DUAL GAP RATE
2010	579	2,563	3,601	1.94
2011	579	2,476	3,964	1.75
2013	579	4,772	7,109	1.73
2014	579	4,203	6,209	2.24
GENDER	DUAL MALE PCP	DUAL FEMALE PATIENTS	TOTAL DUAL PATIENTS	DUAL GAP RATE
2010	674	3,009	4,359	1.88
2011	674	2,720	4,327	1.79
2013	674	6,209	9,571	2.00

2014	674	5,327	7,958	2.36

VII DISCUSSION

The analyses found that quality is not improving based on before and after Financial Incentive period analysis. Also, of note, relevant studies were reviewed in which the findings were mixed perhaps due to timing of the financial incentive, or how they were examined, i.e., difference in HEDIS measure selection. The topics of financial incentives and quality are relevant topics in healthcare today. Health plans striving to improve quality will only succeed with provider and patient support. Dual Eligible MA patient health benefits can suffer without attention to quality. From Single Specialty to Multispecialty practices, as well as providers designated as a Federally Qualified Health Centers (FQHC) or Patient Centered Medical Homes (PCMH), each provider is under extreme pressure to improve quality and health plans are relying on their support. While health plans focus on the demands of CMS, they maintain open dialogue with Dual Eligible MA PCPs to ensure support and adherence to HEDIS quality measures. Integrated care with a patient-centered focus is not a new strategy but without the patient support, it suffers.

Health plans motivate behavior in the form of financial incentives. Rice's (2015) brief but succinct paper on physician quality sets the tone for today's healthcare community. Performance is not where it should be. Gaining understanding of the problems providers face will lead to better approaches in closing gaps in care. While consideration and analysis of empirical evidence is valuable, there is still much that is hidden. Health plans are beginning to realize this as pressure for quality increases. As pressure for quality increases, motivational efforts may need to be re-evaluated.

Given the results obtained from this quantitative study that identify quality gap rates are increasing before and after and within the financial incentive periods, the Dual Eligible MA PCPs and health plans should look at new approaches to improving quality. An opportunity exists to do this and dive deeper into the qualitative aspects of the care providers which can further bring important elements to light. For example, a qualitative in-depth case study can shine light on the frustrations of the Dual Eligible MA PCP network in dealing with health plans; other control measures or study variables such as pharmacy measures not considered in this study may also be considered to gain further insight to better explain increasing quality gap rates.

Dual Eligible MA PCPs rely heavily on connecting with patients. As panel size increases, it is evident that time awarded per patient must decrease. This might lead to lower quality, especially with patients who have complex health needs and multiple chronic conditions. UHC is providing incentives to counteract this potential problem, but evidence suggests quality is not improving. The Dual Eligible MA PCP-Patient relationship is as important as treatment, and in some situations, much more important. A provider's status in the Premium Designation program is important and how patients view their Dual Eligible MA PCP yields much benefit in the area of quality and provider motivation.

VIII FUTURE RESEARCH: NOW WHAT? CONTRIBUTIONS

What is driving the increased HEDIS quality gaps? Further research, not limited to qualitative study, is needed to provide insight into this phenomenon. Most health plans such as UHC are poised to expand their understanding of what lies ahead and can benefit, for example, from setting up a piloted experiment with a control and test group. High level meetings on the topic of quality are not new. What is new is involvement by all impacted parties. Engaging the Dual Eligible MA PCPs to fully understand the changing landscape is an excellent start. Patient-Centered Medical Homes hold much promise in the evolving landscape, and open the door for continued research and further discussion.

Healthcare research is complex on many levels and offers great opportunities for those willing to expand their knowledge. Testing theories adds much value as well. The contribution to practice offers a shared path to evidence-based knowledge in a dynamic industry in which staff and students alike seek to further understand the complex, real healthcare world. While this study only scratches the surface, it does provide a useful practice-based approach to deliver on a particular area of interest. These individuals will benefit from these and other studies, but not unless they are willing to ask difficult questions and there is certainly room to ask.

APPENDICES

Appendix A. Glossary of Key Terms

(Terms with meaning and relevance)

Accountable Care – Coordinated healthcare services tied to quality and cost of care.

Centers for Medicare and Medicaid Services (CMS) – The regulatory funding agency that oversees healthcare quality.

Fee-for-Service contract - Contract that pays for services rendered after a claim is submitted by a provider for the service. Historical reimbursement methodology used by health plans which are now moving toward Pay-for-Performance contracts.

Gaps in care - In healthcare, this is the discrepancy between "what is" and "what should be." For example, Dual Eligible MA PCPs have service gaps in meeting preventative health screenings of Medicare members.

Healthcare Effectiveness Data and Information Set (HEDIS) – Specific quality measures that are tracked per regulatory requirement to ensure compliance.

Dual Eligible Medicare Advantage Plan (Medicaid) - This is a government healthcare program for individuals with limited income and resources.

Medicare Advantage Plan – In healthcare terms, this refers to the Medicare replacement plan offered by select health plans for Medicare eligible recipients.

Pay-for-Performance (P4P) - Providers are paid for meeting pre-established targets for healthcare services.

Value Based Purchasing (VBP) – Providers incentivized for performance based on achievement of measures.

Appendix B. Descriptive Data – Dual Eligible MA PCP Structures

DESCRIPTIVES - STRUCTURES				
	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	522	227	43%	13,391
2011	523	227	43%	15,057
2013	420	185	44%	19,589
2014	433	192	44%	20,371
	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	730	352	48%	18,231
2011	729	352	48%	20,334
2013	832	394	47%	36,799
2014	819	387	47%	37,329
	SS - FQHC	SS - FQHC	SS - FQHC	SS - FQHC
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	196	106	54%	4,935
2011	197	106	54%	5,593
2013	120	70	58%	5,567
2014	123	72	59%	5,736
	MS - FQHC	MS - FQHC	MS - FQHC	MS - FQHC
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	373	202	54%	9,191
2011	371	201	54%	10,427
2013	340	171	50%	14,447
2014	330	166	50%	14,549
	SS - PCMH	SS - PCMH	SS - PCMH	SS - PCMH
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	N/A	N/A	N/A	N/A
2011	N/A	N/A	N/A	N/A
2013	N/A	N/A	N/A	N/A
2014	9	4	44%	349
	MS - PCMH	MS - PCMH	MS - PCMH	MS - PCMH
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	N/A	N/A	N/A	N/A
2011	N/A	N/A	N/A	N/A
2013	106	65	61%	4,869
2014	105	64	61%	5,168

DESCRIPTIVES - STRUCTURES				
	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	3,446	24%	2,336	73%
2011	3,517	22%	2,181	64%
2013	6,019	29%	3,920	67%
2014	5,006	25%	3,408	67%
	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	4,514	24%	3,236	76%
2011	4,774	22%	3,015	67%
2013	10,661	28%	7,061	67%
2014	9,161	25%	6,124	67%
	SS - FQHC	SS - FQHC	SS - FQHC	SS - FQHC
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	1,190	22%	769	72%
2011	1,296	22%	781	64%
2013	1,735	29%	1,094	65%
2014	1,435	25%	979	67%
	MS - FQHC	MS - FQHC	MS - FQHC	MS - FQHC
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	2,249	23%	1,616	75%
2011	2,569	23%	1,578	67%
2013	4,022	28%	2,741	68%
2014	3,501	24%	2,366	68%
	SS - PCMH	SS - PCMH	SS - PCMH	SS - PCMH
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	N/A	N/A	N/A	N/A
2011	N/A	N/A	N/A	N/A
2013	N/A	N/A	N/A	N/A
2014	85	24%	61	72%
	MS - PCMH	MS - PCMH	MS - PCMH	MS - PCMH
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	N/A	N/A	N/A	N/A
2011	N/A	N/A	N/A	N/A
2013	1,396	28%	945	68%
2014	1,321	26%	896	66%

DESCRIPTIVES - STRUCTURES			
	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)	SINGLE SPECIALTY (SS)
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	7,369	1.95	
2011	7,680	1.77	74%
2013	14,023	1.90	230%
2014	12,586	2.29	-8%
	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)	MULTISPECIALTY (MS)
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	9,460	1.87	
2011	10,479	1.77	76%
2013	23,020	1.86	181%
2014	23,440	2.31	-6%
	SS - FQHC	SS - FQHC	SS - FQHC
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	2,432	1.91	
2011	2,787	1.69	85%
2013	4,085	1.87	275%
2014	3,509	2.18	-9%
	MS - FQHC	MS - FQHC	MS - FQHC
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	4,719	1.89	
2011	5,763	1.80	95%
2013	8,509	1.90	178%
2014	8,773	2.27	-5%
	SS - PCMH	SS - PCMH	SS - PCMH
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	N/A	N/A	
2011	N/A	N/A	
2013	N/A	N/A	
2014	220	2.55	
	MS - PCMH	MS - PCMH	MS - PCMH
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	N/A	N/A	
2011	N/A	N/A	
2013	3,154	1.88	
2014	3,570	2.46	-3%

Appendix B. Descriptive Data – Dual Eligible MA PCP Specialties

DESCRIPTIVES - SPECIALTIES				
	FAMILY PRACTICE	FAMILY PRACTICE	FAMILY PRACTICE	FAMILY PRACTICE
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	519	227	44%	13,132
2011	519	227	44%	14,526
2013	520	228	44%	23,582
2014	520	227	44%	23,955
	GENERAL PRACTICE	GENERAL PRACTICE	GENERAL PRACTICE	GENERAL PRACTICE
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	33	16	48%	894
2011	33	16	48%	1,078
2013	33	15	45%	1,716
2014	33	15	45%	1,727
	INTERNAL MEDICINE	INTERNAL MEDICINE	INTERNAL MEDICINE	INTERNAL MEDICINE
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	330	134	41%	8,076
2011	330	134	41%	9,412
2013	330	133	40%	14,436
2014	330	133	40%	14,935
	NURSE PRACTITIONER	NURSE PRACTITIONER	NURSE PRACTITIONER	NURSE PRACTITIONER
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	146	92	63%	3,694
2011	146	92	63%	4,170
2013	145	91	63%	6,525
2014	145	92	63%	6,693
	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT
YEAR	PCP COUNT	FEMALE PCP	FEMALE %	ALL PATIENTS
2010	224	110	49%	5,826
2011	224	110	49%	6,205
2013	224	112	50%	10,129
2014	224	112	50%	10,390

DESCRIPTIVES - SPECIALTIES				
	FAMILY PRACTICE	FAMILY PRACTICE	FAMILY PRACTICE	FAMILY PRACTICE
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	3,297	24%	2,393	76%
2011	3,206	21%	2,056	65%
2013	6,947	28%	4,567	67%
2014	5,812	24%	3,895	67%
	GENERAL PRACTICE	GENERAL PRACTICE	GENERAL PRACTICE	GENERAL PRACTICE
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	224	24%	157	73%
2011	289	24%	181	62%
2013	526	30%	313	60%
2014	437	25%	274	61%
	INTERNAL MEDICINE	INTERNAL MEDICINE	INTERNAL MEDICINE	INTERNAL MEDICINE
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	1,901	23%	1,333	71%
2011	2,338	23%	1,406	64%
2013	4,128	28%	2,789	68%
2014	3,636	24%	2,477	68%
	NURSE PRACTITIONER	NURSE PRACTITIONER	NURSE PRACTITIONER	NURSE PRACTITIONER
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	916	24%	644	74%
2011	1,040	23%	638	67%
2013	1,994	29%	1,336	70%
2014	1,678	25%	1,162	69%
	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT
YEAR	DUAL PATIENTS	DUAL PATIENT %	DUAL FEMALE PATIENTS	DUAL FEMALE PATIENT %
2010	1,622	25%	1,045	76%
2011	1,418	21%	915	69%
2013	3,085	29%	1,976	66%
2014	2,604	25%	1,724	66%

DESCRIPTIVES - SPECIALTIES			
	FAMILY PRACTICE	FAMILY PRACTICE	FAMILY PRACTICE
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	7,069	1.93	
2011	7,068	1.78	64%
2013	15,089	1.83	209%
2014	14,647	2.31	-8%
	GENERAL PRACTICE	GENERAL PRACTICE	GENERAL PRACTICE
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	451	1.88	
2011	628	1.70	101%
2013	1,357	2.30	152%
2014	1,295	2.80	-10%
	INTERNAL MEDICINE	INTERNAL MEDICINE	INTERNAL MEDICINE
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	3,898	1.87	
2011	5,193	1.81	84%
2013	8,950	1.86	189%
2014	8,935	2.24	-5%
	NURSE PRACTITIONER	NURSE PRACTITIONER	NURSE PRACTITIONER
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	1,907	1.87	
2011	2,185	1.68	95%
2013	4,773	2.01	224%
2014	4,593	2.50	-5%
	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT
YEAR	TOTAL GAPS	DUAL GAP RATE	AVG DUAL GROWTH RATE
2010	3,504	1.91	
2011	3,085	1.73	71%
2013	6,874	1.84	229%
2014	6,556	2.19	-6%

Appendix C. T-Test (before and after Financial Incentive period)

T TEST

H1

SINGLE SPECIALTY

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
SINGLE SPEC DUAL GAP RATE	0	1045	1.861	1.330	0.041
	1	853	2.094	1.107	0.038

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
SINGLE SPEC DUAL GAP RATE	Equal variances assumed	1.637	0.201	-4.099	1896	0.000
	Equal variances not assumed			-4.175	1895.257	0.000

H1

MULTISPECIALTY

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
MULTISPEC DUAL GAP RATE	0	1459	1.818	1.178	0.031
	1	1651	2.084	1.205	0.030

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
MULTISPEC DUAL GAP RATE	Equal variances assumed	12.221	0.000	-6.229	3108	0.000
	Equal variances not assumed			-6.237	3076.386	0.000

H1

FQHC

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
FQHC DUAL GAP RATE	0	1135	1.833	1.317	0.039
	1	913	2.067	1.196	0.040

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
FQHC DUAL GAP RATE	Equal variances assumed	1.038	0.308	-4.157	2046	0.000
	Equal variances not assumed			-4.201	2016.063	0.000

H2

FAMILY PRACTICE (M.D.)

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
FAMILY PRACTICE DUAL GAP RATE	0	1038	1.856	1.208	0.037
	1	1039	2.066	1.134	0.035

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
FAMILY PRACTICE DUAL GAP RATE	Equal variances assumed	0.000	0.995	-4.070	2075	0.000
	Equal variances not assumed			-4.070	2066.492	0.000

H2

GENERAL PRACTICE (M.D.)

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
GENERAL PRACTICE DUAL GAP RATE	0	66	1.794	0.961	0.118
	1	66	2.549	1.176	0.145

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
GENERAL PRACTICE DUAL GAP RATE	Equal variances assumed	3.105	0.080	-4.038	130	0.000
	Equal variances not assumed			-4.038	125.048	0.000

H2

INTERNAL MEDICINE (M.D.)

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
INTERNAL MEDICINE DUAL GAP RATE	0	660	1.845	1.280	0.050
	1	660	2.052	1.175	0.046

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
INTERNAL MEDICINE DUAL GAP RATE	Equal variances assumed	0.383	0.536	-3.062	1318	0.002
	Equal variances not assumed			-3.062	1308.563	0.002

H2

NURSE PRACTITIONER (MIDLEVEL)

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
NURSE PRACTITIONER DUAL GAP RATE	0	292	1.775	1.278	0.075
	1	291	2.254	1.201	0.070

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
NURSE PRACTITIONER DUAL GAP RATE	Equal variances assumed	1.178	0.278	-4.664	581	0.000
	Equal variances not assumed			-4.665	578.990	0.000

H2

PHYSICIAN ASSISTANT (MIDLEVEL)

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
PHYSICIAN ASSISTANT DUAL GAP RATE	0	448	1.819	1.287	0.061
	1	448	2.016	1.214	0.057

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
PHYSICIAN ASSISTANT DUAL GAP RATE	Equal variances assumed	2.093	0.148	-2.347	894	0.019
	Equal variances not assumed			-2.347	891.035	0.019

H3

MALE

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
MALE DUAL GAP RATE	0	1346	1.829	1.196	0.033
	1	1346	2.177	1.182	0.032

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
MALE DUAL GAP RATE	Equal variances assumed	6.129	0.013	-7.591	2690	0.000
	Equal variances not assumed			-7.591	2689.625	0.000

H3

FEMALE

Group Statistics

DUMMY_IV_POST1		N	Mean	Std. Deviation	Std. Error Mean
FEMALE DUAL GAP RATE	0	1158	1.843	1.296	0.038
	1	1158	1.984	1.152	0.034

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
FEMALE DUAL GAP RATE	Equal variances assumed	0.064	0.801	-2.761	2314	0.006
	Equal variances not assumed			-2.761	2282.338	0.006

Appendix C. T-Test (within Financial Incentive Period only)

H1
SINGLE SPECIALTY

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
SINGLE SPEC DUAL_GAP_RATE	2013	420	1.898	1.167	0.057
	2014	433	2.285	1.012	0.049

Independent Samples Test
Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
SINGLE SPEC DUAL_GAP_RATE	Equal variances assumed	14.278	0.000	-5.179	851	0.000
	Equal variances not assumed			-5.168	826.674	0.000

H1
MULTISPECIALTY

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
MULTISPEC DUAL_GAP_RATE	2013	832	1.861	1.253	0.043
	2014	819	2.311	1.109	0.039

Independent Samples Test
Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
MULTISPEC DUAL_GAP_RATE	Equal variances assumed	22.355	0.000	-7.719	1649.000	0.000
	Equal variances not assumed			-7.727	1630.510	0.000

H1
FQHC

Group Statistics					
YEAR		N	Mean	Std. Deviation	Std. Error Mean
FQHC DUAL_GAP_RATE	2013	460	1.892	1.260	0.059
	2014	453	2.244	1.101	0.052

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
FQHC DUAL_GAP_RATE	Equal variances assumed	13.099	0.000	-4.489	911	0.000
	Equal variances not assumed			-4.493	898.202	0.000

H2

FAMILY PRACTICE (M.D.)

Group Statistics					
YEAR		N	Mean	Std. Deviation	Std. Error Mean
FP DUAL_GAP_RATE	2013	520	1.827	1.169	0.051
	2014	519	2.305	1.045	0.046

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
FP DUAL_GAP_RATE	Equal variances assumed	9.777	0.002	-6.950	1037	0.000
	Equal variances not assumed			-6.951	1024.501	0.000

H2

GENERAL PRACTICE (M.D.)

Group Statistics					
YEAR		N	Mean	Std. Deviation	Std. Error Mean
GP DUAL_GAP_RATE	2013	33	2.303	1.327	0.231
	2014	33	2.795	0.962	0.167

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
GP DUAL_GAP_RATE	Equal variances assumed	6.959	0.010	-1.727	64	0.089
	Equal variances not assumed			-1.727	58.347	0.089

H2
INTERNAL MEDICINE (M.D.)

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
IM DUAL_GAP_RATE	2013	330	1.865	1.245	0.069
	2014	330	2.239	1.071	0.059

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
IM DUAL_GAP_RATE	Equal variances assumed	15.594	0.000	-4.140	658	0.000
	Equal variances not assumed			-4.140	643.542	0.000

H2
NURSE PRACTITIONER
(MIDLEVEL)

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
NP DUAL_GAP_RATE	2013	145	2.012	1.282	0.106
	2014	146	2.496	1.066	0.088

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
NP DUAL_GAP_RATE	Equal variances assumed	6.426	0.012	-3.504	289	0.001
	Equal variances not assumed			-3.502	279.013	0.001

H2

PHYSICIAN ASSISTANT
(MIDLEVEL)

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
PA DUAL_GAP_RATE	2013	224	1.843	1.258	0.084
	2014	224	2.189	1.146	0.077

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
PA DUAL_GAP_RATE	Equal variances assumed	4.112	0.043	-3.044	446	0.002
	Equal variances not assumed			-3.044	442.237	0.002

H3
MALE

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
MALE DUAL_GAP_RATE	2013	673	1.996	1.241	0.048
	2014	673	2.358	1.092	0.042

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
MALE DUAL_GAP_RATE	Equal variances assumed	23.966	0.000	-5.683	1344	0.000
	Equal variances not assumed			-5.683	1322.537	0.000

H3
FEMALE

Group Statistics

YEAR		N	Mean	Std. Deviation	Std. Error Mean
FEMALE DUAL_GAP_RATE	2013	579	1.731	1.190	0.049
	2014	579	2.237	1.054	0.044

Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)
FEMALE DUAL_GAP_RATE	Equal variances assumed	10.416	0.001	-7.650	1156	0.000
	Equal variances not assumed			-7.650	1139.261	0.000

Appendix D. Correlation

	PREMIUM_ DESIGNATION_ YES1	DUMMY_IV_ POST1	SS1_SINGLE _SPECIALTY _ STRUCTURE _CONTROL	MS2_ MULTISPECIALTY _STRUCTURE_ CONTROL	FQ3_FQHC_ STRUCTURE_ CONTROL	PC4_PCMH_ STRUCTURE_ CONTROL
PREMIUM_DESIGNATION_ YES1	1	-.059**	0.021	-0.021	0.014	-0.013
DUMMY_IV_POST1	-.059**	1	-.079**	.079**	-.091**	.214**
SS1_SINGLE_SPECIALTY_ STRUCTURE_CONTROL	0.021	-.079**	1	-1.000**	-.118**	-.149**
MS2_MULTISPECIALTY_ STRUCTURE_CONTROL	-0.021	.079**	-1.000**	1	.118**	.149**
FQ3_FQHC_STRUCTURE_ CONTROL	0.014	-.091**	-.118**	.118**	1	-.178**
PC4_PCMH_STRUCTURE_ CONTROL	-0.013	.214**	-.149**	.149**	-.178**	1
FP1_FAMILY_PRACTICE_ SPECIALTY_CONTROL	.038**	0.000	.180**	-.180**	-.168**	-.054**
GP2_GENERAL_PRACTICE_ SPECIALTY_CONTROL	-.030*	0.000	.044**	-.044**	-.066**	.056**
IM3_INTERNAL_MEDICINE_ SPECIALTY_CONTROL	-0.008	0.000	.058**	-.058**	-0.005	0.027
NP4_NURSE PRACTITIONER SPECIALTY_CONTROL	-.030*	-0.001	-.105**	.105**	.109**	.041**
PA5_PHYSICIAN_ASSISTANT_ SPECIALTY_CONTROL	-0.001	0.000	-.228**	.228**	.158**	-0.019
GENDER_F1_CONTROL	0.022	0.000	-.039**	.039**	.119**	.061**
BCS/TOTAL_DUAL_ADJ_FOR_ FEMALE	-.339**	.156**	0.000	0.000	-0.022	.037**
CCS/TOTAL_DUAL	-.447**	-.059**	0.025	-0.025	0.009	-0.017
BSS/TOTAL_DUAL	-.522**	-.117**	0.017	-0.017	0.004	-0.005
EES/TOTAL_DUAL	-.523**	.056**	-0.009	0.009	-0.018	.029*
KDS/TOTAL_DUAL	-.480**	.510**	-.041**	.041**	-.059**	.137**

	FP1_FAMILY_ PRACTICE_ SPECIALTY_ CONTROL	GP2_GENERAL_ PRACTICE_ SPECIALTY_ CONTROL	IM3_INTERNAL _MEDICINE_ SPECIALTY_ CONTROL	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	PA5_ PHYSICIAN_ ASSISTANT_ SPECIALTY_ CONTROL	GENDER_F1_ CONTROL
PREMIUM_DESIGNATION_ YES1	.038**	-.030*	-0.008	-.030*	-0.001	0.022
DUMMY_IV_POST1	0.000	0.000	0.000	-0.001	0.000	0.000
SS1_SINGLE_SPECIALTY_ STRUCTURE_CONTROL	.180**	.044**	.058**	-.105**	-.228**	-.039**
MS2_MULTISPECIALTY_ STRUCTURE_CONTROL	-.180**	-.044**	-.058**	.105**	.228**	.039**
FQ3_FQHC_STRUCTURE_ CONTROL	-.168**	-.066**	-0.005	.109**	.158**	.119**
PC4_PCMH_STRUCTURE_ CONTROL	-.054**	.056**	0.027	.041**	-0.019	.061**
FP1_FAMILY_PRACTICE_ SPECIALTY_CONTROL	1	-.139**	-.504**	-.306**	-.393**	-.042**
GP2_GENERAL_PRACTICE_ SPECIALTY_CONTROL	-.139**	1	-.098**	-.060**	-.077**	0.002
IM3_INTERNAL_MEDICINE_ SPECIALTY_CONTROL	-.504**	-.098**	1	-.217**	-.279**	-.069**
NP4_NURSE PRACTITIONER SPECIALTY_CONTROL	-.306**	-.060**	-.217**	1	-.169**	.122**
PA5_PHYSICIAN_ASSISTANT_ SPECIALTY_CONTROL	-.393**	-.077**	-.279**	-.169**	1	.031*
GENDER_F1_CONTROL	-.042**	0.002	-.069**	.122**	.031*	1
BCS/TOTAL_DUAL_ADJ_FOR_ FEMALE	0.007	0.018	-0.003	-0.008	-0.006	-0.011
CCS/TOTAL_DUAL	-0.003	.033*	0.010	-0.008	-0.015	-.030*
BSS/TOTAL_DUAL	-0.002	0.021	-0.010	0.024	-0.015	-.032*
EES/TOTAL_DUAL	-0.007	0.020	-0.013	0.021	-0.002	-.031*
KDS/TOTAL_DUAL	0.000	.032*	-0.015	.031*	-0.022	-.037**

	BCS_TOTAL_DUAL_ADJ_FOR_FEMALE	CCS_TOTAL_DUAL	BSS/TOTAL_DUAL	EES/TOTAL_DUAL	KDS/TOTAL_DUAL
PREMIUM_DESIGNATION_YES1	-.339**	-.447**	-.522**	-.523**	-.480**
DUMMY_IV_POST1	.156**	-.059**	-.117**	.056**	.510**
SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL	0.000	0.025	0.017	-0.009	-.041**
MS2_MULTISPECIALTY_STRUCTURE_CONTROL	0.000	-0.025	-0.017	0.009	.041**
FQ3_FQHC_STRUCTURE_CONTROL	-0.022	0.009	0.004	-0.018	-.059**
PC4_PCMH_STRUCTURE_CONTROL	.037**	-0.017	-0.005	.029*	.137**
FP1_FAMILY_PRACTICE_SPECIALTY_CONTROL	0.007	-0.003	-0.002	-0.007	0.000
GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL	0.018	.033*	0.021	0.020	.032*
IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL	-0.003	0.010	-0.010	-0.013	-0.015
NP4_NURSE PRACTITIONER SPECIALTY_CONTROL	-0.008	-0.008	0.024	0.021	.031*
PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL	-0.006	-0.015	-0.015	-0.002	-0.022
GENDER_F1_CONTROL	-0.011	-.030*	-.032*	-.031*	-.037**
BCS/TOTAL_DUAL_ADJ_FOR_FEMALE	1	.467**	.333**	.356**	.337**
CCS/TOTAL_DUAL	.467**	1	.523**	.472**	.292**
BSS/TOTAL_DUAL	.333**	.523**	1	.806**	.480**
EES/TOTAL_DUAL	.356**	.472**	.806**	1	.621**
KDS/TOTAL_DUAL	.337**	.292**	.480**	.621**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix E. Regression Results (before and after Financial Incentive period)

H1

SINGLE SPECIALTY

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.546[a]	0.298	0.294	1.041	0.298	80.156	10	1887	0.000	1.816

a. Predictors: (Constant), GENDER_F1_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, PREMIUM_DESIGNATION_YES1, PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, DUMMY_IV_POST1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL, SIZE_PCP_COUNT_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

b. Dependent Variable: SINGLE SPEC DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	869.427	10	86.943	80.156	.000[b]
	Residual	2046.780	1887	1.085		
	Total	2916.207	1897			

a. Dependent Variable: SINGLE SPEC DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, PREMIUM_DESIGNATION_YES1, PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, DUMMY_IV_POST1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL, SIZE_PCP_COUNT_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.047	0.063		48.582	0.000
	PREMIUM_DESIGNATION_YES1	-1.519	0.055	-0.535	-27.541	0.000
	DUMMY_IV_POST1	0.186	0.049	0.074	3.819	0.000
	GP2_GENERAL_PRACTICE_SPECIA	0.186	0.132	0.028	1.406	0.160
	IM3_INTERNAL_MEDICINE_SPECIAL	-0.039	0.055	-0.014	-0.700	0.484
	NP4_NURSE PRACTITIONER	-0.056	0.099	-0.012	-0.568	0.570
	PA5_PHYSICIAN_ASSISTANT_SPECIA	-0.022	0.106	-0.004	-0.204	0.839
	SIZE_PCP_COUNT_CONTROL	0.004	0.008	0.023	0.584	0.559
	GENDER_F1_CONTROL	-0.090	0.050	-0.036	-1.824	0.068

a. Dependent Variable: SINGLE SPEC DUAL GAP RATE

H1

MULTISPECIALTY

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.653[a]	0.426	0.424	0.910	0.426	230.055	10	3099	0.000	1.827

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, PREMIUM_DESIGNATION_YES1, PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, SIZE_PCP_COUNT_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL

b. Dependent Variable: MULTISPEC DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1905.342	10	190.534	230.055	.000[b]
	Residual	2566.630	3099	0.828		
	Total	4471.972	3109			

a. Dependent Variable: MULTISPEC DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, PREMIUM_DESIGNATION_YES1, PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, SIZE_PCP_COUNT_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.167	0.049		64.869	0.000
	PREMIUM_DESIGNATION_YES1	-1.724	0.037	-0.642	-46.988	0.000
	DUMMY_IV_POST1	0.135	0.034	0.056	3.977	0.000
	GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL	-0.107	0.117	-0.013	-0.913	0.361
	IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL	-0.073	0.043	-0.026	-1.686	0.092
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	-0.024	0.052	-0.007	-0.456	0.649
	PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL	-0.078	0.043	-0.028	-1.797	0.072
	SIZE_PCP_COUNT_CONTROL	0.004	0.002	0.049	1.507	0.132
	GENDER_F1_CONTROL	-0.046	0.033	-0.019	-1.382	0.167

a. Dependent Variable: MULTISPEC DUAL GAP RATE

H1

FQHC

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.578[a]	0.334	0.332	1.038	0.334	128.069	8	2039	0.000	1.909

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, FP1_FAMILY_PRACTICE_SPECIALTY_CONTROL, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, PREMIUM_DESIGNATION_YES1, SIZE_PCP_COUNT_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL

b. Dependent Variable: FQHC DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1103.479	8	137.935	128.069	.000[b]
	Residual	2196.074	2039	1.077		
	Total	3299.553	2047			

a. Dependent Variable: FQHC DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, FP1_FAMILY_PRACTICE_SPECIALTY_CONTROL, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, PREMIUM_DESIGNATION_YES1, SIZE_PCP_COUNT_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.127	0.086		36.464	0.000
	PREMIUM_DESIGNATION_YES1	-1.659	0.053	-0.574	-31.404	0.000
	DUMMY_IV_POST1	0.115	0.047	0.045	2.462	0.014
	FP1_FAMILY_PRACTICE_SPECIALTY_CONTROL	0.035	0.061	0.013	0.576	0.565
	GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL	0.197	0.203	0.018	0.970	0.332
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	0.004	0.073	0.001	0.058	0.953
	PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL	-0.028	0.064	-0.010	-0.435	0.663
	SIZE_PCP_COUNT_CONTROL	0.000	0.002	-0.004	-0.197	0.844
	GENDER_F1_CONTROL	-0.022	0.046	-0.009	-0.481	0.630

a. Dependent Variable: FQHC DUAL GAP RATE

H2

FAMILY PRACTICE (M.D.)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.592[a]	0.350	0.348	0.949	0.350	159.479	7	2069	0.000	1.816

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, SIZE_PCP_COUNT_CONTROL

b. Dependent Variable: FAMILY PRACTICE DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1005.958	7	143.708	159.479	.000[b]
	Residual	1864.399	2069	0.901		
	Total	2870.356	2076			

a. Dependent Variable: FAMILY PRACTICE DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, SIZE_PCP_COUNT_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.112	0.055		56.182	0.000
	PREMIUM_DESIGNATION_YES1	-1.579	0.049	-0.580	-32.549	0.000
	DUMMY_IV_POST1	0.149	0.043	0.063	3.508	0.000
	MS2_MULTISPECIALTY_STRUCTURE_CONTROL	-0.087	0.051	-0.037	-1.698	0.090
	FQ3_FQHC_STRUCTURE_CONTROL	-0.175	0.090	-0.069	-1.951	0.051
	PC4_PCMH_STRUCTURE_CONTROL	-0.038	0.137	-0.006	-0.274	0.784
	SIZE_PCP_COUNT_CONTROL	0.007	0.003	0.088	2.261	0.024
	GENDER_F1_CONTROL	-0.043	0.042	-0.018	-1.014	0.311

a. Dependent Variable: FAMILY PRACTICE DUAL GAP RATE

H2

GENERAL PRACTICE (M.D.)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.669[a]	0.448	0.421	0.864

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, SIZE_PCP_COUNT_CONTROL, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	75.601	6	12.600	16.893	.000[b]
	Residual	93.236	125	0.746		
	Total	168.837	131			

a. Dependent Variable: GENERAL PRACTICE DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, SIZE_PCP_COUNT_CONTROL, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.021	0.198		15.243	0.000
	PREMIUM_DESIGNATION_YES1	-1.329	0.163	-0.560	-8.167	0.000
	DUMMY_IV_POST1	0.697	0.168	0.308	4.144	0.000
	MS2_MULTISPECIALTY_STRUCTURE_CONTROL	-0.377	0.186	-0.167	-2.028	0.045
	FQ3_FQHC_STRUCTURE_CONTROL	0.144	0.314	0.052	0.459	0.647
	SIZE_PCP_COUNT_CONTROL	-0.005	0.016	-0.031	-0.310	0.757
	GENDER_F1_CONTROL	-0.308	0.154	-0.136	-2.001	0.048

a. Dependent Variable: GENERAL PRACTICE DUAL GAP RATE

H2

INTERNAL MEDICINE (M.D.)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.623[a]	0.388	0.385	0.967	0.388	119.011	7	1312	0.000	1.777

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, SIZE_PCP_COUNT_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

b. Dependent Variable: INTERNAL MEDICINE DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	778.417	7	111.202	119.011	.000[b]
	Residual	1225.914	1312	0.934		
	Total	2004.331	1319			

a. Dependent Variable: INTERNAL MEDICINE DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, SIZE_PCP_COUNT_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.127	0.070		44.475	0.000
	PREMIUM_DESIGNATION_YES1	-1.704	0.060	-0.617	-28.520	0.000
	DUMMY_IV_POST1	0.145	0.055	0.059	2.621	0.009
	MS2_MULTISPECIALTY_STRUCTURE_CONTROL	-0.013	0.068	-0.005	-0.199	0.842
	FQ3_FQHC_STRUCTURE_CONTROL	0.190	0.104	0.076	1.830	0.068
	PC4_PCMH_STRUCTURE_CONTROL	0.224	0.137	0.041	1.629	0.103
	SIZE_PCP_COUNT_CONTROL	-0.006	0.004	-0.072	-1.582	0.114
	GENDER_F1_CONTROL	-0.032	0.055	-0.013	-0.590	0.555

a. Dependent Variable: INTERNAL MEDICINE DUAL GAP RATE

H2

NURSE PRACTITIONER (MIDLEVEL)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.634[a]	0.401	0.394	0.983	0.401	55.102	7	575	0.000	1.837

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, SIZE_PCP_COUNT_CONTROL, PREMIUM_DESIGNATION_YES1, PC4_PCMH_STRUCTURE_CONTROL, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

b. Dependent Variable: NURSE PRACTITIONER DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	372.387	7	53.198	55.102	.000[b]
	Residual	555.128	575	0.965		
	Total	927.515	582			

a. Dependent Variable: NURSE PRACTITIONER DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, SIZE_PCP_COUNT_CONTROL, PREMIUM_DESIGNATION_YES1, PC4_PCMH_STRUCTURE_CONTROL, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.977	0.155		19.245	0.000
	PREMIUM_DESIGNATION_YES1	-1.653	0.090	-0.604	-18.471	0.000
	DUMMY_IV_POST1	0.294	0.086	0.117	3.419	0.001
	MS2_MULTISPECIALTY_STRUCTUR	-0.040	0.128	-0.014	-0.314	0.754
	FQ3_FQHC_STRUCTURE_CONTROL	-0.006	0.160	-0.002	-0.036	0.971
	PC4_PCMH_STRUCTURE_CONTROL	0.266	0.193	0.053	1.374	0.170
	SIZE_PCP_COUNT_CONTROL	0.003	0.005	0.038	0.595	0.552
	GENDER_F1_CONTROL	-0.003	0.085	-0.001	-0.034	0.973

a. Dependent Variable: NURSE PRACTITIONER DUAL GAP RATE

H2

PHYSICIAN ASSISTANT

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.628[a]	0.394	0.389	0.980	0.394	82.418	7	888	0.000	1.858

a. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, PREMIUM_DESIGNATION_YES1, PC4_PCMH_STRUCTURE_CONTROL, SIZE_PCP_COUNT_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

b. Dependent Variable: PHYSICIAN ASSISTANT DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	554.415	7	79.202	82.418	.000[b]
	Residual	853.349	888	0.961		
	Total	1407.764	895			

a. Dependent Variable: PHYSICIAN ASSISTANT DUAL GAP RATE

b. Predictors: (Constant), GENDER_F1_CONTROL, DUMMY_IV_POST1, MS2_MULTISPECIALTY_STRUCTURE_CONTROL, PREMIUM_DESIGNATION_YES1, PC4_PCMH_STRUCTURE_CONTROL, SIZE_PCP_COUNT_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.370	0.142		23.761	0.000
	PREMIUM_DESIGNATION_YES1	-1.744	0.074	-0.617	-23.418	0.000
	DUMMY_IV_POST1	0.038	0.067	0.015	0.566	0.571
	MS2_MULTISPECIALTY_STRUCTURE_CONTROL	-0.190	0.130	-0.053	-1.467	0.143
	FQ3_FQHC_STRUCTURE_CONTROL	-0.148	0.148	-0.058	-0.995	0.320
	PC4_PCMH_STRUCTURE_CONTROL	0.020	0.201	0.003	0.099	0.921
	SIZE_PCP_COUNT_CONTROL	0.006	0.005	0.073	1.325	0.186
	GENDER_F1_CONTROL	-0.136	0.067	-0.054	-2.022	0.043

a. Dependent Variable: PHYSICIAN ASSISTANT DUAL GAP RATE

H3

MALE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.618[a]	0.382	0.380	0.947	0.382	165.787	10	2681	0.000	1.793

a. Predictors: (Constant), SIZE_PCP_COUNT_CONTROL, IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL, PREMIUM_DESIGNATION_YES1, DUMMY_IV_POST1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

b. Dependent Variable: MALE DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1485.366	10	148.537	165.787	.000[b]
	Residual	2402.044	2681	0.896		
	Total	3887.410	2691			

a. Dependent Variable: MALE DUAL GAP RATE

b. Predictors: (Constant), SIZE_PCP_COUNT_CONTROL, IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL, PREMIUM_DESIGNATION_YES1, DUMMY_IV_POST1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, PC4_PCMH_STRUCTURE_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.055	0.056		54.681	0.000
	PREMIUM_DESIGNATION_YES1	-1.616	0.041	-0.602	-39.292	0.000
	DUMMY_IV_POST1	0.199	0.037	0.083	5.305	0.000
	SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL	0.076	0.047	0.031	1.607	0.108
	FQ3_FQHC_STRUCTURE_CONTROL	0.010	0.078	0.004	0.125	0.901
	PC4_PCMH_STRUCTURE_CONTROL	0.156	0.115	0.023	1.358	0.175
	GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL	0.153	0.117	0.020	1.308	0.191
	IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL	-0.061	0.044	-0.023	-1.383	0.167
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	-0.034	0.072	-0.008	-0.467	0.640
	PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL	0.002	0.055	0.001	0.030	0.976
	SIZE_PCP_COUNT_CONTROL	0.000	0.003	-0.005	-0.158	0.874

a. Dependent Variable: MALE DUAL GAP RATE

H3

FEMALE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.604[a]	0.365	0.362	0.980	0.365	132.636	10	2305	0.000	1.797

a. Predictors: (Constant), SIZE_PCP_COUNT_CONTROL, IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PC4_PCMH_STRUCTURE_CONTROL, PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

b. Dependent Variable: FEMALE DUAL GAP RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1275.068	10	127.507	132.636	.000[b]
	Residual	2215.856	2305	0.961		
	Total	3490.924	2315			

a. Dependent Variable: FEMALE DUAL GAP RATE

b. Predictors: (Constant), SIZE_PCP_COUNT_CONTROL, IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL, DUMMY_IV_POST1, PREMIUM_DESIGNATION_YES1, GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PC4_PCMH_STRUCTURE_CONTROL, PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL, SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL, FQ3_FQHC_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.053	0.065		46.722	0.000
	PREMIUM_DESIGNATION_YES1	-1.672	0.047	-0.596	-35.659	0.000
	DUMMY_IV_POST1	0.112	0.042	0.045	2.634	0.008
	SS1_SINGLE_SPECIALTY_STRUCTURE_CONTROL	0.081	0.054	0.032	1.484	0.138
	FQ3_FQHC_STRUCTURE_CONTROL	-0.057	0.076	-0.023	-0.754	0.451
	PC4_PCMH_STRUCTURE_CONTROL	0.083	0.102	0.016	0.814	0.415
	GP2_GENERAL_PRACTICE_SPECIALTY_CONTROL	-0.075	0.130	-0.010	-0.580	0.562
	IM3_INTERNAL_MEDICINE_SPECIALTY_CONTROL	-0.056	0.054	-0.019	-1.038	0.300
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	-0.027	0.062	-0.008	-0.437	0.662
	PA5_PHYSICIAN_ASSISTANT_SPECIALTY_CONTROL	-0.132	0.060	-0.042	-2.206	0.027
	SIZE_PCP_COUNT_CONTROL	0.005	0.003	0.065	1.960	0.050

a. Dependent Variable: FEMALE DUAL GAP RATE

Appendix E. Regression (within Financial Incentive Period only)

H1

SINGLE SPECIALTY

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.692[a]	0.479	0.474	0.803	0.479	86.247	9	843	0.000	1.648

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PC4_STRUCTURE_CONTROL, IM3_SPECIALTY_CONTROL, FQ3_STRUCTURE_CONTROL, GP2_SPECIALTY_CONTROL, GENDER_F1_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_SPECIALTY_CONTROL, SIZE_CONTROL

b. Dependent Variable: SINGLE SPEC DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	500.645	9	55.627	86.247	.000[b]
	Residual	543.717	843	0.645		
	Total	1044.362	852			

a. Dependent Variable: SINGLE SPEC DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PC4_STRUCTURE_CONTROL, IM3_SPECIALTY_CONTROL, FQ3_STRUCTURE_CONTROL, GP2_SPECIALTY_CONTROL, GENDER_F1_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_SPECIALTY_CONTROL, SIZE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.375	0.066		51.172	0.000
	GENDER_F1_CONTROL	-0.208	0.058	-0.093	-3.608	0.000
	FQ3_STRUCTURE_CONTROL	-0.097	0.108	-0.040	-0.895	0.371
	PC4_STRUCTURE_CONTROL	0.343	0.294	0.032	1.166	0.244
	GP2_SPECIALTY_CONTROL	0.505	0.161	0.080	3.138	0.002
	IM3_SPECIALTY_CONTROL	-0.086	0.064	-0.035	-1.344	0.179
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	0.218	0.121	0.048	1.803	0.072
	PA5_SPECIALTY_CONTROL	0.021	0.120	0.005	0.171	0.864
	SIZE_CONTROL	0.005	0.007	0.030	0.680	0.497
	PREMIUM_DESIGNATION_YES1	-1.644	0.063	-0.661	-25.942	0.000

a. Dependent Variable: SINGLE SPEC DUAL_GAP_RATE

H1

MULTISPECIALTY

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.766[a]	0.587	0.584	0.777	0.587	258.771	9	1641	0.000	1.793

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, FP1_SPECIALTY_CONTROL, PC4_STRUCTURE_CONTROL, SIZE_CONTROL, GENDER_F1_CONTROL, GP2_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_SPECIALTY_CONTROL, FQ3_STRUCTURE_CONTROL

b. Dependent Variable: MULTISPEC DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1404.445	9	156.049	258.771	.000[b]
	Residual	989.588	1641	0.603		
	Total	2394.033	1650			

a. Dependent Variable: MULTISPEC DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, FP1_SPECIALTY_CONTROL, PC4_STRUCTURE_CONTROL, SIZE_CONTROL, GENDER_F1_CONTROL, GP2_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_SPECIALTY_CONTROL, FQ3_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.424	0.056		60.844	0.000
	GENDER_F1_CONTROL	-0.037	0.039	-0.016	-0.961	0.337
	FQ3_STRUCTURE_CONTROL	-0.211	0.096	-0.086	-2.196	0.028
	PC4_STRUCTURE_CONTROL	-0.013	0.079	-0.004	-0.162	0.872
	FP1_SPECIALTY_CONTROL	0.056	0.050	0.022	1.112	0.266
	GP2_SPECIALTY_CONTROL	0.077	0.131	0.010	0.588	0.557
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	0.081	0.064	0.024	1.271	0.204
	PA5_SPECIALTY_CONTROL	-0.070	0.055	-0.025	-1.273	0.203
	SIZE_CONTROL	0.007	0.003	0.086	2.295	0.022
	PREMIUM_DESIGNATION_YES1	-1.984	0.042	-0.759	-47.598	0.000

a. Dependent Variable: MULTISPEC DUAL_GAP_RATE

H1

FQHC

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.751[a]	0.564	0.560	0.793	0.564	146.174	8	904	0.000	1.758

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PA5_SPECIALTY_CONTROL, GENDER_F1_CONTROL, GP2_SPECIALTY_CONTROL, SIZE_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), IM3_SPECIALTY_CONTROL, MS2_STRUCTURE_CONTROL

b. Dependent Variable: FQHC DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	736.025	8	92.003	146.174	.000[b]
	Residual	568.985	904	0.629		
	Total	1305.009	912			

a. Dependent Variable: FQHC DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PA5_SPECIALTY_CONTROL, GENDER_F1_CONTROL, GP2_SPECIALTY_CONTROL, SIZE_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), IM3_SPECIALTY_CONTROL, MS2_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.526	0.097		36.177	0.000
	GENDER_F1_CONTROL	-0.035	0.053	-0.014	-0.652	0.515
	MS2_STRUCTURE_CONTROL	-0.106	0.100	-0.039	-1.064	0.288
	GP2_SPECIALTY_CONTROL	0.360	0.285	0.028	1.263	0.207
	IM3_SPECIALTY_CONTROL	-0.142	0.070	-0.051	-2.021	0.044
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	-0.006	0.083	-0.002	-0.077	0.939
	PA5_SPECIALTY_CONTROL	-0.158	0.069	-0.058	-2.271	0.023
	SIZE_CONTROL	0.003	0.004	0.026	0.711	0.477
	PREMIUM_DESIGNATION_YES1	-1.953	0.058	-0.749	-33.581	0.000

a. Dependent Variable: FQHC DUAL_GAP_RATE

H2

FAMILY PRACTICE (M.D.)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.714[a]	0.509	0.506	0.797	0.509	178.508	6	1032	0.000	1.829

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PC4_STRUCTURE_CONTROL, GENDER_F1_CONTROL, FQ3_STRUCTURE_CONTROL, SS1_STRUCTURE_CONTROL, SIZE_CONTROL

b. Dependent Variable: FP DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	679.641	6	113.274	178.508	.000[b]
	Residual	654.864	1032	0.635		
	Total	1334.505	1038			

a. Dependent Variable: FP DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PC4_STRUCTURE_CONTROL, GENDER_F1_CONTROL, FQ3_STRUCTURE_CONTROL, SS1_STRUCTURE_CONTROL, SIZE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.330	0.067		50.041	0.000
	GENDER_F1_CONTROL	-0.087	0.050	-0.038	-1.731	0.084
	SS1_STRUCTURE_CONTROL	0.128	0.061	0.056	2.115	0.035
	FQ3_STRUCTURE_CONTROL	-0.190	0.110	-0.076	-1.722	0.085
	PC4_STRUCTURE_CONTROL	-0.045	0.127	-0.010	-0.355	0.722
	SIZE_CONTROL	0.009	0.004	0.115	2.356	0.019
	PREMIUM_DESIGNATION_YES1	-1.810	0.057	-0.705	-31.719	0.000

a. Dependent Variable: FP DUAL_GAP_RATE

H2

GENERAL PRACTICE (M.D.)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.726[a]	0.527	0.479	0.849	0.527	10.948	6	59	0.000	2.007

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, SIZE_CONTROL, GENDER_F1_CONTROL, SS1_STRUCTURE_CONTROL, PC4_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

b. Dependent Variable: GP DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.380	6	7.897	10.948	.000[b]
	Residual	42.555	59	0.721		
	Total	89.935	65			

a. Dependent Variable: GP DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, SIZE_CONTROL, GENDER_F1_CONTROL, SS1_STRUCTURE_CONTROL, PC4_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.377	0.267		12.669	0.000
	GENDER_F1_CONTROL	-0.286	0.230	-0.122	-1.244	0.218
	SS1_STRUCTURE_CONTROL	0.548	0.256	0.231	2.139	0.037
	FQ3_STRUCTURE_CONTROL	-0.194	0.478	-0.054	-0.405	0.687
	PC4_STRUCTURE_CONTROL	-0.080	0.353	-0.029	-0.226	0.822
	SIZE_CONTROL	0.005	0.020	0.037	0.253	0.801
	PREMIUM_DESIGNATION_YES1	-1.560	0.228	-0.657	-6.856	0.000

a. Dependent Variable: GP DUAL_GAP_RATE

H2

INTERNAL MEDICINE (M.D.)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.737[a]	0.544	0.539	0.798	0.544	129.661	6	653	0.000	1.718

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, MS2_STRUCTURE_CONTROL, GENDER_F1_CONTROL, FQ3_STRUCTURE_CONTROL, PC4_STRUCTURE_CONTROL, SIZE_CONTROL

b. Dependent Variable: IM DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	495.050	6	82.508	129.661	.000[b]
	Residual	415.531	653	0.636		
	Total	910.581	659			

a. Dependent Variable: IM DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, MS2_STRUCTURE_CONTROL, GENDER_F1_CONTROL, FQ3_STRUCTURE_CONTROL, PC4_STRUCTURE_CONTROL, SIZE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.436	0.074		46.584	0.000
	GENDER_F1_CONTROL	-0.078	0.065	-0.033	-1.210	0.227
	MS2_STRUCTURE_CONTROL	0.021	0.078	0.009	0.272	0.786
	FQ3_STRUCTURE_CONTROL	-0.010	0.126	-0.004	-0.083	0.934
	PC4_STRUCTURE_CONTROL	0.120	0.127	0.032	0.949	0.343
	SIZE_CONTROL	-0.003	0.004	-0.038	-0.693	0.489
	PREMIUM_DESIGNATION_YES1	-1.887	0.069	-0.732	-27.377	0.000

a. Dependent Variable: IM DUAL_GAP_RATE

H2

NURSE PRACTITIONER (MIDLEVEL)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.771[a]	0.595	0.586	0.773	0.595	69.439	6	284	0.000	1.850

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, GENDER_F1_CONTROL, PC4_STRUCTURE_CONTROL, SIZE_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

b. Dependent Variable: NP DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	248.793	6	41.466	69.439	.000[b]
	Residual	169.592	284	0.597		
	Total	418.385	290			

a. Dependent Variable: NP DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, GENDER_F1_CONTROL, PC4_STRUCTURE_CONTROL, SIZE_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.584	0.166		21.596	0.000
	GENDER_F1_CONTROL	0.025	0.095	0.010	0.259	0.796
	MS2_STRUCTURE_CONTROL	-0.222	0.153	-0.073	-1.455	0.147
	FQ3_STRUCTURE_CONTROL	-0.144	0.193	-0.060	-0.743	0.458
	PC4_STRUCTURE_CONTROL	0.241	0.174	0.069	1.385	0.167
	SIZE_CONTROL	0.006	0.006	0.083	1.061	0.290
	PREMIUM_DESIGNATION_YES1	-1.924	0.098	-0.766	-19.695	0.000

a. Dependent Variable: NP DUAL_GAP_RATE

H2

PHYSICIAN ASSISTANT

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.783[a]	0.613	0.608	0.760	0.613	116.496	6	441	0.000	1.716

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PC4_STRUCTURE_CONTROL, SIZE_CONTROL, GENDER_F1_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

b. Dependent Variable: PA DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	404.197	6	67.366	116.496	.000[b]
	Residual	255.018	441	0.578		
	Total	659.215	447			

a. Dependent Variable: PA DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PC4_STRUCTURE_CONTROL, SIZE_CONTROL, GENDER_F1_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.696	0.140		26.457	0.000
	GENDER_F1_CONTROL	-0.163	0.074	-0.067	-2.205	0.028
	MS2_STRUCTURE_CONTROL	-0.288	0.140	-0.081	-2.052	0.041
	FQ3_STRUCTURE_CONTROL	-0.284	0.155	-0.117	-1.828	0.068
	PC4_STRUCTURE_CONTROL	-0.041	0.168	-0.009	-0.247	0.805
	SIZE_CONTROL	0.009	0.005	0.120	2.009	0.045
	PREMIUM_DESIGNATION_YES1	-2.007	0.078	-0.766	-25.589	0.000

a. Dependent Variable: PA DUAL_GAP_RATE

H3

MALE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.740[a]	0.548	0.545	0.798	0.548	180.078	9	1336	0.000	1.722

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, SIZE_CONTROL, IM3_SPECIALTY_CONTROL, GP2_SPECIALTY_CONTROL, PC4_STRUCTURE_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_SPECIALTY_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

b. Dependent Variable: MALE DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1030.779	9	114.531	180.078	.000[b]
	Residual	849.705	1336	0.636		
	Total	1880.484	1345			

a. Dependent Variable: MALE DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, SIZE_CONTROL, IM3_SPECIALTY_CONTROL, GP2_SPECIALTY_CONTROL, PC4_STRUCTURE_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), PA5_SPECIALTY_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.542	0.055		64.533	0.000
	MS2_STRUCTURE_CONTROL	-0.128	0.056	-0.052	-2.304	0.021
	FQ3_STRUCTURE_CONTROL	-0.024	0.097	-0.010	-0.247	0.805
	PC4_STRUCTURE_CONTROL	0.132	0.105	0.028	1.258	0.209
	GP2_SPECIALTY_CONTROL	0.281	0.138	0.038	2.042	0.041
	IM3_SPECIALTY_CONTROL	-0.064	0.052	-0.025	-1.225	0.221
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	0.019	0.086	0.004	0.225	0.822
	PA5_SPECIALTY_CONTROL	-0.035	0.065	-0.011	-0.541	0.588
	SIZE_CONTROL	-0.001	0.003	-0.007	-0.176	0.861
	PREMIUM_DESIGNATION_YES1	-1.860	0.047	-0.735	-39.783	0.000

a. Dependent Variable: MALE DUAL_GAP_RATE

H3

FEMALE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.739[a]	0.547	0.543	0.779	0.547	153.771	9	1148	0.000	1.845

a. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PA5_SPECIALTY_CONTROL, PC4_STRUCTURE_CONTROL, GP2_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), SIZE_CONTROL, IM3_SPECIALTY_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

b. Dependent Variable: FEMALE DUAL_GAP_RATE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	838.921	9	93.213	153.771	.000[b]
	Residual	695.900	1148	0.606		
	Total	1534.821	1157			

a. Dependent Variable: FEMALE DUAL_GAP_RATE

b. Predictors: (Constant), PREMIUM_DESIGNATION_YES1, PA5_SPECIALTY_CONTROL, PC4_STRUCTURE_CONTROL, GP2_SPECIALTY_CONTROL, NP4_NURSE PRACTITIONER SPECIALTY (CONTROL), SIZE_CONTROL, IM3_SPECIALTY_CONTROL, MS2_STRUCTURE_CONTROL, FQ3_STRUCTURE_CONTROL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.404	0.065		52.658	0.000
	MS2_STRUCTURE_CONTROL	-0.097	0.062	-0.040	-1.571	0.116
	FQ3_STRUCTURE_CONTROL	-0.169	0.086	-0.072	-1.964	0.050
	PC4_STRUCTURE_CONTROL	0.002	0.090	0.001	0.023	0.982
	GP2_SPECIALTY_CONTROL	0.143	0.149	0.020	0.963	0.336
	IM3_SPECIALTY_CONTROL	-0.077	0.061	-0.028	-1.266	0.206
	NP4_NURSE PRACTITIONER SPECIALTY (CONTROL)	0.077	0.070	0.024	1.102	0.271
	PA5_SPECIALTY_CONTROL	-0.188	0.067	-0.065	-2.817	0.005
	SIZE_CONTROL	0.009	0.003	0.120	3.069	0.002
	PREMIUM_DESIGNATION_YES1	-1.889	0.053	-0.721	-35.724	0.000

a. Dependent Variable: FEMALE DUAL_GAP_RATE

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