

Curriculum Vitae

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Berry, C., **Torain, J.M.**, Kufera, J. A., Hu, P. F., Scalea, T. M., & Stein, D. M. (2017). Prospective Evaluation of Post-Traumatic Vasospasm and Post-Injury Functional Outcome Assessment: Is Cerebral Ischemia Going Unrecognized in Patients with Traumatic Brain Injury? *Journal of Behavioral and Brain Science*,07(08), 338-347. doi:10.4236/jbbs.2017.78025

Strong, B. L., **Torain, J. M.**, Greene, C. R., & Smith, G. S. (2016). Outcomes of trauma admission for falls: Influence of race and age on in-hospital and post-discharge mortality. *The American Journal of Surgery*,212(4), 638-644. doi:10.1016/j.amjsurg.2016.06.002

Manuscripts in Preparation

Torain et al. (2019) Changes in Medicare Home Health Care Payment Reform: A Systematic Review.

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Torain, J.M., Davitt J. Medicare Home Health Care Payment Reform—A Systematic Review. GSA, November 15, 2018, Boston, MA.

Torain, J.M. A Twenty-Year Snapshot of Medicare Home Health Care Payment Reform-- A Systematic Review. AGHE, March 1, 2018, Atlanta, GA.

Torain, J.M. A Twenty-Year Snapshot of Medicare Home Health Care Payment Reform-- A Systematic Review. APPAM, November 3, 2017, Chicago, IL.

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Abstract

Title of Dissertation: Assessing the Impact of the Affordable Care Act Reimbursement Policy on the Medicare Home Health Care Market and Implications for Beneficiaries.

Jamila Meri Torain, Doctor of Philosophy, 2019

Dissertation Directed by: Joan K. Davitt, Ph.D., Associate Professor, University of Maryland, School of Social Work and Denise L. Orwig, Ph.D., Associate Professor, University of Maryland School of Medicine

The current study examined the impact of the recent Affordable Care Act (ACA) reimbursement cuts on the Medicare Home Health Care (HHC) market. First, the number of new agencies, number of agencies that exited the market, and the number of active agencies were counted, 2010-2017, in order to determine the rate of change between time periods. Next, the difference in average HHC staff count was determined. Then, using logistic regression, the odds of agency termination and the odds of agency decrease in staff by agency characteristics, was determined for both periods. Finally, qualitative interviews were conducted with 13 HHC directors to further explore their experiences during the reimbursement cuts. Free standing agencies had 1.35 times the odds of exiting from the HHC market post ACA cuts compared to institution-based agencies. There were no differences in the odds of exiting the HHC market between for-profit and non-profit agencies. Agencies in the New York, Atlanta, and Chicago regions had a greater likelihood of exiting the HHC market post ACA cuts. Small agencies had two times the odds of exiting and agencies with one or more branch had less than half the odds of exiting from the HHC market. The average number of all staff was similar before and

after the ACA cuts; however, office staff and home health aides experienced the greatest decrease in number. Agencies that were for-profit, free-standing, small, and/or with one or more branch were more likely to decrease staff post the ACA cuts. Agencies in the New York, Atlanta, Chicago, Dallas and Kansas regions were more likely to decrease staff. Similar to existing research, the strategies used to manage the reimbursement cuts either focused on reducing the amount of service to patients, the intensity of service, or on cutting costs for supplies, staff travel and support services. In addition, agencies indicated relying more heavily on informal caregivers. Overall, the policy effects varied by geographic region and had greater impact on more vulnerable agencies and staff that were non-skilled. Strategies utilized during this time had the potential to negatively impact access to and quality of care for Medicare beneficiaries.

Assessing the Impact of the Affordable Care Act Reimbursement Policy
on the Medicare Home Health Care Market and Implications for Beneficiaries

by
Jamila Meri Torain

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, Baltimore in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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This project is dedicated to my parents. All of the time and effort I devoted to this study is still no comparison to the work put into raising three “smart pretty girls”.
Thank you for everything.

Love, Mina.

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List of Abbreviations

HHC	Home health care
CMS	Centers for Medicare and Medicaid
ACA	Patient Protection and Affordable Care Act
POS	Provider of Service current file
GAO	Government Accountability Office
GAO	General Accounting Office
CBO	Congressional Budget Office
LTC	Long term care
IPS	Interim payment system
PPS	Prospective payment system
BBA	Balanced Budget Act
FY	Fiscal year
OBRA	Omnibus Budget Reconciliation Act
TEFRA	Tax Equity and Fiscal Responsibility Act
IPPS	Inpatient Prospective Payment System
DRG	Diagnosis-Related Group
NHHPD	National Home Health Prospective Payment Demonstration
SNF	Skilled Nursing Facility
OR	Odds ratio
QIES	Quality Improvement Evaluation System
FI	Fiscal Intermediary
aOR	Adjusted Odds Ratio

Study Overview

The Balanced Budget Act (BBA) of 1997 substantially altered the reimbursement structure for Medicare certified home health care. While prior research has extensively considered the impact of the BBA on the HHC market, there is limited evidence of how the more recent reimbursement cuts mandated by the Affordable Care Act (ACA) have affected the HHC market structure, agencies and patients. The current study evaluated the effect of these ACA changes to Medicare HHC reimbursements by using logistic regression to determine which agency characteristics (tax status, affiliation, CMS region code, agency size and having one or more branch) were associated with the likelihood of exiting the HHC market and likelihood of decreasing staff after implementation of the ACA-mandated reimbursement cuts. Then, using the quantitative results as a guide, semi-structured qualitative interviews were conducted with HHC agency directors in various parts of the country to further explore the effect of reimbursement cuts on agencies, practice and patients. This research was the first study to analyze characteristics of the HHC market under the ACA and extends earlier research by comparing the structure of the HHC market, patterns and behaviors of HHC agencies before and after implementation of the reimbursement cuts. Also, the information gained from the qualitative interviews with agency directors provided valuable insights as to the strategies agencies have used to manage changes under the ACA-mandated cuts and the impact on vulnerable Medicare beneficiaries.

Background

Home health care (HHC) is a post-acute care service that is provided in the home (Medicare, 2017). Many HHC agencies are Medicare certified which means that they are

approved to provide Medicare-reimbursed services for eligible patients and are regulated by the Centers for Medicare and Medicaid Services (CMS). Any proposed changes, or new rules related to HHC are issued by the CMS (Centers for Medicare and Medicaid Services, 2017).

Home health care offers a wide range of services to Medicare beneficiaries including intermittent skilled nursing care, physical therapy, speech-language pathology services, and occupational therapy services as well as medical social work and home health aide services (Medicare, 2017). Medicare beneficiaries are individuals who are 65 and older, people under age 65 who have been eligible for Social Security disability benefits for at least 24 months, have end-stage renal disease, or Amyotrophic Lateral Sclerosis (ALS) (Medicare, 2017). To be eligible to utilize Medicare HHC, beneficiaries must be prescribed HHC by a physician as part of their plan of care, the HHC agency of choice must be Medicare certified, and a physician must certify that the beneficiary is homebound (Medicare, 2017). If a beneficiary needs more than part-time or intermittent skilled care, that person is not eligible for HHC (Medicare, 2017). “Part-time and intermittent” care is defined as skilled care that a beneficiary requires for less than seven days a week or less than 8 hours per day over the course of a 21-day period (Medicare, 2017). Home health care is important to Medicare beneficiaries because it offers an alternative to care provided in a skilled nursing facility or hospital that can help patients regain their health and independence in the comfort of their own home environment. In many cases, HHC is much less expensive, more convenient, and just as effective as institutional care (Medicare, 2017).

Since the enactment of Medicare in 1965, there has been much debate around the funding and reimbursement structure of HHC. Each policy change to Medicare HHC has been developed within a political context and the intent of the policy has been dictated by the administration in office. Therefore, policy changes were not focused on improving quality of care and thus health care outcomes, rather they were based in specific ideological perspectives on the role of government in providing care for vulnerable citizens (U.S. House of Representatives, 1977; U.S. House of Representatives, 1978; United States Senate, 1979). Thus, depending on the ideological perspective of those in power, policies either supported expanded utilization of home health care or policies restricted utilization (Benjamin, 1993; Davitt & Choi, 2008d). Unfortunately, this pattern in policy development is still observed in major changes made to Medicare HHC as it stands today.

Most recently, the Patient Protection and Affordable Care Act (ACA) enacted mandatory cuts of up to 3.5 % per year to Medicare HHC agencies' reimbursements (Centers for Medicare and Medicaid Services, 2017). Consequently, in the years of 2014, 2015, 2016, and 2017, there were reimbursement cuts of 1.05 % (\$-200 million), 0.3 % (\$-60 million), 1.4 % (\$-260 million), and 0.7 % (\$-130 million), respectively (Centers for Medicare and Medicaid Services, 2017). Previous research has shown prior policy changes enacted in 1997 that affected HHC reimbursements generated negative effects on Medicare beneficiaries by altering the agency market, reducing access to the HHC benefit or modifying HHC practice (Choi, Sunha & Davitt, 2009; Davitt & Marcus, 2008; Davitt & Choi, 2008e; FitzGerald et al., 2006; Kim & Norton, 2015a; Kim & Norton, 2015b; Kulesher, 2006). The current study examines the impact of the recent ACA

reimbursement cuts on the Medicare HHC agency market and agency behaviors and practices to begin to understand how these changes may affect vulnerable Medicare beneficiaries. The following specific aims and hypotheses will be addressed:

Specific Aims & Hypotheses

Aim 1.

To determine the effects of ACA reimbursement cuts on the number of HHC agencies operating in the Medicare HHC Program (market mix).

Hypothesis 1.A.

There will be fewer active agencies, in the Medicare HHC program, providing HHC post ACA reimbursement cuts.

Hypothesis 1.B.

There will be fewer new HHC agencies entering the Medicare HHC program post ACA reimbursement cuts.

Aim 2.

To determine which agency characteristics are associated with exiting the Medicare HHC program, both before and after implementation of the ACA reimbursement cuts.

Hypothesis 2.A

Free standing HHC agencies will be more likely to exit the Medicare HHC program post ACA reimbursement cuts than institution-based HHC agencies.

Hypothesis 2.B

For-profit HHC agencies will be more likely to exit from the Medicare HHC program post ACA reimbursement cuts than non-profit HHC agencies.

Hypothesis 2.C. *

Agencies in certain CMS coded regions of the United States will be more likely to exit from the Medicare HHC program post ACA reimbursement cuts.

Hypothesis 2.D.

Small HHC agencies will be more likely to exit the Medicare HHC program post ACA reimbursement cuts than large HHC agencies.

Hypothesis 2.E. *

Other agency characteristics (e.g. having a branch office and agency size) will be associated with the likelihood of exiting the Medicare HHC program post ACA reimbursement cuts.

Aim 3.

To determine the effects of the ACA reimbursement cuts on the number and types of staff employed by HHC agencies and if certain types of HHC agencies were more likely to decrease staff after the ACA reimbursement cuts.

Hypothesis 3.A:

Total number of staff will decrease after implementation of ACA reimbursement cuts.

Hypothesis 3.B:

Specific staff types will decrease after implementation of the ACA reimbursement cuts.

Hypothesis 3.C:

There will be an association between specific agency characteristics (e.g. tax status) and the odds of decrease in staff.

*Please see “Key Constructs and Operational Definitions” on page 32, for definition.

Aim 4.

To explore the effects of ACA reimbursement cuts on HHC practice from the perspective of agency directors.

Potential exploration areas for qualitative assessment.

- What challenges did these reimbursement changes create for agencies?
- What service delivery strategies did agencies use to manage these reimbursement changes?
- What cost reduction strategies did agencies use to manage these reimbursement changes?
- Did you change your staff mix to manage these reimbursement changes?
If so, how?
- What admission strategies did agencies use to manage these reimbursement changes?
- How did you see these changes affecting your staff? How did you think these changes affected your staff?
- How did you see these changes affecting patients and/or informal support?

Significance

This research provides an important foundation to guide future research in the areas of HHC, the ACA and Medicare policy. It is important to examine the changes that occur within the Medicare HHC market after ACA-mandated policy changes because these reimbursement cuts may have a direct impact on the quality of care delivered by HHC staff. Understanding changes in the HHC market will help identify potential negative impact on access to HHC. Analyzing staffing patterns after reimbursement cuts

will help us understand which professions are affected and potential access challenges for patients. Using qualitative methods will shed further light on practice changes, how and why agency directors implement changes with a focus on how they might impact patients and their families both in terms of access and outcomes. The qualitative data will also help identify the types of patients HHC agencies are not admitting. If we understand how policy impacts agency practice behaviors as well as the impact on patients, we can propose more effective and cost efficient HHC policy interventions as well as practice interventions to enhance both quality of care and access for Medicare beneficiaries.

Organization of Research

Chapter one of the dissertation provides an overview and background of the research topic lists the specific aims and hypotheses and discusses the potential significance of the results of this study to the research field. Chapter 2 provides a literature review detailing the historical context of HHC policy in America and also describes this study's unique application of both game and agency theory. Chapter 3 provides an overview of the Medicare POS file including key constructs, operational definitions of the variables used, and the data analyses. Each Aim will be addressed within its own chapter inclusive of methodology, rationale, analytic sample, analyses, results, and discussion such that Aim one will be in Chapter 4, Aim two in Chapter 5, Aim three in chapter 6 and Aim four in Chapter 7. Lastly, chapter 8 provides an in-depth discussion that integrates the results across the Aims and overall implications to the field. The text is followed by the study appendices and references.

Literature Review & Conceptual Framework

Political history revolving around home health care prior to major policy changes

Home Health Care (HHC) first became a federal benefit in 1965, following the enactment of Medicare (Benjamin, 1993). Medicare, a federally funded program, provided coverage for HHC and rapidly became the largest single payer for home health care services (Benjamin, 1993). This warranted congressional attention. HHC went from having no place on the congressional agenda to what turned into a five-decade debate of expansion versus retrenchment of the HHC benefit (Benjamin, 1993; Davitt & Choi, 2008e; United States Senate, 1979). Though HHC was established as an effective form of health care for older adults by the late 1960's, it continued to be defined as simply an alternative to institutionalized forms of care, such as the hospital or nursing home, rather than an equally beneficial option of health care (United States Senate, 1979).

Congressional members decried the Medicare program for its major institutional bias (United States Senate, 1979). Traditionally, the Medicare program had heavily favored inpatient care such as care received in a hospital because it was originally oriented to the coverage of acute episodic illness and was further complicated by a reimbursement system that paid for inpatient care but in most instances, did not cover HHC (United States Senate, 1979). This made it challenging for advocates of HHC to advance major HHC policy changes.

Following the 1965 amendments to the Social Security Act that created Medicare, expenditures for hospital and nursing home care rose dramatically, while scandals in the nursing home industry were widely publicized (Benjamin, 1993; United States General Accounting 1974). Institutional cost and nursing home scandals created a major platform

for support of HHC as an equal option to both hospital and nursing home care (Benjamin, 1993; United States General Accounting Office, 1974). Consequently, members of Congress not only proposed changes but also began to push for the expansion of HHC. Congress recognized HHC was a viable option to “inappropriate, unnecessary or premature institutionalization” (United States Senate, 1979). Members were also aware of research that reported “older adults are living longer with chronic conditions” and therefore “the availability of Medicare services must also increase” (United States Senate, 1979). Congress advocated for HHC, however, the restrictive HHC policies of the 1960’s were still in place, making it challenging for HHC agencies to enter the Medicare HHC market, and creating barriers to provision of services and difficulties for beneficiaries to utilize the benefit (Benjamin, 1993). Congressional members recognized that if HHC were to slow the rise in institutional expenditures under Medicare and become a viable option to institutional care, the HHC system would need to be sufficiently available for use through actual policy change (Benjamin, 1993).

First major policy change to HHC: The 1972 amendments to Social Security

The congressional goal of the 1970’s was to expand Medicare HHC (Davitt & Choi, 2008e). In 1972, President Richard M. Nixon signed into law the first major changes to Medicare since its enactment (Anderson, 2016). The Social Security Act was amended to eliminate some of the requirements that made HHC agency participation and utilization more difficult (Anderson, 2016; Benjamin, 1993; Davitt & Choi, 2008e). First, the amendments eliminated the Part B coinsurance payment requirement for HHC services under Medicare (Benjamin, 1993). Additionally, the 1972 amendments extended Medicare to people with end-stage renal disease (ESRD) and expanded to cover people

under age 65 with permanent disabilities (Anderson, 2016; Ball, 1973; Kaiser Family Foundation, 2016). This particular amendment served as a lifeline for Americans with kidney failure, an extremely expensive disease (Anderson, 2016; Ball, 1973; Kaiser Family Foundation, 2016). Furthermore, the terms of Medicare program participation for HHC agencies were also streamlined, making agency participation easier (Benjamin, 1993).

After these policy changes went into effect the behavior of HHC staff who provided services, the make-up of active HHC agencies in the Medicare program and the access and utilization of beneficiaries changed. First, the number of active Medicare certified HHC agencies declined between 1970 and 1975 (Estes et al., 1993). Next, despite the fact that the number of HHC agencies decreased, the number of beneficiaries served and total visits gradually increased through the 1970's (Davitt & Choi, 2008e; Estes et al., 1993). This was most likely a result of the expanding categories of Medicare enrollees eligible for the benefit as described above and elimination of the Part B co-insurance barrier (Benjamin, 1993; Davitt & Choi, 2008e). However, although the number of beneficiaries served increased, the number of visits per user remained the same (Benjamin, 1993; Davitt & Choi, 2008e).

The 1972 amendments to Social Security also authorized new studies and demonstration projects related to services not covered by Medicare (Benjamin, 1993). The point of implementing these demonstration projects was to assess the extent to which different services could be substituted for institutional use and to provide justification for further Medicare HHC policy expansion. One area of study included implementation of homemaker and medical day care service delivery (Benjamin, 1993).

Political Climate revolving around Home Health Care in the 1970s

Although the 1972 amendments increased utilization of the HHC benefit, supporters of HHC were not satisfied with the results of the policy changes and continued to advocate for expansion of the policy to cover the chronic health needs of older adults (Benjamin, 1993; United States Senate, 1979). Congressional advocates put forth several rationales for the expansion of HHC (Benjamin, 1993; Davitt & Choi, 2008e; United States Senate, 1979). First, the cost of HHC was much lower than institutional care (Congressional Budget Office, 1977; Davitt & Choi, 2008b; Government Accountability Office, 1977). In 1978, a Health Care Financing Administration study estimated that the annual individual cost of HHC services was approximately half the monthly bill for services provided in a nursing home (Health USA, 1975; United States Senate, 1979). Second, HHC was considered a more humane way to provide treatment and most older adults preferred to receive care at home (Davitt & Choi, 2008e). In a 1979 congressional hearing, Senator Bob Dole (Republican from Kansas) stated: “In a South-Central Connecticut survey of deaths from cancer, between 1969 and 1971, 67 % of patients expressed a desire to die at home as opposed to 20 % who did die at home.” (United States Senate, 1979)

Lastly, Medicare was originally oriented towards acute illness, yet the illnesses of many older adults were chronic. HHC needed to be expanded to better cover the chronic health problems of older adults that were living longer without hospitalization (Davitt & Choi, 2008e; U.S. House of Representatives, 1977; U.S. House of Representatives, 1978; United States Senate, 1979). In 1979, the Committee on Aging estimated that up to four million noninstitutionalized older adults had a need for some form of supportive HHC,

yet less than two million older adults had access to HHC (United States Senate, 1979). By the late 1970s, Congress understood that the population of older adults with chronic conditions was increasing and HHC had become part of a new debate about long term care (LTC) for older adults. While members of Congress were convinced of the importance of LTC reform and expanding HHC to meet the needs of this growing population, the goal of the administration was to fiscally restrain Medicare spending (Benjamin, 1993). However, due to the continued rise in institutional costs, HHC remained on the congressional agenda as the best solution to the Medicare expenditure crisis (Benjamin, 1993). Even though HHC costs rose between 1975 and 1978, Congress still advocated that HHC policy was too restrictive and that the program needed expansion to satisfy the increasing demand for institutional care (Benjamin, 1993).

Congressional members had several concerns with the HHC policy as it stood. First, the three-day hospitalization requirement for beneficiaries to utilize the HHC benefit limited the number of people who could become eligible for this benefit (United States Senate, 1979). Second, members advocated to remove the limit on the number of HHC visits beneficiaries were allowed per 21-day period (United States Senate, 1979). With such limits, the policy did not address the long-term health care needs of the aging population. Also, non-skilled services such as homemaker services were not covered under the HHC policy; yet many older adults with chronic conditions needed non-skilled care to live independently in their homes (United States Senate, 1979). Lastly, there were major concerns about the organization of the HHC system, the consistency in standards of quality assurance for all federal agencies that oversee HHC agencies and controls

against financial waste and abuse (Benjamin, 1993; Davitt & Choi, 2008e; United States Senate, 1979).

Misuse and overuse of Medicare HHC were two major concerns that the opposition used as an argument to prevent expansion of HHC. For example, Medicare expenditures for HHC jumped from \$80 million in fiscal year (FY) 1973 to \$425 million in FY 1977 and the number of beneficiaries served had exceeded half a million (Lavor, 1979). Policy makers were concerned about this growth in spending and attributed it to different reasons. First, they attributed HHC growth in spending to the inconsistent standards within the HHC system, which resulted in service denials or unnecessary service use (Benjamin, 1993; Davitt & Choi, 2008e). Next, issues were raised regarding the variation in the amount of services delivered by agencies for similar patients and claims approval rates by fiscal intermediaries (FI). Fiscal intermediaries are private companies that have a contract with the Center for Medicare and Medicaid services (Centers for Medicare and Medicaid Services, 2017) to review and approve for payment part A and some part B claims such as bills from hospitals (Centers for Medicare and Medicaid Services, 2017). One example of how cost varied across FI is in the unit costs for similar services at different agencies and interpretations of allowable administrative expenses. There was also wide variation in decisions made by FI, as some intermediaries approved questionable claims and many frequently overpaid HHC agencies (Davitt & Choi, 2008e). All of these inconsistencies made it difficult to project the financial impact of expanding the Medicare HHC program (Davitt & Choi, 2008e). In addition, in 1975, a series of Congressional hearings warned of HHC provider manipulation of the HHC system (Benjamin, 1993). Vague HHC reimbursement policy allowed providers to

interpret regulations for their own financial gain and benefit. For example, under Medicare law, reimbursement was allowed for proprietary HHC agencies only in states that licensed them (Benjamin, 1993). Otherwise, Medicare HHC agencies were non-profit. As a result, many proprietary agencies started entering the HHC market as non-profit agencies, termed “spin-off” non-profit agencies (Benjamin, 1993; U.S. General Accounting Office, 1979). All of these issues and concerns within the HHC market were expressed in a 1978 congressional hearing (Lavor, 1979):

“Investigations have revealed the existence of many of the same fraudulent or abusive practices as in other providers’ areas: (1) Billing for services not rendered, (2) Misrepresentation of services, (3) Altering or falsifying bills and records, (4) Duplicate billings, (5) Payroll and expense account padding, (6) Improper allocation of costs. There are different funding programs for HHC: Title XX (social services), Medicare and Medicaid....each with different criteria and standards.”

Multiple reimbursement systems made it possible for agencies to get reimbursed by switching patients between these systems (The Secretary’s National Conference on Fraud, Abuse, and Error, 1978, p. 308).

With little control over the program and minimal fiscal regulation, HHC providers seized the opportunity for fiscal gain and economic growth (Lavor, 1979). However, most Congressional members agreed that HHC issues were more the result of opportunism than fraud (Lavor, 1979). Despite major concerns, the 1970’s ended still pressing for major program expansion.

OBRA act of 1980-Medicare Amendments

The first response to the push for Medicare HHC expansion in the late 1970's was the Omnibus Budget Reconciliation Act (OBRA) of 1980. OBRA contained several amendments to the original Medicare law, designed under congressional intent to ease some restrictiveness of the Medicare HHC policy (Benjamin, 1993; Davitt & Choi, 2008e). The changes that occurred under this policy affected patient utilization and HHC agency market entry. Prior to OBRA, there were several components of the Medicare law that made it difficult for beneficiaries to utilize HHC services. First, the policy allowed only 100 visits under Medicare Parts A and B. It also required beneficiaries to have a three-day hospitalization prior to using HHC benefits under Medicare part A and there was a \$60 deductible under Medicare part B (Benjamin, 1993; Davitt & Choi, 2008e; United States Senate, 1979). OBRA removed all three of these requirements. (Benjamin, 1993). However, the Medicare changes did not provide clarification on the intermittent care and homebound criteria, nor did they require CMS to establish consistent standards amongst fiscal intermediaries as previously demanded by congressional advocates (Keenan, Fanale, Ripsin, & Billows, 1990).

The policy effect on utilization was only slight. First, the total users and users per 1,000 enrollees increased; however, the rate of growth in users actually declined between 1978 and 1984 (Davitt & Choi, 2008e). Next, the total number of visits and visits per user increased, but the rate of growth in visits severely decreased (Davitt & Choi, 2008e). Congress intended to expand the benefit, but the administration's fiscal concerns interfered with developing policy that truly reflected expansion. The administration feared that expanding the benefit to cater to needs of the chronically ill would increase

cost to the overall Medicare program and not generate savings (Benjamin, 1993; Davitt & Choi, 2008e; Keenan et al., 1990). As a result, CMS continued their strict interpretation of the homebound and intermittent care criteria, thereby continuing the high claims denial rate (Benjamin, 1993; Davitt & Choi, 2008e; Keenan et al., 1990). Additionally, CMS feared that expanding eligibility criteria would also make the benefit available to patients who would otherwise not be eligible for institutionalized care (Davitt & Choi, 2008e). Furthermore, the General Accounting Office (GAO) expressed that if the Medicare HHC policy was expanded, misuse of the benefit and the lack of organization within the HHC system might lead to further inefficiencies and increased cost within the Medicare program (Davitt & Choi, 2008e).

There were major changes to HHC agency market entry after OBRA took effect. Under this policy, proprietary HHC agencies no longer had to obtain state licensure to receive Medicare reimbursement, eliminating the need for them to create non-profit subsidiaries (Benjamin, 1993). This specific change in policy generated dramatic growth in the number of Medicare certified, proprietary home health agencies (Benjamin, 1993; Davitt & Choi, 2008e). Specifically, between the years of 1983 and 1986, the for-profit agency growth rate was 90 %, while non-profit agencies only grew 21 % (Davitt & Choi, 2008e). In 1982, there were 471 proprietary agencies in the United States. By 1983, the number of active proprietary agencies increased by 526 (Davitt & Choi, 2008e; Estes et al., 1993) and by 1986, the number of proprietary agencies in the Medicare HHC market accounted for one-third of all Medicare HHC agencies (Benjamin, 1993; Kenney & Dubay, 1992; Silverman, 1990). However, OBRA failed to address fraudulent behavior by home health care agencies. Many studies demonstrated that proprietary agencies were

more likely to participate in illegal subcontracting and referral kickbacks (Benjamin, 1993; Davitt & Choi, 2008e; Estes et al., 1993; U.S. House of Representatives, 1978). With the increase of proprietary market entry, this behavior increased. Some evidence also suggested that proprietary agencies were more likely to deliver more expensive HHC care services and were less likely to accept other forms of HHC payment such as Medicaid (Benjamin, 1986; Benjamin, 1993; Pillemer & Levine, 1982).

Although there were major changes within the HHC market after OBRA, the executive branch implemented the changes in a way that were still more restrictive to Medicare beneficiaries with chronic health problems, did not establish consistent standards for intermediaries, and did not address fraud and abuse among HHC service providers (Keenan et al., 1990). While the OBRA amendments of 1980 were developed to increase access to the HHC benefit, tight controls by the executive branch via the fiscal intermediaries continued to constrain benefit use.

TEFRA 1982 –IPPS

In 1983, the Inpatient Prospective Payment System was established under the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). The goal of the IPPS was to control Medicare hospital costs (Davitt & Choi, 2008e). The IPPS created the first prospective payment system within the Medicare inpatient benefit. (Centers for Medicare and Medicaid Services, 2017). This payment system utilized the Diagnosis-Related Group (DRG) coding system which paid a set rate to each hospital for each patient based on their diagnosis. This policy change resulted in hospitals discharging patients “quicker and sicker” because the hospital now shared the financial risk. If a patient stayed longer and costs were higher than the DRG-based capitated payment, the hospital had to cover

those costs. If the patient was discharged sooner, however, the hospital could keep the surplus (Centers for Medicare and Medicaid Services, 2017).

One assumption behind this policy was that restraining hospital costs would increase the use of post-acute services such as HHC (Davitt & Choi, 2008e). However, between the years of 1983 and 1987, utilization of HHC decreased dramatically and the growth rate hit negative numbers with the largest declines in total visits and visits per Medicare beneficiary (Davitt & Choi, 2008e). In 1984 and 1986, CMS issued two transmittals (Davitt & Choi, 2008e) to communicate new or changed policies or procedures (Centers for Medicare and Medicaid Services, 2017). The first transmittal denied any care classified as “daily,” and the second transmittal defined daily as any care needed for five or more days (Centers for Medicare and Medicaid Services, 2017; Davitt & Choi, 2008e). Therefore, any beneficiary who needed HHC services for five days or more was denied the benefit. Furthermore, if a beneficiary needed daily care, rather than denying the excess days, intermediaries denied the entire claim for services, a complete loss of the benefit (Davitt & Choi, 2008e). Moreover, if a beneficiary was denied a claim, the agencies had to pay for the cost (Davitt & Choi, 2008e; Feder & Lambrew, 1996). Home health care providers were only eligible for waiver of cost liability if they had a history of low patterns of denials (Feder & Lambrew, 1996). In less than one year, from February 1986 to November 1986, the percentage of agencies that lost the waiver of liability went from 16 % to 32 % (General Accounting Office, 1990).

As a result, fiscal intermediaries and HHC providers changed their behavior and delivery of services to patients. First, intermediaries increased their review of claims. The claims denial rates for intermediaries increased from 3.1 % in 1985 to 9.0 % in 1987

(General Accounting Office, 1990). In addition, HHC agencies started doing less home care under the Medicare benefit because of changes communicated through the transmittals (Davitt & Choi, 2008e; Estes et al., 1993). The number of claims filed by agencies decreased by 5 % between 1985 and 1986 (Estes et al., 1993). Despite the push to extend access to the HHC benefit by Congress, the administration tightened access to the benefit across the board without directly addressing the assumptions of fraud and overuse (Davitt & Choi, 2008e). Between 1983 and 1987, the cost of HHC remained a prominent issue, but the growth rate in Medicare HHC utilization and expenditures decreased.

Duggan v. Bowen (1987)

Tightening of reimbursement ceilings and vague HHC policy definitions set the stage for court challenges and in 1987, a class action suit was filed in a federal district court (*Duggan v. Bowen*, 1988) The *Duggan* court ruled that CMS had violated the law and the intent of Congress by creating a stricter definition of daily care and requiring that beneficiaries meet both criteria, part-time and intermittent, to be eligible (Davitt & Choi, 2008e). The court found CMS's definitions too narrow, resulting in the denial of care for many eligible beneficiaries (Vladeck & Miller, 1994). For example, under CMS's definition, a person could receive eight hours of care for four days a week for a total of 32 hours per week, but a person who was in need of care for five days or more for one hour per day for a total of 5-7 hours per week, was deemed ineligible (Davitt & Choi, 2008e; Vladeck & Miller, 1994). CMS also violated the Administrative Procedures Act (5.U-S.C553) by not allowing the public to comment prior to distributing the transmittals (Davitt & Choi, 2008e). On the basis of these violations, the court determined that CMS

must revise and determine a new rule (*Duggan vs. Bowen*, 1988). In 1989, CMS issued a new manual which stated benefit determination as

“Based on the beneficiary’s unique condition and individual needs, without regard to whether the illness or injury is acute, chronic, terminal, or expected to extend over a long period of time” (as cited in Keenan et al 1990, Medicare Manual).

Along with this new language, the following changes were implemented. First, CMS redefined eligibility criteria to part-time or intermittent need for skilled care. Second, the need for skilled professional observation and maintenance therapy was added as medically reasonable and necessary care for Medicare beneficiaries. Lastly, each visit from an HHC provider had to be reviewed separately before denying the entire claim (Feder & Lambrew, 1996; General Accounting Office, 1996; Komisar & Feder, 1997).

Post-*Duggan* court changes influenced access and utilization: Medicare HHC became available to more beneficiaries for less acute conditions and longer periods of time and the changes reduced the utilization of nursing homes as well (Feder & Lambrew, 1996; General Accounting Office, 1996). One study suggested that the proportion of older adults residing in nursing homes declined from 4.6 % to 4.1 % and the average stay decreased by 18 % between 1985 and 1995 (Komisar & Feder, 1997).

Toward the end of the 1980s, HHC remained favorable for both political parties due to its reputation as a less costly option to institutional care. In an effort to continue the push for expansion under a fiscally conservative administration, the Catastrophic Coverage Act was approved by Congress in June 1988 (Benjamin, 1993). It contained four major provisions to the Medicare HHC benefit. First, it loosened previous limits on what qualified as intermittent care. Second, in an effort to relieve some of the burden of

informal care provided by family and friends to Medicare beneficiaries, it introduced coverage of limited respite care. Third, the act extended Medicare coverage of home intravenous drug therapy services, supplies, and equipment. The fourth and most promising development from the Catastrophic Coverage Act were the provisions to establish a U.S. Bipartisan Commission on comprehensive health care called the Pepper Commission, which was charged with making recommendations on comprehensive long-term care services for older adults and individuals with disabilities (Benjamin, 1993). With the establishment of the Pepper Commission and a political focus to respond to the needs of older adults, the 1980's ended with HHC on the Congressional agenda with more hope for more expansive HHC policy.

1990s: Post-*Duggan* growth in utilization, change in HHC provider behavior resulting in cost control measures

After the *Duggan*-mandated revisions to the Medicare HHC manual took effect, there were changes in utilization by beneficiaries and in the provision of services by HHC agencies. Between 1989 and 1990, total growth in expenditures was 48 %. However, between the years of 1990 and 1991, total growth in HHC expenditures decreased slightly to 40 %. By 1992, the growth rate had decreased to 34 % and by 1996, growth in expenditures was down to 5 %. Between 1988 and 1989, growth in the number of users per 1,000 enrollees was 12 %. This rate also declined to 4.9 % by 1996 (Davitt & Choi, 2008e). In 1990, growth in total HHC visits peaked at 48% and the growth rate in visits per user grew to 33 %. However, by 1996, growth in total visits decreased to 6 % and growth in visits per user declined to 2.78 % (Davitt & Choi, 2008e).

Post-*Duggan* changes to Medicare HHC policy also altered the behavior of HHC staff providing services within the market. In a system that lacked administrative oversight with a payment structure that offered little incentive for staff to control volume, it can be argued that these changes resulted in HHC being provided by some agencies more than was needed for appropriate care. Also, there was little incentive for beneficiaries to decline services since the deductibles and co-pays had been eliminated (Davitt & Choi, 2008e). During this time, total visits increased but average payment per visit only increased by 2.2 % suggesting that HHC staff used tactics such as using lower cost visit types (Davitt & Choi, 2008e; Komisar & Feder, 1997). Another major change to the Medicare HHC market was that the number of proprietary agencies increased significantly. In 1990, thirty-six percent of the agencies in the Medicare HHC market were proprietary as compared to 64 % in 1997 (General Accounting Office, 1998). At the same time that these HHC benefit changes were implemented, Congress cut Medicare's administrative funds (Davitt & Choi, 2008e; General Accounting Office, 1991). As a result, the number of fiscal intermediaries decreased from 47 to 9 in 1989 (Davitt & Choi, 2008e; General Accounting Office, 1990). Having few funds to enforce proper review of HHC benefit claims while the number of claims requested increased, there was little oversight of improper behavior within the HHC market (Davitt & Choi, 2008e; General Accounting Office, 1991). HHC remained one of the few markets with little fiscal regulation.

With the initial increase in utilization and issues with fiscal intermediary consistency in standards, Congress started developing ways to control spending and reduce the HHC benefit. In 1990, the National Home Health Prospective Payment

Demonstration (NHHPD) was implemented to study alternative reimbursement methods for the HHC market (Davitt & Choi, 2008e) Leon, Davitt, & Marainen, 2002). The objective of the NHHPD was to determine whether program expenditures could be reduced by creating a more efficient service delivery structure (Davitt & Choi, 2008e). Under the NHHPD, the first attempt at controlling cost was a two-year freeze on the inflation updates for HHC, beginning in 1994 (Davitt & Choi, 2008e). The freeze reduced expenditures, but did not, however, result in more program efficiency. The rate of growth in users declined, but the total number of visits per user increased, suggesting that this policy incentivized agencies to provide more HHC visits to make up for money lost rather than to respond to patient need (Davitt & Choi, 2008e).

Beyond the changes in provider behavior within the HHC market, several studies found tremendous variation in payment and visits across geographic regions and agency types. These inconsistencies increased suspicion of fraudulent activity within the HHC market. Agencies vary based on affiliation, tax status, size, and location. Using data from 1993, studies produced from the Office of the Inspector General (OIG) found large variation between reimbursements and number of visits across different HHC agencies. For example, the average reimbursement for four different types of agencies ranged from \$1,534 to \$7,978 (OIG, 1995, P.7, 1995) and they found wide variation in the average number of visits with a range of 27 visits for agencies with lower utilization and 141 visits for agencies with higher utilization (Davitt & Choi, 2008e). The behavior of HHC agencies also varied based on tax status and agency location. For example, the number of new for-profit agencies entering the HHC market consistently increased and for-profit agencies were also found to provide significantly more visits than non-profit or public

agencies during this time. This behavior supported the notion that for-profit agencies were increasing services and providing more visits to increase profit rather than increase quality of patient care (General Accounting Office, 1996). Additionally, certain regions of the country utilized more HHC than others. For example, CMS region IV (region: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee) had the highest regional average during this period of time (Davitt & Choi, 2008e). As mentioned earlier, many of the observed differences were largely attributed to the lack of consistency between fiscal intermediaries.

In the mid-1990s, programs such as the Medicare Home Health Initiative were developed. One of its six goals was to ensure appropriate payments for the HHC benefit and enhance efforts to detect fraud and abuse within the Medicare HHC market (Davitt & Choi, 2008e) (Vladeck and Miller article) however, out of 219 cases of potential fraud and abuse reported within the five states studied, only 20 % were HHC agencies and only one conviction was a HHC agency (OIG, 1995; (Davitt & Choi, 2008e).

The Balanced Budget Act of 1997

From 1994 to 1996 there was an actual decrease in HHC expenditures, but amid a Republican controlled Congress whose focus was cutting overall health care costs, a new law was developed to enforce additional cuts to the Medicare program including changes to the HHC reimbursement structure (Davitt & Choi, 2008e). Home health care remained one of the few Medicare markets still being paid under a fee-for-service reimbursement model, making it an easy target. Congressional concern for Medicare spending and health care cost including hospital inpatient and home health care outpatient payments, led to the development and passage of the Balanced Budget Act (BBA) of 1997 which

imposed a prospective payment model on home health care for the first time. In order to reduce Medicare spending, the BBA reduced reimbursement payments to health service providers including HHC. The BBA is most notable for developing the Interim payment system (IPS) of 1997 and the Prospective Payment System (PPS) of 2000.

The BBA introduced the Interim Payment System (IPS) in order to restrain the rapid growth of Medicare expenditures by providing incentives for HHC agencies to control spending (Davitt & Marcus, 2008; Davitt & Choi, 2008c). With the goal of eventually enacting the Prospective Payment System (PPS), CMS first implemented the IPS under the BBA in 1997 to immediately constrain expenditures (Kulesher, 2006; Murtaugh, McCall, Moore, & Meadow, 2003). The IPS implemented an agency-specific, per-beneficiary payment limit for the first time in the history of the Medicare program (Huckfeldt, Peter J., Sood, Escarce, Grabowski, & Newhouse, 2014). This limit was not case-mix adjusted for patients' health characteristics, functional status, and service needs and was based on HHC cost data from 1993 (Davitt & Kaye, 2010; General Accounting Office, 1998). The IPS resulted in dramatically reduced reimbursements for most home health agencies. Significant changes to the Medicare HHC agency mix were documented after the IPS was implemented. After its enactment, the number of agencies leaving the Medicare HHC market (termination) increased dramatically between 1996 and 1999 (Choi, Sunha & Davitt, 2009; Huckfeldt, P. J., Sood, Romley, Malchiodi, & Escarce, 2013; Liu, Long, & Dowling, 2003). Specifically, for-profit and HHC agencies in CMS region VI (Dallas) were more likely to leave the market, while institution-based and larger HHC agencies were less likely to leave the market compared to non-profit, free standing, and small HHC agencies respectively (Choi, Sunha & Davitt, 2009).

The IPS also resulted in changes to the amount and type of HHC provided as well as the type of patients receiving care. Agencies made across-the-board cuts in the number of visits provided to patients during the IPS to address the dramatic financial cuts (Davitt & Marcus, 2008; Davitt & Kaye, 2010; Lin, Kane, Mehr, Madsen, & Petroski, 2006; Liu et al., 2003; McCall, N., Petersons, Moore, & Korb, 2003). For example, the odds of HHC use significantly decreased 28 % for hip fracture and 20 % for congestive heart failure patients in 1998 (Lin et al., 2006). Davitt and Marcus (2008) found that service reductions were more extreme for patients with greater impairments in health, activities of daily living and cognition. McCall and colleagues (2003) studied whether the BBA impacted vulnerable subgroups including females, non-whites, and people 85 and older. They found decreases in HHC use during the IPS period for beneficiaries over the age of 85 and a greater decrease in number of visits for patients over 85 with comorbidities. Additionally, researchers found that HHC patients with more functional impairments (Liu et al., 2003) and those who racially identified as African American or other (Davitt & Kaye, 2010; McCall, N. et al., 2003; McCall, Nelda, Komisar, Petersons, & Moore, 2001) experienced greater decreases in the number of HHC visits during the IPS period. In addition to decreasing the number of visits provided to HHC patients, agencies also adjusted the types of services offered. Research shows that under the IPS, agencies cut staff and visits for non-skilled services such as home health aides and medical social work more than skilled (nurses, therapists) services (Davitt & Choi, 2008a; Davitt & Choi, 2008e; Davitt, 2009a; Komisar, 2002; McCall, N. et al., 2003; McCall, Nelda et al., 2001). In 1997 the number of skilled and home health aide visits was almost equal, but by

2001, 75 % of all visits were provided by skilled staff with only 25 % provided by home health aides (Murtaugh et al., 2003).

In contrast, although part of the same legislation, the PPS introduced later in 2000 balanced out many of the negative effects that the IPS imposed upon the Medicare HHC market. The PPS reimbursed agencies for a 60-day episode of care that was case-mix-adjusted based on patients' health characteristics, functional status, and service needs (Huckfeldt, P. J. et al., 2013). The ultimate goal of the PPS was to control costs by tying payments directly to patient acuity levels. Home health care agency staff use a comprehensive health and functional status assessment (known as OASIS) to assign an acuity level to each patient (Davitt, 2009a; Huckfeldt, P. J. et al., 2013). The major problem with the PPS is that the base rate for this new system adjusted by case-mix, was established using cost data from the severely cut IPS (Davitt, 2009a). Significant changes to the Medicare HHC agency mix were documented after the PPS was implemented. Even though the decline in the number of active agencies continued after the introduction of the PPS, the size of that decline was less steep, from 20 % during the IPS to 11 % during the PPS (Choi, Sunha & Davitt, 2009). After its enactment, between the years of 1999 and 2002, the number of new agencies increased by 78 % and the number of agencies leaving the market decreased by 88 % (Choi, Sunha & Davitt, 2009). During the PPS, size, region, and having a branch office were significantly associated with the likelihood of leaving the HHC market (Choi, Sunha & Davitt, 2009). Notably, HHC agencies with a branch were approximately 2.5 times more likely to close than those without (Choi, Sunha & Davitt, 2009). Overall, for-profit and freestanding agencies consistently experienced instability throughout the IPS and PPS, with the greatest number

of agency closures in CMS coded region VI (Dallas) during both the IPS and PPS (Choi, Sunha & Davitt, 2009).

After enactment of the PPS, the reimbursement was structured to reward more therapy visits, therefore agencies admitted more patients needing therapy and provided more therapy in order to get higher reimbursements (Davitt & Choi, 2008e; Davitt, 2009a; Kim & Norton, 2015b; McCall, Nelda et al., 2001). Specifically, agencies received 2000 dollars for providing 10 or more therapy visits to each patient, thus incentivizing agencies to prescribe at least 10 therapy visits to more patients than might have actually needed such care (Kim & Norton, 2015b). Examples of skilled therapy services include occupational therapy, physical therapy and speech-language pathology services (Medicare, 2017). Consistent with the PPS financial incentives, therapy visits increased by 8.4 % under the PPS although total visits per episode were 16.6 % lower in the PPS compared to the IPS (Schlenker, Powell, & Goodrich, 2005). Visit changes varied by type of HHC service. For example, therapy visits increased while home health aide visits decreased by 44.9 % during the PPS (Schlenker et al., 2005). However, under the PPS, agencies could recertify patients for unlimited episodes of care, allowing the agencies to continue to provide services to existing patients (Kim & Norton, 2015b). As long as an agency's costs per patient remained under the PPS capitated rate for that patient, the agency could maintain its fiscal well-being.

Previous literature suggests that agencies strategically adjust their practice behaviors and patterns under new reimbursement policies in order to remain fiscally solvent (FitzGerald, Boscardin, & Ettner, 2009; Kim & Norton, 2015a; Kim & Norton, 2015b; Kulesher, 2006; Lin et al., 2006). These gaming practices have also had ripple

effects throughout the health care system. More stringent admissions practices in HHC resulted in more patients being discharged from hospital to Skilled Nursing Facilities (SNF) or inpatient rehabilitation prior to receiving HHC. This practice may have reduced Medicare expenditures on HHC but likely increased overall costs in the Medicare program (Davitt & Marcus, 2008; Lin et al., 2006). Research also suggests that agencies prescribe more services when there are greater financial incentives for the agency (Huckfeldt, P. J. et al., 2013; Kim & Norton, 2015a; Kulesher, 2006; McCall, N. et al., 2003; Murtaugh et al., 2003; O'Connor, Hanlon, Naylor, & Bowles, 2015). The problem is that these practices of cutting, increasing and/or modifying services do not necessarily enhance patient access, quality of care, program effectiveness or cost effectiveness (Davitt & Choi, 2008e).

Research has also documented a negative impact on informal caregivers. One study demonstrated that patients with informal caregivers received fewer self-care support services and experienced greater decreases in skilled and nonskilled HHC visits than patients without caregivers (Davitt, 2009a). Home health care agencies placed greater demand on patients and their families to provide informal care in order to reduce the number of visits provided or the length of the care episode (Davitt, 2009a). The HHC payment restrictions enforced under the BBA increased the caregiving burden on low-income families (Golberstein, Grabowski, Langa, & Chernew, 2009). Without the additional funds to pay for formal HHC, low-income families are forced to substitute direct care to make up for the reduced services provided by the HHC agencies. Higher income families are more likely able to offset the reduced services by privately financing formal care (Golberstein et al., 2009).

While previous research has extensively conveyed the effects of the BBA on the Medicare HHC market, staff practice behaviors and patients, there is no research to date that demonstrates the effect of more recent reimbursement cuts made by the ACA on HHC. Also, more often prior research only used quantitative methods to describe changes to Medicare HHC, leaving researchers to make assumptions and recommendations without qualitatively exploring the meaning of policy changes to directors of HHC agencies and how they managed the reimbursement cuts. One study used both qualitative and quantitative methods to explore changes to Medicare HHC after the implementation of the BBA (Davitt, 2009a), however their qualitative interviews did not extend beyond the state of Pennsylvania. In order to build upon the quantitative and qualitative methods used in past studies and answer questions surrounding the most recent policy changes, the current study focused on the ACA-mandated HHC reimbursement cuts and included qualitative interviews from home health care directors of agencies in different regions of the country.

Theoretical Framework

The current study utilized game theory and agency theory as the conceptual framework. Taken together to investigate the actions and strategies of HHC agencies after the ACA mandated reimbursement cuts, these theories can provide critical insights into the behavior of HHC directors. These two theories are well matched because of their common assumptions that participants recognize one another as players in the game and the presumption of incomplete information. Together they provide an explanatory model of decision-making that can be used to anticipate the factors that promote the strategy of HHC agencies. By doing so, a more complex story can be developed about HHC strategy

under current policy than the one that assumes that each HHC agency is trying to make the right next decision. By examining the social structure that HHC staff are embedded in, their decision insights can be captured.

Game Theory.

Game theory is the science of strategy(Davis, 1998). It is concerned with decisions in which outcomes depend on the actions of two or more decision makers called players and where each player has two or more ways of actions, called strategies (Dowd, 2004). Game theory helps to explain strategic decisions of players by examining their current behaviors and probable outcomes (Ford, 2004). This theory assumes that people generally try to do the best for themselves in light of their beliefs (Dowd, 2004). Within the HHC market, we trust that agencies and staff generally interpret policy and make decisions in the best interest of the patients. However, depending on the level of risks or incentives for the agency, they may ultimately act out of self-interest, in this case to stay fiscally stable. Previous research used game theory as a conceptual framework to help explain the behavior of HHC staff after implementation of past policies that affected the HHC reimbursement structure (Davitt & Choi, 2008e; Dowd, 2004; Ford, 2004). Researchers found HHC agencies would game the system by strategically altering their admissions and service delivery patterns and practices in response to policy changes, in order to continue to provide services while maintaining fiscal stability (Dowd, 2004; Ford, 2004). This led to fraud in either overuse or under-use of the HHC benefit depending on how the policy was written (Davitt & Choi, 2008e; Dowd, 2004; Ford, 2004). For example, the PPS implemented under the BBA indirectly incentivized staff to provide more therapy to patients because providers were allowed 2000 dollars for each

patient prescribed ten or more therapy visits (Kim & Norton, 2015b). Historically, HHC policy has been written in a way that encourages providing services rather than incentivizing staff to improve or maintain the health of beneficiaries (Davitt & Choi, 2008e; Dowd, 2004).

Agency Theory.

Agency theory is an economic theory that focuses on understanding the relationship between principals and agents. The word agency in this theory is not to be confused with HHC agencies as used thus far in describing the current study. Agency refers to the relationship (contract) between principal and agent in which the agent represents the principal in a transaction with a third party. This relationship occurs when the principal hires the agent to perform a service on the principal's behalf. The principal often delegates all decision making to the agent. In most cases, the agent utilizes the resources of the principal, therefore although the agent is the decision maker, they are incurring little to no risk because all losses will be the burden of the principal. In the current study, it is posited that Medicare policy is the principal. First, agency theory suggests that an agency problem occurs when the desires or goals of the principal and agent conflict. Historically, Medicare policy has not been generous in terms of the HHC benefit because Medicare held all of the risk and costs. Agency theory further suggests that it is difficult or expensive for the principal to verify what the agent is actually doing and as a result the principal cannot verify that the agent has behaved appropriately. This theory also suggests that the principal and agent have different attitudes towards risk and may prefer different actions because of different risk preferences. As applied to Medicare HHC, it has been very difficult for Medicare to monitor the quality and appropriateness

of services provided by HHC agencies. In Medicare HHC history, this has been one of the most challenging parts of HHC policy. In the study model, the patient has no real decision-making role, assumes little financial risk and therefore is not the principal.

Integrating and Applying Game and Agency Theory

There are two major constructs that are significant to understanding both game and agency theory as they apply to HHC, 1) moral hazard and, 2) the agency problem. Moral hazard is a construct related to agency theory that implies that the agent is willing to take greater risk because they do not bear the costs of the risks taken. It occurs when one party in a transaction has the opportunity to assume additional risks that negatively affect the other party. The decision is not based on what is considered right, but what provides the highest level of benefit. In a moral hazard, each party in a contract may have the opportunity to gain from acting contrary to the principles laid out by the initial agreement (Ross, 1973). One example of how moral hazard applies to HHC, in which the HHC agencies are the agent and Medicare is the principal, was after the release of two transmittals from CMS in 1984 and 1986, respectively. Under fee-for-service, HHC agencies were willing to provide more services because there was no cost-sharing mechanism, they would simply get paid for providing more services while Medicare bore the cost. Due to the policy enforced by the transmittals and tighter rules of eligibility, agencies bore the brunt of the risk which left the agency to eat the cost of any patient care that was subsequently denied for reimbursement. Thus, agencies strategically controlled who they served in order to avoid such reimbursement denials.

Another example is after the BBA, especially under the IPS, where the agency shared in the cost responsibility and could end up taking on the costs of patients who

were admitted if they were then denied or if cost of the patient's care was greater than the capitated amount. As a result, HHC agencies made across the board cuts in the number of visits provided to patients during the IPS. On the other hand, during the PPS, providers were reimbursed \$2000 for every patient who received 10 therapy visits or more which incentivized the prescription of more therapy for patients. Therefore, the reimbursement policy was more generous, HHC agencies could do more and accordingly their allegiance shifted back to the patient. Thus, the policy, through behavior incentives, is shifting agency alignment between the patient and the Medicare program.

An agency problem is a conflict of interest inherent in any relationship where one party is expected to act in another's best interest. The agent is supposed to make decisions that will maximize the well-being of the principal even though it may be in the agent's best interest to maximize their own well-being. The agency problem arises due to issues of incentives or risks. An agent may be motivated to act in a manner that is not favorable for the principal if the agent is presented with an incentive to act in this way. For example, in HHC, it should be the goal of the agency and staff to interpret Medicare policy in the patient's best interest, provide the best quality of care, discontinue care when patients are well, and never over or under prescribe care. However, previous Medicare policy has been written in a way that incentivized HHC agencies to act out of self-interest and be invested in providing health care services rather than investing in health.

Taking the strategy of gaming and merging it with agency theory, one posits that gaming is the practice of implementing the "agency contract" between agent and principal. Gaming within the HHC system incorporates the strategic decisions that the

agent must make in order to get the most out of the relationship (agency contract) between itself and the principal. The thought process that goes into the decisions made by the agent is directly related to the concepts of moral hazard and the agency problem. What one stands to lose or gain in the relationship will drive the gaming behaviors and thus dictate practice decisions made by the HHC agency (agent). The HHC agency may be motivated to act in a manner that is not favorable for the principal if presented with an incentive to do so within the reimbursement structure. The agent is the mediator in this model and whether the agent aligns with the Medicare beneficiary (expansionary period) or the Medicare system (restrictive period) is totally dependent on the incentives or risks embedded within the policy. Whether the policy offers more risk to the agent derives from assumptions that are based in the ideological framework of those with administrative power at that given time.

Ultimately, the ideology of an era drives the political forces that influence policy changes. If under a needs-based political ideology, the policies implemented incentivize agencies to expand access to care because the risk lies with the principal, in this case Medicare beneficiaries. However, if the political ideology is market-based, the policies that are mandated are more restrictive and therefore offer more risks to the agencies and this incentivizes reducing access to care. For example, during the Reagan administration, the branches of government were fiscally conservative. Under the assumptions of the combined theory, an administration that is fiscally conservative has a market-based political ideology that produces more restrictive policies. During the Reagan administration, two transmittals were released from the CMS that first denied any care defined as daily and second defined daily care as any care needed for five or more days.

These changes in policies offered more risks to the agent in the game, HHC agencies, and therefore the observed gaming behavior was under-delivery of services to patients (Davitt & Choi, 2008d). This suggests that HHC providers would rather deny a patient care upfront than eat the cost of a denied claim later. Together, these two theories provide the theoretical framework for the development of all four aims and the questions asked in the semi-structured interviews of Aim four. See conceptual model below.

From a policy perspective, it is important for funders and policy makers to understand the conditions that influence the strategic decisions of HHC agencies after policy is mandated in order to better understand and predict their behavior. Ultimately, we want to be able to write informed policies that improve the decision-making of agents, while minimizing risk and costs to both the agents (HHC agencies and their providers) and the principal, who should ultimately be the Medicare beneficiaries. Patients should play a part in the decisions made regarding their care and policy should aim to maximize health care service to patients (Medicare beneficiaries).

Conceptual Model

Figure 2.1

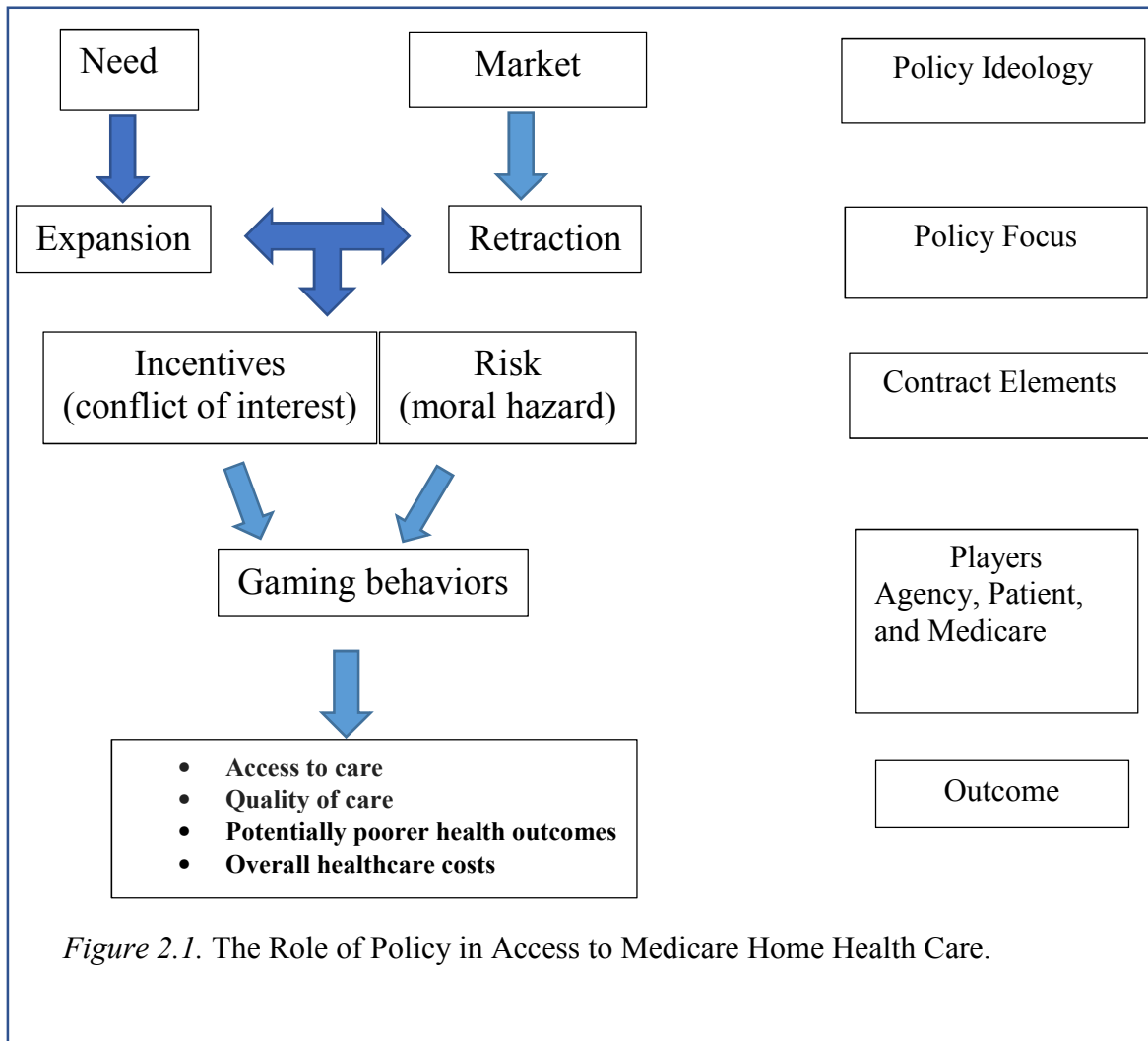


Figure 2.1. The Role of Policy in Access to Medicare Home Health Care.

Quantitative Data Source: The Medicare Provider of Service File

In this study, Medicare POS data created from the Quality Improvement Evaluation System (QIES) and collected through the CMS Regional Offices were analyzed. The Medicare Provider of Services (POS) file which is publicly available data on all health care provider types, including HHC, was used to examine Aims one to three. The file contains data on HHC agency characteristics such as the name and address of the agency, agency demographics, facility size, the type of Medicare services provided, the agency number, Medicare certification status, agency affiliation, tax status and the number and types of staff (Centers for Medicare and Medicaid Services, 2017). The file contains an individual record for each Medicare-approved provider and is updated quarterly (Centers for Medicare and Medicaid Services, 2017). The unique feature of the POS file as a cumulative dataset is that for a given year, it includes all new, active, and terminated Medicare HHC agencies with termination/decertification dates. In this study the terms termination, exiting the market and leaving the market are used interchangeably to describe the action of a HHC agency that is decertified from the Medicare HHC program for any reason in any given year of interest. This research study used POS data from the years of 2010 through 2017. The years of 2010-2013 represent the period before the enactment of the ACA-mandated reimbursement cuts and the years 2014-2017 represent the period after the start of the reimbursement cuts. This study included all active (new/existing) and terminated Medicare-certified HHC agencies for each calendar year of interest in the entire population of Medicare-certified agencies. To examine the effects of Medicare-related changes in the ACA, agencies that were only Medicaid certified were excluded.

Table 3.1

Table 3.1

Key Constructs and Operational Definitions

Univariate Analysis		
Variable Name	Operational Definition	Dependent or Independent Variable
Agency Status	<p>*ACTIVE THROUGHOUT: Any agency that was “already open in a given period and was not decertified from the Medicare HHC program for any reason within the given period” was categorized as an “active throughout” agency.</p> <p>*NEW: Any agency that became “Medicare certified in a given period and was not decertified from the Medicare HHC program for any reason during that period” was coded as a “new” agency for that period</p> <p>ACTIVE: Any agency that is “active throughout and new but not terminated for any reason within the given period” was categorized as “active”.</p> <p>*TERMINATED: Any agency that became “Medicare certified in a given period and was decertified from the Medicare HHC program for any reason within that period” or any agency that was “already open in a given period and was decertified from the Medicare HHC program for any reason within that period was coded as a “terminated” agency for that period.</p>	
Termination	Any agency that was decertified from the Medicare HHC program for any reason during the calendar year was coded as a terminated agency (1) and any agency that was not terminated was coded (0)	Dependent

Note. *Medicare POS variable name

Continued: Table 3.1

Key Constructs and Operational Definitions

Multivariate Analysis		
Variable Name	Operational Definition	Dependent or Independent Variable
Decrease in total staff count	<p>Decrease in total staff count: yes (1) and no decrease (0)</p> <p>Average for total staff count variable:</p> <ol style="list-style-type: none"> 1. For each agency, a total staff count variable was created. 2. This variable was then averaged across the four years in each time period. 3. For each agency, the average of period 1 (2010-2013) was then compared to the average total staff count for period 2 (2014-2017). 4. If the staff count decreased from period 1 to period 2, it was coded Yes (1). 5. If the staff count increased or remained the same from period 1 to period 2, it is coded No (0). <p>For example: agency X (period1) 2010: 5 (total staff) 2011: 6 (total staff) 2012:6 (total staff) 2013:5 (total staff)</p> <p>Therefore, for agency X, the average total staff count is 5.5 for period 1. The same steps are used for period 2. If the average total staff count for period 2 is 4.5, then it is coded YES agency decrease in total staff.</p>	Dependent
Size	<p>The total number of employees per agency, including all categories of staff.</p> <p>Number of staff in each category: Registered Nurses, Licensed Practical Nurses, Occupational Therapy, Physical Therapy, Speech Therapy, Medical Social Work, Home Health Aides, administrative staff.</p> <p>Large agency: 50 or more staff Small agency: Less than 50 staff</p>	Independent

Continued: Table 3.1

Key Constructs and Operational Definitions

Multivariate Analysis		
Variable Name	Operational Definition	Dependent or Independent Variable
Agency affiliation	<p>*Either freestanding (1,2,3), institution-based (affiliated with a larger health care provider such as a hospital or skilled nursing facility: 4,5,6) or other (07)</p> <p>01 = Visiting Nurse Association 02 = Combination Government Voluntary 03 = Official Health Agency 04 = Rehabilitation Facility Based Program 05 = Hospital-Based Program 06 = Skilled Nursing Facility Based Program 07 = Other</p> <p>Re-code 0 = Freestanding (1,2, 3) 1 = Institution-based (4, 5, 6) 2 = Other (7)</p>	Independent
Tax Status	<p>*Nonprofit (nonprofit combines nonprofit and public: 1,2,3,5,6,7) or for-profit (4)</p> <p>01 = Voluntary Non-Profit- Religious Affiliation 02 = Voluntary Non-profit-private 03 = Voluntary Non-profit-other 04 = proprietary 05 = Government-State/County 06 = Government -Combination Govt & Voluntary 07 = Government-Local</p> <p>Re-code 0 = Non-Profit (1, 2, 3, 5, 6, 7) 1 = For-Profit (4)</p>	Independent

Note. *Medicare POS variable name

Continued: Table 3.1

Key Constructs and Operational Definitions

Multivariate Analysis		
Variable Name	Operational Definition	Dependent or Independent Variable
CMS Region Code	<p>*The CMS has ten Regional Offices: Boston, New York, Philadelphia, Kansas City, Denver, San Francisco, Chicago, Seattle, Atlanta, and Dallas (CMS, 2017). In this study, Boston is the reference group.</p> <p>Each regional office contains data on multiple states, for example the Dallas region includes: NM, OK, AR, TX, and LA. For this reason, there is dependency in the data. As a result, the independence of observance assumption is violated, making the data heteroscedastic. In order to adjust for the dependency in the data, we will control for CMS region code and we will use the Huber Sandwich Estimator. The Huber Sandwich Estimator can be used to estimate the variance of the maximum likelihood estimation when the underlying model is incorrect (Freedman)</p> <p>Note: It is important to identify each region because there may be different fiscal intermediaries and case mixes (types of injuries and severity) within each region that may affect claims processing and use rates.</p>	Independent
Having a branch or not	<p>*Does the agency have branch offices: Yes/No. Definition: branch offices are located within a parent agency's geographic area, and share supervision, administration, and services with the parent agency on a daily basis.</p>	Independent

Note. *Medicare POS variable name.

Descriptive Analysis of the Effects of ACA Reimbursement Cuts on the HHC market

This chapter reviews the number of new, active and terminated HHC agencies before and after the ACA reimbursement cuts. Specifically, the number of HHC agencies that were active throughout the period, new, and new and then terminated within the period, were counted for the four-year period before the ACA-mandated reimbursement cuts (2010-2013) and the four-year period after the start of the first reimbursement cut (2014-2017). This chapter first describes the methodology of Aim one including the rationale, analytical sample, descriptive analysis, analytic strategy, and model. The results are presented next followed by the discussion.

Aim 1

To determine the effects of ACA reimbursement cuts on the number of HHC agencies operating in the Medicare HHC Program (market mix).

Hypothesis 1.A.

There will be fewer active agencies, in the Medicare HHC program, post ACA reimbursement cuts.

Hypothesis 1.B.

There will be fewer new HHC agencies entering the Medicare HHC program post ACA reimbursement cuts.

Methods

Rationale and Analytic Strategy.

A review of the literature identified that currently, there is no assessment of the number of new, active, and terminated HHC agencies before and after the ACA reimbursement cuts. Thus, for each year, the numbers of four types of HHC agencies (active, new, terminated, and new and terminated within the period) were reviewed. Among all the agencies, their characteristics (listed in operational definitions) were cross-tabulated by periods. Percent change was then calculated between 2010 - 2013 (before period), and between 2014 - 2017 (post reimbursement cut period).

A descriptive analysis was conducted to test the hypotheses under Aim one in order to understand HHC agencies and their characteristics between 2010 -2013, and 2014 -2017 and to compare between the two periods. For each year, the numbers of three types of HHC agencies (active, new, and terminated) were counted. Among all the agencies, their characteristics (listed in the chart of measures) were cross-tabulated by periods. Percent change was then calculated between 2010 - 2013 (before period), and 2014 - 2017 (post reimbursement cut period).

Analytical Sample.

For Aim one, HHC agencies must have been active throughout, new and/or terminated within the period in either one of the two periods (2010-2013, 2014-2017), in order to be included in the sample. Data is collected through a mandatory regionally collected survey, therefore missing data was found on 0 % of cases. All study analyses were conducted on Medicare certified agencies. For all Aims, any agency that was terminated

before the respective time period was not included in the analytic sample for that time period.

Results

Of the 13,878 HHC agencies between 2010 and 2013, 9,813 (70.7 %) agencies were active throughout the four-year period. Between 2014 and 2017, there were 13,702 agencies, with 10,743 (78.4 %) agencies remaining active throughout the period. The number of agencies remaining active throughout increased by 9.5 % between the pre (2010-2013) and post (2014-2017) periods (*Table 4.1*). However, when looking at all active agencies including active throughout and new, the numbers decreased between the pre and post time periods by 5.4 % (*Table 4.3*). In addition, the number of agencies leaving the program increased between the pre and post periods by 37.4 % (*Table 4.1*). Each year between the years 2010 and 2017, the number of new agencies steadily decreased with a drastic decrease from 604 new agencies in 2013 to 360 in 2014, the first year of reimbursement cuts (*Table 4.2*). In each year approaching the first reimbursement cuts in 2014, the number of terminated agencies rises. The two highest numbers of terminated agencies occurred during the two years with the largest reimbursement cuts, 2014 and 2016 (*Table 4.2*).

Tables 4.1 & 4.2

Table 4.1

Changes in Number of Active, New, & Terminated Agencies Between Two Periods

Variable Name	2010-2013	2014-2017	Percent Change (%)
Active throughout, N, %	9813(70.7)	10743(78.4)	9.5
New, N, %	2713(19.5)	1101(8)	-59.4
Terminated, N, %	1352(9.7)	1858(13.6)	37.4

Note. N = 13,878 for years 2010 – 2013 and N = 13,702 for years 2014 – 2017.

Table 4.2

The Number of New, Terminated, and Active HHC agencies by Year

Year	New	Terminated	Active
2010	856	224	10741
2011	765	281	11317
2012	694	404	11682
2013	604	443	11944
2014	360	562	11972
2015	338	427	11900
2016	320	559	11682
2017	158	310	11688

Counts & Rates of Change by HHC agency characteristics

Tax Status.

Both for profit and not-for-profit active agencies decreased between the pre and post periods. However, the percentage of not-for-profit agencies decreased more than (-11.9 %) for profit agencies (-3.8 %).

Affiliation.

The number of both free-standing and institution-based agencies decreased between the pre and post periods, with free-standing agencies experiencing a greater decrease (-12.3 %) compared to institution-based agencies (-11.5 %).

CMS code region.

The number of agencies increased among four out of the ten CMS coded regions (Boston, Philadelphia, Denver, and San Francisco). The Boston region experienced the largest increase after the reimbursement cuts. Six out of the ten regions experienced declines after the reimbursement cuts (New York, Atlanta, Chicago, Dallas, Kansas City, and Seattle). Among them, the largest decline was in the New York region. There were 251 agencies in the New York region between 2010 and 2013, but only 214 agencies in the market between 2014 and 2017, the number decreased by 14.7 %.

Size.

Small HHC agencies with less than 50 staff members experienced a slightly greater decline (-5.5 %) than large agencies with staff of at least 50, for which the number of agencies decreased by only 5 %.

Branch.

The number of agencies with one or more branch offices decreased by 3.6 % after the reimbursement cuts while agencies without a branch office experienced a slightly higher decrease by 5.7 %.

Table 4.3

Table 4.3

Changes in the Number of HHC Agencies (Active + New) by Agency Characteristics

Variable Name	2010-2013	2014-2017	Percent Change (%)
	Number (%)	Number (%)	
Active Tax Status	12526	11844	-5.4
Non-profit	2530 (20.2)	2228 (18.8)	-11.9
Profit	9996 (79.8)	9616 (81.2)	-3.8
Affiliation			
Free standing	2101 (16.8)	1842 (15.6)	-12.3
Institution-based	993 (7.9)	879 (7.4)	-11.5
Other	9432 (75.3)	9123 (77)	-3.3
CMS Region Code			
1-Boston	370 (3)	459 (3.9)	24.1
2-New York	251 (2)	214 (1.8)	-14.7
3-Philadelphia	808 (6.5)	837 (7.1)	3.6
4-Atlanta	2128 (17)	1857 (15.7)	-12.7
5-Chicago	2871 (22.9)	2647 (22.3)	-7.8
6-Dallas	3443 (27.5)	3004 (25.4)	-12.8
7-Kansas City	546 (4.4)	522 (4.4)	-4.4
8-Denver	373 (3)	396 (3.3)	6.2
9-S. Francisco	1555 (12.4)	1729 (14.6)	11.2
10-Seattle	181 (1.4)	179(1.5)	-1.1
Agency Size ^a			
Large ≥50	1400 (11.2)	1330 (11.2)	-5
Small <50	11126 (88.8)	10514 (88.8)	-5.5
Has a branch			
No	10868 (86.8)	10245 (86.5)	-5.7
Yes	1658 (13.2)	1599 (13.5)	-3.6

Note. ^a Agency Size represents the total number of staff.

Discussion

The current study accepts both hypotheses. First, there was a decrease in the number of active HHC agencies in the post-ACA reimbursement cut period compared to the period before ACA reimbursement cuts. Second, there were fewer new HHC agencies entering the Medicare program post-ACA reimbursement cuts compared to the period prior to ACA reimbursement cuts.

The results of hypothesis 1A (there will be fewer active agencies in the Medicare HHC program, providing HHC post ACA reimbursement cuts) is similar to previous research which determined the number of active HHC agencies decreased after the implementation of both the IPS and the PPS (Choi, S. & Davitt, 2009a). Much of the change in active agencies may be due to the reduction in the number of new agencies entering the market leading up to and after the reimbursement changes. In 2010, there were 856 new agencies entering the market compared to 604 agencies in 2013, the year before the reimbursement cuts. In 2014, the first year of the reimbursement cuts, the number of new agencies entering the market drastically decreased from 604 to 360 new agencies and continued to decrease throughout the period, down to 158 new agencies entering the market in 2017.

The results of Hypothesis 1B (there will be fewer new HHC agencies entering the Medicare HHC program post ACA reimbursement cuts) are also similar to the existing literature; in one study, researchers also found that there was a decrease in the number of new HHC agencies entering the market after the IPS and the PPS, although the number slightly increased after the PPS (Choi, S. & Davitt, 2009a). In *Table 4.1*, the overall number of new HHC agencies decreased after the reimbursement cuts (-59.4 %). *Table*

4.2 shows the slight decreases in the number of new agencies in every year before the reimbursement cuts with a drastic drop in 2014, the start of the reimbursement cuts. Our findings suggest that agencies were apprehensive to enter the market immediately before and particularly after the start of the reimbursement policy changes.

The results of Aim one underline the role of risks in influencing the gaming behaviors of HHC agencies before and during the reimbursement cut periods. We observed a gradual increase in the number of agencies exiting the market in the four years (2010-2013) leading up to the first year of reimbursement cuts, 2014 (*Table 4.2*).

Although the rebasing period started in 2014, it was authorized in 2010 under the ACA, therefore HHC directors were aware that the cuts would start soon. Some HHC agencies, therefore, may have predicted that they would not be able to sustain the period of reimbursement cuts and therefore exited the HHC market prior to the start of the reimbursement cuts as a protective mechanism.

It is also important to highlight the changes in the number of agencies exiting the market during the reimbursement cut period. This phase started in 2014 with the highest reimbursement cuts of \$200 million and \$260 million, in 2014 and 2016 respectively. These two years were also the same years that had the highest number of HHC agencies that exited the HHC market. As suggested in the study's conceptual model (*Fig. 2.1*), during restrictive periods, mandated policies are riskier to the players in the game which influence gaming behaviors that sometimes can lead to an outcome of under-delivery of services to Medicare beneficiaries. Every single agency that left the HHC market served a small segment of overall Medicare beneficiary population; every time an agency closes access for beneficiaries may be affected.

Limitations and Strengths

This analysis has some limitations. First, as found in a previous study that utilized Provider of Service data, the number of active agencies is a rough measure of capacity; thus, it may not accurately reflect the level of HHC services among Medicare beneficiaries (Choi, S. & Davitt, 2009a). For example, an increase in the number of active agencies in one CMS coded region such as Boston does not necessarily indicate increased access for all Medicare beneficiaries in the region. The actual increase may occur in only certain parts of the region, while in reality access to service is lower for Medicare beneficiaries in other areas of the region. Second, the data does not allow the determination of the reason for the increase in market exits or to determine whether an agency leaving the market decreased access to Medicare beneficiaries. It is possible that the service area was overpopulated with HHC agencies, therefore a decrease in agencies would not affect access. Additionally, many of the differences in characteristics of HHC agencies between the two periods are small, for example a percent change of -5.4 in the number of active HHC agencies from period 1 to period 2. It is possible that a difference so small is not impactful to the overall HHC market. Last, this analysis did not determine if these market exits were for more long-term agencies or ones that had entered the market recently.

This study also has several benefits. Aim one is the first analysis to compare the number of active and new HHC agencies in the HHC Market after the ACA-mandated reimbursement cuts. Also, this study compares frequencies from two four-year periods instead of comparing single years; specifically, the frequencies from a four-year period before the reimbursement cuts (2010-2013) to the four-year period after the

reimbursement cuts, 2014-2017. Comparing one single pre and post year does not account for the time it may take for HHC agencies to adjust to policy changes and realize its full impact. Moreover, since the policy was implemented over multiple years it was critical to include these years in the analysis.

Conclusion

Future policies should consider the impact of reimbursement cuts on HHC agency exits from the market and sustainability and how this plays a role in access to HHC services for Medicare beneficiaries. Future studies should also utilize more comprehensive data to assess the impact of decreases in the number of agencies on actual HHC agency capacity to provide quality services to Medicare beneficiaries.

Multivariate Analysis of the Effects of ACA Reimbursement Cuts on the HHC market

This chapter presents results related to which agency characteristics were associated with higher odds of exiting the HHC market during each time period (before and after the ACA-mandated reimbursement cuts) separately. This chapter first describes the methodology of Aim two including the rationale, analytical sample, independent and dependent variables, analytic strategy, and models. The results are presented next followed by the discussion.

Aim 2

To determine which agency characteristics are associated with termination from the Medicare HHC program, in two different periods, both before and after implementation of the ACA reimbursement cuts.

Hypothesis 2.A.

Free standing HHC agencies will be more likely to terminate from the Medicare HHC program post ACA reimbursement cuts than institution-based HHC agencies.

Hypothesis 2.B.

For-profit HHC agencies will be more likely to terminate from the Medicare HHC program post ACA reimbursement cuts than non-profit HHC agencies.

Hypothesis 2.C.

Agencies in certain CMS coded regions of the United States will be more likely to terminate from the Medicare HHC program post ACA reimbursement cuts.

Hypothesis 2.D.

Small HHC agencies will be more likely to terminate from the Medicare HHC program post ACA reimbursement cuts than large HHC agencies.

Hypothesis 2.E.

Having at least one branch office will be associated with the odds of terminating from the Medicare HHC program post ACA reimbursement cuts.

Methods

Rationale & Analytic Strategy.

The current literature lacks an assessment of the odds of certain types of HHC agencies terminating from the HHC market, based on their specific characteristics before and after the ACA reimbursement cuts. Thus, multivariate logistic regression procedures were used to determine if any and which agency characteristics (independent variables) were associated with higher odds of termination (dependent variable) in two separate time periods (e.g. pre-ACA and post-ACA). Multivariate logistic regression was used to determine the direct effect of the agency characteristics on market termination, after adjusting for other agency characteristics. Its parameters are estimated by maximum likelihood method. The adjusted odds ratio (aOR) comparing the relative importance of different agency characteristics for the odds of termination were reported. Wald tests can be used to test the true value of the parameter based on the sample estimate. In this study, Wald tests were used to determine whether a certain predictor variable was significant or not. For assessing model fit, Pearson's Chi Square Test and Hosmer-Lemeshow's Test of the goodness of fit were computed.

Analytic Sample.

All agencies that were either active or terminated within each specific time period were included in the analysis. Data is collected through a mandatory regionally collected survey, therefore missing data was found on 0 % of cases.

Independent and Dependent Variables.

In this study, the characteristics of HHC agencies are the independent variables: tax status (nominal), affiliation (nominal), CMS region code (nominal), agency size (dichotomous), and having at least one branch office (dichotomous). The dependent variable was the odds of termination (dichotomous) from the HHC market during each period (2010-2013 and 2014-2017). In previous research on earlier policy changes, non-profit tax status, free-standing affiliation, and having no branch offices were included in the literature as the reference group. This study replicated previous study methodology. The CMS region “Boston” was used as the reference group because in previous research, after the IPS in 1999 (the first major policy to mandate drastic changes to the reimbursement structure), Boston was the most stable region with lower odds of termination than all other regions relative to the reference group. In addition, the fact that more agencies opened in this region during the current period of reimbursement cuts, may indicate that this region’s HHC market is more robust and its HHC economy more stable.

The analysis for Aim two examined the relationship between certain HHC agency characteristics and market exits for two different periods of time, before the ACA reimbursement cuts (2010-2013) and after the ACA reimbursement cuts (2014-2017).

Model for Aim 2.

$$\text{Logit} \left(p \times \frac{\text{probability of termination}}{1-p} \right) = B_0 + B_1(\text{affiliation}) + B_2(\text{tax status}) + B_3(\text{size}) + B_4(\text{CMS Region}) + B_5(\text{Branch Offices})$$

Results

In the period before the ACA-reimbursement cuts (2010-2013), affiliation, region, size and having at least one branch office were significantly associated with the odds of a HHC agency terminating from the HHC market (*Table 5.1*). Institution-based agencies were less likely to exit the Medicare program than free-standing agencies, however, this result was not statistically significant. Other agencies were less likely to be terminated than free-standing agencies (aOR = 0.85, 95 % CI [0.73, 1.00], $p = 0.047$). Agencies in the New York and Atlanta regions had more than two times the odds of being terminated than those in the Boston region (aOR = 2.01 and 2.08, respectively). Agencies in the regions of Dallas and San Francisco were less likely to be terminated than those in the Boston region (aOR = 0.52 and 0.60, respectively). Small agencies with less than 50 staff members had two times the odds of being terminated, compared to large agencies (aOR = 2.09, 95 % CI [1.62, 2.73], $p < .001$). Agencies with at least one branch office had less than half the odds of being terminated than those without any branch locations (aOR = 0.46, 95 % CI [0.36, 0.57], $p < .001$).

Table 5.1

Table 5.1

The Odds of Agency Termination by Agency Characteristics and Period, 2010 - 2013

Variable Name	Univariate		Multi-variate	
	OR (95 % CI)	<i>p</i> Value	OR (95 % CI)	<i>p</i> Value
Tax status				
Profit	0.94 (0.82, 1.08)	.406	1.06 (0.89, 1.26)	.534
Non-profit	1.00		1.00	
Affiliation				
Institution-based	0.91 (0.72, 1.15)	.429	0.83 (0.64, 1.08)	.170
Other	0.86 (0.74, 0.99)	.039	0.85 (0.73, 1.00)	.047
Free standing	1.00		1.00	
CMS Region Code				
2-New York	2.02 (1.27, 3.24)	.003	2.01 (1.26, 3.25)	.004
3-Philadelphia	0.72 (0.47, 1.13)	.144	0.68 (0.44, 1.07)	.089
4-Atlanta	2.38 (1.68, 3.47)	< .001	2.08 (1.45, 3.05)	< .001
5-Chicago	1.01 (0.71, 1.48)	.978	0.85 (0.59, 1.26)	.392
6-Dallas	0.64 (0.45, 0.95)	.020	0.52 (0.36, 0.78)	< .001
7-Kansas City	1.55 (1.03, 2.38)	.040	1.34 (0.88, 2.07)	.185
8-Denver	1.42 (0.90, 2.25)	.133	1.26 (0.80, 2.01)	.330
9-San Francisco	0.75 (0.51, 1.13)	.151	0.60 (0.40, 0.92)	.014
10-Seattle	0.76 (0.38, 1.44)	.414	0.70 (0.35, 1.34)	.298
1-Boston	1.00		1.00	
Agency Size ^a				
Small	2.34 (1.84, 3.03)	< .001	2.09 (1.62, 2.73)	< .001
Large				
Branch				
Yes	0.45 (0.36, 0.56)	< .001	0.46 (0.36, 0.57)	< .001
No	1.00		1.00	

Note. The Hosmer-Lemeshow goodness of fit test was used to assess model fit with $\chi^2 = 27.379$, $df = 18$, $p = .07216$; *Model acceptable at $\alpha = .05$; ^aTotal number of staff.

In the period after the start of the reimbursement cuts (2014-2017), the same variables were significantly associated with the odds of a HHC agency terminating from the HHC market: affiliation, region, size, and having at least one branch office (*Table 5.2*). Compared to free-standing agencies, other agencies and institution-based agencies were less likely to be terminated (aOR = 0.80, 95 % CI [0.69,0.92], $p = .002$ and aOR =

0.74, 95 % CI [0.58, 0.95], $p = .018$). Agencies in the regions of New York, Atlanta, and Chicago were more likely to be terminated than those in the Boston region (aOR = 2.25, 1.86, and 1.41, respectively). Agencies in the San Francisco region were less likely to be terminated than those in the Boston region (aOR = 0.68, 95 % CI [0.49, 0.96], $p = .026$). Small agencies with less than 50 staff had 1.68 times the odds of being terminated, compared to large agencies (aOR = 1.68, 95 % CI [1.35, 2.10], $p < .001$). Agencies with at least one branch office were less likely to be terminated than those without any branch locations (aOR = 0.31, 95 % CI [0.24, 0.39], $p < .001$).

Table 5.2

Table 5.2

The Odds of Agency Termination, by Agency Characteristics and Period, 2014-2017.

Variable Name	Univariate		Multivariate	
	OR (95 % CI)	<i>p Value</i>	OR (95 % CI)	<i>p Value</i>
Tax Status				
Profit	0.92 (0.82, 1.04)	.196	1.01 (0.86, 1.19)	.883
Non-profit	1.00		1.00	
Affiliation				
Institution- based	0.70 (0.56, 0.87)	.002	0.74 (0.58, 0.95)	.018
Other	0.78 (0.69, 0.88)	< .001	0.80 (0.69, 0.92)	.002
Free standing	1.00		1.00	
CMS Region Code				
2-New York	2.27 (1.50, 3.45)	< .001	2.25 (1.47, 3.46)	< .001
3-Philadelphia	1.06 (0.75, 1.53)	.731	1.01 (0.71, 1.46)	.961
4-Atlanta	1.92 (1.43, 2.65)	< .001	1.86 (1.37, 2.58)	< .001
5-Chicago	1.53 (1.13, 2.10)	.007	1.41 (1.04, 1.95)	.030
6-Dallas	1.58 (1.17, 2.16)	.003	1.35 (1.00, 1.86)	.057
7-Kansas City	1.21 (0.83, 1.78)	.335	1.07 (0.73, 1.59)	.730
8-Denver	1.07 (0.70, 1.62)	.757	1.01 (0.66, 1.55)	.945
9-San Francisco	0.78 (0.56, 1.10)	.146	0.68 (0.49, 0.96)	.026
10-Seattle	0.75 (0.40, 1.34)	.358	0.75 (0.40, 1.35)	.364
1-Boston	1.00		1.00	
Agency Size^a				
Small	2.22 (1.81, 2.76)	< .001	1.68 (1.35, 2.10)	< .001
Large	1.00		1.00	
Branch				
Yes	0.29 (0.23, 0.36)	< .001	0.31 (0.24, 0.39)	<0.001
No	1.00		1.00	

Note. The Hosmer-Lemeshow goodness of fit test was used to assess model fit with $\chi^2 = 25.744$, $df = 18$, $p = .1057$. *Model acceptable at $\alpha = .05$. ^aTotal number of staff.

Discussion

The results demonstrate support for our original hypothesis that certain agency characteristics would be associated with greater odds of exiting the Medicare HHC market after the reimbursement cuts. Significant relationships in the post-period were found for affiliation, CMS region, agency size and having a branch office. Although, there were no significant differences in the odds of exiting the Medicare HHC market between for-profit HHC agencies and non-for-profit HHC agencies post ACA reimbursement cuts. In some cases, these results mirror findings from earlier studies of the BBA reimbursement changes (agency size and affiliation) and for other variables they do not (tax status, having a branch and CMS region).

Affiliation.

First, free standing HHC agencies were more likely than institution-based agencies to exit the Medicare program in the period after the reimbursement cuts. These results mirror the results from previous research on changes in the HHC market post BBA reimbursement cuts (Choi, S. & Davitt, 2009a). One potential explanation for why free standing HHC agencies were more likely to exit the market is because, unlike institution-based HHC agencies, free standing agencies are not associated with a greater institution such as a hospital. Institution-based agencies have capital resources from their home institution to back them up when their reimbursements are low. Institution-based HHC agencies are also more likely to be able to maintain a patient census during reimbursement changes because their referrals come from their associated hospital or skilled nursing facility.

CMS region.

As in previous research on the BBA, CMS region was found to be associated with the odds of exiting the Medicare program. When examining both periods individually, in the post reimbursement cuts period, more regions had greater odds of agencies exiting the market than in the pre-period. This suggests that the cuts could have created challenges for agencies within these regions resulting in more HHC agency exits from the market. In the post period, agencies in New York, Atlanta, and Chicago had a greater likelihood of exiting the Medicare HHC program post ACA reimbursement cuts (prior: New York and Atlanta), while previous research found that the HHC agencies in the Dallas region were more likely to exit the market after the IPS than those in any other region (Choi, S. & Davitt, 2009a). In the pre and post period of the ACA reimbursement cuts, the Dallas region went from lower odds in the period before the reimbursement cuts to a higher odds of HHC agencies exiting the market during the post period. According to many Office of Inspector General reports, many states in the Dallas region of the country such as Texas have historically been under public scrutiny for fraudulent behavior in HHC. One possible explanation for the different findings here compared to post-BBA changes is that many of the agencies closed in the Dallas region after the BBA cuts and were thus weeded out of the system. The remaining agencies in the Dallas region may have developed better strategies to maintain stability when reimbursements were cut under the ACA or may simply have been less focused on profits and thus were able to withstand additional cuts.

In 2010, the ACA mandated an expansion of Medicaid; however, seven states under the Atlanta region chose not to accept federal funding to expand under the ACA

(Price & Eibner, 2013). Expanding Medicaid increased the number of people with coverage in the many states that chose to expand (Sommers, Blendon, Orav, & Epstein, 2016). Previous studies showed that during the BBA period, both Medicaid and out of pocket expenditures for HHC increased (McKnight, 2006; Spector, Cohen, & Pesis-Katz, 2004) and qualitative research showed that agencies were shifting dual eligible patients to Medicaid (Davitt, 2009a). Home health care agencies in states that expanded Medicaid therefore, have a larger pool of Medicaid patients to pull from in times in which Medicare policy is restrictive. One potential explanation for why HHC agencies in the Atlanta region were more likely to exit the market after the ACA reimbursement cuts is because Medicaid was only expanded in one (Kentucky) of the eight states in the Atlanta region (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee). It is possible that due to the lack of Medicaid expansion, the states in the Atlanta region had less Medicaid patients to provide services to in order to counterbalance the effects of the Medicare reimbursement cuts, leading to greater likelihood of HHC agencies exiting the market. The combination of Medicare reimbursement cuts and Medicaid non-expansion may have proved to be too much for many HHC agencies.

In the 2010-2013 period before the reimbursement cuts, the Chicago region (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin) was not significantly different from the Boston region in terms of odds of exiting the market. In the period after the reimbursement cuts, HHC agencies in the Chicago region were significantly more likely to exit the market compared to the Boston region. One potential explanation for this change is due to moratoriums placed on certain cities in 2013. In July 2013,

Medicare implemented temporary moratorium authority on the enrollment of new HHC agencies in areas believed to have high incidence of fraud including Chicago, Illinois and Detroit, Michigan; both cities that fall under the Chicago CMS coded region (Centers for Medicare and Medicaid Services, 2017). It is possible that the threat of funding cuts and the additional scrutiny in this region due to potentially fraudulent activity increased pressure on agencies that previously mismanaged Medicare funds. Under the public eye, claims are monitored more closely therefore agencies may be less likely to inappropriately game the system to stay fiscally stable, and thus not able to sustain the reimbursement cut period resulting in market exits. It is also possible that previous fraudulent activity is not a factor at all; other factors may have contributed to market exits. For example, many agencies may have not been able to stay afloat solely due to the reimbursement cuts, some agencies may have experienced changes in profit that ended in closures during this time, and other agencies may have been located in service areas that were overpopulated with HHC agencies. In any case, the greater likelihood of exiting the market could indicate a potential reduction in access to the HHC benefit in this region.

Agency size.

Similar to previous research that found larger HHC agencies were less likely to exit the HHC market after the IPS and the PPS (Choi, S. & Davitt, 2009a), small HHC agencies were more likely to exit the Medicare HHC market in both study periods (pre- and post-ACA reimbursement cuts, individually). Like free standing HHC agencies, this research suggests that small HHC agencies may be more vulnerable to exiting the HHC market after policy changes that effect HHC reimbursement. Smaller agencies may have less

resources during times of reimbursement cuts. Larger HHC agencies may also obtain more patient referrals due to greater visibility in their service areas.

Having a branch agency.

Lastly, having at least one branch office was associated with lower odds of exiting the Medicare HHC market in both study periods compared to their counterparts with no branch offices. In previous research, having at least one branch office was significantly associated with the likelihood of exiting the market after the PPS (Choi, S. & Davitt, 2009a). One possible explanation for the different findings here compared to post-BBA changes is that many of the agencies closed after the BBA cuts and were thus weeded out of the system. The remaining agencies with branch offices may have therefore been providing necessary services or serving more rural areas where a branch office was critical to promoting efficiency in service delivery.

Limitations & Strengths

This analysis has some limitations. First, the analysis examined CMS coded regions versus studying individual states. The changes at the state level may differ from the changes by regions which include multiple states that have geographical and often different political constraints. As a result, there is also a possibility for residual confounding due to additional location factors that were not adjusted for in this analysis, such as adjusting for individual states and rural vs. urban agencies. Furthermore, the results of this analysis do not suggest whether an agency exiting the HHC market was necessarily a positive or negative. It is possible that HHC agencies left the market because it was low performing or maybe the service area was overpopulated with HHC agencies. Finally, given the nature of the dependent variable (agencies that were

terminated during the first period were excluded from the second period analysis because they were no longer active at the start of the second period), it was not possible to conduct post-hoc tests to compare estimates across both study periods.

It is the first study to use logistic regression to individually examine a four-year period before the ACA reimbursement cuts (2010-2013) and a four-year period after the reimbursement cuts (2014-2017). Analyzing two periods of time versus single year comparisons may account for the lag in time it may take for HHC agencies to adjust to policy changes and realize its full impact. In addition, the current study uses readily available data (Medicare POS) that are systematically collected across all states in the US. Finally, the results contribute to the existing literature of HHC policy and Medicare reimbursement changes by examining the HHC market under the ACA policy change and identifying specific types of agencies more and less likely to exit the market after reimbursement changes.

Conclusion

Maintaining competition in a health care market is very important as additional options of care ideally improve the quality of care and increase the availability of care options to patients. It is possible that too much competition drove some HHC agencies out of the market during the ACA reimbursement cuts. When HHC agencies exit the market, competition is reduced, which has the potential to erode the quality of care provided as well as access to care for Medicare beneficiaries.

This research suggests that future policies may be developed to protect smaller businesses in HHC that do not have the network, level of referrals, or capital resources often afforded to larger, institution-based facilities. Although small or free-standing,

these HHC agencies are still important to the Medicare beneficiaries that utilize their services. When HHC agencies exit the market due to lack of resources it may impact the needs of patients and it also impacts other HHC agencies in the service area. Patients have less access to home health care and the other agencies that remain open are forced to manage the influx of patients due to area closures.

Future research should specifically examine different types of freestanding and even smaller HHC agencies during the ACA reimbursement changes to further determine the vulnerability of such agency types during this time period. For example, examining agencies with 20 or less staff or local family-owned free standing agencies during this time period. Future research should also determine the relationship between individual states and the likelihood of terminating from the HHC market to further assess the impact of state level policies on HHC agencies during major federal reimbursement changes. Additionally, future research should examine the impact of agency exits on access to and quality of care for Medicare beneficiaries.

Multivariate Analysis of the Effects of ACA Reimbursement Cuts on the HHC Staff

In this chapter, averages and standard deviation for each period will be reported for total staff and each type of staff. Mean differences in average staff counts were then calculated between the two periods of time. Logistic regression was run to determine whether certain agency characteristics were associated with higher odds of staff decrease after the ACA reimbursement cuts. This chapter first describes the methodology of Aim three including the rationale, descriptive analysis, independent and dependent variables, analytic strategy, and model. The results are presented next followed by the discussion.

Aim 3

To determine the effects of the ACA reimbursement cuts on the number and types of staff employed by HHC agencies and if certain types of HHC agencies were more likely to decrease staff after the ACA reimbursement cuts.

Hypothesis 3.A.

Total number of staff will decrease after implementation of ACA reimbursement cuts.

Hypothesis 3.B.

Specific staff types will decrease after implementation of the ACA reimbursement cuts. (This is a non-directional hypothesis because it will be difficult to predict in advance where these cuts may fall the hardest).

Hypothesis 3.C.

There will be an association between specific agency characteristics (e.g. tax status) and the odds of decrease in staff but are unable to predict direction at this point.

Methods

Rationale.

The current literature does not provide an assessment of the Medicare HHC market staffing patterns before and after the ACA reimbursement cuts. Research shows that previous reimbursement cuts led to staff reductions or changes in the types of staff employed (Davitt & Choi, 2008b; Davitt, 2009a; Komisar, 2002). Therefore, this study is investigating whether agencies overall relied on staff reductions or changes in the types of staff employed in order to weather the ACA reimbursement cuts.

Analytic sample.

For Aim three, all agencies that were active within each specific time period were included in the analysis. Data is collected through a mandatory regionally collected survey, therefore missing data was found on 0 % of cases.

Descriptive analysis.

To assess Hypotheses 3 A and B, average staff counts and standard deviations for each period were reported for each type of staff and all staff. Mean differences in average staff counts were then calculated between the two periods. A *t-test* was conducted to further determine any significance in mean differences.

Multivariate Analysis

Independent & dependent variables.

Certain agency characteristics (tax status, affiliation, CMS region, agency size, and having at least one branch) were examined to see whether they were related to higher odds of staff decreases from period, 2010-2013 to the 2014-2017 period. The outcome was decrease in average staff from the 2010-2013 period to the 2014-2017 period: Yes

(1) or No (0). Specifically, for each agency, a total staff count variable was created. This variable was then averaged across the four years in each time period. For each agency, the average of period 1 (2010-2013) was then compared to the average total staff count for period 2 (2014-2017). If the staff count decreased from period 1 to period 2, it was coded Yes (1). If the staff count increased or remained the same from period 1 to period 2, it is coded No (0). The exposure variable is assumed to be the same across different periods. For example, if an agency is coded in the Boston region in 2010, the agency was assumed to be in the Boston region across both periods.

Analytic strategy.

To assess Hypothesis C, multivariate logistic regression was used to determine the direct effect of agency characteristics on odds of decreases in staff (Yes or No), after adjusting for other agency characteristics. Its parameters are estimated by maximum likelihood method. The aORs were also calculated to compare the relative importance of different agency characteristics for the odds of staff decreases. Wald tests were used to determine whether a certain predictor variable was significant or not. For assessing the quality of the model Pearson’s Chi Square Test and Hosmer-Lemeshow’s Test of the goodness of fit were computed.

Model for Aim 3.

$$\text{Logit} \left(p \times \frac{\text{probability of termination}}{1-p} \right) = B_0 + B_{1(\text{affiliation})} + B_{2(\text{tax status})} + B_{3(\text{size})} + B_{4(\text{CMS Region})} + B_{5(\text{Branch Offices})}$$

Results

Overall, there were 24.79 staff on average per agency between 2010 and 2013, and 24.94 staff per agency between 2014 and 2017 (*Table 6.1*). Licensed practical nurses

experienced the largest increase by 0.46 on average after the reimbursement cuts. Other personnel such as office staff and HHC aides experienced the greatest decline, mean differences were equal to -0.25 and -0.26, respectively (in this study 1 is equivalent to 1 full time employee). It is important to note that most differences in staff count were found to be statistically significant, but the differences were quite small.

Tax status, affiliation, region, size and having one or more branch offices were significantly associated with the odds of a decrease in staff (*Table 6.2*). For profit agencies were more likely to reduce the number of staff between the pre and post reimbursement cut time periods, compared to non-profit agencies (aOR= 1.10, 95 % CI [1.00, 1.20], $p = .040$). Compared to free-standing agencies, other agencies and institution-based agencies were less likely to experience a decrease in staff (aOR= 0.78 and 0.67, respectively). HHC agencies in New York, Atlanta, Chicago, Dallas, and Kansas City regions were more likely to reduce staff than those in the Boston region (aOR= 2.79, 1.75, 1.50, 1.35, and 1.27, respectively). Small agencies with less than 50 staff had 1.70 times the odds of cutting staff, compared to large agencies (95 % CI [1.51, 1.93] , $p < .001$). HHC agencies with at least one branch were 1.51 times as likely to decrease staff than those without any branches (95 % CI [1.37, 1.65], $p < .001$).

Tables 6.1 & 6.2

Table 6.1

Rate of Change in Average Home Health Care Staff Count

Types of Staff	2010-2013	2014-2017	$M_1 - M_2$	<i>M</i> Staff Decrease
	M_1 (SD)	M_2 (SD)		
All HHC Staff	24.79 (156.43)	24.94 (157.38)	0.15*	No
Dieticians	0.05 (0.45)	0.04 (0.31)	- 0.01*	Yes
Home Health Aides	6.35 (66.65)	6.1 (57.31)	- 0.25*	Yes
LPNs or LVNs	3.56 (40.59)	4.02 (54.92)	0.46*	No
Occupational therapists	0.5 (3.5)	0.55 (2.39)	0.05*	No
Physical therapists	1.58 (11.59)	1.63 (6.42)	0.05*	No
Registered nurses	8.24 (64)	8.36 (67.83)	0.12*	No
Registered pharmacists	0.03 (0.72)	0.03 (0.58)	0.00	No
Social Workers	0.38 (2.37)	0.35 (1.5)	- 0.03*	Yes
Speech Pathologists/ Audiologists	0.22 (2.59)	0.26 (3.45)	0.04*	No
Other personnel	3.87 (57.4)	3.61 (49.4)	- 0.26*	Yes

Note. HHC = Home Health Care, LPN = Licensed Professional Nurse; LVN = Licensed Vocational Nurse, * $p < .0001$

Table 6.2

The Odds of Agency Decreases in Total Staff, by Agency Characteristics and Period

Variable Name	Univariate		Multi-variate	
	OR (95 % CI)	<i>p Value</i>	OR (95 % CI)	<i>p Value</i>
Tax Status				
Profit	1.09 (1.02, 1.17)	.017	1.10 (1.00, 1.20)	.040
Non-profit	1.00		1.00	
Affiliation				
Institution-based	0.65 (0.58, 0.74)	< .001	0.67 (0.60, 0.76)	< .001
Other	0.83 (0.77, 0.90)	< .001	0.78 (0.72, 0.85)	< .001
Free standing	1.00		1.00	
CMS Region Code				
2-New York	2.56 (1.96, 3.35)	< .001	2.79 (2.13, 3.66)	< .001
3-Philadelphia	0.99 (0.80, 1.23)	.894	1.00 (0.81, 1.25)	.979
4-Atlanta	1.76 (1.46, 2.14)	< .001	1.75 (1.44, 2.13)	< .001
5-Chicago	1.47 (1.22, 1.79)	< .001	1.50 (1.24, 1.83)	< .001
6-Dallas	1.37 (1.14, 1.65)	.001	1.35 (1.12, 1.64)	.002
7-Kansas City	1.25 (1.00, 1.56)	.048	1.27 (1.01, 1.59)	.040
8-Denver	0.97 (0.76, 1.23)	.781	0.95 (0.74, 1.22)	.702
9-San Francisco	1.04 (0.85, 1.28)	.704	1.05 (0.86, 1.30)	.631
10-Seattle	0.87 (0.63, 1.19)	.382	0.90 (0.65, 1.23)	.505
1-Boston	1.00		1.00	
Agency Size				
Small	1.43 (1.27, 1.60)	< .001	1.70 (1.51, 1.93)	< .001
Large	1.00		1.00	
Branch				
Yes	1.36 (1.24, 1.48)	< .001	1.51 (1.37, 1.65)	< .001
No	1.00		1.00	

Note. Fit statistics for the model: Hosmer-Lemeshow Test: X-squared=12.897, *df*=8, *p* = .1155. *Model acceptable at $\alpha = .05$

Discussion

First, overall averages for all staff did not decrease after the reimbursement cuts, however other personnel such as office staff and HHC aides experienced the greatest staff cuts. This finding suggests that HHC directors try to maintain staff throughout periods of reimbursement cuts, but when they do decide to make cuts to reduce cost, non-skilled,

non-essential staff are the first to go. Medicare policy will only reimburse if the patient needs skilled care services. Thus, non-skilled positions and services are not a requirement and are therefore expendable. Conversely, LPNs experienced the greatest increase on average post the ACA reimbursement cuts. One potential explanation is LPNs are less trained than Registered Nurses (RN) and therefore cost less per hour. LPNs can perform similar tasks to RNs while costing the HHC agency less. These findings suggest that the ACA reimbursement cuts incentivized HHC agency directors to make cuts to non-skilled staff during the reimbursement changes and incentivized them to rely on more types of staff that cost less such as LPNs. Though, HHC aides and office staff are non-skilled, HHC aides provide support to patients and their caregivers and office staff are important to the administration of paperwork necessary for admitting new patients. With less non-skilled staff, the burden only increases for skilled staff. For example, without office staff, nurses may have to process their own admission paperwork. Also, without HHC aides, the burden of providing support to the patient often falls on informal caregivers.

Although all HHC staff averages did not decrease between the two periods, specific agency characteristics were significantly associated with greater odds of decreases in staff. By assessing the likelihood of staff decreases by HHC agency characteristics, we were also able to determine that HHC agencies that were for-profit, small, freestanding and HHC agencies with at least one branch were more likely to decrease staff after the ACA reimbursement cuts. We also found that HHC agencies in the New York, Atlanta, Chicago, Dallas and the Kansas City CMS regions were all more likely to decrease staff after the ACA reimbursement cuts. One potential explanation, as found in previous research, is HHC directors of many types, decrease staff as a strategy

to reduce cost during periods of reimbursement cuts. Institution-based agencies may have cut fewer staff, because as part of a larger institution, they may be using staff who also work in other departments and thus may only work part-time for the home health agency. In addition, institution-based agencies have other supports to fall back on from the larger institution, such as shared administrative staff (e.g. clerical, fiscal, and technology support), making them more efficient during funding cuts. The differences in regions could be due to differences in HHC state policies implemented within each CMS region. Depending on the state, policies could be even more restrictive or more supportive to the livelihood of HHC agencies.

It is important to note that the differences in staff count are small. The first potential reason is HHC agencies may have adapted and learned to use other strategies to reduce cost in times of reimbursement cuts. Second, after the BBA, HHC agencies may have made cuts to staff that were so extreme, that they have now hit a wall and can simply cut no further without compromising patient safety.

Limitations and Strengths

Like Aim two, this analysis is limited because it examined CMS coded regions versus studying individual states. The changes at the state level may differ from the changes by region which include multiple states that have geographical and often different political constraints. Also, the study does not allow us to evaluate whether and how cuts and changes to staff affect patients or their caregivers. Additionally, even though mean differences between staff were statistically significant, the differences were very small. Because the sample size is very large, any small difference could be statistically significant. It is possible that because this analysis includes the entire

Medicare population of HHC providers, it may be overpowered. Therefore, it is important to note that these differences are statistically significant, however this does not necessarily mean that the differences are important changes in HHC staff between the two time periods.

This analysis has several strengths. It is the first to assess the impact of the ACA reimbursement cuts on average decreases in overall HHC staff and different staff types. Second, this study also compares the mean difference in staff counts during the period post reimbursement cuts to the four-year period immediately before the ACA reimbursements. Comparing two four-year periods is a more accurate depiction of changes in the HHC market, versus comparing single year changes. Last, unlike previous research, this study considered changes in “other personnel” such as office staff into the descriptive analysis.

Conclusion

Future policies should consider the impact that reimbursement cuts have on non-skilled HHC staff that are essential to the infrastructure of the office and informal caregiving within families. Future studies should also determine the relationship between individual states and the likelihood of decreasing staff to further assess the impact of state level policies on HHC agencies during major federal reimbursement changes.

Home Health Care during the ACA from the Perspective of HHC Directors

The objective of this component of the study was to enhance understanding of the specific strategies used by HHC agencies to manage changes under the ACA-mandated reimbursement cuts. The information gained from the qualitative interviews provided invaluable insights to the impact of reimbursement policy to providers and patients, which could not be understood from the results of the quantitative analyses alone. In each interview, HHC agency directors described their agency's response to the ACA-mandated reimbursement cuts that occurred between the years 2014-2017. Interviewing agency directors from specific agency types allowed for further exploration of the meaning behind the quantitative findings.

Aim 4: To explore the effects of ACA reimbursement cuts on HHC practice from the perspective of agency directors.

Data Source

This chapter reports the results from qualitative interviews with HHC agency directors. The location of and agency types were determined after the completion of data analyses for Aim one and two.

Sample

All interviewees were directors that worked in HHC in both the pre and post periods. Directors who did not work in HHC prior to the reimbursement changes were excluded from the study. Participants were recruited from home health agency types found to be significant in the quantitative analysis. Based on the findings of Aim two, the Chicago region, Atlanta region, HHC agency tax status and agency size (small or large) were included in the selection of the sample. The Atlanta region was included in this

study for multiple reasons. First, HHC agencies in this region were found to be more likely to exit the HHC market in the period before and after the reimbursement cuts. Second, states in this region have historically been under more scrutiny for fraudulent practice which may influence the behavior of agencies and practice. The Chicago region was selected as a region of interest because before the ACA reimbursement cuts, the Chicago region was not significantly different from the Boston region (reference region) in terms of odds of exiting the HHC market, but after the reimbursement cuts, HHC agencies in the Chicago region were significantly more likely to exit the market compared to the Boston region. Size was selected as a characteristic of interest because small agencies were found to be more likely to exit the HHC market after the reimbursement cuts. Although tax status was not associated with the likelihood of market exits in this study, this characteristic has historically influenced the behavior of agencies in the HHC market and therefore was included as a variable of interest. The University of Maryland, Baltimore Institutional Review Board deemed this research “not human subjects research” and informed consent was collected but signatures were not needed. No identifiable information was collected about the study participants.

Sampling strategy

To derive the sample, a stratified list of HHC agencies was created using the Medicare POS data file to ensure agencies with the characteristics of interest were selected. This file contained 7,616 agencies with information on all variables and agency contact information. Systematic sampling was chosen because it is a method that is simple, convenient, with little chance of bias (Maxwell, 1996). Every third agency that met the matrix criteria were sampled and called to see if the HHC director of the agency was

interested in study participation. If interested, they were asked more questions to see if they were eligible for the study and the PI explained the study, including purpose, confidentiality, their rights to refuse to participate or to refuse to answer certain questions, and the potential risks to them for participating. Finally, an interview was scheduled for a future date, however if a participant was not interested it was noted and the interviewee proceeded to call the next third agency on the list. Informed consent was assumed if the person agreed to participate in the interview. If an agency director agreed to participate and later canceled, the interviewee also proceeded to call the next third agency in order to meet the quota for that specific agency type. Agencies were dropped from the list of potential interviewees after 3 unsuccessful attempts. The study questionnaire was sent one week in advance so that the interviewees could start reflecting back to the time period in question. Reminder emails and if necessary, reminder phone calls were made to help participants. A total of fifty agencies were contacted for potential participation. In qualitative research, saturation is the point at which no additional data can be found to develop new themes. Twelve interviews were chosen as the total target of interviews because it has been shown to be the minimum number of interviews needed to achieve saturation; after 12 interviews new themes emerge infrequently (Guest, Bunce, & Johnson, 2006). Therefore, six interviews were needed in each category as each major category has two subcategories for a total of 12 interviews. To organize the types of HHC agency interview types, a quota matrix was developed to ensure that an adequate number of interviews was collected for each characteristic, For-Profit (6), Non-Profit (6), Atlanta (6), Chicago (6), Small (6), and Large (6).

Table 7.1

Table 7.1

Quota Matrix for Agency Enrollment Table

	Small Agencies	Large Agencies	Total
For-profit			7
Region			
Atlanta	2	2	
Chicago	1	2	
Non-Profit			6
Region			
Atlanta	1	2	
Chicago	2	1	
Total	6	7	

Methods

Semi-structured interviews were conducted, which combined a pre-determined set of open-ended questions and allowed for further exploration of particular themes or responses. Please see appendix, page 91, for interview guide. This method provided an opportunity to help understand the effects of the ACA-mandated reimbursement cuts on Medicare-certified HHC agencies because this style of interviewing includes specific questions that guide the interview while leaving space in the conversation for elaboration. Currently, little is known about the effects of the reimbursement cuts from the perspective of HHC directors who understand both clinical and financial policies and procedures. (Denzin & Lincoln, 1994; Guba & Lincoln, 1985). Qualitative inquiry, such as semi-structured interviews, is indicated when “how and why” questions are paramount

and for the study of processes that develop and change over time (Yin, 1994). The focus of this Aim of the study was to gain an understanding of the strategic decision-making processes and changes in practice at the agency level after the enactment of reimbursement cuts. This enabled elaboration in the words of HHC directors, on the strategies used to maintain a HHC agency through substantial reimbursement changes (Sandelwoski, 1988).

The interview began with broad questions such as:

- “What challenges did the ACA-mandated reimbursement changes create for this agency?”
- What service delivery strategies did this agency use to manage these reimbursement changes?
- What cost reduction strategies did this agency use to manage these reimbursement changes?
- Were any changes to staffing made to manage the ACA-mandated reimbursement changes, if so, how?
- What admission strategies did your agency use to manage these reimbursement changes” (see appendix, page 91, for full interview guide).

The questions were ordered to ensure a logical flow of conversation and opportunities to fully elaborate before starting a new question. After a brief overview of the purpose of the interview, the interviewee was asked to answer the questions. In order to prevent bias, study hypotheses were not shared before the interview with the respondents. Participants were given a chance to discuss factors not anticipated in the study (Morgan, 1997), examples from their own experiences, and decision-making

processes. Probes were used throughout to clarify responses and to maintain the interview focus. When interviewing about past experiences, recall bias can present as a study limitation, however it is important to note that the reimbursement cuts were very significant to the HHC directors. Not one interviewee had difficulty reflecting on the 2014-2017 time period or comparing that to earlier periods.

Although many roles within a HHC agency are important and influential in overall decision making, HHC directors were chosen because their role in the agency enabled them to discuss issues related to funding, administering an agency, including staffing concerns, patient concerns, policy issues, and clinical care processes affected by the reimbursement cuts.

Prior to each interview, each participant was asked if the conversation could be recorded. The PI conducted all interviews independently either over the phone or in-person. In-person interviews were located in a private office or conference room to ensure confidentiality. All interviews were audio-recorded. Interview notes were also written on a hard copy of the interview guide for each interview. These notes helped to formulate follow-up questions and probes. At the end of each session, an impression of the session, its main themes, comments and reactions of participants were written. Transcription and initial analysis occurred between interviews, allowing for the addition of new insights before the next interview. Interviews were transcribed verbatim and the content was analyzed to determine subjects' interpretation of each question as well as the thought processes behind their responses. A professional transcription service was used for each interview audio recording.

Data Analysis Plan

During the actual analysis, field notes were examined, and memos/notes were produced to incorporate into later analyses of themes (Asbury, 1995; Carey, 1994). Grounded theory was used to guide the analysis of the interview data (Denzin & Lincoln, 1994; Glazer, 1967; Guba & Lincoln, 1985). Via an inductive approach, hypotheses were generated from the data, focusing on theory generation (Bowles & Cater, 2003). During the analysis, the investigator was immersed in the specifics of the data, to uncover important themes and patterns using the constant comparative method (Glazer, 1967). The analysis plan included the following: 1) identify the big ideas or themes and emergent codes (open coding); 2) consider the choice and meaning of the words; 3) consider the context; 4) consider the consistency of responses (Creswell & Miller, 2000; Denzin & Lincoln, 1994; Guba & Lincoln, 1985; Morgan, 1997); and 5) create a code book and combine all thematic codes. Selective coding was used to integrate and refine the concepts. Throughout the data analysis, the categories were consistently validated against the data to test emergent themes and to search for alternative explanations while ensuring internal consistency and external divergence to the categories (Marshall & Rossman, 1999). Several strategies were used to establish trustworthiness of the data. First, each transcription was verified for 100 % accuracy against the audio-recorded interview by the PI. Second, an additional researcher, trained in qualitative research, reviewed the raw data and open codes to provide a different perspective on the data; there were very few conflicts in interpretation and a final group of codes was agreed upon. Lastly, interviews, memos and notes were also analyzed to enhance validity. The quotes

that were selected to present in the final report represent statements from HHC directors that best illustrate the finding or theme being described.

Results

A total of 13 interviews were collected from 13 different HHC directors in 11 different states. While a total of 13 HHC interviews were conducted, saturation was reached after the ninth interview. In this study, at the point of saturation, additional interviews were completed in order to enhance the representativeness (Morgan, 1997; Stewart, Shamdasani, & Rook, 2007). Two interviews occurred in person, while the other interviews took place over the phone (11). The data collected in-person versus over the phone are comparable, there was not a substantive difference in the interview types. The interviews were, on average, 35 minutes long, with a minimum of 17 minutes and a maximum of 55 minutes.

In this section, the results of the qualitative interviews are described. Eleven themes were identified from the data which were further collapsed into three descriptive categories: Challenges after the ACA-reimbursement cuts, Strategies used by Agencies during the ACA reimbursement cut period, and Impact of Reimbursement Changes on Caregivers, Patients & Staff. In this study, frequencies of responses were recorded, however the goal in a qualitative approach that includes probing is to understand the range of issues and responses of HHC agencies across varying agency types. The frequency of a response does not indicate significance.

Section 1: Challenges after the ACA reimbursement cuts.

Changes in Patient Referrals.

Home health care directors experienced various challenges during the ACA reimbursement cuts period. Among the most common challenges noted across facilities were changes in referrals. Although some agencies had experienced an increase in referrals and thus the number of patients served, it did not mean that they were better off financially. A large census full of patients with low-paying insurance types is less financially meaningful; it simply means you have a lot of patients. Whereas a census with mostly traditional Medicare patients is more indicative of financial gain, even with the reimbursement cuts. One respondent captures this challenge:

“I’d say our census is higher now than it has been over the last couple years. But that doesn’t actually mean just because we have a higher census that we’re making more money. It all depends at the end of the day how many are traditional Medicare, how many are Medicaid, how many are private insurance, how many have no insurance at all and that’s how it is everyday”

- Non-Profit, Hospital-based, Atlanta Region

Many directors complained that other agencies in their service area were refusing to admit patients that they viewed as costly to serve or that had insurance coverage that would pay less. Directors working for agencies whose missions required them to admit all eligible referrals (e.g. generally non-profit agencies), felt that they were getting an inordinate amount of more costly patients. This made it much more difficult for them to maintain their financial bottom line. Home health care directors from different states noted these trends:

“The hospitals were referring patients to the larger home healthcare facilities, and when you did get patient referrals, you were getting the more expensive patients...the ones we were getting were the ones that would have cost them [hospital-affiliated agencies] money.”

-For-profit, Freestanding Facility, Chicago Region

“What I’ve seen on the for-profit ones is that they turn down a lot of Medicaid. A lot of them won’t even see Medicaid patients. So, then that sends more Medicaid managed care contracts, a lot of those I don’t think signed up for that because they know that, that’s not a money maker for sure. So, then you get a lot of referral from things that don’t make a lot of money or you lose money usually on them, on the Illinois Medicaid.

-Non-Profit, Hospital-based, Chicago Region

“Our referrals, we are getting more referrals now, but it could very well... some of them could be because these for-profit agencies don’t take the payer. Or they may be out of network, you know because some of these Medicare advantage plans, they have a network provider. So, if they’re out of network, they may call and see if we can take the patient and so on and so forth.”

-Non-Profit, Hospital-based, Atlanta Region

Home health directors also mentioned wound care referrals increasing as a common challenge during the period of reimbursement cuts. Patients utilize home health care for various reasons including occupational, physical and speech therapy. Patients also need HHC because they need help with wounds that require special care and dressings. After the ACA mandated reimbursement cuts, wound care referrals increased for certain

agencies. Many of the HHC directors stated that they think the increase in wound care referrals was because low-income patients and wound clinics know that wound care supplies are embedded within the cost of the HHC budget. This makes HHC an easier mechanism for obtaining unaffordable supplies for families. Needing help with a wound does make a patient eligible for HHC, but the problem with the wound care referrals described is that the patient or the family does not need help taking care of the wound, they need the wound supplies. This is the challenging part of these types of referrals. An interview with a HHC director of a small, non-profit, hospital-based agency described this challenge:

“Yeah. We see a lot of wound care. We see a lot of very frail, high co-morbidity patient. I don't really know that it's any more than before, except for the wounds. The wounds are definitely more so... Yeah, everybody's going to wound clinics now and their dressing supplies are an issue, so we just had a referral this week, basically the wife can change the dressing. They simply can't afford the dressings. So, in-home healthcare, if the nurse provides and I mean it is, they probably should have had home healthcare anyway because he's already lost part of his foot in the past from other wounds. So, he's very high risk, but that was how the referral came to us because she couldn't afford the dressing supplies and she kept asking the wound clinic for them. The wound clinic, they don't get any payment for those dressing supplies. They don't get any reimbursement for that. We don't get reimbursement specifically for that either. It's just figured in to the cost of our doing business...”

-Non-profit, Hospital-based, Chicago Region

When asked “did the responses of agencies (including this agency) in this region impact other agencies in this service area? If so, how?” Many agencies did not identify directly when asked this question. However, as mentioned previously, clearly agencies were worried about additional referrals from other agencies that were refusing different types of patients. Therefore, other agencies refusing to take certain kinds of patients did affect them. Although this was only experienced by one director in the sample, an extreme effect of these changes was the agency being sold by a hospital to another corporation during this time:

“We also went through a transition that our whole home health agency was sold off from our hospital system to another corporation. Don't know if that was related to the Affordable Care Act, but the amount of reimbursement for home health services changed, and we were sold off...”

-For-Profit, Free-Standing, Chicago Region

Challenges for smaller rural agencies.

One HHC director also described the challenge of being in charge of an agency in a rural area, being a rural HHC agency makes the job a little more challenging due to having fewer providers with more ground to cover:

“Basically, I increased my territory during that time [ACA reimbursement cuts] because other areas, they were kind of a no man's land for home healthcare, so I increased my area... We're hospital-based and small community...so we take people regardless of their ability to pay. We take the people that nobody else will take care of simply because it's our community so it's our mission to take care of

our community. So, we, yeah, we had to expand our territory because there were people that just simply couldn't get care from anybody else...”

-Non-Profit, Hospital-Based, Chicago Region

Specific challenges faced by home health care directors.

Along with strategizing to reduce cost, HHC directors are also responsible for teaching staff, regulatory compliance, and maintaining the budget to name a few. Before a period of mandated reimbursement cuts, HHC directors prepare for major changes and during a period of reimbursement cuts, the decisions they make affect the entire agency, HHC staff and patients. Across all interviews, HHC directors described the struggle between being a health care provider and a finance manager:

“I'm a nurse. That's what I went to school for to begin with is to be the nurse.

Accounting is the different side of the brain where it makes sure that the finances all fit together for the care that you provide. I've had to use the accounting side of my brain to figure out the cares that we provide versus the nurse side of my brain. Does that make sense? The nurse wants me to go out and provide all this stuff for everybody, make sure they're safe at home, make sure it's all getting done properly, where the accounting side says there's not enough money to do this anymore. I have to be more the accountant than the nurse now. The nurse says ... And I can make sure the nurses are doing what they're supposed to be doing as a nurse and everything, but the accountant says you can't make it in that many visits, we just can't afford that. How can we look at teaching someone? How can we look at cutting our costs? Where can I find the same supplies for cheaper?”

-For-Profit, Free-Standing, Chicago Region

“So, It's just... Your brain's always going back and forth and trying to figure out what I need to do because we can't just keep doing, doing, doing, and just because we're owned by the hospital and...Every month, every year, keep losing money, keep losing money, so your competing priority is to try to get the patient what they need, and also to try to be not so much in the negative all the time, so that's very difficult to do.”

-Non-Profit, Hospital-Based, Atlanta Region

“Patient care is always number one followed by finances. We've got to make sure we're doing what we need to do to get reimbursed because insurance companies in general make it harder and harder. They hire people to look for reasons not to pay you. A little sidebar on my part, all of these information people say, "Whoa, you know CMS has saved millions of dollars and things," and I'm like, "Yeah, but they're taking it from us. They're not saving it. They're just taking it." Because again it's after services are provided. You didn't dot your i or cross your t's so we're not gonna pay you for that. It's not savings.”

-Non-Profit, Hospital-Based, Chicago Region

“As far as my role as Director, it's hard to do the true Director type things when I'm so engrossed in the daily things. Larger agencies they have people that are... whole departments that's involved for education. If I have a new staff member, I have to educate them. So, I do their orientation. It's the challenges of every small rural home health agency out there. That's what we are faced with.”

-Non-Profit, Hospital-Based, Chicago Region

HHC directors also describe how managing multiple responsibilities keeps them from more impactful projects that may benefit their HHC agency in the long run. Instead they are tasked with putting out smaller fires daily. One HHC director described it this way:

“Some days I do it better than others. It's difficult. There's not a lot of time for big projects and things and trying to implement new services or do things like that. You're simply engrossed in the day-to-day. I spend my day taking care of day to day patients and day-to-day problems. That's what we call putting out fires. So, I don't always get to do all of the auditing that I want or to do the big quality projects that I want and really dig deep into data and figuring out kind of more process changes or things that we could implement because I don't have time to. I feel like we could be more efficient at things, but I can't create those plans because I'm doing the day-to-day stuff.”

-Non-Profit, Hospital-Based, Chicago Region

Other challenges unrelated to the ACA-reimbursement cuts.

The ACA mandated several policies concurrently in addition to the reimbursement cuts. It is the job of the HHC director to interpret these policies and communicate changes to staff, amongst all other responsibilities. These multiple policies created confusion amongst some HHC directors, particularly in those agencies that were affiliated with a hospital. In 2012, Hospital Readmissions Reduction Program (HRRP) was implemented and it is “a Medicare value-based purchasing program that reduces payments to hospitals with excess readmissions. The program supports the national goal of improving healthcare for Americans by linking payment to the quality of hospital care” (CMS, 2019). The HRRP only affects the reimbursement of the hospitals. Hospitals

may add more pressure on their associated HHC agencies to help decrease the likelihood of readmissions, but the actual financial “ding” is to the hospital only. However, some directors were under the misconception that the HHC agency might also be penalized for readmissions.

“The hospital is not reimbursed for that second hospitalization, and they do that on a 30-day time frame. Well, the same for home health agencies. We get penalized, basically, if our patients are readmitted in a 60-day time frame, because that's typically how long of a ... we do what we call a certification period, and we keep our patients for a 60-, typically, somewhere over a 24-, to a 45- to 60-day time frame. If they go back into the hospital, it can affect your funding for Medicare.”

-Non-profit, hospital-based, Atlanta Region

Another challenge to HHC agencies, unrelated to the ACA reimbursement cuts was connected to Medicare Advantage Plans (MAPs). Specifically, more Medicare Beneficiaries enrolled in MAPs during this time and therefore HHC agencies received more referrals of patients with this type of insurance. Like traditional Medicare, MAPs pay for HHC. However, MAP's reimbursements are lower, and they use a different administrative process for approval which makes them less appealing to HHC providers. Although MAPs were not developed under the ACA policy and are not related to the ACA, this situation confounds the ACA reimbursement cuts. Agencies were dealing with reduced payments due to both ACA changes but also from other insurers, making it even more challenging to make ends meet after the reimbursement cuts.

Many HHC directors expressed different frustrations with MAPs because they often pay “less”:

“Everybody's fighting for those [traditional Medicare patients], because now you've had those Medicare advantage plans that have come into the market and some of them don't pay like traditional Medicare. Some of them don't even cover your cost. So, if your cost is \$200 a visit, this Medicare advantage plan says I'll pay \$105 a visit. So, every time you see that patient, you're having to write off \$95. So, you really have got some agencies who do not take the Medicare advantage plans.”

-Non-Profit, Hospital-Based, Atlanta Region

Several HHC directors also expressed the administrative burden of MAPs:

“Well, for one it takes forever to get authorization and that takes time from somebody in the office. Then they are limited sometimes on how many visits we get. And there's some that are a pain in the neck to try to get payment from....”

-Non-Profit, Free-standing, Chicago Region

Last, one HHC director described his/her preference for the episodic payment received through traditional Medicare. There is greater burden in receiving reimbursement payment from MAPs:

“Well, Medicare you submit paperwork and it derives a score and that score is what calculates how much reimbursement you're gonna get for that patient for the whole 60-day episode. So, if you see the patient for 60 days, you're probably not gonna come out ahead. But if you see the patient for 30 or under and get them discharged with goals met and good to the community, you're gonna come out ahead.....The Medicare Advantage plans pay you per visit, which is generally

pretty low. The cost of your employee, gas to drive, plus operation of the business, you're not coming out ahead at all.”

-Non-Profit, Free-standing, Chicago Region

Section 2: Strategies used by Agencies during the ACA reimbursement cut period

HHC directors utilized a range of strategies in order to deliver the most efficient services to patients and maintain the fiscal stability of the agency. Whenever reimbursements are cut, agencies have basically two choices to maintain their fiscal solvency. First, they can cut the costs of providing care. Second, they can try to increase revenue either by increasing their census or by admitting more private pay or non-Medicare patients or reducing admissions of potentially high-cost complex care patients. On the cost cutting side, directors used several strategies during the ACA reimbursement cut period. Some of the strategies described during the interviews in this study have previously been acknowledged in qualitative literature while others are new.

Cost reduction strategies.

Employee compensation and types of employees used.

Some of the HHC directors eliminated raises and bonuses for a period of time after the ACA mandate in order to provide services and supplies to patients at the same level as before the reimbursement cuts:

“We did not give raises for at least two, three years. There was a hold on raises. So, at the end of the year, we just gave some bonuses that we could give.”

-For-Profit, Free-Standing, Atlanta Region

“There was one year nobody in the hospital got a raise and then after that then we did get a raise based on our performance.”

-Non-Profit, Hospital-Based, Chicago Region

“We didn't get raises during that time.... until they could kind of see where things were. They stopped giving out bonuses, things like that. Just to offset it.”

-Non-Profit, Free-Standing, Atlanta Region

Some types of staff have similar skills but are cheaper per hour because they have less advanced training, for example LPNs compared to RNs. As a result, many agencies increased their use of LPNs.

“We utilized LPNs instead of just hiring all RNs to help with cost.... We used to just hire all RNs.”

-Non-Profit, Free-Standing, Chicago Region

Along with using more LPNs, one HHC director also mentioned using more Physical Therapy Assistants (PTA) and Occupational Therapy Assistants (OTA) instead of Physical or Occupational Therapists when possible:

“We utilize a PTA instead of a PT. Or LPN instead of an RN. Same for OT. OTA instead of an OT. Things like that..”

-Non-Profit, Free-Standing, Atlanta Region

Reducing travel and supply costs.

Some of the interviewees developed strategies to reduce the HHC agency's cost of staff travel such as leasing company cars instead of paying staff individually for mileage in their personal cars and assigning staff to patients that are in the same area to prevent unnecessary travel and reduce distance travelled.

“Well, we save also in our expenses as far as traveling because we purchase cars and we lease them and that way we don't have to pay them [staff] back. The

expense check is cheaper to lease a car and pay the insurance and let them drive it to do their visits.”

-For-Profit, Free-Standing, Atlanta Region

“Like with the little areas and tweaks and things like that, we could save travel time. We won't have a clinician going from a town and then traveling 20 miles just for one patient and then going back. Having her patients all in her area and giving that one 20 miles away to somebody else who's already going to that area. They started thinking more about that, whereas it used to be if somebody went and admitted a patient, they just kept them. Like that was their patient no matter where they were. And with people being on call, you could have patients all over the place. So, they kind of went from a more of if you admitted them they belonged to you to even if you admit them you give report off to this other nurse and from admission forward they'll be that person's.”

-For-Profit, Free-Standing, Atlanta Region

During the reimbursement cut period, the most frequently utilized cost reduction strategy was reducing the number of supplies given to patients and/or shopping around for cheaper alternative supplies and suppliers. The following quotes provide a glimpse into the various thought processes behind making decisions about supplies:

“Yeah, we kind of look at alternatives to some supplies. Some particular name brand supplies may be a little bit more expensive, but there may be an equivalent to that supply, that is a little bit less expensive, but serves the same purpose. So that's certainly things that we evaluate. I had one [staff] that did a complete evaluation of supplies, and gave alternative tips of, "There's a roll of tape that's

\$6, in comparison to a roll of tape that's \$1, and wouldn't it be more appropriate to use that tape ..." that the \$6 is contact with the skin, versus, just holding a dressing in place, like a gauze roll that you wrap around somebody's leg? You probably just want to use the \$1 tape, just to hold that in place, because there's no skin contact. So, stuff like that. You just have to sit down and evaluate it.”

-Non-Profit, Hospital-Based, Atlanta Region

“Yeah and the more we talk about it, one thing I can remember that we did change is we used to provide ancillary supplies to our patients. What that means is, we will provide body lotions, your diapers, the pads that you lay on the bed in case the patient is incontinent. We used to supply that to patients. We don't do that anymore. We did cut all that out.... Medicare describes what supplies you really have to supply the patient with. The ones that you don't have to supply the patients with, we did cut those out.”

-Non-Profit, Hospital-Based, Atlanta Region

“Of course, you have to look at the amount of supplies that we're sending out on patients, too, to determine, maybe we shouldn't be sending out that much, especially if there's potential for wound care to change frequently. So, we try to keep it where we're only sending a week's worth, just in case there's a change in the wound care.”

-Non-Profit, Hospital-Based, Atlanta Region

“We've worked with a wound care doctor up in [small rural town], and he taught all of our nurses all about wound care in a cost-effective way. And that is a first time in 40 years a doctor was looking at cost and wound care and “how do we get

this done in a cost-effective way?” Instead of (Aqua gel AD) which is \$120. Let's use this other thing. And so that was a first.”

-For-Profit, Free-Standing, Chicago Region

Changes to staff mix.

In order to adjust to the challenges created by the reimbursement changes, HHC directors reported making various changes to staff. Among the most common changes to staff noted across facilities included using different, less expensive clinical care staff, changing the roles and/or responsibilities of staff and increasing technology in the office in order to make cuts to office staff. Licensed Practical Nurses (LPN) and physical therapy assistants (PTA) are less trained than Registered Nurses (RN) or physical therapists and therefore cost less per hour, consequently this HHC director decided to utilize more LPNs or PTAs in roles that traditionally needed RNs to cut costs.

“We would plug in two RN, or three RN visits. And then like five LPN visits. So instead of the RN going out every day, the LPN can go out in between....

-Non-Profit, Free-Standing, Atlanta Region

Several HHC directors also mentioned increasing the technology available in the HHC agency office in order to make cuts to office staff:

“I think we cut our hours of staff in the office here. And our software has gotten more streamlined, so we don't need as many office staff to be able to process paper, process payroll, that kind of stuff.

-For-Profit, Free-Standing, Chicago Region

Service delivery strategies.

Home health care directors also described employing a range of service delivery strategies to offset the effects of the reimbursement changes. In this study, service delivery is defined as the care and types of HHC services delivered by providers and received by HHC care patients. Directors basically described several strategies they employed to reduce the number of visits provided to a patient. These included making more phone calls to patients during the service period to ensure the patient's adherence to care, using types of supplies such as longer lasting dressings that reduce the number of visits needed for wound care, and carefully evaluating how many visits a patient really needed. In the following quote, an agency director explains why she uses dressings that last longer in certain cases:

“...And in your wound care treatments instead of having daily visits and daily wound care products, we would try to use a dressing that would be good for two to seven days...Because if you're having to make more visits, you have the nurses hourly wage, but also you have that driving time plus you have the mileage of that reimbursement too. So in decreasing the amount of visits again, you might have to pay more for that dressing, but in the long run you're going to be ahead.”

-Non-profit, Hospital-based, Chicago Region

Another strategy used was to reduce the number of in-person visits and rely on telehealth or phone visits to assess patients' ongoing status:

“We started making phone calls on our patients that weren't so critical, instead of making a visit. And if something was going on then we could do a PRN visit if needed. Things like that.”

-For-Profit, Free-Standing, Atlanta Region

In an effort to adjust to the changes in reimbursements, many agency directors cited that their agencies had to cut services to patients after the ACA-mandated reimbursement cuts. The following statements from HHC directors summarize the decisions made by multiple interviewed agencies:

“Due to the cut back and the reimbursement rate, it might have been that where they used to get six, they might only be able to get three because it may be that ... And honestly, it's the same care, though. the patient still needed the therapy three times a week, but due to reimbursement rates, you still had to take care of the patient. So, it's either cut back the visits or get them the same visits, make more money or less money.”

-For-Profit, Free-Standing, Atlanta Region

“And then you know, of course reducing the nursing visits helped with the cost of the actual nurse payment, or consolidating those into what the patient needs exactly, not just going every day for a non-skilled dressing...”

“...Now as far as the nursing visits, they probably decreased some when we were trying to get everyone efficient and still give people the care that they need. Just not like excess where you just have nurses going to make a visit when the patient really doesn't need it.”

-For-profit, Free-Standing, Atlanta Region

One of the most consistent service delivery strategies was the practice of frontloading. The literature defines frontloading as providing more visits in the first few weeks of home health (O’Conner, year). The overall strategy is providing more visits

upfront and increasing the intensity of visits by adding more disciplines upfront to more quickly stabilize the patient and hopefully decrease the length of the episode of care while also reducing unnecessary readmissions to the hospital: Two HHC director describes frontloading:

“And even if we took a patient that we considered more ... Say more unstable. We made sure that we increased their visits on the front end. We call that front loading. So, we would load them up with visits at the beginning of the care so that we could watch them more closely.”

-Non-Profit, Free-Standing, Atlanta Region

“We also see our patients more frequently, when we first admit them, and then, gradually decrease their visits, simply for the purposes of keeping them out of the hospital.”

-Non-Profit, Hospital-Based, Atlanta Region

Admission strategies.

The reimbursement cuts made it more challenging to maintain a profitable patient census for most agency types. Because of this, HHC directors utilized many different types of admission strategies to benefit the HHC agency in the midst of the changes. Some of the admission strategies included adding admission nurses to expedite the enrollment process, educating staff on ways to efficiently maximize care during initial patient assessment, and marketing heavily with hospitals and other health providers for referrals. The main admission strategy was being selective about the type of patients admitted, this included avoiding what they might see as high-cost patients, trying to admit more private pay patients, and avoiding patients whose insurance coverage might

pay less or require more administrative hassles to get reimbursed (as discussed in the challenges section). This strategy is commonly referred to as cherry picking patients. For example, some of the HHC directors stated that they deny MAP patients altogether and only accept traditional Medicare patients. Traditional Medicare pays better, and it has less administrative requirements than MAPs, so as one HHC director stated, “why would I sign-up?” [for MAPs]:

“Like Aetna was just nasty. We don't take it, and then we don't take Humana [A type of MAP] anymore. And we're having to seriously look at the VA because they're not reimbursing in a timely manner. They're reimbursing at a good rate, but not in a timely manner, where Aetna and Humana, they just reimbursed horrible. I mean, it was \$13 for a physical therapy hour visit.”

-For-Profit, Free-Standing, Chicago Region

Moreover, agencies were much more cautious about admitting patient that had not seen a doctor within the previous 90 days. The ACA established a face-to-face encounter requirement for certification of eligibility for Medicare home health services, by requiring the certifying physician to document that he or she, or a non-physician practitioner working with the physician, has seen the patient. The encounter must occur within 90 days prior to the start of care, or within 30 days after the start of care (American College of Physicians, year). As a result of this mandate, several HHC directors mentioned making it an internal policy to only take patients who have been seen in the last 90 days to avoid eating the costs of admitting patients who do not end up seeing a physician 30 days from admission. In the face-to-face (FTF) encounter requirement, a patient has every right to be admitted to HHC with the intentions of seeing

a physician or practitioner in 30 days from admission for their condition, but because patients often present with extenuating circumstances that interfere with their ability to show up for their physician visit within 30 days, many HHC directors created a policy to deny care until their physician visit is actually conducted. An example of this strategy is further explained in the following Director's quote:

“The patient has plans to go see the doctor on day 21, but for whatever reason, they didn't make that appointment and it got delayed past the 30 days, well, everything we've done, nothing can be billed for and there's nothing that you can do about it. You can't appeal it or anything like that. If they go on day 31 to see the doctor, that's not ... You can't use that. So, we've had to make a policy change in our agency, pretty much that they had to have seen the doctor in the last 90 or we don't really take em with the intentions of going to see the physician in the next 30 days.”

-Non-Profit, Hospital-Based, Atlanta Region

The HHC director went on to explain that prior to face-to-face documentation, physicians would not see a patient for months and approve requests for HHC from patients' families over the phone. Therefore, this is a protective strategy developed specifically due to ACA policy. According to the HHC interviewees, the FTF encounter requirement was the most impactful concurrent ACA policy after the reimbursement cuts

On several occasions, HHC directors also stated they added marketing staff or increased marketing tactics during this time period to increase referral of “good paying” patients such as private pay or traditional Medicare. Interestingly, even though traditional Medicare reimbursements were cut via the ACA, agencies were still scrambling to admit

patients with traditional Medicare coverage, rather than Medicare advantage or Medicaid patients. Also, some agencies just tried to increase their census regardless of type of patients through increased referrals. Therefore, many agencies made the executive decision to add marketing staff or to increase marketing during the reimbursement changes. More free-standing than institution-based HHC agencies use marketing strategies to “fight for traditional Medicare patients” during the reimbursement cuts period:

“We just market like crazy to them [hospitals] and say, "Listen, we'll be your backup." And our marketer is awesome. She gets on a personal level with these people and there's one hospital that just overloads us with referrals. So, she does a really good job. We'll be their backup. If they can't take a patient, we'll take them.”

-Non-Profit, Free-Standing, Chicago Region

“Well, we had one marketer. We're up to three now which is big for us because we've never been really big on sending a lot of people out from marketing, but what we found is so much competition out there and some agencies have 15, 16 marketers in one agency and they're out there fighting, like dog-eat-dog world to get these referrals.”

-For-Profit, Free-Standing, Atlanta Region

One HHC director also described strategically keeping a higher ratio of private pay patients to traditional Medicare patients than the competition, so that there is less of an impact on their HHC agency during the Medicare reimbursement cuts. This HHC

director attributed this strategy to one of the reasons their agency was able to sustain the reimbursement cuts:

“Yeah, we were about 60/40 Medicare/Private, so ... Of course, we saw some episodic payment cuts and things like that, but I think we were able to withstand it and keep our staff and keep people working because we had a higher population. A lot of our other competitors were like 90/10 [Medicare/Private] in the area. We've always kind of taken more private patients than anybody else. A lot of them in our area now don't even accept United Healthcare and Humana [Medicare Advantage Plan] and things like that. And we still do, so-”

-For-Profit, Free-Standing, Atlanta Region

Sometimes HHC directors created their own internal admission policies to adjust to the reimbursement changes. Two examples of these types of admission strategies included adding nurses whose sole responsibility is to admit patients to free up time from documentation for field clinical staff and setting a goal to get paperwork for admissions inputted within 48 hours to manage the increase in paperwork from ACA documentation.

“We've added admission nurses where we didn't have those before and then we're also using scribing. So, it's just like when you go in the ER the nurse is in your home and she's doing her assessment and then calling back to somebody in the office and they're entering all the paperwork. So, it's enhancing the flow of the paperwork to get it out to the physician. All they [admission nurses] just do is admissions all day every day. And they'll go out to the patient's house and they'll gather their assessment and while they're doing that there's somebody on the phone from the office that is like a quality nurse. And she's entering and coding

and reviewing that OASIS all at the same time...it helps a lot. The paperwork's not sitting there for weeks on end to go be submitted to the state and also for the orders to be submitted to the physician. Now our orders are signed within four days...before the admission nurses did the paperwork it would sit there for a couple days until she finished it and then when she finished it, it would sit there for days until the quality nurse could get a hold of it. And then the quality nurse took time to review it and then it went to the order person to send it out. Where now it's in the same time that the admission nurse and the quality are doing it simultaneously and then it's to that order person within that day or the next day.”

-Non-Profit, Free-Standing, Chicago Region

Other Strategies unrelated to the ACA-reimbursement cuts.

The Hospital Readmission Reduction Program (HRRP) of 2012 also impacted the admission strategies enforced during this time period. Under this mandate, hospitals are financially penalized if they have higher than expected risk-standardized 30-day readmission rates for acute myocardial infarction, heart failure, and pneumonia. Before this mandate, hospitals had little incentive to reduce readmissions (McIlvennan, Eapen, and Allen, 2015). The HRRP required CMS to reduce payments to inpatient prospective payment participating hospitals with excess readmissions (McIlvennan, Eapen, and Allen, 2015). This policy affects hospital-based HHC agencies because their hospitals put more pressure on them to create strategies to reduce the number of patient visits needed and to keep readmissions down. Among the most common strategies were increasing patient education programs to enhance patient adherence to care and increasing informal caregiver education.

Developing programs to increase patient adherence.

Many HHC directors mentioned teaching patients to get more involved with their care by implementing programs specifically to increase patient adherence to care plans. This strategy was used to reduce the likelihood of readmission to the hospital and to reduce the number of visits and/or the duration of visits:

“We initiated a lot of clinical programs at that time, and booklets and things that we could leave with the patients and give them kind of homework to do and a chart to fill out or a food log to do, so to get them more involved in their care on a daily basis even though we weren't there.”

-For-Profit, Free-Standing, Atlanta Region

Teaching informal caregivers to provide care.

In this study, informal caregivers are defined as non-paid caregivers who provide help to the patient in need. Often, informal caregivers include adult children, spouses, or friends. These people create whole infrastructures of care in order to ensure the needs of their loved one are being met. During the reimbursement cuts, HHC providers also increased the amount of education provided to informal caregivers as a strategy to reduce the likelihood of re-admissions to the hospital and to reduce the number of visits and/or the duration of visits:

“...so, that they (HHC providers) could teach the family members how to take care of the patient so that we could get out. So, that we don't have to stay in there for a long period of time.”

-Non-Profit, Free-Standing, Atlanta Region

“And we also did it with getting our patient's families more involved with their care so that we could decrease our visits. If we have somebody there that we could teach to do a wound care, that was a daily wound care, then we wouldn't have to go every day. We could back that down to a couple times a week and still monitor the wound healing process and things like that.”

-For-Profit, Free-Standing, Atlanta Region

Agency Type Influence on Strategies.

In previous research, for-profit agencies were more likely to deny care to patients with insurance plans that do not pay well. As previously mentioned, this strategy refers to agencies “cherry picking” HHC patients. After talking to several HHC directors who were working during these changes to see if this was done more often by specific agency types, the idea of “cherry picking” patients remain true for many for-profit HHC agencies. However, after probing, a couple HHC directors associated the ability to deny patients care with the income level of the HHC agency and not so much the tax status. There are non-profit agencies who also deny care based on insurance provider, it just depends on whether they as an individual agency can afford to take all patients or not:

“I don't know if that's necessarily based on the for or non-profit. It's based on if you can afford to turn referrals away...If you're getting a bunch of referrals from somewhere else, then maybe you can say no, that's not a lucrative case to take, but I don't know that it has to do, I think it more has to do with your incoming referrals than whether you're profit or non-profit.”

-Non-Profit, Hospital-Based, Chicago Region

The interview data also suggests that there is protection in being a hospital-based HHC agency. They are able to absorb more costly patients because they are part of a larger health care system that can underwrite their expenses and/or provide certain administrative supports which reduces the agencies overall costs of care. It also means that they typically have a more constant flow of referrals than non-affiliated agencies. But this is a double-edged sword, in that they generally have to take what their hospital refers to them which can eat into their revenue if they receive referrals for lower-paid cases or higher need patients. A constant flow of patients can keep an agency operating, but it doesn't make them more profitable necessarily than other agencies.

“We're a little different, because we're hospital owned, so we support our hospital and we take everything that the hospital refers to us, no matter the payer....I'd say our census is higher now than it has been over the last couple years. But that doesn't actually mean just because we have a higher census that we're making more money. It all depends at the end of the day how many are traditional Medicare, how many are Medicaid, how many are private insurance, how many have no insurance at all and that's how it is every day.”

-Non-profit, Hospital-based, Atlanta Region

As mentioned above, the hospital-based agencies included in this study accept all types of insurance, not as a strategy, but because they have a contract to do so with the hospital. However, many free-standing agencies in this study stated that they also accept all insurance types as a strategy to remain fiscally stable. Without the constant flow of referrals from the hospital, all other HHC agencies are “fighting for” Medicare because they pay better than Medicaid and Medicare Advantage plans. Free-standing agencies

might desire to be more selective about what insurance types they accept but opt to take all because the flow of traditional Medicare patients is low, and many times their stream of patient referrals is incomparable to hospital-based agencies. The following quote from a free-standing HHC director is not a completely accurate depiction of the choices afforded to hospital-based agencies but it illustrates free-standing agencies' perception of hospital-based agencies:

“We just have to kind of take ... I mean, we take all insurance. On Medicaid, we get a lot of Medicaid because all of these other home cares have a hospital attached to them. So they [hospital-based] have the Medicare patient load coming to them. Where we just kind of have to just take whatever comes to us...we don't see the amount of Medicare patients that they do. Our Medicare Advantage and our Medicaid probably trump our Medicare, which doesn't make us as profitable as a hospital base. Because we do take the underserved. We also take more difficult patients because they [hospital-based] can have the choice to pick and choose because they have the census to do that where we don't have that security blanket behind us to pick and choose as much as they [hospital-based] do.”

-Non-Profit-Free-standing, Chicago Region

Some free-standing HHC directors of both tax statuses (non-profit and for-profit) explained how they strategize to “take all patients and insurance plans” to make ends meet, a quote from a large for-profit HHC director:

“We take everything. The only thing we don't take is stuff we don't have a contract for, so there are a couple companies we don't have a contract for...And if we don't have a contract for some that call us, we get a contract.”

-For-Profit, Free-Standing, Atlanta Region

Section 3: Impact of Reimbursement Changes on Caregivers, Patients & Staff

Impact on informal caregivers.

Due to the increased pressure on caregivers to help with patient care, many felt burdened by added responsibility. One HHC director describes the feelings of caregivers during this time:

“Well, some of them felt burdened that they had to help their family member. And they felt that Medicare or Medicaid should pay for someone to come in and do these services. And it's not available... So, they felt it was a burden...”

-For-Profit, Free-Standing, Chicago Region

HHC directors also explained how the decrease in the number of patient visits elicited stress in caregivers:

“The biggest thing with them were they were used to us coming in more times a week and more often. So, because of that, obviously they either had to find an alternative for the patient. Some of them had to go to adult day cares. Some of them ...some of the patients, family members like the caregivers ... you could just sense that they were having signs of caregiver burnout. And it was just apparent that they were just at their wit's end trying to figure out what's going to happen.”

-Non-Profit, Free-standing, Atlanta Region

Many caregivers depend on HHC providers for temporary relief from their obligations to their loved ones. In this study, HHC directors stated that many caregivers had a hard time accepting the change in the level of respite care:

“They were having a difficult time. And a lot of them depend on the home health nurse to come in. Or different disciplines of the home health agency to come in to help them out... 'Cause it gives them somewhat of a break even if ... they're there with the patient. It still gives them a sense of she's being monitored and somebody's gonna report this back to the doctor so that they don't have to get them into the car and try to take them to the doctor for every little thing.”

-Non-Profit, Free-standing, Atlanta Region

Impact on patient care .

Despite the effort of some HHC agencies to keep the level of care and services the same for patients, there was still a major impact on patient care during the reimbursement cut period. Agency directors expressed concern that patients' needs were not being met:

“I think that probably some of these patients didn't get what they needed. I don't think they got the full service of care because some agencies say, ‘You got 10 visits, that's it. You can see them for this and then you are out of there.’ And that patient could have possibly needed more but because they looked at the bottom line, they looked at that number and said, ‘This is all we can do’.”

-For-Profit, Free-Standing, Atlanta Region

In some cases, patients were so frustrated with the decrease in the number of visits that many still tried to demand the same level of care provided prior to the reimbursement cuts:

“Well, they were used to having way more visits for longer. So, there are some patients that still try to demand and there are still some physicians that try to

demand to keep patients for a long time and you can't because you don't get reimbursed for it. You gotta get in, do your thing, and get out.”

-Non-Profit, Free-Standing, Chicago Region

Changes to staff morale.

As previously mentioned, HHC directors utilized several cost reduction strategies related to reducing the number and types of staff. These types of changes affected staff morale. Therefore, HHC directors developed incentives to keep staff happy and to reduce the likelihood of turnover: As one HHC director described,

“...we always had little parties for them, Christmas parties, Thanksgiving parties, socials, things like that, that we'd try to keep everybody.”

-For-Profit, Free-Standing, Atlanta Region

Another noted,

“we have question mark days, so if they've had a bunch of days in a row where they're on the weekend, I'll schedule a question mark day in which if we don't need them that day we try to down staff them that day.”

-Non-Profit, Hospital-Based, Chicago Region

HHC agencies reported that the ACA-mandated reimbursement cuts elicited two opposite reactions from staff, either feelings of frustration or pulling staff together in a way that was positive for the team and patient. Staff felt frustrated because they had to work with less, and try to produce the same health outcomes, all while trying hard not to burden patients by telling them that there were changes in reimbursement. Many times, HHC directors would tell staff not to overemphasize changes in the level of care provided. The following are two quotes that reflect staff frustrations:

“Oh, I think it tremendously decreased their morale when they were told that they had to take days off without pay, or use their vacation days to take off, so they weren't being allowed to work. They decreased the morale, feeling like they couldn't make their own choices on what the patient needed, knowing that Medicare or Medicaid was only gonna pay for a certain amount of visits. And patients thought that, "Well, Medicare will take care of everything." And that's not the case. And so then that was frustrating for our staff to present that to patients, and the patients were frustrated 'cause they felt they could have whenever they needed.”

-For-Profit, Free-Standing, Chicago Region

“We were just trying to figure out how can we give them maximized care and give them the quality care that they need, working with less, basically.”

-Non-Profit, Free-standing, Atlanta Region

On the opposite end, some HHC directors stated that the reimbursement changes pulled staff together in an effort to provide the same level of care to the patient regardless of the changes to the reimbursement structure:

“I think it actually pulled the nurses together a little bit because they were strategizing together how to meet the clients' needs. ...So you're working more with other partners to be able to make it all happen. And they are working with us more as a partner to make it all happen...If nothing else, it's making us all work together and behave”

-For-Profit, Free-Standing, Chicago Region

The overall impact of reimbursement cuts was much greater than influencing the ability of an agency to stay fiscally stable; caregivers, patients, staff were also affected by the ACA reimbursement changes to HHC.

Discussion

This qualitative inquiry identified various challenges experienced by agencies and HHC directors, specifically. For example, HHC directors expressed that they are tasked with communicating policy changes, managing multiple policies, maintaining finances, and overseeing staff and patient care. Second, there were various cost reduction strategies used to maintain fiscal stability after the ACA reimbursement changes which included reducing the number of patient visits in order to cut cost, denying care to patients without physician face to face certification for HHC, increasing patient and caregiver support and education, eliminating administrative staff and reducing staff salaries or benefits. The HHC directors in this study perceived that these reimbursement changes impacted informal caregivers, patient care and staff morale. Overall, this study emphasizes the role of policy in influencing the practice behaviors observed within HHC agencies. According to these respondents, the ACA reimbursement cuts dramatically altered service delivery and agency practice, patient access to care and informal caregiver burden.

One of the major challenges faced by HHC agencies during the ACA reimbursement cuts was the increase in referrals of patients with lower paying insurance coverage such as MAPs. The reasons for the increase in this type of plan was a combination of more Medicare beneficiaries enrolling in MAPs during this time and the fact that certain agencies denied care to patients with these plans altogether, consequently increasing the load of other agencies accepting them. Many HHC directors expressed

their agency's frustration with the increase in this type of referral due to the administrative burden and lower reimbursement payments. The existing literature also emphasizes this stratagem, suggesting that certain agencies choose to admit more patients with higher paying insurance and deny care to patients who will cost the agencies more (Goldberg & Schmitz, 1994; Morrisey & Wedig, 1996; Pauline & Linder, 2003; Porell, Liu, & Brungo, 2006). This pattern has only worsened overtime and this agency behavior risks indirectly eroding access to home health care for patients in managed care plans (Medicare Advantage). However, we cannot say with certainty that the behaviors described in this study are occurring in all agencies across the country. Moreover, we do not know if one agency refusing to admit a patient means that the patient does not receive any home health care. From these data it appears that some agencies are continuing to serve all types of patients regardless of their payment source. This raises an additional concern, however, which is whether this practice is also eroding competition within the market and possibly affecting quality of care. In theory, competition should promote higher quality care. However, if some patients are unable to shop around for the best provider because of their insurance coverage, they may no longer benefit from this competitive pressure to provide better care. It is important to note that the vast majority of Medicare beneficiaries who enroll in Medicare Advantage plans are low to middle income (Atherly & Thorpe, 2005). Therefore, future research should study whether patients in Medicare advantage managed care plans are experiencing reduced access to this Medicare benefit as well as lower quality care.

Similar to past research focused on the BBA, one specific challenge to HHC directors was interpreting confounding policies (Davitt, 2009a). The misunderstanding of

policy raises an issue of access to care for Medicare beneficiaries. For example, the HRRP required CMS to reduce payments to inpatient prospective payment participating hospitals with excess readmissions (McIlvennan, Eapen, & Allen, 2015). However, many hospital affiliated HHC agency directors interpreted this policy incorrectly and suggested that both the hospital and the HHC agency were financially penalized. In actuality, the hospital is the only one financially affected. Part of the reason why HHC directors may misinterpret policies is because they are single-handedly managing so many responsibilities. As described in the qualitative data, all directors declared the difficulty in balancing finances, patient care, staff retention, communications, and the HHC agency all at the same time. Many HHC directors spend their time putting out small fires throughout the day and have little time to focus on long-term projects. This is important because the HHC directors' interpretation of policy ultimately impacts access to care for Medicare beneficiaries in their service area. Misinterpretation of policy may lead to under delivery of services and could lead to unnecessary reductions in access to care for patients in need of readmission to HHC.

Similar to existing research covering the BBA, the strategies used to manage the reimbursement cuts either focused on reducing the amount of service to patients, the intensity of service (RN vs LPN), or on cutting costs for supplies and support services (Davitt & Choi, 2008a; Davitt, 2009b). These strategies raise important concerns about both access to care and the quality of care being provided. For example, using an admitting nurse on one hand could expedite the admission process thus freeing-up clinical staff time. On the other hand, using one nurse for admission and others for ongoing care could also disrupt the quality of care provided as patient information might

not get transferred, new relationships have to be built with the clinical nurse, and subtle patient cues may be overlooked in the transition from one staff person to another; leading to poorer quality of care being provided to Medicare beneficiaries. Many HHC directors also mentioned cutting the number of visits, using alternative suppliers or cutting the number of supplies given to patients during this time period to reduce cost, but it is not clear if using cheaper supplies and having fewer patient visits impacts the quality of care received by patients. Alternative supplies could mean that patients received supplies of a lower quality than the supplies received before the ACA. The reduction in supplies given by HHC may imply that patients paid more out of pocket expenses for supplies after the ACA reimbursement cuts and the decrease in the number and duration of visits may have affected the quality of care received by patients. It is important for researchers to measure health outcomes of patients with less visits to similar patients who received more visits to definitively say so. All of this raises concern that many of these alternate strategies could be problematic in terms of access and quality of care. Unfortunately, we could not evaluate that concern with the data used in this study. However, future research should evaluate the impact of such changes on access to and outcomes of Medicare Home Health care.

Unique to this study was the confounding influence of the physician face-to-face visit required 90 days prior or within 30 days of first HHC visit during the ACA reimbursement time period. While denying patients who do not meet the physician face-to-face requirement prior to admission helps HHC agencies avoid risks, it also potentially decreases access to care for Medicare beneficiaries. If every HHC agency adopted this strategy, many beneficiaries would be denied care potentially resulting in poorer health

outcomes or premature institutionalization. There are a multitude of reasons patients may not see a physician for their condition such as the cost of additional visits, severity of condition, access to care, or lack of caregiver support. These raises concerns that vulnerable groups such as low-income older adults and those with multiple morbid conditions could be more likely to be affected. Again, future research should determine the barriers to patients accessing a physician on an in-person basis for certification.

HHC directors also described strategies implemented due to the increase in competition for specific patient referrals during the ACA reimbursement cuts. Specifically, these directors mentioned increasing marketing staff or hiring marketing staff during this time in order to increase the number of Medicare referrals. Medicare remained the highest payer to HHC throughout the reimbursement cuts, therefore many HHC agencies were “out there fighting, like dog-eat-dog world to get these referrals”. Adding marketing staff was a tactic employed in the best interest of the HHC agencies for fiscal gain. Although it is not uncommon for institution-based agencies to have marketing divisions, there is less of a fight over patient referrals as the patients in their census are consistently being referred by the greater institution. Therefore, in this study, mainly free-standing agencies described employing marketing strategies in order to increase patient admissions. Without marketing staff working to bring in more referrals, a competitive market may prove too fatal for some agencies and thus they exit the market.

The findings also allude to cost shifting during the reimbursement cut period. Several HHC directors mentioned an increase in wound care referrals during this time. Data from the interviews, suggest that wound clinics referred low-income patients to HHC during the ACA reimbursement cuts in order to receive wound supplies. Neither

wound clinics nor HHC agencies receive reimbursement for the cost of supplies, however the cost of the supplies is already embedded in the budget of HHC agencies. Therefore, this finding suggests that part of the increase in wound care referrals for HHC is due to the influx of low-income patient referrals from wound clinics. These patients and their families are being referred to HHC by the wound clinics because these families have fewer resources with which to purchase supplies privately.

The underlying theme among all of the strategies utilized during the reimbursement cut period is that the strategies were created in the best interest of the HHC agency, rarely was a strategy utilized or created specifically to help the patients. Even in cases in which the strategy might benefit the patient, as with enhanced patient and family education, ultimately the initial objective was to reduce the potential likelihood of financial penalties to a sister organization or even to directly reduce the amount of care provided by getting informal supports to do the work. Research has documented that HHC agencies placed greater demand on patients and their families to provide informal care in order to reduce the number of visits provided or the length of the care episode(Davitt, 2009b). Previous research has also demonstrated that patients with informal caregivers received fewer self-care support services, experienced greater decreases in skilled and nonskilled HHC visits than patients without caregivers, and that the HHC payment restrictions enforced under the BBA increased the caregiving burden on low-income families (Golberstein et al., 2009). With that said, the amount of responsibility placed on families, described in this study, also raises the concern of quality of care. Providers may still be placing too much burden on patients and their caregivers to reduce their time in the patient's home. Families are being asked to do

things that professionals have spent years learning how to do. Plus, not all families are equally prepared, have equal resources (e.g. clean home or multiple participating family members), or have the emotional willingness to provide for their family-member. Placing so much emphasis on family assumes that this infrastructure is even available and healthy for the patient. HHC agencies must consider older adults who do not have family or informal support. As greater numbers of adults are living alone and fewer with spousal support (Lofquist, Lugaila, O'Connell, & and Feliz, 2012; Weissman & Russell, 2018) providers cannot continue to assume that additional support is available for every patient as they have done in the past (Davitt, 2009b; Davitt & Kaye, 2010). Home health care providers must plan to manage patients who do not have any support available so that they have the option to remain in their home or else this group of older adults may get referred to institutional settings unnecessarily.

In this study, tax status, size, and two regions were selected to maximize the variation in the sample of HHC agencies. Although saturation was attained with nine interviews, four additional interviews were collected in order to enhance the representativeness of each selected characteristic. (Morgan, 1997; Stewart, Shamdasani, & Rook, 2007). Overall the data suggests that HHC agencies of different tax status, size, and in the two regions selected addressed the challenges of the ACA reimbursement cuts in a similar way across themes. Tax status has historically been influential in the gaming behaviors described above, however, in this study, some HHC directors suggested that during the ACA time period, this behavior had less to do with tax status and more to do with the income level of the individual HHC agency. HHC directors also expressed that they used and witnessed the use of similar strategies regardless of tax status. However, it

is important to note that these HHC directors are potentially biased in that most of them may have been hesitant to say whether or not they actually denied care to patients with extreme care needs and particular diagnoses. Also, differences based on size did not emerge from the data. Large HHC agencies generally have more resources than smaller agencies, but the actual responses did not suggest major differences in strategy by size. Additionally, the data did not suggest major differences amongst HHC agencies from the two regions of interest, Chicago and Atlanta. It did not appear that the challenges and strategies described were unique to any specific region in this study.

The similarities in the data collected from agencies with different characteristics suggest the isomorphism of HHC agencies overtime. Isomorphism examines the process in which agencies facing similar conditions are forced or encouraged to resemble one another (Hawley, 1968). DiMaggio and Powell (1983) argue that responses to governmental and professional actions and competitive environments result in interaction among agencies(DiMaggio & Powell, 1983). In an environment of change, competition, and uncertainty, isomorphism suggests that HHC agencies imitate institutional styles viewed as successful or predominant. Therefore, historically, when for-profit agencies are strong and have a reputation of competitive advantage, non-profit agencies may mimic for-profit structure and behavior, but if non-profits predominate, for-profits may instead mimic non-profit agencies (Estes et al., 1993; Estes & Swan, 1994) . The BBA was the first major legislation to change the reimbursement structure of HHC and it caused drastic changes within the HHC market. It is possible that this policy first encouraged the exchange of information and mimicking of institutional structures among HHC agencies. The law enforcement of the ACA reimbursement cuts may have further encouraged HHC

agencies to behave similarly and share strategy which may explain the minimal differences described amongst HHC agency directors in this study. Over the history of HHC, the replication of strategy and interaction amongst different agency types may have resulted in overall increasing uniformity amongst HHC agencies.

Affiliation was not a characteristic of interest in this study, however it emerged as the most important factor in an agency's ability to thrive during the ACA reimbursement cuts. In this study, the affiliation of HHC agencies was important to an institution-based agency's ability to remain active. In comparison to free-standing HHC agencies, institution-based agencies benefit from being associated with a larger institution such as a hospital. Being part of a larger institution cushions the impact of reimbursement cuts, because the larger entity can provide administrative support, technology support, and other human resources that ultimately reduces the costs to the HHC agency itself. While being institution-based helps with maintaining referrals and resources, several HHC directors in this study pointed out that this does not also imply that institution-based HHC agencies profit more than free-standing agencies. They may, for example, have a consistent census that is comprised of patients with lower paying insurance plans such as Medicaid. However, although they may not be making more money or increasing the profit for the greater institution, these HHC agencies may still be saving the hospital money if they help reduce readmissions.

These results suggest that additional research should be conducted to further explore the experience of more vulnerable HHC agencies. HHC directors from institution-based agencies indicated that they receive a stream of referrals from their associated institutions that maintained their census during this period of time. Without

additional funds to help protect more vulnerable agencies during restrictive periods, access to care for beneficiaries will be impacted by potential HHC agency termination. This research also suggests the development of a more accurate criterion for accepting and declining HHC patients so that the reasons for admitting or to deny patients services is well documented. It is possible that those agencies who deny services to patients based on insurance types or diagnoses will be less inclined to do so if the reason for denial is more accurately documented. In order to determine if substituting supplies does not affect the quality of care for patients, future clinical research should examine the effectiveness of alternative brands of supplies. This will ensure that patients are still getting the same quality of care. Additionally, future research should explore discrimination in HHC on the basis of the social arrangements of a patient. The findings may prevent the undue burden placed on many informal caregivers and may positively affect the number of services and supports these families receive. Furthermore, future research should examine whether educational programs that provide support to HHC directors in interpreting policies could positively impact access to care for patients. With all of the responsibilities HHC directors are juggling it may be better to outsource the additional task of interpreting policy as misinterpretation of policy may affect access to care by leading to overuse or underuse of services by Medicare beneficiaries.

One limitation of this qualitative analysis is that self-report introduces the idea of social desirability bias. This type of bias occurs when interviewees answer questions in a way to portray themselves in a good light. Also, connected to social desirability bias is the possibility that HHC directors may have been too embarrassed to reveal specific strategies they implemented because they denied care to potentially high cost patients.

Additionally, HHC agencies in the New York region were also found to be more likely to exit the market before and after the ACA reimbursement cuts, but the perspectives of HHC directors in this region were not explored in this study. Lastly, the results of this analysis cannot be extended to wider populations of HHC directors.

This study has several strengths. First it was guided by the statistical significance of quantitative results. The investigator's variables of interest were specifically selected due to either historical or statistical relevance. Second, this inquiry included the perspective of several different types of agency directors from different states across the country. Third, this study was the first qualitative study to investigate the experiences, describe the challenges, and provide insight into strategies utilized during the ACA reimbursement cuts period of 2014-2017. With the quantitative data alone, it is harder to determine if the changes observed can be attributed to one policy. The qualitative data helped emphasize the importance of the ACA reimbursement changes in the midst of other policy changes under the ACA.

Dissertation Discussion

Agency Reactions Compared To Previous Policy Changes

This study has several findings consistent with previous literature. Similarly, after the implementation of both the IPS and the PPS, the number of new and active HHC agencies decreased, free standing HHC agencies were more likely to exit the Medicare program, larger HHC agencies were less likely to exit the HHC market and decreases in staff were experienced by HHC aides and social workers in both the IPS and the PPS periods (Choi, S. & Davitt, 2009b; Davitt, 2009b). Though comparable, it is still very important to note the lower level of intensity of the changes in the market after the ACA. The changes observed before and after the ACA are drastically different from the changes between the IPS and PPS. For example, the rate of change between 1996 to 2002 for Home Health Aides was - 42.45 % (Davitt & Choi, 2008b) compared to a mean difference of -0.25 % between period 1 (2010-2013) and 2 (2014-2017) under the ACA. Also, after the PPS, with policy that incentivized the use of therapy, overall occupational therapists increased +55.56 % (Davitt & Choi, 2008b) compared to a mean difference of +0.05 from period 1 to period 2 after the ACA. There are several reasons that could explain why the observed changes in HHC are considerably different between the BBA and ACA.

First, the BBA was the first mandate to directly decrease reimbursements to HHC. Second, the change from fee for service to a capitated per episode prospective payment system dramatically altered reimbursements for the first time in the history of the Medicare Home health care program. Research from that period shows that agencies made very drastic changes in the amount and type of services provided (Davitt & Marcus,

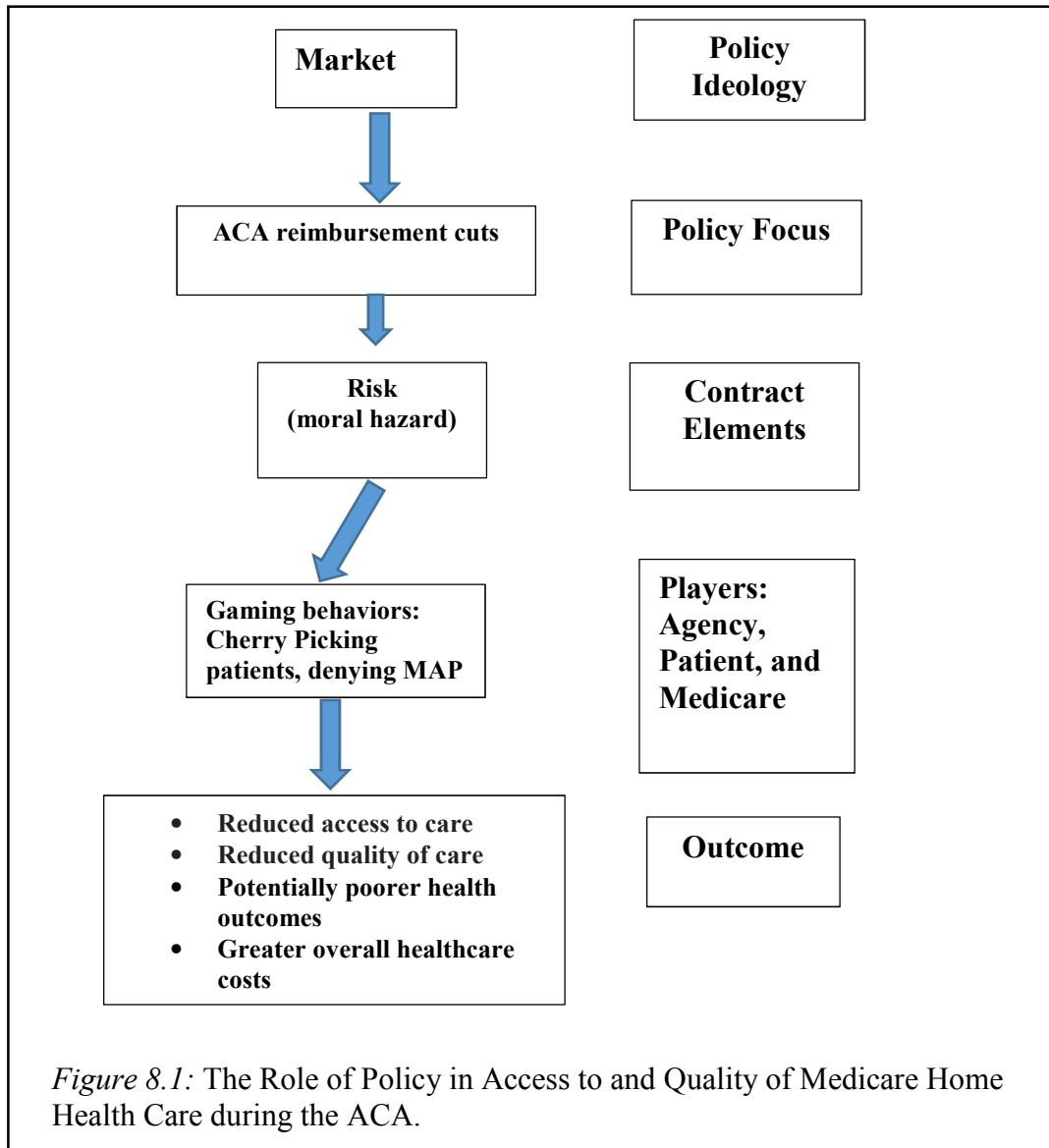
2008; Davitt & Choi, 2008b; Davitt, 2009b; Davitt & Kaye, 2010; Lin et al., 2006; Liu et al., 2003; McCall, N. et al., 2003). Therefore, after such drastic cuts and changes, the HHC agencies that stayed in the system could almost handle anything thrown at them and may have adapted strategies to withstand additional changes. Moreover, BBA cuts were so extreme, that it is likely that agencies could no longer cut much from their programs after the BBA because they hit a wall and can simply cut no further without compromising patient care, resulting in the smaller changes observed within the market after the ACA. Third, the changes implemented under the ACA were smaller, less drastic, announced four years before implementation (2010) and implementation was phased in over a four-year period (2014-2017) giving HHC agencies time to adapt and prepare for the changes. The results of Aim one support this idea by highlighting that agencies gradually exited the market each year prior (2010-2013) to the first year of reimbursement cuts, 2014. Also, after the reimbursement cuts, the highest number of exits occurred during the two years when the highest amount of money was cut from reimbursements. Further suggesting that the period before the reimbursement cuts, gave agencies time to prepare for the changes ahead and that agencies preemptively exit the market as a precautionary measure. This pattern is further supported by previous literature on the BBA which highlighted that market exits were higher under the IPS than the PPS(Choi, Sunha & Davitt, 2009). The PPS was a less drastic system change therefore, unlike the IPS, HHC agencies had time to prepare for the changes ahead (Choi, Sunha & Davitt, 2009; Schlenker et al., 2005). The differences observed in changes after the BBA and ACA, raise the concern of whether the HHC market can bear any more

changes to the reimbursement structure without sacrificing quality of care and altering access to care.

While it is important to acknowledge that many of the differences resulting after the ACA were small in comparison to differences observed in the HHC market under previous policy, what is unique to this study is that the qualitative data allows for additional exploration into the meaningfulness of the quantitative results. It is important to consider the context of the results before concluding that small changes are not meaningful. For example, the percent change in active HHC agencies from period 1 to period 2 was -5.4. Although, this is a very small difference, it may still be an important change if most of the decreases in HHC agencies occurred in areas of the country that serve more vulnerable groups with less options for HHC. In the qualitative study, for example, one HHC director from a rural area described the specific challenge of having to increase territory because other HHC agencies in near-by areas had closed permanently. This HHC director also described their patient population as vulnerable and low-income. This suggests that small changes in the number of HHC agencies may be more important depending on the location of the HHC agency and the types of people served. Additionally, many of the differences observed in overall staff and different types of staff were significant yet small. However, given the context provided from the qualitative inquiry, gaining .5 of a LPN provider may mean more in a setting that is overburdened by the number of patients to serve in the service area. Gaining one part-time LPN may not be meaningful to the number of patients served by a large, hospital-based HHC agency, but it may make a difference in the number of patients served for a smaller agency in a rural setting as described above.

Though the ACA reimbursement changes may not have been as drastic in terms of policy changes, as compared to BBA, this policy still generated gaming practices that reflect the self-interest of HHC agencies. The more risk that is placed on the HHC agency, the more aligned it will be with the system and the more it will tighten access to care. This is reflected below in the following explanatory model (*Fig. 8.2*).

Figure 8.1



This explanatory model highlights the role of risks in influencing provider behaviors. Due to the restrictive policy focus of the ACA reimbursements, there were more perceived risks embedded in the policy than incentives. Thus, the gaming behaviors utilized by the agent were in the best interest of the HHC agencies leading to potential reduced access to care, reduced quality of care, and poorer health outcomes for patients. All of which can lead to greater overall healthcare costs.

Critique of Game and Agency Theory

In this study, Game theory and Agency theory were combined and utilized as the theoretical framework to guide the research. Agency theory takes game theory one step further by assigning identities to the players in Game theory. Examining the relationship between agent and principal, allows for a deeper analysis of the role of risks and incentives and its effect on behaviors which ultimately influence outcomes. Together they served as an explanatory model to anticipate findings in the qualitative inquiry. In this model, “HHC agencies/providers” represent the agent because the HHC agency has control over the validating device. In any given health care system of redistribution, a validating device is the set of criteria that makes a person eligible for health services (Davitt & Choi, 2008e; Stone, 1984). Keeping the categories of redistribution, those criteria, small limits the amount the government is spending on services. Thus, categories need to be restrictive in order to constrain the government’s cost. In HHC, policy changes have attempted to tighten access by directly defining who is eligible or, as the case in this study, by trying to influence the behavior of the players in the game. As HHC agencies are ultimately in control of who they choose to serve, they are the agent. The principal could arguably be the Medicare beneficiary or Medicare policy itself, however, who the

principal is depends on who the agent is aligned with at the time. Who the agent aligns with depends on the policy incentives (or risks) at the time.

Historically, the policy incentives have focused on cutting costs in the health care system and not on improving the quality of care. Instead, the health care system has incentivized providers to be invested in providing services to patients rather than invested in the health of the patients. Therefore, in most cases in HHC policy history and in the ACA the agent has been align with Medicare policy rather than the beneficiary. This raises the concern of the patient's role in health care policy and also introduces the question of whether the Medicare beneficiary should be included as principal as they bare most of the risks in access to care and quality of care in the overall outcomes of this model (*Figure 8.2*).

While the policies mandated within the health care system have historically incentivized HHC providers to act in self-interest and align with Medicare Policy, as shown in *Figure 8.2*, this has unfortunately resulted in greater overall health care costs, reduced access to care, reduced quality of care, and poorer health outcomes in most cases to more vulnerable groups such as the elderly, low-income, comorbid, and less educated. When applied to HHC, this theory highlights a critical flaw of the healthcare system which is policies are not developed to include the patients as active players in their own healthcare decisions.

This study's model should be utilized to highlight the flaws of past policy development, including the ACA, to develop more comprehensive policies in the future that potentially lead to greater access to care, quality of care, and health outcomes. This research suggests that future policies should be developed to ensure that the Medicare

Beneficiary has an active role as principal in combination with Medicare policy. It is possible that if Medicare beneficiaries become active players in the game, providers will be less incentivized to game the system using strategies that may ultimately have negative outcomes for patients. It is possible that creating policies that include the Medicare beneficiary as an active player in the game may lead to better overall health outcomes for patients, increased efficiency within the HHC market, and lower costs in the health care system which benefits both Medicare beneficiaries and the Medicare program. Future research should explore.

Future research should continue to study these theories together and apply this explanatory model to other health care systems as a method to anticipate provider behaviors in other settings such as hospitals, skilled nursing facilities, and inpatient patient rehabilitation facilities. Historically, the intention of reimbursement policy has varied. It may have been mandated to rebase a system after repeated examples of overuse in HHC or it is possible that it was an additional attempt to simply reduce the government's role in paying for services. Regardless of the intent, future research should determine the actual impact on patients, small or large.

Policy makers need to be more attentive to the underlying assumptions of policies, the role of patients and providers in access to quality health care, and the influence of policy on behaviors in the health care system. Using this theoretical framework in conjunction with policy development could ultimately lead to the advancement of improved policies that positively affect providers and patients within the health care system resulting in increased access to care and quality of care.

The current study highlights many examples of the role of risks in influencing the agent's behaviors. Due to the restrictive policy focus of the ACA reimbursements, there were more perceived risks embedded in the policy than incentives. Thus, the gaming behaviors utilized by the agent were mostly in the best interest of the HHC agencies.

Integration of Aims

Institutional-based home health care agencies.

In the period after the ACA reimbursement cuts, institution-based HHC agencies were less likely to exit the HHC market. This finding was further emphasized by the qualitative results. Institution-based HHC directors stated that during the ACA reimbursement cuts, their agencies remained active because they maintained a solid patient census from a consistent flow of patient referrals from their greater institution. In addition, they could be more selective, choosing to admit less-costly patients and patients with the best insurance coverage. Whereas free-standing agencies, in many cases, had to scramble to receive referrals and directors reported that they received referrals for patients that the institution-based agencies would not admit. Institution-based agencies may also be less likely to exit the market because they can utilize the administrative and overhead support of their greater institution. Whereas free-standing agencies may choose to eliminate human resources such as office staff or maintenance in order to cut cost, institution-based agencies have the additional benefit of being able to utilize the human resources of their greater institution during reimbursement changes. Institution-based agencies also spend less money on marketing because they do not need to use marketing staff to attract patients and their providers.

These collective findings demonstrate the impact of institutional resources on the gaming behaviors utilized during the ACA reimbursement cuts. It seems that institution based HHC agencies are less influenced by the periods of policy restriction due to the nature of their relationship with their greater institution. It also seems that the consistent flow of patient referrals from the greater institution affords institution-based agencies the ability to be more strategically selective when choosing patients to serve. *Figure 8.2* suggests that the selectivity of patients may lead to reduced access to care and potentially poorer health outcomes, which raises concerns particularly for more vulnerable groups who are more likely to utilize lower paying insurance plans (Atherly & Thorpe, 2005; Ayanian, Landon, Newhouse, & Zaslavsky, 2014).

These findings also imply that institutions may be subsidizing costs for their associated HHC agencies. This introduces the question of whether institution-based agencies are actually doing better than free-standing HHC agencies and whether they would likely exit the market as a stand-alone facility. It is hard to determine whether institution-based facilities actually have better strategies to withstand reimbursement changes or if they simply rely on support from their institution in restrictive policy periods. Without the additional resources, institution-based agencies may be just as likely to survive as free-standing agencies. The additional support provided, raises concerns about how institutions are funding HHC agencies and which stream of funding they rely on most to help HHC agencies in need. Because greater institutions help with overall cost for their associated agencies, the actual cost of patients served by these facilities may not even be known. The care provided by institution-based HHC agencies could very well cost the healthcare system much more. One other important issue is related to economies

of scale. If it is indeed cheaper to share overhead costs and optimal for an agency when there is an association with a larger institution, maybe it is not a bad idea to operate this way; it is possible that it is in fact more efficient. This idea is further emphasized by the fact that institution-based agencies are both currently and historically less likely to terminate from the HHC market, which may indicate that this is an effective strategy to sustaining access to care in communities. This could also be related to why there is a push to merge and develop Accountable Care Organizations (ACO) from the CMS. An ACO is a group of doctors, hospitals, and other health care providers such as HHC who come together voluntarily to give coordinated high-quality care to Medicare patients. By working together, the ACO avoids unnecessary duplications of services and share in the savings it achieved for the Medicare program (Centers for Medicare and Medicaid Services, 2017).

Tax status.

Historically, for-profit agencies have used “cherry picking” as a strategy to remain profitable. The stratagem refers to selectively accepting more profitable patients than less profitable patients. After the IPS, for-profit agencies were more likely to exit the market and they experienced greater volatility throughout during both the IPS and PPS (Choi, S. & Davitt, 2009b; Porell et al., 2006). Previous research suggests that HHC agencies who were using this gaming behavior could no longer use it to stay afloat due to the drastic nature of the reimbursement cuts and the new system designed to control costs by tying payments directly to patient acuity levels. Due to this new system, the margin of profit for each patient plummeted dramatically and many agencies chose to leave the HHC market altogether. In the current study, however, tax status was not significantly

associated with the likelihood of exiting the HHC market in the period before the reimbursement cuts and it was not significant in the period after the ACA reimbursement cuts. Collectively, the data from this study and historical trends in HHC, suggests that potentially many of the problematic for-profit agencies who were previously utilizing this gaming behavior, left the HHC market during the twenty-year period after the BBA. It is possible, that tax status was not significant after the ACA reimbursement cuts because most of the remaining for-profit agencies do not use these questionable strategies and strategize more like non-profits.

This further emphasizes the idea of isomorphism of HHC agencies as previous research has already applied this concept to the HHC market. Isomorphism suggests that HHC agencies imitate institutional styles viewed as successful or predominant (DiMaggio & Powell, 1983). Therefore, historically, when for-profit agencies are strong and have a reputation of competitive advantage, non-profit agencies may mimic for-profit structure and behavior, but if non-profits predominate, for-profits may instead mimic non-profit agencies (Estes & Swan, 1994). Overtime, it is possible that the remaining agencies of both tax statuses are becoming more alike due to repeated interaction in terms of strategy resulting in similar behaviors, or isomorphism (Swan & Estes, 1990). With the quantitative results alone, the idea of isomorphism did not seem meaningful until supportive data later emerged from the qualitative inquiry. When asked about for-profit agencies, their selective behavior, and ability to remain active several HHC directors of both tax statuses stated that overall income was more important and being for-profit or non-profit was less of a factor in remaining active and maintaining fiscal stability. Several agency directors in this study also confirmed that agencies utilized similar

strategies during the ACA reimbursement cuts. For example, some agencies of both tax statuses found themselves accepting more types of insurance plans (private, Medicare Advantage Plans, Medicaid) and more types of patients than they did before the policy change in order to make ends meet. Other agencies refused patients either deemed too costly or with more problematic insurance coverage. Due to the historical trend of isomorphism in HHC (DiMaggio & Powell, 1983; Estes & Swan, 1994; Swan & Estes, 1990), there seems to be a continuation of this tendency that has only become more pronounced overtime.

Many of the shared strategies amongst HHC agencies raises concerns for access to care and quality of care. In this study, HHC directors mentioned several admission strategies that could affect access to care for more vulnerable patients (*Figure 8.2*). The ACA reimbursement policy was implemented around the same time that face to face documentation was required and, as suggested in the explanatory model, this caused a change in behavior of agencies. Several HHC directors openly admitted that they deny care to patients who have not seen a physician within the last 90 days, even though patients have 30 days to see a physician or practitioner from the point of admission. Highlighted in *Figure 8.2*, due to the restrictive nature of the reimbursement cuts, HHC agencies could not afford to risk providing care to patients who if they miss their physician appointment, will then be denied reimbursement payment. Their margins were too tight to take that gamble.

As anticipated through the theoretical framework, this practice on the part of some agencies may result in barriers for some patients to access this care (*Figure 8.2*). This is much more likely to affect vulnerable patients who do not have a primary care

physician or other regular care source who would be willing to see them quickly to meet the requirement. Such patients are more likely to be low-income and/or less educated (Andersen et al., 2002; Chetty et al., 2016; Towne, Probst, Hardin, Bell, & Glover, 2017). Similarly, the utilization of highly advertised MAPs increased during this period of time, but the results of the study imply that many providers are not happy with the level of payment and administrative cost of accepting this type of plan. Therefore, some providers mentioned that they do not even accept these plans which again negatively affects access to care for MAP-insured patients who are more likely to be low income, minority and less likely to have control over co-morbid conditions (Atherly & Thorpe, 2005; Ayanian et al., 2014). Lack of access for more vulnerable patients could lead to higher overall costs in Medicare and ultimately affect Medicaid because these particular groups may deteriorate even more rapidly and end up re-admitted to the hospital or admitted directly to nursing homes. In order to prevent the denial of certain types of patients, Medicare should consider streamlining some of the administrative tasks for insurance plans such as MAPs to simplify the processing of payment to providers in contract with these insurance plans.

Size.

The gaming behaviors observed within the HHC market during the ACA reimbursement cuts were not always related to patient care. Sometimes it was related to the agency's decision to enter or exit the market depending on the incentives or risks in the market at the time. In each individual period, before and after the ACA reimbursement cuts, size was found to be associated with the odds of an agency exiting the HHC market, which agrees with the study hypotheses. Smaller agencies were

expected to be more vulnerable to termination because larger agencies may have more resources to pull from during reimbursement cuts. When examining each period separately, a closer look at the results of aim two shows smaller agencies were more volatile during the period before the ACA reimbursement cuts (aOR = 2.09) than during the period after (aOR = 1.68). One potential explanation is that many smaller agencies may have exited the market prior to the beginning of the reimbursement cuts. In *Table 4.2* of Aim one, the number of agencies terminating from the HHC market is gradually increasing in each consecutive year prior to the first year of reimbursement cuts. In *Table 4.3*, the number of small active HHC agencies decreased from period 1 to period 2. Taken together with the idea that HHC agencies were aware of the pending changes as early as 2010, it is possible that many smaller agencies gamed the system by exiting the market before 2014 because they knew they would not be able to withstand a period of reimbursement cuts. As a result, although still more likely than large, the remaining smaller agencies are observed to be a little less volatile in the period after the reimbursement cuts.

The qualitative results of this study also highlight the particular struggles of small, rural HHC agencies. As previously mentioned, one HHC director described how their HHC agency expanded the service territory of their agency during the ACA reimbursement cuts in order to provide services to patients in nearby areas that lacked access to HHC; this raise concerns regarding patient care. When HHC agencies provide services beyond the capacity of the individual agency this jeopardizes the agency's fiscal stability, the jobs of staff, and the quality of care to patients. This finding also raises concerns regarding access to care for patients in rural areas because if providers in rural

settings exit the market due to burden or if there is only one provider in the area, this may erode competition and could affect the quality of care received by patients. Serving beyond capacity also has a negative impact on the work environment and stress of HHC staff which could also influence the quality of care provided.

Staff.

The theoretical framework of this study helped anticipate the gaming behaviors of HHC directors during the ACA reimbursement policy change. The explanatory model posits that restrictive policy are embedded with perceived risk to providers. Consistent with the theory, the behaviors and cost-reduction strategies described in this study reflect this influence. However, many of the strategies utilized impact staff. For example, though small, the average staff count of LPNs increased from period 1 to period 2. In the qualitative inquiry, HHC directors underlined this finding by stating that they replaced RN positions with LPNs and hired more LPNs after the ACA reimbursement cuts. Several HHC directors also noted that they did not fire any RNs, rather replaced them after natural attrition. One reason why HHC directors chose to hire more LPNs is because it is a cost reduction strategy to utilize clinical staff that cost less per hour. Licensed Practical Nurses can perform many skills similar to RNs, however they are less trained. Although LPNs are an important part of clinical staff, the substitution of RNs with LPNs raises concerns of quality of care. If reimbursement changes push agencies to the point that they have to sacrifice the level of training of staff over providing the highest level of quality care ultimately the patients and their care plan may be affected.

Other personnel such as office staff was one of two largest average decreases between period 1 and period 2. This finding was consistent with statements from HHC

directors who mentioned that they initiated many strategies to maintain clinical staff and only made cuts to office staff when necessary for cost reduction. Although it may be best to keep clinical staff that are in the field taking care of patients, decreasing office staff also implies that the administrative burden of tasks such as entering data into the electronic system and processing paperwork may increase for clinical staff. In fact, one HHC director mentioned that they added an admission nurse whose sole purpose was to admit patients and file paperwork in order to free more clinical time with patients and decrease administrative time for clinical nurses in the field. However, those agencies that cut office staff, are most likely transferring those duties to clinical staff. This may mean that they have less time with their patients. They may also feel the need to rush their visits in order to get everything done in a timely fashion, therefore undermining quality care.

There was not much difference between overall staff count before and after the ACA reimbursement cuts, however, many HHC directors in this study also stated that they utilized multiple strategies to maintain staff which may explain why the mean difference is almost non-existent. Although, HHC directors indicated that they “tried to keep staff”, they also described several cost reduction strategies that may affect the morale of staff. Many staff kept their jobs during the ACA reimbursement cuts, however it is possible that many staff perceived the cost of keeping their jobs higher than leaving their jobs under the working conditions. HHC directors described decreasing hours, increasing work expectations, eliminating staff bonuses or pay raises for consecutive years. These practices raise concerns regarding staff morale which has been shown to be associated with quality care in many health and human service systems (Helfrich et al.,

2014; Meredith et al., 2018; Salyers et al., 2017; Sinsky et al., 2013). In this study, many HHC directors expressed being worried about the impact of their decisions on staff morale and therefore developed small incentives such as staff holiday parties as an effort to keep staff happy during this time.

In Aim three of this study, many characteristics of HHC agencies were associated with the odds of decreases in total staff. This finding is in contrast to qualitative findings that suggest that HHC directors tried to maintain staff during this policy change.

However, it is possible that the association between agency characteristics and the odds of decreases in total staff, does not necessarily mean that agency directors were actually making the decision to eliminate staff. Under the previously described staff working conditions, many staff may have self-terminated. It is not unusual for a nurse or a HHC aide to have several jobs. If presented with a situation where expectations are high and raises and bonuses are cut, it is possible that the observed association is due to staff self-termination. Moreover, as previously mentioned in the results of this study, a couple of HHC directors mentioned that they depended on natural attrition to replace RNs with LPNs, further suggesting that they did not intentionally fire RNs, they replaced these positions when and if they left the HHC agency.

Some of the cost-reduction strategies could have a negative effect on staff morale and the quality of life for staff. Decreasing office support, eliminating raises and decreasing staff hours all contribute to staff burnout. Staff morale is an important factor because it affects the quality of care that is provided to patients. If staff are unhappy with the working conditions, as suggested in the results of this study, they may choose to self-terminate which may affect the HHC agency's ability to provide care, consequently

limiting access to care for beneficiaries in the service area. As described by one HHC director in this study, in order to prevent burnout of staff, more HHC agencies may consider hiring admission nurses whose sole purpose is to admit patients and file paperwork in order to free more clinical time with patients for nurses in the field. However, in order to also prevent the disruption of care provided and to streamline patient information during transfer, instead of directly reporting information to office staff for data input, the admission nurses should report data directly to the incoming nurse to report to office staff. In order to streamline the plan of care, the admission nurse should also leave all major clinical assessments to the field nurse and limit their assessments to data needed for admission only.

Implications for Future Research

The changes observed within the HHC market under the ACA reimbursement policy have great implications for access to care and quality of care for Medicare beneficiaries (*Figure 8.2*). HHC agencies worked within the constraints of the ACA policy change and their behaviors, as described in this study, are reflective of the gaming that occurs in order to stay financially stable (*Figure 8.2*). The problem with this is that the gaming and acting in self-interest can have negative effects on providers and patients. Future research can be instrumental in addressing some of these concerns to help shape policies in which both the patients and the providers thrive.

First, future research needs to determine if care from a RN and LPN is comparable and whether it produces the same health outcomes in HHC. If so, replacing RNs with LPNs would not be a cost reduction strategy with negative implications for quality of care, instead it may promote both cost-effectiveness and quality of care.

Second, future research needs to determine if the association of multiple agency characteristics with decreases in staff is due to natural attrition and if so, determine the exact reasons behind self-termination of staff so that better programs and benefits can be developed to increase staff morale in HHC to encourage staff retention. Developing and maintaining a working system that positivity affects staff morale may result in positive changes in the quality of care provided to patients.

Third, future qualitative research needs to determine whether the concern about MAP reimbursements expressed in this study holds for providers in other regions of the country. In other words, is this a widespread problem that could eventually erode access to care for many patients? Patients that lose access to home health care may have no other choice than to enter a skilled nursing facility after they fulfill the three-day hospitalization requirement. Or if they simply go without care, they may end up back in the hospital sooner, due to deterioration in their health. Either of these scenarios is likely to increase Medicare costs overall. This is especially important given the increasing numbers of Medicare beneficiaries enrolling in MAPs. This finding emerged but was not the focus of this study. Future research should also extend the methodology of this study by examining patient outcomes and patient characteristics pre and post the ACA reimbursement cuts, to determine the types of patients most affected by these changes, if quality of care was affected, and if access to care changed after the ACA reimbursement cuts.

Last, future research should additionally attempt to estimate how much institutions are subsidizing patient care in their affiliated home health agencies. If in fact this is a more efficient method to provide care, then policy incentives could be used to

encourage this approach. However, this also raises concerns about cost shifting within institutions and potential fraud in terms of insurance reimbursements. If this is the future of HHC, potential research must also consider rural areas that do not have larger institutions to merge with. What happens to access to care for Medicare beneficiaries in these areas? All valid questions they need to be answered in future research in order to implement the most effective policies for HHC to produce the best health outcomes in patients.

In conclusion, the results of this study aided by the theoretical framework highlight the impact of policy on agency practice and service delivery by HHC agencies during the ACA reimbursement cuts. Overall, the ACA reimbursement cuts presented more financial risk to agencies than incentives, influencing the behaviors of agencies and decision making of HHC directors which led to implementation of internal policies and strategies utilized for the financial benefit of the agency. Some of the behaviors highlighted in this study directly affected service delivery and therefore risk undermining access to and quality of care for Medicare beneficiaries.

Appendices

IRB Approval of Research Notification

Quantitative, Approval date: 5/11/2018.



University of Maryland, Baltimore
Institutional Review Board
Phone: (410) 706-5037
Fax: (410) 706-4189
Email: hrpo@umaryland.edu

NOT HUMAN RESEARCH DETERMINATION

Date: May 11, 2018

To: Joan Davitt
RE: HP-00080693
Name: Assessing the Impact of the Affordable Care Act Reimbursement Policy on the Medicare Home Health Care Market and Implications for Beneficiaries

This letter is to acknowledge that the UMB IRB reviewed the information provided and has determined that the submission does not require IRB review. This determination has been made with the understanding that the proposed project does not involve a systematic investigation designed to develop or contribute to generalizable knowledge **OR** a human participant (see definitions below).

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

Definitions –

Human Research: Any activity that either:

- Is "Research" as defined by DHHS and involves "Human Subjects" as defined by DHHS ("DHHS Human Research"); or
- Is "Research" as defined by FDA and involves "Human Subjects" as defined by FDA ("FDA Human Research").

Research as Defined by DHHS: A systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

Research as Defined by FDA: Any experiment that involves a test article and one or more human subjects, and that meets any one of the following:

- Must meet the requirements for prior submission to the Food and Drug Administration under section 505(i) of the Federal Food, Drug, and Cosmetic Act meaning any use of a drug other than the use of an approved drug in the course of medical practice;
- Must meet the requirements for prior submission to the Food and Drug Administration under section 520(g) of the Federal Food, Drug, and Cosmetic Act meaning any activity that evaluates the safety or effectiveness of a device; OR
- Any activity the results of which are intended to be later submitted to, or held for inspection by, the Food and Drug Administration as part of an application for a research or marketing permit.

Human Subject as Defined by DHHS: A living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through Intervention or Interaction with the individual, or (2) information that is both Private Information and Identifiable Information. For the purpose of this definition:

- Intervention means physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.
- Interaction means communication or interpersonal contact between investigator and subject.
- Private Information means information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record).
- Identifiable Information means information that is individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information).

Human Subject as Defined by FDA: An individual who is or becomes a subject in research, either as a recipient of the test article or as a control. A subject may be either a healthy human or a patient. A human subject includes an individual on whose specimen (identified or unidentified) a medical device is used.

Please keep a copy of this letter for future reference. If you have any questions, please do not hesitate to contact the Human Research Protections Office (HRPO) at (410) 706-5037 or HRPO@umaryland.edu.

Qualitative, Approval date: 9/26/2018.



University of Maryland, Baltimore
Institutional Review Board
Phone: (410) 706-5037
Fax: (410) 706-4189
Email: hrpo@umaryland.edu

NOT HUMAN RESEARCH DETERMINATION

Date: September 26, 2018

To: Joan Davitt
RE: HP-00082858
Name: Assessing the Impact of the Affordable Care Act Reimbursement Policy on the Medicare Home Health Care Market and Implications for Beneficiaries

This letter is to acknowledge that the UMB IRB reviewed the information provided and has determined that the submission does not require IRB review. This determination has been made with the understanding that the proposed project does not involve a systematic investigation designed to develop or contribute to generalizable knowledge **OR** a human participant (see definitions below).

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

Definitions –

Human Research: Any activity that either:

- Is "Research" as defined by DHHS and involves "Human Subjects" as defined by DHHS ("DHHS Human Research"); or
- Is "Research" as defined by FDA and involves "Human Subjects" as defined by FDA ("FDA Human Research").

Research as Defined by DHHS: A systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

Research as Defined by FDA: Any experiment that involves a test article and one or more human subjects, and that meets any one of the following:

- Must meet the requirements for prior submission to the Food and Drug Administration under section 505(i) of the Federal Food, Drug, and Cosmetic Act meaning any use of a drug other than the use of an approved drug in the course of medical practice;
- Must meet the requirements for prior submission to the Food and Drug Administration under section 520(g) of the Federal Food, Drug, and Cosmetic Act meaning any activity that evaluates the safety or effectiveness of a device; OR
- Any activity the results of which are intended to be later submitted to, or held for inspection by, the Food and Drug Administration as part of an application for a research or marketing permit.

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- Intervention means physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.
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- Identifiable Information means information that is individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information).

Human Subject as Defined by FDA: An individual who is or becomes a subject in research, either as a recipient of the test article or as a control. A subject may be either a healthy human or a patient. A human subject includes an individual on whose specimen (identified or unidentified) a medical device is used.

Please keep a copy of this letter for future reference. If you have any questions, please do not hesitate to contact the Human Research Protections Office (HRPO) at (410) 706-5037 or HRPO@umaryland.edu.

Semi-structured Interview Guide

Background

- To get us started today, I am interested in the Patient Protection and Affordable Care Act reimbursement cuts that occurred between the years 2014-2017 and this agency's experience during that period of time. Tell me about when the ACA reimbursement policy went into effect.

Interview Guide

1. What challenges did the ACA-mandated reimbursement changes create for your agency?
2. What service delivery strategies did you use to manage the ACA-mandated reimbursement changes?
 - a. How are these decisions made?
 - b. What role did the home/base HHA have in this decision-making process?
3. What cost reduction strategies did (you/agencies/agency name) use to manage the ACA-mandated reimbursement changes?
4. Did (you/agencies/agency name) make any changes to staffing to manage the ACA-mandated reimbursement changes? If so, how?
 - a. Number of staffs?
 - b. Type of staff?
 - c. Hours of employment?
 - d. Roles/responsibilities of staff
5. What admission strategies did (you/agencies/agency name) use to manage the ACA-mandated reimbursement changes?
6. How did (you/agencies/agency name) think the ACA-mandated reimbursement changes affect staff morale?
7. How did the ACA-mandated reimbursement changes affect patients?
8. How did the ACA-mandated reimbursement changes affect informal support? (non-paid caregivers, family members)
9. Some states may have implemented policy changes around the same time that the ACA changes went into effect. Were there any other policies that occurred during this time period that impacted [agency name]?
10. Thinking back over the time that the ACA went into effect [and the state policies if any?], did the responses of agencies in this region impact other agencies in this service area? If so, how?
 - a. Closures?
 - b. Cuts to patients?
 - c. Changes to patient care/service delivery?
11. Finally, how do you balance the multiple priorities you have in managing a HHC agency?
 - a. How has the policy change shaped your approach to competing priorities for managing a HHC?
 - i. Can you identify some of your competing demands/priorities?
 - b. Has this policy change exasperated any competing demands you have in managing a HHC agency?

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