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Evaluation of the Shared Decision Making (SDM) and Medication Management (MM) Health Care Innovation Awardees

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EXECUTIVE SUMMARY

Acumen, LLC (“Acumen”) and its partner, Westat, Inc., are contracted by the Centers for Medicare & Medicaid Services (CMS) to conduct a mixed-methods evaluation of shared decision making (SDM) and medication management (MM) programs that received CMS’s Health Care Innovation Awards (HCIA) Round One funding. The SDM and MM HCIA awardees aim to improve patient health, reduce health care resource use, and lower health care expenditures through novel patient care interventions. Participant enrollment into these programs for the CMS project began in 2012, and HCIA implementation activities concluded in 2015. Following the conclusion of the HCIA contract period in June of 2015, some of the SDM and MM awardees transitioned into the no-cost extension (NCE) period of the award. During the NCE period, Welvie, LLC and the University of Hawaii were the only awardees that continued to deliver the full interventions to beneficiaries enrolled in their programs. To account for updated findings for these awardees from the NCE period, this Third Annual Report Addendum includes evaluations using the most recent Medicare claims data available for Welvie, LLC’s SDM program (Welvie) and University of Hawaii’s MM program (Pharm2Pharm). This addendum also includes the first quantitative analysis of University of Pennsylvania’s MM program (HeartStrong), using claims data from Medicare Advantage (MA), Medicaid, and commercial insurance providers submitted by the awardee in April 2017.

A summary of our analytic approach and key findings for each of the three awardees (Welvie, Pharm2Pharm and HeartStrong) included in the report are provided below.

Analytic Approach

Acumen used intervention and claims data to evaluate program effects for intervention groups relative to controls on health outcomes, quality-of-care indicators and resource use for all three awardees and expenditure outcomes for Welvie and HeartStrong. The quantitative analyses used beneficiary-level intervention data (participant identifiers, program enrollment dates, and other program-related information) obtained directly from the awardees, which were then linked to insurance plan enrollment and claims data for analyses. Single difference or differences-in-differences (DiD) analyses were used to estimate program effects. Results are presented with p-values indicating statistical significance at the 1%, 5%, and 10% levels. Quantitative analyses were supplemented by qualitative descriptions of program design and components based on information collected previously from program materials, interviews, site visits, and awardee reports submitted to the Lewin Group website.

Key Findings on Program Effects by Awardee

A brief description of the core innovation components and findings on program effects for each of the three awardees is provided below.

Welvie

Welvie offers education, health information, and decision-making resources regarding preference-sensitive surgeries to beneficiaries to enhance patient experience, increase surgery literacy, improve surgical outcomes, and reduce inappropriate surgeries. The Welvie intervention comprises outreach mailings, which include brief educational content, as well as an invitation to use an in-depth, six-step decision aid. The decision aid is available online, as a mailed paper booklet, or by phone, and it is designed to educate patients further about potential risks, benefits, treatment alternatives, and expectations related to surgery. The decision aid also covers topics related to preparing for surgery and recovering after surgery.

Welvie randomized beneficiaries to be included in the intervention and control groups for each of its three cohorts: Ohio FFS, Ohio MA and Texas MA. The Welvie intervention was the only SDM intervention implemented as a randomized controlled study. Acumen utilized this randomization to conduct single difference or DiD analyses comparing intervention group beneficiaries to controls for each of the three cohorts separately. While the analysis of the Ohio FFS cohort used Medicare FFS claims data from the Common Working File (CWF) through March 2016, the analysis of the Ohio MA cohort used MA claims data through September 2015, and the analysis of the Texas MA cohort used Humana MA claims data through December 2015. The Anthem Ohio and Humana Texas MA claims data were obtained by Welvie from its insurance partners and provided to Acumen.

Our analysis found some evidence that the Welvie intervention may have been beneficial for beneficiaries in making informed decisions regarding surgery and other treatments. For the FFS and MA cohorts in Ohio, the Welvie intervention was associated with statistically significant decreases in mortality, utilization of some health services (including surgical services), and corresponding expenditure types. Most significant decreases for the Ohio cohorts, however, were observed in the early stages after program enrollment (i.e., receipt of first outreach) and were not sustained cumulatively across the full observation period (twelve quarters for the FFS Ohio cohort and eleven quarters for the MA Ohio cohort). Analysis for the MA Texas cohort over the six quarters after program enrollment found mixed results which were largely inconclusive.

Notable results of the Welvie evaluation for the FFS cohort in Ohio include the following:

- Consistent with one of the program goals of improving surgical outcomes for patients who undergo surgery, there was a statistically significant decrease in the rate of inpatient surgery readmissions in the first year after program enrollment (Year 1). The estimated effect for the first year corresponds to about 100 fewer beneficiaries being readmitted (within 30 days of an inpatient surgery admission) per 1,000 beneficiaries who had at least one inpatient surgery admission (p-value: 0.002).
- Decreases in ER visits observed in the first year after enrollment may also indicate potential improvements in post-surgery outcomes. There were 13 fewer ER visits per 1,000 intervened beneficiaries in Year 1 (p-value: 0.062).
- First-quarter decreases in total medical expenditures of just under \$100 per beneficiary (p-value: 0.063) were driven by decreases in inpatient expenditures of about \$82 per beneficiary (p-value: 0.013), total surgery expenditures of \$54 per beneficiary (p-value: 0.030), and preference-sensitive cardiac surgery expenditures of \$22 per beneficiary (p-value: 0.032) in the same quarter.
- The analysis also found statistically significant decreases in mortality for intervention participants, estimated at about 22 fewer deaths per 1,000 beneficiaries (p-value<0.001), cumulatively across the twelve quarters after program enrollment.

To the extent that the randomized intervention and control groups provided by Welvie were similar on unobservable pre-enrollment characteristics that influence outcomes, a potential interpretation of these findings is that the program had downstream effects on mortality. This may be due to avoidance of high-risk surgeries or improvements in surgical outcomes, which may have contributed to the observed decreases in inpatient readmissions and ER visits.

Results for the MA Ohio cohort were generally similar to those for the FFS Ohio cohort; notable findings for the MA Ohio beneficiaries include the following:

- The Welvie intervention was associated with a cumulative decrease of \$138 per beneficiary (p-value: 0.049) in total surgery expenditures across the eleven quarters after program enrollment, which was driven by statistically significant decreases in surgeries and surgery-related expenditures in Year 1.
 - There were decreases in surgery-related resource use outcomes in Year 1, including 7 fewer surgeries per 1,000 beneficiaries and 28 fewer surgical hospital days per 1,000 beneficiaries in the intervention group relative to controls, driven in part by statistically significant decreases in inpatient surgeries and preference-sensitive cardiac surgeries also in Year 1.
 - A time-to-surgery analysis suggested that statistically significant decreases in surgeries among MA Ohio beneficiaries in the first year after program enrollment did not lead to increased surgery utilization in later periods.
- ER visits decreased on the order of 8 per 1,000 beneficiaries in Year 2, which may be a downstream effect of Year 1 decreases in surgery-related resource use, or reflect improvements in surgery outcomes.

- A statistically significant decrease of \$39 per beneficiary (p-value: 0.019) in non-ER outpatient expenditures was also observed in Year 1.
- There was a statistically significant decrease in total medical expenditures of \$170 per beneficiary (p-value: 0.014) in Year 1, which was driven in part by statistically significant reductions in surgery-related expenditures and non-ER outpatient expenditures described above.
- There was also a small yet statistically significant cumulative decrease in mortality, with 3 fewer deaths per 1,000 beneficiaries (p-value: 0.084) estimated across the eleven quarters after program enrollment, although quarterly and yearly effects on mortality were not statistically significant.

For the MA Texas cohort, the Welvie intervention was associated with statistically significant decreases in some surgery-related resource use and expenditure categories and increases in others, but these findings should be interpreted with caution. The MA Texas cohort experienced a cumulative increase in inpatient surgeries, and decreases in outpatient preference-sensitive orthopedic surgeries and outpatient preference-sensitive cardiac surgeries across the six quarters after program enrollment. Similar statistically significant changes were observed in corresponding expenditure categories. However, the initially randomized control group in the MA Texas cohort was later exposed to the intervention by Humana (Welvie’s insurance partner for the intervention in Texas), through outreach materials that were made available to the full Humana Texas population. Thus, the results should be interpreted as the additional effect of Welvie’s outreach activities, over and above the effects of Humana’s outreach to its full patient population. Further, the results were assessed for only six quarters following program enrollment for the MA Texas population, and thus cumulative effects over a longer time period are unknown.

In summary, the Welvie intervention was associated with statistically significant decreases in some utilization and cost measures, including those related to surgery. These effects were concentrated in the first few quarters or first year after initial program outreach for the FFS and MA cohorts in Ohio. The results differed for the MA Texas cohort, with increases generally observed for inpatient surgeries and related expenditures, and decreases observed for outpatient surgeries and related expenditures. There were also cumulative decreases in mortality for both the FFS and MA cohorts in Ohio but not for the MA cohort in Texas. While this may indicate differential effects of the program as administered to the Humana MA population in Texas, results for the Texas cohort should be interpreted in light of the program implementation factors described above.

Pharm2Pharm

The Pharm2Pharm HCIA innovation implemented a formal hospital pharmacist to community pharmacist care coordination model designed to address medication management

issues that occur during and after transitions of care. Pharm2Pharm targeted the elderly and other individuals who have been hospitalized and were at risk for subsequent medication-related hospitalizations and emergency department visits, regardless of insurance status. The program relied on specially trained hospital pharmacists and community pharmacists who incorporated additional medication management services into their daily practice. Although the Pharm2Pharm program had a standard set of patient targeting criteria, hospital pharmacists had the flexibility to override the criteria, in consultation with other clinicians, if they believed a patient could benefit from the program.

Acumen conducted analyses of program effects on a combined cohort of Medicare FFS and MA beneficiaries who were also enrolled in Medicare Part D using Medicare claims data in the CWF through March 2016. Acumen matched a comparison group to the Pharm2Pharm intervention group along an extensive list of demographic, health status and baseline resource use variables observable in the data to conduct single difference and DiD analyses of medication adherence, mortality, and resource use outcomes for the eight quarters following beneficiaries' enrollment into the Pharm2Pharm program.

The findings from the analysis were largely inconclusive; participation in the Pharm2Pharm program was not associated with statistically significant effects on most outcomes, except for an increase in Year 2 mortality and cumulative increases in certain service utilization outcomes, but these estimated effects cannot be credibly attributed to the intervention as they more likely reflect unobserved differences in pre-enrollment health trajectories between program participants and controls. Specifically, there was an increase of 71 deaths per 1,000 beneficiaries (p-value: 0.002) in the second year following program enrollment. There were also statistically significant increases of 672 inpatient admissions per 1,000 beneficiaries (p-value: < 0.001) for the intervention group relative to controls cumulatively over the intervention period, primarily driven by increases in the first year of the intervention. These increases in mortality and inpatient admissions may be driven by a large spike in the death rate among controls in the first quarter after enrollment, likely resulting in more survivors in the participant group who could experience adverse outcomes or utilize health care services. These results likely reflect selection bias. As mentioned, Pharm2Pharm enrolled participants based on standard targeting criteria, but also allowed pharmacists to enroll patients at their discretion. Patients targeted by pharmacists may differ from controls in health-seeking behavior and other unobservable pre-enrollment characteristics that influence health-related outcomes.

HeartStrong

The HeartStrong innovation provided patients who had been recently hospitalized for acute myocardial infarction (AMI) with automated and person-based medication reminder

systems, as well as financial incentives to motivate medication adherence. The goal of the HeartStrong program was to improve patient adherence to cardioprotective medications with the aim of minimizing cardiovascular events and reducing unnecessary health care service utilization.

HeartStrong's intervention randomly assigned eligible individuals to intervention and control groups. However, a majority of the randomized study participants were enrolled in commercial payer insurance or Medicaid programs. The low enrollment of Medicare beneficiaries precluded Acumen from conducting a quantitative analysis for the Medicare population using Medicare claims data. HeartStrong was able to compile insurance plan enrollment and medical and prescription drug claims data from its five commercial insurance partners and provide the data to Acumen in November 2016 and April 2017,¹ respectively. Acumen used these data on randomized intervention and control group enrollees to conduct a single difference analysis of program effects on a mixed payer cohort of Medicare Advantage, Medicaid and commercial insurer enrollees in the year following their enrollment in the HeartStrong program. Adherence to cardioprotective medications targeted by the program, in-hospital mortality, AMI and cardiovascular event-related outcomes as well as broader measures of resource use and expenditures were assessed.

The quantitative analysis on the HeartStrong program's effects on enrollee outcomes and expenditures was largely inconclusive due to data quality and sample size issues. The evaluation generally did not identify statistically significant impacts of the intervention on measures of medication adherence, readmissions, in-hospital mortality, resource use, or expenditures, with some exceptions that most likely reflect statistical noise rather than program effects. However, there were only a total of 658 intervention group enrollees and 314 controls across sponsors who met the inclusion criteria for the analysis. In addition to the small sample size and relatively short follow-up period available for analysis, some data quality concerns may also have influenced the results. There were no statistically significant effects on most utilization measures and resulting costs related to cardiovascular events, except for a higher number of AMI-related hospital days observed for intervention groups relative to controls during the intervention year (p-value: 0.026), which likely drove the increase in expenditures related to acute AMI events (p-value: 0.057). However, given the small sample of enrollees with any acute AMI-related events following program enrollment, these estimates likely reflect statistical noise rather than program effects. There were no statistically significant differences in the occurrence of AMI events or on expenditures related to a wider range of cardiovascular events. Among the broader measures of expenditures, there were statistically significant cumulative decreases in total medical and drug

¹ Although UPenn originally transferred data from its insurance partners to Acumen in July 2016, several revised versions of the data were sent in subsequent months, with the final transfer occurring in April 2017.

costs of about \$7,687 per enrollee (p-value: 0.075) and decreases in cumulative outpatient non-ER costs of about \$2,134 per enrollee (p-value: 0.085) among intervention enrollees included in the measure relative to controls. The total medical and drug cost result, however, may not represent program-wide effects as this measure could only be assessed for a subset of the sample due to lack of uniformity in the drug spending information across insurers.

1 INTRODUCTION

Acumen, LLC (“Acumen”) and its partner, Westat, Inc., are contracted by the Centers for Medicare & Medicaid Services (CMS) to conduct a mixed-methods evaluation of three programs implementing shared decision making (SDM) innovations and six programs implementing medication management (MM) innovations that received CMS’s Health Care Innovation Awards (HCIA) Round One funding. Round One HCIA SDM and MM awardees began enrolling participants for the CMS project in 2012 and concluded HCIA implementation activities in 2015. Following the conclusion of the HCIA contract period in June of 2015, some of the SDM and MM awardees transitioned into the no-cost extension (NCE) period of the award. During the NCE period, Welvie, LLC and the University of Hawaii were the only awardees that continued to deliver the full interventions to beneficiaries enrolled in their programs. To account for updated findings for these awardees from the NCE period, this Third Annual Report Addendum includes updated evaluations using the most recent Medicare claims data available. This addendum also includes the first quantitative analysis of University of Pennsylvania’s HeartStrong intervention, using claims data from Medicare Advantage (MA), Medicaid, and commercial insurance providers submitted by the awardee in April 2017. Section 1.1 below provides an overview of the awardees, while Section 1.2 describes the data sources and evaluation methods included in this report.

1.1 Overview of Awardees

The SDM and MM HCIA awardees aim to improve patient health, reduce health care resource use, and lower health care expenditures through novel patient-level care interventions. Generally, SDM encourages patients to become fully informed about the risks and benefits of available medical treatments and to participate in selecting the most appropriate treatments or care management options for their individual needs. The HCIA SDM programs provide patients with advice on how to effectively communicate with their health care providers, as well as unbiased information on their medical conditions and treatment options, in an effort to reduce preference-sensitive procedures, reduce expenditures, and improve health outcomes and quality of care. MM programs conduct medication reviews, work to improve care coordination and transition, and communicate with patients, physicians, and other health care providers through a range of means, including phone, in-person meetings, and health information technology (HIT). The SDM and MM awardees evaluated in this report are:

- (1) Welvie LLC (Welvie), SDM
- (2) The University of Hawaii at Hilo’s (UHawaii) Pharm2Pharm program, MM
- (3) Trustees of the University of Pennsylvania’s (UPenn) HeartStrong program, MM.

1.1.1 Core Components of the Innovations

The Welvie program offered education, health information, and decision-making resources regarding preference-sensitive surgeries to Medicare beneficiaries with the goal of enhancing patient experiences, increasing surgery literacy, improving surgical outcomes, and reducing the incidence of inappropriate surgeries. Surgery decision aids were primarily accessed through a web-based tool or paper equivalent format and were also available by phone. Further details are provided in Section 2.

Section 3 details UHawaii’s Pharm2Pharm program, which aimed to develop a formal “hospital-pharmacist-to-community-pharmacist” care coordination model designed to address medication management risks during transitions of care and for up to a year post-discharge.

Finally, UPenn’s HeartStrong program used GlowCap pill bottles, phone reminders, and other incentives to monitor and improve patient adherence to cardioprotective medications in the year after acute myocardial infarction (AMI), as described in Section 4.

1.1.2 Enrollment

Welvie began enrolling patients in September 2012, while Pharm2Pharm and HeartStrong began enrolling patients in March 2013. Table 1-1 lists each awardee’s cumulative program enrollment and payer mix. For Welvie and Pharm2Pharm, the payer mix is generated by linking participant-level program data on intervention beneficiaries to CMS’s Medicare enrollment data to reflect the Medicare status of the beneficiary on the day they entered the Welvie or Pharm2Pharm program. For HeartStrong, the payer mix summary presented in the table below was provided directly by the awardee and included both intervention and control enrollees. Welvie had a large number of participants in their intervention group—252,792, and over 95% of them were either enrolled in Medicare Parts A and B or Medicare Advantage (MA). Pharm2Pharm had 2,167 participants, of which roughly 71% were enrolled in Medicare Parts A and B or MA. Lastly, HeartStrong enrolled 1,501 AMI patients; two-thirds of whom were assigned to the intervention group to receive the innovation, while the remaining one-third were assigned to the control group and resumed usual care. Only a small share of the 1,501 AMI patients in the HeartStrong program were enrolled in Medicare FFS (2%), while most participants were either MA (39%) or non-Medicare (57%).

Table 1-1: SDM and MM Program Enrollment and Payer Mix

Awardee	Earliest Month of Enrollment	Latest Month of Enrollment	Medicare Parts A and B (FFS)		Medicare Advantage		Other Medicare Enrolled		Not Medicare-Enrolled / Unknown		Total
Welvie (Total)	9/2012	4/2015	67,005	27%	177,175	70%	6,038	2%	2,574	1%	252,792
Welvie (Ohio)	9/2012	2/2015	66,338	37%	106,446	59%	5,990	3%	2,398	1%	181,172

Awardee	Earliest Month of Enrollment	Latest Month of Enrollment	Medicare Parts A and B (FFS)		Medicare Advantage		Other Medicare Enrolled		Not Medicare-Enrolled / Unknown		Total
Welvie (Texas)	5/2014	4/2015	667	1%	70,729	99%	48	0%	176	0%	71,620
Pharm2Pharm	3/2013	5/2015	787	36%	751	35%	86	4%	543	25%	2,167
HeartStrong*	3/2013**	1/2015**	37***	2%	567	38%	20	1%	879	58%	1,503

Notes: “Medicare Parts A and B” and “Medicare Advantage” may include dual-eligible beneficiaries and beneficiaries enrolled in Medicare Part D.

Most beneficiaries classified as “Other Medicare Enrolled” have Medicare Part A only, although other insurance statuses (e.g., Parts A and D) are rarely observed.

“Not Medicare-Enrolled/Unknown” includes study participants who were not enrolled in Medicare on the day they entered the program, or for whom the awardee did not provide sufficient personally identifiable information to link to Medicare claims.

*HeartStrong enrollment counts include individuals enrolled in both the intervention and control group, as both were included in the summary payer mix statistics provided by the awardee.

**Although HeartStrong summary data did not provide exact first and last enrollment dates for their study participants, the awardee indicated that the program launched in March 2013 and ended enrollment in January 2015.

***HeartStrong counts under “Medicare Parts A and B (FFS)” include all beneficiaries enrolled in Medicare FFS, including those enrolled only in Medicare Part A. This summary data was directly provided by the awardee.

1.1.3 Geographic Reach

The SDM and MM programs evaluated in this addendum were active in different geographic areas across the United States. During the HCIA program implementation period, Welvie served participants in Ohio and Texas. It also conducted a provider referral pilot program through Humana-owned practices in Florida from June 2015 through December 2015. The Pharm2Pharm program was only available in Hawaii. HeartStrong initially operated only in Pennsylvania and New Jersey, but eventually expanded to a total of 45 states in an effort to increase enrollment.

1.2 Data and Methods

This Third Annual Report Addendum is focused on addressing the following overarching research question: which innovative approaches reduce health care costs while improving or maintaining the standard of care, patient health, and quality of life? To address this question, the addendum presents updated analyses of program effects using more recent Medicare claims data for the Welvie and Pharm2Pharm programs, and newly available mixed-payer claims data provided by the awardee for the HeartStrong program.

The quantitative analyses used intervention and claims data to examine each program’s overall effectiveness in improving patient health outcomes while reducing resource use and medical expenditures for intervention beneficiaries relative to controls. Specifically, Acumen conducted single difference and difference-in-differences (DiD) analyses of mortality, inpatient readmissions and resource use for all awardees. Acumen also evaluated expenditures for Welvie and HeartStrong. For the two MM programs (Pharm2Pharm and HeartStrong), adherence to

targeted medications was additionally assessed. For Welvie and Pharm2Pharm, these analyses were conducted on Medicare FFS and MA beneficiaries, which constituted the majority of program participants, while HeartStrong’s analysis was on a mixed-payer cohort consisting of MA, Medicaid, and commercial payer enrollees. For the DiD and single difference analyses, Acumen used randomized control groups provided by the awardee in the case of Welvie and HeartStrong, and created matched comparison groups for the analysis of Pharm2Pharm. The data sources, outcome measures, comparison group selection, study inclusion criteria, and analytic method are described below, in turn.

1.2.1 Data Sources

Acumen’s quantitative analyses used intervention data (participant identifiers, program enrollment dates, and other program-related information) obtained directly from the awardees, which were then linked to insurance plan enrollment and claims data for analyses. The source of available claims data varied by cohort. Welvie’s analyses were based on Medicare claims data obtained from CMS files as well as claims data provided by the awardee. Pharm2Pharm’s analysis relied exclusively on Medicare claims data from CMS files, while HeartStrong’s analysis exclusively used claims data provided by the awardee. Table 1-2 lists the claims data sources used for each cohort and the associated observation periods presented in this Third Annual Report Addendum.

Table 1-2: SDM and MM Awardee Data Sources and Observation Periods

Cohort	Claims Data Source	End of Observation Period	Follow-Up Quarters After Enrollment
Welvie FFS Ohio	CMS Common Working File (CWF)	March 2016	12
Welvie MA Ohio	Welvie’s insurer partner (Anthem Ohio)	September 2015	11
Welvie MA Ohio*	CMS Integrated Data Repository (IDR)*	December 2015	11
Welvie MA Texas	Welvie’s insurer partner (Humana Texas)	December 2015	6
Welvie MA Texas*	IDR*	December 2015	6
Pharm2Pharm FFS/MA	CWF	March 2016	8
HeartStrong Mixed Payer	HeartStrong’s insurer partners	January 2016**	4

*Additional analyses using IDR MA claims data for Welvie’s MA Ohio and MA Texas cohorts are included in Appendix C, and are presented for comparison with analyses conducted using Welvie-provided MA data.

**This is an estimate; claims data provided by HeartStrong did not include actual dates.

The claims data sources differ slightly by analytic cohort. Medicare claims data were generally obtained from CMS’s Common Working Files (CWF). The CWF includes data on diagnoses, health care service use, and expenditures across care settings for Medicare FFS beneficiaries, but it does not include this information on for non-inpatient settings, or expenditures in any setting for MA beneficiaries. Because the quantitative analysis of the Pharm2Pharm program was conducted on a combined cohort of both FFS and MA beneficiaries

using CWF data, the analyses did not focus on expenditure and non-inpatient service use outcomes. For the Welvie MA cohorts, however, Acumen was able to use MA claims data that Welvie obtained from its insurance partners (Anthem Ohio and Humana Texas) as well as data from CMS's integrated data repository (IDR), which contains beneficiary-level data on service use, diagnoses, procedures as well as expenditures across multiple settings.² Finally, given the relatively small share of Medicare FFS enrollment in the HeartStrong population, Acumen used claims data provided by the awardee that were generated from its commercial insurer partners on a mixed-payer cohort of MA, Medicaid and private insurance enrollees.

Acumen used these Medicare and awardee-provided claims data sources to identify and observe the outcomes of interest for intervention and control group study participants as described in the following sections.

1.2.2 Outcome Measures

Acumen used CMS-recommended measures of health outcomes and quality-of-care indicators, health service use, and medical expenditures, and also assessed mortality rates and other relevant measures to evaluate program effects whenever possible. The four meta-evaluation measures recommended by CMS include total medical expenditures per beneficiary, as well as emergency room (ER) visits, inpatient admissions, and 30-day (unplanned) hospital readmissions per 1,000 beneficiaries. These meta-evaluation measures were assessed for all three programs with the exception of the total medical expenditures and ER visits for Pharm2Pharm, since Acumen's available MA data is primarily inpatient utilization data, and the Pharm2Pharm analysis combines FFS and MA beneficiaries into a single cohort. Acumen also assessed rates of mortality, 30-day all-cause readmissions and days spent in a hospital for all three programs, and also assessed unplanned inpatient admissions for Welvie and Pharm2Pharm. However, the HeartStrong mortality outcome only included in-hospital mortality given the available data provided by the awardee. For the Welvie FFS Ohio and HeartStrong cohorts, inpatient, outpatient ER and outpatient non-ER expenditures were also calculated in addition to total medical expenditures. For HeartStrong, total medical and drug expenditures were also assessed to capture potential effects of the MM program on drug costs. The Welvie FFS Ohio analysis also included expenditure categories for carrier/PB (physician and ancillary services), skilled nursing facility (SNF), durable medical equipment (DME), home health, and hospice. Using MA claims data provided by Welvie, Acumen was able to assess the same outcomes for the Welvie MA Ohio and Welvie MA Texas cohorts as the Welvie FFS cohort, except for

² A preliminary investigation of CMS's IDR data suggested that the data were sufficiently complete for analyses of MA beneficiaries in the Welvie program, but not for the Pharm2Pharm program. Acumen utilized data from the IDR to conduct supplementary analyses on the Welvie MA cohorts to compare with results produced using Welvie-provided MA claims data (see Appendix C for details).

expenditures in the DME and hospice settings, which could not be assessed due to lack of reliable place of service information to identify expenditures specific to these settings.

Acumen evaluated additional program-specific health service use and expenditure measures where relevant. Since the Welvie program offered educational resources on preference-sensitive surgeries, program-specific outcomes for this intervention focused on surgeries (e.g., preference-sensitive surgery rates and costs). For HeartStrong, given that the goal of the program was to reduce the rate of cardiovascular events among patients with a recent AMI through improved medication adherence, program-specific outcomes for the intervention included utilization and expenditures associated with repeat AMIs and other cardiovascular events and treatment procedures.

Program-specific medication adherence measures were also assessed for the MM interventions. Based on the program goals, adherence to the following medications were evaluated for the Pharm2Pharm program: cholesterol medications (HMG-CoA inhibitors – statins), hypertension medications (RAS antagonists), diabetes medications (biguanides, DPP-IV inhibitors, sulfonylureas, thiazolidinediones), beta-blockers, calcium-channel blockers. Similarly, adherence to the following targeted medications was evaluated for the HeartStrong program: cholesterol medications (HMG-CoA inhibitors – statins), beta-blockers and platelet blockers.

The medication adherence measures utilized the Pharmacy Quality Alliance (PQA) proportion of days covered (PDC) metric assessing the proportion of days with prescription coverage for particular drug classes; this metric has been endorsed by the National Quality Forum (NQF). The platelet blocker adherence measure was specifically adapted from NQF measure 2379 for platelet blocker adherence, which also uses the PDC metric.³ The PDC threshold for adherence is established at 80 percent as the general level above which the medication has a reasonable likelihood of achieving the most health benefit. Effects were analyzed on average PDC, as well as adherence rates, which were assessed as the percentage of patients who met the 80 percent PDC threshold for each of these five therapeutic drug classes. To calculate the PDC, the number of days a patient was covered by at least one drug in the category, based on prescription fill dates and the days of supply, was divided by the number of days in the patient's measurement period (the index prescription date to the end of the measurement period). Patients were required to be continuously enrolled in their drug insurance plan for HeartStrong or in a Medicare drug plan for Pharm2Pharm during the measurement period, and have at least two prescriptions filled in the drug category being measured. For the Pharm2Pharm analysis, which used a DiD rather than a single difference approach to estimate

³ <http://www.qualityforum.org/QPS/2379>

adherence, patients were also required to have at least two prescriptions filled in the same drug category in the baseline period.

Detailed definitions of all outcomes measures, including the meta-evaluation measures, are provided in Appendix A.

1.2.3 Comparison Groups

The quantitative analysis compares outcomes between beneficiaries treated by the awardees' interventions, and others who did not receive treatment. The Welvie and HeartStrong interventions were conducted as randomized controlled trials. Both awardees provided randomized comparison groups, which were used in the analysis. Pharm2Pharm did not follow a similar research design, so Acumen used propensity score matching methodology to construct an appropriate comparison group from a pool of Medicare beneficiaries in Hawaii, using a variety of observable characteristics derived from the datasets described in the previous section.

For the Pharm2Pharm program, the matching model aimed to identify comparison beneficiaries who were, based on their observable characteristics, as likely to be targeted by the intervention as the treated beneficiaries, and who were also very similar along various dimensions related to their demographic and clinical profiles. The matching model included Medicare claims data variables predictive of participation in Pharm2Pharm, such as indicators for various medical conditions, pre-enrollment health service use, prescription drug use, medical expenditures and patterns, as well as sociodemographic information. Acumen also leveraged Pharm2Pharm-specific information on intervention group characteristics and selection criteria to identify the appropriate set of variables to include in the propensity score matching model. Some examples of these variables include age, chronic conditions (e.g., congestive heart failure, chronic obstructive pulmonary disease, diabetes), number of inpatient and skilled nursing facility stays, ER utilization, and prescription drug history. Appendix G includes more details about the propensity score matching method.

1.2.4 Study Inclusion Criteria

Program participants and comparison groups were generally included in the quantitative portion of the analysis only if they had complete claims data for a designated observation period. The observation period consisted of a pre-intervention period and a post-intervention period. As awardees enrolled participants into their programs on a rolling basis since program launch, Acumen used each participant's program enrollment date as a reference for defining the pre- and post-intervention periods. Pre-intervention information that goes back in time, as included in complete claims or encounter data, is necessary for the construction of appropriate comparison groups and for insuring that intervention and control groups are appropriately balanced. For Welvie and Pharm2Pharm, beneficiaries were required to be continuously enrolled in Medicare

for a one-year pre-intervention period through at least one quarter of the post-intervention period. For the Welvie analyses, beneficiaries who were continuously enrolled in Medicare but switched between FFS and MA during the observation period were included in the MA cohorts. For HeartStrong, participants were required to be continuously enrolled in their insurance plan for a one quarter pre-intervention period through at least one quarter in the post-intervention period due to the insufficient number of participants with continuous insurance plan enrollment over a longer pre-intervention period. This is explained in further detail in Section 4. In the case of deaths during the intervention period, study participants were included in the analysis through the quarter of death for all analyses. Additional exclusion criteria are applied as appropriate to each analysis as described in the Program Effectiveness section of each awardee chapter.

It is worth noting that not all beneficiaries were observed for the same length of time during the post-intervention period. For example, study participants who entered the program later were observed for fewer post-intervention quarters. In addition, there was sample attrition due to mortality or, in the case of HeartStrong, disenrollment from participating insurance plans that provided data.

1.2.5 Analytic Method

Acumen evaluated program effects using single difference and difference-in-differences (DiD) estimators, measuring changes in the intervention groups relative to controls from the pre-enrollment period to the quarter of interest in the post-enrollment period. For Welvie and Pharm2Pharm, Acumen generally conducted a single difference analysis of mortality and inpatient readmissions during the intervention period, and estimated the effect of each intervention on these outcomes using logistic models. Program effects on resource use and medical expenditures were estimated using DiD methodology, and linear models were employed for this purpose. To evaluate the HeartStrong program, Acumen conducted a single difference analysis of all outcomes without requiring continuous insurance plan enrollment for a longer pre-intervention period to increase statistical power, given the relatively small sample size and the randomized controlled design of the program.

For the DiD estimates, Acumen first calculated average changes in health outcomes, quality of care, health service use, and medical expenditures for intervention group beneficiaries in the period after program enrollment compared with the pre-enrollment period, and then calculated the corresponding changes for comparison groups over the same period. For each outcome measure, Acumen subtracted the average change in the comparison group from that in the intervention group to obtain the DiD estimate, and calculated heteroscedastic-robust standard errors for each estimate.

Acumen reports cumulative and yearly program effects for various outcomes of interest in the Program Effectiveness section for each awardee, while quarterly program effects are typically reported in the Appendix. Quarterly, yearly, and cumulative estimates for single difference specifications are based on the same linear model, which uses post-intervention observations and regresses outcomes of interest on post-intervention quarter and participation indicator variables, as well as their interactions. The single difference estimate is then the linear sum of appropriate estimates. For example, Q1 single difference estimates are the sum of the Q1 indicator variable, the participation indicator variable, and their interaction. Year 1 single difference estimates are the sum of Q1, Q2, Q3, and Q4 indicator variables and the participation indicator variable, as well as the interaction terms of each quarterly indicator with the participation indicator variable.

Reported DiD estimates of cumulative, yearly, and quarterly effects are all based on the same underlying methodology, but they are calculated differently, so they are not directly comparable. In particular, the baseline (pre-enrollment) intervention and comparison groups used to compute changes in outcomes for cumulative (and yearly) estimates are different from those used for the calculation of quarterly estimates. Cumulative and yearly DiD estimates of program effects, which are included in the main analysis, use baseline information for all beneficiaries ever included in the study, including those beneficiaries who were not observed in all post-intervention quarters. Quarterly DiD program effects, included in the Appendix, compare outcomes for intervention and comparison groups in a given quarter to outcomes for those same individuals in the pre-enrollment period, omitting all other observations from the baseline sample. These quarterly DiD estimates are referred to as “quarterly fixed effects” estimates.

Quarterly program effects are estimated independently in each quarter after program enrollment in a non-cumulative fashion. For example, the DiD estimate for Medicare expenditures in the first quarter after program enrollment (Q1) reflects the difference between the intervention group and the control group in Q1 compared with the difference in Medicare expenditures between the intervention group and the control group during the entire pre-enrollment year, scaled to one quarter (divided by four). Similarly, the DiD estimate for the second quarter after enrollment (Q2) reflects the difference between the intervention and control groups observed in Q2 (who will generally be subsets of the groups observed in Q1) compared to the difference between the same groups in the pre-enrollment year, scaled to one quarter. For example, if the Q2 DiD estimate for total inpatient expenditures was -\$100, this would indicate that enrollees who participated in the intervention and were observed in Q2 incurred, on average, \$100 less in inpatient expenditures, compared to the baseline period, relative to those beneficiaries to whom they had been initially matched (based on pre-enrollment information).

Thus, quarterly fixed effects estimates truly represent a longitudinal study, where the same individuals are tracked over time, and comparisons are made, for each quarter separately, between participants and non-participants. Each quarterly fixed effect estimate, however, is calculated based on a slightly different baseline sample, depending on who (among participants) was observed in that quarter. Quarterly fixed effects DiD estimates, as well as single difference estimates for a given quarter are expressed in a per-beneficiary format for expenditure measures and in a per-1,000 beneficiaries format for all other measures (by multiplying by 1,000).

Cumulative program effects represent the effect of the program from the start of the intervention through the final quarter of available data. Each cumulative estimate is generated by producing a linear sum of the coefficients from a regression which includes indicator variables for each post-intervention quarter (interacted with participation indicators), where each coefficient is weighted by the number of participants in that quarter. A test of the statistical significance of this weighted sum is then conducted. Acumen calculates the cumulative estimates in accordance with methodologies specified by the team overseeing the HCIA meta-evaluation to ensure that the results are able to support the meta-evaluation. A statistically significant cumulative estimate for a given outcome would indicate that the intervention was associated with a change of that magnitude across all quarters of the intervention compared to the baseline period, relative to the comparison population. For example, if the cumulative DiD estimate for total inpatient expenditures was -\$450,000, this would indicate that enrollees who participated in the intervention incurred \$450,000 less in inpatient expenditures, compared to the baseline period, relative to the comparison population of the study.

In addition to cumulative program effects, Acumen calculates and reports yearly program effects, so that the impact of the program in a particular year of the intervention can be observed. Yearly estimates are calculated similarly to the cumulative estimates: they represent weighted sums of regression coefficients attached to quarterly indicator variables (interacted with participation indicators) corresponding to a specific post-intervention year (for example, Q1 through Q4 correspond to year 1). As described above, these estimates use the whole baseline population of intervention and comparison beneficiaries to calculate average changes in outcomes. For example, if the year 2 DiD estimate for total inpatient expenditures was -\$400,000, this would indicate that participant enrollees observed in year 2 incurred \$400,000 less in inpatient expenditures in year 2, compared to the baseline period, relative to beneficiaries observed in year 2, who belong to the comparison group. The baseline period includes all participant and control beneficiaries who were part of the study at any point in time, regardless of whether they were observed in year 2.

In addition to reporting aggregate cumulative and yearly results, as described above, Acumen also normalizes coefficients to correspond to estimated effects per 1,000 beneficiaries, cumulatively and by year. These normalized estimates are included in the Appendix, or, in the case of the HeartStrong intervention, in the main body of this report. To calculate these estimates, the cumulative (or yearly) estimate is first divided by the number of beneficiary-quarters⁴ and then multiplied by the number of quarters (4 quarters for a yearly normalized estimate, or all study quarters for a cumulative normalized estimate) and by 1,000.

Acumen assessed the statistical significance of estimated program effect on each outcome for all awardees at the 10% ($p < 0.10$) level, as well as the 5% ($p < 0.05$) and 1% ($p < 0.01$) levels. Cumulative results for each outcome are presented in tables that also show 90% and 80% confidence intervals (CI) and p-values for each point estimate. Quarterly key results are illustrated in figures showing plots of single difference or DiD estimates along with their 90% CI for each quarter after enrollment. In the figures showing quarterly differences and DiD estimates in this report, a statistically significant increase in an outcome is illustrated by a 90% CI that lies above the solid horizontal line representing null or zero effect, while a statistically significant decrease is depicted by a 90% CI that falls below this line. The point estimate itself is represented by the midpoint of the 90% CI interval.

To contextualize and interpret findings, the quantitative analyses described above were supplemented by qualitative descriptions of program components and implementation processes, obtained previously through a review of program materials provided by the awardees, progress reports submitted by awardees on the Lewin Group website, site visits, and interviews and email communications with awardee program leaders over the course of the evaluation.

The remainder of this report is structured as follows. Section 2, Section 3, and Section 4 provide awardee-specific findings from Acumen's evaluation of the Welvie, Pharm2Pharm, and HeartStrong programs, respectively. Each of these sections includes a description of the program, its evaluability, the quantitative analysis of program effectiveness, and a discussion of results.

⁴ Beneficiary-quarters correspond to the total number of observations across all quarters. For example, if we observe 5 beneficiaries for 2 quarters and 3 beneficiaries for 1 quarter, these count as 13 beneficiary-quarters.

2 EVALUATION OF THE WELVIE, LLC HEALTH CARE INNOVATION AWARD

This section provides summative quantitative evaluation findings for the Welvie, LLC (“Welvie”) innovation through March 2016 for the Medicare Parts A and B (“Medicare FFS”) population in Ohio, through September 2015 for the Medicare Advantage (MA) population in Ohio, and through December 2015 for the MA population in Texas. The Welvie SDM innovation seeks to enable patients to make informed decisions about preference-sensitive procedures and their alternatives via outreach mailings, which include brief educational content, and an in-depth, six-step decision aid. The innovation aims to improve the quality of care by improving communication between patient and provider, enhancing patient experience, increasing patients’ surgical literacy, improving surgical outcomes, and reducing the incidence of inappropriate surgical procedures. The Welvie program was designed as separate randomized controlled trials for Medicare fee-for-service beneficiaries in Ohio, Anthem MA beneficiaries in Ohio, and Humana MA beneficiaries in Texas.

Section 2.1 provides an overview of the key findings detailed in the remainder of the chapter. Section 2.2 describes the Welvie innovation components and Section 2.3 summarizes the primary factors affecting program evaluability. Sections 2.4 and 2.5 discuss quantitative analysis findings on the program’s effects. The former provides analysis results using an intent-to-treat (ITT) framework, while the latter presents results from instrumental variable (IV) estimation, designed to evaluate the effects of receipt of a high dose of the Welvie intervention (defined as the use of the decision aid component of the program) on outcomes of interest.

2.1 Key Findings

Overall, the analyses found some evidence of positive program effects indicating that the Welvie intervention may have been helpful to beneficiaries in making informed decisions regarding surgery and other treatments. The Welvie intervention was associated with statistically significant decreases in mortality, utilization of some health services (including surgical services) and corresponding expenditure types for the FFS and MA intervention groups in Ohio, relative to their respective control groups. However, most significant effects for the Ohio cohorts were observed within the first few quarters or the first year after beneficiaries’ enrollment into the program (i.e., receipt of first outreach) and not sustained cumulatively across the full observation period (12 quarters for the Medicare FFS Ohio cohort and 11 quarters for the MA Ohio cohort). Analysis for the MA Texas cohort over the six quarters after program enrollment yielded mixed results which were largely inconclusive.

For the Medicare FFS Ohio cohort, the Welvie intervention was not associated with cumulative effects across the twelve quarters after program enrollment on resource use outcomes or expenditures; however, there were positive effects on some outcomes in the early stages of the intervention. These results are summarized below in Table 2-1 and Table 2-2. Consistent with one of the program goals of improving surgical outcomes for patients who undergo surgery, there were statistically significant decreases in the rate of readmissions among beneficiaries with an inpatient surgery in the first year after program enrollment. Decreases in ER visits in the first year after enrollment may also indicate potential improvements in post-surgery outcomes. There were also statistically significant decreases in inpatient admissions and preference-sensitive cardiac surgeries in the first quarter after program enrollment. These changes are reflected in lower expenditures in corresponding categories for that quarter, with decreases in net total expenditures amounting to just under \$100 per beneficiary in Q1.

Table 2-1: Decreases in Key Utilization and Readmission Measures, Welvie Medicare FFS Ohio Cohort

Measures	Difference and DiD Estimates, Per 1,000 Beneficiaries				
	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3	Q1
<i>Number of Participants</i>	58,582	58,582	55,044	51,471	58,582
ER Visits					
<i>Difference-in-Difference</i>	-13.26	-12.56*	-4.43	4.85	0.23
<i>P-Value</i>	0.423	0.062	0.528	0.500	0.934
Inpatient Admissions					
<i>Difference-in-Difference</i>	-0.14	-4.91	2.82	2.43	-4.77*
<i>P-Value</i>	0.993	0.442	0.663	0.711	0.080
All Preference-Sensitive Cardiac Surgeries					
<i>Difference-in-Difference</i>	-1.86	-1.01	-1.35	0.61	-1.03*
<i>P-Value</i>	0.601	0.484	0.358	0.678	0.077
Readmissions Following IP Surgery Admissions					
<i>Difference^c</i>	-87.98	-99.85***	1.08	20.15	-30.60*
<i>P-Value</i>	0.135	0.002	0.975	0.565	0.060

* Statistically significant at the ten percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

^cThe single difference estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the intervention period.

Table 2-2: Decreases in Key Expenditure Measures, Welvie Medicare FFS Ohio Cohort

Measures (2011 USD)	DiD Estimates, Per Person				
	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3	Q1
<i>Number of Participants</i>	58,582	58,582	55,044	51,471	58,582
Total Medical Expenditures					
<i>Difference-in-Difference</i>	38.47	-117.2	45.15	126.38	-99.47*
<i>P-Value</i>	0.896	0.344	0.719	0.314	0.063
Inpatient Expenditures					
<i>Difference-in-Difference</i>	-50.07	-87.44	8.79	36.64	-81.83**
<i>P-Value</i>	0.782	0.260	0.910	0.634	0.013
Total Surgery Expenditures					
<i>Difference-in-Difference</i>	-17.07	-52.39	2.08	39.19	-53.55**
<i>P-Value</i>	0.901	0.366	0.972	0.489	0.030
Preference-Sensitive Cardiac Surgery Expenditures					
<i>Difference-in-Difference</i>	-29.32	-13.87	-24.55	10.69	-21.53**
<i>P-Value</i>	0.630	0.579	0.339	0.668	0.032

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

As shown in Table 2-3, mortality also declined in the Welvie FFS Ohio intervention group relative to controls, estimated at about 22 fewer deaths per 1,000 beneficiaries cumulatively across the twelve quarters after program enrollment (p-value <0.001). To the extent that the randomized intervention and control groups provided by the awardee were similar in unobservable baseline characteristics that influence outcomes, a potential interpretation of this finding is that the program, in addition to its effects on resource utilization, also had downstream effects on mortality. This may be due to avoidance of high-risk surgeries or improvements in surgical outcomes, which would be consistent with the observed decreases in inpatient readmissions and ER visits described above. Overall, the program had its strongest impact in the period immediately following receipt of outreach, which is consistent with a model in which effects are driven by participants who were actively considering surgery at the time of initial outreach.

Table 2-3: Cumulative Decline in Mortality, Welvie Medicare FFS Ohio Cohort

Measures	Difference Estimates, Per 1,000 Beneficiaries			
	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
Mortality				
<i>Number of Participants</i>	58,582	58,582	55,044	51,471
<i>Difference^c</i>	-21.51***	-10.21***	-6.55***	-4.37***
<i>P-Value</i>	<0.001	<0.001	<0.001	0.009

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters. The “full intervention period” refers to twelve quarters following program enrollment for Medicare FFS beneficiaries in Ohio.

^bYear 1 refers to the one-year period after a beneficiary’s enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

^cThis single difference estimate represents difference in the number of deaths between participants and controls during the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

For the MA Ohio cohort, the Welvie intervention was associated with cumulative decreases in total surgery expenditures and mortality across the eleven quarters after program enrollment; Year 1 decreases in total medical expenditures, non-ER expenditures, and surgery-related resource use categories; and Year 2 decreases in ER visits. These findings are summarized below in Table 2-4 and Table 2-5. The cumulative decrease in total surgery expenditures amounted to \$138 per beneficiary (p-value: 0.049), and was driven by decreases in surgery-related resource use categories and surgery-related expenditure categories observed in Year 1. There were also statistically significant decreases in non-ER outpatient expenditures of \$39 per beneficiary (p-value: 0.019), and total medical expenditures of \$170 per beneficiary (p-value: 0.014) in Year 1, and a decrease in ER visits in Year 2, which may be a downstream effect of Year 1 decreases in surgery-related health care utilization. There were about 3 fewer deaths per 1,000 beneficiaries in the MA Ohio intervention group relative to controls across the full intervention period (p-value: 0.084).

Table 2-4: Decreases in Key Utilization and Mortality Measures, Welvie MA Ohio Cohort

Measures	DiD and Difference Estimates, Per 1,000 Beneficiaries		
	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	97,380	97,380	91,230
ER Visits			
<i>Difference-in-Difference</i>	-6.49	0.87	-8.26**
<i>P-Value</i>	0.450	0.832	0.041
All Surgeries			

Measures	DiD and Difference Estimates, Per 1,000 Beneficiaries		
	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Difference-in-Difference</i>	-6.79	-7.03*	-0.27
<i>P-Value</i>	0.408	0.055	0.942
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-5.85	-4.90**	-0.19
<i>P-Value</i>	0.188	0.018	0.924
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-33.75	-28.42*	-11.85
<i>P-Value</i>	0.318	0.087	0.458
All Preference-Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-3.91	-2.72**	-1.45
<i>P-Value</i>	0.176	0.037	0.251
Mortality			
<i>Difference^c</i>	-2.86*	-0.97	-0.22
<i>P-Value</i>	0.084	0.281	0.826

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, and Year 2 refers to the subsequent one-year period.

^cThis single difference estimate represents difference in the number of deaths between participants and controls during the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-5: Decreases in Key Expenditure Measures, Welvie MA Ohio Cohort

Measures (2011 USD)	DiD Estimates, Per Person		
	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	97,380	97,380	91,230
Total Medical Expenditures			
<i>Difference-in-Difference</i>	-235.62	-169.54**	-30.78
<i>P-Value</i>	0.100	0.014	0.645
Total Surgery Expenditures			
<i>Difference-in-Difference</i>	-137.89**	-96.73***	-38.56
<i>P-Value</i>	0.049	0.006	0.235
Non-ER Outpatient Expenditures			
<i>Difference-in-Difference</i>	-34.73	-38.99**	-2.21
<i>P-Value</i>	0.323	0.019	0.890

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, and Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

The analysis of the MA Texas cohort yielded mixed results, potentially related to differences in program implementation for this cohort. The MA Texas cohort experienced a cumulative increase in inpatient surgeries, and decreases in outpatient preference-sensitive orthopedic surgeries and outpatient preference-sensitive cardiac surgeries for the intervention group relative to controls. Similar statistically significant changes were observed in corresponding expenditure categories. However, the initially randomized control group in the MA Texas cohort was later exposed to the intervention by Humana, Welvie's insurance partner for the intervention in Texas, through outreach materials that were made available to the full Humana Texas population. Thus, the results should be interpreted as the additional effect of Welvie's outreach activities, over and above the effects of Humana's outreach to its full patient population. Further, results could only be assessed for six quarters following program enrollment for this cohort, and thus effects of the program over a longer time horizon are not yet known.

A time-to-surgery analysis suggests that decreases in surgery utilization observed soon after enrollment in the Welvie intervention for the FFS Ohio and MA Ohio cohorts did not lead to increased surgeries in later periods. Compared with controls, our time-to-surgery analysis found evidence that MA Ohio intervention beneficiaries were less likely to undergo any surgery beginning around the third quarter through the eleven quarters after program enrollment, suggesting that the statistically significant Year 1 decreases in surgeries found in the ITT analysis were not simply the result of delaying surgery to later time periods. The time-to-surgery analyses found the probability of surgery utilization for FFS Ohio intervention beneficiaries was not statistically different from controls over the full intervention period.

2.2 Program Description

The Welvie SDM innovation seeks to enable patients to make informed decisions about preference-sensitive surgeries and procedures (e.g., surgeries of the knee, spine, heart, and eye) and their alternatives. The innovation aims to enhance patient experience, increase patients' surgical literacy, improve surgical outcomes, and reduce the incidence of inappropriate surgical procedures. Welvie also helps patients obtain the right diagnosis by helping them communicate effectively with their health care providers, which may improve care quality.

The Welvie intervention comprises outreach mailings, which include brief educational content, and an in-depth, six-step decision aid. Beneficiaries typically received more than one outreach with varied content. Welvie considers beneficiaries who only receive outreach

materials as the “low-dose intervention group,” and beneficiaries who also use the decision aid as the “high-dose intervention group.” Outreach mailings provide information related to surgery decision-making, patient safety, and clinical guidelines (e.g., when to get a second opinion, colonoscopy guidelines). The outreach mailings also provide information on how to access Welvie’s decision aid. Beneficiaries can then choose to use Welvie’s decision aid, which can be completed online, on paper, or by phone. The decision aid is designed to educate patients about potential risks, benefits, treatment alternatives, and expectations related to surgery. Steps 1-3 of the decision aid focus on getting the right diagnosis, finding the right doctor, and making a treatment decision. Steps 4-6 of the decision aid focus on learning about hospitals, preparing for surgery, and recovering at home. The decision aid also engages “friends and family buddies,” who are expected to play a key support role before, during, and after surgery. The decision aid also includes tools such as pre-surgery checklists and medication trackers.

Under the HCIA project, Welvie’s intervention was provided to Medicare FFS beneficiaries in Ohio, Anthem BlueCross BlueShield (BCBS) beneficiaries in Ohio and Humana MA beneficiaries in Texas. Although the program materials were targeted at candidates for preference-sensitive surgery, Welvie used a limited number of eligibility criteria (e.g., insurance eligibility, age), which allowed it to reach a broad set of beneficiaries who may benefit from the intervention. Welvie’s implementation in Ohio included FFS and MA beneficiaries sixty-five years of age or older, whereas Welvie’s implementation in Texas with Humana included MA beneficiaries of all ages. Welvie randomized eligible beneficiaries into control and intervention groups. All beneficiaries in the randomized intervention group, regardless of health condition, received outreach materials and were offered the opportunity to use Welvie’s decision aid.

The program implementation period varied by cohort. The HCIA intervention began in September 2012 with Ohio Anthem MA beneficiaries and expanded to Texas Humana MA beneficiaries in May 2014. The HCIA implementation period ended for both MA populations at the conclusion of Welvie’s cooperating agreement with CMS in December 2015. Welvie delivered its HCIA intervention to Ohio Medicare FFS beneficiaries from February 2013 to January 2014. While outreach to Ohio Medicare FFS beneficiaries ended in late 2013, access to the Welvie decision aid remained available to beneficiaries who decided to engage in the program.

In early 2015, Welvie and Anthem collaborated to revise the information in the cardiac care decision aid to better align with the “Dr. Dean Ornish Program for Reversing Heart Disease” offered by Anthem in partnership with the Cleveland Clinic. These revisions placed a focus on disease management, rather than surgery, for beneficiaries with or at risk for cardiac conditions. Specifically, steps 3 and 5 of the cardiac care decision aid were revised to include

additional information about preventing cardiac illness and managing chronic illness through diet, exercise, and stress management.

While Welvie's CMS contract initially ended on June 30, 2015, CMS awarded Welvie a no-cost extension from July 1, 2015 through December 31, 2015 to continue ongoing outreach and data collection and to test the feasibility of provider referrals to the online decision aid. The provider referral component was a part of the original Welvie program, but was delayed because of challenges recruiting an implementation site. During the no-cost extension period, Welvie worked closely with Humana-owned practices in Florida on the provider referral portion of the innovation project. During this portion of the project, Welvie faced challenges common to interventions in healthcare delivery organizations such as provider buy-in, and workflow redesign. These challenges contributed to lower usage of the decision aid intervention through provider referrals. As of the end of the no-cost extension period, Welvie continued to work with Humana practices in Florida to improve the provider referral process and continued to serve the Ohio and Texas MA populations under separate contracts with Anthem and Humana.

2.3 Evaluability

This section summarizes the primary factors affecting the evaluability of Welvie, which include program enrollment and payer mix, program implementation factors, and comparison group data availability.

Table 2-6 and Table 2-7 provide detailed information on the enrollment and payer mix figures for 181,172 beneficiaries in Ohio enrolled in the Welvie program through February 20, 2015, and 71,620 beneficiaries in Texas enrolled through April 17, 2015. Program enrollment was defined as the first date that outreach materials were sent to intervention group beneficiaries. The program enrollment patterns shown below are consistent with the timeline of Welvie's outreach to new beneficiaries.⁵ As the table shows, outreach to new beneficiaries concluded earlier for the Ohio Medicare FFS cohort than for the MA cohorts. Most Welvie participants were enrolled either in Medicare FFS or MA. The program effectiveness analyses presented in Sections 2.4 and 2.5 were conducted separately for Medicare FFS beneficiaries in Ohio, MA beneficiaries in Ohio, and MA beneficiaries in Texas.

⁵ Welvie began enrolling beneficiaries in the Anthem MA Ohio population earlier than in the FFS Ohio population. Moreover, there were several periods when Welvie did not conduct outreach to any new Ohio beneficiaries, including between October and December 2013; between April and June 2014; between October and December 2014; and between March and June 2015. Welvie started enrolling Texas beneficiaries in May 2014, and did not conduct outreach to any new Texas beneficiaries between October and March 2015.

Table 2-6: Payer Mix of Welvie Program Enrollment by Calendar Quarter, Ohio

Calendar Quarter	Medicare Parts A and B		Medicare Advantage		Other Medicare Enrolled		Not Medicare-Enrolled/Unknown		Total
Jul-Sep 2012	88	0%	78,747	99%	13	0%	502	1%	79,350
Oct-Dec 2012	*	*	1,359	93%	*	*	70	5%	1,463
Jan-Mar 2013	66,051	78%	10,705	13%	5,954	7%	1,471	2%	84,181
Apr-Jun 2013	*	*	1,088	85%	*	*	166	13%	1,281
Jul-Sep 2013	*	*	3,080	95%	*	*	123	4%	3,240
Oct-Dec 2013	0	0	0	0	0	0	0	0	0
Jan-Mar 2014	95	1%	7,158	98%	*	*	*	*	7,287
Apr-Jun 2014	0	0	0	0	0	0	0	0	0
Jul-Sep 2014	*	*	1,009	97%	*	*	25	2%	1,041
Oct-Dec 2014	0	0	0	0	0	0	0	0	0
Jan-Mar 2015	19	1%	3,300	99%	*	*	*	*	3,329
Apr-Jun 2015	0	0%	0	0%	0	0%	0	0%	0
Total	66,338	37%	106,446	59%	5,990	3%	2,398	1%	181,172

Notes: Most beneficiaries classified as “Other Medicare Enrolled” have Medicare Part A only, although other insurance statuses (e.g., Parts A and D) are rarely observed.

"Medicare Parts A and B", "Medicare Advantage", and “Other Medicare Enrolled” may include dual-eligible beneficiaries and beneficiaries enrolled in Medicare Part D.

“Not Medicare-Enrolled/Unknown” includes beneficiaries who were not enrolled in Medicare on the day they entered the Welvie program or for whom the awardee did not provide sufficient personally identifiable information to link to Medicare claims.

*All cell counts less than eleven have been suppressed to protect participant confidentiality

Table 2-7: Payer Mix of Welvie Program Enrollment by Calendar Quarter, Texas

Calendar Quarter	Medicare Parts A and B		Medicare Advantage		Other Medicare Enrolled		Not Medicare-Enrolled/Unknown		Total
Apr-Jun 2014	*	*	53,574	100%	*	*	*	*	53,600
Jul-Sep 2014	*	*	112	99%	*	*	*	*	113
Oct-Dec 2014	0	0	0	0	0	0	0	0	0
Jan-Mar 2015	0	0	0	0	0	0	0	0	0
Apr-Jun 2015	650	4%	17,043	95%	44	0%	170	1%	17,907
Total	667	1%	70,729	99%	48	0%	176	0%	71,620

Notes: “Other Medicare Enrolled” includes beneficiaries enrolled in Medicare Part A only, Part B only, etc.

"Medicare Parts A and B", "Medicare Advantage", and “Other Medicare Enrolled” may include dual-eligible beneficiaries and beneficiaries enrolled in Medicare Part D.

“Not Medicare-Enrolled/Unknown” includes beneficiaries who were not enrolled in Medicare on the day they entered the Welvie program or for whom the awardee did not provide sufficient personally identifiable information to link to Medicare claims.

*All cell counts less than eleven have been suppressed to protect participant confidentiality

Acumen used program data on intervention group beneficiaries randomly selected by Welvie and linked these beneficiaries to their Medicare records for program effectiveness

analyses. The Medicare FFS Ohio intervention group was drawn from the general Ohio FFS population and excluded those under age sixty-five, nursing home residents, and those without verifiable addresses. The Anthem MA Ohio intervention group was drawn from Anthem BCBS MA beneficiaries in Ohio after applying the same exclusions as the Ohio FFS population. The Humana MA Texas intervention group was drawn from Humana MA beneficiaries in Texas and excluded nursing home residents and those without verifiable addresses, but included beneficiaries under age sixty-five.

Acumen used randomized control groups provided by Welvie for the quantitative analyses presented in this report. The control groups were drawn from the same Medicare beneficiary populations and applied the same exclusions as described above for the corresponding Ohio FFS, Anthem Ohio MA, and Humana Texas MA intervention groups. Analyses presented for the Welvie FFS Ohio cohort used claims data through March 2016 and Humana Texas MA cohort used claims data that extended into December 2015. However, as mentioned in Section 1.2, Welvie's partnership with Anthem Ohio ended earlier, and the Anthem data contained only MA claims with service dates through September 2015.⁶

While the core components of the awardee innovation were mature and generally stable for the duration of the HCIA project, certain features of implementation for the Humana MA beneficiary population affect the interpretation of results for the Welvie program in Texas. Beneficiaries in all three randomized intervention groups in Ohio and Texas received outreach materials from Welvie that included information about the Welvie program and general health- and surgery-related information. However, Humana sent newsletters and email blasts to its broader Medicare membership—both treatment and control beneficiaries—in Texas that also included information about the Welvie program. Starting in December 2014, Humana began sending targeted outreach on a periodic basis to a large number of Humana MA members with musculoskeletal conditions, potentially including both the intervention and control group beneficiaries. Had Humana not conducted its own outreach about Welvie to its full population, the present analysis would have assessed the effect of exposure to the Welvie intervention on the beneficiary population relative to the unexposed controls. As a result of this prior exposure, the findings for the Humana Texas MA population presented in Sections 2.4 and 2.5 should instead be interpreted as the additional effect of the Welvie outreach activities over and above the effects of Humana's outreach to its full patient population.

⁶ Acumen received the final shipment of Anthem MA Ohio claims data from Welvie in October 2015 and the final shipment of Humana MA Texas claims data in March 2016.

2.4 Program Effectiveness (ITT Analysis)

This section provides findings from an intent-to-treat (ITT) analysis on health and resource use outcomes following enrollment for the Medicare FFS Ohio cohort for twelve quarters, the MA Ohio cohort for eleven quarters, and for the MA Texas cohort for six quarters (“full intervention period”). The ITT analysis included randomly selected beneficiaries who received Welvie outreach materials with brief health information content and an invitation to use the six-step decision aid, but it did not distinguish between beneficiaries who did and did not use the decision aid. After applying the common set of cohort restrictions described in Section 1.2, there were a total of 58,582 Medicare FFS Ohio beneficiaries, 97,380 MA Ohio beneficiaries and 63,979 MA Texas beneficiaries available for analysis in the intervention groups.

All analyses used the randomized comparison groups provided by Welvie. As shown in the tables in Appendix B.1, the intervention and control groups were well matched on important predictive characteristics observable in claims data for all three cohorts, consistent with randomization. Acumen used in-house Medicare claims data for analyzing the Medicare FFS cohort in Ohio. Anthem MA claims data provided by Welvie were used for the analysis of the Anthem MA cohort in Ohio and Humana MA claims data provided by Welvie were used for the analysis of the Humana MA cohort in Texas. Analysis specifications are detailed in Section 1.2. As mentioned in Section 2.3, results presented for the MA Texas cohort should be interpreted in the context of the broader outreach conducted for that group.

Acumen also used MA encounter data from CMS’s IDR to conduct a supplemental investigation for the Ohio MA and Texas MA cohorts, and compared the results to those of the main analysis, which is based on Anthem and Humana MA claims data provided by Welvie (see Appendix C). The estimated effects on beneficiary outcomes from this supplemental analysis were largely similar to those from the main analysis for outcomes observable in both data sources.

The remainder of this section highlights key quantitative findings for the Welvie ITT analysis. Sections 2.4.1, 2.4.2, and 2.4.3 describe notable results for mortality and inpatient readmissions, resource use, and medical expenditures, respectively. The full set of outcomes, including mortality, readmissions, health service use, and expenditures, as well as outcomes related to preference-sensitive surgeries in both the OP and IP settings, are presented for the Medicare FFS cohort. With the exception of expenditures specific to the DME and hospice settings, as described in Section 1.2, all of these outcomes could also be assessed for the MA Ohio and MA Texas cohorts using MA claims data provided by Welvie. Single difference or DiD methodology was used to estimate the impact of the intervention cumulatively across the full intervention period, as well as for each specific year and each specific quarter after

beneficiaries’ enrollment in the Welvie program. Complete results of the quantitative analyses are provided in Appendix B.

Acumen also conducted a time-to-surgery analysis to assess possible changes in surgery utilization patterns over time. Specifically, the aim was to investigate if decreases in surgery utilization in earlier quarters were accompanied by increases in surgery utilization in later quarters. For each surgical utilization outcome of interest, Kaplan-Meier curves were created for both intervention and control groups and the statistical difference between these curves was assessed.⁷ Findings for the time-to-surgery analysis are presented in Section 2.4.2.

2.4.1 Mortality and Inpatient Readmissions

The Welvie intervention was associated with statistically significant cumulative decreases in mortality for the Medicare FFS Ohio cohort and the MA Ohio cohort across the full intervention period, but not for the MA Texas cohort. The results are summarized in Table 2-8 below. Among the 58,582 Medicare FFS beneficiaries in Ohio, there was a statistically significant decrease of about 1,157 deaths (22 deaths per 1,000 beneficiaries) cumulatively over the twelve quarters after program enrollment, relative to controls. Statistically significant mortality decreases were also observed in each of the three years of the intervention period for the FFS cohort. Among the 97,380 MA beneficiaries in Ohio, there was a statistically significant cumulative decrease of about 253 deaths (3 deaths per 1,000 beneficiaries). In the analysis of quarterly fixed effects, the Welvie intervention was also associated with statistically significant decreases in mortality in multiple quarters after program enrollment for the Medicare FFS Ohio cohort (see Figure 2-1), but significant quarterly effects were detected for the MA Ohio and MA Texas cohorts (see Appendix Table B-8).

Table 2-8: Aggregate Mortality: Cumulative and Yearly Differences After Welvie Enrollment, Medicare FFS and MA Cohorts

Medicare Cohort	Full Intervention Period ^a	Year 1 ^b	Year 2	Year 3
Medicare FFS Ohio				
<i>Number of Participants</i>	58,582	58,582	55,044	51,471
<i>Difference^c</i>	-1,156.77***	-584.96***	-352.15***	-219.66***
<i>90% Confidence Interval</i>	(-1,409.4 -904.1)	(-735.0 -435.0)	(-500.6 -203.7)	(-358.6 -80.8)
<i>80% Confidence Interval</i>	(-1,353.6 -959.9)	(-701.8 -468.1)	(-467.8 -236.5)	(-327.9 -111.4)
<i>P-Value</i>	<0.001	<0.001	<0.001	0.009
Medicare Advantage Ohio				
<i>Number of Participants</i>	97,380	97,380	91,230	

⁷ In the Welvie time-to-surgery analysis, Kaplan-Meier curves plot the cumulative probability of not having a surgery over time.

Medicare Cohort	Full Intervention Period ^a	Year 1 ^b	Year 2	Year 3
<i>Difference</i>	-252.97*	-92.83	-19.31	
<i>90% Confidence Interval</i>	(-494.1 -11.9)	(-234.5 48.9)	(-164.1 125.5)	
<i>80% Confidence Interval</i>	(-440.8 -65.1)	(-203.2 17.6)	(-132.1 93.5)	
<i>P-Value</i>	0.084	0.281	0.826	
Medicare Advantage Texas				
<i>Number of Participants</i>	63,979	63,979		
<i>Difference</i>	-19.21	-17.23		
<i>90% Confidence Interval</i>	(-127.1 88.7)	(-100.0 65.6)		
<i>80% Confidence Interval</i>	(-103.3 64.8)	(-81.7 47.3)		
<i>P-Value</i>	0.770	0.732		

* Statistically significant at the ten percent level.

*** Statistically significant at the one percent level.

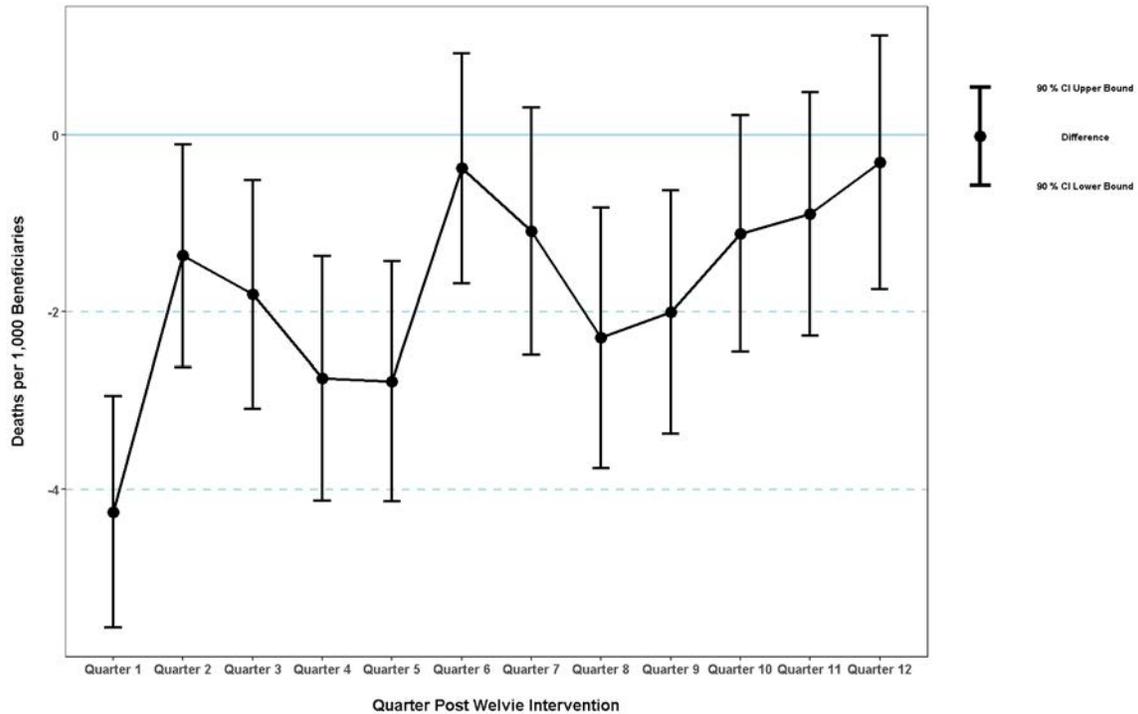
^aResults are cumulative across all available quarters. The “full intervention period” refers to twelve quarters following program enrollment for Medicare FFS beneficiaries in Ohio, eleven quarters following program enrollment for MA beneficiaries in Ohio and six quarters following program enrollment for MA beneficiaries in Texas.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

^cThis estimate represents difference in the number of deaths between participants and controls during the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014; Ohio MA beneficiaries from September 2012 to December 2015; and Texas MA beneficiaries from May 2014 to December 2015.

Figure 2-1: Mortality per 1,000 Beneficiaries: Quarterly Differences, Welvie, Medicare FFS Ohio Cohort



The intervention was not associated with statistically significant cumulative effects on any inpatient readmissions measures for the Medicare FFS Ohio cohort; however, there was a statistically significant decrease in readmissions after inpatient surgery in the first year after program enrollment (Year 1). As shown in Table 2-9, there were 116 fewer beneficiaries with an inpatient surgery readmission among 58,582 Medicare FFS Ohio intervention beneficiaries (or 100 fewer beneficiaries with a readmission per 1,000 beneficiaries with at least one inpatient surgery admission) in Year 1, which was statistically significant at the one percent level. The quarterly fixed effects analysis showed statistically significant decreases in inpatient surgery readmissions in the first and third quarters after enrollment (Q1 and Q3), along with decreases in all inpatient readmissions in Q3, and inpatient preference-sensitive orthopedic surgery readmissions in Q1. There was also a statistically significant increase in inpatient preference-sensitive orthopedic surgery readmissions in Year 3 (see Table 2-9); however, increases in the quarterly fixed effects analysis were not significant. Quarterly findings are presented in Appendix Table B-9.

The Welvie intervention was not associated with statistically significant cumulative or yearly changes in inpatient readmissions for the MA Ohio and MA Texas cohorts (see Table 2-10 and Table 2-11).

Table 2-9: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, Medicare FFS Ohio Cohort

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participants</i>	58,582	58,582	55,044	51,471
30-Day Hospital Readmissions Following:				
All Inpatient Admissions				
<i>Difference^c</i>	-158.12	-84.17	-24.09	-49.86
<i>90% Confidence Interval</i>	(-355.8 39.5)	(-202.5 34.2)	(-138.1 89.9)	(-159.7 60.0)
<i>80% Confidence Interval</i>	(-312.1 -4.1)	(-176.4 8.0)	(-112.9 64.7)	(-135.5 35.7)
<i>P-Value</i>	0.188	0.242	0.728	0.455
Inpatient Surgery Admissions				
<i>Difference</i>	-94.63	-115.68***	1.17	19.88
<i>90% Confidence Interval</i>	(-198.8 9.5)	(-178.4 -53.0)	(-59.5 61.8)	(-37.0 76.7)
<i>80% Confidence Interval</i>	(-175.8 -13.5)	(-164.5 -66.8)	(-46.1 48.4)	(-24.4 64.2)
<i>P-Value</i>	0.135	0.002	0.975	0.565
Inpatient Preference Sensitive Orthopedic Surgery Admissions				
<i>Difference</i>	11.16	-14.60	1.73	24.03**
<i>90% Confidence Interval</i>	(-25.0 47.3)	(-36.8 7.6)	(-19.2 22.7)	(4.7 43.4)
<i>80% Confidence Interval</i>	(-17.0 39.3)	(-31.9 2.7)	(-14.6 18.1)	(9.0 39.1)
<i>P-Value</i>	0.611	0.279	0.892	0.041
Inpatient Preference Sensitive Cardiac Surgery Admissions				
<i>Difference</i>	1.73	-12.20	1.43	12.49
<i>90% Confidence Interval</i>	(-37.7 41.2)	(-36.3 11.9)	(-21.7 24.6)	(-8.5 33.5)
<i>80% Confidence Interval</i>	(-29.0 32.5)	(-31.0 6.6)	(-16.6 19.5)	(-3.9 28.9)
<i>P-Value</i>	0.943	0.405	0.919	0.328
30-Day Hospital Unplanned Readmissions Following All Inpatient Admissions:				
<i>Difference</i>	-116.26	-76.10	-2.63	-37.53
<i>90% Confidence Interval</i>	(-310.3 77.8)	(-192.2 40.0)	(-114.3 109.1)	(-145.7 70.6)
<i>80% Confidence Interval</i>	(-267.5 34.9)	(-166.6 14.4)	(-89.7 84.4)	(-121.8 46.7)
<i>P-Value</i>	0.324	0.281	0.969	0.568

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

Table 2-10: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, MA Ohio Cohort

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	97,380	97,380	91,230
30-Day Hospital Readmissions Following:			
All Inpatient Admissions			
<i>Difference^c</i>	-95.08	-11.47	0.27
<i>90% Confidence Interval</i>	(-268.9 78.7)	(-127.2 104.3)	(-101.0 101.5)
<i>80% Confidence Interval</i>	(-230.5 40.4)	(-101.7 78.7)	(-78.6 79.1)
<i>P-Value</i>	0.368	0.871	0.997
Inpatient Surgery Admissions			
<i>Difference</i>	-76.71	-44.11	-33.56
<i>90% Confidence Interval</i>	(-160.3 6.9)	(-106.5 18.3)	(-84.9 17.8)
<i>80% Confidence Interval</i>	(-141.8 -11.6)	(-92.7 4.5)	(-73.6 6.5)
<i>P-Value</i>	0.131	0.245	0.283
Inpatient Preference Sensitive Orthopedic Surgery Admissions			
<i>Difference</i>	-8.21	-8.70	-8.26
<i>90% Confidence Interval</i>	(-43.7 27.3)	(-34.8 17.4)	(-29.8 13.3)
<i>80% Confidence Interval</i>	(-35.9 19.5)	(-29.0 11.6)	(-25.1 8.5)
<i>P-Value</i>	0.704	0.583	0.529
Inpatient Preference Sensitive Cardiac Surgery Admissions			
<i>Difference</i>	-11.81	-11.67	-0.26
<i>90% Confidence Interval</i>	(-46.1 22.4)	(-37.3 14.0)	(-20.5 20.0)
<i>80% Confidence Interval</i>	(-38.5 14.9)	(-31.6 8.3)	(-16.1 15.5)
<i>P-Value</i>	0.571	0.454	0.983
30-Day Hospital Unplanned Readmissions Following All Inpatient Admissions:			
<i>Difference</i>	-116.57	0.87	-31.87
<i>90% Confidence Interval</i>	(-287.0 53.8)	(-112.7 114.4)	(-130.9 67.2)
<i>80% Confidence Interval</i>	(-249.3 16.2)	(-87.6 89.3)	(-109.0 45.3)
<i>P-Value</i>	0.261	0.990	0.597

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-11: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, MA Texas Cohort

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	63,979	63,979
30-Day Hospital Readmissions Following:		
All Inpatient Admissions		
<i>Difference^c</i>	42.18	28.53
<i>90% Confidence Interval</i>	(-70.3 154.6)	(-66.0 123.1)
<i>80% Confidence Interval</i>	(-45.4 129.8)	(-45.2 102.2)
<i>P-Value</i>	0.537	0.620
Inpatient Surgery Admissions		
<i>Difference</i>	52.67	19.53
<i>90% Confidence Interval</i>	(-7.0 112.3)	(-31.5 70.6)
<i>80% Confidence Interval</i>	(6.2 99.2)	(-20.2 59.3)
<i>P-Value</i>	0.146	0.529
Inpatient Preference Sensitive Orthopedic Surgery Admissions		
<i>Difference</i>	-4.08	8.72
<i>90% Confidence Interval</i>	(-27.8 19.6)	(-11.6 29.0)
<i>80% Confidence Interval</i>	(-22.5 14.4)	(-7.1 24.5)
<i>P-Value</i>	0.777	0.479
Inpatient Preference Sensitive Cardiac Surgery Admissions		
<i>Difference</i>	-0.20	-3.29
<i>90% Confidence Interval</i>	(-24.1 23.7)	(-24.0 17.4)
<i>80% Confidence Interval</i>	(-18.8 18.4)	(-19.4 12.8)
<i>P-Value</i>	0.989	0.793
30-Day Hospital Unplanned Readmissions Following All Inpatient Admissions		
<i>Difference</i>	33.88	22.96
<i>90% Confidence Interval</i>	(-76.4 144.2)	(-69.5 115.4)
<i>80% Confidence Interval</i>	(-52.1 119.8)	(-49.1 95.0)
<i>P-Value</i>	0.613	0.683

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

2.4.2 Health Service Resource Use

The Welvie intervention was not associated with cumulative or yearly statistically significant effects in surgery-related resource use categories for the Medicare FFS Ohio cohort; however, there were statistically significant decreases in ER visits in the first year (see Table 2-12 and Table 2-13). There were about 720 fewer ER visits among the 58,582 Medicare FFS Ohio beneficiaries (13 ER visits per 1,000 beneficiaries) relative to controls in Year 1 as shown in Table 2-13. Moreover, quarterly fixed effects estimates show statistically significant decreases in ER visits in Q2 and Q3 for this cohort (see Appendix Table B-23). There were also statistically significant reductions in inpatient admissions and preference-sensitive cardiac surgeries in the first quarter after program enrollment (see Appendix Table B-23).

Table 2-12: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participants</i>	58,582	58,582	55,044	51,471
All Surgeries				
<i>Difference-in-Difference</i>	692.04	-91.68	526.56	257.16
<i>90% Confidence Interval</i>	(-1,076.2 2,460.3)	(-832.4 649.0)	(-212.0 1,265.2)	(-478.8 993.2)
<i>80% Confidence Interval</i>	(-685.6 2,069.7)	(-668.8 485.4)	(-48.9 1,102.0)	(-316.3 830.6)
<i>P-Value</i>	0.520	0.839	0.241	0.565
Inpatient Surgeries				
<i>Difference-in-Difference</i>	-156.28	-164.91	50.89	-42.27
<i>90% Confidence Interval</i>	(-737.2 424.7)	(-419.7 89.9)	(-190.5 292.3)	(-271.9 187.4)
<i>80% Confidence Interval</i>	(-608.9 296.3)	(-363.4 33.6)	(-137.2 239.0)	(-221.2 136.7)
<i>P-Value</i>	0.658	0.287	0.729	0.762
Surgical Hospital Days				
<i>Difference-in-Difference</i>	2,362.00	-713.47	1,289.27	1,786.21
<i>90% Confidence Interval</i>	(-3,463.5 8,187.5)	(-3,276.5 1,849.6)	(-1,136.5 3,715.1)	(-455.2 4,027.6)
<i>80% Confidence Interval</i>	(-2,176.8 6,900.8)	(-2,710.4 1,283.5)	(-600.7 3,179.3)	(39.8 3,532.6)
<i>P-Value</i>	0.505	0.647	0.382	0.190
Outpatient Surgeries				
<i>Difference-in-Difference</i>	848.32	73.22	475.67	299.43
<i>90% Confidence Interval</i>	(-790.6 2,487.2)	(-608.1 754.6)	(-209.4 1,160.7)	(-387.8 986.7)

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>80% Confidence Interval</i>	(-428.6 2,125.2)	(-457.6 604.1)	(-58.1 1,009.4)	(-236.0 834.9)
<i>P-Value</i>	0.395	0.860	0.253	0.474
All Preference Sensitive Orthopedic Surgeries				
<i>Difference-in-Difference</i>	-25.68	22.23	32.20	-80.11
<i>90% Confidence Interval</i>	(-325.2 273.8)	(-106.7 151.1)	(-90.0 154.4)	(-196.0 35.7)
<i>80% Confidence Interval</i>	(-259.0 207.7)	(-78.2 122.7)	(-63.0 127.4)	(-170.4 10.2)
<i>P-Value</i>	0.888	0.777	0.665	0.255
Inpatient Preference Sensitive Orthopedic Surgeries				
<i>Difference-in-Difference</i>	59.78	52.81	61.43	-54.45
<i>90% Confidence Interval</i>	(-222.0 341.5)	(-68.4 174.0)	(-53.5 176.4)	(-163.6 54.7)
<i>80% Confidence Interval</i>	(-159.7 279.3)	(-41.6 147.3)	(-28.1 151.0)	(-139.5 30.6)
<i>P-Value</i>	0.727	0.474	0.379	0.412
Preference Sensitive Orthopedic Surgery Hospital Days				
<i>Difference-in-Difference</i>	-374.44	157.93	22.12	-554.49
<i>90% Confidence Interval</i>	(-1,996.9 1,248.0)	(-566.0 881.9)	(-665.5 709.7)	(-1,193.1 84.1)
<i>80% Confidence Interval</i>	(-1,638.5 889.7)	(-406.1 722.0)	(-513.6 557.8)	(-1,052.0 -56.9)
<i>P-Value</i>	0.704	0.720	0.958	0.153
Outpatient Preference Sensitive Orthopedic Surgeries				
<i>Difference-in-Difference</i>	-85.46	-30.58	-29.23	-25.65
<i>90% Confidence Interval</i>	(-185.4 14.5)	(-73.9 12.8)	(-70.1 11.6)	(-64.0 12.7)
<i>80% Confidence Interval</i>	(-163.4 -7.6)	(-64.4 3.2)	(-61.1 2.6)	(-55.5 4.2)
<i>P-Value</i>	0.160	0.246	0.239	0.271
All Preference Sensitive Cardiac Surgeries				
<i>Difference-in-Difference</i>	-100.12	-58.10	-72.73	30.70
<i>90% Confidence Interval</i>	(-415.3 215.1)	(-194.8 78.6)	(-202.8 57.3)	(-91.0 152.4)
<i>80% Confidence Interval</i>	(-345.7 145.4)	(-164.6 48.4)	(-174.1 28.6)	(-64.1 125.5)
<i>P-Value</i>	0.601	0.484	0.358	0.678
Inpatient Preference Sensitive Cardiac Surgeries				
<i>Difference-in-Difference</i>	-81.92	-16.59	-48.77	-16.56
<i>90% Confidence Interval</i>	(-287.7 123.9)	(-106.2 73.0)	(-133.5 36.0)	(-95.2 62.1)
<i>80% Confidence Interval</i>	(-242.3 78.4)	(-86.4 53.2)	(-114.8 17.2)	(-77.8 44.7)
<i>P-Value</i>	0.513	0.761	0.344	0.729
Inpatient Preference Sensitive Cardiac Surgical Hospital Days				

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Difference-in-Difference</i>	1,693.70	389.16	565.01	739.54
<i>90% Confidence Interval</i>	(-1,121.4 4,508.8)	(-665.8 1,444.1)	(-612.7 1,742.8)	(-188.8 1,667.9)
<i>80% Confidence Interval</i>	(-499.6 3,887.0)	(-432.8 1,211.1)	(-352.6 1,482.6)	(16.3 1,462.8)
<i>P-Value</i>	0.322	0.544	0.430	0.190
Outpatient Preference Sensitive Cardiac Surgeries				
<i>Difference-in-Difference</i>	-18.20	-41.50	-23.96	47.26
<i>90% Confidence Interval</i>	(-240.1 203.7)	(-136.8 53.8)	(-115.2 67.3)	(-39.2 133.7)
<i>80% Confidence Interval</i>	(-191.1 154.7)	(-115.8 32.8)	(-95.1 47.1)	(-20.1 114.6)
<i>P-Value</i>	0.893	0.474	0.666	0.369

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

Table 2-13: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participant Beneficiaries</i>	58,582	58,582	55,044	51,471
ER Visits				
<i>Difference-in-Difference</i>	-713.37	-719.50*	-237.90	244.02
<i>90% Confidence Interval</i>	(-2,178.0 751.2)	(-1,354.3 -84.7)	(-858.1 382.3)	(-351.1 839.2)
<i>80% Confidence Interval</i>	(-1,854.5 427.7)	(-1,214.1 -224.9)	(-721.1 245.3)	(-219.7 707.7)
<i>P-Value</i>	0.423	0.062	0.528	0.500
Inpatient Admissions				
<i>Difference-in-Difference</i>	-7.59	-281.22	151.34	122.29
<i>90% Confidence Interval</i>	(-1,362.6 1,347.4)	(-882.9 320.4)	(-420.3 723.0)	(-421.6 666.2)
<i>80% Confidence Interval</i>	(-1,063.3 1,048.1)	(-750.0 187.6)	(-294.1 596.8)	(-301.5 546.0)
<i>P-Value</i>	0.993	0.442	0.663	0.711
Unplanned Inpatient Admissions				
<i>Difference-in-Difference</i>	341.13	-142.88	216.94	267.06
<i>90% Confidence Interval</i>	(-883.7 1,566.0)	(-687.4 401.6)	(-300.4 734.3)	(-231.0 765.1)
<i>80% Confidence Interval</i>	(-613.2 1,295.5)	(-567.1 281.4)	(-186.2 620.0)	(-121.0 655.1)
<i>P-Value</i>	0.647	0.666	0.490	0.378
Hospital Days				
<i>Difference-in-Difference</i>	1,059.54	-949.27	1,732.07	276.74

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
90% Confidence Interval	(-11,035.9 13,155.0)	(-6,584.9 4,686.4)	(-3,234.3 6,698.4)	(-4,353.6 4,907.1)
80% Confidence Interval	(-8,364.4 10,483.5)	(-5,340.1 3,441.6)	(-2,137.4 5,601.5)	(-3,330.9 3,884.4)
P-Value	0.885	0.782	0.566	0.922

* Statistically significant at the ten percent level.

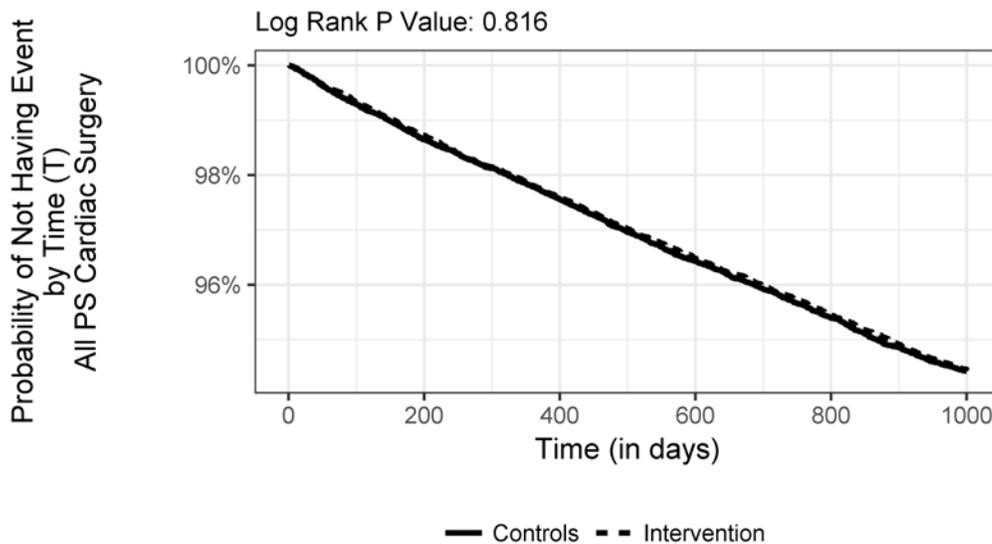
^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period, and Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

Time-to-surgery analysis for the FFS Ohio cohort found that the Q1 decrease in preference-sensitive cardiac surgeries was not followed by increased utilization in later periods. Figure 2-2 shows that the Kaplan-Meier curves for intervention and control beneficiaries were generally similar over the twelve quarters after intervention; the probability of surgical utilization for FFS Ohio intervention beneficiaries was not different from controls (p-value: 0.816).

Figure 2-2: Kaplan-Meier Curve, All Preference-Sensitive Cardiac Surgeries, Welvie FFS Ohio Cohort



For the MA Ohio cohort, the Welvie intervention was associated with statistically significant Year 1 decreases in many surgery-related resource use categories and a Year 2 decrease in ER visits. As shown in Table 2-14, there were about 670 fewer surgeries (7 surgeries per 1,000 beneficiaries) and 2,710 fewer surgical hospital days (28 surgical hospital days per 1,000 beneficiaries) among the 97,380 MA Ohio beneficiaries relative to controls in Year 1. These decreases are driven by statistically significant decreases in inpatient surgeries and preference-sensitive cardiac surgeries. Appendix Table B-24, which presents quarterly estimates on resource use categories, shows that statistically significant Year 1 decreases are driven by

corresponding decreases in Q1 and Q3. The Welvie intervention was also associated with 729 fewer ER visits in the second year after enrollment among 91,230 MA Ohio beneficiaries relative to controls (8 ER visits per 1,000 beneficiaries), as shown in Table 2-15. This decrease in ER visits may be a downstream effect of earlier decreases in surgery-related health care utilization that occurred in Year 1.

Table 2-14: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	97,380	97,380	91,230
All Surgeries			
<i>Difference-in-Difference</i>	-601.58	-670.36*	-23.73
<i>90% Confidence Interval</i>	(-1,797.3 594.2)	(-1,244.2 -96.5)	(-555.7 508.3)
<i>80% Confidence Interval</i>	(-1,533.2 330.0)	(-1,117.4 -223.3)	(-438.2 390.8)
<i>P-Value</i>	0.408	0.055	0.942
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-518.45	-466.89**	-16.76
<i>90% Confidence Interval</i>	(-1,166.1 129.2)	(-792.0 -141.7)	(-305.8 272.3)
<i>80% Confidence Interval</i>	(-1,023.1 -13.8)	(-720.2 -213.6)	(-242.0 208.4)
<i>P-Value</i>	0.188	0.018	0.924
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-2,989.56	-2,710.20*	-1,046.84
<i>90% Confidence Interval</i>	(-7,917.1 1,938.0)	(-5,314.5 -105.9)	(-3,365.2 1,271.5)
<i>80% Confidence Interval</i>	(-6,828.7 849.6)	(-4,739.3 -681.1)	(-2,853.1 759.5)
<i>P-Value</i>	0.318	0.087	0.458
Outpatient Surgeries			
<i>Difference-in-Difference</i>	-83.13	-203.48	-6.97
<i>90% Confidence Interval</i>	(-1,062.3 896.0)	(-663.2 256.2)	(-440.9 426.9)
<i>80% Confidence Interval</i>	(-846.0 679.7)	(-561.6 154.7)	(-345.0 331.1)
<i>P-Value</i>	0.889	0.467	0.979
All Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	15.55	-115.42	71.10
<i>90% Confidence Interval</i>	(-440.0 471.1)	(-335.9 105.0)	(-127.0 269.2)
<i>80% Confidence Interval</i>	(-339.4 370.4)	(-287.2 56.3)	(-83.3 225.5)
<i>P-Value</i>	0.955	0.389	0.555
Inpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	60.98	-63.72	84.87
<i>90% Confidence Interval</i>	(-381.1 503.1)	(-277.2 149.7)	(-107.5 277.2)

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>80% Confidence Interval</i>	(-283.5 405.5)	(-230.0 102.6)	(-65.0 234.7)
<i>P-Value</i>	0.821	0.623	0.468
Preference Sensitive Orthopedic Surgery Hospital Days			
<i>Difference-in-Difference</i>	1,383.40	44.33	383.41
<i>90% Confidence Interval</i>	(-1,334.7 4,101.5)	(-1,248.2 1,336.9)	(-915.7 1,682.5)
<i>80% Confidence Interval</i>	(-734.4 3,501.1)	(-962.7 1,051.4)	(-628.8 1,395.6)
<i>P-Value</i>	0.403	0.955	0.627
Outpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	-45.44	-51.70	-13.77
<i>90% Confidence Interval</i>	(-154.5 63.6)	(-106.5 3.1)	(-60.9 33.4)
<i>80% Confidence Interval</i>	(-130.4 39.5)	(-94.4 -9.0)	(-50.5 23.0)
<i>P-Value</i>	0.493	0.121	0.631
All Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-346.74	-258.95**	-127.96
<i>90% Confidence Interval</i>	(-768.3 74.8)	(-463.2 -54.7)	(-311.2 55.3)
<i>80% Confidence Interval</i>	(-675.2 -18.3)	(-418.1 -99.9)	(-270.8 14.8)
<i>P-Value</i>	0.176	0.037	0.251
Inpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-276.71	-218.75**	-68.93
<i>90% Confidence Interval</i>	(-632.3 78.9)	(-389.8 -47.7)	(-222.2 84.4)
<i>80% Confidence Interval</i>	(-553.8 0.4)	(-352.0 -85.5)	(-188.4 50.5)
<i>P-Value</i>	0.201	0.035	0.460
Inpatient Preference Sensitive Cardiac Surgical Hospital Days			
<i>Difference-in-Difference</i>	-920.78	-1,160.98	-256.50
<i>90% Confidence Interval</i>	(-3,368.2 1,526.7)	(-2,357.0 35.0)	(-1,425.5 912.5)
<i>80% Confidence Interval</i>	(-2,827.7 986.1)	(-2,092.8 -229.1)	(-1,167.3 654.3)
<i>P-Value</i>	0.536	0.110	0.718
Outpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-70.03	-40.21	-59.03
<i>90% Confidence Interval</i>	(-281.6 141.6)	(-144.3 63.9)	(-152.5 34.4)
<i>80% Confidence Interval</i>	(-234.9 94.8)	(-121.3 40.9)	(-131.8 13.8)
<i>P-Value</i>	0.586	0.525	0.299

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-15: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	97,380	97,380	91,230
ER Visits			
<i>Difference-in-Difference</i>	-575.00	82.60	-729.03**
<i>90% Confidence Interval</i>	(-1,826.3 676.3)	(-557.7 722.9)	(-1,316.9 -141.2)
<i>80% Confidence Interval</i>	(-1,549.9 399.9)	(-416.3 581.5)	(-1,187.1 -271.0)
<i>P-Value</i>	0.450	0.832	0.041
Inpatient Admissions			
<i>Difference-in-Difference</i>	-689.90	-415.32	1.32
<i>90% Confidence Interval</i>	(-1,854.2 474.4)	(-1,007.1 176.5)	(-528.6 531.2)
<i>80% Confidence Interval</i>	(-1,597.0 217.2)	(-876.4 45.8)	(-411.5 414.2)
<i>P-Value</i>	0.330	0.248	0.997
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	-1,018.55	-435.59	-226.21
<i>90% Confidence Interval</i>	(-2,088.8 51.7)	(-979.8 108.6)	(-712.9 260.5)
<i>80% Confidence Interval</i>	(-1,852.4 -184.7)	(-859.6 -11.6)	(-605.4 153.0)
<i>P-Value</i>	0.118	0.188	0.445
Hospital Days			
<i>Difference-in-Difference</i>	-4,191.40	-2,735.64	-411.22
<i>90% Confidence Interval</i>	(-12,635.0 4,252.2)	(-7,140.0 1,668.8)	(-4,353.7 3,531.3)
<i>80% Confidence Interval</i>	(-10,770.0 2,387.2)	(-6,167.2 696.0)	(-3,482.9 2,660.5)
<i>P-Value</i>	0.414	0.307	0.864

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

The time-to-surgery analysis suggests that statistically significant decreases in surgeries among MA Ohio beneficiaries in the first year after program enrollment did not lead to increased surgery utilization in later periods. Figure 2-3 shows that beginning around the third quarter after enrollment, intervention beneficiaries were less likely to utilize preference-sensitive cardiac surgeries compared to control beneficiaries (p-value: 0.001). This pattern of utilization is consistent and continues through the end of the observation period, suggesting preference-sensitive cardiac surgery utilization was not delayed for a later time. Time-to-surgery analysis

for the all surgeries and inpatient surgeries measures show a similar pattern (see Figure 2-4 and Figure 2-5).

Figure 2-3: Kaplan-Meier Curve, All Preference-Sensitive Cardiac Surgeries, Welvie MA Ohio Cohort

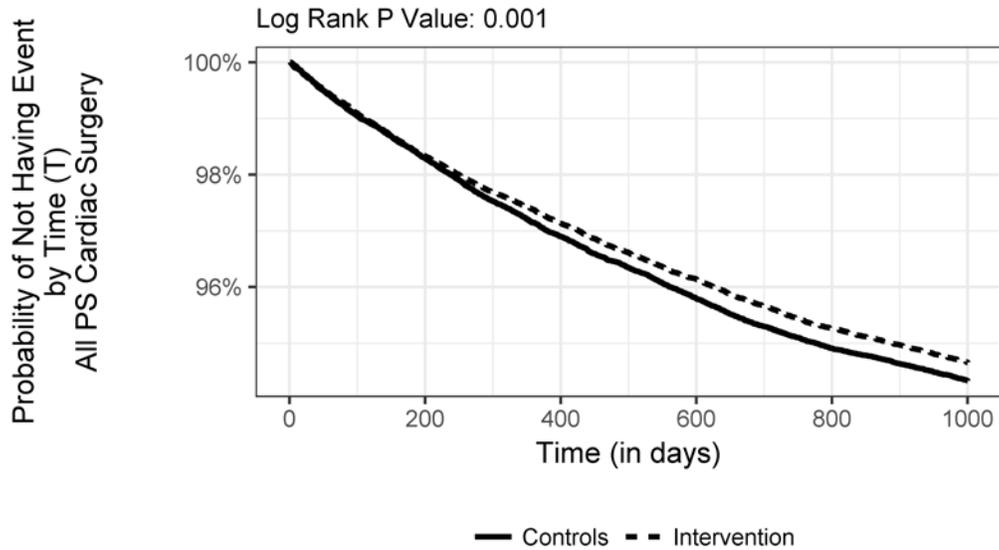


Figure 2-4: Kaplan-Meier Curve, All Surgeries, Welvie MA Ohio Cohort

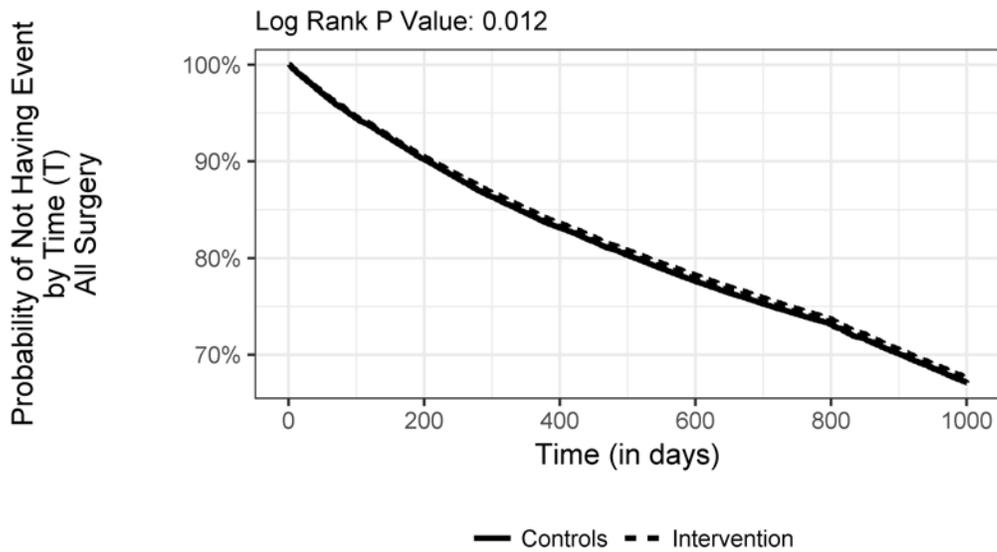
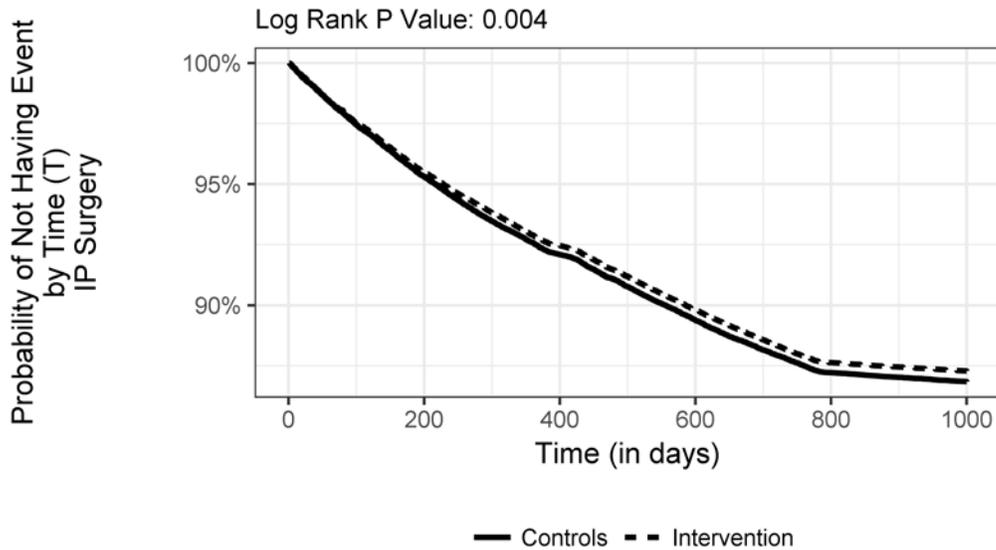


Figure 2-5: Kaplan-Meier Curve, Inpatient Surgeries, Welvie MA Ohio Cohort



The Welvie intervention was associated with mixed effects on surgery-related resource use categories for the MA Texas cohort, which must be interpreted in the light of the program implementation as described in Section 2.3. There were 391 more inpatient surgeries among 63,979 beneficiaries (7 more inpatient surgeries per 1,000 beneficiaries) cumulatively over the six quarters after program enrollment for intervention beneficiaries relative to controls. In the outpatient setting, there were 64 fewer preference-sensitive orthopedic surgeries among 63,979 beneficiaries (1 fewer outpatient preference-sensitive orthopedic surgery per 1,000 beneficiaries) over the same period. Inpatient preference sensitive cardiac surgeries increased, but they were offset by a decrease in such surgeries in the outpatient setting. There was a total of 148 more inpatient preference-sensitive cardiac surgeries (3 more inpatient preference-sensitive cardiac surgeries per 1,000 beneficiaries) but 166 fewer outpatient preference-sensitive cardiac surgeries (3 fewer outpatient preference-sensitive cardiac surgeries per 1,000 beneficiaries) among the 63,979 MA Texas beneficiaries across the full intervention period. While it is possible that use of the decision aid encourages preference-sensitive cardiac surgeries in the inpatient setting while discouraging them in the outpatient setting, these estimates are inconsistent with those observed for the FFS Ohio and MA Ohio cohorts. Further, as discussed in Section 2.3, beneficiaries in both the Humana Texas intervention and control groups were exposed to the Welvie intervention via communications from Humana to its wider Medicare membership in Texas, and as such, these results comparing outcomes for the initially randomized intervention and control groups may not be attributable to the Welvie program.

Table 2-16: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	63,979	63,979
All Surgeries		
<i>Difference-in-Difference</i>	109.08	113.08
<i>90% Confidence Interval</i>	(-474.3 692.5)	(-323.2 549.4)
<i>80% Confidence Interval</i>	(-345.5 563.6)	(-226.9 453.0)
<i>P-Value</i>	0.758	0.670
Inpatient Surgeries		
<i>Difference-in-Difference</i>	391.25**	389.22**
<i>90% Confidence Interval</i>	(66.4 716.1)	(142.0 636.5)
<i>80% Confidence Interval</i>	(138.2 644.3)	(196.6 581.9)
<i>P-Value</i>	0.048	0.010
Surgical Hospital Days		
<i>Difference-in-Difference</i>	2,285.37	1,623.46
<i>90% Confidence Interval</i>	(-958.2 5,528.9)	(-899.0 4,145.9)
<i>80% Confidence Interval</i>	(-241.8 4,812.5)	(-341.9 3,588.8)
<i>P-Value</i>	0.246	0.290
Outpatient Surgeries		
<i>Difference-in-Difference</i>	-282.17	-276.14
<i>90% Confidence Interval</i>	(-753.2 188.8)	(-625.6 73.3)
<i>80% Confidence Interval</i>	(-649.1 84.8)	(-548.4 -3.9)
<i>P-Value</i>	0.324	0.194
All Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	-32.11	-9.38
<i>90% Confidence Interval</i>	(-227.4 163.2)	(-155.9 137.2)
<i>80% Confidence Interval</i>	(-184.3 120.0)	(-123.6 104.8)
<i>P-Value</i>	0.787	0.916
Inpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	32.26	41.74
<i>90% Confidence Interval</i>	(-154.5 219.0)	(-98.0 181.4)
<i>80% Confidence Interval</i>	(-113.2 177.7)	(-67.1 150.6)
<i>P-Value</i>	0.776	0.623
Preference Sensitive Orthopedic Surgery Hospital Days		
<i>Difference-in-Difference</i>	43.32	-14.69
<i>90% Confidence Interval</i>	(-1,226.0 1,312.7)	(-975.7 946.3)

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>80% Confidence Interval</i>	(-945.7 1,032.3)	(-763.5 734.1)
<i>P-Value</i>	0.955	0.980
Outpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	-64.37*	-51.12*
<i>90% Confidence Interval</i>	(-121.4 -7.3)	(-95.4 -6.9)
<i>80% Confidence Interval</i>	(-108.8 -19.9)	(-85.6 -16.7)
<i>P-Value</i>	0.063	0.057
All Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	-17.35	16.57
<i>90% Confidence Interval</i>	(-208.0 173.3)	(-127.6 160.7)
<i>80% Confidence Interval</i>	(-165.9 131.2)	(-95.8 128.9)
<i>P-Value</i>	0.881	0.850
Inpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	148.27*	112.32*
<i>90% Confidence Interval</i>	(8.7 287.9)	(7.1 217.5)
<i>80% Confidence Interval</i>	(39.5 257.0)	(30.3 194.3)
<i>P-Value</i>	0.081	0.079
Inpatient Preference Sensitive Cardiac Surgical Hospital Days		
<i>Difference-in-Difference</i>	807.82	157.44
<i>90% Confidence Interval</i>	(-407.9 2,023.6)	(-801.8 1,116.6)
<i>80% Confidence Interval</i>	(-139.4 1,755.1)	(-589.9 904.8)
<i>P-Value</i>	0.274	0.787
Outpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	-165.62**	-95.75*
<i>90% Confidence Interval</i>	(-287.1 -44.1)	(-187.9 -3.6)
<i>80% Confidence Interval</i>	(-260.3 -70.9)	(-167.6 -23.9)
<i>P-Value</i>	0.025	0.088

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Table 2-17: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	63,979	63,979
ER Visits		
<i>Difference-in-Difference</i>	258.25	-60.15
<i>90% Confidence Interval</i>	(-594.1 1,110.6)	(-716.5 596.2)
<i>80% Confidence Interval</i>	(-405.8 922.3)	(-571.5 451.3)
<i>P-Value</i>	0.618	0.880
Inpatient Admissions		
<i>Difference-in-Difference</i>	538.48	272.44
<i>90% Confidence Interval</i>	(-130.7 1,207.7)	(-251.0 795.9)
<i>80% Confidence Interval</i>	(17.1 1,059.9)	(-135.4 680.3)
<i>P-Value</i>	0.186	0.392
Unplanned Inpatient Admissions		
<i>Difference-in-Difference</i>	490.59	227.64
<i>90% Confidence Interval</i>	(-130.9 1,112.1)	(-257.9 713.2)
<i>80% Confidence Interval</i>	(6.3 974.8)	(-150.7 606.0)
<i>P-Value</i>	0.194	0.441
Hospital Days		
<i>Difference-in-Difference</i>	1,483.72	-1,099.40
<i>90% Confidence Interval</i>	(-3,861.8 6,829.3)	(-5,309.6 3,110.7)
<i>80% Confidence Interval</i>	(-2,681.1 5,648.6)	(-4,379.7 2,180.8)
<i>P-Value</i>	0.648	0.668

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

2.4.3 Medical Expenditures

The Welvie intervention was not associated with statistically significant cumulative effects on surgery-related expenditures for the Medicare FFS cohort (see Table 2-18), but there were yearly effects in a few other expenditure categories that were statistically significant at the $p < 0.10$ level (see Table 2-19). As shown in Table 2-19, there was a statistically significant decrease in durable medical equipment (DME) expenditures in Year 3 and in home health expenditures in Year 2 among Medicare FFS Ohio beneficiaries relative to controls. There was also a statistically significant decrease in hospice expenditures in Year 1, which was followed by a statistically significant increase in hospice expenditures in Year 3.

Although cumulative effects on total or surgery-related expenditures were not statistically significant, the quarterly fixed effect analysis provides some evidence of decreases in a number of surgery and non-surgery related expenditure categories in the first quarter for the Medicare FFS cohort. There was a Q1 decrease in total medical expenditures of just under \$100 per beneficiary (p-value: 0.063), driven partly by decreases in inpatient expenditures of about \$82 per beneficiary (p-value: 0.013), total surgery expenditures of \$54 per beneficiary (p-value: 0.030), and preference-sensitive cardiac surgery expenditures of \$22 per beneficiary (p-value: 0.032) all occurring in the same quarter, as shown in Appendix Table B-46. A potential interpretation of these findings is that effects in early quarters are driven by participants who were actively considering surgery at the time of initial outreach, but the effects of outreach do not persist in later quarters because the materials are less effective when first received well before the participant is engaged in relevant health care decisions.

Table 2-18: Aggregate Surgery-Related Expenditures: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period^a (12 quarters)	Year 1^b	Year 2	Year 3
<i>Number of Participant Beneficiaries</i>	58,582	58,582	55,044	51,471
Total Surgery Expenditures				
<i>Difference-in-Difference</i>	-917,767.0	-3,001,006.4	111,585.4	1,971,654.0
<i>90% Confidence Interval</i>	(-13,001,815 11,166,281)	(-8,455,790 2,453,777)	(-5,067,385 5,290,556)	(-2,714,828 6,658,136)
<i>80% Confidence Interval</i>	(-10,332,787 8,497,253)	(-7,250,981 1,248,968)	(-3,923,496 4,146,666)	(-1,679,716 5,623,024)
<i>P-Value</i>	0.901	0.366	0.972	0.489
Inpatient Surgery Expenditures				
<i>Difference-in-Difference</i>	-1,136,389.17	-2,954,729.15	94,925.78	1,723,414.19
<i>90% Confidence Interval</i>	(-12,516,910 10,244,131)	(-8,121,274 2,211,816)	(-4,794,520 4,984,372)	(-2,674,680 6,121,509)
<i>80% Confidence Interval</i>	(-10,003,272 7,730,493)	(-6,980,129 1,070,671)	(-3,714,579 3,904,430)	(-1,703,264 5,150,093)
<i>P-Value</i>	0.870	0.347	0.975	0.519
Episode-Based Inpatient Surgery Expenditures				
<i>Difference-in-Difference</i>	-2,583,541.8	-3,489,055.1	-338,373.7	1,243,887.0
<i>90% Confidence Interval</i>	(-14,539,424 9,372,341)	(-8,901,071 1,922,961)	(-5,463,094 4,786,347)	(-3,395,724 5,883,498)
<i>80% Confidence Interval</i>	(-11,898,705 6,731,621.4)	(-7,705,709 727,598.6)	(-4,331,187 3,654,439.7)	(-2,370,964 4,858,737.9)
<i>P-Value</i>	0.722	0.289	0.914	0.659
Outpatient Surgery Expenditures				
<i>Difference-in-Difference</i>	222,161.40	24,764.48	-19,491.47	216,888.39

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period^a (12 quarters)	Year 1^b	Year 2	Year 3
<i>90% Confidence Interval</i>	(-3,101,348 3,545,671)	(-1,397,229 1,446,758)	(-1,416,653 1,377,670)	(-1,108,091 1,541,867)
<i>80% Confidence Interval</i>	(-2,367,278.0 2,811,601)	(-1,083,150.2 1,132,679)	(-1,108,059.2 1,069,076)	(-815,439.8 1,249,217)
<i>P-Value</i>	0.912	0.977	0.982	0.788
Preference Sensitive Orthopedic Surgery Expenditures				
<i>Difference-in-Difference</i>	433,723.92	-13,845.95	983,149.57	-535,579.70
<i>90% Confidence Interval</i>	(-3,975,468.1 4,842,916)	(-1,914,468.2 1,886,776)	(-795,292.4 2,761,592)	(-2,205,288.5 1,134,129)
<i>80% Confidence Interval</i>	(-3,001,601.2 3,869,049.0)	(-1,494,674.0 1,466,982.1)	(-402,484.4 2,368,783.5)	(-1,836,496.6 765,337.2)
<i>P-Value</i>	0.871	0.990	0.363	0.598
Inpatient Preference Sensitive Orthopedic Surgery Expenditures				
<i>Difference-in-Difference</i>	692,673.7	105,168.0	937,108.3	-349,602.6
<i>90% Confidence Interval</i>	(-3,098,900 4,484,248)	(-1,529,580 1,739,916)	(-590,848 2,465,065)	(-1,783,792 1,084,587)
<i>80% Confidence Interval</i>	(-2,261,447.8 3,646,795.2)	(-1,168,509.6 1,378,845.6)	(-253,365.2 2,127,581.9)	(-1,467,019.7 767,814.5)
<i>P-Value</i>	0.764	0.916	0.313	0.688
Outpatient Preference Sensitive Orthopedic Surgery Expenditures				
<i>Difference-in-Difference</i>	-184,024.08	-92,814.82	-20,290.51	-70,918.75
<i>90% Confidence Interval</i>	(-426,922.5 58,874.4)	(-193,650.0 8,020.4)	(-124,344.7 83,763.7)	(-172,906.0 31,068.5)
<i>80% Confidence Interval</i>	(-373,273.1 5,224.9)	(-171,378.3 -14,251.3)	(-101,362.1 60,781.0)	(-150,379.9 8,542.4)
<i>P-Value</i>	0.213	0.130	0.748	0.253
Preference Sensitive Cardiac Surgery Expenditures				
<i>Difference-in-Difference</i>	-1,576,567.1	-794,795.5	-1,319,548.7	537,777.1
<i>90% Confidence Interval</i>	(-6,961,491 3,808,356.9)	(-3,152,841 1,563,249.4)	(-3,587,927 948,829.2)	(-1,527,883 2,603,437.1)
<i>80% Confidence Interval</i>	(-5,772,112 2,618,978.1)	(-2,632,015 1,042,423.4)	(-3,086,906 447,808.1)	(-1,071,636 2,147,190.7)
<i>P-Value</i>	0.630	0.579	0.339	0.668
Inpatient Preference Sensitive Cardiac Surgery Expenditures				
<i>Difference-in-Difference</i>	-1,151,501.7	-562,930.6	-1,082,594.6	494,023.5
<i>90% Confidence Interval</i>	(-5,907,814 3,604,810.2)	(-2,647,114 1,521,252.5)	(-3,086,252 921,063.1)	(-1,333,200 2,321,246.8)
<i>80% Confidence Interval</i>	(-4,857,277.6 2,554,274.3)	(-2,186,776.1 1,060,914.9)	(-2,643,700.4 478,511.3)	(-929,617.4 1,917,664.4)
<i>P-Value</i>	0.690	0.657	0.374	0.657

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
Outpatient Preference Sensitive Cardiac Surgery Expenditures				
<i>Difference-in-Difference</i>	-357,228.9	-206,963.5	-133,565.3	-16,700.1
<i>90% Confidence Interval</i>	(-1,161,344.5 446,886.7)	(-548,747.1 134,820.2)	(-455,525.6 188,394.9)	(-337,538.1 304,137.9)
<i>80% Confidence Interval</i>	(-983,737.9 269,280.1)	(-473,256.7 59,329.8)	(-384,413.6 117,282.9)	(-266,674.0 233,273.8)
<i>P-Value</i>	0.465	0.319	0.495	0.932

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period. Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

Table 2-19: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures (2011 USD)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participant Beneficiaries</i>	58582	58582	55044	51471
Total Medicare Parts A and B Expenditures				
<i>Difference-in-Difference</i>	2,068,829	-6,715,866	2,426,766	6,357,929
<i>90% Confidence Interval</i>	(-23,939,494 28,077,153)	(-18,389,453 4,957,721)	(-8,659,710 13,513,242)	(-4,021,216 16,737,074)
<i>80% Confidence Interval</i>	(-18,194,984 22,332,643)	(-15,811,084 2,379,353)	(-6,211,018 11,064,550)	(-1,728,754 14,444,612)
<i>P-Value</i>	0.896	0.344	0.719	0.314
Inpatient Expenditures				
<i>Difference-in-Difference</i>	-2,692,830.4	-5,008,626.2	472,311.7	1,843,484.1
<i>90% Confidence Interval</i>	(-18,693,712 13,308,051)	(-12,320,120 2,302,868)	(-6,400,248 7,344,872)	(-4,519,061 8,206,029)
<i>80% Confidence Interval</i>	(-15,159,566 9,773,905.0)	(-10,705,216 687,963.6)	(-4,882,292 5,826,915.8)	(-3,113,753 6,800,721.4)
<i>P-Value</i>	0.782	0.260	0.910	0.634
Outpatient ER Expenditures				
<i>Difference-in-Difference</i>	-476,192.80	-558,684.37	-7,119.15	89,610.71
<i>90% Confidence Interval</i>	(-1,893,542.1 941,156.4)	(-1,187,362.0 69,993.3)	(-643,523.4 629,285.1)	(-485,110.3 664,331.7)
<i>80% Confidence Interval</i>	(-1,580,489.3 628,103.7)	(-1,048,504.7 - 68,864.0)	(-502,959.5 488,721.2)	(-358,170.6 537,392.0)
<i>P-Value</i>	0.581	0.144	0.985	0.798
Outpatient Non-ER Expenditures				
<i>Difference-in-Difference</i>	4,283,055.5	1,465,377.6	752,963.1	2,064,714.8

Measures (2011 USD)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2	Year 3
<i>90% Confidence Interval</i>	(-1,120,026.6 9,686,138)	(-883,482.0 3,814,237)	(-1,508,703.2 3,014,629)	(-98,071.9 4,227,502)
<i>80% Confidence Interval</i>	(73,362.8 8,492,748)	(-364,684.7 3,295,440)	(-1,009,164.5 2,515,091)	(379,627.1 3,749,803)
<i>P-Value</i>	0.192	0.305	0.584	0.116
Physician and Ancillary Expenditures				
<i>Difference-in-Difference</i>	-94,839.17	-617,108.18	100,218.00	422,051.02
<i>90% Confidence Interval</i>	(-5,187,401 4,997,723)	(-2,852,916 1,618,700)	(-2,024,127 2,224,563)	(-1,585,057 2,429,159)
<i>80% Confidence Interval</i>	(-4,062,597 3,872,919)	(-2,359,089 1,124,872)	(-1,554,919 1,755,355)	(-1,141,743 1,985,845)
<i>P-Value</i>	0.976	0.650	0.938	0.729
Skilled Nursing Facility Expenditures				
<i>Difference-in-Difference</i>	3,536,788.47	-30,548.28	2,272,594.49	1,294,742.26
<i>90% Confidence Interval</i>	(-4,875,334 11,948,911)	(-3,725,307 3,664,211)	(-1,318,731 5,863,919)	(-2,073,748 4,663,233)
<i>80% Confidence Interval</i>	(-3,017,331.8 10,090,909)	(-2,909,238.7 2,848,142)	(-525,507.4 5,070,696)	(-1,329,743.0 3,919,228)
<i>P-Value</i>	0.489	0.989	0.298	0.527
Durable Medical Equipment Expenditures				
<i>Difference-in-Difference</i>	-1,028,287.85	36,084.22	-316,577.00	-747,795.07**
<i>90% Confidence Interval</i>	(-2,607,697.7 551,122.0)	(-626,061.8 698,230.3)	(-944,857.2 311,703.2)	(-1,339,976.9 - 155,613.2)
<i>80% Confidence Interval</i>	(-2,258,850.4 202,274.7)	(-479,812.3 551,980.8)	(-806,087.7 172,933.7)	(-1,209,180.5 - 286,409.6)
<i>P-Value</i>	0.284	0.929	0.407	0.038
Home Health Expenditures				
<i>Difference-in-Difference</i>	-1,550,327.9	268,878.5	-1,163,378.1*	-655,828.4
<i>90% Confidence Interval</i>	(-4,207,700.6 1,107,044.7)	(-881,204.4 1,418,961.5)	(-2,285,531.3 - 41,224.9)	(-1,747,772.7 436,115.9)
<i>80% Confidence Interval</i>	(-3,620,761.4 520,105.6)	(-627,183.3 1,164,940.4)	(-2,037,679.1 - 289,077.1)	(-1,506,592.8 194,936.0)
<i>P-Value</i>	0.337	0.701	0.088	0.323
Hospice Expenditures				
<i>Difference-in-Difference</i>	389,360.0	-2,078,892.8*	361,032.8	2,107,220.0**
<i>90% Confidence Interval</i>	(-3,664,385.1 4,443,105.0)	(-3,944,690.3 - 213,095.3)	(-1,378,266.5 2,100,332.1)	(467,946.2 3,746,493.8)
<i>80% Confidence Interval</i>	(-2,769,026.4 3,547,746.3)	(-3,532,587.9 - 625,197.7)	(-994,104.1 1,716,169.6)	(830,015.9 3,384,424.1)
<i>P-Value</i>	0.874	0.067	0.733	0.034

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period. Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio FFS beneficiaries from February 2013 to January 2014.

For the Ohio MA cohort, the Welvie intervention was associated with statistically significant cumulative and Year 1 decreases in total surgery expenditures, Year 1 decreases in outpatient non-ER expenditures, and Year 1 decreases in total medical expenditures. As shown in Table 2-20, there was a statistically significant decrease of \$12,212,260 in total surgery expenditures (\$138 per beneficiary) across the full intervention period and a decrease of \$9,223,633 (\$97 per beneficiary) in Year 1 among the 97,380 MA Ohio beneficiaries relative to controls. Driving these effects were statistically significant decreases in Year 1 inpatient surgery expenditures, and cumulative and Year 1 decreases in outpatient surgery expenditures. Additionally, a statistically significant decrease of in outpatient non-ER expenditures was also observed in Year 1 (see Table 2-21). These reductions contributed to the statistically significant decrease of \$16,166,817 in total medical expenditures (\$170 per beneficiary) in Year 1 (see Table 2-21).

Consistent with the cumulative and yearly findings, the quarterly fixed effects analysis presented in Appendix Table B-47 shows decreases in total medical expenditures, total surgery expenditures, and other surgery-related expenditure outcomes that were concentrated in the third and fourth quarters after program enrollment. These findings correspond to the statistically significant decreases found in similar resource use categories presented in Section 2.4.2.

Table 2-20: Aggregate Surgery-Related Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	97,380	97,380	91,230
Total Surgery Expenditures			
<i>Difference-in-Difference</i>	-12,212,260**	-9,223,633***	-3,405,209
<i>90% Confidence Interval</i>	(-22,410,498 - 2,014,022)	(-14,704,706 - 3,742,561)	(-8,124,071 1,313,652)
<i>80% Confidence Interval</i>	(-20,157,993 - 4,266,527)	(-13,494,091 - 4,953,176)	(-7,081,807 271,388)
<i>P-Value</i>	0.049	0.006	0.235
Inpatient Surgery Expenditures			
<i>Difference-in-Difference</i>	-7,042,103	-5,242,757*	-2,360,034
<i>90% Confidence Interval</i>	(-16,349,149 2,264,942.7)	(-10,302,953 - 182,561.3)	(-6,680,187 1,960,117.6)
<i>80% Confidence Interval</i>	(-14,293,483 209,277.2)	(-9,185,298 - 1,300,216.7)	(-5,725,986 1,005,917.1)
<i>P-Value</i>	0.213	0.088	0.369

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
Episode-Based Inpatient Surgery Expenditures			
<i>Difference-in-Difference</i>	-7,255,623	-5,343,410*	-2,340,953
<i>90% Confidence Interval</i>	(-16,609,281 2,098,035.6)	(-10,422,599 - 264,221.1)	(-6,687,463 2,005,556.6)
<i>80% Confidence Interval</i>	(-14,543,320 32,074.6)	(-9,300,748 - 1,386,071.6)	(-5,727,441 1,045,534.4)
<i>P-Value</i>	0.202	0.084	0.376
Outpatient Surgery Expenditures			
<i>Difference-in-Difference</i>	-4,566,511.8**	-3,498,423.7***	-867,749.4
<i>90% Confidence Interval</i>	(-7,983,072 - 1,149,951.8)	(-5,205,812 - 1,791,035.7)	(-2,413,548 678,049.1)
<i>80% Confidence Interval</i>	(-7,228,449 - 1,904,574.2)	(-4,828,698 - 2,168,149.8)	(-2,072,124 336,625.5)
<i>P-Value</i>	0.028	<0.001	0.356
Preference Sensitive Orthopedic Surgery Expenditures			
<i>Difference-in-Difference</i>	1,343,553.28	50,069.29	1,233,097.56
<i>90% Confidence Interval</i>	(-2,587,175.1 5,274,282)	(-1,985,858.8 2,085,997)	(-518,571.9 2,984,767)
<i>80% Confidence Interval</i>	(-1,718,987.4 4,406,094.0)	(-1,536,179.4 1,636,317.9)	(-131,677.2 2,597,872.4)
<i>P-Value</i>	0.574	0.968	0.247
Inpatient Preference Sensitive Orthopedic Surgery Expenditures			
<i>Difference-in-Difference</i>	1,454,037	170,463	1,222,841
<i>90% Confidence Interval</i>	(-1,804,452.5 4,712,526)	(-1,519,019.1 1,859,945)	(-236,452.3 2,682,135)
<i>80% Confidence Interval</i>	(-1,084,743.6 3,992,816.8)	(-1,145,859.9 1,486,785.8)	(85,864.8 2,359,818.2)
<i>P-Value</i>	0.463	0.868	0.168
Outpatient Preference Sensitive Orthopedic Surgery Expenditures			
<i>Difference-in-Difference</i>	-185,179.89	-90,327.02	-114,924.13
<i>90% Confidence Interval</i>	(-454,101.2 83,741.4)	(-216,703.1 36,049.0)	(-248,590.7 18,742.4)
<i>80% Confidence Interval</i>	(-394,704.0 24,344.2)	(-188,790.2 8,136.1)	(-219,067.5 - 10,780.8)
<i>P-Value</i>	0.257	0.24	0.157
Preference Sensitive Cardiac Surgery Expenditures			
<i>Difference-in-Difference</i>	-692,886.7	-1,017,127.1	-973,085.7
<i>90% Confidence Interval</i>	(-5,648,925 4,263,152)	(-3,572,262 1,538,007)	(-3,222,581 1,276,409)
<i>80% Confidence Interval</i>	(-4,554,274.9 3,168,501.6)	(-3,007,904.0 973,649.8)	(-2,725,730.4 779,558.9)

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>P-Value</i>	0.818	0.513	0.477
Inpatient Preference Sensitive Cardiac Surgery Expenditures			
<i>Difference-in-Difference</i>	-300,476.3	-583,730.4	-737,757.9
<i>90% Confidence Interval</i>	(-4,467,382 3,866,430)	(-2,734,716 1,567,255)	(-2,632,983 1,157,467)
<i>80% Confidence Interval</i>	(-3,547,029.5 2,946,076.9)	(-2,259,623.6 1,092,162.8)	(-2,214,380.7 738,864.9)
<i>P-Value</i>	0.906	0.655	0.522
Outpatient Preference Sensitive Cardiac Surgery Expenditures			
<i>Difference-in-Difference</i>	-528,496.0	-366,104.9	-246,399.5
<i>90% Confidence Interval</i>	(-1,502,362.2 445,370.2)	(-834,720.5 102,510.7)	(-663,356.6 170,557.5)
<i>80% Confidence Interval</i>	(-1,287,262.5 230,270.4)	(-731,216.5 - 993.4)	(-571,262.4 78,463.4)
<i>P-Value</i>	0.372	0.199	0.331

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-21: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures (2011 USD)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	97,380	97,380	91,230
Total Medical Expenditures			
<i>Difference-in-Difference</i>	-20,868,492	-16,166,817**	-2,717,823
<i>90% Confidence Interval</i>	(-41,754,311 17,327.7)	(-27,030,916 - 5,302,718.7)	(-12,412,531 6,976,884.4)
<i>80% Confidence Interval</i>	(-37,141,219 - 4,595,764)	(-24,631,341 - 7,702,294)	(-10,271,241 4,835,595)
<i>P-Value</i>	0.100	0.014	0.645
Inpatient Expenditures			
<i>Difference-in-Difference</i>	-8,639,255.2	-7,000,662.1	943,355.3
<i>90% Confidence Interval</i>	(-22,330,017 5,051,506.7)	(-14,188,446 187,121.3)	(-5,363,497 7,250,207.6)
<i>80% Confidence Interval</i>	(-19,306,112 2,027,601)	(-12,600,866 - 1,400,459)	(-3,970,490 5,857,201)

Measures (2011 USD)	Full Intervention Period^a (11 quarters)	Year 1^b	Year 2
<i>P-Value</i>	0.299	0.109	0.806
Outpatient ER Expenditures			
<i>Difference-in-Difference</i>	-1,084,482.9	-661,685.0	-619,050.5
<i>90% Confidence Interval</i>	(-2,707,964 538,998.1)	(-1,484,685 161,315.0)	(-1,404,276 166,175.2)
<i>80% Confidence Interval</i>	(-2,349,382.4 180,416.6)	(-1,302,907.4 - 20,462.6)	(-1,230,841.9 - 7,259.2)
<i>P-Value</i>	0.272	0.186	0.195
Outpatient Non-ER Expenditures			
<i>Difference-in-Difference</i>	-3,076,162.0	-3,717,798.6**	-195,393.6
<i>90% Confidence Interval</i>	(-8,199,182 2,046,858)	(-6,332,466 - 1,103,131)	(-2,511,227 2,120,440)
<i>80% Confidence Interval</i>	(-7,067,650.7 915,326.7)	(-5,754,959.3 - 1,680,637.9)	(-1,999,724.6 1,608,937.4)
<i>P-Value</i>	0.323	0.019	0.890
Physician and Ancillary Expenditures			
<i>Difference-in-Difference</i>	-3,213,730	-2,677,473	-1,142,553
<i>90% Confidence Interval</i>	(-8,505,115 2,077,655.4)	(-5,411,322 56,374.9)	(-3,634,058 1,348,952.9)
<i>80% Confidence Interval</i>	(-7,336,396.6 908,936.7)	(-4,807,491.2 - 547,455.6)	(-3,083,754.3 798,649.2)
<i>P-Value</i>	0.318	0.107	0.451
Skilled Nursing Facility Expenditures			
<i>Difference-in-Difference</i>	-4,348,065	-1,959,691	-1,676,843
<i>90% Confidence Interval</i>	(-8,835,585 139,455.5)	(-4,156,233 236,851.9)	(-3,714,167 360,479.9)
<i>80% Confidence Interval</i>	(-7,844,418 - 851,712.0)	(-3,671,079 - 248,302.8)	(-3,264,179 - 89,507.7)
<i>P-Value</i>	0.111	0.142	0.176
Home Health Expenditures			
<i>Difference-in-Difference</i>	-616,288.66	-278,653.55	73,458.39
<i>90% Confidence Interval</i>	(-2,314,983 1,082,405.8)	(-1,123,322 566,014.6)	(-716,297 863,213.7)
<i>80% Confidence Interval</i>	(-1,939,789.1 707,211.8)	(-936,758.2 379,451.1)	(-541,862.1 688,778.9)
<i>P-Value</i>	0.551	0.587	0.878

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

For the MA Texas cohort, the Welvie intervention was associated with cumulative increases in inpatient surgery expenditures, cumulative and Year 1 decreases in outpatient preference-sensitive orthopedic surgery expenditures, and a Year 2 decrease in skilled nursing facility expenditures. Table 2-22 shows a statistically significant increase of \$6,795,627 in inpatient surgery expenditures among 63,979 MA Texas beneficiaries relative to controls (\$125 per beneficiary) across the full intervention period. This finding was driven by statistically significant increases in inpatient preference-sensitive cardiac surgery expenditures. Table 2-22 also shows a statistically significant decrease of \$166,147 in outpatient preference-sensitive orthopedic surgery expenditures among 63,979 MA Texas beneficiaries (\$3 per beneficiary) across the full intervention period and in Year 1. A statistically significant decrease of \$1,822,131 in skilled nursing facility expenditures among 63,979 MA Texas beneficiaries (\$32 per beneficiary) in Year 2 was also observed (see Table 2-23). These findings were statistically significant at the ten percent level.

These effects are consistent with the findings on increases in inpatient resource utilization and decreases in outpatient resource utilization for the MA Texas cohort presented in Section 2.4.2. As discussed above, statistically significant effects found for the MA Texas cohort may not reflect true program effects due to the control group’s exposure to the Welvie intervention through communications from Humana.

Table 2-22: Aggregate Surgery-Related Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	63,979	63,979
Total Surgery Expenditures		
<i>Difference-in-Difference</i>	6,507,650	3,503,438
<i>90% Confidence Interval</i>	(-295,111.8 13,310,412)	(-1,822,914.4 8,829,790)
<i>80% Confidence Interval</i>	(1,207,427.6 11,807,873)	(-646,472.4 7,653,349)
<i>P-Value</i>	0.116	0.279
Inpatient Surgery Expenditures		
<i>Difference-in-Difference</i>	6,795,627*	4,107,930
<i>90% Confidence Interval</i>	(452,481.3 13,138,773)	(-866,393.4 9,082,254)
<i>80% Confidence Interval</i>	(1,853,504.4 11,737,750)	(232,295.2 7,983,565)
<i>P-Value</i>	0.078	0.174
Episode-Based Inpatient Surgery Expenditures		
<i>Difference-in-Difference</i>	7,119,678*	4,277,738
<i>90% Confidence Interval</i>	(741,424.1 13,497,932)	(-718,950.5 9,274,427)
<i>80% Confidence Interval</i>	(2,150,201.6 12,089,154)	(384,678.0 8,170,798)

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period^a (6 quarters)	Year 1^b
<i>P-Value</i>	0.066	0.159
Outpatient Surgery Expenditures		
<i>Difference-in-Difference</i>	-83,537.17	-453,334.31
<i>90% Confidence Interval</i>	(-2,136,431 1,969,356)	(-2,043,759 1,137,091)
<i>80% Confidence Interval</i>	(-1,683,004 1,515,929.5)	(-1,692,479 785,810.2)
<i>P-Value</i>	0.947	0.639
Preference Sensitive Orthopedic Surgery Expenditures		
<i>Difference-in-Difference</i>	-320,564.3	-291,141.4
<i>90% Confidence Interval</i>	(-2,864,095 2,222,966)	(-2,231,165 1,648,882)
<i>80% Confidence Interval</i>	(-2,302,300.3 1,661,171.7)	(-1,802,668.2 1,220,385.5)
<i>P-Value</i>	0.836	0.805
Inpatient Preference Sensitive Orthopedic Surgery Expenditures		
<i>Difference-in-Difference</i>	-177,713.6	-191,687.7
<i>90% Confidence Interval</i>	(-2,327,187 1,971,760)	(-1,828,108 1,444,732)
<i>80% Confidence Interval</i>	(-1,852,428.8 1,497,001.6)	(-1,466,668.3 1,083,293.0)
<i>P-Value</i>	0.892	0.847
Outpatient Preference Sensitive Orthopedic Surgery Expenditures		
<i>Difference-in-Difference</i>	-166,146.6*	-160,328.6**
<i>90% Confidence Interval</i>	(-310,192.9 -22,100.4)	(-270,691.0 -49,966.3)
<i>80% Confidence Interval</i>	(-278,377.1 -53,916.2)	(-246,315.1 -74,342.2)
<i>P-Value</i>	0.058	0.017
Preference Sensitive Cardiac Surgery Expenditures		
<i>Difference-in-Difference</i>	2,881,037	1,892,947
<i>90% Confidence Interval</i>	(-62,320.8 5,824,395)	(-457,838.8 4,243,733)
<i>80% Confidence Interval</i>	(587,784.5 5,174,290)	(61,383.9 3,724,511)
<i>P-Value</i>	0.107	0.185
Inpatient Preference Sensitive Cardiac Surgery Expenditures		
<i>Difference-in-Difference</i>	2,822,237*	1,820,667
<i>90% Confidence Interval</i>	(261,604.2 5,382,870)	(-240,244.9 3,881,579)
<i>80% Confidence Interval</i>	(827,176.2 4,817,298)	(214,952.8 3,426,381)
<i>P-Value</i>	0.070	0.146
Outpatient Preference Sensitive Cardiac Surgery Expenditures		
<i>Difference-in-Difference</i>	-464,085.2	-270,511.8
<i>90% Confidence Interval</i>	(-936,460.2 8,289.9)	(-628,708.5 87,684.9)

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (6 quarters)	Year 1 ^b
80% Confidence Interval	(-832,125.8 -96,044.5)	(-549,592.8 8,569.3)
P-Value	0.106	0.214

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Table 2-23: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures (2011 USD)	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	63,979	63,979
Total Medical Expenditures		
<i>Difference-in-Difference</i>	4,588,852.4	-565,982.5
90% Confidence Interval	(-7,866,884 17,044,589)	(-10,331,261 9,199,296)
80% Confidence Interval	(-5,115,760.9 14,293,466)	(-8,174,384.9 7,042,420)
P-Value	0.545	0.924
Inpatient Expenditures		
<i>Difference-in-Difference</i>	6,459,599	1,165,251
90% Confidence Interval	(-2,333,897 15,253,096)	(-5,800,589 8,131,090)
80% Confidence Interval	(-391,660.3 13,310,859)	(-4,262,030.0 6,592,531)
P-Value	0.227	0.783
Outpatient ER Expenditures		
<i>Difference-in-Difference</i>	286,737.9	-164,426.0
90% Confidence Interval	(-718,152.3 1,291,628.1)	(-943,660.5 614,808.5)
80% Confidence Interval	(-496,200.2 1,069,676.0)	(-771,549.5 442,697.4)
P-Value	0.639	0.729
Outpatient Non-ER Expenditures		
<i>Difference-in-Difference</i>	827,096.4	214,320.0
90% Confidence Interval	(-2,055,066 3,709,259)	(-2,002,017 2,430,657)
80% Confidence Interval	(-1,418,477.1 3,072,670)	(-1,512,490.1 1,941,130)
P-Value	0.637	0.874
Physician and Ancillary Expenditures		
<i>Difference-in-Difference</i>	961,906.5	1,326,647.2
90% Confidence Interval	(-2,235,177 4,158,990)	(-1,143,352 3,796,646)
80% Confidence Interval	(-1,529,030.7 3,452,843.7)	(-597,798.2 3,251,092.6)
P-Value	0.621	0.377

Measures (2011 USD)	Full Intervention Period ^a (6 quarters)	Year 1 ^b
Skilled Nursing Facility Expenditures		
<i>Difference-in-Difference</i>	-1,745,455	-1,822,131*
<i>90% Confidence Interval</i>	(-3,884,054 393,144.1)	(-3,475,107 -169,155.9)
<i>80% Confidence Interval</i>	(-3,411,697.6 -79,212.5)	(-3,110,010.8 -534,251.8)
<i>P-Value</i>	0.179	0.070
Home Health Expenditures		
<i>Difference-in-Difference</i>	-1,185,532.5	-778,776.7
<i>90% Confidence Interval</i>	(-3,103,641 732,575.5)	(-2,268,191 710,637.6)
<i>80% Confidence Interval</i>	(-2,679,984 308,919.2)	(-1,939,221 381,667.7)
<i>P-Value</i>	0.309	0.390

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

2.5 Program Effectiveness (IV Analysis)

This section describes the instrumental variable (IV) analysis that Acumen conducted to assess the effects of the Welvie high-dose intervention, defined as use of the decision aid component of the program. Section 2.5.1 describes the analytic approach for the IV analysis, while Section 2.5.2 and Section 2.5.3 present resource use and expenditures findings, respectively, from this analysis for Medicare beneficiaries who completed at least one of the six steps of the decision aid.

2.5.1 Analytic Approach

Acumen also conducted an IV analysis to assess the effects of the use of the Welvie decision aid on health service utilization and expenditures for Medicare beneficiaries. While Welvie's low-dose intervention group consists of randomly selected beneficiaries who received outreach materials with brief health information content and an invitation to use the six-step decision aid, the high-dose intervention group consists of a subset of these beneficiaries who completed at least one of the six steps of the decision aid. The same set of basic cohort restrictions used in the ITT analysis described in Section 2.4 was also applied in this IV analysis. As in the ITT analysis, the IV analysis presented in this addendum defines program enrollment

as the date a given intervention beneficiary was sent outreach materials by Welvie for the first time.⁸

This IV analysis considers the six-step decision aid as the main treatment and focuses on assessing the average effect of this treatment. It estimates a local average treatment effect (LATE)⁹ as the average effect of the Welvie intervention on outcomes for beneficiaries who actually received the treatment (i.e., used the decision aid) after their randomization into the treatment arm. In comparison, the ITT analysis presented in Section 2.4 aims to estimate the effect of offering the Welvie program to Medicare beneficiaries, or the effect of receipt of outreach mailings on the outcomes of interest, without considering receipt of the decision aid program itself. Since beneficiaries accessed the decision aid by choice, not everyone assigned to the low-dose intervention group actually received “treatment” (i.e., used the decision aid).

The IV analysis uses the randomized nature of assignment to the low-dose intervention group as a proxy for a beneficiary’s propensity to enter the high-dose intervention program.^{10,11,12} In the analysis of the use of the Welvie decision aid, assignment to the low-dose intervention group was used as the instrumental variable in a two-stage regression. The first stage was a logistic regression assessing the probability of being in the high-dose intervention program among the randomized low-dose intervention and control groups. The predicted probabilities were then used as an independent variable in the second stage, which assesses the high dose intervention program’s association with health, resource use and expenditure outcomes in the DiD framework described in Section 1.2.

The IV analysis of the high-dose intervention is based on four assumptions. The first is that the assignment to the low-dose intervention group is associated with entrance into the high-dose intervention group. The second is that the assignment to the low-dose intervention group is not affected by any confounding factors that may affect the association between entrance to the high-dose intervention and assessed health and cost outcomes. The third is that the only way that assignment to the low-dose intervention affects health and cost outcomes is through entrance to the high-dose intervention group. Finally, the fourth is that assignment to the low-dose intervention group did not discourage beneficiaries from entering the high-dose intervention group if those same beneficiaries would have otherwise entered the high-dose group had they

⁸ Previous results in the Third Annual Report defined program enrollment as the first date that a given beneficiary accessed the decision aid.

⁹ Joshua D. Angrist, Guido W. Imbens, and Donald B. Rubin, “Identification of Causal Effects Using Instrumental Variables,” *Journal of the American Statistical Association* 91 (1996): 444-72.

¹⁰ Ibid.

¹¹ James J. Heckman, “Randomization as an Instrumental Variable,” *The Review of Economics and Statistics* 78 (1996): 336-41.

¹² Sander Greenland, “An Introduction to Instrumental Variables for Epidemiologists,” *International Journal of Epidemiology* 29 (2000): 722-29.

been assigned to the control population. The first two assumptions are consistent with program construction and randomization. The third assumption is based on the assumption that simply receiving outreach materials with brief health information content and being invited to use the decision aid are unlikely to have substantial uniform behavioral effects on beneficiaries who do not choose to engage with the six-step decision aid. The fourth assumption ensures that the results of the analysis can be interpreted as the effect of Welvie’s decision aid on beneficiaries who used the decision aid as a result of the low-dose intervention; this assumption is plausible, given that the number of control beneficiaries who used the tool is very low, and there is no clear mechanism through which receipt of the Welvie outreach materials would have discouraged use of the decision aid.

As noted in Section 2.3, beneficiaries in the Texas control group may have received information about Welvie’s decision aid program through outreach materials sent by Humana to its broader MA membership in Texas. However, beneficiaries assigned to the low-dose Texas intervention group received more materials than those in the control group, and they are observed to be entering the high-dose intervention group at much higher rates than the control group, providing support for the first assumption that assignment to the low-dose intervention group is associated with entrance into the high-dose intervention group. Despite the potential exposure of the Humana MA Texas control group population to information about Welvie through the Humana mailings, the assumptions underlying the instrumental variable analysis still apply to the Humana MA Texas population. Similar to the ITT analysis, the results for the Humana MA Texas population should be interpreted as the additional effect of Welvie’s outreach activities, over and above the effects of Humana’s outreach to its full patient population.

The following sections present IV results on the effects of the use of the Welvie decision aid on health service use and medical expenditures for Medicare beneficiaries cumulatively, yearly, and in individual quarters after their enrollment in the program. In the IV analysis, 1,133 Medicare FFS beneficiaries in Ohio (or 1.93 percent of 58,582 beneficiaries who received Welvie outreach materials), 4,294 MA beneficiaries in Ohio (or 4.41 percent of 97,380 beneficiaries who received Welvie outreach materials), and 2,439 MA beneficiaries in Texas (or 3.81 percent of 63,979 beneficiaries who received Welvie outreach materials) who completed at least one of the six steps of the decision aid were considered to have received the high-dose intervention. The analysis assumes that all observed effects in the ITT analysis can be attributed to the use of the Welvie decision aid, and thus estimates larger magnitudes of effects on health service utilization and expenditures among the high-dose intervention group relative to controls.

2.5.2 Effects of the Decision Aid on Resource Use

For the Welvie FFS cohort, consistent with findings presented in the ITT analysis, the decision aid was not associated with cumulative or yearly statistically significant effects in surgery-related resource use, but was associated with a statistically significant decrease in ER visits in Year 1. As shown in Table 2-25, there were about 752 fewer ER visits among the 1,133 Medicare FFS Ohio decision aid users (667 fewer ER visits per 1,000 beneficiaries) relative to controls in Year 1. Quarterly fixed effects estimates also show statistically significant decreases in ER visits in Q2 and Q3 after enrollment for this cohort, (see Appendix Table B-26). There was also a statistically significant decrease in preference-sensitive cardiac surgeries in Q1 (see Appendix Table B-26).

Table 2-24: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participants</i>	1,133	1,133	1,113	1,074
All Surgeries				
<i>Difference-in-Difference</i>	758.40	-97.04	567.72	287.71
<i>90% Confidence Interval</i>	(-1,148.5 2,665.3)	(-868.7 674.6)	(-231.1 1,366.5)	(-531.6 1,107.0)
<i>80% Confidence Interval</i>	(-727.3 2,244.1)	(-698.2 504.1)	(-54.7 1,190.1)	(-350.6 926.0)
<i>P-Value</i>	0.513	0.836	0.242	0.564
Inpatient Surgeries				
<i>Difference-in-Difference</i>	-161.67	-169.62	54.69	-46.74
<i>90% Confidence Interval</i>	(-787.5 464.1)	(-435.0 95.8)	(-206.5 315.8)	(-302.3 208.9)
<i>80% Confidence Interval</i>	(-649.3 325.9)	(-376.4 37.2)	(-148.8 258.2)	(-245.9 152.4)
<i>P-Value</i>	0.671	0.293	0.731	0.764
Surgical Hospital Days				
<i>Difference-in-Difference</i>	2,654.96	-723.48	1,387.04	1,991.40
<i>90% Confidence Interval</i>	(-3,617.2 8,927.1)	(-3,392.4 1,945.4)	(-1,236.2 4,010.3)	(-501.8 4,484.6)
<i>80% Confidence Interval</i>	(-2,231.9 7,541.8)	(-2,802.9 1,355.9)	(-656.8 3,430.9)	(48.8 3,934.0)
<i>P-Value</i>	0.486	0.656	0.384	0.189
Outpatient Surgeries				
<i>Difference-in-Difference</i>	920.06	72.58	513.03	334.45
<i>90% Confidence Interval</i>	(-847.7 2,687.8)	(-637.2 782.4)	(-227.8 1,253.9)	(-430.6 1,099.5)
<i>80% Confidence Interval</i>	(-457.2 2,297.4)	(-480.4 625.6)	(-64.2 1,090.3)	(-261.6 930.5)
<i>P-Value</i>	0.392	0.866	0.255	0.472
All Preference Sensitive Orthopedic Surgeries				

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Difference-in-Difference</i>	-31.32	22.90	34.86	-89.07
<i>90% Confidence Interval</i>	(-354.0 291.3)	(-111.4 157.2)	(-97.4 167.1)	(-218.0 39.8)
<i>80% Confidence Interval</i>	(-282.7 220.1)	(-81.7 127.5)	(-68.2 137.9)	(-189.5 11.4)
<i>P-Value</i>	0.873	0.779	0.665	0.256
Inpatient Preference Sensitive Orthopedic Surgeries				
<i>Difference-in-Difference</i>	60.79	55.08	66.36	-60.66
<i>90% Confidence Interval</i>	(-242.7 364.3)	(-71.2 181.4)	(-58.0 190.7)	(-182.1 60.8)
<i>80% Confidence Interval</i>	(-175.7 297.3)	(-43.3 153.5)	(-30.5 163.2)	(-155.3 34.0)
<i>P-Value</i>	0.742	0.473	0.38	0.411
Preference Sensitive Orthopedic Surgery Hospital Days				
<i>Difference-in-Difference</i>	-429.88	165.12	20.73	-615.73
<i>90% Confidence Interval</i>	(-2,177.6 1,317.9)	(-589.9 920.1)	(-723.4 764.8)	(-1,326.2 94.7)
<i>80% Confidence Interval</i>	(-1,791.6 931.8)	(-423.1 753.4)	(-559.0 600.5)	(-1,169.3 -62.2)
<i>P-Value</i>	0.686	0.719	0.963	0.154
Outpatient Preference Sensitive Orthopedic Surgeries				
<i>Difference-in-Difference</i>	-92.10	-32.19	-31.50	-28.41
<i>90% Confidence Interval</i>	(-199.8 15.6)	(-77.4 13.0)	(-75.7 12.7)	(-71.1 14.2)
<i>80% Confidence Interval</i>	(-176.0 -8.2)	(-67.4 3.0)	(-65.9 2.9)	(-61.6 4.8)
<i>P-Value</i>	0.615	0.493	0.357	0.676
All Preference Sensitive Cardiac Surgeries				
<i>Difference-in-Difference</i>	-103.84	-59.35	-78.88	34.38
<i>90% Confidence Interval</i>	(-443.3 235.6)	(-201.6 83.0)	(-219.6 61.8)	(-101.1 169.8)
<i>80% Confidence Interval</i>	(-368.3 160.6)	(-170.2 51.5)	(-188.5 30.8)	(-71.1 139.9)
<i>P-Value</i>	0.615	0.493	0.357	0.676
Inpatient Preference Sensitive Cardiac Surgeries				
<i>Difference-in-Difference</i>	-87.58	-16.48	-52.92	-18.18
<i>90% Confidence Interval</i>	(-309.2 134.0)	(-109.7 76.8)	(-144.6 38.8)	(-105.7 69.3)
<i>80% Confidence Interval</i>	(-260.2 85.1)	(-89.1 56.2)	(-124.3 18.5)	(-86.3 50.0)
<i>P-Value</i>	0.516	0.771	0.342	0.733
Inpatient Preference Sensitive Cardiac Surgical Hospital Days				
<i>Difference-in-Difference</i>	1,841.46	409.31	605.48	826.66
<i>90% Confidence Interval</i>	(-1,189.9 4,872.8)	(-689.4 1,508.1)	(-665.2 1,876.2)	(-206.4 1,859.7)

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>80% Confidence Interval</i>	(-520.4 4,203.3)	(-446.7 1,265.4)	(-384.5 1,595.5)	(21.8 1,631.5)
<i>P-Value</i>	0.318	0.540	0.433	0.188
Outpatient Preference Sensitive Cardiac Surgeries				
<i>Difference-in-Difference</i>	-16.26	-42.87	-25.96	52.57
<i>90% Confidence Interval</i>	(-255.3 222.8)	(-142.1 56.4)	(-124.7 72.7)	(-43.7 148.8)
<i>80% Confidence Interval</i>	(-202.5 170.0)	(-120.2 34.5)	(-102.9 50.9)	(-22.4 127.5)
<i>P-Value</i>	0.911	0.477	0.665	0.369

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period. Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-25: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participant Beneficiaries</i>	1,133	1,133	1,113	1,074
ER Visits				
<i>Difference-in-Difference</i>	-735.14	-752.15*	-255.69	272.70
<i>90% Confidence Interval</i>	(-2,313.5 843.2)	(-1,413.2 -91.1)	(-926.6 415.3)	(-389.6 935.0)
<i>80% Confidence Interval</i>	(-1,964.9 494.6)	(-1,267.2 -237.1)	(-778.4 267.1)	(-243.3 788.7)
<i>P-Value</i>	0.444	0.061	0.531	0.498
Inpatient Admissions				
<i>Difference-in-Difference</i>	8.18	-286.21	158.49	135.89
<i>90% Confidence Interval</i>	(-1,451.5 1,467.8)	(-912.8 340.3)	(-460.1 777.1)	(-469.4 741.2)
<i>80% Confidence Interval</i>	(-1,129.1 1,145.4)	(-774.4 202.0)	(-323.4 640.4)	(-335.7 607.5)
<i>P-Value</i>	0.993	0.452	0.673	0.712
Unplanned Inpatient Admissions				
<i>Difference-in-Difference</i>	384.59	-142.41	229.80	297.20
<i>90% Confidence Interval</i>	(-935.1 1,704.2)	(-709.4 424.6)	(-330.0 789.6)	(-257.2 851.6)
<i>80% Confidence Interval</i>	(-643.6 1,412.8)	(-584.2 299.3)	(-206.4 666.0)	(-134.7 729.1)
<i>P-Value</i>	0.632	0.680	0.500	0.378
Hospital Days				

Measures	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Difference-in-Difference</i>	1,153.89	-986.74	1,827.48	313.15
<i>90% Confidence Interval</i>	(-11,858.3 14,166.1)	(-6,851.7 4,878.2)	(-3,546.4 7,201.4)	(-4,839.0 5,465.3)
<i>80% Confidence Interval</i>	(-8,984.2 11,292.0)	(-5,556.3 3,582.8)	(-2,359.5 6,014.4)	(-3,701.0 4,327.3)
<i>P-Value</i>	0.884	0.782	0.576	0.920

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period. Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

For the Welvie MA Ohio cohort, consistent with findings presented in the ITT analysis, use of the Welvie decision aid was associated with statistically significant Year 1 decreases in surgery-related resource use categories and a Year 2 decrease in ER visits. In the first year after program enrollment, there were 707 fewer surgeries (181 per 1,000 beneficiaries) and 2,854 fewer surgical hospital days (733 per 1,000 beneficiaries) among the 3,919 MA Ohio beneficiaries who accessed the decision aid relative to controls (see Table 2-26). There were also statistically significant decreases in inpatient surgeries and preference-sensitive cardiac surgeries among decision aid users in Year 1. Appendix Table B-27, which presents quarterly estimates on resource use categories, further shows that statistically significant Year 1 decreases are driven by corresponding decreases in the third or fourth quarter after program enrollment. Use of the Welvie decision aid was also associated with a decrease of about 886 ER visits (236 per 1,000 beneficiaries) in the second year after enrollment among 3,823 Welvie MA Ohio beneficiaries who accessed the decision aid. Appendix Table B-27 shows this Year 2 decrease is driven by statistically significant decreases in Q7 and Q8. As mentioned in the ITT analysis findings presented in Section 2.4.2, Year 2 decreases in ER utilization may be due to Year 1 decreases in surgery-related health care utilization.

Table 2-26: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	3,919	3,919	3,823
All Surgeries			
<i>Difference-in-Difference</i>	-626.56	-706.53*	-24.25
<i>90% Confidence Interval</i>	(-1,922.2 669.0)	(-1,308.6 -104.5)	(-604.2 555.7)
<i>80% Confidence Interval</i>	(-1,636.0 382.9)	(-1,175.6 -237.5)	(-476.1 427.6)

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>P-Value</i>	0.426	0.054	0.945
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-545.90	-490.31**	-16.45
<i>90% Confidence Interval</i>	(-1,245.7 153.9)	(-831.3 -149.4)	(-331.8 298.9)
<i>80% Confidence Interval</i>	(-1,091.1 -0.7)	(-756.0 -224.7)	(-262.2 229.3)
<i>P-Value</i>	0.199	0.018	0.932
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-3,131.30	-2,854.37*	-1,140.94
<i>90% Confidence Interval</i>	(-8,450.9 2,188.3)	(-5,585.9 -122.9)	(-3,669.9 1,388.0)
<i>80% Confidence Interval</i>	(-7,275.9 1,013.3)	(-4,982.5 -726.2)	(-3,111.3 829.4)
<i>P-Value</i>	0.333	0.086	0.458
Outpatient Surgeries			
<i>Difference-in-Difference</i>	-80.66	-216.21	-7.80
<i>90% Confidence Interval</i>	(-1,143.0 981.7)	(-698.6 266.2)	(-480.7 465.1)
<i>80% Confidence Interval</i>	(-908.4 747.1)	(-592.1 159.6)	(-376.2 360.6)
<i>P-Value</i>	0.901	0.461	0.978
All Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	23.60	-121.06	77.33
<i>90% Confidence Interval</i>	(-468.9 516.1)	(-352.2 110.1)	(-138.8 293.4)
<i>80% Confidence Interval</i>	(-360.1 407.3)	(-301.2 59.1)	(-91.0 245.7)
<i>P-Value</i>	0.937	0.389	0.556
Inpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	70.30	-67.15	92.72
<i>90% Confidence Interval</i>	(-407.8 548.4)	(-291.0 156.7)	(-117.1 302.5)
<i>80% Confidence Interval</i>	(-302.2 442.8)	(-241.5 107.3)	(-70.7 256.2)
<i>P-Value</i>	0.809	0.622	0.467
Preference Sensitive Orthopedic Surgery Hospital Days			
<i>Difference-in-Difference</i>	1,530.33	38.67	415.40
<i>90% Confidence Interval</i>	(-1,412.5 4,473.2)	(-1,317.1 1,394.4)	(-999.9 1,830.7)
<i>80% Confidence Interval</i>	(-762.5 3,823.2)	(-1,017.6 1,095.0)	(-687.3 1,518.1)
<i>P-Value</i>	0.392	0.963	0.629
Outpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	-46.70	-53.92	-15.39
<i>90% Confidence Interval</i>	(-164.5 71.1)	(-111.4 3.6)	(-66.8 36.0)
<i>80% Confidence Interval</i>	(-138.5 45.1)	(-98.7 -9.1)	(-55.5 24.7)
<i>P-Value</i>	0.514	0.123	0.623

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
All Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-367.17	-273.61**	-138.94
<i>90% Confidence Interval</i>	(-823.0 88.7)	(-487.7 -59.5)	(-338.9 61.0)
<i>80% Confidence Interval</i>	(-722.3 -12.0)	(-440.4 -106.8)	(-294.7 16.8)
<i>P-Value</i>	0.185	0.036	0.253
Inpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-293.52	-230.85**	-75.13
<i>90% Confidence Interval</i>	(-678.1 91.0)	(-410.1 -51.6)	(-242.3 92.1)
<i>80% Confidence Interval</i>	(-593.1 6.1)	(-370.5 -91.2)	(-205.4 55.2)
<i>P-Value</i>	0.209	0.034	0.460
Inpatient Preference Sensitive Cardiac Surgical Hospital Days			
<i>Difference-in-Difference</i>	-947.01	-1,226.04	-279.14
<i>90% Confidence Interval</i>	(-3,593.4 1,699.4)	(-2,479.0 26.9)	(-1,553.3 995.0)
<i>80% Confidence Interval</i>	(-3,008.9 1,114.8)	(-2,202.2 -249.9)	(-1,271.9 713.6)
<i>P-Value</i>	0.556	0.107	0.719
Outpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	-73.65	-42.77	-63.81
<i>90% Confidence Interval</i>	(-302.6 155.3)	(-152.0 66.4)	(-165.7 38.1)
<i>80% Confidence Interval</i>	(-252.0 104.7)	(-127.8 42.3)	(-143.2 15.6)
<i>P-Value</i>	0.597	0.519	0.303

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-27: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	3,919	3,919	3,823
ER Visits			
<i>Difference-in-Difference</i>	-869.87	-4.70	-885.56**
<i>90% Confidence Interval</i>	(-2,247.1 507.4)	(-683.9 674.5)	(-1,534.1 -237.0)
<i>80% Confidence Interval</i>	(-1,942.9 203.2)	(-533.9 524.5)	(-1,390.9 -380.2)

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>P-Value</i>	0.299	0.991	0.025
Inpatient Admissions			
<i>Difference-in-Difference</i>	-744.14	-437.04	4.45
<i>90% Confidence Interval</i>	(-2,003.8 515.5)	(-1,057.6 183.5)	(-573.5 582.4)
<i>80% Confidence Interval</i>	(-1,725.6 237.3)	(-920.5 46.4)	(-445.8 454.7)
<i>P-Value</i>	0.331	0.247	0.990
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	-1,106.41	-458.23	-245.88
<i>90% Confidence Interval</i>	(-2,264.4 51.6)	(-1,028.9 112.4)	(-776.8 285.0)
<i>80% Confidence Interval</i>	(-2,008.7 -204.2)	(-902.8 -13.6)	(-659.5 167.7)
<i>P-Value</i>	0.116	0.187	0.446
Hospital Days			
<i>Difference-in-Difference</i>	-4,509.81	-2,890.07	-434.70
<i>90% Confidence Interval</i>	(-13,644.6 4,625.0)	(-7,509.4 1,729.3)	(-4,736.3 3,866.9)
<i>80% Confidence Interval</i>	(-11,627.0 2,607.4)	(-6,489.2 709.0)	(-3,786.2 2,916.8)
<i>P-Value</i>	0.417	0.303	0.868

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

For the MA Texas decision aid users, mixed effects were observed for surgery-related use categories, consistent with findings presented in the ITT analysis. These results should be interpreted in the context of program implementation discussed in Section 2.3 and may not be attributable to the Welvie intervention. As shown in Table 2-28, there was a statistically significant increase of 465 inpatient surgeries among 2,630 decision aid users (199 per 1,000 beneficiaries) cumulatively across the six quarters relative to controls. In contrast, a statistically significant cumulative decrease of 78 outpatient preference-sensitive orthopedic surgeries (33 per 1,000 beneficiaries) for decision aid users was also observed. Moreover, as in the ITT analysis, the increase observed in preference-sensitive cardiac surgeries in the inpatient setting among decision aid users appears to be offset by a decrease in outpatient preference-sensitive cardiac surgeries. Specifically, there were 179 more inpatient preference-sensitive cardiac surgeries (77 per 1,000 beneficiaries) but a decrease of 202 outpatient preference sensitive cardiac surgeries (86 per 1,000 beneficiaries) among 2,630 MA Texas decision aid users across the six quarters.

Table 2-28: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	2,630	2,630
All Surgeries		
<i>Difference-in-Difference</i>	129.12	134.21
<i>90% Confidence Interval</i>	(-575.8 834.1)	(-385.1 653.5)
<i>80% Confidence Interval</i>	(-420.1 678.4)	(-270.4 538.8)
<i>P-Value</i>	0.763	0.671
Inpatient Surgeries		
<i>Difference-in-Difference</i>	464.74*	462.27***
<i>90% Confidence Interval</i>	(72.6 856.9)	(168.1 756.5)
<i>80% Confidence Interval</i>	(159.2 770.3)	(233.0 691.5)
<i>P-Value</i>	0.051	0.010
Surgical Hospital Days		
<i>Difference-in-Difference</i>	2,775.96	1,951.05
<i>90% Confidence Interval</i>	(-1,142.9 6,694.8)	(-1,056.2 4,958.3)
<i>80% Confidence Interval</i>	(-277.3 5,829.3)	(-392.0 4,294.1)
<i>P-Value</i>	0.244	0.286
Outpatient Surgeries		
<i>Difference-in-Difference</i>	-335.62	-328.06
<i>90% Confidence Interval</i>	(-905.0 233.7)	(-744.0 87.9)
<i>80% Confidence Interval</i>	(-779.2 108.0)	(-652.2 -4.0)
<i>P-Value</i>	0.332	0.195
All Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	-40.69	-12.36
<i>90% Confidence Interval</i>	(-276.2 194.9)	(-186.4 161.7)
<i>80% Confidence Interval</i>	(-224.2 142.8)	(-148.0 123.2)
<i>P-Value</i>	0.776	0.907
Inpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	37.18	48.99
<i>90% Confidence Interval</i>	(-188.1 262.4)	(-116.9 214.9)
<i>80% Confidence Interval</i>	(-138.3 212.7)	(-80.3 178.3)
<i>P-Value</i>	0.786	0.627
Preference Sensitive Orthopedic Surgery Hospital Days		
<i>Difference-in-Difference</i>	46.5	-25.7
<i>90% Confidence Interval</i>	(-1,483.4 1,576.4)	(-1,165.8 1,114.4)

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>80% Confidence Interval</i>	(-1,145.5 1,238.5)	(-914.0 862.6)
<i>P-Value</i>	0.960	0.970
Outpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	-77.87*	-61.35*
<i>90% Confidence Interval</i>	(-146.5 -9.2)	(-113.8 -8.9)
<i>80% Confidence Interval</i>	(-131.4 -24.4)	(-102.2 -20.5)
<i>P-Value</i>	0.062	0.054
All Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	-22.64	19.59
<i>90% Confidence Interval</i>	(-252.8 207.5)	(-151.9 191.0)
<i>80% Confidence Interval</i>	(-202.0 156.7)	(-114.0 153.2)
<i>P-Value</i>	0.871	0.851
Inpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	178.94*	134.08*
<i>90% Confidence Interval</i>	(10.5 347.3)	(9.0 259.1)
<i>80% Confidence Interval</i>	(47.7 310.1)	(36.6 231.5)
<i>P-Value</i>	0.080	0.078
Inpatient Preference Sensitive Cardiac Surgical Hospital Days		
<i>Difference-in-Difference</i>	994.71	183.30
<i>90% Confidence Interval</i>	(-477.0 2,466.4)	(-965.2 1,331.8)
<i>80% Confidence Interval</i>	(-151.9 2,141.3)	(-711.5 1,078.1)
<i>P-Value</i>	0.266	0.793
Outpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	-201.58**	-114.49*
<i>90% Confidence Interval</i>	(-348.4 -54.8)	(-224.2 -4.8)
<i>80% Confidence Interval</i>	(-316.0 -87.2)	(-200.0 -29.0)
<i>P-Value</i>	0.024	0.086

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Table 2-29: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,630	2,630
ER Visits		
<i>Difference-in-Difference</i>	312.33	-83.23
<i>90% Confidence Interval</i>	(-718.7 1,343.3)	(-865.2 698.8)
<i>80% Confidence Interval</i>	(-491.0 1,115.6)	(-692.5 526.0)
<i>P-Value</i>	0.618	0.861
Inpatient Admissions		
<i>Difference-in-Difference</i>	643.46	311.94
<i>90% Confidence Interval</i>	(-165.3 1,452.2)	(-312.6 936.5)
<i>80% Confidence Interval</i>	(13.3 1,273.6)	(-174.7 798.6)
<i>P-Value</i>	0.191	0.411
Unplanned Inpatient Admissions		
<i>Difference-in-Difference</i>	584.57	256.97
<i>90% Confidence Interval</i>	(-166.8 1,335.9)	(-322.5 836.4)
<i>80% Confidence Interval</i>	(-0.8 1,170.0)	(-194.5 708.4)
<i>P-Value</i>	0.201	0.466
Hospital Days		
<i>Difference-in-Difference</i>	1,869.35	-1,350.73
<i>90% Confidence Interval</i>	(-4,591.3 8,330.0)	(-6,374.7 3,673.2)
<i>80% Confidence Interval</i>	(-3,164.3 6,903.0)	(-5,265.0 2,563.6)
<i>P-Value</i>	0.634	0.658

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

2.5.3 Effects of the Decision Aid on Expenditures

For the Welvie FFS cohort, consistent with findings presented in the ITT analysis, the decision aid was not associated with statistically significant cumulative effects on surgery-related expenditures (see Table 2-30), but there were marginally significant yearly decreases in other expenditure categories (see Table 2-29). As shown in Table 2-29, there was a statistically significant decrease of \$832,495 in durable medical equipment (DME) expenditures in Year 3 (\$787 in DME expenditures per beneficiary) and a decrease of \$1,256,776 in home health expenditures in Year 2 (\$1,144 in home health expenditures per beneficiary) among 1,113 Medicare FFS Ohio decision aid users. Also consistent with findings presented in the ITT

analysis, there was a statistically significant decrease of 2,170,674 in hospice expenditures in Year 1 among 1,133 Medicare FFS Ohio decision aid users (a decrease of \$1,926 per beneficiary) followed by a statistically significant increase in hospice expenditures of \$2,347,976 among 1,074 decision aid users (an increase of \$2,220 per beneficiary) in Year 3.

The quarterly fixed effect analysis provides some evidence of decreases in total expenditures due to decreases in IP, surgery, and preference-sensitive cardiac expenditures in the first quarter or year. These findings mirror the results of the ITT analysis. For the Medicare FFS decision aid users the quarterly fixed effects analysis found a statistically significant decrease in total medical expenditures in the first quarter, partly due to statistically significant decreases in inpatient expenditures, total surgery expenditures and preference-sensitive cardiac surgery expenditures (see Appendix Table B-49). There was also a decrease in total medical expenditures in Q8 driven by a decrease in preference-sensitive cardiac expenditures in the same quarter.

Table 2-30: Aggregate Surgery-Related Expenditures: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures (2011 USD per Beneficiary- Quarter)	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participant Beneficiaries</i>	1,133	1,133	1,113	1,074
Total Surgery Expenditures				
<i>Difference-in-Difference</i>	-781,277.97	-3,059,844.07	81,288.53	2,197,277.57
<i>90% Confidence Interval</i>	(-13,792,004 12,229,448)	(-8,739,283 2,619,595)	(-5,523,764 5,686,341)	(-3,019,466 7,414,021)
<i>80% Confidence Interval</i>	(-10,918,299 9,355,743)	(-7,484,854 1,365,166)	(-4,285,765 4,448,342)	(-1,867,233 6,261,789)
<i>P-Value</i>	0.921	0.376	0.981	0.488
Inpatient Surgery Expenditures				
<i>Difference-in-Difference</i>	-1,009,375.40	-3,007,164.81	76,981.14	1,920,808.27
<i>90% Confidence Interval</i>	(-13,261,314 11,242,563)	(-8,386,210 2,371,880)	(-5,214,983 5,368,945)	(-2,975,040 6,816,656)
<i>80% Confidence Interval</i>	(-10,555,204 8,536,453)	(-7,198,129 1,183,800)	(-4,046,137 4,200,099)	(-1,893,684 5,735,301)
<i>P-Value</i>	0.892	0.358	0.981	0.519
Episode-Based Inpatient Surgery Expenditures				
<i>Difference-in-Difference</i>	-2,576,497.5	-3,567,368.6	-396,342.5	1,387,213.6
<i>90% Confidence Interval</i>	(-15,448,971 10,295,976)	(-9,202,536 2,067,799)	(-5,942,767 5,150,082)	(-3,777,361 6,551,788)
<i>80% Confidence Interval</i>	(-12,605,803 7,452,807.7)	(-7,957,886 823,148.6)	(-4,717,717 3,925,031.9)	(-2,636,651 5,411,078.3)
<i>P-Value</i>	0.742	0.298	0.906	0.659
Outpatient Surgery Expenditures				

Measures (2011 USD per Beneficiary- Quarter)	Full Intervention Period^a (12 quarters)	Year 1^b	Year 2	Year 3
<i>Difference-in-Difference</i>	228,273.72	20,114.54	-33,144.89	241,304.07
<i>90% Confidence Interval</i>	(-3,353,518 3,810,065)	(-1,461,503 1,501,732)	(-1,544,559 1,478,270)	(-1,233,295 1,715,904)
<i>80% Confidence Interval</i>	(-2,562,400.5 3,018,948)	(-1,134,254.8 1,174,484)	(-1,210,730.3 1,144,441)	(-907,597.7 1,390,206)
<i>P-Value</i>	0.917	0.982	0.971	0.788
Preference Sensitive Orthopedic Surgery Expenditures				
<i>Difference-in-Difference</i>	438,906.74	-18,262.96	1,056,960.04	-599,790.34
<i>90% Confidence Interval</i>	(-4,310,624.6 5,188,438)	(-1,999,937.4 1,963,412)	(-867,612.9 2,981,533)	(-2,457,934.6 1,258,354)
<i>80% Confidence Interval</i>	(-3,261,586.2 4,139,399.7)	(-1,562,241.1 1,525,715.1)	(-442,528.7 2,556,448.7)	(-2,047,522.6 847,941.9)
<i>P-Value</i>	0.879	0.988	0.366	0.595
Inpatient Preference Sensitive Orthopedic Surgery Expenditures				
<i>Difference-in-Difference</i>	721,227.6	106,653.7	1,007,376.3	-392,802.5
<i>90% Confidence Interval</i>	(-3,363,016.2 4,805,471)	(-1,597,933.9 1,811,241)	(-646,170.6 2,660,923)	(-1,988,831.5 1,203,227)
<i>80% Confidence Interval</i>	(-2,460,921.3 3,903,376.4)	(-1,221,438.3 1,434,745.8)	(-280,948.4 2,295,701.1)	(-1,636,313.4 850,708.4)
<i>P-Value</i>	0.771	0.918	0.316	0.686
Outpatient Preference Sensitive Orthopedic Surgery Expenditures				
<i>Difference-in-Difference</i>	-198,437.03	-97,794.25	-21,978.72	-78,664.07
<i>90% Confidence Interval</i>	(-460,526.5 63,652.5)	(-202,896.2 7,307.7)	(-134,687.3 90,729.9)	(-192,139.3 34,811.2)
<i>80% Confidence Interval</i>	(-402,638.3 5,764.2)	(-179,682.1 15,906.4)	(-109,793.2 65,835.7)	(-167,075.8 9,747.7)
<i>P-Value</i>	0.213	0.126	0.748	0.254
Preference Sensitive Cardiac Surgery Expenditures				
<i>Difference-in-Difference</i>	-1,633,496.5	-803,854.7	-1,437,576.1	607,934.3
<i>90% Confidence Interval</i>	(-7,432,297 4,165,304)	(-3,259,053 1,651,344)	(-3,892,026 1,016,874)	(-1,690,436 2,906,304)
<i>80% Confidence Interval</i>	(-6,151,505 2,884,511.6)	(-2,716,769 1,109,059.1)	(-3,349,907 474,754.6)	(-1,182,790 2,398,658.9)
<i>P-Value</i>	0.643	0.590	0.335	0.664
Inpatient Preference Sensitive Cardiac Surgery Expenditures				
<i>Difference-in-Difference</i>	-1,187,503.5	-565,799.8	-1,180,360.4	558,656.7
<i>90% Confidence Interval</i>	(-6,309,324 3,934,316.8)	(-2,735,631 1,604,031.5)	(-3,348,388 987,667.1)	(-1,474,428 2,591,741.4)
<i>80% Confidence Interval</i>	(-5,178,057 2,803,050.3)	(-2,256,376 1,124,776.6)	(-2,869,531 508,810.6)	(-1,025,377 2,142,690.0)
<i>P-Value</i>	0.703	0.668	0.371	0.651

Measures (2011 USD per Beneficiary- Quarter)	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
Outpatient Preference Sensitive Cardiac Surgery Expenditures				
<i>Difference-in-Difference</i>	-377,538.17	-214,309.00	-144,427.06	-18,802.11
<i>90% Confidence Interval</i>	(-1,244,125.1 489,048.7)	(-570,414.4 141,796.4)	(-492,677.3 203,823.2)	(-375,813.7 338,209.5)
<i>80% Confidence Interval</i>	(-1,052,720.3 297,644.0)	(-491,760.7 63,142.7)	(-415,758.6 126,904.5)	(-296,959.9 259,355.6)
<i>P-Value</i>	0.474	0.322	0.495	0.931

^aResults are cumulative across all available quarters

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period. Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-31: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Medicare FFS Ohio Cohort

Measures (2011 USD)	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>Number of Participant Beneficiaries</i>	1,133	1,133	1,113	1,074
Total Medicare Parts A and B Expenditures				
<i>Difference-in-Difference</i>	2,726,221	-6,864,079	2,532,574	7,057,726
<i>90% Confidence Interval</i>	(-25,287,265 30,739,707)	(-19,022,211 5,294,054)	(-9,463,692 14,528,840)	(-4,495,383 18,610,834)
<i>80% Confidence Interval</i>	(-19,099,871 24,552,313)	(-16,336,820 2,608,663)	(-6,814,053 11,879,201)	(-1,943,625 16,059,076)
<i>P-Value</i>	0.873	0.353	0.728	0.315
Inpatient Expenditures				
<i>Difference-in-Difference</i>	-2,614,394.5	-5,110,066.0	448,992.2	2,046,679.2
<i>90% Confidence Interval</i>	(-19,844,663 14,615,874)	(-12,724,400 2,504,268)	(-6,988,338 7,886,323)	(-5,036,420 9,129,779)
<i>80% Confidence Interval</i>	(-16,038,980 10,810,190.4)	(-11,042,607 822,474.9)	(-5,345,641 6,243,624.9)	(-3,471,962 7,565,320.5)
<i>P-Value</i>	0.803	0.270	0.921	0.635
Outpatient ER Expenditures				
<i>Difference-in-Difference</i>	-486,810.43	-579,866.33	-7,102.06	100,157.96
<i>90% Confidence Interval</i>	(-2,014,143.2 1,040,522.3)	(-1,235,240.8 75,508.2)	(-695,521.4 681,317.3)	(-539,388.4 739,704.3)
<i>80% Confidence Interval</i>	(-1,676,798.2 703,177.3)	(-1,090,487.0 - 69,245.7)	(-543,468.9 529,264.7)	(-398,130.5 598,446.5)
<i>P-Value</i>	0.600	0.146	0.986	0.797
Outpatient Non-ER Expenditures				
<i>Difference-in-Difference</i>	4,620,860	1,517,027	807,262	2,296,570

Measures (2011 USD)	Full Intervention Period ^a (12 quarters)	Year 1 ^b	Year 2	Year 3
<i>90% Confidence Interval</i>	(-1,200,791.9 10,442,511)	(-929,740.4 3,963,795)	(-1,638,751.3 3,253,275)	(-110,646.8 4,703,788)
<i>80% Confidence Interval</i>	(85,047.8 9,156,672)	(-389,318.0 3,423,373)	(-1,098,495.5 2,713,020)	(421,040.0 4,172,101)
<i>P-Value</i>	0.192	0.308	0.587	0.117
Physician and Ancillary Expenditures				
<i>Difference-in-Difference</i>	-61,298.61	-625,425.35	95,339.15	468,787.59
<i>90% Confidence Interval</i>	(-5,546,658 5,424,061)	(-2,953,495 1,702,644)	(-2,202,677 2,393,355)	(-1,765,303 2,702,878)
<i>80% Confidence Interval</i>	(-4,335,096 4,212,499)	(-2,439,290 1,188,439)	(-1,695,110 1,885,788)	(-1,271,855 2,209,430)
<i>P-Value</i>	0.985	0.659	0.946	0.730
Skilled Nursing Facility Expenditures				
<i>Difference-in-Difference</i>	3,870,514.50	-3,692.08	2,450,849.26	1,423,357.32
<i>90% Confidence Interval</i>	(-5,193,112 12,934,141)	(-3,851,847 3,844,463)	(-1,435,533 6,337,232)	(-2,325,845 5,172,560)
<i>80% Confidence Interval</i>	(-3,191,211.2 10,932,240)	(-3,001,897.3 2,994,513)	(-577,140.3 5,478,839)	(-1,497,751.2 4,344,466)
<i>P-Value</i>	0.482	0.999	0.300	0.532
Durable Medical Equipment Expenditures				
<i>Difference-in-Difference</i>	-1,143,102.49	34,042.68	-344,650.18	-832,494.99**
<i>90% Confidence Interval</i>	(-2,844,421 558,215.7)	(-655,604 723,689.4)	(-1,024,408 335,108.0)	(-1,491,492 -173,497.8)
<i>80% Confidence Interval</i>	(-2,468,647.1 182,442.2)	(-503,280.4 571,365.8)	(-874,268.8 184,968.4)	(-1,345,938.2 -319,051.8)
<i>P-Value</i>	0.269	0.935	0.404	0.038
Home Health Expenditures				
<i>Difference-in-Difference</i>	-1,707,996.8	275,107.5	-1,256,775.7*	-726,328.6
<i>90% Confidence Interval</i>	(-4,572,437 1,156,443.2)	(-922,840 1,473,054.9)	(-2,471,006 -42,545.8)	(-1,941,604 488,946.5)
<i>80% Confidence Interval</i>	(-3,939,762.3 523,768.7)	(-658,246.9 1,208,461.9)	(-2,202,816.2 -310,735.2)	(-1,673,183.5 220,526.3)
<i>P-Value</i>	0.327	0.706	0.089	0.326
Hospice Expenditures				
<i>Difference-in-Difference</i>	565,625.0	-2,170,674.0*	388,322.8	2,347,976.2**
<i>90% Confidence Interval</i>	(-3,799,183.0 4,930,432.9)	(-4,113,214.1 -228,133.9)	(-1,493,255.1 2,269,900.7)	(523,576.5 4,172,375.9)
<i>80% Confidence Interval</i>	(-2,835,119.2 3,966,369.2)	(-3,684,161.4 -657,186.6)	(-1,077,667.3 1,854,312.9)	(926,535.2 3,769,417.1)
<i>P-Value</i>	0.831	0.066	0.734	0.034

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period. Year 3 refers to the one-year period following Year 2.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

For MA Ohio decision aid users, the Welvie intervention was associated with statistically significant cumulative and Year 1 decreases in total surgery expenditures, and Year 1 decreases in outpatient non-ER expenditures and total medical expenditures, consistent with ITT analysis results. As shown in Table 2-32, use of the Welvie decision aid was associated with a statistically significant decrease of \$12,924,338 in total surgery expenditures across the full intervention period (\$3,460 per beneficiary), mostly due to a decrease of \$9,701,965 (\$2,490 per beneficiary) in Year 1 among the 3,919 MA Ohio beneficiaries relative to controls. These effects were driven by statistically significant Year 1 decreases in inpatient surgery expenditures as well as cumulative and Year 1 decreases in outpatient surgery expenditures. A statistically significant Year 1 decrease in outpatient non-ER expenditures was also observed. These reductions contributed to a statistically significant Year 1 decrease of \$17,050,904 (\$4,377 per beneficiary) in total medical expenditures for decision aid users.

Consistent with the ITT analysis findings and cumulative and yearly findings, the quarterly fixed effects analysis presented in Appendix Table B-50 shows statistically significant decreases in expenditures, concentrated in the third and fourth quarter after program enrollment, for beneficiaries who accessed the decision aid. Furthermore, expenditure decreases correspond to statistically significant decreases in similar resource use categories presented in Section 2.5.2.

Table 2-32: Aggregate Surgery-Related Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	3,919	3,919	3,823
Total Surgery Expenditures			
<i>Difference-in-Difference</i>	-12,924,337.9*	-9,701,964.9***	-3,691,164.9
<i>90% Confidence Interval</i>	(-23,924,687 - 1,923,989)	(-15,450,700 - 3,953,229)	(-8,838,715 1,456,385)
<i>80% Confidence Interval</i>	(-21,495,018 - 4,353,658.0)	(-14,180,966 - 5,222,963.9)	(-7,701,765 319,435.2)
<i>P-Value</i>	0.053	0.006	0.238
Inpatient Surgery Expenditures			
<i>Difference-in-Difference</i>	-7,430,740.0	-5,516,903.6*	-2,545,061.6
<i>90% Confidence Interval</i>	(-17,465,673 2,604,192.8)	(-10,824,219 - 209,588.2)	(-7,257,708 2,167,584.4)
<i>80% Confidence Interval</i>	(-15,249,238 387,757.5)	(-9,651,982 - 1,381,825.4)	(-6,216,816 1,126,693.0)
<i>P-Value</i>	0.223	0.087	0.374

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
Episode-Based Inpatient Surgery Expenditures			
<i>Difference-in-Difference</i>	-7,664,450.3	-5,623,554.3*	-2,523,496.9
<i>90% Confidence Interval</i>	(-17,749,929 2,421,027.8)	(-10,950,806 -296,302.9)	(-7,264,712 2,217,718.0)
<i>80% Confidence Interval</i>	(-15,522,329 193,428.4)	(-9,774,165 -1,472,943.4)	(-6,217,510 1,170,516.5)
<i>P-Value</i>	0.211	0.083	0.381
Outpatient Surgery Expenditures			
<i>Difference-in-Difference</i>	-4,853,659.9**	-3,676,634.7***	-951,470.2
<i>90% Confidence Interval</i>	(-8,549,156 -1,158,163.5)	(-5,467,528 -1,885,741.0)	(-2,637,617 734,676.2)
<i>80% Confidence Interval</i>	(-7,732,925 -1,974,395.1)	(-5,071,970 -2,281,299.2)	(-2,265,194 362,253.7)
<i>P-Value</i>	0.031	<0.001	0.353
Preference Sensitive Orthopedic Surgery Expenditures			
<i>Difference-in-Difference</i>	1,461,638.14	45,326.63	1,350,237.97
<i>90% Confidence Interval</i>	(-2,780,389.7 5,703,666)	(-2,088,786.3 2,179,440)	(-561,029.4 3,261,505)
<i>80% Confidence Interval</i>	(-1,843,444.7 4,766,721.0)	(-1,617,420.5 1,708,073.8)	(-138,884.0 2,839,360.0)
<i>P-Value</i>	0.571	0.972	0.245
Inpatient Preference Sensitive Orthopedic Surgery Expenditures			
<i>Difference-in-Difference</i>	1,576,431.03	172,061.79	1,337,877.80
<i>90% Confidence Interval</i>	(-1,940,207.1 5,093,069.1)	(-1,598,818.9 1,942,942.5)	(-254,411.9 2,930,167.5)
<i>80% Confidence Interval</i>	(-1,163,480.3 4,316,342.3)	(-1,207,681.0 1,551,804.5)	(97,280.2 2,578,475.4)
<i>P-Value</i>	0.461	0.873	0.167
Outpatient Preference Sensitive Orthopedic Surgery Expenditures			
<i>Difference-in-Difference</i>	-196,199.38	-93,986.29	-125,064.61
<i>90% Confidence Interval</i>	(-487,304.0 94,905.3)	(-226,593.0 38,620.4)	(-270,700.6 20,571.4)
<i>80% Confidence Interval</i>	(-423,007.2 30,608.4)	(-197,303.9 9,331.3)	(-238,533.7 -11,595.5)
<i>P-Value</i>	0.268	0.244	0.158
Preference Sensitive Cardiac Surgery Expenditures			
<i>Difference-in-Difference</i>	-693,767.4	-1,103,961.6	-1,047,853.8
<i>90% Confidence Interval</i>	(-6,042,140.1 4,654,605)	(-3,782,889.1 1,574,966)	(-3,501,816.6 1,406,109)
<i>80% Confidence Interval</i>	(-4,860,834.4 3,473,299.7)	(-3,191,189.1 983,265.9)	(-2,959,805.0 864,097.4)

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>P-Value</i>	0.831	0.498	0.482
Inpatient Preference Sensitive Cardiac Surgery Expenditures			
<i>Difference-in-Difference</i>	-292,563.0	-645,119.8	-794,996.6
<i>90% Confidence Interval</i>	(-4,789,265.8 4,204,140)	(-2,900,305.6 1,610,066)	(-2,862,477.0 1,272,484)
<i>80% Confidence Interval</i>	(-3,796,070.2 3,210,944.3)	(-2,402,198.2 1,111,958.6)	(-2,405,828.6 815,835.4)
<i>P-Value</i>	0.915	0.638	0.527
Outpatient Preference Sensitive Cardiac Surgery Expenditures			
<i>Difference-in-Difference</i>	-555,156.85	-383,760.49	-265,666.84
<i>90% Confidence Interval</i>	(-1,608,364.1 498,050.4)	(-874,877.3 107,356.3)	(-720,630.5 189,296.8)
<i>80% Confidence Interval</i>	(-1,375,740.2 265,426.5)	(-766,403.4 -1,117.6)	(-620,141.8 88,808.1)
<i>P-Value</i>	0.386	0.199	0.337

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Table 2-33: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Ohio Cohort

Measures (2011 USD)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	3,919	3,919	3,823
Total Medicare Parts A and B Expenditures			
<i>Difference-in-Difference</i>	-22,188,674	-17,050,904**	-2,898,618
<i>90% Confidence Interval</i>	(-44,765,108 387,759.3)	(-28,444,686 -5,657,123.3)	(-13,472,425 7,675,189.4)
<i>80% Confidence Interval</i>	(-39,778,607 -4,598,742)	(-25,928,119 -8,173,690)	(-11,136,967 5,339,732)
<i>P-Value</i>	0.106	0.014	0.652
Inpatient Expenditures			
<i>Difference-in-Difference</i>	-9,229,794	-7,380,044	1,066,084
<i>90% Confidence Interval</i>	(-24,035,166 5,575,577.7)	(-14,917,817 157,727.8)	(-5,812,631 7,944,798.2)
<i>80% Confidence Interval</i>	(-20,765,074 2,305,486)	(-13,252,934 -1,507,155)	(-4,293,315 6,425,483)

Measures (2011 USD)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>P-Value</i>	0.305	0.107	0.799
Outpatient ER Expenditures			
<i>Difference-in-Difference</i>	-1,143,034.8	-693,099.0	-671,777.8
<i>90% Confidence Interval</i>	(-2,900,129.3 614,059.8)	(-1,557,046.0 170,848.0)	(-1,528,661.6 185,105.9)
<i>80% Confidence Interval</i>	(-2,512,036.4 225,966.9)	(-1,366,224.3 - 19,973.7)	(-1,339,400.0 - 4,155.7)
<i>P-Value</i>	0.285	0.187	0.197
Outpatient Non-ER Expenditures			
<i>Difference-in-Difference</i>	-3,161,382.4	-3,901,762.5**	-201,806.3
<i>90% Confidence Interval</i>	(-8,701,415.4 2,378,651)	(-6,645,546.7 - 1,157,978)	(-2,728,316.6 2,324,704)
<i>80% Confidence Interval</i>	(-7,477,777.4 1,155,013)	(-6,039,521.7 - 1,764,003)	(-2,170,281.3 1,766,669)
<i>P-Value</i>	0.348	0.019	0.895
Physician and Ancillary Expenditures			
<i>Difference-in-Difference</i>	-3,375,947.4	-2,821,057.0	-1,241,357.8
<i>90% Confidence Interval</i>	(-9,091,431 2,339,536.3)	(-5,687,821 45,707.2)	(-3,958,333 1,475,617.5)
<i>80% Confidence Interval</i>	(-7,829,041.0 1,077,146.2)	(-5,054,633.4 - 587,480.7)	(-3,358,229.5 875,513.8)
<i>P-Value</i>	0.331	0.106	0.452
Skilled Nursing Facility Expenditures			
<i>Difference-in-Difference</i>	-4,724,383.4	-2,093,105.6	-1,827,834.5
<i>90% Confidence Interval</i>	(-9,579,262 130,495.6)	(-4,396,798 210,587.2)	(-4,049,728 394,058.7)
<i>80% Confidence Interval</i>	(-8,506,956 - 941,811.1)	(-3,887,977 - 298,234.0)	(-3,558,974 - 96,695.2)
<i>P-Value</i>	0.109	0.135	0.176
Home Health Expenditures			
<i>Difference-in-Difference</i>	-672,168.40	-293,636.64	83,458.19
<i>90% Confidence Interval</i>	(-2,511,234.6 1,166,897.8)	(-1,179,834.3 592,561.1)	(-777,741.2 944,657.6)
<i>80% Confidence Interval</i>	(-2,105,036.5 760,699.7)	(-984,098.1 396,824.8)	(-587,526.4 754,442.8)
<i>P-Value</i>	0.548	0.586	0.873

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

For the MA Texas cohort, use of the Welvie decision aid was associated with statistically significant cumulative increase in inpatient surgery expenditures, cumulative and Year 1 decreases in outpatient preference-sensitive orthopedic surgery expenditures and Year 1 decrease in skilled nursing facility expenditures. These results are consistent with findings from the ITT analysis. There was a statistically significant increase of \$8,276,311 in inpatient surgery expenditures among 2,630 MA Texas beneficiaries who accessed the decision aid relative to controls (\$3,539 per beneficiary) across the full intervention period (see Table 2-34). This finding was partly driven by statistically significant cumulative increases in inpatient preference-sensitive cardiac surgery expenditures. A statistically significant cumulative and Year 1 decrease in outpatient preference-sensitive orthopedic surgery expenditures and Year 1 decrease in skilled nursing facility expenditures were also observed. Quarterly expenditure effects were generally concentrated in Q4 and Q5 (see Appendix Table B-52). As discussed in Section 2.3, since the control group was exposed to the Welvie intervention through Humana communications, statistically significant effects found for the MA Texas decision aid users may not reflect the true effects of the intervention.

Table 2-34: Aggregate Surgery-Related Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,630	2,630
Total Surgery Expenditures		
<i>Difference-in-Difference</i>	7,911,944	4,168,188
<i>90% Confidence Interval</i>	(-310,450.0 16,134,338)	(-2,188,770.9 10,525,147)
<i>80% Confidence Interval</i>	(1,505,646.3 14,318,241)	(-784,696.9 9,121,073)
<i>P-Value</i>	0.113	0.281
Inpatient Surgery Expenditures		
<i>Difference-in-Difference</i>	8,276,311*	4,927,214
<i>90% Confidence Interval</i>	(607,246.7 15,945,376)	(-1,012,779.4 10,867,207)
<i>80% Confidence Interval</i>	(2,301,128.1 14,251,495)	(299,198.5 9,555,229)
<i>P-Value</i>	0.076	0.172
Episode-Based Inpatient Surgery Expenditures		
<i>Difference-in-Difference</i>	8,664,618*	5,122,974
<i>90% Confidence Interval</i>	(952,882.1 16,376,355)	(-843,726.6 11,089,676)
<i>80% Confidence Interval</i>	(2,656,188.5 14,673,048)	(474,150.4 9,771,799)
<i>P-Value</i>	0.065	0.158
Outpatient Surgery Expenditures		
<i>Difference-in-Difference</i>	-116,346.7	-577,400.4
<i>90% Confidence Interval</i>	(-2,593,308.1 2,360,615)	(-2,469,041.8 1,314,241)

Measures (2011 USD per Beneficiary-Quarter)	Full Intervention Period ^a (11 quarters)	Year 1 ^b
<i>80% Confidence Interval</i>	(-2,046,216.7 1,813,523.4)	(-2,051,231.2 896,430.4)
<i>P-Value</i>	0.938	0.616
Preference Sensitive Orthopedic Surgery Expenditures		
<i>Difference-in-Difference</i>	-330,262.62	-295,379.56
<i>90% Confidence Interval</i>	(-3,402,979 2,742,454)	(-2,605,489 2,014,730)
<i>80% Confidence Interval</i>	(-2,724,302 2,063,777)	(-2,095,250 1,504,491)
<i>P-Value</i>	0.860	0.833
Inpatient Preference Sensitive Orthopedic Surgery Expenditures		
<i>Difference-in-Difference</i>	-164,260.4	-183,117.0
<i>90% Confidence Interval</i>	(-2,761,584 2,433,063)	(-2,131,986 1,765,752)
<i>80% Confidence Interval</i>	(-2,187,908 1,859,386.9)	(-1,701,535 1,335,301.4)
<i>P-Value</i>	0.917	0.877
Outpatient Preference Sensitive Orthopedic Surgery Expenditures		
<i>Difference-in-Difference</i>	-200,671.71*	-193,487.55**
<i>90% Confidence Interval</i>	(-374,596.4 -26,747.0)	(-324,684.3 -62,290.8)
<i>80% Confidence Interval</i>	(-336,181.3 -65,162.1)	(-295,706.6 -91,268.5)
<i>P-Value</i>	0.058	0.015
Preference Sensitive Cardiac Surgery Expenditures		
<i>Difference-in-Difference</i>	3,501,224	2,268,173
<i>90% Confidence Interval</i>	(-63,692.3 7,066,140)	(-550,438.9 5,086,784)
<i>80% Confidence Interval</i>	(723,697.7 6,278,750)	(72,113.3 4,464,232)
<i>P-Value</i>	0.106	0.186
Inpatient Preference Sensitive Cardiac Surgery Expenditures		
<i>Difference-in-Difference</i>	3,431,116*	2,181,423
<i>90% Confidence Interval</i>	(327,732.2 6,534,499)	(-293,302.8 4,656,148)
<i>80% Confidence Interval</i>	(1,013,182.6 5,849,049)	(253,294.7 4,109,551)
<i>P-Value</i>	0.069	0.147
Outpatient Preference Sensitive Cardiac Surgery Expenditures		
<i>Difference-in-Difference</i>	-568,357.2	-326,981.9
<i>90% Confidence Interval</i>	(-1,139,144.1 2,429.6)	(-753,227.2 99,263.5)
<i>80% Confidence Interval</i>	(-1,013,073.3 -123,641.2)	(-659,081.6 5,117.8)
<i>P-Value</i>	0.101	0.207

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Table 2-35: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie MA Texas Cohort

Measures (2011 USD)	Full Intervention Period^a (11 quarters)	Year 1^b
<i>Number of Participant Beneficiaries</i>	2,630	2,630
Total Medicare Parts A and B Expenditures		
<i>Difference-in-Difference</i>	5,573,438.8	-850,542.1
<i>90% Confidence Interval</i>	(-9,488,135 20,635,013)	(-12,509,541 10,808,457)
<i>80% Confidence Interval</i>	(-6,161,456 17,308,333)	(-9,934,395 8,233,311)
<i>P-Value</i>	0.543	0.904
Inpatient Expenditures		
<i>Difference-in-Difference</i>	7,944,826	1,346,563
<i>90% Confidence Interval</i>	(-2,692,349 18,582,002)	(-6,983,463 9,676,588)
<i>80% Confidence Interval</i>	(-342,895.2 16,232,548)	(-5,143,593.5 7,836,719)
<i>P-Value</i>	0.219	0.790
Outpatient ER Expenditures		
<i>Difference-in-Difference</i>	356,454.0	-206,559.4
<i>90% Confidence Interval</i>	(-856,840.7 1,569,748.7)	(-1,134,103.3 720,984.4)
<i>80% Confidence Interval</i>	(-588,858.0 1,301,765.9)	(-929,234.8 516,116.0)
<i>P-Value</i>	0.629	0.714
Outpatient Non-ER Expenditures		
<i>Difference-in-Difference</i>	963,726.2	198,958.4
<i>90% Confidence Interval</i>	(-2,515,004.4 4,442,457)	(-2,435,739.9 2,833,657)
<i>80% Confidence Interval</i>	(-1,746,650.3 3,674,103)	(-1,853,808.9 2,251,726)
<i>P-Value</i>	0.649	0.901
Physician and Ancillary Expenditures		
<i>Difference-in-Difference</i>	1,109,291.9	1,564,729.7
<i>90% Confidence Interval</i>	(-2,755,522 4,974,106)	(-1,377,756 4,507,216)
<i>80% Confidence Interval</i>	(-1,901,892.8 4,120,477)	(-727,843.6 3,857,303)
<i>P-Value</i>	0.637	0.382
Skilled Nursing Facility Expenditures		
<i>Difference-in-Difference</i>	-2,105,413.3	-2,200,363.2*
<i>90% Confidence Interval</i>	(-4,693,131 482,304.8)	(-4,170,925 -229,801.3)
<i>80% Confidence Interval</i>	(-4,121,577.0 -89,249.6)	(-3,735,683.2 -665,043.2)
<i>P-Value</i>	0.181	0.066
Home Health Expenditures		

Measures (2011 USD)	Full Intervention Period^a (11 quarters)	Year 1^b
<i>Difference-in-Difference</i>	-1,453,144.5	-946,058.1
<i>90% Confidence Interval</i>	(-3,772,111 865,821.5)	(-2,722,042 829,926.2)
<i>80% Confidence Interval</i>	(-3,259,916 353,626.9)	(-2,329,777 437,661.1)
<i>P-Value</i>	0.303	0.381

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

3 EVALUATION OF THE PHARM2PHARM HEALTH CARE INNOVATION AWARD

This section provides evaluation findings for the University of Hawaii at Hilo’s “pharmacist-to-pharmacist” or “Pharm2Pharm” program reflecting quantitative analytic results through March 2016 unless noted otherwise. Section 3.1 provides a high-level overview of the key findings detailed in the remainder of the chapter. Section 3.2 describes the Pharm2Pharm program and Section 3.3 describes the primary factors affecting program evaluability. Finally, Section 3.4 provides quantitative analysis findings on program effects.

3.1 Key Findings

Participation in the Pharm2Pharm program was associated with cumulative increases in Year 2 mortality and in certain service utilization outcomes, but these estimated effects cannot be credibly attributed to the intervention as they more likely reflect unobserved differences in pre-enrollment health trajectories between program participants and controls. Specifically, in regard to service utilization outcomes, there were statistically significant increases in inpatient admissions and hospital days cumulatively over the intervention period for intervention beneficiaries relative to controls, primarily driven by increases in the first year of the intervention. This may be related to a large spike in the death rate among controls in Q1, likely resulting in more survivors in the participant group who could utilize health care services in Q1 and later quarters. These results likely reflect selection bias. While Acumen matched a robust comparison group based on an extensive set of variables observable in claims data and applied restrictions to the cohort based on the program’s standard targeting criteria, changes in targeting criteria over the course of the intervention limited the ability to adequately match the participant population. Moreover, pharmacists could also enroll patients into the program based on their discretion. Thus, targeting, as conducted by individual pharmacists, may not fully align with the program’s standard targeting criteria. Patients targeted in this manner who then chose to participate in the program are likely to be different from controls in terms of their health-seeking behavior and other pre-enrollment characteristics unobservable in Medicare claims data that influence mortality as well as other outcomes.

3.2 Program Description

The Pharm2Pharm HCIA innovation, launched on February 26, 2013, was a formal hospital pharmacist to community pharmacist care coordination model designed to reduce costs and address medication management risks that occur during transitions of care. Pharm2Pharm targeted the elderly and other individuals who had been hospitalized and were at risk for subsequent medication-related hospitalizations and emergency department visits, regardless of insurance status. Medication management and care coordination services were provided by

hospital consulting pharmacists (HCPs) and community consulting pharmacists (CCPs). HCPs identified eligible patients during hospitalization and performed in-depth medication reconciliation for program participants prior to hospital discharge. Community physicians and hospital care providers also referred patients to Pharm2Pharm, and HCPs reviewed these referrals based on standard targeting criteria. Immediately after patient discharge or after a referral had been reviewed, HCPs followed up with patients to assess their medication status and arranged a visit with one of the program's CCPs. Once this communication occurred, HCPs transferred patient responsibility to CCPs, also known as a "hand-off," by transmitting care transition documents either by fax or secure electronic messaging. Post-hand-off, CCPs conducted initial face-to-face visits with patients (unless a telephonic meeting was requested) followed by as-needed follow-up visits (typically administered by telephone or in-person) over the course of the subsequent year with more frequent visits occurring immediately after hospital discharge. These visits focused on the patients' health status; recent acute care visits; progress toward personal health goals; medication reconciliation, appropriateness, effectiveness, safety, and adherence; and patient education. CCPs contacted prescribers on a quarterly basis to provide patient updates and to make recommendations to optimize medications as needed. These intervention components constituted what was known as the "traditional model" of the Pharm2Pharm program.

Program leaders modified patient identification approaches throughout the course of implementation of the traditional model. Through self-monitoring activities, Pharm2Pharm program leaders learned that approximately 20 to 40 percent of program participants were enrolled based on HCP's clinical judgment and not by standard patient targeting criteria. Thus, in 2014, Pharm2Pharm expanded the patient targeting criteria to capture additional patients who were typically enrolled based on HCPs' discretion. That same year, Pharm2Pharm also began accepting patient referrals from community providers and discontinued HCPs' enrollment of patients from the emergency room (ER). Program leaders found enrollment of patients from the ER was not cost-effective and had limited added value, since most ER patients who were eligible for Pharm2Pharm were admitted to the hospital and could be identified by HCPs during hospitalization.

Some program components of the traditional model of the Pharm2Pharm program were also modified during the implementation period, including CCPs' responsibilities, length of patient enrollment in the program, and targeted geographic areas. Under the initial version of the traditional model, CCPs were responsible for conducting a call with the patient within one day of discharge and scheduling a more in-depth appointment within three days of discharge. However, CCPs struggled to meet these parameters, motivating program leaders to shift these responsibilities to HCPs. Beginning in September 2014, Pharm2Pharm implemented an "early

graduation” process for patients who were determined to be progressing extremely well prior to the one-year mark after enrollment, which more efficiently used Pharm2Pharm resources. Finally, though Pharm2Pharm initially targeted only rural areas with severe physician shortages, program leaders decided to expand the program to Honolulu County, an urban setting, as health care providers perceived a strong need for Pharm2Pharm services there as well.

The Pharm2Pharm innovation was granted a one-year no-cost HCIA award extension from July 1, 2015 through June 30, 2016 to continue intervention activities and test sustainability pilots. The no-cost extension allowed Pharm2Pharm to continue providing the community pharmacy services component of the traditional model to existing beneficiaries; enrollment of new patients to the traditional model of the program concluded on June 30, 2015. Beginning in the summer of 2015, Pharm2Pharm launched sustainability pilot projects with several outpatient sites to test modified versions of the traditional Pharm2Pharm model. These sites included a rural health clinic, a federally-qualified health center (FQHC), and two independent physician practices.

3.3 Evaluability

This section summarizes the primary factors affecting the evaluability of Pharm2Pharm, which include program enrollment and payer mix; program implementation factors, such as the extent to which the innovation changed during the HCIA implementation period; and comparison group data availability.

Pharm2Pharm’s data partner, Hawaii Health Information Corporation (HHIC), provided intervention data on 2,167 individuals enrolled in the program through May 29, 2015. These data include beneficiaries who were determined eligible for the Pharm2Pharm program by an HCP, consented to participate, and had their care transition documents sent to the CCP, regardless of whether or not they attended their first visit with the CCP. Table 3-1 provides the enrollment and payer mix figures for Pharm2Pharm’s intervention group beneficiaries. Since Pharm2Pharm does not document the start date for the HCP intervention, Acumen used beneficiaries’ hospital discharge date as the proxy program enrollment date. The payer mix figures presented in Table 3-1 were determined by linking intervention group beneficiaries in the program data provided by HHIC to their Medicare records. Out of the 2,167 individuals enrolled in Pharm2Pharm through May 29, 2015, Table 3-1 shows that only 1,221 individuals were enrolled in Medicare Parts A and B or Medicare Advantage as well as Medicare Part D, and only these individuals were eligible for inclusion in this analysis. Additional cohort restrictions, which are explained in detail in Section 3.4, further reduce the sample available for the analysis and limit the statistical power to detect effects of the Pharm2Pharm intervention.

Table 3-1: Payer Mix of Pharm2Pharm Program Enrollment by Calendar Quarter

Calendar Quarter	Medicare Parts A, B, and D		Medicare Advantage and Part D		Other Medicare Enrolled		Not Medicare-Enrolled/Unknown		Total
Jan-Mar 2013	*	*	*	*	*	*	*	*	13
Apr-Jun 2013	*	*	43	35%	*	*	*	*	124
Jul-Sep 2013	51	22%	84	37%	41	18%	52	23%	228
Oct-Dec 2013	74	22%	125	37%	64	19%	77	23%	340
Jan-Mar 2014	75	23%	106	33%	61	19%	78	24%	320
Apr-Jun 2014	52	23%	70	31%	37	17%	65	29%	224
Jul-Sep 2014	62	24%	85	33%	43	17%	68	26%	258
Oct-Dec 2014	77	27%	93	32%	49	17%	71	24%	290
Jan-Mar 2015	53	22%	73	31%	47	20%	63	27%	236
Apr-May 29, 2015	*	*	*	*	37	28%	35	26%	134
Total	506	23%	715	33%	403	19%	543	25%	2,167

Notes: The enrollment counts include individuals who were determined to be eligible for the Pharm2Pharm program by a hospital consulting pharmacist (HCP), consented to participate, and had their care transition documents sent to the community consulting pharmacist (CCP), regardless of whether or not they attended their first visit with the CCP. Acumen used the discharge date from the hospital where beneficiaries were recruited for the intervention by the HCP as the proxy program enrollment date.

“Other Medicare Enrolled” may include dual-eligible beneficiaries and beneficiaries enrolled in Medicare Part A only, Part B only, and/or Part D only.

“Medicare Parts A, B, and D” and “Medicare Advantage and Part D” may include dual-eligible beneficiaries.

“Not Medicare-Enrolled/Unknown” includes beneficiaries who were not enrolled in Medicare on the day they entered the Pharm2Pharm program or for whom the awardee did not provide sufficient personally identifiable information to link to Medicare claims.

* All cell counts less than eleven have been suppressed to protect participant confidentiality.

Since Pharm2Pharm did not randomize beneficiaries into intervention and control groups for receipt of the intervention, Acumen constructed a comparison group of Medicare beneficiaries drawn from CMS administrative files by matching Pharm2Pharm intervention group beneficiaries on important demographic and health characteristics. Although the Pharm2Pharm program has a standard set of patient targeting criteria, HCPs had the flexibility to override the criteria, in consultation with other clinicians, if they believed a patient could benefit from the program. In 2014, Pharm2Pharm expanded its patient enrollment and identification criteria to include beneficiaries who were not captured under the previous criteria, but were nevertheless being enrolled in Pharm2Pharm based on HCP discretion. These changes in enrollment criteria over the course of the intervention and the lack of consistent application of the standard targeting criteria imply that a comparison group based on standard program targeting criteria may not adequately match the participant population. In particular, the use of discretion in patient enrollment implies that there may be systematic differences between the participant and the comparison populations in characteristics which are unobservable in Medicare claims data.

Insufficient documentation of the start date of the HCP component of the intervention may also limit our ability to assess the effect of the Pharm2Pharm intervention. Previously, patient hand-off was defined as the transfer of care transition documents from the HCP to CCP. Over the course of the HCIA project period, Pharm2Pharm revised the patient hand-off definition, increasing the HCP's role so that HCPs were additionally responsible for scheduling a given patient's first visit with the CCP and also for engaging with the patient until the first visit with the CCP. Since there is insufficient documentation of the HCP intervention start date, Acumen used beneficiaries' hospital discharge date as a proxy for intervention enrollment date for the differences-in-differences analysis of program effects. As the discharge date may not represent the true start of participants' exposure to the program, this may limit the ability of the analysis to capture the true effects of the Pharm2Pharm intervention on beneficiary health, utilization, and medication adherence outcomes.

3.4 Program Effectiveness

This section describes the impact of the Pharm2Pharm MM intervention on health and resource use outcomes for Medicare beneficiaries for eight quarters following Pharm2Pharm program enrollment ("full intervention period"). In addition to the common cohort restrictions described in Section 1.2, the Medicare FFS and MA cohorts were further restricted to beneficiaries who had at least one hospital admission in the year prior to their Pharm2Pharm program enrollment and who generally met the targeting criteria set by the Pharm2Pharm program.¹³ Acumen combined the Medicare FFS and MA intervention cohorts to increase the sample size, which resulted in a total of 796 beneficiaries available for analysis ("combined intervention cohort"). Medicare FFS and MA claims data utilized in this report for the analysis of the combined intervention cohort were obtained from CWF. Applying the same restrictions, Acumen matched comparison groups to these beneficiaries using a propensity score matching model described in Section 1.2. Matching was performed separately for the Medicare FFS and MA intervention cohorts. Appendix D.1 shows that participants and controls in both the Medicare FFS and MA groups were well matched on demographic and baseline health characteristics.¹⁴

¹³ Based on Pharm2Pharm targeting criteria, additional restrictions to the analytic cohort include at least one inpatient stay 365 days before program enrollment and any one of the following conditions: (i) have 15 or more different drug prescriptions; (ii) have 10 or more different drug prescriptions and at least one high-risk (i.e., narrow therapeutic index) drug prescription; or (iii) have two or more different drug prescriptions and a chronic condition.

¹⁴ However, race and ethnicity categories used for matching (e.g., white, black, other) may not have adequate granularity for Pharm2Pharm beneficiaries, since the majority of Hawaiian residents are Asian or Native Hawaiian/Other Pacific Islanders. Thus, the control group created for this analysis may not be truly equivalent to the intervention group in terms of the race and ethnicity composition.

The remainder of this section highlights key quantitative findings for the Pharm2Pharm combined intervention cohort. Sections 3.4.1, 3.4.2, and 3.4.3 highlight notable results for mortality and inpatient readmissions, resource use, and medication adherence, respectively. Non-inpatient resource use and expenditure data were not available for the MA beneficiaries, and therefore are not presented in our findings. Single difference or DiD methodology was used to estimate the effect of the intervention at the cumulative level across the full intervention period, as well as for each specific year and quarter after intervention enrollment. Complete results of our analyses, including quarterly estimates of effects, are provided in Appendix D.

3.4.1 Mortality and Inpatient Readmissions

As shown in Table 3-2, Pharm2Pharm was not associated with a cumulative change in mortality across the two years after program enrollment for the combined intervention cohort; however, there was a statistically significant increase in mortality in the second year after enrollment. As shown in Table 3-2, there was a statistically significant increase of 29 deaths in the second year following program enrollment among 564 beneficiaries who received the Pharm2Pharm intervention. This result is unlikely to reflect true program effects, but may instead represent a partial reversal of the higher mortality among controls observed in earlier quarters of the intervention. These mortality differences likely reflect unobserved differences in pre-enrollment health status between the intervention and control groups (see Figure 3-1). Because of this initial differential spike in mortality among controls, there were many more surviving intervention beneficiaries in Year 2 who could experience adverse outcomes.

Table 3-2: Aggregate Mortality: Cumulative and Yearly Differences after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Full Intervention Period ^a	Year 1 ^b	Year 2
<i>Number of Participants</i>	796	796	564
Mortality			
<i>Difference^c</i>	13.53	-15.44	28.97***
<i>90% Confidence Interval</i>	(-19.0 46.1)	(-44.2 13.4)	(13.8 44.1)
<i>80% Confidence Interval</i>	(-11.8 38.9)	(-37.9 7.0)	(17.2 40.8)
<i>P-Value</i>	0.494	0.378	0.002

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThis estimate represents difference in the number of deaths between participants and controls during the intervention period.

The first-year mortality estimates are driven by a quantitatively large and statistically significant spike in mortality among controls in the first quarter post-intervention that was not observed for participants. The Q1 mortality spike among controls, evident in Figure 3-1 is unlikely to reflect the expected trend for the participant population in the absence of the intervention. There were a total of 103 deaths per 1,000 beneficiaries among controls in Q1, although the mortality for this group dropped to only 28 deaths per 1,000 beneficiaries in Q4 (see Appendix Table D-6 in Appendix D.2). In comparison, the mortality among participants remained relatively stable at around 45 to 59 deaths per 1,000 beneficiaries per quarter from Q1 through Q4. As mentioned in Section 3.3, these differences between intervention and control cohorts may be due to selection bias given that there was patient enrollment based on HCPs’ discretion. Additionally, although Acumen matched a robust comparison group based on an extensive set of variables observable in claims data, patients who chose to participate in the program are likely to be systematically different from controls in terms of their health-seeking behavior and other unobservable characteristics that influence mortality as well as other outcomes discussed in the remainder of the section.

Figure 3-1: Mortality per 1,000 Beneficiaries: Quarterly Trends for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort

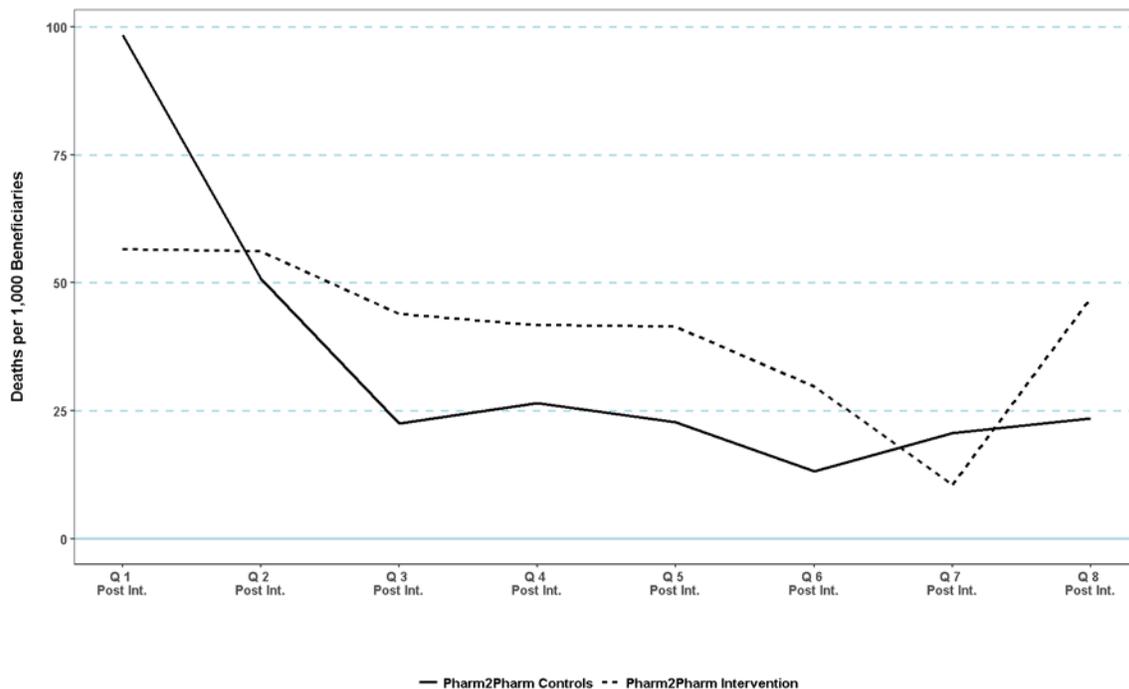


Table 3-3 shows that Pharm2Pharm was not associated with cumulative or yearly statistically significant effects on inpatient readmissions for the combined intervention cohort. However, there were only 796 participants available for analysis, so there may not be adequate power to detect significant effects across outcomes.

Table 3-3: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Full Intervention Period ^a	Year 1 ^b	Year 2
<i>Number of Participants</i>	796	796	564
30-Day Hospital Readmissions Following All Inpatient Admissions			
<i>Difference^c</i>	-1.20	-12.35	11.14
<i>90% Confidence Interval</i>	(-35.0 32.6)	(-42.1 17.4)	(-5.0 27.3)
<i>80% Confidence Interval</i>	(-27.6 25.2)	(-35.5 10.8)	(-1.4 23.7)
<i>P-Value</i>	0.953	0.495	0.257
30-Day Hospital Unplanned Readmissions Following All Inpatient Admissions			
<i>Difference</i>	-3.88	-13.62	9.74
<i>90% Confidence Interval</i>	(-37.5 29.7)	(-43.2 16.0)	(-6.1 25.6)
<i>80% Confidence Interval</i>	(-30.0 22.3)	(-36.7 9.4)	(-2.6 22.1)
<i>P-Value</i>	0.849	0.449	0.312

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

3.4.2 Health Service Resource Use

The Pharm2Pharm intervention was associated with statistically significant increases in inpatient admissions, unplanned inpatient admissions, and hospital days cumulatively across the first two years after program enrollment. These effects were driven by Year 1 increases in these outcomes for intervention beneficiaries relative to controls. For example, Table 3-4 shows that, among the 796 beneficiaries who received the Pharm2Pharm intervention, there was a statistically significant increase of about 382 total inpatient admissions (672 inpatient admissions per 1,000 beneficiaries) cumulatively across the two years after enrollment for the intervention group relative to the control group. The quarterly fixed-effects analysis also found marginally significant increases in resource use outcome measures in the first few quarters after program enrollment, which were generally followed by non-significant increases in other quarters as shown in Figure 3-2 and Appendix Table D-9.

Table 3-4: Aggregate Resource Use: Cumulative and Yearly DiD Estimates after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Full Intervention Period ^a	Year 1 ^b	Year 2
<i>Number of Participants</i>	796	796	564
Inpatient Admissions			
<i>Difference-in-Difference^c</i>	382.47***	314.08***	68.39*
<i>90% Confidence Interval</i>	(249.2 515.7)	(215.4 412.7)	(8.3 128.4)
<i>80% Confidence Interval</i>	(278.7 486.3)	(237.2 390.9)	(21.6 115.2)
<i>P-Value</i>	<0.001	<0.001	0.061
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	218.76***	202.44***	16.32
<i>90% Confidence Interval</i>	(89.6 348.0)	(107.1 297.8)	(-42.0 74.6)
<i>80% Confidence Interval</i>	(118.1 319.4)	(128.1 276.7)	(-29.1 61.8)
<i>P-Value</i>	0.005	<0.001	0.645
Hospital Days			
<i>Difference-in-Difference</i>	1,964.14**	1,801.41***	162.73
<i>90% Confidence Interval</i>	(575.2 3,353.1)	(732.6 2,870.3)	(-490.0 815.4)
<i>80% Confidence Interval</i>	(882.0 3,046.3)	(968.6 2,634.2)	(-345.8 671.3)
<i>P-Value</i>	0.020	0.006	0.682

* Statistically significant at the ten percent level.

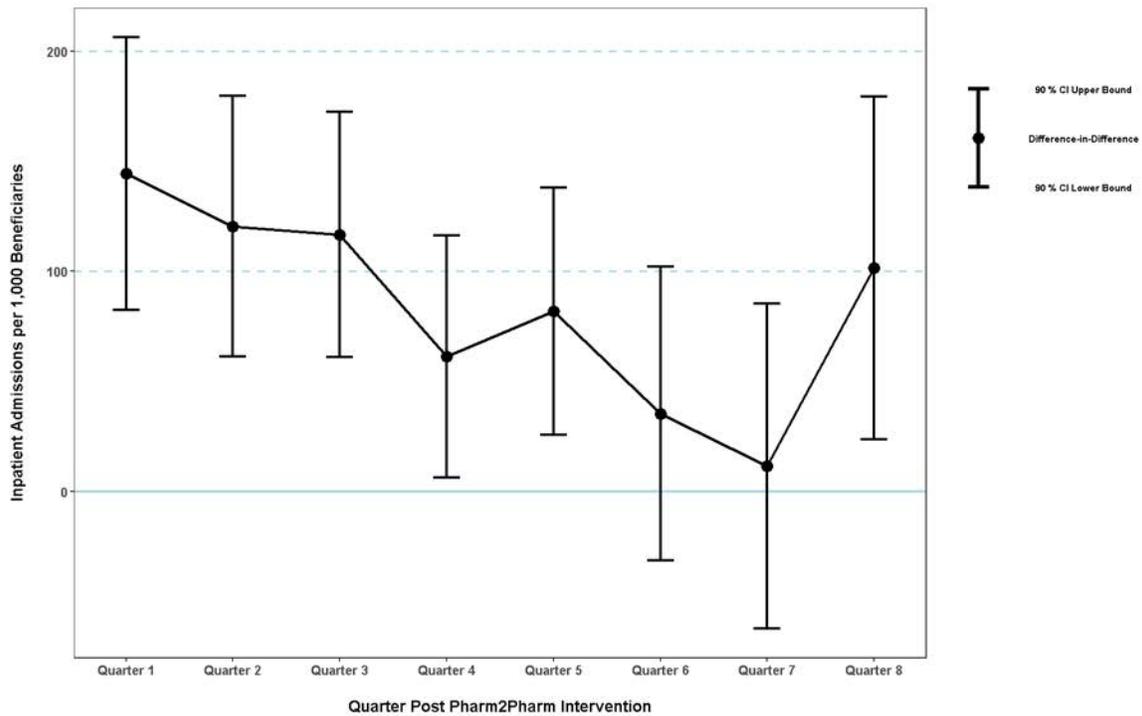
** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Figure 3-2: Inpatient Admissions per 1,000 Beneficiaries: Quarterly DiD Estimates, Pharm2Pharm, Medicare FFS and MA Combined Cohort



These findings on resource use measures should be interpreted with caution as they are unlikely to reflect true program effects. As discussed in Section 3.4.1, controls had a significantly higher death rate in Q1 than participants; thus, there were many more survivors in the participant group who could utilize health care services in Q1 and later quarters compared with the control group. Both the estimated effects on mortality and on inpatient service use outcomes may be the result of unobservable differences between the non-randomized intervention and matched comparison groups; there is no causal mechanism through which the Pharm2Pharm program is likely to have increased inpatient service utilization.

3.4.3 Medication Adherence

As shown in Table 3-5, the Pharm2Pharm intervention was not associated with cumulative statistically significant changes in medication adherence for any of the five selected therapeutic drug classes in the first or second year following program enrollment. However, these estimates should be interpreted in the context of the sample size and pre-enrollment adherence levels in addition to the selection issues detailed in previous sections. Individuals eligible for measures of medication adherence for each of the therapeutic classes represent only a small sample of program participants for a given therapeutic class, further reducing statistical power. Appendix Table D-14, which presents summary statistics on medication adherence, shows that the Pharm2Pharm intervention cohort was largely adherent to medications during the

baseline period; the median baseline PDC was over 89 percent for the intervention cohort. This suggests that beneficiaries who consented to participate in the Pharm2Pharm program may be individuals who were already likely to engage in healthy behaviors; thus, the potential margin of improvement in the intervention cohort’s medication adherence may be minimal.

Table 3-5: Medication Adherence (Proportion of Days Covered) by Medication Type: Yearly DiD Estimates after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Year 1 ^a	Year 2
Beta Blockers		
<i>Number of Participants</i>	326	133
<i>Difference-in-Difference</i>	-1.94	2.71
<i>90% Confidence Interval</i>	(-5.66,1.78)	(-3.11,8.53)
<i>80% Confidence Interval</i>	(-4.84,0.96)	(-1.82,7.25)
<i>P-Value</i>	0.390	0.443
Calcium Channel Blockers		
<i>Number of Participants</i>	188	82
<i>Difference-in-Difference</i>	-2.67	-2.67
<i>90% Confidence Interval</i>	(-7.33,2.00)	(-9.39,4.04)
<i>80% Confidence Interval</i>	(-6.30,0.97)	(-7.91,2.56)
<i>P-Value</i>	0.347	0.513
Diabetes Medication		
<i>Number of Participants</i>	120	46
<i>Difference-in-Difference</i>	-2.37	-1.72
<i>90% Confidence Interval</i>	(-8.35,3.61)	(-10.93,7.49)
<i>80% Confidence Interval</i>	(-7.03,2.29)	(-8.90,5.46)
<i>P-Value</i>	0.514	0.759
RAS Antagonists		
<i>Number of Participants</i>	316	121
<i>Difference-in-Difference</i>	-0.83	-3.64
<i>90% Confidence Interval</i>	(-4.37,2.71)	(-8.85,1.57)
<i>80% Confidence Interval</i>	(-3.59,1.93)	(-7.70,0.42)
<i>P-Value</i>	0.701	0.250
Statins		
<i>Number of Participants</i>	386	157
<i>Difference-in-Difference</i>	-0.60	-2.79
<i>90% Confidence Interval</i>	(-3.77,2.58)	(-7.54,1.96)
<i>80% Confidence Interval</i>	(-3.07,1.87)	(-6.49,0.91)
<i>P-Value</i>	0.756	0.334

^aYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

4 EVALUATION OF THE HEARTSTRONG HEALTH CARE INNOVATION AWARD

This section provides evaluation findings for the Trustees of the University of Pennsylvania's (UPenn) HeartStrong innovation, using claims data provided by UPenn in April 2017.¹⁵ Section 4.1 provides a high-level overview of the key findings. Section 4.2 provides a description of HeartStrong's intervention, and Section 4.3 provides context on the evaluability of the program. Lastly, Section 0 details the methods and results of the quantitative analysis of the program's effects on patient outcomes and healthcare expenditures.

4.1 Key Findings

The HeartStrong program aimed to improve patient adherence to cardioprotective medications in the year after acute myocardial infarction (AMI) through a simple, low-resource innovation consisting of automated and person-based medication reminders, financial incentives, and follow up from HeartStrong staff members who helped to address any medication adherence issues. Though HeartStrong was a discrete, proof-of-concept study, the program was expanded on a national level to 45 states.

The quantitative analysis of the HeartStrong program's effects on patient outcomes and expenditures was largely inconclusive due to data quality and sample size issues. Acumen was not able to identify statistically significant effects of the intervention on adherence to the cardioprotective medications targeted in the program. There were also few statistically significant changes in resource use and expenditure measures, and those isolated changes are more likely to reflect statistical noise rather than program effects. For example, the HeartStrong intervention was associated with lower total medical and drug expenditures among participants relative to controls (p-value: 0.075) and lower outpatient non-ER expenditures (p-value: 0.085), as discussed in more detail in Section 4.4.2 below. However, total medical and drug expenditures could only be assessed for enrollees from four of the five commercial insurers participating in the program due to lack of uniformity in the drug spending information across sponsors. AMI-related hospital days were higher for intervention groups relative to controls during the intervention period (p-value: 0.026), which likely drove the similar result for acute AMI event-related expenditures (p-value: 0.057). However, given the small sample of participants with any acute AMI-related events following program enrollment, these estimates are likely driven by statistical noise rather than program effects. It is also possible that the evaluability of the program was influenced by issues related to data completeness and

¹⁵ Although UPenn originally transferred data from its insurance partners to Acumen in July 2016, several revised versions of the data were sent in subsequent months, with the final transfer occurring in April 2017.

heterogeneity in the way the medical and drug claims information was recorded among specific insurers. These data quality concerns are detailed in Section 4.3.

4.2 Program Description

The HeartStrong innovation provided patients who had been recently hospitalized for AMI with automated and person-based medication reminder systems, as well as financial incentives to motivate medication adherence. The goal of the HeartStrong program was to improve patient adherence to cardioprotective medications with the aim of minimizing cardiovascular events and reducing unnecessary health care service utilization.

HeartStrong identified participants using weekly lists of patients who met the intervention's eligibility criteria, submitted by the insurer partners or by the University of Pennsylvania Health System, and invited them to participate in the program's randomized controlled trial. Eligible participants, who were primarily enrolled in commercial insurance and, less frequently, in Medicare, were identified via insurance partner claims data indicating patients were admitted to the hospital with a primary diagnosis code of AMI and discharged from the hospital to home after a length of stay of between one and 180 days. The program targeted patients who were prescribed two or more of the following types of medications: aspirin, beta blocker, platelet blocker, or statin. HeartStrong excluded patients who were under the age of 18 or over the age of 80, who had a markedly shortened life expectancy (e.g. diagnosis of metastatic cancer, end stage renal disease, or dementia), or who did not give their consent to participate in the trial. Insurers scanned discharge diagnosis codes and submitted the data to HeartStrong. HeartStrong staff members then reviewed and processed the claims data to identify eligible patients, and sent them invitations through weekly recruitment mailings to participate in the program by enrolling in UPenn's randomized controlled trial. During HeartStrong's 20-month recruitment period, recruitment packets were mailed to 19,768 potential participants, and study staff also developed a system to make up to five recruitment calls to patients to encourage participation and answer questions. Patients were also given a \$25 incentive for enrolling in the trial.

Patients who consented to participate and were confirmed as eligible were then randomized into intervention or control groups in a 2:1 ratio. Randomization was stratified by primary insurer, and the study used permuted blocks with variable block size to create a balanced cohort and minimize time-cohort effects. UPenn began with implementing the standard first version of the intervention ("Version 1"), and then separately conducted a series of side experiments to assess the effect of modifying some operational features of the intervention, including provision of an adherence support partner, as well as enhancements to the recruitment

package.¹⁶ Informed by learnings gleaned from the side experiments, as well as operational experience over time, UPenn implemented a second version of program operations (“Version 2”) for half of the intervention group midway through the trial period. However, since UPenn observed that the leading indicator of intervention success, medication adherence, was high in the first version of the intervention, the improvements to the recruitment process and the web-based technological infrastructure introduced in the second version were minor.¹⁷ As a result, the program was effectively implemented as a two-arm study which randomized intervention and control groups in a 2:1 ratio, with the entire intervention group receiving the core components of the intervention and the control group continuing usual care with no further contact with HeartStrong staff.

Following randomization, the intervention cohort received wireless Vitality GlowCap pill bottles for each of the targeted medications/medication classes they were prescribed to be used in place of regular pill bottles. Alternatively, patients had the option to receive pill bottles organized by time of day (i.e., AM and PM) instead of receiving separate pill bottles for each of the four targeted medication classes. The GlowCaps electronically monitored bottle openings using a remote device that transmitted cellular signals, which eliminated any need for a computer or wireless network. The bottles were programmed to provide audio and visual alerts to remind patients when to take their medications, and send a signal back to HeartStrong’s electronic portal whenever the patient opened them. During recruitment, patients could identify their preferences for receiving alerts through interactive voice response (IVR), text, and/or email. Program engagement advisors called patients to assist them with setting up their GlowCaps, and participants were given a \$25 dollar reward upon completion of the setup.

The HeartStrong program implemented a number of additional features to incentivize medication adherence among participants. Patients who adhered to their medications by opening their GlowCap pill bottles were entered into a lottery to receive incentive payments. Patients had a 1-in-10 chance of winning \$5 or a 1-in-100 chance of winning \$50 for each day they were adherent. Adherent patients received rapid feedback about whether they had won the lottery, while non-adherent participants received feedback about whether they would have won. Patients who did not adhere to their medications received other follow-up interventions that escalated as the number of non-adherent days increased. Interventions began with automated text, email or

¹⁶ Experiments were conducted on a distinct population not included in the core evaluation, and therefore do not directly affect the quantitative analysis of the program as detailed in Section 4.4.2.

¹⁷ With regard to recruitment, UPenn co-branded recruitment letters with its insurer partners and added promotional materials (such as brochures, magnet pads, bracelets, and pens) to encourage eligible patients to open the mailed recruitment materials. Improvements to its web-based infrastructure included adding graphical information; incorporating user-friendly designs, pictures, and contact information for program advisors; and enhancing the list of resources that participants could access via the Web, including instructions for troubleshooting the GlowCaps.

IVR alerts to patients and escalated to alerts to an identified friend/family member, followed by phone calls, mailed letters, and contact with the patient's physician if non-adherence persisted. Additionally, program advisors (research coordinators and social workers) followed up with patients who had not taken their medications within four days to help address adherence issues, including challenges related to care coordination, behavioral health, and cost of medications/copayments. Patients were referred for additional social work follow-up as needed.

HeartStrong was an entirely new project that launched on March 22, 2013. Participants who enrolled in the program received the services listed above for one year. At the end of the one-year period, participants were transitioned off the program and no longer received the automated or person-based alerts. The final participant completed involvement in the HeartStrong program on January 5, 2016, and HeartStrong's HCIA award concluded on June 30, 2016.

While the primary target population of the innovation remained mostly consistent throughout the HCIA implementation period, in early December 2014 the program implemented a cognitive function screening of eligible participants prior to enrollment as a potentially effective component of a remote medication management intervention like HeartStrong that serves many older adults. The screening tool was implemented for eligible patients over 75 to ensure that they had the cognitive function to understand the program and give informed consent to participate in the program. However, the tool was not widely used, since it was implemented just before new patient recruitment ended in mid-December 2014, so it is unlikely that this development affected the quantitative analysis of program effects described in Section 4.4.2.

Other program changes that were implemented throughout the intervention period included the expansion of the program's geographic reach, extension of the enrollment period for eligible patients, and implementation of additional follow-up processes and side experiments. Project leaders had initially proposed to limit participation to patients discharged from New Jersey hospitals or hospitals within the University of Pennsylvania Health System. Due to the regional and national presence of their insurance partners (and the remote monitoring features of the innovation), UPenn expanded the geographic reach of the innovation, enrolling patients in 45 different states where their insurance partners' beneficiaries resided. UPenn also increased the timeframe during which patients were enrolled after hospital discharge from 45 to 60 days, since program leaders felt the time required to identify patients through insurance claims and submit this information to UPenn was causing them to omit some patients. Finally, program advisors also implemented additional follow up interventions for patients who either stopped using their GlowCaps or initially agreed to enroll in the program but did not set up their GlowCap devices. This follow up consisted of a combination of phone calls and letters.

4.3 Evaluability

This section provides information on the primary factors affecting the evaluability of HeartStrong, including program enrollment size and payer mix, and the quality of enrollee-level enrollment and claims data available for analysis.

According to information provided by the awardee in May 2017, the program enrolled 1,503 eligible individuals in the intervention and control groups who were covered by Medicare FFS, MA, Medicaid, and commercial insurance plans. HeartStrong enrolled patients in the randomized controlled trial from March 2013 through January 2015 meeting its target of 1,500 total intervention and control participants. However, a majority of the participants were enrolled in non-Medicare insurance programs, which precluded Acumen from conducting a quantitative analysis of the Medicare population using Medicare data alone. Specifically, by January 2015, the program enrolled 37 Medicare FFS beneficiaries (2%), 567 Medicare Advantage beneficiaries (38%), 20 Medicaid beneficiaries (1%), and 878 commercially insured beneficiaries (58%) in total in the intervention and control groups.

Given the program's low enrollment of Medicare FFS beneficiaries, HeartStrong provided anonymized data on medical and prescription drug claims for intervention and control participants enrolled in commercial payer, Medicare Advantage, and Medicaid plans in April 2017,¹⁸ and the evaluation of the program is based on these data. To prepare the data, HeartStrong compiled claims received separately from the five participating insurer partners into one dataset.

The small sample size available for analysis also impacts evaluability of the program. Based on the masked insurer labels provided by UPenn for the five insurers (A-E), Table 4-1 shows the number of intervention and control participants included in the analysis cohort for each quarter after program enrollment by insurer. The table includes counts after applying continuous plan enrollment restrictions detailed in Section 4.4.1 on methods. There were a total of only 658 intervention group enrollees and 314 controls across sponsors who had continuous medical and drug plan enrollment with the insurer through the first quarter of the program and were thus available for analysis for that quarter. The sample size decreased further in later quarters. Given the small sample size, statistical power to detect program effects on various outcomes of interest is reduced over time. For measures such as adherence to specific medications that require additional cohort restrictions based on prescriptions for these medications, statistical power is further reduced.

¹⁸ Although UPenn originally transferred data from its insurance partners to Acumen in July 2016, several revised versions of the data were sent in subsequent months, with the final transfer occurring in April 2017.

Table 4-1: HeartStrong Analysis Cohort: Number of Participants with Continuous Medical and Drug Plan Enrollment by Insurer

Insurer	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	Intervention	Control	Intervention	Control	Intervention	Control	Intervention	Control
A	238 (36.3%)	113 (36.0%)	206 (34.4%)	100 (34.5%)	179 (32.8%)	84 (32.6%)	159 (31.3%)	73 (31.2%)
B	42 (6.4%)	19 (6.1%)	37 (6.2%)	18 (6.2%)	33 (6.0%)	18 (7.0%)	29 (5.7%)	17 (7.3%)
C	291 (44.2%)	143 (45.5%)	275 (46.0%)	137 (47.2%)	260 (47.6%)	126 (48.8)	251 (49.4%)	114 (48.7%)
D	12 (1.8%)	4 (1.3%)	10 (1.7%)	3 (1.0%)	9 (1.6%)	3 (1.2%)	8 (1.6%)	3 (1.3%)
E	75 (11.4%)	35 (11.1%)	70 (11.7%)	32 (11.0%)	65 (11.9%)	27 (10.5%)	61 (12.0%)	27 (11.5%)
Total	658 (100%)	314 (100%)	598 (100%)	290 (100%)	546 (100%)	258 (100%)	508 (100%)	234 (100%)

Because there was substantial heterogeneity in the structure of the claims data provided by the insurer partners, UPenn normalized the data to create standard variables across the payers prior to sending a claims dataset to Acumen. Despite these efforts, Acumen identified some remaining data quality issues that impacted the evaluability of the program.

First, the total prescription drug costs reported in the data represented varied information across sponsors. Notably, one payer, Insurer A, only reported the amount that the insurer paid on the prescription (Rx) claim, and did not include a member co-pay, while other payers also included member-copays. To ensure that the analysis aggregated similar drug cost information across insurers, Insurer A, which covered 36.3% of intervention enrollees, was excluded from the analysis of prescription drug costs but included in the analysis of other measures that did not require drug cost data.

Another insurer, Insurer C, representing 44.2% of intervention enrollees, provided UPenn with data that reported the procedure information and the diagnosis/expenditure information in each claim as two separate observations, but did not include information to accurately group related claims for analysis. To address this concern, Acumen assumed all claims with matched service dates and place of service variables for this insurer were related to the same procedure, and aggregated expenditures accordingly. In cases where this assumption does not hold, Acumen’s final action algorithm, which determines the final cost of a service by accounting for the initial claim, retractions, and edits, may misclassify claims for this insurer. If related claims are grouped imperfectly, it is possible that claims for canceled services were included or claims for valid services were excluded. However, given that less than 1% of claims were excluded using this algorithm, it is unlikely that this limitation has a large impact. Although the number of

canceled claims that were potentially included is unknown, these limitations hold for both the randomized intervention and control groups, and likely have minimal implications for our analysis comparing outcomes for the two groups.

The evaluability of the HeartStrong intervention is also affected by the lack of data on deaths that occurred outside of the hospital. Since HeartStrong's insurer partners only had information on patient death indicated by hospital discharge status, Acumen was not able to evaluate the impact of the intervention on all deaths. Rather, the measure of mortality included in the Mortality and Inpatient Readmissions subsection of Section 4.4.2 represents only deaths that occurred at the hospital.

A final data quality issue identified by Acumen was resolved in a revised dataset sent by UPenn in April 2017. Specifically, Insurer E, representing 11.4% of intervention enrollees, had a disproportionately high share of continuously enrolled participants without any claims in the data as the 12 month intervention period continued, indicating that the data originally provided by this insurer was incomplete. In the revised data with corrected information, the frequency of claims among continuously enrolled Insurer E beneficiaries resembled that of UPenn's four other insurer partners. The revised data are used for the quantitative analysis presented in this report.

4.4 Program Effectiveness

This section presents quantitative findings on the impact of HeartStrong's MM intervention. First, it describes the methods used for the evaluation of the HeartStrong intervention. Next, it presents the findings on the impact of the HeartStrong MM intervention on mortality, inpatient readmissions, health service utilization, medical expenditures, and medication adherence for program participants using cumulative and quarterly estimates.

4.4.1 Methods

Acumen conducted a single difference analysis to measure the effect of the intervention on Medicare Advantage, Medicaid, and commercial insurance participants. In addition to the health, utilization and expenditure outcomes Acumen typically assesses, Acumen evaluated outcomes particularly relevant to the HeartStrong program. These include utilization and expenditure outcomes related to AMIs and other cardiovascular events, and adherence to the drug classes for which GlowCaps were administered. Acumen's analytic approach for quantitative analysis of the HeartStrong program, and the outcome measures that were assessed are described below, in turn.

Analytic Approach

Acumen evaluated the impact of the HeartStrong intervention using a single difference analysis that compared outcomes between HeartStrong's randomized intervention and control

groups during the one-year intervention period on a quarterly and cumulative basis. Because of the randomized design and the relatively small number of enrollees that were treated by the HeartStrong intervention, Acumen opted for a single difference approach to preserve the statistical power of the analysis. Acumen required participants to have continuous enrollment in a medical and drug insurance plan in the quarter prior to their entry into the HeartStrong program through the intervention quarter of interest. If participants died or disenrolled from their respective insurance plan, they were included in the cohort through the intervention quarter of death or plan disenrollment. For example, if participants died or disenrolled in the middle of the third intervention quarter, they were included in the analytic cohort for the first three quarters. After applying these restrictions, there were a total of 658 intervention group enrollees and 313 controls available for analysis in the mixed payer cohort for the first intervention quarter, and fewer enrollees in subsequent quarters, as shown in Table 4-1 in Section 4.3. Consistent with randomization, intervention and control groups generally had similar demographic and baseline health characteristics (see Appendix Table E.1.)

Outcomes

Using the information in the claims data provided by the awardee, Acumen assessed many of the typical measures of health, quality-of-care, health service use, and expenditures described in Section 1.2.2. Due to data limitations and the inclusion of non-Medicare participants in the analysis, Acumen was precluded from evaluating expenditure outcomes related to Medicare-specific settings (skilled nursing facilities, durable medical equipment, etc). Acumen included other outcomes related to HeartStrong's focus on patients who had recently had an AMI. Specifically, Acumen assessed the impact of the intervention on acute cardiovascular events (inpatient and ER) utilization and associated expenditures, as well as adherence to medications targeted by the program to address repeat AMIs and other cardiovascular issues.

To measure the effect of the HeartStrong program on cardiovascular events, Acumen estimated the program's impact on both subsequent AMIs and two composite cardiovascular measures. Cardiovascular events in the composite measures were identified based on clinician input and included AMI, stroke, arrhythmia, heart failure, unstable angina, and chest pain. These conditions were selected to capture acute, isolated cardiovascular events that may follow from an AMI rather than routine follow-up care for chronic illnesses. Acumen used the Clinical Classifications Software (CCS) system to classify these conditions and construct a list of associated diagnosis codes to identify claims for these events. However, due to ambiguities in the data that prevented Acumen from distinguishing primary diagnoses from secondary diagnoses, Acumen was unable to isolate with certainty cardiovascular events that constituted the primary diagnosis on a claim. Claims were only included in the measure if their place of service

was “inpatient” or “emergency department” to further ensure that the measure captures acute events rather than regular follow-up. These diagnosis codes were used to construct three types of measures included in the analysis:

- Acute cardiac outcomes: a composite measure that includes records with a diagnosis for AMI, stroke, arrhythmia, heart failure, unstable angina or chest pain in the inpatient or ER settings,
- AMI outcomes: includes records indicating only AMI as the diagnosis in the inpatient or ER settings,
- Non-AMI cardiac outcomes: a composite measure that includes records with a diagnosis for stroke, arrhythmia, heart failure, unstable angina or chest pain in the inpatient or ER settings.

These measures were constructed for both resource use and expenditures. To examine potential drivers of these results, the length of hospital stays related to acute cardiac events, AMI, or non-AMI acute cardiac events were also assessed.

Additionally, Acumen evaluated the effect of the intervention on medication adherence for all drug classes for which GlowCaps were administered, with the exception of aspirin, which is also administered over the counter and cannot be reliably observed in prescription claims. These drugs included beta blockers, statins, and platelet blockers. Section 1.2.2 provides additional information on the PDC metric used to evaluate these adherence outcomes.

4.4.2 Results

The following sections describe key findings from the single difference analyses comparing each outcome measure between the intervention and control groups for the mixed-payer HeartStrong cohort. Appendix A provides detailed measure definitions for the measures evaluated in the remainder of this sections, while Appendix E provides detailed results.

Mortality and Inpatient Readmissions

The HeartStrong intervention was not associated with any statistically significant changes in in-hospital mortality and inpatient readmissions across the one-year intervention period (see Table 4-2). The quarterly estimates, shown in Appendix E.2, follow no consistent pattern over time, with small increases and decreases across the four quarters after enrollment. Given the limited sample size and the relatively short follow up period available for analysis, it is possible that effects of the HeartStrong MM intervention cannot be observed on downstream outcomes such as mortality and readmissions within the observation period. Further, this analysis cannot capture the full effect of the intervention on mortality given the lack of information on deaths outside the hospital.

Table 4-2: Mortality and Inpatient Readmissions: Cumulative Differences after HeartStrong Enrollment, Mixed Payer Cohort for the Full Intervention Period (1 Year)

Measures	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
In-Hospital Mortality		
<i>Number of Participants</i>	658	1,000
<i>Difference^a</i>	-0.63	-1.09
<i>90% Confidence Interval</i>	(-11.6 10.3)	(-20.0 17.8)
<i>80% Confidence Interval</i>	(-9.2 7.9)	(-15.8 13.7)
<i>P-Value</i>	0.924	0.924
30-Day Hospital Readmissions Following All Inpatient Admissions		
<i>Number of Participants</i>	158	1,000
<i>Difference^a</i>	-1.74	-31.17
<i>90% Confidence Interval</i>	(-21.6 18.1)	(-387.8 325.4)
<i>80% Confidence Interval</i>	(-17.2 13.8)	(-309.0 246.7)
<i>P-Value</i>	0.886	0.866

Note: Results are cumulative across all available quarters.

Health Service Resource Use

The HeartStrong intervention cohort was not associated with statistically significant decreases in total ER visits, inpatient admissions or hospital days across the year after program enrollment (see Table 4-3). Results for quarterly estimates were similar (see Appendix E.3.)

Table 4-3: Aggregate Resource Use: Cumulative Differences after HeartStrong Enrollment, Mixed Payer Cohort for the Full Intervention Period (1 Year)

Measures	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
<i>Number of Participants</i>	658	1,000
ER Visits		
<i>Difference</i>	-15.13	-26.21
<i>90% Confidence Interval</i>	(-127.9 97.6)	(-221.4 169.0)
<i>80% Confidence Interval</i>	(-103.0 72.7)	(-178.3 125.9)
<i>P-Value</i>	0.825	0.825
Inpatient Admissions		
<i>Difference</i>	-39.54	-68.46
<i>90% Confidence Interval</i>	(-192.6 113.5)	(-333.5 196.6)
<i>80% Confidence Interval</i>	(-158.8 79.7)	(-275.0 138.0)
<i>P-Value</i>	0.671	0.671
Hospital Days		

Measures	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
<i>Difference</i>	226.96	393.00
<i>90% Confidence Interval</i>	(-296.6 750.5)	(-513.6 1,299.6)
<i>80% Confidence Interval</i>	(-181.0 634.9)	(-313.4 1,099.4)
<i>P-Value</i>	0.476	0.476

Note: Results are cumulative across all available quarters.

There were no cumulative effects on most resource use measures related to cardiovascular events (including the rate of acute AMI events, broader acute cardiac events or acute cardiac hospital days), with the exception of a higher number of AMI related hospital days among intervention enrollees, which is unlikely to reflect program effects (see Table 4-4). This result is more likely to reflect statistical noise due to small sample size; cumulatively, there were only 57 and 25 participants with an acute AMI-related event following program enrollment in the intervention and control groups, respectively. As Figure 4-1 shows, the number of AMI-related hospital days was also higher among intervention enrollees than among controls prior to program enrollment, and this difference persisted in the intervention period. Moreover, given that the intervention was not associated with increased occurrence of AMI-related acute events (inpatient admissions and ER visits) or any other cardiovascular outcome, it is unlikely that the association between the HeartStrong intervention and a higher number of AMI hospital days is causal.

Table 4-4: Aggregate Cardiovascular-Related Resource Use: Cumulative Differences after HeartStrong Enrollment, Mixed Payer Cohort for the Full Intervention Period (1 Year)

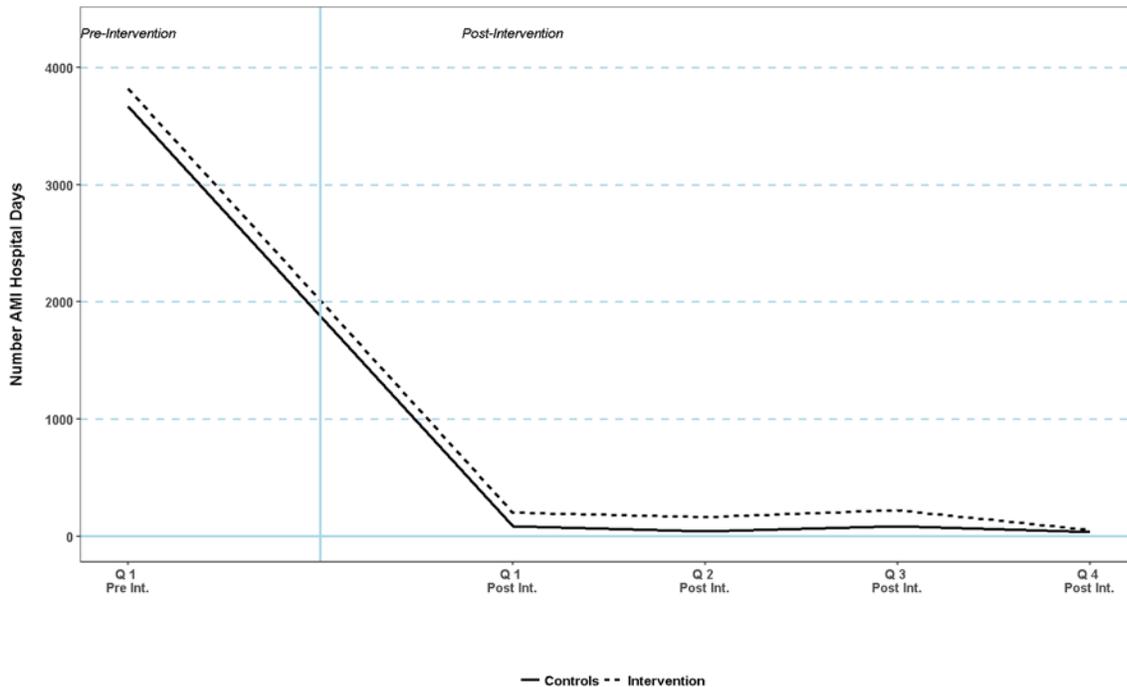
Measures	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
<i>Number of Participants</i>	658	1,000
Acute Cardiac Hospital Days		
<i>Difference</i>	333.63	577.72
<i>90% Confidence Interval</i>	(-32.6 699.8)	(-56.4 1,211.8)
<i>80% Confidence Interval</i>	(48.3 619.0)	(83.7 1,071.8)
<i>P-Value</i>	0.134	0.134
AMI Hospital Days		
<i>Difference</i>	229.40**	397.23**
<i>90% Confidence Interval</i>	(60.0 398.8)	(104.0 690.5)
<i>80% Confidence Interval</i>	(97.4 361.4)	(168.7 625.7)
<i>P-Value</i>	0.026	0.026
Non-AMI Cardiac Hospital Days		
<i>Difference</i>	158.13	273.82
<i>90% Confidence Interval</i>	(-164.8 481.1)	(-285.4 833.1)

Measures	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
80% Confidence Interval	(-93.5 409.8)	(-161.9 709.5)
P-Value	0.421	0.421
Acute Cardiac Events		
Difference	-27.30	-47.28
90% Confidence Interval	(-149.7 95.1)	(-259.3 164.8)
80% Confidence Interval	(-122.7 68.1)	(-212.5 117.9)
P-Value	0.714	0.714
Acute AMI Events		
Difference	16.39	28.38
90% Confidence Interval	(-22.6 55.3)	(-39.1 95.8)
80% Confidence Interval	(-14.0 46.7)	(-24.2 80.9)
P-Value	0.489	0.489
Acute Non-AMI Cardiac Events		
Difference	-46.34	-80.25
90% Confidence Interval	(-158.2 65.5)	(-274.0 113.5)
80% Confidence Interval	(-133.5 40.8)	(-231.2 70.7)
P-Value	0.496	0.496

Note: Results are cumulative across all available quarters.

** Statistically significant at the five percent level.

Figure 4-1: Number of AMI-Related Hospital Days per 1,000 Enrollees: Quarterly Trends for Participants and Controls, HeartStrong Mixed Payer Cohort



Medical and Drug Expenditures

The HeartStrong intervention was not associated with statistically significant cumulative effects on total medical, inpatient, or outpatient ER expenditures for the full cohort, but was associated with lower total medical and drug expenditures (based on enrollees in four of the five participating insurers) and lower outpatient non-ER expenditures. Specifically, among the 420 intervention group enrollees included in the cohort, which excludes the insurer whose drug claims did not report total cost as discussed in Section 4.3, total medical and drug expenditures were lower by a total of \$2,936,362 relative to controls (p-value: 0.075) cumulatively across the one-year intervention period, as shown in Table 4-5. Additionally, among the full intervention cohort of 658 enrollees, outpatient non-ER costs were lower by a total of \$1,232,253 relative to controls (p-value: 0.085)

Table 4-5: Aggregate Expenditures: Cumulative Differences Estimates after HeartStrong Enrollment, Mixed Payer Cohort for the Full Intervention Period (1 Year)

Measures (USD)	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
Total Medical and Drug Expenditures^a		
<i>Number of Participants</i>	420	1,000
<i>Difference</i>	-2,936,362*	-7,686,811*
<i>90% Confidence Interval</i>	(-5,646,779 -225,945)	(-14,782,144 -591,480)
<i>80% Confidence Interval</i>	(-5,048,124 -824,600)	(-13,214,984 -2,158,639)
<i>P-Value</i>	0.075	0.075
Total Medical Expenditures		
<i>Number of Participants</i>	658	1,000
<i>Difference</i>	-1,209,639	-2,094,612
<i>90% Confidence Interval</i>	(-3,977,437 1,558,159)	(-6,887,336 2,698,112)
<i>80% Confidence Interval</i>	(-3,366,108 946,830)	(-5,828,758 1,639,533)
<i>P-Value</i>	0.472	0.472
Inpatient Expenditures		
<i>Number of Participants</i>	658	1,000
<i>Difference</i>	168,773	292,248
<i>90% Confidence Interval</i>	(-2,290,391 2,627,937)	(-3,966,045 4,550,541)
<i>80% Confidence Interval</i>	(-1,747,231 2,084,777)	(-3,025,508 3,610,003)
<i>P-Value</i>	0.910	0.910
Outpatient ER Expenditures		
<i>Number of Participants</i>	658	1,000
<i>Difference</i>	-146,159	-253,089
<i>90% Confidence Interval</i>	(-350,000 57,682)	(-606,060 99,882)

Measures (USD)	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
<i>80% Confidence Interval</i>	(-304,977 12,660)	(-528,099 21,921)
<i>P-Value</i>	0.238	0.238
Outpatient Non-ER Expenditures		
<i>Number of Participants</i>	658	1,000
<i>Difference</i>	-1,232,253*	-2,133,771*
<i>90% Confidence Interval</i>	(-2,407,955 -56,551)	(-4,169,620 -97,923)
<i>80% Confidence Interval</i>	(-2,148,276 -316,230)	(-3,719,958 -547,585)
<i>P-Value</i>	0.085	0.085

Note: Results are cumulative across all available quarters.

^aInsurer A enrollees were excluded from the Total Medical and Drug Costs outcome due to the exclusion of beneficiary co-pay from the drug costs reported in the data for this insurer.

* Statistically significant at the ten percent level.

The analyses did not find statistically significant differences in most cardiovascular event-related expenditures with the exception of higher acute AMI event expenditures observed for the intervention group relative to controls, which is likely related to the AMI hospital days measure discussed above and also unlikely to reflect program effects. Aggregate acute AMI event expenditure was higher by \$354,043 among 658 intervention enrollees relative to controls (p-value: 0.057) in the year after program enrollment (see Table 4-6). There was no corresponding increase in expenditures related to a broader range of acute cardiovascular events (Table 4-6).

Table 4-6: Aggregate Cardiovascular-Related Expenditures: Cumulative Difference Estimates after HeartStrong Enrollment, Mixed Payer Cohort for the Full Intervention Period (1 Year)

Measures (USD)	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
<i>Number of Participants</i>	658	1,000
Acute Cardiac Events Expenditures		
<i>Difference</i>	5,283	9,149
<i>90% Confidence Interval</i>	(-846,552 857,119)	(-1,465,891 1,484,189)
<i>80% Confidence Interval</i>	(-658,405 668,972)	(-1,140,096 1,158,394)
<i>P-Value</i>	0.992	0.992
Acute AMI Event Expenditures		
<i>Difference</i>	354,043*	613,061*
<i>90% Confidence Interval</i>	(48,035 660,051)	(83,177 1,142,945)
<i>80% Confidence Interval</i>	(115,623 592,462)	(200,214 1,025,908)

Measures (USD)	Full Intervention Period: Across All Enrollees	Full Intervention Period: Per 1,000 Enrollees
<i>P-Value</i>	0.057	0.057
Acute Non-AMI Cardiac Event Expenditures		
<i>Difference</i>	-412,266	-713,880
<i>90% Confidence Interval</i>	(-1,183,446 358,914)	(-2,049,257 621,497)
<i>80% Confidence Interval</i>	(-1,013,114 188,582)	(-1,754,310 326,550)
<i>P-Value</i>	0.379	0.379

Note: Results are cumulative across all available quarters.

* Statistically significant at the ten percent level.

Medication Adherence

The HeartStrong intervention was not associated with cumulative statistically significant changes in medication adherence for any of the three evaluated drug categories for which GlowCaps were administered (see Table 4-7).

However, the single difference medication adherence estimates should be interpreted in the context of the sample size and the high adherence among controls. Individuals eligible for measures of medication adherence for each of the therapeutic classes do not represent the full share of program participants for a given therapeutic class, further reducing statistical power of an already small sample size. Appendix E.5, which presents summary statistics on medication adherence, shows that the HeartStrong control cohort was largely adherent to targeted medications during the intervention period. Specifically, the median PDC ranged from 88%-95% among the control population. This suggests there may not have been a large enough potential margin for improvement to observe intervention effects on medication adherence for the intervention cohort.

Table 4-7: Medication Adherence (Proportion of Days Covered) by Medication Type: Difference Estimates after HeartStrong Enrollment, Mixed Payer Cohort

Measures	Full Intervention Period (1 Year)
Beta Blockers	
<i>Number of Participants</i>	403
<i>Difference</i>	0.26
<i>90% Confidence Interval</i>	(-2.89 3.40)
<i>80% Confidence Interval</i>	(-2.19 2.70)
<i>P-Value</i>	0.894
Platelet Blockers	

Measures	Full Intervention Period (1 Year)
<i>Number of Participants</i>	234
<i>Difference</i>	-0.4
<i>90% Confidence Interval</i>	(-5.10 4.31)
<i>80% Confidence Interval</i>	(-4.06 3.27)
<i>P-Value</i>	0.890
Statins	
<i>Number of Participants</i>	432
<i>Difference</i>	0.14
<i>90% Confidence Interval</i>	(-2.78 3.07)
<i>80% Confidence Interval</i>	(-2.14 2.43)
<i>P-Value</i>	0.935

Note: Results are cumulative across all available quarters.

APPENDIX A: OUTCOME MEASURE SPECIFICATIONS BY AWARDEE

The tables below define the outcome measures presented for the Welvie, Pharm2Pham, and HeartStrong programs.

Appendix Table A-1: Terms Used in Outcome Measure Definitions for Welvie

Term	Definition
Medicare FFS Expenditures	Total and setting-specific expenditures for the FFS cohort represent Medicare payments. Cost data are payment standardized using the CMS payment standardization methodology to remove differences due to geographic variation in Medicare payment rates and variation among classes of providers. All costs are adjusted monthly for inflation from a 2011 base year using the Bureau of Labor Statistics Consumer Price Index for medical care services. Cost data are not risk adjusted.
Inpatient Surgery	Inpatient surgery stays (hospital inpatient claim only). Includes inpatient stays billed with a surgical MS-DRG. Excludes stays with ICD-9-CM diagnosis codes indicating a trauma/accident. A supplementary <i>Surgery_Codes</i> Excel file with lists of MS-DRGs and ICD-9-CM diagnosis codes can be provided upon request.
Inpatient Preference-Sensitive Orthopedic Surgery	Inpatient preference-sensitive orthopedic surgery stays. Includes inpatient stays billed with a preference-sensitive orthopedic MS-DRG from major diagnostic category (MDC) 08: diseases and disorders of the musculoskeletal system and connective tissue. Also includes all Part B carrier claims billed during the surgical stay. Excludes stays with ICD-9-CM diagnosis codes for trauma/accident or fracture. A supplementary <i>Surgery_Codes</i> Excel file for list of MS-DRGs and ICD-CM diagnosis codes can be provided upon request.
Inpatient Preference-Sensitive Cardiac Surgery	Inpatient preference-sensitive cardiac surgery stays. Includes inpatient stays billed with a preference-sensitive cardiac MS-DRG from MDC 05: diseases and disorders of the circulatory system. Also includes all Part B carrier claims billed during the surgical stay. Excludes stays with ICD-9-CM diagnosis codes for trauma/accident or acute coronary syndrome. A supplementary <i>Surgery_Codes</i> Excel file with lists of MS-DRGs and ICD-CM diagnosis codes can be provided upon request.
Episode-Based Inpatient Surgery	Inpatient surgery stays and associated Part B carrier and post-acute care claims. Includes (a) inpatient stays billed with a surgical MS-DRG, (b) all Part B carrier claims billed during the surgical stays, (c) SNF stays linked to the surgical stays (i.e., the surgical stay qualified the beneficiary for SNF care), (d) home health claims beginning within 30 days of surgical stay discharge, and (e) inpatient rehabilitation facility claims beginning within 30 days of surgical stay discharge. ^b SNF, home health, and inpatient rehabilitation facility costs are prorated to include only costs incurred in the 30 days following surgical stay discharge; the average stay/claim cost per day is attributed to each day that falls in the 30 day post-discharge window. Excludes inpatient stays, inpatient rehabilitation facility stays, and home health claims with ICD-9-CM diagnosis codes indicating a trauma/ accident. Also excludes Part B Carrier ambulance claims. A supplementary <i>Surgery_Codes</i> Excel file with lists of MS-DRGs, ICD-CM diagnosis codes, and HCPCS codes can be provided upon request.
Outpatient Surgery	Outpatient surgery claims. Includes outpatient claims billed with a surgical HCPCS/CPT code and associated outpatient and Part B Carrier claims billed on the same date. ^c Excludes claims with ICD-9-CM diagnosis codes indicating a trauma/ accident. Also excludes costs for ambulance services. A supplementary <i>Surgery_Codes</i> Excel file with list of HCPCS/CPT codes, and ICD-CM diagnosis codes can be provided upon request.

Term	Definition
Outpatient Preference-Sensitive Orthopedic Surgery	Outpatient preference-sensitive orthopedic surgery claims. Includes outpatient claims billed with a preference-sensitive orthopedic HCPCS/CPT code. ^d Excludes claims with ICD-9-CM diagnosis codes indicating a trauma/accident. Also excludes costs for ambulance services. A supplementary <i>Surgery_Codes</i> Excel file with lists of HCPCS/CPT codes, and ICD-CM diagnosis codes can be provided upon request.
Outpatient Preference-Sensitive Cardiac Surgery	Outpatient preference-sensitive cardiac surgery claims. Includes outpatient claims billed with a preference-sensitive cardiac HCPCS/CPT code ^e . Excludes claims with ICD-9-CM diagnosis codes indicating a trauma/ accident. Also excludes costs for ambulance services. A supplementary <i>Surgery_Codes</i> Excel file with lists of HCPCS/CPT codes, and ICD-CM diagnosis codes can be provided upon request.

^aOutpatient preference-sensitive surgery HCPCS/CPT codes include selected HCPCS/CPTs in BETOS categories P3 (major procedure – orthopedic), P5B (ambulatory procedures – musculoskeletal), and P8A (endoscopy – arthroscopy).

^bInpatient rehabilitation facilities defined as inpatient claims with the last four digits of PROVIDER (CCN) in 3025-3099 OR third digit of “R” (CAH) or “T” (acute hospital)

^cOutpatient surgical HCPCS/CPT codes include all HCPCS/CPTs in BETOS categories P1-P3 (major procedure), P4 (eye procedure), P5 (ambulatory procedure), P8 (endoscopy), and additional codes from the surgical CPT range 10000-70000

^dOutpatient preference-sensitive orthopedic surgery HCPCS/CPT codes include selected HCPCS/CPTs in BETOS categories P3 (major procedure – orthopedic), P5B (ambulatory procedures – musculoskeletal), and P8A (endoscopy – arthroscopy)

^eOutpatient preference-sensitive cardiac surgery HCPCS/CPT codes include selected HCPCS/CPTs in BETOS categories P2D (major procedure – cardiovascular – coronary angioplasty) and P2F (major procedure – cardiovascular – other)

Appendix Table A-2: Definitions of Outcome Measures

Measure	Relevant Awardee Cohort	Definition
All-Cause Mortality per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort	Numerator: Number of deaths * 1,000 Denominator: Total number of beneficiaries.
In-Hospital Mortality per 1,000 Beneficiaries	HeartStrong Mixed Payer Cohort	Numerator: Number of deaths based on patient expiration indicated by hospital discharge status * 1,000 Denominator: Total number of beneficiaries.
Total Medical Expenditures Per Beneficiary (1 of 4 core meta-evaluation measures)	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Total medical costs. Drug costs are not included. Denominator: Total number of beneficiaries.
Total Medical and Drug Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Total Medical and Drug ^a costs. Denominator: Total number of beneficiaries.
Inpatient Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Total inpatient stay costs. Denominator: Total number of beneficiaries.

Measure	Relevant Awardee Cohort	Definition
Outpatient ER Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Total emergency room (ER)-only outpatient claim costs. Denominator: Total number of beneficiaries.
Outpatient Non-ER Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Total non-ER outpatient claim costs. Denominator: Total number of beneficiaries.
Physician and Ancillary Services Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total physician and ancillary services (Part B carrier) claim costs. Denominator: Total number of beneficiaries.
Skilled Nursing Facility Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total skilled nursing facility claim costs. Denominator: Total number of beneficiaries.
Home Health Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total home health claim costs. Denominator: Total number of beneficiaries.
Durable Medical Equipment Expenditures	Welvie FFS	Numerator: Total durable medical equipment claims costs. Denominator: Total number of beneficiaries.
Hospice Expenditures Per Beneficiary	Welvie FFS	Numerator: Total hospice claim costs. Denominator: Total number of beneficiaries.
Total Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total outpatient and inpatient surgery cost. Denominator: Total number of beneficiaries.
Total Preference-Sensitive Orthopedic Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total outpatient and inpatient preference-sensitive orthopedic surgery cost. Denominator: Total number of beneficiaries.
Total Preference-Sensitive Cardiac Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total outpatient and inpatient preference-sensitive cardiac surgery cost. Denominator: Total number of beneficiaries.
Inpatient Surgery Cost Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total inpatient surgery stay cost. Denominator: Total number of beneficiaries.
Episode-Based Inpatient Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total episode-based inpatient surgery stay cost. Denominator: Total number of beneficiaries.
Inpatient Preference-Sensitive Orthopedic Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total inpatient preference-sensitive orthopedic surgery stay cost. Denominator: Total number of beneficiaries.

Measure	Relevant Awardee Cohort	Definition
Inpatient Preference-Sensitive Cardiac Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total inpatient preference-sensitive cardiac surgery cost. Denominator: Total number of beneficiaries.
Outpatient Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total outpatient surgery claim cost. Denominator: Total number of beneficiaries.
Outpatient Preference-Sensitive Orthopedic Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total outpatient preference-sensitive orthopedic surgery claim cost. Denominator: Total number of beneficiaries.
Outpatient Preference-Sensitive Cardiac Surgery Expenditures Per Beneficiary	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Total outpatient preference-sensitive cardiac surgery claim cost. Denominator: Total number of beneficiaries.
ER Visits Per 1,000 Beneficiaries (1 of 4 core meta-evaluation measures)	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Number of beneficiaries with at least one outpatient ER claim with no inpatient admission on the same day * 1,000. Denominator: Total number of beneficiaries.
Number of ER Visits Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, HeartStrong Mixed Payer Cohort	Numerator: Number of days with an ER claim for beneficiaries with no inpatient admission on the same day * 1,000. Denominator: Total number of beneficiaries.
Inpatient Admissions Per 1,000 Beneficiaries (1 of 4 core meta-evaluation measures)	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	Numerator: Number of beneficiaries with at least one inpatient stay * 1,000. Denominator: Total number of beneficiaries.
Number of Inpatient Admissions Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	Numerator: Number of inpatient stays * 1,000. Denominator: Total number of beneficiaries.
Unplanned Inpatient Admission Rate Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort	Numerator: Number of beneficiaries with at least one unplanned inpatient stay * 1,000. Denominator: Total number of beneficiaries.
Unplanned Inpatient Admissions Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort	Numerator: Number of unplanned inpatient stays * 1,000. Denominator: Total number of beneficiaries.
30-Day Hospital Readmissions Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	Numerator: Number of beneficiaries with an inpatient stay admission within 30 days of discharge from a previous inpatient stay * 1,000. Denominator: Number of beneficiaries with an inpatient stay.

Measure	Relevant Awardee Cohort	Definition
30-Day Hospital Readmissions Following Inpatient Surgery Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with an inpatient stay admission within 30 days of discharge from an inpatient surgery stay * 1,000. Denominator: Number of beneficiaries with an inpatient surgery stay.
30-Day Hospital Readmissions Following Preference-Sensitive Orthopedic Surgery Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with an inpatient stay admission within 30 days of discharge from an inpatient preference-sensitive orthopedic surgery stay * 1,000. Denominator: Number of beneficiaries with an inpatient preference-sensitive orthopedic surgery stay.
30-Day Hospital Readmissions Following Preference-Sensitive Cardiac Surgery Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with an inpatient stay admission within 30 days of discharge from an inpatient preference-sensitive cardiac surgery stay * 1,000. Denominator: Number of beneficiaries with an inpatient preference-sensitive cardiac surgery stay.
30-Day Hospital Readmissions Per 1,000 Beneficiaries (1 of 4 core meta-evaluation measures)	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	Numerator: Number of beneficiaries with an unplanned inpatient stay admission within 30 days of discharge from a previous inpatient stay * 1,000 Denominator: Number of beneficiaries with an inpatient stay.
Number of Hospital Days Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas, Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	Numerator: Total number of inpatient days * 1,000. Denominator: Total number of beneficiaries.
Total Surgery Rate Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with at least one inpatient surgery stay or outpatient surgery claim * 1,000. Denominator: Total number of beneficiaries.
Number of All Surgeries Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of inpatient surgery stays and outpatient surgery claims * 1,000. Denominator: Total number of beneficiaries.
Inpatient Surgery Rate Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with at least one inpatient surgery stay * 1,000. Denominator: Total number of beneficiaries.
Number of Inpatient Surgeries Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of inpatient surgery stays * 1,000. Denominator: Total number of beneficiaries.

Measure	Relevant Awardee Cohort	Definition
Outpatient Surgery Rate Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with at least one outpatient surgery claim * 1,000. Denominator: Total number of beneficiaries.
Number of Outpatient Surgeries Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of outpatient surgery claims * 1,000. Denominator: Total number of beneficiaries.
Number of Surgical Hospital Days Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Number of inpatient surgery stay days * 1,000. Denominator: Total number of beneficiaries.
Inpatient Preference-Sensitive Orthopedic Surgery Rate Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with at least one inpatient preference-sensitive orthopedic surgery stay * 1,000. Denominator: Total number of beneficiaries.
Number of Inpatient Orthopedic Preference-Sensitive Surgeries Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of inpatient preference-sensitive orthopedic surgery stays * 1,000. Denominator: Total number of beneficiaries.
Number of Inpatient Preference-Sensitive Orthopedic Surgery Hospital Days Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of inpatient preference-sensitive orthopedic surgery stay days * 1,000. Denominator: Total number of beneficiaries.
Inpatient Preference-Sensitive Cardiac Surgery Rate Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of beneficiaries with at least one inpatient preference-sensitive cardiac surgery stay * 1,000. Denominator: Total number of beneficiaries.
Number of Inpatient Cardiac Preference-Sensitive Surgeries Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of inpatient preference-sensitive cardiac surgery stays * 1,000. Denominator: Total number of beneficiaries.
Number of Inpatient Preference-Sensitive Cardiac Surgery Hospital Days Per 1,000 Beneficiaries	Welvie FFS, Welvie MA Ohio, Welvie MA Texas	Numerator: Number of inpatient preference-sensitive cardiac surgery stay days * 1,000. Denominator: Total number of beneficiaries.
Proportion of Days Covered (PDC) measure for adherence to diabetes medications	Pharm2Pharm Combined Cohort	Numerator: Number of days the patient was covered by at least one drug in the class based on prescription fill dates and days of supply * 100. Denominator: Number of days in patient's measurement period (index prescription date to the end of calendar year, disenrollment, or death).

Measure	Relevant Awardee Cohort	Definition
PDC measure for adherence to RAS antagonists	Pharm2Pharm Combined Cohort	<p>Numerator: Number of days the patient was covered by at least one drug in the class based on prescription fill dates and days of supply * 100.</p> <p>Denominator: Number of days in patient's measurement period (index prescription date to the end of calendar year, disenrollment, or death).</p>
PDC measure for adherence to Beta Blockers	Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	<p>Numerator: Number of days the patient was covered by at least one drug in the class based on prescription fill dates and days of supply * 100.</p> <p>Denominator: Number of days in patient's measurement period (index prescription date to the end of calendar year, disenrollment, or death).</p>
PDC measure for adherence to Calcium Channel Blockers	Pharm2Pharm Combined Cohort	<p>Numerator: Number of days the patient was covered by at least one drug in the class based on prescription fill dates and days of supply * 100.</p> <p>Denominator: Number of days in patient's measurement period (index prescription date to the end of calendar year, disenrollment, or death).</p>
PDC Measure of adherence to statins	Pharm2Pharm Combined Cohort, HeartStrong Mixed Payer Cohort	<p>Numerator: Number of days the patient was covered by at least one drug in the class based on prescription fill dates and days of supply * 100.</p> <p>Denominator: Number of days in patient's measurement period (index prescription date to the end of calendar year, disenrollment, or death).</p>
PDC Measure of adherence to platelet blockers	HeartStrong Mixed Payer Cohort	<p>Numerator: Number of days the patient was covered by at least one drug in the category based on prescription fill dates and days of supply * 100.</p> <p>Denominator: Number of days in patient's measurement period (index prescription date to the end of calendar year, disenrollment, or death).</p>
Acute Cardiac Hospital Days Per 1,000 Beneficiaries ^c	HeartStrong Mixed Payer Cohort	<p>Numerator: Total number of days with an inpatient claim related to an acute cardiovascular event * 1,000.</p> <p>Denominator: Total number of beneficiaries.</p>
AMI Hospital Days Per 1,000 Beneficiaries	HeartStrong Mixed Payer Cohort	<p>Total number of days with an inpatient claim related to an AMI * 1,000.</p> <p>Denominator: Total number of beneficiaries.</p>

Measure	Relevant Awardee Cohort	Definition
Non-AMI Cardiac Hospital Days Per 1,000 Beneficiaries ^d	HeartStrong Mixed Payer Cohort	Numerator: Total number of days with an inpatient claim related to a non-AMI acute cardiovascular event * 1,000. Denominator: Total number of beneficiaries.
Acute Cardiac Events Per 1,000 Beneficiaries	HeartStrong Mixed Payer Cohort	Numerator: Number of inpatient stays or ER visits related to an acute cardiovascular event * 1,000. Denominator: Total number of beneficiaries.
Acute AMI Events Per 1,000 Beneficiaries	HeartStrong Mixed Payer Cohort	Numerator: Number of inpatient stays and ER visits related to an AMI * 1,000. Denominator: Total number of beneficiaries.
Acute Non-AMI Cardiac Events Per 1,000 Beneficiaries	HeartStrong Mixed Payer Cohort	Numerator: Number of inpatient stays and ER visits related to a non-AMI acute cardiovascular event * 1,000. Denominator: Total number of beneficiaries.
Acute Cardiac Events Expenditures per Beneficiary	HeartStrong Mixed Payer Cohort	Numerator: Total inpatient and ER claim cost related to a cardiovascular event. Denominator: Total number of beneficiaries.
Acute AMI Expenditures per Beneficiary	HeartStrong Mixed Payer Cohort	Numerator: Total inpatient and ER claim cost related to an AMI. Denominator: Total number of beneficiaries.
Acute Non-AMI Cardiac Expenditures per Beneficiary	HeartStrong Mixed Payer Cohort	Numerator: Total inpatient and ER claim cost related to a non-AMI cardiovascular event. Denominator: Total number of beneficiaries.

^a(a) For beneficiaries without a low-income subsidy, Part D costs are estimated as $(0.75 * \text{Covered D Plan Paid prior to the catastrophic phase}) + [0.75 * (\text{Covered D Plan Paid in the catastrophic phase} - 80\% \text{ Above Out of Pocket Threshold})] + 80\% \text{ Above Out of Pocket Threshold} + \text{Low Income Cost-Sharing Subsidy Amount}$.

(b) For beneficiaries with a low-income subsidy, Part D costs are estimated as $\text{Covered D Plan Paid} + \text{Low Income Cost-Sharing Subsidy Amount}$.

^b For the HeartStrong mixed payer cohort, IP stays could not be limited to unplanned stays, because this field was not available in the claims data provided by UPenn.

^c “Acute Cardiac” outcomes measure the following categories of cardiovascular events: AMI, stroke, arrhythmia, heart failure, unstable angina, and chest pain.

^d “Acute non-AMI Cardiac” outcomes measure the following categories of cardiovascular events: stroke, arrhythmia, heart failure, unstable angina, chest pain.

APPENDIX B: RESULTS FOR WELVIE

The following tables provide the baseline demographic and health characteristics for intervention and comparison group beneficiaries in the Welvie Medicare Parts A and B Ohio (using CWF data) and Medicare Advantage Ohio and Texas cohorts (using MA claims data provided by Welvie). Subsequent tables provide mortality and readmission rates; health service utilization; and medical costs results for these cohorts.

B.1 Demographic and Health Characteristics

Appendix Table B-1: Welvie Baseline Demographic and Health Characteristics, Ohio FFS ITT Analysis Cohort

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Number of Beneficiaries	58,582	49,195		
Average Age (Years)	76.45	76.72	-0.27	0.03
Age under 65	0%	0%	0%	0.00
Gender				
Male	43%	42%	1%	0.01
Female	57%	58%	-1%	0.01
Race				
White	92%	92%	0%	0.01
Black	6%	6%	0%	0.00
Other	2%	1%	0%	0.00
Dual Eligible	8%	10%	-2%	0.08
Medicare Eligibility				
Disabled	9%	10%	-1%	0.02
ESRD	0%	0%	0%	0.00
Aged	91%	90%	1%	0.02
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name				
Any targeted diagnosis	92%	92%	0%	0.01
Knee diagnosis	25%	25%	-1%	0.02
Hip diagnosis	23%	23%	0%	0.01
Back diagnosis	35%	34%	1%	0.01
Heart diagnosis	41%	41%	-1%	0.01
Evaluation and Management (E&M) Visits				
E&M Visits: 0	9%	10%	-1%	0.04
E&M Visits: 1-5	35%	36%	0%	0.01
E&M Visits: 6-10	28%	28%	0%	0.01
E&M Visits: 11-15	14%	14%	1%	0.02

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
E&M Visits: 16+	13%	12%	0%	0.01
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 SNF Stays (Prior Year)	94%	93%	1%	0.03
1 SNF Stay (Prior Year)	3%	3%	0%	0.01
2+ SNF Stays (Prior Year)	3%	4%	0%	0.03
0 IP Stays (1Q Prior)	93%	93%	0%	0.01
1 IP Stay (Prior Year)	5%	6%	0%	0.01
2+ IP Stays (Prior Year)	2%	2%	0%	0.01
0 IP Stays (Prior Year)	80%	80%	0%	0.01
1 IP Stay (Prior Year)	13%	13%	0%	0.00
2+ IP Stays (Prior Year)	7%	7%	0%	0.01
ER Visits (Pre-Enrollment Quarter)				
ER Visits: 0	92%	91%	0%	0.01
ER Visits: 1	7%	7%	0%	0.01
ER Visits: 2+	1%	1%	0%	0.00
Medical Cost per Beneficiary				
Cost (4Q Prior)	\$1,945	\$2,070	-124	0.02
Cost (3Q Prior)	\$1,955	\$1,997	-42	0.01
Cost (2Q Prior)	\$2,149	\$2,196	-47	0.01
Cost (1Q Prior)	\$2,239	\$2,373	-134	0.02
IP Cost (Prior Year)	\$2,510	\$2,584	-74	0.01
IP Cost (1Q Prior)	\$744	\$779	-36	0.01
Frailty Measures				
Home Oxygen	4%	4%	0%	0.00
Urinary Catheter	1%	1%	0%	0.01
Wheelchair Use	1%	1%	0%	0.02
Walker Use	1%	1%	0%	0.01
Charlson Score	0.29	0.30	-0.01	0.01
Area Deprivation Index (ADI)	101.16	101.16	0.00	0.00
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)				
Acute cerebrovascular disease (IP)	1%	1%	0%	0.01
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%	0%	0.00
AMI (IP)	1%	1%	0%	0.00
AMI (IP, 30 days prior)	0%	0%	0%	0.00
Cerebrovascular disease	15%	16%	-1%	0.02
Parkinson's disease and multiple sclerosis	2%	2%	0%	0.01
Asthma	22%	23%	-1%	0.01
Coagulation and hemorrhagic disorders	5%	5%	0%	0.01

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Congestive heart failure (All Settings)	12%	13%	-1%	0.03
Congestive heart failure (IP)	1%	1%	0%	0.01
Coronary atherosclerosis	28%	28%	0%	0.01
Dementia	9%	11%	-2%	0.06
Diabetes mellitus without complication	34%	35%	-1%	0.02
Diabetes mellitus with complications	15%	16%	0%	0.01
Cardiac dysrhythmias, arrest and ventricular fibrillation	28%	28%	0%	0.01
Fluid and electrolyte disorders	15%	15%	-1%	0.02
Gastrointestinal hemorrhage (All Settings)	5%	5%	0%	0.00
Gastrointestinal hemorrhage (IP)	1%	1%	0%	0.01
Other heart disease	48%	48%	0%	0.01
Heart valve disorder	14%	14%	0%	0.00
Hepatitis	1%	1%	0%	0.01
Hypertension with complications	12%	12%	0%	0.01
Stomach, pancreas and lung cancer	2%	1%	0%	0.01
Peri- endo- and myocarditis	5%	5%	0%	0.00
Disorders of nervous system	10%	11%	-1%	0.04
Other cancers	16%	16%	0%	0.01
Paralysis	1%	1%	0%	0.01
Pneumonia	11%	11%	0%	0.01
Pneumonia (IP, 30 days prior)	0%	0%	0%	0.01
Pulmonary heart disease	4%	4%	0%	0.00
Renal failure	15%	15%	0%	0.01
Respiratory failure (IP)	0%	0%	0%	0.00
Respiratory failure (IP, 30 days prior)	0%	0%	0%	0.00
Rheumatoid arthritis and related disease	3%	3%	0%	0.01
Septicemia	2%	2%	0%	0.01
Shock	0%	1%	0%	0.01
Tuberculosis	0%	0%	0%	0.00
Procedures (Pre-Enrollment Year)				
Bypass and PTCA (IP)	1%	1%	0%	0.00
Heart valve procedures (IP)	0%	0%	0%	0.00
Hemodialysis	1%	1%	0%	0.00
Peritoneal dialysis	1%	1%	0%	0.00
Procedures on vessels of head and neck (IP)	3%	3%	0%	0.01
Radiology and chemotherapy	3%	3%	0%	0.01
Respiratory intubation and mechanical ventilation	1%	1%	0%	0.00
Blood transfusion	3%	3%	0%	0.01

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Blood transfusion (IP)	2%	3%	0%	0.01
Transportation	0.17	0.20	-0.02	0.06
HCC Risk Score	1.25	1.30	-0.05	0.04

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

Appendix Table B-2: Welvie Baseline Demographic and Health Characteristics, Ohio MA ITT Analysis Cohort

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
<i>Number of Beneficiaries</i>	97,380	94,915		
Average Age (Years)	74.83	74.92	-0.08	0.01
Age under 65	0%	0%	0%	0.01
Gender				
Male	43%	43%	0%	0.00
Female	57%	57%	0%	0.00
Race				
White	90%	90%	0%	0.01
Black	8%	8%	0%	0.01
Other	2%	2%	0%	0.00
Dual Eligible	7%	7%	0%	0.00
Medicare Eligibility				
Disabled	11%	12%	-1%	0.02
ESRD	0%	0%	0%	0.00
Aged	89%	88%	1%	0.02
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name				
Any targeted diagnosis	83%	83%	0%	0.01
Knee diagnosis	17%	17%	0%	0.00
Hip diagnosis	15%	15%	0%	0.00
Back diagnosis	24%	24%	0%	0.00
Heart diagnosis	30%	30%	0%	0.00
Evaluation and Management (E&M) Visits				
E&M Visits: 0	16%	16%	0%	0.01
E&M Visits: 1-5	52%	53%	-1%	0.02
E&M Visits: 6-10	22%	21%	0%	0.01
E&M Visits: 11-15	7%	7%	0%	0.01
E&M Visits: 16+	4%	3%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 SNF Stays (Prior Year)	97%	96%	0%	0.01
1 SNF Stay (Prior Year)	2%	2%	0%	0.00
2+ SNF Stays (Prior Year)	1%	1%	0%	0.01
<i>IP Stay before study enrollment</i>				
0 IP Stays (1Q Prior)	95%	95%	0%	0.00
1 IP Stay (Prior Year)	4%	4%	0%	0.00
2+ IP Stays (Prior Year)	1%	1%	0%	0.00
0 IP Stays (Prior Year)	88%	88%	0%	0.01
1 IP Stay (Prior Year)	8%	9%	0%	0.01
2+ IP Stays (Prior Year)	3%	4%	0%	0.01
ER Visits (Pre-Enrollment Quarter)				
ER Visits: 0	93%	93%	0%	0.01
ER Visits: 1	6%	6%	0%	0.01
ER Visits: 2+	1%	1%	0%	0.01
Medical Cost per Beneficiary				
Cost (4Q Prior)	\$222	\$217	5	0.00
Cost (3Q Prior)	\$1,105	\$1,143	-38	0.01
Cost (2Q Prior)	\$1,392	\$1,451	-59	0.01
Cost (1Q Prior)	\$1,478	\$1,509	-31	0.01
IP Cost (Prior Year)	\$1,382	\$1,431	-49	0.01
IP Cost (1Q Prior)	\$500	\$500	0	0.00
Frailty Measures				
Home Oxygen	3%	3%	0%	0.00
Urinary Catheter	0%	0%	0%	0.00
Wheelchair Use	0%	0%	0%	0.01
Walker Use	1%	0%	0%	0.01
Charlson Score	0.11	0.12	-0.01	0.01
Area Deprivation Index (ADI)	100.50	100.62	-0.13	0.01
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)				
Acute cerebrovascular disease (IP)	0%	0%	0%	0.01
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%	0%	0.00
AMI (IP)	0%	0%	0%	0.00
AMI (IP, 30 days prior)	0%	0%	0%	0.00
Cerebrovascular disease	10%	10%	0%	0.01
Parkinson's disease and multiple sclerosis	1%	1%	0%	0.00
Asthma	16%	16%	0%	0.00
Coagulation and hemorrhagic disorders	3%	3%	0%	0.01
Congestive heart failure (All Settings)	8%	8%	0%	0.00
Congestive heart failure (IP)	1%	1%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Coronary atherosclerosis	19%	19%	0%	0.01
Dementia	5%	5%	0%	0.01
Diabetes mellitus without complication	28%	28%	0%	0.00
Diabetes mellitus with complications	12%	12%	0%	0.00
Cardiac dysrhythmias, arrest and ventricular fibrillation	19%	19%	0%	0.00
Fluid and electrolyte disorders	8%	8%	0%	0.00
Gastrointestinal hemorrhage (All Settings)	3%	3%	0%	0.01
Gastrointestinal hemorrhage (IP)	0%	0%	0%	0.01
Other heart disease	35%	35%	0%	0.00
Heart valve disorders	9%	9%	0%	0.00
Hepatitis	0%	0%	0%	0.00
Hypertension with complications	7%	7%	0%	0.00
Stomach, pancreas and lung cancer	1%	1%	0%	0.00
Peri- endo- and myocarditis	3%	3%	0%	0.01
Disorders of nervous system	6%	6%	0%	0.01
Other cancers	10%	10%	0%	0.00
Paralysis	1%	1%	0%	0.01
Pneumonia	6%	6%	0%	0.00
Pneumonia (IP, 30 days prior)	0%	0%	0%	0.00
Pulmonary heart disease	2%	2%	0%	0.00
Renal failure	9%	9%	0%	0.00
Respiratory failure (IP)	0%	0%	0%	0.00
Respiratory failure (IP, 30 days prior)	0%	0%	0%	0.01
Rheumatoid arthritis and related disease	2%	2%	0%	0.00
Septicemia	1%	1%	0%	0.01
Shock	0%	0%	0%	0.00
Tuberculosis	0%	0%	0%	0.01
Procedures (2Q Pre-Enrollment)				
Bypass and PTCA (IP)	1%	1%	0%	0.00
Heart valve procedures (IP)	0%	0%	0%	0.01
Hemodialysis	0%	0%	0%	0.00
Peritoneal dialysis	0%	0%	0%	0.00
Procedures on vessels of head and neck (IP)	1%	1%	0%	0.00
Radiology and chemotherapy	2%	2%	0%	0.00
Respiratory intubation and mechanical ventilation	1%	1%	0%	0.00
Blood transfusion	2%	2%	0%	0.01
Blood transfusion (IP)	1%	1%	0%	0.01
Transportation	0.10	0.11	0.00	0.02

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
HCC Risk Score	1.14	1.16	-0.02	0.02

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

Appendix Table B-3: Welvie Baseline Demographic and Health Characteristics, Texas MA ITT Analysis Cohort

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Number of Beneficiaries	63,979	63,759		
Average Age (Years)	70.01	70.02	-0.01	0.00
Age under 65	19%	19%	0%	0.00
Gender				
Male	47%	46%	1%	0.01
Female	53%	54%	-1%	0.01
Race				
White	83%	83%	0%	0.00
Black	11%	11%	0%	0.00
Other	6%	6%	0%	0.00
Dual Eligible	8%	7%	0%	0.00
Medicare Eligibility				
Disabled	30%	30%	0%	0.00
ESRD	0%	0%	0%	0.01
Aged	70%	70%	0%	0.00
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name				
Any targeted diagnosis	87%	87%	0%	0.00
Knee diagnosis	17%	17%	0%	0.00
Hip diagnosis	16%	16%	0%	0.01
Back diagnosis	31%	30%	0%	0.00
Heart diagnosis	30%	30%	0%	0.01
Evaluation and Management (E&M) Visits				
E&M Visits: 0	11%	11%	0%	0.00
E&M Visits: 1-5	45%	45%	0%	0.00
E&M Visits: 6-10	25%	25%	0%	0.00
E&M Visits: 11-15	11%	11%	0%	0.01
E&M Visits: 16+	7%	8%	0%	0.00
Resource Use per Beneficiary (Pre-Enrollment Year)				

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
0 SNF Stays (Prior Year)	98%	98%	0%	0.00
1 SNF Stay (Prior Year)	2%	2%	0%	0.00
2+ SNF Stays (Prior Year)	1%	1%	0%	0.01
<i>IP Stay before study enrollment</i>				
0 IP Stays (1Q Prior)	95%	95%	0%	0.01
1 IP Stay (Prior Year)	4%	4%	0%	0.01
2+ IP Stays (Prior Year)	1%	1%	0%	0.01
0 IP Stays (Prior Year)	86%	86%	0%	0.00
1 IP Stay (Prior Year)	10%	9%	0%	0.00
2+ IP Stays (Prior Year)	4%	4%	0%	0.01
ER Visits (Pre-Enrollment Quarter)				
ER Visits: 0	92%	92%	0%	0.01
ER Visits: 1	7%	7%	0%	0.00
ER Visits: 2+	1%	2%	0%	0.01
Medical Cost per Beneficiary				
Cost (4Q Prior)	\$1,261	\$1,296	-35	0.01
Cost (3Q Prior)	\$1,311	\$1,358	-47	0.01
Cost (2Q Prior)	\$1,362	\$1,343	19	0.00
Cost (1Q Prior)	\$1,637	\$1,662	-25	0.00
IP Cost (Prior Year)	\$1,786	\$1,855	-69	0.01
IP Cost (1Q Prior)	\$540	\$564	-24	0.01
Frailty Measures				
Home Oxygen	0%	0%	0%	0.01
Urinary Catheter	0%	0%	0%	0.00
Wheelchair Use	0%	0%	0%	0.00
Walker Use	0%	0%	0%	0.01
Charlson Score	0.09	0.09	0.00	0.01
Area Deprivation Index (ADI)	103.36	103.45	-0.09	0.01
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)				
Acute cerebrovascular disease (IP)	1%	0%	0%	0.01
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%	0%	0.00
AMI (IP)	1%	1%	0%	0.00
AMI (IP, 30 days prior)	0%	0%	0%	0.01
Cerebrovascular disease	11%	11%	0%	0.00
Parkinson's disease and multiple sclerosis	1%	1%	0%	0.01
Asthma	17%	18%	0%	0.01
Coagulation and hemorrhagic disorders	2%	2%	0%	0.01
Congestive heart failure (All Settings)	8%	8%	0%	0.00
Congestive heart failure (IP)	1%	1%	0%	0.00
Coronary atherosclerosis	19%	19%	0%	0.00
Dementia	4%	4%	0%	0.01

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Diabetes mellitus without complication	32%	32%	0%	0.00
Diabetes mellitus with complications	16%	16%	0%	0.00
Cardiac dysrhythmias, arrest and ventricular fibrillation	18%	18%	0%	0.00
Fluid and electrolyte disorders	9%	9%	0%	0.00
Gastrointestinal hemorrhage (All Settings)	3%	3%	0%	0.00
Gastrointestinal hemorrhage (IP)	0%	0%	0%	0.00
Other heart disease	37%	36%	0%	0.00
Heart valve disorders	8%	8%	0%	0.00
Hepatitis	1%	1%	0%	0.00
Hypertension with complications	12%	12%	0%	0.00
Stomach, pancreas and lung cancer	1%	1%	0%	0.01
Peri- endo- and myocarditis	3%	3%	0%	0.01
Disorders of nervous system	9%	9%	0%	0.00
Other cancers	9%	9%	0%	0.01
Paralysis	1%	1%	0%	0.00
Pneumonia	7%	7%	0%	0.01
Pneumonia (IP, 30 days prior)	0%	0%	0%	0.00
Pulmonary heart disease	2%	2%	0%	0.00
Renal failure	10%	10%	0%	0.00
Respiratory failure (IP)	0%	0%	0%	0.01
Respiratory failure (IP, 30 days prior)	0%	0%	0%	0.01
Rheumatoid arthritis and related disease	3%	3%	0%	0.01
Septicemia	1%	1%	0%	0.01
Shock	0%	0%	0%	0.01
Tuberculosis	0%	0%	0%	0.01
Procedures (Pre-Enrollment Year)				
Bypass and PTCA (IP)	1%	1%	0%	0.00
Heart valve procedures (IP)	0%	0%	0%	0.01
Hemodialysis	0%	0%	0%	0.00
Peritoneal dialysis	0%	0%	0%	0.00
Procedures on vessels of head and neck (IP)	2%	2%	0%	0.01
Radiology and chemotherapy	2%	2%	0%	0.00
Respiratory intubation and mechanical ventilation	1%	1%	0%	0.01
Blood transfusion	2%	2%	0%	0.01
Blood transfusion (IP)	1%	2%	0%	0.01
Transportation	0.10	0.10	0.00	0.00
HCC Risk Score	0.89	0.90	0.00	0.01

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

**Appendix Table B-4: Welvie Baseline Demographic and Health Characteristics, IV
Analysis Cohorts**

Characteristics	Ohio FFS	Ohio MA	Texas MA
Number of Beneficiaries	1,133	3,919	2,630
Average Age (Years)	73.23	72.34	66.06
Age under 65	0%	2%	33%
Gender			
Male	48%	47%	45%
Female	52%	53%	55%
Race			
White	93%	91%	83%
Black	5%	7%	12%
Other	2%	3%	5%
Dual Eligible	7%	7%	10%
Medicare Eligibility			
Disabled	11%	12%	41%
ESRD	0%	0%	0%
Aged	89%	88%	59%
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name			
Any targeted diagnosis	96%	85%	91%
Knee diagnosis	29%	18%	22%
Hip diagnosis	24%	16%	20%
Back diagnosis	40%	27%	37%
Heart diagnosis	40%	29%	28%
Evaluation and Management (E&M) Visits			
E&M Visits: 0	4%	12%	8%
E&M Visits: 1-5	33%	53%	41%
E&M Visits: 6-10	32%	24%	29%
E&M Visits: 11-15	17%	7%	12%
E&M Visits: 16+	15%	4%	10%
Resource Use per Beneficiary (Pre-Enrollment Year)			
0 SNF Stays (Prior Year)	96%	98%	98%
1 SNF Stay (Prior Year)	3%	1%	1%
2+ SNF Stays (Prior Year)	1%	0%	0%
0 IP Stays (1Q Prior)	94%	96%	96%
1 IP Stay (Prior Year)	5%	3%	3%

Characteristics	Ohio FFS	Ohio MA	Texas MA
2+ IP Stays (Prior Year)	1%	1%	1%
0 IP Stays (Prior Year)	83%	91%	86%
1 IP Stay (Prior Year)	13%	8%	10%
2+ IP Stays (Prior Year)	5%	2%	4%
ER Visits (Pre-Enrollment Quarter)			
ER Visits: 0	93%	94%	92%
ER Visits: 1	6%	5%	7%
ER Visits: 2+	1%	1%	1%
Medical Cost per Beneficiary			
Cost (4Q Prior)	\$1,680	\$188	\$1,424
Cost (3Q Prior)	\$1,740	\$985	\$1,399
Cost (2Q Prior)	\$1,859	\$1,201	\$1,405
Cost (1Q Prior)	\$1,739	\$1,161	\$1,580
IP Cost (Prior Year)	\$1,826	\$1,040	\$1,656
IP Cost (1Q Prior)	\$538	\$333	\$407
Frailty Measures			
Home Oxygen	3%	2%	0%
Urinary Catheter	0%	0%	0%
Wheelchair Use	0%	0%	0%
Walker Use	0%	0%	0%
Charlson Score	2.68	1.70	1.74
Area Deprivation Index (ADI)	100.36	99.75	102.98
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)			
Acute cerebrovascular disease (IP)	1%	0%	0%
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%	0%
AMI (IP)	1%	0%	0%
AMI (IP, 30 days prior)	0%	0%	0%
Cerebrovascular disease	13%	9%	10%
Parkinson's disease and multiple sclerosis	1%	1%	2%
Asthma	23%	16%	17%
Coagulation and hemorrhagic disorders	5%	3%	2%
Congestive heart failure (All Settings)	7%	5%	7%
Congestive heart failure (IP)	1%	0%	0%
Coronary atherosclerosis	28%	19%	18%
Dementia	4%	2%	2%
Diabetes mellitus without complication	32%	29%	31%
Diabetes mellitus with complications	13%	11%	15%

Characteristics	Ohio FFS	Ohio MA	Texas MA
Cardiac dysrhythmias, arrest and ventricular fibrillation	25%	19%	18%
Fluid and electrolyte disorders	11%	7%	9%
Gastrointestinal hemorrhage (All Settings)	4%	3%	4%
Gastrointestinal hemorrhage (IP)	0%	0%	0%
Other heart disease	47%	38%	38%
Heart valve disorder	13%	9%	9%
Hepatitis	0%	1%	2%
Hypertension with complications	11%	7%	10%
Stomach, pancreas and lung cancer	1%	1%	1%
Peri- endo- and myocarditis	4%	2%	3%
Disorders of nervous system	8%	5%	10%
Other cancers	17%	12%	10%
Paralysis	1%	0%	1%
Pneumonia	7%	5%	6%
Pneumonia (IP, 30 days prior)	0%	0%	0%
Pulmonary heart disease	3%	2%	2%
Renal failure	13%	8%	8%
Respiratory failure (IP)	0%	0%	0%
Respiratory failure (IP, 30 days prior)	0%	0%	0%
Rheumatoid arthritis and related disease	4%	2%	4%
Septicemia	1%	1%	1%
Shock	0%	0%	0%
Tuberculosis	0%	0%	0%
Procedures (Pre-Enrollment Year)			
Bypass and PTCA (IP)	4%	7%	6%
Heart valve procedures (IP)	3%	3%	2%
Hemodialysis	1%	0%	0%
Peritoneal dialysis	1%	0%	0%
Procedures on vessels of head and neck (IP)	17%	18%	17%
Radiology and chemotherapy	3%	2%	1%
Respiratory intubation and mechanical ventilation	1%	1%	1%
Blood transfusion	2%	1%	2%
Blood transfusion (IP)	16%	12%	14%
Transportation	0.11	0.08	0.09
HCC Risk Score	1.06	0.94	0.97

B.2 Mortality and Readmissions

Appendix Table B-5: Cumulative and Yearly Mortality and Readmissions per 1,000 Beneficiaries, Differences after Welvie Enrollment, Ohio FFS ITT Analysis Cohort

Measures	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
Number of Participants	58,582	58,582	55,044	51,471
Mortality				
<i>Difference^c</i>	-21.51***	-10.21***	-6.55***	-4.37***
<i>90% Confidence Interval</i>	(-26.2 -16.8)	(-12.8 -7.6)	(-9.3 -3.8)	(-7.1 -1.6)
<i>80% Confidence Interval</i>	(-25.2 -17.8)	(-12.3 -8.2)	(-8.7 -4.4)	(-6.5 -2.2)
<i>P-Value</i>	<0.001	<0.001	<0.001	0.009
30-Day Hospital Readmissions Following:				
All Inpatient Admissions				
<i>Difference</i>	-42.75	-21.39	-6.52	-14.39
<i>90% Confidence Interval</i>	(-96.2 10.7)	(-51.5 8.7)	(-37.4 24.3)	(-46.1 17.3)
<i>80% Confidence Interval</i>	(-84.4 -1.1)	(-44.8 2.0)	(-30.5 17.5)	(-39.1 10.3)
<i>P-Value</i>	0.188	0.242	0.728	0.455
Inpatient Surgery Admissions				
<i>Difference</i>	-87.98	-99.85***	1.08	20.15
<i>90% Confidence Interval</i>	(-184.8 8.8)	(-154.0 -45.7)	(-55.0 57.2)	(-37.5 77.8)
<i>80% Confidence Interval</i>	(-163.4 -12.5)	(-142.0 -57.7)	(-42.6 44.8)	(-24.8 65.1)
<i>P-Value</i>	0.135	0.002	0.975	0.565
Inpatient PS ^d Orthopedic Surgery Admissions				
<i>Difference</i>	43.25	-51.55	6.51	106.58**
<i>90% Confidence Interval</i>	(-96.8 183.3)	(-129.8 26.7)	(-72.5 85.5)	(20.8 192.4)
<i>80% Confidence Interval</i>	(-65.8 152.3)	(-112.5 9.5)	(-55.0 68.1)	(39.7 173.4)
<i>P-Value</i>	0.611	0.279	0.892	0.041
Inpatient PS Cardiac Surgery Admissions				
<i>Difference</i>	12.48	-76.85	10.48	104.54
<i>90% Confidence Interval</i>	(-272.9 297.8)	(-228.5 74.8)	(-158.9 179.9)	(-71.3 280.4)
<i>80% Confidence Interval</i>	(-209.8 234.8)	(-195.0 41.3)	(-121.5 142.5)	(-32.5 241.6)
<i>P-Value</i>	0.943	0.405	0.919	0.328
30-Day Hospital Unplanned Readmissions Following All Inpatient Admission				
<i>Difference</i>	-31.43	-19.34	-0.71	-10.83
<i>90% Confidence Interval</i>	(-83.9 21.0)	(-48.8 10.2)	(-30.9 29.5)	(-42.0 20.4)
<i>80% Confidence Interval</i>	(-72.3 9.4)	(-42.3 3.7)	(-24.2 22.8)	(-35.2 13.5)

Measures	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>P-Value</i>	0.324	0.281	0.969	0.568

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cThe “difference” estimate represents the difference in the number of deaths per 1,000 beneficiaries or the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

^dPS = Preference Sensitive.

Appendix Table B-6: Cumulative and Yearly Mortality and Readmissions per 1,000 Beneficiaries, Differences after Welvie Enrollment, Ohio MA ITT Analysis Cohort

Measures	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
Number of Participants	97,380	97,380	91,230
Mortality			
<i>Difference^c</i>	-2.86*	-0.97	-0.22
<i>90% Confidence Interval</i>	(-5.6 -0.1)	(-2.5 0.5)	(-1.9 1.4)
<i>80% Confidence Interval</i>	(-5.0 -0.7)	(-2.1 0.2)	(-1.5 1.1)
<i>P-Value</i>	0.084	0.281	0.826
30-Day Hospital Readmissions Following:			
All Inpatient Admissions			
<i>Difference</i>	-25.75	-2.55	0.08
<i>90% Confidence Interval</i>	(-72.8 21.3)	(-28.3 23.2)	(-29.6 29.7)
<i>80% Confidence Interval</i>	(-62.4 10.9)	(-22.6 17.5)	(-23.0 23.2)
<i>P-Value</i>	0.368	0.871	0.997
Inpatient Surgery Admissions			
<i>Difference</i>	-78.52	-29.94	-32.57
<i>90% Confidence Interval</i>	(-164.1 7.0)	(-72.3 12.4)	(-82.4 17.3)
<i>80% Confidence Interval</i>	(-145.2 -11.9)	(-63.0 3.1)	(-71.4 6.3)
<i>P-Value</i>	0.131	0.245	0.283
Inpatient PS ^d Orthopedic Surgery Admissions			
<i>Difference</i>	-28.61	-19.93	-28.87
<i>90% Confidence Interval</i>	(-152.3 95.1)	(-79.6 39.8)	(-104.3 46.5)
<i>80% Confidence Interval</i>	(-125.0 67.8)	(-66.5 26.6)	(-87.6 29.9)
<i>P-Value</i>	0.704	0.583	0.529

Measures	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
Inpatient PS Cardiac Surgery Admissions			
<i>Difference</i>	-81.24	-52.47	-1.82
<i>90% Confidence Interval</i>	(-316.9 154.4)	(-167.7 62.7)	(-142.8 139.2)
<i>80% Confidence Interval</i>	(-264.8 102.3)	(-142.2 37.3)	(-111.7 108.0)
<i>P-Value</i>	0.571	0.454	0.983
30-Day Hospital Unplanned Readmissions Following All Inpatient Admission			
<i>Difference</i>	-31.57	0.19	-9.33
<i>90% Confidence Interval</i>	(-77.7 14.6)	(-25.1 25.5)	(-38.3 19.7)
<i>80% Confidence Interval</i>	(-67.5 4.4)	(-19.5 19.9)	(-31.9 13.3)
<i>P-Value</i>	0.261	0.990	0.597

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cThe “difference” estimate represents the difference in the number of deaths per 1,000 beneficiaries or the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

^dPS = Preference Sensitive.

Appendix Table B-7: Cumulative and Yearly Mortality and Readmissions per 1,000 Beneficiaries, Differences after Welvie Enrollment, Texas MA ITT Analysis Cohort

Measures	Full Intervention Period ^a	Total Year 1 ^b
Number of Participants	63,979	63,979
Mortality		
<i>Difference^c</i>	-0.35	-0.30
<i>90% Confidence Interval</i>	(-2.3 1.6)	(-1.8 1.2)
<i>80% Confidence Interval</i>	(-1.9 1.2)	(-1.4 0.8)
<i>P-Value</i>	0.770	0.732
30-Day Hospital Readmissions Following:		
All Inpatient Admissions		
<i>Difference</i>	15.45	9.86
<i>90% Confidence Interval</i>	(-25.7 56.6)	(-22.8 42.5)
<i>80% Confidence Interval</i>	(-16.6 47.5)	(-15.6 35.3)
<i>P-Value</i>	0.537	0.620

Measures	Full Intervention Period ^a	Total Year 1 ^b
Inpatient Surgery Admissions		
<i>Difference</i>	56.39	19.45
<i>90% Confidence Interval</i>	(-7.5 120.3)	(-31.4 70.3)
<i>80% Confidence Interval</i>	(6.6 106.2)	(-20.2 59.1)
<i>P-Value</i>	0.146	0.529
Inpatient PS ^d Orthopedic Surgery Admissions		
<i>Difference</i>	-17.15	34.87
<i>90% Confidence Interval</i>	(-116.7 82.4)	(-46.2 116.0)
<i>80% Confidence Interval</i>	(-94.7 60.4)	(-28.3 98.1)
<i>P-Value</i>	0.777	0.479
Inpatient PS Cardiac Surgery Admissions		
<i>Difference</i>	-1.46	-22.40
<i>90% Confidence Interval</i>	(-180.6 177.7)	(-163.0 118.2)
<i>80% Confidence Interval</i>	(-141 138.1)	(-132 87.1)
<i>P-Value</i>	0.989	0.793
30-Day Hospital Unplanned Readmissions Following All Inpatient Admission		
<i>Difference</i>	12.41	7.93
<i>90% Confidence Interval</i>	(-28 52.8)	(-24 39.9)
<i>80% Confidence Interval</i>	(-19.1 43.9)	(-17.0 32.8)
<i>P-Value</i>	0.613	0.683

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cThe “difference” estimate represents the difference in the number of deaths per 1,000 beneficiaries or the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

^dPS = Preference Sensitive.

Appendix Table B-8: Quarterly Difference in Mortality per 1,000 Beneficiaries after Welvie Enrollment, Ohio FFS, Ohio MA, and Texas MA ITT Analysis Cohorts

Medicare Cohort	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Ohio Medicare FFS												
<i>Number of Participant Beneficiaries</i>	58,582	57,711	56,851	55,987	55,044	54,177	53,341	52,424	51,471	50,679	49,929	49,150
<i>Difference^a</i>	-4.26***	-1.37*	-1.80**	-2.75***	-2.78***	-0.38	-1.09	-2.29***	-2.00**	-1.12	-0.89	-0.31
<i>90% Confidence Interval</i>	(-5.6 -3.0)	(-2.6 -0.1)	(-3.1 -0.5)	(-4.1 -1.4)	(-4.1 -1.4)	(-1.7 0.9)	(-2.5 0.3)	(-3.8 -0.8)	(-3.4 -0.6)	(-2.5 0.2)	(-2.3 0.5)	(-1.7 1.1)
<i>80% Confidence Interval</i>	(-5.3 -3.2)	(-2.3 -0.4)	(-2.8 -0.8)	(-3.8 -1.7)	(-3.8 -1.7)	(-1.4 0.6)	(-2.2 0.0)	(-3.4 -1.1)	(-3.1 -0.9)	(-2.2 -0.1)	(-2.0 0.2)	(-1.4 0.8)
<i>P-Value</i>	<0.001	0.074	0.022	0.001	<0.001	0.633	0.199	0.010	0.016	0.169	0.286	0.721
Ohio Medicare Advantage												
<i>Number of Participant Beneficiaries</i>	97,380	96,492	95,477	92,080	91,230	90,076	89,069	82,860	81,907	79,501	78,171	
<i>Difference^a</i>	0.10	-0.26	-0.51	-0.31	-0.08	0.19	-0.16	-0.18	-0.16	-0.87	-0.75	
<i>90% Confidence Interval</i>	(-0.6 0.8)	(-1.0 0.5)	(-1.3 0.2)	(-1.1 0.4)	(-0.9 0.7)	(-0.6 1.0)	(-1.0 0.7)	(-1.0 0.7)	(-1.1 0.7)	(-1.9 0.1)	(-1.7 0.2)	
<i>80% Confidence Interval</i>	(-0.5 0.7)	(-0.9 0.3)	(-1.1 0.1)	(-0.9 0.3)	(-0.7 0.5)	(-0.4 0.8)	(-0.8 0.5)	(-0.9 0.5)	(-0.9 0.5)	(-1.6 -0.1)	(-1.5 0.0)	
<i>P-Value</i>	0.817	0.578	0.254	0.498	0.859	0.706	0.754	0.739	0.768	0.145	0.194	
Texas Medicare Advantage												
<i>Number of Participant Beneficiaries</i>	63,979	63,885	50,346	49,822	49,356	48,797						
<i>Difference^a</i>	-0.18	0.45	0.11	-0.80	0.12	-0.16						
<i>90% Confidence Interval</i>	(-0.5 0.2)	(0.0 0.9)	(-0.9 1.2)	(-1.8 0.2)	(-0.9 1.1)	(-1.2 0.8)						
<i>80% Confidence Interval</i>	(-0.5 0.1)	(0.1 0.8)	(-0.7 0.9)	(-1.6 0.0)	(-0.7 0.9)	(-0.9 0.6)						
<i>P-Value</i>	0.421	0.125	0.868	0.201	0.844	0.793						

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aThe “difference” estimate represents the difference in the number of deaths per 1,000 beneficiaries between the intervention group and control group in the relevant quarter of the intervention period. There were no deaths in the intervention or control groups prior to program enrollment as beneficiaries were required to be alive on program start date to be included in the study.

Appendix Table B-9: Quarterly Difference in Readmissions per 1,000 IP Admissions after Welvie Enrollment, Ohio FFS ITT Analysis Cohort

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>Number of Participant Beneficiaries</i>	58,582	57,711	56,851	55,987	55,044	54,177	53,341	52,424	51,471	50,679	49,929	49,150
30-Day Hospital Readmissions per 1,000 Beneficiaries Following:												
All Inpatient Admissions	4,122	3,875	3,885	3,859	3,909	3,513	3,627	3,742	3,629	3,403	3,309	3,518
<i>Difference^a</i>	-6.51	8.32	-23.83***	0.78	11.52	-5.22	-14.50	0.48	-6.49	9.24	-3.99	-12.66
<i>90% Confidence Interval</i>	(-20.9 7.9)	(-6.9 23.5)	(-39.0 -8.6)	(-14.6 16.2)	(-3.8 26.8)	(-20.8 10.4)	(-30.0 0.9)	(-14.8 15.8)	(-22.0 9.0)	(-6.7 25.2)	(-20.2 12.2)	(-28.5 3.2)
<i>80% Confidence Interval</i>	(-17.7 4.7)	(-3.5 20.2)	(-35.7 -12.0)	(-11.2 12.8)	(-0.4 23.5)	(-17.4 6.9)	(-26.5 -2.5)	(-11.4 12.4)	(-18.5 5.6)	(-3.2 21.7)	(-16.6 8.6)	(-25.0 -0.3)
<i>P-Value</i>	0.456	0.368	0.010	0.933	0.216	0.583	0.122	0.959	0.490	0.340	0.685	0.189
Inpatient Surgery Admissions	1,149	1,144	1,199	1,142	1,105	1,074	1,096	1,053	1,045	976	929	995
<i>Difference</i>	-30.60*	-7.13	-51.15***	-9.66	1.96	4.00	3.85	-9.03	-0.63	24.85	-14.16	9.48
<i>90% Confidence Interval</i>	(-57.3 -3.9)	(-33.9 19.7)	(-78.0 -24.3)	(-37.5 18.1)	(-25.8 29.7)	(-24.4 32.4)	(-23.7 31.4)	(-37.6 19.5)	(-29.5 28.3)	(-3.7 53.4)	(-43.6 15.3)	(-18.9 37.9)
<i>80% Confidence Interval</i>	(-51.4 -9.8)	(-28.0 13.7)	(-72.1 -30.2)	(-31.3 12.0)	(-19.7 23.6)	(-18.1 26.1)	(-17.6 25.3)	(-31.3 13.2)	(-23.2 21.9)	(2.6 47.1)	(-37.1 8.8)	(-12.6 31.6)
<i>P-Value</i>	0.060	0.662	0.002	0.567	0.907	0.817	0.818	0.603	0.971	0.152	0.429	0.583
Inpatient PS ^b Orthopedic Surgery Admissions	275	264	327	267	263	269	277	252	224	255	214	209
<i>Difference</i>	-53.46**	5.81	8.46	-15.73	-0.19	8.73	-17.16	16.59	37.91	41.04	12.91	11.06
<i>90% Confidence Interval</i>	(-91.5 -15.4)	(-34.2 45.8)	(-27.2 44.2)	(-59.2 27.7)	(-39.0 38.6)	(-28.8 46.3)	(-57.0 22.7)	(-25.3 58.5)	(-3.9 79.7)	(-6.0 88.0)	(-28.1 53.9)	(-27.7 49.8)
<i>80% Confidence Interval</i>	(-83.1 -23.8)	(-25.4 37.0)	(-19.3 36.3)	(-49.6 18.1)	(-30.4 30.0)	(-20.5 38.0)	(-48.2 13.9)	(-16.0 49.2)	(5.3 70.5)	(4.4 77.7)	(-19.1 44.9)	(-19.1 41.2)
<i>P-Value</i>	0.021	0.811	0.697	0.551	0.994	0.702	0.479	0.514	0.136	0.151	0.605	0.639
Inpatient PS Cardiac Surgery Admissions	165	166	161	143	138	139	130	140	133	132	102	111
<i>Difference</i>	-63.64	2.15	31.34	-49.66	-14.75	14.19	36.32	-23.04	-29.85	3.51	5.60	139.00***
<i>90% Confidence Interval</i>	(-138.0 10.8)	(-70.3 74.6)	(-41.1 103.7)	(-134.9 35.6)	(-102.2 72.7)	(-70.3 98.7)	(-51.0 123.6)	(-102.7 56.6)	(-117.4 57.7)	(-74.4 81.4)	(-98.3 109.5)	(54.5 223.5)

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>80% Confidence Interval</i>	(-121.6 -5.7)	(-54.3 58.6)	(-25.1 87.7)	(-116.1 16.8)	(-82.9 53.4)	(-51.6 80.0)	(-31.7 104.3)	(-85.1 39.0)	(-98.1 38.4)	(-57.2 64.2)	(-75.4 86.6)	(73.1 204.9)
<i>P-Value</i>	0.160	0.961	0.476	0.338	0.781	0.782	0.494	0.634	0.575	0.941	0.929	0.007
30-Day Hospital Unplanned Readmissions per 1,000 Beneficiaries Following:												
All Inpatient Admissions	4,122	3,875	3,885	3,859	3,909	3,513	3,627	3,742	3,629	3,403	3,309	3,518
<i>Difference</i>	-4.65	5.18	-18.49**	-1.34	11.57	-2.99	-12.14	1.78	-4.22	8.39	-4.32	-10.37
<i>90% Confidence Interval</i>	(-18.8 9.5)	(-9.7 20.1)	(-33.4 -3.6)	(-16.5 13.8)	(-3.4 26.6)	(-18.3 12.3)	(-27.2 2.9)	(-13.3 16.8)	(-19.4 10.9)	(-7.3 24.1)	(-20.3 11.6)	(-26.0 5.3)
<i>80% Confidence Interval</i>	(-15.7 6.4)	(-6.4 16.8)	(-30.1 -6.9)	(-13.1 10.5)	(-0.1 23.3)	(-14.9 9.0)	(-23.9 0.4)	(-9.9 13.5)	(-16.0 7.6)	(-3.8 20.6)	(-16.7 8.1)	(-22.6 1.8)
<i>P-Value</i>	0.589	0.568	0.041	0.884	0.204	0.748	0.184	0.845	0.647	0.379	0.656	0.276

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aThe “difference” estimate represents the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

^bPS = Preference Sensitive.

Appendix Table B-10: Quarterly Difference in Readmissions per 1,000 IP Admissions after Welvie Enrollment, Ohio MA ITT Analysis Cohort

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>Number of Participant Beneficiaries</i>	97,380	96,492	95,477	92,080	91,230	90,076	89,069	82,860	81,907	79,501	78,171
30-Day Hospital Readmissions per 1,000 Beneficiaries Following:											
All Inpatient Admissions	5,027	4,876	4,225	3,835	3,760	3,534	3,254	3,114	3,076	3,197	2,724
<i>Difference^a</i>	-0.86	9.39	-9.13	-3.74	-4.86	3.68	-2.07	3.94	-8.19	-9.32	-10.60
<i>90% Confidence Interval</i>	(-13.0 11.2)	(-3.1 21.9)	(-22.4 4.2)	(-17.6 10.1)	(-18.8 9.0)	(-11.0 18.4)	(-17.2 13.0)	(-11.8 19.7)	(-23.4 7.0)	(-24.6 6.0)	(-26.9 5.7)
<i>80% Confidence Interval</i>	(-10.3 8.6)	(-0.3 19.1)	(-19.5 1.2)	(-14.6 7.1)	(-15.7 6.0)	(-7.8 15.1)	(-13.8 9.7)	(-8.3 16.2)	(-20.1 3.7)	(-21.3 2.6)	(-23.3 2.1)

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>P-Value</i>	0.906	0.216	0.259	0.657	0.566	0.681	0.821	0.681	0.376	0.317	0.285
Inpatient Surgery Admissions	1,727	1,569	1,348	1,249	861	1,164	1,096	1,001	593	56	83
<i>Difference</i>	-0.25	2.36	-21.75	-14.46	-1.88	4.46	-6.59	-29.88*	-2.22	60.15	-13.14
<i>90% Confidence Interval</i>	(-19.6 19.1)	(-18.9 23.6)	(-44.0 0.5)	(-36.7 7.8)	(-27.8 24.0)	(-19.0 27.9)	(-30.7 17.6)	(-56.2 3.5)	(-33.6 29.2)	(-43.8 164.1)	(-112.1 85.8)
<i>80% Confidence Interval</i>	(-15.3 14.8)	(-14.2 18.9)	(-39.1 -4.4)	(-31.8 2.9)	(-22.1 18.3)	(-13.8 22.7)	(-25.4 12.2)	(-50.4 -9.4)	(-26.7 22.2)	(-20.8 141.1)	(-90.3 64.0)
<i>P-Value</i>	0.983	0.855	0.108	0.285	0.905	0.755	0.653	0.062	0.907	0.341	0.827
Inpatient PS ^b Orthopedic Surgery Admissions	544	450	420	332	257	317	307	264	205	21	41
<i>Difference</i>	-1.42	-2.21	-10.55	-7.53	-2.40	11.10	-15.31	-24.49	38.28	26.27	8.61
<i>90% Confidence Interval</i>	(-29.5 26.7)	(-33.3 28.9)	(-40.7 19.6)	(-36.1 21.0)	(-39.1 34.3)	(-24.8 47.0)	(-53.3 22.7)	(-64.4 15.4)	(-0.9 77.5)	(-104.5 157.0)	(-154.1 171.4)
<i>80% Confidence Interval</i>	(-23.3 20.5)	(-26.4 22.0)	(-34.0 12.9)	(-29.8 14.7)	(-31.0 26.2)	(-16.9 39.1)	(-44.9 14.3)	(-55.6 6.6)	(7.7 68.8)	(-75.6 128.1)	(-118.2 135.4)
<i>P-Value</i>	0.934	0.907	0.564	0.664	0.914	0.611	0.508	0.312	0.108	0.741	0.931
Inpatient PS Cardiac Surgery Admissions	271	256	214	149	141	150	139	145	85	23	26
<i>Difference</i>	-16.30	30.24	-41.91	-40.47	50.27	-2.65	-38.17	-11.35	-32.74	165.63	-34.62
<i>90% Confidence Interval</i>	(-71.0 38.4)	(-25.0 85.5)	(-97.3 13.5)	(-106.3 25.3)	(-24.0 124.5)	(-70.8 65.5)	(-104.9 28.6)	(-83.9 61.1)	(-130.2 64.7)	(-18.2 349.4)	(-201.6 132.3)
<i>80% Confidence Interval</i>	(-23.3 20.5)	(-26.4 22.0)	(-34.0 12.9)	(-29.8 14.7)	(-31.0 26.2)	(-16.9 39.1)	(-44.9 14.3)	(-55.6 6.6)	(7.7 68.8)	(-75.6 128.1)	(-118.2 135.4)
<i>P-Value</i>	0.624	0.368	0.214	0.312	0.266	0.949	0.347	0.797	0.580	0.138	0.733
30-Day Hospital Unplanned Readmissions per 1,000 Beneficiaries Following:											
All Inpatient Admissions	5,027	4,876	4,225	3,835	3,760	3,534	3,254	3,114	3,076	3,197	2,724
<i>Difference</i>	-2.14	11.21	-9.05	-1.25	-7.56	1.74	-4.44	1.56	-8.15	-9.03	-11.61
<i>90% Confidence Interval</i>	(-14.0 9.7)	(-1.1 23.5)	(-22.1 4.0)	(-14.8 12.3)	(-21.1 6.0)	(-12.6 16.1)	(-19.2 10.3)	(-14.0 17.1)	(-23.1 6.8)	(-24.1 6.0)	(-27.6 4.4)
<i>80% Confidence Interval</i>	(-58.9 26.3)	(-12.8 73.3)	(-85.1 1.3)	(-91.7 10.8)	(-7.6 108.1)	(-55.7 50.4)	(-90.2 13.8)	(-67.8 45.1)	(-108.6 43.2)	(22.4 308.8)	(-164.7 95.5)

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>P-Value</i>	0.767	0.133	0.255	0.880	0.359	0.842	0.621	0.868	0.371	0.323	0.233

* Statistically significant at the ten percent level.

^aThe “difference” estimate represents the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

^bPS = Preference Sensitive.

Appendix Table B-11: Quarterly Difference in Readmissions per 1,000 IP Admissions after Welvie Enrollment, Texas MA ITT Analysis Cohort

Measures	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	63,979	63,885	50,346	49,822	49,356	48,797
30-Day Hospital Readmissions per 1,000 Beneficiaries Following:						
All Inpatient Admissions	3,030	3,146	2,694	2,708	2,489	2,311
<i>Difference^a</i>	17.19*	2.49	-13.81	2.15	6.49	-1.08
<i>90% Confidence Interval</i>	(1.8 32.6)	(-13.1 18.1)	(-31.1 3.5)	(-15.1 19.5)	(-11.3 24.3)	(-19.1 17.0)
<i>80% Confidence Interval</i>	(5.2 29.2)	(-9.7 14.6)	(-27.3 0.3)	(-11.3 15.6)	(-7.4 20.3)	(-15.1 13.0)
<i>P-Value</i>	0.066	0.793	0.190	0.838	0.548	0.921
Inpatient Surgery Admissions	1,126	1,134	852	904	799	789
<i>Difference</i>	11.51	0.70	-4.21	10.36	37.56**	3.97
<i>90% Confidence Interval</i>	(-11.5 34.5)	(-22.7 24.1)	(-32.8 24.4)	(-17.5 38.3)	(10.4 64.8)	(-23.9 31.8)
<i>80% Confidence Interval</i>	(-6.4 29.4)	(-17.5 18.9)	(-26.5 18.1)	(-11.4 32.1)	(16.4 58.8)	(-17.7 25.7)
<i>P-Value</i>	0.410	0.961	0.809	0.541	0.023	0.815
Inpatient PS ^b Orthopedic Surgery Admissions	276	319	182	223	192	236
<i>Difference</i>	16.53	22.40	-17.68	1.02	-59.66** *	-5.70
<i>90% Confidence Interval</i>	(-21.7 54.8)	(-13.1 57.9)	(-63.2 27.9)	(-44.5 46.5)	(-97.0 22.3)	(-47.7 36.3)
<i>80% Confidence Interval</i>	(-13.3 46.3)	(-5.3 50.1)	(-53.2 17.8)	(-34.4 36.4)	(-88.8 30.6)	(-38.5 27.1)
<i>P-Value</i>	0.477	0.299	0.523	0.971	0.009	0.824
Inpatient PS Cardiac Surgery Admissions	159	174	118	137	93	120
<i>Difference</i>	-30.81	-23.79	-14.27	54.22	10.38	17.77
<i>90% Confidence Interval</i>	(-90.4 28.8)	(-92.3 44.7)	(-90.6 62.1)	(-23.8 132.2)	(-77.2 98.0)	(-56.0 91.5)
<i>80% Confidence Interval</i>	(-77.2 15.6)	(-77.2 29.6)	(-73.8 45.2)	(-6.5 115.0)	(-57.9 78.6)	(-39.7 75.2)
<i>P-Value</i>	0.395	0.568	0.759	0.253	0.845	0.692
30-Day Hospital Unplanned Readmissions per 1,000 Beneficiaries Following:						
All Inpatient Admissions	3,030	3,146	2,694	2,708	2,489	2,311
<i>Difference</i>	17.90**	2.82	-14.17	-0.72	5.79	-1.51
<i>90% Confidence Interval</i>	(3.0 32.8)	(-12.5 18.1)	(-31.2 2.9)	(-17.6 16.2)	(-11.7 23.3)	(-19.5 16.5)
<i>80% Confidence Interval</i>	(6.3 29.5)	(-9.1 14.7)	(-27.4 0.9)	(-13.9 12.4)	(-7.8 19.4)	(-15.5 12.5)

Measures	Q1	Q2	Q3	Q4	Q5	Q6
<i>P-Value</i>	0.048	0.761	0.171	0.944	0.586	0.890

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aThe “difference” estimate represents the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

^bPS = Preference Sensitive.

Appendix Table B-12: Quarterly Mortality and Readmission per 1,000 Beneficiaries for Participants and Controls, Welvie Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls										
<i>Number of Participant Beneficiaries</i>	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
All-Cause Mortality per 1,000 Beneficiaries	14.9	19.1	14.9	16.3	15.2	17.0	16.8	19.5	15.8	18.5	15.4	15.8
30-Day Hospital Readmission per 1,000 Beneficiaries Following:												
All Inpatient Admissions	178.1	184.6	194.6	186.3	173.2	197.1	191.8	191.0	193.9	182.4	173.6	178.9
Inpatient Surgery Admissions	154.9	185.5	166.1	173.2	147.6	198.8	175.1	184.8	171.0	169.1	176.0	172.0
Inpatient PS ^a Orthopedic Surgery Admissions	40.0	93.5	79.5	73.7	73.4	64.9	82.4	98.1	68.4	68.6	70.6	61.9
Inpatient PS Cardiac Surgery Admissions	169.7	233.3	180.7	178.6	167.7	136.4	181.8	231.5	217.4	232.1	208.6	194.4
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following Any Inpatient Admission	171.5	176.2	183.7	178.6	166.0	184.5	181.9	183.3	183.9	172.4	166.8	169.8

^aPS = Preference Sensitive.

Appendix Table B-13: Quarterly Mortality and Readmission per 1,000 Beneficiaries for Participants and Controls, Welvie Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervent.	Controls										
<i>Number of Participant Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
All-Cause Mortality per 1,000 Beneficiaries	17.2	18.3	18.1	20.4	15.4	17.4	14.8	15.9	15.6	16.5	17.0	17.3
30-Day Hospital Readmission per 1,000 Beneficiaries Following:												
All Inpatient Admissions	172.6	187.1	184.4	183.9	176.4	182.8	178.4	169.1	179.5	183.5	174.8	187.5

Measures	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervent.	Controls										
Inpatient Surgery Admissions	161.5	157.6	170.0	179.0	174.2	174.8	177.3	152.4	156.1	170.2	159.8	150.3
Inpatient PS ^a Orthopedic Surgery Admissions	61.4	78.5	87.3	70.7	93.8	55.8	129.4	88.4	74.8	61.9	62.2	51.1
Inpatient PS Cardiac Surgery Admissions	230.8	194.4	178.6	201.6	188.0	217.8	174.2	170.7	196.1	190.5	234.2	95.2
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following Any Inpatient Admission	162.1	174.3	177.7	175.9	168.9	173.1	171	162.6	172.6	176.9	170.3	180.6

^aPS = Preference Sensitive.

Appendix Table B-14: Quarterly Mortality and Readmission per 1,000 Beneficiaries for Participants and Controls, Welvie Ohio MA ITT Analysis Cohort, Q1 to Q6

Measures	Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls										
<i>Number of Participant Beneficiaries</i>	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894	90,076	87,518
All-Cause Mortality per 1,000 Beneficiaries	9.1	9.0	10.5	10.8	9.4	9.9	9.2	9.5	10.0	10.1	11.2	11.0
30-Day Hospital Readmission per 1,000 Beneficiaries Following:												
All Inpatient Admissions	159.9	160.8	174.3	164.9	163.8	172.9	162.5	166.2	158.0	162.8	170.9	167.2
Inpatient Surgery Admissions	137.2	137.5	156.8	154.4	140.9	162.7	125.7	140.2	126.6	128.5	136.6	132.1
Inpatient PS ^a Orthopedic Surgery Admissions	80.9	82.3	84.4	86.7	69.0	79.6	48.2	55.7	66.1	68.5	85.2	74.1
Inpatient PS Cardiac Surgery Admissions	169.7	186.0	187.5	157.3	135.5	177.4	147.7	188.1	212.8	162.5	160.0	162.7
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following Any Inpatient Admission	151.4	153.5	167.6	156.3	156.7	165.7	155.4	156.7	147.1	154.6	160.2	158.4

^aPS = Preference Sensitive.

Appendix Table B-15: Quarterly Mortality and Readmission per 1,000 Beneficiaries for Participants and Controls, Welvie Ohio MA ITT Analysis Cohort, Q7 to Q11

Measures	Q7		Q8		Q9		Q10		Q11	
	Intervent.	Controls								
<i>Number of Participant Beneficiaries</i>	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
All-Cause Mortality per 1,000 Beneficiaries	11.0	11.1	11.5	11.7	12.3	12.5	13.7	14.6	12.5	13.3
30-Day Hospital Readmission per 1,000 Beneficiaries Following:										
All Inpatient Admissions	165.6	167.7	171.2	167.2	151.5	159.7	161.7	171.0	158.6	169.2
Inpatient Surgery Admissions	132.3	138.9	128.9	158.7	119.7	122.0	178.6	118.4	168.7	181.8
Inpatient PS ^a Orthopedic Surgery Admissions	74.9	90.2	64.4	88.9	78.0	39.8	95.2	69.0	243.9	235.3
Inpatient PS Cardiac Surgery Admissions	129.5	167.7	165.5	176.9	141.2	173.9	260.9	95.2	115.4	150.0
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following Any Inpatient Admission	155.5	159.9	163.5	161.9	145.3	153.5	154.5	163.5	150.9	162.5

^aPS = Preference Sensitive.

Appendix Table B-16: Quarterly Mortality and Readmission per 1,000 Beneficiaries for Participants and Controls, Welvie Texas MA ITT Analysis Cohort, Q1 to Q6

Measures	Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls										
<i>Number of Participant Beneficiaries</i>	63,979	63,759	63,885	63,654	50,346	50,476	49,822	49,956	49,356	49,449	48,797	48,926
All-Cause Mortality per 1,000 Beneficiaries	1.5	1.6	2.9	2.5	10.4	10.3	9.4	10.1	9.1	9.0	9.1	9.2
30-Day Hospital Readmission per 1,000 Beneficiaries Following:												
All Inpatient Admissions	165.3	148.2	171.0	168.5	181.5	195.3	183.5	181.4	178.4	171.9	166.2	167.2
Inpatient Surgery Admissions	128.8	117.3	133.2	132.5	147.9	152.1	154.9	144.5	150.2	112.6	134.3	130.4
Inpatient PS ^a Orthopedic Surgery Admissions	94.2	77.7	94.0	71.6	71.4	89.1	89.7	88.7	31.2	90.9	80.5	86.2
Inpatient PS Cardiac Surgery Admissions	106.9	137.7	160.9	184.7	144.1	158.3	197.1	142.9	182.8	172.4	150.0	132.2
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following Any Inpatient Admission	154.5	136.6	163.1	160.2	173.3	187.5	171.3	172.1	170.3	164.6	164	165.5

^aPS = Preference Sensitive.

B.3 Health Service Resource Use

Appendix Table B-17: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Welvie Ohio FFS ITT Analysis Cohort

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>Number of Participant Beneficiaries</i>	58,582	58,582	55,044	51,471
ER Visits				
<i>Difference</i>	-13.26	-12.56*	-4.43	4.85
<i>90% Confidence Interval</i>	(-40.5 14.0)	(-23.6 -1.5)	(-16.0 7.1)	(-7.0 16.7)
<i>80% Confidence Interval</i>	(-34.5 8.0)	(-21.2 -3.9)	(-13.4 4.6)	(-4.4 14.1)
<i>P-Value</i>	0.423	0.062	0.528	0.500
Inpatient Admissions				
<i>Difference</i>	-0.14	-4.91	2.82	2.43
<i>90% Confidence Interval</i>	(-25.3 25.1)	(-15.4 5.6)	(-7.8 13.5)	(-8.4 13.2)
<i>80% Confidence Interval</i>	(-19.8 19.5)	(-13.1 3.3)	(-5.5 11.1)	(-6.0 10.9)
<i>P-Value</i>	0.993	0.442	0.663	0.711
Unplanned Inpatient Admissions				
<i>Difference</i>	6.34	-2.49	4.04	5.31
<i>90% Confidence Interval</i>	(-16.4 29.1)	(-12.0 7.0)	(-5.6 13.7)	(-4.6 15.2)
<i>80% Confidence Interval</i>	(-11.4 24.1)	(-9.9 4.9)	(-3.5 11.5)	(-2.4 13.0)
<i>P-Value</i>	0.647	0.666	0.490	0.378
Hospital Days				
<i>Difference</i>	19.70	-16.57	32.23	5.50
<i>90% Confidence Interval</i>	(-205.2 244.6)	(-115.0 81.8)	(-60.2 124.6)	(-86.5 97.5)
<i>80% Confidence Interval</i>	(-155.5 194.9)	(-93.2 60.1)	(-39.8 104.2)	(-66.2 77.2)
<i>P-Value</i>	0.885	0.782	0.566	0.922
All Surgeries				
<i>Difference</i>	12.87	-1.60	9.80	5.11
<i>90% Confidence Interval</i>	(-20.0 45.7)	(-14.5 11.3)	(-3.9 23.5)	(-9.5 19.7)
<i>80% Confidence Interval</i>	(-12.7 38.5)	(-11.7 8.5)	(-0.9 20.5)	(-6.3 16.5)
<i>P-Value</i>	0.520	0.839	0.241	0.565
Inpatient Surgeries				
<i>Difference</i>	-2.91	-2.88	0.95	-0.84
<i>90% Confidence Interval</i>	(-13.7 7.9)	(-7.3 1.6)	(-3.5 5.4)	(-5.4 3.7)
<i>80% Confidence Interval</i>	(-11.3 5.5)	(-6.3 0.6)	(-2.6 4.4)	(-4.4 2.7)
<i>P-Value</i>	0.658	0.287	0.729	0.762
Surgical Hospital Days				
<i>Difference</i>	43.92	-12.46	23.99	35.51

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b	Total Year 2	Total Year 3
<i>90% Confidence Interval</i>	(-64.4 152.2)	(-57.2 32.3)	(-21.1 69.1)	(-9.0 80.1)
<i>80% Confidence Interval</i>	(-40.5 128.3)	(-47.3 22.4)	(-11.2 59.2)	(0.8 70.2)
<i>P-Value</i>	0.505	0.647	0.382	0.190
Outpatient Surgeries				
<i>Difference</i>	15.77	1.28	8.85	5.95
<i>90% Confidence Interval</i>	(-14.7 46.2)	(-10.6 13.2)	(-3.9 21.6)	(-7.7 19.6)
<i>80% Confidence Interval</i>	(-8.0 39.5)	(-8.0 10.5)	(-1.1 18.8)	(-4.7 16.6)
<i>P-Value</i>	0.395	0.860	0.253	0.474
All PS^c Orthopedic Surgeries				
<i>Difference</i>	-0.48	0.39	0.60	-1.59
<i>90% Confidence Interval</i>	(-6.0 5.1)	(-1.9 2.6)	(-1.7 2.9)	(-3.9 0.7)
<i>80% Confidence Interval</i>	(-4.8 3.9)	(-1.4 2.1)	(-1.2 2.4)	(-3.4 0.2)
<i>P-Value</i>	0.888	0.777	0.665	0.255
Inpatient PS Orthopedic Surgeries				
<i>Difference</i>	1.11	0.92	1.14	-1.08
<i>90% Confidence Interval</i>	(-4.1 6.4)	(-1.2 3.0)	(-1.0 3.3)	(-3.3 1.1)
<i>80% Confidence Interval</i>	(-3.0 5.2)	(-0.7 2.6)	(-0.5 2.8)	(-2.8 0.6)
<i>P-Value</i>	0.727	0.474	0.379	0.412
PS Orthopedic Surgery Hospital Days				
<i>Difference</i>	-6.96	2.76	0.41	-11.02
<i>90% Confidence Interval</i>	(-37.1 23.2)	(-9.9 15.4)	(-12.4 13.2)	(-23.7 1.7)
<i>80% Confidence Interval</i>	(-30.5 16.5)	(-7.1 12.6)	(-9.6 10.4)	(-20.9 -1.1)
<i>P-Value</i>	0.704	0.720	0.958	0.153
Outpatient PS Orthopedic Surgeries				
<i>Difference</i>	-1.59	-0.53	-0.54	-0.51
<i>90% Confidence Interval</i>	(-3.4 0.3)	(-1.3 0.2)	(-1.3 0.2)	(-1.3 0.3)
<i>80% Confidence Interval</i>	(-3.0 -0.1)	(-1.1 0.1)	(-1.1 0.0)	(-1.1 0.1)
<i>P-Value</i>	0.160	0.246	0.239	0.271
All PS Cardiac Surgeries				
<i>Difference</i>	-1.86	-1.01	-1.35	0.61
<i>90% Confidence Interval</i>	(-7.7 4.0)	(-3.4 1.4)	(-3.8 1.1)	(-1.8 3.0)
<i>80% Confidence Interval</i>	(-6.4 2.7)	(-2.9 0.8)	(-3.2 0.5)	(-1.3 2.5)
<i>P-Value</i>	0.601	0.484	0.358	0.678
Inpatient PS Cardiac Surgeries				
<i>Difference</i>	-1.52	-0.29	-0.91	-0.33
<i>90% Confidence Interval</i>	(-5.4 2.3)	(-1.9 1.3)	(-2.5 0.7)	(-1.9 1.2)
<i>80% Confidence Interval</i>	(-4.5 1.5)	(-1.5 0.9)	(-2.1 0.3)	(-1.5 0.9)

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>P-Value</i>	0.513	0.761	0.344	0.729
Inpatient PS Cardiac Surgical Hospital Days				
<i>Difference</i>	31.49	6.79	10.51	14.70
<i>90% Confidence Interval</i>	(-20.9 83.8)	(-11.6 25.2)	(-11.4 32.4)	(-3.8 33.2)
<i>80% Confidence Interval</i>	(-9.3 72.3)	(-7.6 21.1)	(-6.6 27.6)	(0.3 29.1)
<i>P-Value</i>	0.322	0.544	0.430	0.190
Outpatient PS Cardiac Surgeries				
<i>Difference</i>	-0.34	-0.72	-0.45	0.94
<i>90% Confidence Interval</i>	(-4.5 3.8)	(-2.4 0.9)	(-2.1 1.3)	(-0.8 2.7)
<i>80% Confidence Interval</i>	(-3.6 2.9)	(-2.0 0.6)	(-1.8 0.9)	(-0.4 2.3)
<i>P-Value</i>	0.893	0.474	0.666	0.369

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cPS = Preference Sensitive.

Appendix Table B-18: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Welvie Ohio MA ITT Analysis Cohort

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	97,380	97,380	91,230
ER Visits			
<i>Difference</i>	-6.49	0.87	-8.26**
<i>90% Confidence Interval</i>	(-20.6 7.6)	(-5.8 7.6)	(-14.9 -1.6)
<i>80% Confidence Interval</i>	(-17.5 4.5)	(-4.4 6.1)	(-13.4 -3.1)
<i>P-Value</i>	0.450	0.832	0.041
Inpatient Admissions			
<i>Difference</i>	-7.79	-4.36	0.01
<i>90% Confidence Interval</i>	(-20.9 5.4)	(-10.6 1.9)	(-6.0 6.0)
<i>80% Confidence Interval</i>	(-18.0 2.5)	(-9.2 0.5)	(-4.7 4.7)
<i>P-Value</i>	0.330	0.248	0.997
Unplanned Inpatient Admissions			
<i>Difference</i>	-11.50	-4.57	-2.56
<i>90% Confidence Interval</i>	(-23.6 0.6)	(-10.3 1.1)	(-8.1 2.9)
<i>80% Confidence Interval</i>	(-20.9 -2.1)	(-9.0 -0.1)	(-6.9 1.7)
<i>P-Value</i>	0.118	0.188	0.445
Hospital Days			
<i>Difference</i>	-47.32	-28.69	-4.66
<i>90% Confidence Interval</i>	(-142.7 48.0)	(-74.9 17.5)	(-49.3 40.0)
<i>80% Confidence Interval</i>	(-121.6 27.0)	(-64.7 7.3)	(-39.4 30.1)
<i>P-Value</i>	0.414	0.307	0.864
All Surgeries			
<i>Difference</i>	-6.79	-7.03*	-0.27
<i>90% Confidence Interval</i>	(-20.3 6.7)	(-13.0 -1.0)	(-6.3 5.8)
<i>80% Confidence Interval</i>	(-17.3 3.7)	(-11.7 -2.3)	(-5.0 4.4)
<i>P-Value</i>	0.408	0.055	0.942
Inpatient Surgeries			
<i>Difference</i>	-5.85	-4.90**	-0.19
<i>90% Confidence Interval</i>	(-13.2 1.5)	(-8.3 -1.5)	(-3.5 3.1)
<i>80% Confidence Interval</i>	(-11.6 -0.2)	(-7.6 -2.2)	(-2.7 2.4)
<i>P-Value</i>	0.188	0.018	0.924
Surgical Hospital Days			
<i>Difference</i>	-33.75	-28.42*	-11.85
<i>90% Confidence Interval</i>	(-89.4 21.9)	(-55.7 -1.1)	(-38.1 14.4)

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b	Total Year 2
<i>80% Confidence Interval</i>	(-77.1 9.6)	(-49.7 -7.1)	(-32.3 8.6)
<i>P-Value</i>	0.318	0.087	0.458
Outpatient Surgeries			
<i>Difference</i>	-0.94	-2.13	-0.08
<i>90% Confidence Interval</i>	(-12 10.1)	(-7 2.7)	(-5 4.8)
<i>80% Confidence Interval</i>	(-9.6 7.7)	(-5.9 1.6)	(-3.9 3.7)
<i>P-Value</i>	0.889	0.467	0.979
All PS^c Orthopedic Surgeries			
<i>Difference</i>	0.18	-1.21	0.81
<i>90% Confidence Interval</i>	(-5.0 5.3)	(-3.5 1.1)	(-1.4 3.0)
<i>80% Confidence Interval</i>	(-3.8 4.2)	(-3.0 0.6)	(-0.9 2.6)
<i>P-Value</i>	0.955	0.389	0.555
Inpatient PS Orthopedic Surgeries			
<i>Difference</i>	0.69	-0.67	0.96
<i>90% Confidence Interval</i>	(-4.3 5.7)	(-2.9 1.6)	(-1.2 3.1)
<i>80% Confidence Interval</i>	(-3.2 4.6)	(-2.4 1.1)	(-0.7 2.7)
<i>P-Value</i>	0.821	0.623	0.468
PS Orthopedic Surgery Hospital Days			
<i>Difference</i>	15.62	0.46	4.34
<i>90% Confidence Interval</i>	(-15.1 46.3)	(-13.1 14.0)	(-10.4 19.1)
<i>80% Confidence Interval</i>	(-8.3 39.5)	(-10.1 11.0)	(-7.1 15.8)
<i>P-Value</i>	0.403	0.955	0.627
Outpatient PS Orthopedic Surgeries			
<i>Difference</i>	-0.51	-0.54	-0.16
<i>90% Confidence Interval</i>	(-1.7 0.7)	(-1.1 0.0)	(-0.7 0.4)
<i>80% Confidence Interval</i>	(-1.5 0.4)	(-1.0 -0.1)	(-0.6 0.3)
<i>P-Value</i>	0.493	0.121	0.631
All PS Cardiac Surgeries			
<i>Difference</i>	-3.91	-2.72**	-1.45
<i>90% Confidence Interval</i>	(-8.7 0.8)	(-4.9 -0.6)	(-3.5 0.6)
<i>80% Confidence Interval</i>	(-7.6 -0.2)	(-4.4 -1.0)	(-3.1 0.2)
<i>P-Value</i>	0.176	0.037	0.251
Inpatient PS Cardiac Surgeries			
<i>Difference</i>	-3.12	-2.29**	-0.78
<i>90% Confidence Interval</i>	(-7.1 0.9)	(-4.1 -0.5)	(-2.5 1.0)
<i>80% Confidence Interval</i>	(-6.3 0.0)	(-3.7 -0.9)	(-2.1 0.6)
<i>P-Value</i>	0.201	0.035	0.460

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
Inpatient PS Cardiac Surgical Hospital Days			
<i>Difference</i>	-10.40	-12.18	-2.90
<i>90% Confidence Interval</i>	(-38.0 17.2)	(-24.7 0.4)	(-16.1 10.3)
<i>80% Confidence Interval</i>	(-31.9 11.1)	(-21.9 -2.4)	(-13.2 7.4)
<i>P-Value</i>	0.536	0.110	0.718
Outpatient PS Cardiac Surgeries			
<i>Difference</i>	-0.79	-0.42	-0.67
<i>90% Confidence Interval</i>	(-3.2 1.6)	(-1.5 0.7)	(-1.7 0.4)
<i>80% Confidence Interval</i>	(-2.7 1.1)	(-1.3 0.4)	(-1.5 0.2)
<i>P-Value</i>	0.586	0.525	0.299

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cPS = Preference Sensitive.

Appendix Table B-19: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Welvie Texas MA ITT Analysis Cohort

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b
<i>Number of Participant Beneficiaries</i>	63,979	63,979
ER Visits		
<i>Difference</i>	4.75	-1.06
<i>90% Confidence Interval</i>	(-10.9 20.4)	(-12.6 10.5)
<i>80% Confidence Interval</i>	(-7.5 17.0)	(-10.0 7.9)
<i>P-Value</i>	0.618	0.880
Inpatient Admissions		
<i>Difference</i>	9.91	4.78
<i>90% Confidence Interval</i>	(-2.4 22.2)	(-4.4 14.0)
<i>80% Confidence Interval</i>	(0.3 19.5)	(-2.4 11.9)
<i>P-Value</i>	0.186	0.392
Unplanned Inpatient Admissions		
<i>Difference</i>	9.02	3.99
<i>90% Confidence Interval</i>	(-2.4 20.5)	(-4.5 12.5)
<i>80% Confidence Interval</i>	(0.1 17.9)	(-2.6 10.6)

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b
<i>P-Value</i>	0.194	0.441
Hospital Days		
<i>Difference</i>	27.29	-19.29
<i>90% Confidence Interval</i>	(-71.0 125.6)	(-93.1 54.6)
<i>80% Confidence Interval</i>	(-49.3 103.9)	(-76.8 38.3)
<i>P-Value</i>	0.648	0.668
All Surgeries		
<i>Difference</i>	2.01	1.98
<i>90% Confidence Interval</i>	(-8.7 12.7)	(-5.7 9.6)
<i>80% Confidence Interval</i>	(-6.4 10.4)	(-4.0 7.9)
<i>P-Value</i>	0.758	0.670
Inpatient Surgeries		
<i>Difference</i>	7.20**	6.83***
<i>90% Confidence Interval</i>	(1.2 13.2)	(2.5 11.2)
<i>80% Confidence Interval</i>	(2.5 11.9)	(3.4 10.2)
<i>P-Value</i>	0.048	0.010
Surgical Hospital Days		
<i>Difference</i>	42.04	28.48
<i>90% Confidence Interval</i>	(-17.6 101.7)	(-15.8 72.7)
<i>80% Confidence Interval</i>	(-4.4 88.5)	(-6.0 63.0)
<i>P-Value</i>	0.246	0.290
Outpatient Surgeries		
<i>Difference</i>	-5.19	-4.84
<i>90% Confidence Interval</i>	(-13.9 3.5)	(-11.0 1.3)
<i>80% Confidence Interval</i>	(-11.9 1.6)	(-9.6 -0.1)
<i>P-Value</i>	0.324	0.194
All PS^c Orthopedic Surgeries		
<i>Difference</i>	-0.59	-0.16
<i>90% Confidence Interval</i>	(-4.2 3.0)	(-2.7 2.4)
<i>80% Confidence Interval</i>	(-3.4 2.2)	(-2.2 1.8)
<i>P-Value</i>	0.787	0.916
Inpatient PS Orthopedic Surgeries		
<i>Difference</i>	0.59	0.73
<i>90% Confidence Interval</i>	(-2.8 4.0)	(-1.7 3.2)
<i>80% Confidence Interval</i>	(-2.1 3.3)	(-1.2 2.6)
<i>P-Value</i>	0.776	0.623
PS Orthopedic Surgery Hospital Days		

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b
<i>Difference</i>	0.80	-0.26
<i>90% Confidence Interval</i>	(-22.6 24.1)	(-17.1 16.6)
<i>80% Confidence Interval</i>	(-17.4 19.0)	(-13.4 12.9)
<i>P-Value</i>	0.955	0.980
Outpatient PS Orthopedic Surgeries		
<i>Difference</i>	-1.18*	-0.90*
<i>90% Confidence Interval</i>	(-2.2 -0.1)	(-1.7 -0.1)
<i>80% Confidence Interval</i>	(-2.0 -0.4)	(-1.5 -0.3)
<i>P-Value</i>	0.063	0.057
All PS Cardiac Surgeries		
<i>Difference</i>	-0.32	0.29
<i>90% Confidence Interval</i>	(-3.8 3.2)	(-2.2 2.8)
<i>80% Confidence Interval</i>	(-3.1 2.4)	(-1.7 2.3)
<i>P-Value</i>	0.881	0.850
Inpatient PS Cardiac Surgeries		
<i>Difference</i>	2.73*	1.97*
<i>90% Confidence Interval</i>	(0.2 5.3)	(0.1 3.8)
<i>80% Confidence Interval</i>	(0.7 4.7)	(0.5 3.4)
<i>P-Value</i>	0.081	0.079
Inpatient PS Cardiac Surgical Hospital Days		
<i>Difference</i>	14.86	2.76
<i>90% Confidence Interval</i>	(-7.5 37.2)	(-14.1 19.6)
<i>80% Confidence Interval</i>	(-2.6 32.3)	(-10.3 15.9)
<i>P-Value</i>	0.274	0.787
Outpatient PS Cardiac Surgeries		
<i>Difference</i>	-3.05**	-1.68*
<i>90% Confidence Interval</i>	(-5.3 -0.8)	(-3.3 -0.1)
<i>80% Confidence Interval</i>	(-4.8 -1.3)	(-2.9 -0.4)
<i>P-Value</i>	0.025	0.088

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cPS = Preference Sensitive.

Appendix Table B-20: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Welvie Ohio FFS IV Analysis Cohort

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b	Total Year 2	Total Year 3
<i>Number of Participant Beneficiaries</i>	1,133	1,133	1,113	1,074
ER Visits				
<i>Difference</i>	-671.72	-667.39*	-232.76	257.81
<i>90% Confidence Interval</i>	(-2,113.9 770.5)	(-1,254.0 -80.8)	(-843.5 378.0)	(-368.3 884.0)
<i>80% Confidence Interval</i>	(-1,795.4 451.9)	(-1,124.4 -210.4)	(-708.6 243.1)	(-230.0 745.7)
<i>P-Value</i>	0.444	0.061	0.531	0.498
Inpatient Admissions				
<i>Difference</i>	7.47	-253.96	144.28	128.48
<i>90% Confidence Interval</i>	(-1,326.2 1,341.2)	(-809.9 302.0)	(-418.8 707.4)	(-443.8 700.7)
<i>80% Confidence Interval</i>	(-1,031.7 1,046.6)	(-687.1 179.2)	(-294.4 583.0)	(-317.4 574.3)
<i>P-Value</i>	0.993	0.452	0.673	0.712
Unplanned Inpatient Admissions				
<i>Difference</i>	351.41	-126.36	209.19	280.98
<i>90% Confidence Interval</i>	(-854.4 1,557.2)	(-629.5 376.7)	(-300.4 718.8)	(-243.1 805.1)
<i>80% Confidence Interval</i>	(-588.1 1,290.9)	(-518.3 265.6)	(-187.9 606.2)	(-127.4 689.3)
<i>P-Value</i>	0.632	0.680	0.500	0.378
Hospital Days				
<i>Difference</i>	1,054.34	-875.55	1,663.61	296.06
<i>90% Confidence Interval</i>	(-10,835.2 12,943.9)	(-6,079.6 4,328.5)	(-3,228.4 6,555.6)	(-4,574.8 5,166.9)
<i>80% Confidence Interval</i>	(-8,209.2 10,317.9)	(-4,930.2 3,179.1)	(-2,147.9 5,475.1)	(-3,498.9 4,091.1)
<i>P-Value</i>	0.884	0.782	0.576	0.920
All Surgeries				
<i>Difference</i>	692.97	-86.10	516.82	272.00
<i>90% Confidence Interval</i>	(-1,049.4 2,435.4)	(-770.8 598.6)	(-210.4 1,244.0)	(-502.5 1,046.5)
<i>80% Confidence Interval</i>	(-664.6 2,050.5)	(-619.5 447.3)	(-49.8 1,083.4)	(-331.5 875.5)
<i>P-Value</i>	0.513	0.836	0.242	0.564
Inpatient Surgeries				
<i>Difference</i>	-147.72	-150.50	49.79	-44.19
<i>90% Confidence Interval</i>	(-719.5 424.1)	(-386.0 85.0)	(-188.0 287.5)	(-285.8 197.5)
<i>80% Confidence Interval</i>	(-593.2 297.8)	(-334.0 33.0)	(-135.4 235.0)	(-232.5 144.1)
<i>P-Value</i>	0.671	0.293	0.731	0.764
Surgical Hospital Days				
<i>Difference</i>	2,425.91	-641.95	1,262.67	1,882.67
<i>90% Confidence Interval</i>	(-3,305.2 8,157.0)	(-3,010.1 1,726.2)	(-1,125.3 3,650.7)	(-474.4 4,239.8)
<i>80% Confidence Interval</i>	(-2,039.3 6,891.1)	(-2,487.0 1,203.1)	(-597.9 3,123.2)	(46.2 3,719.2)

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b	Total Year 2	Total Year 3
<i>P-Value</i>	0.486	0.656	0.384	0.189
Outpatient Surgeries				
<i>Difference</i>	840.69	64.40	467.03	316.19
<i>90% Confidence Interval</i>	(-774.6 2,455.9)	(-565.4 694.2)	(-207.4 1,141.5)	(-407.1 1,039.5)
<i>80% Confidence Interval</i>	(-417.8 2,099.2)	(-426.3 555.1)	(-58.4 992.5)	(-247.3 879.7)
<i>P-Value</i>	0.392	0.866	0.255	0.472
All PS^c Orthopedic Surgeries				
<i>Difference</i>	-28.61	20.32	31.73	-84.21
<i>90% Confidence Interval</i>	(-323.4 266.2)	(-98.8 139.5)	(-88.6 152.1)	(-206.1 37.7)
<i>80% Confidence Interval</i>	(-258.3 201.1)	(-72.5 113.1)	(-62.1 125.5)	(-179.2 10.8)
<i>P-Value</i>	0.873	0.779	0.665	0.256
Inpatient PS Orthopedic Surgeries				
<i>Difference</i>	55.54	48.88	60.41	-57.35
<i>90% Confidence Interval</i>	(-221.8 332.9)	(-63.2 160.9)	(-52.8 173.6)	(-172.2 57.5)
<i>80% Confidence Interval</i>	(-160.5 271.6)	(-38.4 136.2)	(-27.8 148.6)	(-146.8 32.1)
<i>P-Value</i>	0.742	0.473	0.380	0.411
PS Orthopedic Surgery Hospital Days				
<i>Difference</i>	-392.79	146.51	18.88	-582.11
<i>90% Confidence Interval</i>	(-1,989.8 1,204.2)	(-523.4 816.4)	(-658.5 696.3)	(-1,253.8 89.6)
<i>80% Confidence Interval</i>	(-1,637.0 851.4)	(-375.4 668.5)	(-508.9 546.6)	(-1,105.4 -58.8)
<i>P-Value</i>	0.686	0.719	0.963	0.154
Outpatient PS Orthopedic Surgeries				
<i>Difference</i>	-84.16	-28.56	-28.68	-26.86
<i>90% Confidence Interval</i>	(-182.5 14.2)	(-68.6 11.5)	(-68.9 11.6)	(-67.2 13.5)
<i>80% Confidence Interval</i>	(-160.8 -7.5)	(-59.8 2.7)	(-60.0 2.7)	(-58.3 4.6)
<i>P-Value</i>	0.159	0.241	0.241	0.273
All PS Cardiac Surgeries				
<i>Difference</i>	-94.88	-52.66	-71.81	32.51
<i>90% Confidence Interval</i>	(-405.1 215.3)	(-178.9 73.6)	(-199.9 56.3)	(-95.5 160.5)
<i>80% Confidence Interval</i>	(-336.5 146.8)	(-151.0 45.7)	(-171.6 28.0)	(-67.3 132.3)
<i>P-Value</i>	0.615	0.493	0.357	0.676
Inpatient PS Cardiac Surgeries				
<i>Difference</i>	-80.02	-14.62	-48.18	-17.19
<i>90% Confidence Interval</i>	(-282.5 122.5)	(-97.4 68.1)	(-131.6 35.3)	(-99.9 65.5)
<i>80% Confidence Interval</i>	(-237.8 77.7)	(-79.1 49.9)	(-113.2 16.8)	(-81.6 47.3)
<i>P-Value</i>	0.516	0.771	0.342	0.733
Inpatient PS Cardiac Surgical Hospital Days				

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b	Total Year 2	Total Year 3
<i>Difference</i>	1,682.59	363.19	551.19	781.53
<i>90% Confidence Interval</i>	(-1,087.3 4,452.5)	(-611.7 1,338.1)	(-605.6 1,707.9)	(-195.1 1,758.2)
<i>80% Confidence Interval</i>	(-475.5 3,840.7)	(-396.4 1,122.8)	(-350.1 1,452.4)	(20.6 1,542.5)
<i>P-Value</i>	0.318	0.540	0.433	0.188
Outpatient PS Cardiac Surgeries				
<i>Difference</i>	-14.86	-38.04	-23.63	49.70
<i>90% Confidence Interval</i>	(-233.3 203.6)	(-126.1 50.0)	(-113.5 66.2)	(-41.3 140.7)
<i>80% Confidence Interval</i>	(-185.0 155.3)	(-106.7 30.6)	(-93.6 46.4)	(-21.2 120.6)
<i>P-Value</i>	0.911	0.477	0.665	0.369

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cPS = Preference Sensitive.

Appendix Table B-21: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Welvie Ohio MA IV Analysis Cohort

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	3,919	3,919	3,823
ER Visits			
<i>Difference</i>	-232.91	-1.21	-236.09**
<i>90% Confidence Interval</i>	(-601.7 135.8)	(-175.6 173.2)	(-409.0 -63.2)
<i>80% Confidence Interval</i>	(-520.2 54.4)	(-137.1 134.7)	(-370.8 -101.4)
<i>P-Value</i>	0.299	0.991	0.025
Inpatient Admissions			
<i>Difference</i>	-199.24	-112.20	1.19
<i>90% Confidence Interval</i>	(-536.5 138.0)	(-271.5 47.1)	(-152.9 155.3)
<i>80% Confidence Interval</i>	(-462.0 63.5)	(-236.3 11.9)	(-118.9 121.2)
<i>P-Value</i>	0.331	0.247	0.990
Unplanned Inpatient Admissions			
<i>Difference</i>	-296.24	-117.64	-65.55
<i>90% Confidence Interval</i>	(-606.3 13.8)	(-264.1 28.9)	(-207.1 76.0)
<i>80% Confidence Interval</i>	(-537.8 -54.7)	(-231.8 -3.5)	(-175.8 44.7)
<i>P-Value</i>	0.116	0.187	0.446
Hospital Days			
<i>Difference</i>	-1,207.51	-741.95	-115.89
<i>90% Confidence Interval</i>	(-3,653.4 1,238.4)	(-1,927.8 444.0)	(-1,262.7 1,030.9)
<i>80% Confidence Interval</i>	(-3,113.1 698.1)	(-1,665.9 182.0)	(-1,009.4 777.6)
<i>P-Value</i>	0.417	0.303	0.868
All Surgeries			
<i>Difference</i>	-167.76	-181.38*	-6.47
<i>90% Confidence Interval</i>	(-514.7 179.1)	(-335.9 -26.8)	(-161.1 148.2)
<i>80% Confidence Interval</i>	(-438.0 102.5)	(-301.8 -61.0)	(-126.9 114.0)
<i>P-Value</i>	0.426	0.054	0.945
Inpatient Surgeries			
<i>Difference</i>	-146.17	-125.87**	-4.39
<i>90% Confidence Interval</i>	(-333.5 41.2)	(-213.4 -38.3)	(-88.5 79.7)
<i>80% Confidence Interval</i>	(-292.1 -0.2)	(-194.1 -57.7)	(-69.9 61.1)
<i>P-Value</i>	0.199	0.018	0.932
Surgical Hospital Days			
<i>Difference</i>	-838.41	-732.78*	-304.17
<i>90% Confidence Interval</i>	(-2,262.7 585.9)	(-1,434.0 -31.5)	(-978.4 370.0)

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b	Total Year 2
<i>80% Confidence Interval</i>	(-1,948.1 271.3)	(-1,279.1 -186.4)	(-829.5 221.1)
<i>P-Value</i>	0.333	0.086	0.458
Outpatient Surgeries			
<i>Difference</i>	-21.60	-55.51	-2.08
<i>90% Confidence Interval</i>	(-306.0 262.9)	(-179.3 68.3)	(-128.2 124.0)
<i>80% Confidence Interval</i>	(-243.2 200.0)	(-152.0 41.0)	(-100.3 96.1)
<i>P-Value</i>	0.901	0.461	0.978
All PS^c Orthopedic Surgeries			
<i>Difference</i>	6.32	-31.08	20.62
<i>90% Confidence Interval</i>	(-125.6 138.2)	(-90.4 28.3)	(-37.0 78.2)
<i>80% Confidence Interval</i>	(-96.4 109.1)	(-77.3 15.2)	(-24.3 65.5)
<i>P-Value</i>	0.937	0.389	0.556
Inpatient PS Orthopedic Surgeries			
<i>Difference</i>	18.82	-17.24	24.72
<i>90% Confidence Interval</i>	(-109.2 146.8)	(-74.7 40.2)	(-31.2 80.6)
<i>80% Confidence Interval</i>	(-80.9 118.6)	(-62.0 27.5)	(-18.9 68.3)
<i>P-Value</i>	0.809	0.622	0.467
PS Orthopedic Surgery Hospital Days			
<i>Difference</i>	409.75	9.93	110.74
<i>90% Confidence Interval</i>	(-378.2 1,197.7)	(-338.1 358.0)	(-266.6 488.1)
<i>80% Confidence Interval</i>	(-204.2 1,023.7)	(-261.2 281.1)	(-183.2 404.7)
<i>P-Value</i>	0.392	0.963	0.629
Outpatient PS Orthopedic Surgeries			
<i>Difference</i>	-12.51	-13.84	-4.10
<i>90% Confidence Interval</i>	(-44.1 19.0)	(-28.6 0.9)	(-17.8 9.6)
<i>80% Confidence Interval</i>	(-37.1 12.1)	(-25.3 -2.3)	(-14.8 6.6)
<i>P-Value</i>	0.514	0.123	0.623
All PS Cardiac Surgeries			
<i>Difference</i>	-98.31	-70.24**	-37.04
<i>90% Confidence Interval</i>	(-220.4 23.7)	(-125.2 -15.3)	(-90.3 16.3)
<i>80% Confidence Interval</i>	(-193.4 -3.2)	(-113.1 -27.4)	(-78.6 4.5)
<i>P-Value</i>	0.185	0.036	0.253
Inpatient PS Cardiac Surgeries			
<i>Difference</i>	-78.59	-59.26**	-20.03
<i>90% Confidence Interval</i>	(-181.6 24.4)	(-105.3 -13.2)	(-64.6 24.6)
<i>80% Confidence Interval</i>	(-158.8 1.6)	(-95.1 -23.4)	(-54.8 14.7)
<i>P-Value</i>	0.209	0.034	0.460

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
Inpatient PS Cardiac Surgical Hospital Days			
<i>Difference</i>	-253.56	-314.75	-74.42
<i>90% Confidence Interval</i>	(-962.1 455.0)	(-636.4 6.9)	(-414.1 265.3)
<i>80% Confidence Interval</i>	(-805.6 298.5)	(-565.4 -64.1)	(-339.1 190.2)
<i>P-Value</i>	0.556	0.107	0.719
Outpatient PS Cardiac Surgeries			
<i>Difference</i>	-19.72	-10.98	-17.01
<i>90% Confidence Interval</i>	(-81.0 41.6)	(-39.0 17.1)	(-44.2 10.2)
<i>80% Confidence Interval</i>	(-67.5 28.0)	(-32.8 10.9)	(-38.2 4.2)
<i>P-Value</i>	0.597	0.519	0.303

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cPS = Preference Sensitive.

Appendix Table B-22: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Welvie Texas MA IV Analysis Cohort

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,630	2,630
ER Visits		
<i>Difference</i>	133.55	-34.43
<i>90% Confidence Interval</i>	(-307.3 574.4)	(-357.9 289.1)
<i>80% Confidence Interval</i>	(-209.9 477.0)	(-286.5 217.6)
<i>P-Value</i>	0.618	0.861
Inpatient Admissions		
<i>Difference</i>	275.14	129.05
<i>90% Confidence Interval</i>	(-70.7 621.0)	(-129.3 387.4)
<i>80% Confidence Interval</i>	(5.7 544.6)	(-72.3 330.4)
<i>P-Value</i>	0.191	0.411
Unplanned Inpatient Admissions		
<i>Difference</i>	249.96	106.30
<i>90% Confidence Interval</i>	(-71.3 571.2)	(-133.4 346.0)
<i>80% Confidence Interval</i>	(-0.4 500.3)	(-80.5 293.1)

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b
<i>P-Value</i>	0.201	0.466
Hospital Days		
<i>Difference</i>	799.32	-558.79
<i>90% Confidence Interval</i>	(-1,963.2 3,561.9)	(-2,637.2 1,519.6)
<i>80% Confidence Interval</i>	(-1,353.1 2,951.7)	(-2,178.1 1,060.5)
<i>P-Value</i>	0.634	0.658
All Surgeries		
<i>Difference</i>	55.21	55.52
<i>90% Confidence Interval</i>	(-246.2 356.6)	(-159.3 270.3)
<i>80% Confidence Interval</i>	(-179.6 290.1)	(-111.8 222.9)
<i>P-Value</i>	0.763	0.671
Inpatient Surgeries		
<i>Difference</i>	198.72*	191.24***
<i>90% Confidence Interval</i>	(31.0 366.4)	(69.5 313.0)
<i>80% Confidence Interval</i>	(68.1 329.4)	(96.4 286.1)
<i>P-Value</i>	0.051	0.010
Surgical Hospital Days		
<i>Difference</i>	1,186.99	807.14
<i>90% Confidence Interval</i>	(-488.7 2,862.7)	(-436.9 2,051.2)
<i>80% Confidence Interval</i>	(-118.6 2,492.6)	(-162.1 1,776.4)
<i>P-Value</i>	0.286	0.286
Outpatient Surgeries		
<i>Difference</i>	-143.51	-135.72
<i>90% Confidence Interval</i>	(-387.0 100.0)	(-307.8 36.4)
<i>80% Confidence Interval</i>	(-333.2 46.2)	(-269.8 -1.6)
<i>P-Value</i>	0.332	0.195
All PS^c Orthopedic Surgeries		
<i>Difference</i>	-17.40	-5.11
<i>90% Confidence Interval</i>	(-118.1 83.3)	(-77.1 66.9)
<i>80% Confidence Interval</i>	(-95.9 61.1)	(-61.2 51.0)
<i>P-Value</i>	0.776	0.907
Inpatient PS Orthopedic Surgeries		
<i>Difference</i>	15.90	20.27
<i>90% Confidence Interval</i>	(-80.4 112.2)	(-48.4 88.9)
<i>80% Confidence Interval</i>	(-59.1 90.9)	(-33.2 73.7)
<i>P-Value</i>	0.786	0.627
PS Orthopedic Surgery Hospital Days		

Measures (Number of Events or Days)	Full Intervention Period^a	Total Year 1^b
<i>Difference</i>	19.88	-10.63
<i>90% Confidence Interval</i>	(-634.3 674.1)	(-482.3 461.0)
<i>80% Confidence Interval</i>	(-489.8 529.6)	(-378.1 356.8)
<i>P-Value</i>	0.960	0.970
Outpatient PS Orthopedic Surgeries		
<i>Difference</i>	-33.30*	-25.38*
<i>90% Confidence Interval</i>	(-62.7 -3.9)	(-47.1 -3.7)
<i>80% Confidence Interval</i>	(-56.2 -10.4)	(-42.3 -8.5)
<i>P-Value</i>	0.062	0.054
All PS Cardiac Surgeries		
<i>Difference</i>	-9.68	8.10
<i>90% Confidence Interval</i>	(-108.1 88.7)	(-62.8 79.0)
<i>80% Confidence Interval</i>	(-86.4 67.0)	(-47.2 63.4)
<i>P-Value</i>	0.871	0.851
Inpatient PS Cardiac Surgeries		
<i>Difference</i>	76.52*	55.47*
<i>90% Confidence Interval</i>	(4.5 148.5)	(3.7 107.2)
<i>80% Confidence Interval</i>	(20.4 132.6)	(15.2 95.8)
<i>P-Value</i>	0.080	0.078
Inpatient PS Cardiac Surgical Hospital Days		
<i>Difference</i>	425.33	75.83
<i>90% Confidence Interval</i>	(-203.9 1,054.6)	(-399.3 551.0)
<i>80% Confidence Interval</i>	(-65.0 915.6)	(-294.4 446.0)
<i>P-Value</i>	0.266	0.793
Outpatient PS Cardiac Surgeries		
<i>Difference</i>	-86.20**	-47.37*
<i>90% Confidence Interval</i>	(-149.0 -23.4)	(-92.8 -2.0)
<i>80% Confidence Interval</i>	(-135.1 -37.3)	(-82.7 -12.0)
<i>P-Value</i>	0.024	0.086

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cPS = Preference Sensitive.

Appendix Table B-23: Quarterly DiD Estimates of Resource Use (Number of Events or Days per 1,000 Beneficiaries), Welvie Ohio FFS ITT Analysis Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>Number of Participant Beneficiaries</i>	58,582	57,711	56,851	55,987	55,044	54,177	53,341	52,424	51,471	50,679	49,929	49,150
ER Visits	0.23	-4.95*	-6.82**	-0.23	-2.77	-1.14	-1.17	-0.83	-0.04	-1.39	1.50	1.42
<i>90% Confidence Interval</i>	(-4,5)	(-10,0)	(-11,-2)	(-5,4)	(-8,2)	(-6,4)	(-6,4)	(-6,4)	(-5,5)	(-7,4)	(-4,7)	(-4,6)
<i>80% Confidence Interval</i>	(-3,4)	(-9,-1)	(-10,-3)	(-4,3)	(-7,1)	(-5,3)	(-5,3)	(-5,3)	(-4,4)	(-5,3)	(-2,5)	(-3,5)
<i>P-Value</i>	0.934	0.088	0.015	0.934	0.352	0.710	0.692	0.782	0.989	0.657	0.624	0.643
Inpatient Admissions	-4.77*	-2.44	-1.52	1.64	4.54*	0.79	-3.28	-2.80	-1.03	2.57	-3.69	1.34
<i>90% Confidence Interval</i>	(-9,0)	(-7,2)	(-6,3)	(-3,6)	(0,9)	(-4,5)	(-8,1)	(-7,2)	(-6,4)	(-2,7)	(-8,1)	(-3,6)
<i>80% Confidence Interval</i>	(-8,-1)	(-6,1)	(-5,2)	(-2,5)	(1,8)	(-3,4)	(-7,0)	(-6,1)	(-5,3)	(-1,6)	(-7,0)	(-2,5)
<i>P-Value</i>	0.080	0.362	0.568	0.544	0.094	0.762	0.225	0.313	0.710	0.335	0.178	0.631
Unplanned Inpatient Admissions	-4.02	-1.61	-1.05	2.20	5.22**	0.35	-3.24	-1.87	-0.98	3.74	-2.91	1.62
<i>90% Confidence Interval</i>	(-8,0)	(-6,2)	(-5,3)	(-2,6)	(1,9)	(-4,4)	(-7,1)	(-6,2)	(-5,3)	(0,8)	(-7,1)	(-3,6)
<i>80% Confidence Interval</i>	(-7,-1)	(-5,2)	(-4,2)	(-1,5)	(2,8)	(-3,3)	(-6,0)	(-5,1)	(-4,2)	(1,7)	(-6,0)	(-2,5)
<i>P-Value</i>	0.106	0.507	0.661	0.368	0.034	0.881	0.183	0.460	0.697	0.121	0.251	0.536
Hospital Days	-15.93	5.28	-10.97	-24.72	24.92	23.56	-26.81	-36.51	-17.04	-9.50	-21.51	2.96
<i>90% Confidence Interval</i>	(-64,32)	(-30,40)	(-46,25)	(-70,21)	(-14,64)	(-12,59)	(-61,7)	(-77,4)	(-55,21)	(-47,28)	(-57,14)	(-33,39)
<i>80% Confidence Interval</i>	(-53,21)	(-22,33)	(-39,17)	(-60,11)	(-5,55)	(-4,51)	(-53,0)	(-68,-5)	(-47,13)	(-39,20)	(-49,6)	(-25,31)
<i>P-Value</i>	0.583	0.805	0.611	0.373	0.290	0.275	0.196	0.137	0.465	0.679	0.316	0.893
All Surgeries	0.68	-1.46	-0.96	-1.87	2.24	0.43	4.11	-0.82	-0.12	-1.15	1.68	3.35
<i>90% Confidence Interval</i>	(-4,6)	(-7,4)	(-7,5)	(-7,3)	(-4,8)	(-5,6)	(-2,10)	(-6,5)	(-6,6)	(-7,5)	(-5,8)	(-3,10)
<i>80% Confidence Interval</i>	(-3,5)	(-6,3)	(-5,3)	(-6,2)	(-2,7)	(-4,5)	(-1,9)	(-5,3)	(-5,5)	(-6,4)	(-3,7)	(-2,8)
<i>P-Value</i>	0.828	0.655	0.774	0.562	0.535	0.901	0.264	0.805	0.974	0.764	0.665	0.393
Inpatient Surgeries	-1.76	-1.46	-0.18	0.00	0.15	0.18	0.42	-0.40	0.30	-1.31	-0.81	1.41
<i>90% Confidence Interval</i>	(-4,0)	(-3,0)	(-2,2)	(-2,2)	(-2,2)	(-2,2)	(-1,2)	(-2,1)	(-2,2)	(-3,1)	(-3,1)	(0,3)
<i>80% Confidence Interval</i>	(-3,0)	(-3,0)	(-2,1)	(-1,1)	(-1,2)	(-1,2)	(-1,2)	(-2,1)	(-1,2)	(-3,0)	(-2,1)	(0,3)
<i>P-Value</i>	0.102	0.181	0.868	0.998	0.895	0.870	0.704	0.723	0.793	0.256	0.481	0.220

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Surgical Hospital Days	-18.31	-1.07	-1.19	-2.79	6.91	3.55	2.25	-4.24	8.06	-3.30	9.56	15.48
90% Confidence Interval	(-37,1)	(-18,15)	(-18,16)	(-21,16)	(-13,27)	(-12,20)	(-15,19)	(-22,13)	(-12,28)	(-19,13)	(-7,26)	(-1,32)
80% Confidence Interval	(-33,-4)	(-14,12)	(-15,12)	(-17,12)	(-9,22)	(-9,16)	(-11,15)	(-18,9)	(-8,24)	(-16,9)	(-4,23)	(3,28)
P-Value	0.111	0.915	0.909	0.803	0.567	0.716	0.828	0.692	0.507	0.733	0.349	0.112
Outpatient Surgeries	2.44	0.01	-0.78	-1.86	2.09	0.24	3.68	-0.42	-0.41	0.16	2.50	1.94
90% Confidence Interval	(-2,7)	(-5,5)	(-6,4)	(-7,3)	(-3,8)	(-5,5)	(-2,9)	(-5,5)	(-6,5)	(-6,6)	(-4,8)	(-4,8)
80% Confidence Interval	(-1,6)	(-4,4)	(-5,3)	(-6,2)	(-2,6)	(-4,4)	(-1,8)	(-4,3)	(-5,4)	(-4,5)	(-2,7)	(-3,7)
P-Value	0.395	0.998	0.801	0.526	0.534	0.938	0.283	0.891	0.903	0.965	0.494	0.598
All PS ^a Orthopedic Surgeries	0.40	-0.33	0.42	-0.11	0.27	-0.15	0.34	0.21	-0.64	0.04	-0.84	-0.05
90% Confidence Interval	(0,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-2,0)	(-1,1)	(-2,0)	(-1,1)
80% Confidence Interval	(0,1)	(-1,0)	(0,1)	(-1,1)	(0,1)	(-1,1)	(0,1)	(-1,1)	(-1,0)	(-1,1)	(-2,0)	(-1,1)
P-Value	0.444	0.539	0.458	0.835	0.618	0.796	0.545	0.713	0.270	0.944	0.143	0.928
Inpatient PS Orthopedic Surgeries	0.26	-0.08	0.72	0.04	0.34	0.19	0.58	0.15	-0.21	-0.02	-0.64	-0.04
90% Confidence Interval	(-1,1)	(-1,1)	(0,2)	(-1,1)	(0,1)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(-1,1)	(-2,0)	(-1,1)
80% Confidence Interval	(0,1)	(-1,1)	(0,1)	(-1,1)	(0,1)	(0,1)	(0,1)	(-1,1)	(-1,0)	(-1,1)	(-1,0)	(-1,1)
P-Value	0.597	0.879	0.18	0.933	0.505	0.714	0.274	0.774	0.695	0.975	0.243	0.940
PS Orthopedic Surgery Hospital Days	0.01	-0.68	5.81	-3.11	2.81	-0.79	-0.48	-1.99	-3.74	-4.94	-1.90	-1.36
90% Confidence Interval	(-4,4)	(-5,4)	(0,12)	(-9,2)	(-2,8)	(-6,5)	(-6,5)	(-7,3)	(-9,2)	(-11,1)	(-7,3)	(-6,4)
80% Confidence Interval	(-3,4)	(-4,3)	(1,10)	(-7,1)	(-1,7)	(-5,3)	(-5,4)	(-6,2)	(-8,0)	(-10,0)	(-6,2)	(-5,2)
P-Value	0.997	0.813	0.110	0.353	0.343	0.806	0.891	0.544	0.252	0.167	0.544	0.649
Outpatient PS Orthopedic Surgeries	0.14	-0.26	-0.30	-0.16	-0.07	-0.34*	-0.24	0.06	-0.42**	0.06	-0.21	-0.01
90% Confidence Interval	(0,0)	(-1,0)	(-1,0)	(0,0)	(0,0)	(-1,0)	(-1,0)	(0,0)	(-1,0)	(0,0)	(-1,0)	(0,0)
80% Confidence Interval	(0,0)	(-1,0)	(-1,0)	(0,0)	(0,0)	(-1,0)	(0,0)	(0,0)	(-1,0)	(0,0)	(0,0)	(0,0)
P-Value	0.409	0.206	0.104	0.373	0.704	0.067	0.191	0.769	0.036	0.746	0.254	0.955
All PS Cardiac Surgeries	-1.03*	-0.20	0.47	-0.08	-0.39	-0.18	0.15	-0.65	0.01	0.23	0.62	0.47
90% Confidence Interval	(-2,0)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-2,0)	(-1,1)	(-1,1)	(0,2)	(0,1)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>80% Confidence Interval</i>	(-2,0)	(-1,1)	(0,1)	(-1,1)	(-1,0)	(-1,1)	(-1,1)	(-1,0)	(-1,1)	(-1,1)	(0,1)	(0,1)
<i>P-Value</i>	0.077	0.731	0.421	0.895	0.507	0.768	0.801	0.286	0.988	0.715	0.277	0.422
Inpatient PS Cardiac Surgeries	-0.55	-0.19	0.35	0.08	-0.26	-0.13	-0.17	-0.49	-0.16	-0.69*	0.36	0.10
<i>90% Confidence Interval</i>	(-1,0)	(-1,0)	(0,1)	(-1,1)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(0,1)	(-1,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,0)	(0,1)	(0,1)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(0,1)	(0,1)
<i>P-Value</i>	0.154	0.632	0.337	0.819	0.496	0.739	0.655	0.217	0.680	0.087	0.300	0.789
Inpatient PS Cardiac Surgical Hospital Days	-0.32	-1.96	2.71	0.67	3.50	-0.08	-0.31	-5.65*	-2.89	-2.27	3.44	3.59
<i>90% Confidence Interval</i>	(-6,6)	(-7,3)	(-2,8)	(-5,6)	(-9,16)	(-5,5)	(-5,5)	(-11,0)	(-8,2)	(-7,3)	(-1,8)	(-1,8)
<i>80% Confidence Interval</i>	(-5,4)	(-6,2)	(-1,7)	(-3,5)	(-6,13)	(-4,4)	(-4,4)	(-10,-1)	(-7,1)	(-6,2)	(0,7)	(0,7)
<i>P-Value</i>	0.928	0.543	0.374	0.831	0.638	0.976	0.916	0.095	0.356	0.449	0.172	0.227
Outpatient PS Cardiac Surgeries	-0.47	-0.02	0.12	-0.16	-0.14	-0.05	0.32	-0.16	0.17	0.92**	0.26	0.38
<i>90% Confidence Interval</i>	(-1,0)	(-1,1)	(-1,1)	(-1,0)	(-1,1)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(0,2)	(0,1)	(0,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,0)	(0,1)	(-1,0)	(-1,0)	(-1,0)	(0,1)	(-1,0)	(0,1)	(0,1)	(0,1)	(0,1)
<i>P-Value</i>	0.240	0.967	0.775	0.686	0.747	0.904	0.439	0.702	0.687	0.034	0.534	0.379

* Statistically significant at the ten percent level.
 ** Statistically significant at the five percent level.
^aPS = Preference-sensitive.

Appendix Table B-24: Quarterly DiD Estimates of Resource Use (Number of Events or Days per 1,000 Beneficiaries), Welvie Ohio MA ITT Analysis Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>Number of Participant Beneficiaries</i>	97,380	96,492	95,477	92,080	91,230	90,076	89,069	82,860	81,907	79,501	78,171
ER Visits	0.40	1.21	-0.63	-0.05	-0.57	-1.37	-3.16*	-2.60	0.60	0.34	0.90
<i>90% Confidence Interval</i>	(-2,3)	(-2,4)	(-3,2)	(-3,3)	(-3,2)	(-4,1)	(-6,0)	(-6,0)	(-2,3)	(-2,2)	(-1,2)
<i>80% Confidence Interval</i>	(-2,3)	(-1,3)	(-3,2)	(-2,2)	(-3,2)	(-3,1)	(-5,-1)	(-5,0)	(-2,3)	(-1,2)	(0,2)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>P-Value</i>	0.811	0.478	0.714	0.975	0.739	0.389	0.067	0.145	0.727	0.775	0.300
Inpatient Admissions	-0.43	-0.97	-2.45	-1.16	-0.38	0.07	-2.14	2.26	-0.21	-1.37	-2.95*
<i>90% Confidence Interval</i>	(-3,2)	(-4,2)	(-5,0)	(-4,1)	(-3,2)	(-2,3)	(-5,0)	(0,5)	(-3,2)	(-4,1)	(-6,0)
<i>80% Confidence Interval</i>	(-3,2)	(-3,1)	(-4,0)	(-3,1)	(-2,2)	(-2,2)	(-4,0)	(0,4)	(-2,2)	(-3,1)	(-5,-1)
<i>P-Value</i>	0.796	0.558	0.123	0.455	0.810	0.965	0.156	0.147	0.895	0.390	0.057
Unplanned Inpatient Admissions	-0.94	-0.52	-2.35	-1.39	0.05	-1.29	-2.52*	0.91	-0.61	-2.08	-2.87**
<i>90% Confidence Interval</i>	(-3,2)	(-3,2)	(-5,0)	(-4,1)	(-2,2)	(-4,1)	(-5,0)	(-1,3)	(-3,2)	(-5,0)	(-5,0)
<i>80% Confidence Interval</i>	(-3,1)	(-2,1)	(-4,0)	(-3,0)	(-2,2)	(-3,1)	(-4,-1)	(-1,3)	(-2,1)	(-4,0)	(-5,-1)
<i>P-Value</i>	0.539	0.737	0.110	0.329	0.971	0.360	0.069	0.523	0.673	0.164	0.047
Hospital Days	-4.25	5.71	-26.82**	-9.56	-9.88	4.27	-6.61	2.80	2.83	-6.55	-21.42*
<i>90% Confidence Interval</i>	(-25,16)	(-14,26)	(-48,-6)	(-29,10)	(-29,9)	(-15,23)	(-25,12)	(-17,23)	(-17,22)	(-26,13)	(-41,-2)
<i>80% Confidence Interval</i>	(-20,12)	(-10,21)	(-43,-10)	(-25,5)	(-25,5)	(-10,19)	(-21,8)	(-13,18)	(-12,18)	(-21,8)	(-37,-6)
<i>P-Value</i>	0.734	0.638	0.035	0.413	0.395	0.709	0.561	0.819	0.810	0.572	0.073
All Surgeries	-1.18	0.03	-3.78**	-1.65	0.18	0.42	-1.18	0.93	-0.28	0.28	-0.30
<i>90% Confidence Interval</i>	(-4,1)	(-3,3)	(-6,-1)	(-4,1)	(-3,3)	(-2,3)	(-4,1)	(-2,3)	(-3,2)	(-3,3)	(-3,3)
<i>80% Confidence Interval</i>	(-3,1)	(-2,2)	(-6,-2)	(-4,0)	(-2,2)	(-2,2)	(-3,1)	(-1,3)	(-2,2)	(-2,3)	(-3,2)
<i>P-Value</i>	0.452	0.984	0.014	0.294	0.913	0.784	0.441	0.537	0.856	0.877	0.875
Inpatient Surgeries	-0.71	-1.16	-2.25***	-0.72	-0.63	0.34	-0.10	0.61	-0.09	-0.60	-0.34
<i>90% Confidence Interval</i>	(-2,1)	(-3,0)	(-4,-1)	(-2,1)	(-2,1)	(-1,2)	(-1,1)	(-1,2)	(-1,1)	(-2,0)	(-1,1)
<i>80% Confidence Interval</i>	(-2,0)	(-2,0)	(-3,-1)	(-2,0)	(-2,0)	(-1,1)	(-1,1)	(0,2)	(-1,1)	(-1,0)	(-1,0)
<i>P-Value</i>	0.429	0.187	0.008	0.391	0.414	0.685	0.909	0.463	0.902	0.301	0.576
Surgical Hospital Days	-4.53	-2.30	-14.22*	-7.16	-8.31	4.64	0.62	-6.52	2.28	1.39	0.24
<i>90% Confidence Interval</i>	(-17,7)	(-14,9)	(-27,-2)	(-18,4)	(-19,2)	(-7,16)	(-11,12)	(-17,4)	(-6,11)	(-6,9)	(-8,8)
<i>80% Confidence Interval</i>	(-14,5)	(-11,6)	(-24,-4)	(-16,2)	(-17,0)	(-4,13)	(-8,10)	(-15,2)	(-4,9)	(-4,7)	(-6,7)
<i>P-Value</i>	0.535	0.736	0.064	0.290	0.201	0.502	0.929	0.324	0.663	0.749	0.960
Outpatient Surgeries	-0.47	1.19	-1.53	-0.93	0.81	0.08	-1.09	0.32	-0.19	0.88	0.04
<i>90% Confidence Interval</i>	(-3,2)	(-1,3)	(-4,1)	(-3,1)	(-1,3)	(-2,2)	(-3,1)	(-2,2)	(-2,2)	(-2,4)	(-3,3)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>80% Confidence Interval</i>	(-2,1)	(0,3)	(-3,0)	(-3,1)	(-1,3)	(-1,2)	(-3,0)	(-1,2)	(-2,2)	(-1,3)	(-2,2)
<i>P-Value</i>	0.705	0.333	0.215	0.471	0.562	0.948	0.377	0.790	0.885	0.599	0.980
All PS ^a Orthopedic Surgeries	-0.18	-0.30	-0.76	-0.13	0.50	-0.17	0.07	0.02	0.13	-0.21	-0.12
<i>90% Confidence Interval</i>	(-1,1)	(-1,1)	(-2,0)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)
<i>80% Confidence Interval</i>	(-1,1)	(-1,0)	(-1,0)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,0)	(-1,1)
<i>P-Value</i>	0.761	0.603	0.180	0.814	0.366	0.753	0.906	0.975	0.797	0.630	0.814
Inpatient PS Orthopedic Surgeries	0.05	-0.15	-0.64	-0.09	0.40	-0.10	0.13	0.19	0.12	-0.27	-0.24
<i>90% Confidence Interval</i>	(-1,1)	(-1,1)	(-2,0)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(-1,1)	(-1,1)	(-1,0)	(-1,1)
<i>80% Confidence Interval</i>	(-1,1)	(-1,1)	(-1,0)	(-1,1)	(0,1)	(-1,1)	(-1,1)	(0,1)	(-1,1)	(-1,0)	(-1,0)
<i>P-Value</i>	0.932	0.784	0.247	0.874	0.450	0.856	0.812	0.712	0.807	0.524	0.618
PS Orthopedic Surgery Hospital Days	1.66	1.46	-1.45	-2.28	0.72	1.42	1.98	-2.43	1.07	2.39	1.63
<i>90% Confidence Interval</i>	(-4,7)	(-4,7)	(-7,4)	(-8,3)	(-6,7)	(-5,8)	(-4,8)	(-8,3)	(-4,6)	(-3,8)	(-5,8)
<i>80% Confidence Interval</i>	(-3,6)	(-3,6)	(-6,3)	(-7,2)	(-4,6)	(-4,7)	(-3,7)	(-7,2)	(-3,5)	(-2,6)	(-3,7)
<i>P-Value</i>	0.635	0.661	0.684	0.491	0.859	0.728	0.604	0.460	0.746	0.456	0.683
Outpatient PS Orthopedic Surgeries	-0.23	-0.15	-0.13	-0.05	0.10	-0.08	-0.06	-0.17	0.01	0.06	0.12
<i>90% Confidence Interval</i>	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)
<i>80% Confidence Interval</i>	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)	(0,0)
<i>P-Value</i>	0.119	0.294	0.385	0.746	0.501	0.539	0.592	0.175	0.932	0.630	0.277
All PS Cardiac Surgeries	-0.27	0.01	-1.61***	-0.98**	-0.43	-0.36	-0.73	0.01	-0.17	0.07	0.05
<i>90% Confidence Interval</i>	(-1,1)	(-1,1)	(-2,-1)	(-2,0)	(-1,0)	(-1,0)	(-2,0)	(-1,1)	(-1,1)	(-1,1)	(-1,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,1)	(-2,-1)	(-2,0)	(-1,0)	(-1,0)	(-1,0)	(-1,1)	(-1,0)	(0,1)	(-1,1)
<i>P-Value</i>	0.629	0.985	0.002	0.049	0.395	0.480	0.156	0.977	0.718	0.871	0.916
Inpatient PS Cardiac Surgeries	-0.21	-0.32	-1.05**	-0.83**	0.03	-0.35	-0.54	-0.01	-0.16	-0.09	-0.09
<i>90% Confidence Interval</i>	(-1,1)	(-1,0)	(-2,0)	(-1,0)	(-1,1)	(-1,0)	(-1,0)	(-1,1)	(-1,0)	(-1,0)	(-1,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,0)	(-2,0)	(-1,0)	(0,1)	(-1,0)	(-1,0)	(-1,1)	(-1,0)	(-1,0)	(-1,0)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>P-Value</i>	0.653	0.473	0.018	0.041	0.935	0.405	0.212	0.975	0.692	0.806	0.816
Inpatient PS Cardiac Surgical Hospital Days	-4.24	2.66	-5.81**	-6.12**	-1.00	-0.16	-3.31	-0.10	1.85	1.41	-1.30
<i>90% Confidence Interval</i>	(-10,2)	(-2,8)	(-11,-1)	(-11,-1)	(-7,5)	(-6,5)	(-9,2)	(-5,5)	(-3,7)	(-3,6)	(-6,3)
<i>80% Confidence Interval</i>	(-9,0)	(-1,7)	(-10,-2)	(-10,-2)	(-6,4)	(-4,4)	(-8,1)	(-4,4)	(-2,6)	(-2,5)	(-5,2)
<i>P-Value</i>	0.243	0.394	0.049	0.032	0.783	0.963	0.339	0.974	0.529	0.592	0.641
Outpatient PS Cardiac Surgeries	-0.06	0.33	-0.56**	-0.15	-0.46*	-0.01	-0.19	0.03	-0.02	0.16	0.14
<i>90% Confidence Interval</i>	(-1,0)	(0,1)	(-1,0)	(-1,0)	(-1,0)	(0,0)	(-1,0)	(0,0)	(0,0)	(0,1)	(0,1)
<i>80% Confidence Interval</i>	(0,0)	(0,1)	(-1,0)	(-1,0)	(-1,0)	(0,0)	(-1,0)	(0,0)	(0,0)	(0,0)	(0,0)
<i>P-Value</i>	0.833	0.213	0.034	0.571	0.090	0.975	0.462	0.918	0.952	0.539	0.615

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aPS = Preference-sensitive.

Appendix Table B-25: Quarterly DiD Estimates of Resource Use (Number of Events or Days per 1,000 Beneficiaries), Welvie Texas MA ITT Analysis Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	63,979	63,885	50,346	49,822	49,356	48,797
ER Visits	1.52	-0.59	-3.35	0.22	3.73	2.17
<i>90% Confidence Interval</i>	(-3,6)	(-5,4)	(-9,2)	(-5,5)	(-2,9)	(-3,8)
<i>80% Confidence Interval</i>	(-2,5)	(-4,3)	(-7,1)	(-4,4)	(0,8)	(-2,6)
<i>P-Value</i>	0.602	0.838	0.293	0.946	0.248	0.509
Inpatient Admissions	2.36	2.58	-3.33	2.54	5.76**	0.65
<i>90% Confidence Interval</i>	(-1,6)	(-1,6)	(-8,1)	(-2,7)	(2,10)	(-3,5)
<i>80% Confidence Interval</i>	(0,5)	(0,6)	(-7,0)	(-1,6)	(2,9)	(-2,4)
<i>P-Value</i>	0.283	0.259	0.231	0.355	0.025	0.787
Unplanned Inpatient Admissions	1.97	2.85	-2.90	1.44	6.17***	0.32
<i>90% Confidence Interval</i>	(-1,5)	(-1,6)	(-7,1)	(-3,6)	(2,10)	(-3,4)
<i>80% Confidence Interval</i>	(-1,5)	(0,6)	(-6,0)	(-2,5)	(3,9)	(-3,3)
<i>P-Value</i>	0.335	0.179	0.266	0.569	0.010	0.890
Hospital Days	-5.22	4.95	-46.44**	26.13	49.01**	13.34
<i>90% Confidence Interval</i>	(-34,23)	(-26,36)	(-84,-9)	(-10,62)	(16,83)	(-19,46)
<i>80% Confidence Interval</i>	(-28,17)	(-19,29)	(-75,-17)	(-2,54)	(23,75)	(-12,38)
<i>P-Value</i>	0.765	0.793	0.040	0.237	0.016	0.495
All Surgeries	0.07	0.95	0.07	0.46	0.80	-0.41
<i>90% Confidence Interval</i>	(-3,3)	(-2,4)	(-3,3)	(-3,4)	(-3,4)	(-4,3)
<i>80% Confidence Interval</i>	(-2,2)	(-1,3)	(-2,3)	(-2,3)	(-2,4)	(-3,2)
<i>P-Value</i>	0.967	0.615	0.971	0.822	0.709	0.848
Inpatient Surgeries	2.25**	1.36	0.95	2.21*	0.62	-0.20
<i>90% Confidence Interval</i>	(1,4)	(0,3)	(-1,3)	(0,4)	(-1,3)	(-2,2)
<i>80% Confidence Interval</i>	(1,4)	(0,3)	(0,2)	(1,4)	(-1,2)	(-2,1)
<i>P-Value</i>	0.030	0.198	0.388	0.056	0.589	0.862
Surgical Hospital Days	2.40	8.23	-5.42	21.33*	16.43	4.76
<i>90% Confidence Interval</i>	(-16,20)	(-9,26)	(-27,16)	(1,42)	(-2,35)	(-14,24)
<i>80% Confidence Interval</i>	(-12,16)	(-5,22)	(-22,11)	(5,37)	(2,31)	(-10,20)
<i>P-Value</i>	0.826	0.435	0.675	0.086	0.153	0.679
Outpatient Surgeries	-2.17	-0.41	-0.88	-1.75	0.18	-0.21
<i>90% Confidence Interval</i>	(-4,0)	(-3,2)	(-3,2)	(-4,1)	(-3,3)	(-3,3)
<i>80% Confidence Interval</i>	(-4,0)	(-2,2)	(-3,1)	(-4,0)	(-2,2)	(-2,2)
<i>P-Value</i>	0.114	0.788	0.558	0.289	0.919	0.904
All PS ^a Orthopedic Surgeries	-0.19	0.38	-0.91	0.55	-0.37	0.14
<i>90% Confidence Interval</i>	(-1,1)	(-1,1)	(-2,0)	(0,2)	(-1,1)	(-1,1)
<i>80% Confidence Interval</i>	(-1,1)	(0,1)	(-2,0)	(0,1)	(-1,0)	(-1,1)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6
<i>P-Value</i>	0.758	0.547	0.115	0.380	0.562	0.834
Inpatient PS Orthopedic Surgeries	-0.01	0.56	-0.64	0.94	-0.12	0.24
<i>90% Confidence Interval</i>	(-1,1)	(0,2)	(-2,0)	(0,2)	(-1,1)	(-1,1)
<i>80% Confidence Interval</i>	(-1,1)	(0,1)	(-1,0)	(0,2)	(-1,1)	(-1,1)
<i>P-Value</i>	0.987	0.356	0.240	0.113	0.839	0.704
PS Orthopedic Surgery Hospital Days	-1.64	3.41	-9.86***	5.85	1.67	-0.05
<i>90% Confidence Interval</i>	(-8,5)	(-4,11)	(-16,-4)	(0,12)	(-5,9)	(-7,7)
<i>80% Confidence Interval</i>	(-7,3)	(-2,9)	(-15,-5)	(1,11)	(-4,7)	(-5,5)
<i>P-Value</i>	0.670	0.456	0.010	0.124	0.696	0.991
Outpatient PS Orthopedic Surgeries	-0.18	-0.18	-0.27	-0.39**	-0.24	-0.10
<i>90% Confidence Interval</i>	(-1,0)	(0,0)	(-1,0)	(-1,0)	(-1,0)	(0,0)
<i>80% Confidence Interval</i>	(0,0)	(0,0)	(-1,0)	(-1,0)	(0,0)	(0,0)
<i>P-Value</i>	0.389	0.352	0.152	0.041	0.162	0.641
All PS Cardiac Surgeries	0.09	0.11	-0.25	0.44	-0.83	0.31
<i>90% Confidence Interval</i>	(-1,1)	(-1,1)	(-1,1)	(-1,2)	(-2,0)	(-1,1)
<i>80% Confidence Interval</i>	(-1,1)	(-1,1)	(-1,1)	(0,1)	(-2,0)	(-1,1)
<i>P-Value</i>	0.880	0.851	0.680	0.497	0.190	0.641
Inpatient PS Cardiac Surgeries	0.37	0.57	0.24	0.90**	0.33	0.55
<i>90% Confidence Interval</i>	(0,1)	(0,1)	(0,1)	(0,2)	(0,1)	(0,1)
<i>80% Confidence Interval</i>	(0,1)	(0,1)	(0,1)	(0,1)	(0,1)	(0,1)
<i>P-Value</i>	0.388	0.195	0.572	0.042	0.436	0.227
Inpatient PS Cardiac Surgical Hospital Days	-1.70	4.57	-9.60	9.23**	7.60*	6.69*
<i>90% Confidence Interval</i>	(-8,4)	(-1,11)	(-20,1)	(3,16)	(1,15)	(0,13)
<i>80% Confidence Interval</i>	(-6,3)	(0,9)	(-18,-2)	(4,14)	(2,13)	(2,12)
<i>P-Value</i>	0.648	0.205	0.121	0.021	0.075	0.094
Outpatient PS Cardiac Surgeries	-0.28	-0.46	-0.49	-0.46	-1.16***	-0.23
<i>90% Confidence Interval</i>	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-2,0)	(-1,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-2,-1)	(-1,0)
<i>P-Value</i>	0.460	0.235	0.231	0.303	0.008	0.609

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aPS = Preference-sensitive.

Appendix Table B-26: Quarterly DiD Estimates of Resource Use (Number of Events or Days per 1,000 Beneficiaries), Welvie Ohio FFS IV Analysis Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>Number of Participant Beneficiaries</i>	1,133	1,132	1,127	1,116	1,113	1,104	1,092	1,085	1,074	1,063	1,053	1,041
ER Visits	12.28	-258.17*	-352.04**	-12.01	-140.27	-57.38	-58.49	-41.24	-2.09	-67.90	72.85	68.74
<i>90% Confidence Interval</i>	(-233,258)	(-507,-9)	(-591,-113)	(-251,227)	(-388,108)	(-311,196)	(-301,184)	(-286,204)	(-251,247)	(-320,184)	(-172,317)	(-175,312)
<i>80% Confidence Interval</i>	(-179,203)	(-452,-64)	(-538,-166)	(-199,175)	(-333,53)	(-255,140)	(-248,131)	(-232,150)	(-196,192)	(-264,128)	(-118,263)	(-121,259)
<i>P-Value</i>	0.934	0.088	0.015	0.934	0.352	0.710	0.692	0.782	0.989	0.657	0.624	0.643
Inpatient Admissions	-252.60*	-127.55	-78.42	84.17	229.87*	39.82	-164.16	-138.81	-50.45	125.63	-179.04	64.95
<i>90% Confidence Interval</i>	(-490,-16)	(-357,102)	(-304,147)	(-144,312)	(4,456)	(-177,256)	(-387,58)	(-365,87)	(-274,173)	(-89,340)	(-398,40)	(-158,287)
<i>80% Confidence Interval</i>	(-437,-68)	(-307,52)	(-254,97)	(-94,262)	(54,406)	(-129,209)	(-338,9)	(-315,37)	(-225,124)	(-41,293)	(-349,-9)	(-108,238)
<i>P-Value</i>	0.080	0.362	0.568	0.544	0.094	0.762	0.225	0.313	0.710	0.335	0.178	0.631
Unplanned Inpatient Admissions	-212.93	-84.06	-54.44	113.26	264.57**	17.82	-162.18	-92.42	-48.22	182.26	-141.46	78.40
<i>90% Confidence Interval</i>	(-430,4)	(-293,125)	(-258,150)	(-94,320)	(59,470)	(-178,213)	(-363,38)	(-298,113)	(-252,155)	(-11,375)	(-344,61)	(-130,287)
<i>80% Confidence Interval</i>	(-382,-44)	(-247,78)	(-213,104)	(-48,275)	(104,425)	(-134,170)	(-318,-6)	(-253,68)	(-207,110)	(32,333)	(-299,16)	(-84,241)
<i>P-Value</i>	0.106	0.507	0.661	0.368	0.034	0.881	0.183	0.460	0.697	0.121	0.251	0.536
Hospital Days	-842.97	275.86	-566.84	-1,270.06	1,262.51	1,184.40	-1,342.23	-1,808.37	-837.40	-463.77	-1,043.97	143.02
<i>90% Confidence Interval</i>	(-3368,1682)	(-1562,2114)	(-2400,1266)	(-3614,1073)	(-698,3223)	(-599,2968)	(-3048,364)	(-3809,192)	(-2724,1049)	(-2307,1379)	(-2758,670)	(-1600,1886)
<i>80% Confidence Interval</i>	(-2810,1125)	(-1156,1708)	(-1995,861)	(-3096,556)	(-265,2790)	(-205,2574)	(-2671,-13)	(-3367,-250)	(-2307,633)	(-1900,972)	(-2379,291)	(-1215,1501)
<i>P-Value</i>	0.583	0.805	0.611	0.373	0.290	0.275	0.196	0.137	0.465	0.679	0.316	0.893
All Surgeries	36.08	-75.98	-49.84	-95.91	113.56	21.38	205.68	-40.57	-5.78	-56.34	81.71	161.85

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>90% Confidence Interval</i>	(-238,310)	(-356,204)	(-336,236)	(-368,176)	(-188,415)	(-260,303)	(-97,509)	(-311,230)	(-301,290)	(-366,253)	(-229,392)	(-150,473)
<i>80% Confidence Interval</i>	(-177,249)	(-294,142)	(-273,173)	(-308,116)	(-121,348)	(-198,241)	(-30,442)	(-252,170)	(-236,225)	(-297,185)	(-160,324)	(-81,404)
<i>P-Value</i>	0.828	0.655	0.774	0.562	0.535	0.901	0.264	0.805	0.974	0.764	0.665	0.393
Inpatient Surgeries	-93.31	-76.42	-9.50	-0.16	7.45	9.12	21.24	-19.87	14.59	-64.00	-39.43	68.20
<i>90% Confidence Interval</i>	(-187,0)	(-170,18)	(-103,84)	(-95,94)	(-85,100)	(-82,100)	(-71,113)	(-112,72)	(-77,106)	(-157,29)	(-131,53)	(-23,160)
<i>80% Confidence Interval</i>	(-166,-20)	(-150,-3)	(-83,64)	(-74,74)	(-65,80)	(-62,80)	(-50,93)	(-92,52)	(-57,86)	(-136,8)	(-111,32)	(-3,140)
<i>P-Value</i>	0.102	0.181	0.868	0.998	0.895	0.870	0.704	0.723	0.793	0.256	0.481	0.220
Surgical Hospital Days	-969.04	-55.72	-61.48	-143.30	349.95	178.31	112.55	-209.78	395.84	-161.13	464.12	748.38
<i>90% Confidence Interval</i>	(-1968,30)	(-919,808)	(-950,827)	(-1090,803)	(-655,1354)	(-628,984)	(-738,963)	(-1080,660)	(-586,1378)	(-937,615)	(-350,1279)	(-26,1523)
<i>80% Confidence Interval</i>	(-1747,-191)	(-729,617)	(-754,631)	(-881,594)	(-433,1133)	(-450,806)	(-550,775)	(-888,468)	(-369,1161)	(-766,443)	(-171,1099)	(145,1352)
<i>P-Value</i>	0.111	0.915	0.909	0.803	0.567	0.716	0.828	0.692	0.507	0.733	0.349	0.112
Outpatient Surgeries	129.38	0.44	-40.34	-95.75	106.11	12.26	184.44	-20.70	-20.37	7.66	121.14	93.65
<i>90% Confidence Interval</i>	(-121,380)	(-256,257)	(-304,223)	(-344,153)	(-174,387)	(-248,273)	(-98,467)	(-268,227)	(-295,254)	(-282,297)	(-170,413)	(-198,386)
<i>80% Confidence Interval</i>	(-66,324)	(-199,200)	(-246,165)	(-289,98)	(-112,325)	(-191,215)	(-36,405)	(-214,172)	(-234,194)	(-218,233)	(-106,348)	(-134,321)
<i>P-Value</i>	0.395	0.998	0.801	0.526	0.534	0.938	0.283	0.891	0.903	0.965	0.494	0.598
All PS ^a Orthopedic Surgeries	21.11	-17.30	21.84	-5.88	13.72	-7.31	17.15	10.41	-31.20	2.02	-40.95	-2.48
<i>90% Confidence Interval</i>	(-24,67)	(-64,29)	(-27,70)	(-52,40)	(-32,59)	(-54,39)	(-29,64)	(-36,57)	(-78,15)	(-46,50)	(-87,5)	(-48,43)
<i>80% Confidence Interval</i>	(-14,56)	(-53,19)	(-16,60)	(-42,30)	(-22,49)	(-44,29)	(-19,53)	(-26,47)	(-67,5)	(-35,39)	(-77,-5)	(-38,33)
<i>P-Value</i>	0.444	0.539	0.458	0.835	0.618	0.796	0.545	0.713	0.270	0.944	0.143	0.928
Inpatient PS Orthopedic Surgeries	13.78	-3.96	37.32	2.24	17.26	9.78	29.24	7.59	-10.36	-0.86	-30.89	-1.95
<i>90% Confidence Interval</i>	(-29,57)	(-47,39)	(-8,83)	(-42,46)	(-25,60)	(-34,54)	(-15,73)	(-36,51)	(-54,33)	(-46,45)	(-74,13)	(-44,40)
<i>80% Confidence Interval</i>	(-20,47)	(-37,29)	(2,73)	(-32,36)	(-16,50)	(-24,44)	(-5,64)	(-26,41)	(-44,23)	(-36,35)	(-65,3)	(-35,31)
<i>P-Value</i>	0.597	0.879	0.180	0.933	0.505	0.714	0.274	0.774	0.695	0.975	0.243	0.940

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
PS Orthopedic Surgery Hospital Days	0.63	-35.69	299.93	-159.82	142.24	-39.87	-24.09	-98.39	-183.77	-241.14	-92.08	-65.92
<i>90% Confidence Interval</i>	(-237,238)	(-284,213)	(-9,609)	(-443,123)	(-104,389)	(-307,228)	(-314,266)	(-365,168)	(-447,80)	(-528,46)	(-341,157)	(-304,172)
<i>80% Confidence Interval</i>	(-184,186)	(-229,158)	(59,541)	(-381,61)	(-50,334)	(-248,169)	(-250,202)	(-306,109)	(-389,22)	(-465,-18)	(-286,102)	(-252,120)
<i>P-Value</i>	0.997	0.813	0.110	0.353	0.343	0.806	0.891	0.544	0.252	0.167	0.544	0.649
Outpatient PS Orthopedic Surgeries	7.33	-13.34	-15.48	-8.12	-3.54	-17.09*	-12.10	2.82	-20.84**	2.88	-10.06	-0.53
<i>90% Confidence Interval</i>	(-7,22)	(-31,4)	(-31,0)	(-23,7)	(-19,12)	(-32,-2)	(-27,3)	(-13,19)	(-37,-4)	(-12,18)	(-25,4)	(-16,15)
<i>80% Confidence Interval</i>	(-4,19)	(-27,0)	(-28,-3)	(-20,4)	(-15,8)	(-29,-5)	(-24,0)	(-10,15)	(-34,-8)	(-9,14)	(-21,1)	(-13,12)
<i>P-Value</i>	0.409	0.206	0.104	0.373	0.704	0.067	0.191	0.769	0.036	0.746	0.254	0.955
All PS Cardiac Surgeries	-54.34*	-10.66	24.08	-3.86	-19.86	-8.88	7.45	-32.09	0.46	11.04	30.04	22.95
<i>90% Confidence Interval</i>	(-105,-4)	(-62,40)	(-25,73)	(-52,44)	(-69,29)	(-58,41)	(-41,56)	(-82,17)	(-49,50)	(-39,61)	(-15,75)	(-24,70)
<i>80% Confidence Interval</i>	(-94,-15)	(-50,29)	(-14,62)	(-41,33)	(-58,19)	(-47,30)	(-30,45)	(-71,6)	(-38,39)	(-28,50)	(-5,65)	(-14,60)
<i>P-Value</i>	0.077	0.731	0.421	0.895	0.507	0.768	0.801	0.286	0.988	0.715	0.277	0.422
Inpatient PS Cardiac Surgeries	-29.27	-9.79	18.10	4.31	-12.99	-6.31	-8.58	-24.29	-8.06	-33.78*	17.44	4.73
<i>90% Confidence Interval</i>	(-63,4)	(-43,24)	(-13,49)	(-27,35)	(-44,18)	(-38,25)	(-40,23)	(-57,8)	(-40,24)	(-66,-1)	(-10,45)	(-24,34)
<i>80% Confidence Interval</i>	(-56,-3)	(-36,16)	(-6,42)	(-20,28)	(-37,11)	(-31,18)	(-33,16)	(-50,1)	(-33,17)	(-59,-8)	(-4,39)	(-18,27)
<i>P-Value</i>	0.154	0.632	0.337	0.819	0.496	0.739	0.655	0.217	0.680	0.087	0.300	0.789
Inpatient PS Cardiac Surgical Hospital Days	-16.82	-102.26	140.01	34.51	177.24	-4.22	-15.67	-279.77*	-142.10	-111.00	166.86	173.72
<i>90% Confidence Interval</i>	(-325,292)	(-379,174)	(-119,399)	(-231,300)	(-442,797)	(-238,229)	(-261,230)	(-555,-5)	(-395,111)	(-352,130)	(-34,368)	(-63,410)
<i>80% Confidence Interval</i>	(-257,223)	(-318,113)	(-62,342)	(-173,242)	(-305,660)	(-186,178)	(-207,175)	(-494,-65)	(-339,55)	(-299,77)	(10,323)	(-11,358)
<i>P-Value</i>	0.928	0.543	0.374	0.831	0.638	0.976	0.916	0.095	0.356	0.449	0.172	0.227
Outpatient PS Cardiac Surgeries	-25.08	-0.87	5.98	-8.17	-6.87	-2.57	16.03	-7.80	8.52	44.82**	12.60	18.22
<i>90% Confidence Interval</i>	(-60,10)	(-35,34)	(-28,40)	(-41,25)	(-42,28)	(-38,33)	(-18,50)	(-41,26)	(-26,43)	(10,80)	(-21,46)	(-16,52)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>80% Confidence Interval</i>	(-52,2)	(-28,26)	(-21,33)	(-34,18)	(-34,20)	(-30,25)	(-11,43)	(-34,18)	(-19,36)	(18,72)	(-13,39)	(-8,45)
<i>P-Value</i>	0.240	0.967	0.775	0.686	0.747	0.904	0.439	0.702	0.687	0.034	0.534	0.379

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aPS = Preference-sensitive.

Appendix Table B-27: Quarterly DiD Estimates of Resource Use (Number of Events or Days per 1,000 Beneficiaries), Welvie Ohio MA IV Analysis Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>Number of Participant Beneficiaries</i>	3,919	3,917	3,913	3,832	3,823	3,805	3,794	3,582	3,572	3,482	3,444
ER Visits	5.42	26.86	-19.89	-6.48	-19.10	-44.26	-89.08**	-76.38*	-1.60	-7.83	2.94
<i>90% Confidence Interval</i>	(-69,79)	(-47,101)	(-94,54)	(-81,68)	(-91,52)	(-111,23)	(-160,-18)	(-149,-4)	(-71,68)	(-57,42)	(-35,41)
<i>80% Confidence Interval</i>	(-52,63)	(-31,84)	(-77,38)	(-64,51)	(-75,37)	(-97,8)	(-145,-33)	(-133,-20)	(-56,52)	(-47,31)	(-27,33)
<i>P-Value</i>	0.904	0.550	0.657	0.886	0.660	0.278	0.040	0.084	0.970	0.795	0.899
Inpatient Admissions	-11.14	-24.82	-61.88	-28.76	-9.32	1.66	-51.90	54.11	-4.89	-32.46	-69.01*
<i>90% Confidence Interval</i>	(-82,60)	(-95,45)	(-128,4)	(-92,35)	(-73,54)	(-60,64)	(-112,8)	(-7,116)	(-66,56)	(-95,30)	(-129,-9)
<i>80% Confidence Interval</i>	(-66,44)	(-79,30)	(-113,-11)	(-78,21)	(-59,40)	(-47,50)	(-99,-5)	(6,102)	(-52,43)	(-81,16)	(-116,-23)
<i>P-Value</i>	0.796	0.558	0.123	0.455	0.810	0.965	0.156	0.147	0.895	0.390	0.057
Unplanned Inpatient Admissions	-24.22	-13.17	-59.17	-34.52	1.27	-31.68	-61.27*	21.89	-14.41	-49.10	-66.99**
<i>90% Confidence Interval</i>	(-89,41)	(-78,51)	(-120,2)	(-93,24)	(-57,60)	(-89,25)	(-117,-6)	(-34,78)	(-71,42)	(-107,9)	(-123,-11)
<i>80% Confidence Interval</i>	(-75,26)	(-63,37)	(-107,-12)	(-80,11)	(-44,47)	(-76,13)	(-104,-18)	(-22,66)	(-58,29)	(-94,-4)	(-110,-24)
<i>P-Value</i>	0.539	0.737	0.110	0.330	0.971	0.360	0.069	0.523	0.673	0.164	0.047
Hospital Days	-109.04	145.39	-676.59**	-237.54	-243.80	104.48	-160.70	66.93	67.17	-154.82	-500.75*
<i>90% Confidence Interval</i>	(-636,418)	(-364,654)	(-1206,-148)	(-715,239)	(-715,228)	(-356,565)	(-615,293)	(-414,548)	(-392,526)	(-606,296)	(-960,-42)
<i>80% Confidence Interval</i>	(-520,301)	(-251,542)	(-1089,-264)	(-609,134)	(-611,123)	(-255,464)	(-515,193)	(-308,442)	(-290,425)	(-506,197)	(-858,-143)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>P-Value</i>	0.734	0.638	0.035	0.413	0.395	0.709	0.561	0.819	0.810	0.572	0.073
All Surgeries	-30.28	0.78	-95.36**	-40.93	4.42	10.24	-28.75	22.23	-6.72	6.53	-7.00
<i>90% Confidence Interval</i>	(-96,36)	(-64,65)	(-159,-32)	(-105,23)	(-62,71)	(-51,72)	(-90,33)	(-37,81)	(-67,54)	(-63,76)	(-80,66)
<i>80% Confidence Interval</i>	(-82,21)	(-49,51)	(-145,-46)	(-91,9)	(-47,56)	(-38,58)	(-77,19)	(-24,68)	(-54,41)	(-48,61)	(-64,50)
<i>P-Value</i>	0.452	0.984	0.014	0.294	0.913	0.784	0.441	0.537	0.856	0.877	0.875
Inpatient Surgeries	-18.17	-29.41	-56.84***	-17.82	-15.66	8.28	-2.32	14.50	-2.11	-14.25	-8.04
<i>90% Confidence Interval</i>	(-56,20)	(-66,7)	(-92,-22)	(-52,16)	(-47,16)	(-25,42)	(-36,31)	(-18,47)	(-30,26)	(-37,8)	(-32,16)
<i>80% Confidence Interval</i>	(-48,11)	(-58,-1)	(-84,-29)	(-44,9)	(-40,9)	(-18,34)	(-28,24)	(-11,40)	(-24,20)	(-32,3)	(-26,10)
<i>P-Value</i>	0.429	0.187	0.008	0.391	0.414	0.685	0.909	0.463	0.902	0.301	0.576
Surgical Hospital Days	-116.26	-58.57	-358.75*	-178.06	-205.10	113.67	15.06	-156.22	54.17	32.78	5.72
<i>90% Confidence Interval</i>	(-425,192)	(-344,227)	(-678,-40)	(-455,98)	(-469,59)	(-165,392)	(-265,295)	(-417,105)	(-150,258)	(-136,202)	(-184,196)
<i>80% Confidence Interval</i>	(-357,124)	(-281,164)	(-607,-110)	(-394,37)	(-411,0)	(-103,331)	(-203,233)	(-359,47)	(-105,213)	(-99,164)	(-142,154)
<i>P-Value</i>	0.535	0.736	0.064	0.290	0.201	0.502	0.929	0.324	0.663	0.749	0.960
Outpatient Surgeries	-12.11	30.19	-38.53	-23.10	20.09	1.95	-26.43	7.73	-4.61	20.79	1.04
<i>90% Confidence Interval</i>	(-65,40)	(-21,81)	(-90,13)	(-76,30)	(-37,77)	(-47,51)	(-76,23)	(-40,56)	(-57,48)	(-44,86)	(-68,70)
<i>80% Confidence Interval</i>	(-53,29)	(-10,70)	(-78,1)	(-64,18)	(-24,64)	(-37,40)	(-65,12)	(-29,45)	(-46,36)	(-30,71)	(-52,54)
<i>P-Value</i>	0.705	0.333	0.215	0.471	0.562	0.948	0.377	0.790	0.885	0.599	0.980
All PS ^a Orthopedic Surgeries	-4.63	-7.67	-19.19	-3.27	12.39	-4.26	1.61	0.39	3.14	-5.08	-2.74
<i>90% Confidence Interval</i>	(-30,20)	(-32,17)	(-43,4)	(-26,20)	(-10,35)	(-27,18)	(-21,24)	(-21,21)	(-17,23)	(-22,12)	(-22,16)
<i>80% Confidence Interval</i>	(-24,15)	(-27,11)	(-38,-1)	(-21,15)	(-5,30)	(-22,13)	(-16,19)	(-16,17)	(-12,19)	(-19,8)	(-18,12)
<i>P-Value</i>	0.761	0.603	0.180	0.814	0.366	0.753	0.906	0.975	0.797	0.630	0.814
Inpatient PS Orthopedic Surgeries	1.26	-3.91	-16.02	-2.12	9.97	-2.39	3.18	4.56	2.88	-6.45	-5.65
<i>90% Confidence Interval</i>	(-23,26)	(-27,20)	(-39,7)	(-24,20)	(-12,32)	(-24,19)	(-19,25)	(-16,25)	(-17,22)	(-23,10)	(-24,13)
<i>80% Confidence Interval</i>	(-18,20)	(-22,14)	(-34,2)	(-19,15)	(-7,27)	(-19,15)	(-14,20)	(-11,20)	(-12,18)	(-19,7)	(-20,9)
<i>P-Value</i>	0.932	0.784	0.247	0.874	0.450	0.856	0.812	0.712	0.807	0.524	0.618

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
PS Orthopedic Surgery Hospital Days	42.57	37.13	-36.54	-56.57	17.72	34.87	48.04	-58.12	25.31	56.36	38.18
<i>90% Confidence Interval</i>	(-105,190)	(-102,176)	(-184,111)	(-192,79)	(-146,182)	(-130,200)	(-104,200)	(-188,71)	(-103,154)	(-68,181)	(-116,192)
<i>80% Confidence Interval</i>	(-72,157)	(-71,146)	(-152,78)	(-162,49)	(-110,145)	(-93,163)	(-71,167)	(-159,43)	(-75,125)	(-40,153)	(-82,158)
<i>P-Value</i>	0.635	0.661	0.684	0.491	0.859	0.728	0.604	0.460	0.746	0.456	0.683
Outpatient PS Orthopedic Surgeries	-5.89	-3.75	-3.17	-1.15	2.41	-1.87	-1.57	-4.17	0.26	1.37	2.91
<i>90% Confidence Interval</i>	(-12,0)	(-10,2)	(-9,3)	(-7,5)	(-3,8)	(-7,3)	(-6,3)	(-9,1)	(-5,5)	(-3,6)	(-1,7)
<i>80% Confidence Interval</i>	(-11,-1)	(-8,1)	(-8,2)	(-6,3)	(-2,7)	(-6,2)	(-5,2)	(-8,0)	(-4,4)	(-2,5)	(-1,6)
<i>P-Value</i>	0.119	0.294	0.385	0.746	0.501	0.539	0.592	0.175	0.932	0.630	0.277
All PS Cardiac Surgeries	-6.88	0.25	-40.58***	-24.35**	-10.60	-8.79	-17.63	0.34	-4.06	1.71	1.15
<i>90% Confidence Interval</i>	(-30,17)	(-22,23)	(-63,-19)	(-45,-4)	(-31,10)	(-29,12)	(-38,3)	(-19,20)	(-23,14)	(-16,19)	(-17,19)
<i>80% Confidence Interval</i>	(-25,11)	(-17,18)	(-58,-23)	(-40,-9)	(-27,5)	(-25,7)	(-34,-2)	(-15,16)	(-18,10)	(-12,15)	(-13,15)
<i>P-Value</i>	0.629	0.985	0.002	0.049	0.395	0.480	0.156	0.977	0.718	0.871	0.916
Inpatient PS Cardiac Surgeries	-5.33	-8.15	-26.40**	-20.52**	0.83	-8.59	-13.12	-0.31	-3.69	-2.06	-2.04
<i>90% Confidence Interval</i>	(-25,14)	(-27,11)	(-45,-8)	(-37,-4)	(-16,18)	(-26,8)	(-30,4)	(-16,16)	(-19,12)	(-16,12)	(-16,12)
<i>80% Confidence Interval</i>	(-21,10)	(-23,6)	(-41,-12)	(-33,-8)	(-12,14)	(-22,5)	(-27,0)	(-13,12)	(-16,8)	(-13,9)	(-13,9)
<i>P-Value</i>	0.653	0.473	0.018	0.041	0.935	0.405	0.212	0.975	0.692	0.806	0.816
Inpatient PS Cardiac Surgical Hospital Days	-108.98	67.80	-146.42**	-152.08**	-24.72	-3.82	-80.40	-2.40	43.81	33.41	-30.28
<i>90% Confidence Interval</i>	(-262,45)	(-63,199)	(-269,-24)	(-269,-35)	(-172,123)	(-139,132)	(-219,58)	(-126,121)	(-71,158)	(-69,136)	(-137,77)
<i>80% Confidence Interval</i>	(-229,11)	(-34,170)	(-242,-51)	(-243,-61)	(-140,90)	(-109,102)	(-188,27)	(-98,94)	(-45,133)	(-47,113)	(-113,53)
<i>P-Value</i>	0.243	0.394	0.049	0.032	0.783	0.963	0.339	0.974	0.529	0.592	0.641
Outpatient PS Cardiac Surgeries	-1.55	8.40	-14.18**	-3.83	-11.43*	-0.20	-4.52	0.65	-0.37	3.77	3.19
<i>90% Confidence Interval</i>	(-14,10)	(-3,20)	(-25,-3)	(-15,7)	(-23,0)	(-11,10)	(-15,6)	(-10,11)	(-10,10)	(-6,14)	(-7,14)
<i>80% Confidence Interval</i>	(-11,8)	(0,17)	(-23,-6)	(-12,5)	(-20,-3)	(-8,8)	(-12,3)	(-7,9)	(-8,7)	(-4,12)	(-5,11)
<i>P-Value</i>	0.833	0.213	0.034	0.571	0.090	0.975	0.462	0.918	0.952	0.539	0.615

- * Statistically significant at the ten percent level.
- ** Statistically significant at the five percent level.
- *** Statistically significant at the one percent level.
- ^aPS = Preference-sensitive.

Appendix Table B-28: Quarterly DiD Estimates of Resource Use (Number of Events or Days per 1,000 Beneficiaries), Welvie Texas MA IV Analysis Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	2,630	2,630	2,210	2,199	2,191	2,172
ER Visits	46.15	-15.04	-59.48	33.47	127.75	89.06
<i>90% Confidence Interval</i>	(-94,186)	(-153,123)	(-200,81)	(-106,173)	(-13,268)	(-54,232)
<i>80% Confidence Interval</i>	(-63,155)	(-123,93)	(-169,50)	(-75,142)	(18,237)	(-22,200)
<i>P-Value</i>	0.587	0.858	0.485	0.693	0.135	0.306
Inpatient Admissions	66.23	72.25	-87.29	66.08	149.25**	16.91
<i>90% Confidence Interval</i>	(-35,168)	(-33,177)	(-207,33)	(-51,184)	(39,259)	(-86,120)
<i>80% Confidence Interval</i>	(-13,145)	(-10,154)	(-181,6)	(-25,158)	(64,235)	(-63,97)
<i>P-Value</i>	0.283	0.259	0.231	0.355	0.025	0.787
Unplanned Inpatient Admissions	55.17	79.89	-75.86	37.65	160.11***	8.28
<i>90% Confidence Interval</i>	(-39,149)	(-18,178)	(-188,36)	(-71,146)	(59,262)	(-90,107)
<i>80% Confidence Interval</i>	(-18,129)	(4,156)	(-163,12)	(-47,122)	(81,239)	(-68,85)
<i>P-Value</i>	0.335	0.179	0.266	0.569	0.010	0.890
Hospital Days	-146.45	138.85	-1,216.19**	681.16	1,271.05**	345.52
<i>90% Confidence Interval</i>	(-951,658)	(-733,1011)	(-2191,-242)	(-266,1629)	(402,2140)	(-488,1179)
<i>80% Confidence Interval</i>	(-773,480)	(-541,818)	(-1975,-457)	(-57,1419)	(594,1948)	(-304,995)
<i>P-Value</i>	0.765	0.793	0.040	0.237	0.016	0.495
All Surgeries	2.06	26.66	1.82	12.06	20.63	-10.59
<i>90% Confidence Interval</i>	(-80,84)	(-61,114)	(-80,84)	(-76,100)	(-70,111)	(-102,80)
<i>80% Confidence Interval</i>	(-62,66)	(-41,95)	(-62,66)	(-57,81)	(-50,91)	(-82,60)
<i>P-Value</i>	0.967	0.615	0.971	0.822	0.709	0.848
Inpatient Surgeries	63.08**	38.06	24.91	57.61*	16.08	-5.13
<i>90% Confidence Interval</i>	(15,111)	(-11,87)	(-23,72)	(8,107)	(-33,65)	(-53,43)
<i>80% Confidence Interval</i>	(26,100)	(0,76)	(-12,62)	(19,96)	(-22,54)	(-43,33)
<i>P-Value</i>	0.030	0.198	0.388	0.056	0.589	0.862
Surgical Hospital Days	67.31	230.59	-142.07	556.06*	426.10	123.39
<i>90% Confidence Interval</i>	(-438,572)	(-256,717)	(-699,415)	(23,1089)	(-65,917)	(-367,614)
<i>80% Confidence Interval</i>	(-326,461)	(-148,609)	(-576,292)	(141,972)	(44,808)	(-259,505)
<i>P-Value</i>	0.826	0.435	0.675	0.086	0.153	0.679
Outpatient Surgeries	-61.02	-11.40	-23.09	-45.54	4.55	-5.46
<i>90% Confidence Interval</i>	(-125,2)	(-81,58)	(-88,42)	(-116,25)	(-69,78)	(-80,69)
<i>80% Confidence Interval</i>	(-111,-12)	(-66,43)	(-74,27)	(-101,9)	(-53,62)	(-64,53)
<i>P-Value</i>	0.114	0.788	0.558	0.289	0.919	0.904
All PS ^a Orthopedic Surgeries	-5.24	10.75	-23.80	14.26	-9.52	3.69
<i>90% Confidence Interval</i>	(-33,23)	(-19,40)	(-49,1)	(-12,41)	(-37,17)	(-25,33)
<i>80% Confidence Interval</i>	(-27,17)	(-12,34)	(-43,-4)	(-7,35)	(-31,12)	(-19,26)

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6
<i>P-Value</i>	0.758	0.547	0.115	0.380	0.562	0.834
Inpatient PS Orthopedic Surgeries	-0.26	15.71	-16.78	24.46	-3.20	6.34
<i>90% Confidence Interval</i>	(-27,26)	(-12,44)	(-40,7)	(-1,50)	(-29,23)	(-21,34)
<i>80% Confidence Interval</i>	(-21,20)	(-6,38)	(-35,2)	(5,44)	(-23,17)	(-15,28)
<i>P-Value</i>	0.987	0.356	0.240	0.113	0.839	0.704
PS Orthopedic Surgery Hospital Days	-46.12	95.61	-258.13***	152.43	43.43	-1.26
<i>90% Confidence Interval</i>	(-224,132)	(-115,306)	(-423,-93)	(-11,316)	(-139,226)	(-176,174)
<i>80% Confidence Interval</i>	(-185,92)	(-69,260)	(-387,-129)	(25,280)	(-99,186)	(-138,135)
<i>P-Value</i>	0.670	0.456	0.010	0.124	0.696	0.991
Outpatient PS Orthopedic Surgeries	-4.98	-4.96	-7.03	-10.20**	-6.32	-2.65
<i>90% Confidence Interval</i>	(-14,5)	(-14,4)	(-15,1)	(-18,-2)	(-14,1)	(-12,7)
<i>80% Confidence Interval</i>	(-12,2)	(-12,2)	(-13,-1)	(-17,-4)	(-12,-1)	(-10,5)
<i>P-Value</i>	0.389	0.352	0.152	0.041	0.162	0.641
All PS Cardiac Surgeries	2.52	3.16	-6.59	11.47	-21.56	8.07
<i>90% Confidence Interval</i>	(-25,30)	(-25,31)	(-33,20)	(-16,39)	(-49,5)	(-20,37)
<i>80% Confidence Interval</i>	(-19,24)	(-18,25)	(-27,14)	(-10,33)	(-43,0)	(-14,30)
<i>P-Value</i>	0.880	0.851	0.680	0.497	0.190	0.641
Inpatient PS Cardiac Surgeries	10.44	15.92	6.31	23.35**	8.63	14.15
<i>90% Confidence Interval</i>	(-9,30)	(-4,36)	(-12,25)	(4,42)	(-10,27)	(-5,33)
<i>80% Confidence Interval</i>	(-5,26)	(0,32)	(-8,21)	(9,38)	(-6,23)	(-1,29)
<i>P-Value</i>	0.388	0.195	0.572	0.042	0.436	0.227
Inpatient PS Cardiac Surgical Hospital Days	-47.72	128.22	-251.38	240.53**	197.04*	173.13*
<i>90% Confidence Interval</i>	(-220,124)	(-38,295)	(-518,16)	(69,412)	(15,379)	(3,343)
<i>80% Confidence Interval</i>	(-182,86)	(-2,258)	(-459,-43)	(107,374)	(55,339)	(40,306)
<i>P-Value</i>	0.648	0.205	0.121	0.021	0.075	0.094
Outpatient PS Cardiac Surgeries	-7.92	-12.76	-12.90	-11.89	-30.19***	-6.08
<i>90% Confidence Interval</i>	(-26,10)	(-30,5)	(-31,5)	(-31,7)	(-49,-11)	(-26,13)
<i>80% Confidence Interval</i>	(-22,6)	(-27,1)	(-27,1)	(-27,3)	(-45,-16)	(-21,9)
<i>P-Value</i>	0.460	0.235	0.231	0.303	0.008	0.609

* Statistically significant at the ten percent level.
** Statistically significant at the five percent level.
*** Statistically significant at the one percent level.
^aPS = Preference-sensitive.

Appendix Table B-29: Quarterly Resource Use Rate (Number of Beneficiaries with Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Health Service Use Rate per 1,000 Beneficiaries														
ER Visits	248.8	250.8	86.3	86.3	88.2	92.2	83.9	89.2	83.3	84.5	91.8	94.4	92.9	93.5
All Inpatient Admissions	196.0	198.4	72.6	78.0	69.3	72.4	70.6	71.4	71.7	72.2	73.7	72.6	66.9	68.3
Unplanned Inpatient Admissions	165.1	169.7	63.3	69.2	60.5	63.6	59.9	61.9	62.7	63.6	64.9	63.5	57.1	59.6
All Surgeries	239.0	237.8	82.0	82.0	82.0	82.2	85.9	85.4	78.2	78.0	85.0	82.1	83.1	82.1
Inpatient Surgeries	75.8	74.6	21.1	22.4	21.6	22.2	22.7	22.3	22.3	22.3	21.9	21.4	21.4	20.8
Outpatient Surgeries	190.4	189.6	64.2	63.2	63.8	63.7	66.9	66.8	59.3	58.9	67.1	64.3	64.8	64.6
All PS Orthopedic Surgeries ^a	24.1	22.9	5.7	5.2	5.6	5.8	6.7	6.1	5.7	5.7	5.8	5.3	5.7	5.6
Inpatient PS Orthopedic Surgeries	21.4	20.6	5.1	4.7	4.9	4.9	6.1	5.4	5.2	5.1	5.1	4.7	5.2	4.9
Outpatient PS Orthopedic Surgeries	2.9	2.4	0.7	0.4	0.7	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.7
All PS Cardiac Surgeries	22.5	22.2	5.9	6.6	6.0	6.0	5.8	5.3	5.2	5.2	5.6	5.9	5.6	5.7
Inpatient PS Cardiac Surgeries	11.4	10.9	2.9	3.2	3.1	3.1	3.0	2.4	2.7	2.5	2.7	2.6	2.7	2.6
Outpatient PS Cardiac Surgeries	12.8	12.9	3.2	3.6	3.3	3.3	3.3	3.2	2.9	3.0	3.3	3.5	3.3	3.4

^aPS= Preference-sensitive

Appendix Table B-30: Quarterly Resource Use Rate (Number of Beneficiaries with Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervent.	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Health Service Use Rate per 1,000 Beneficiaries												
ER Visits	88.5	89.1	92.2	93.2	96.3	96.3	97.1	98.9	92.6	92.1	93.9	93.3
All Inpatient Admissions	70.6	73.0	74.3	77.9	72.7	75.0	69.1	68.4	68.6	72.3	74.2	74.7
Unplanned Inpatient Admissions	60.7	64.2	65.4	69.0	63.7	66.3	60.9	59.5	60.7	64.3	65.7	66.4
All Surgeries	88.2	83.7	78.4	78.3	85.3	84.5	85.5	86.5	85.3	85.7	83.3	80.6
Inpatient Surgeries	22.0	21.1	21.7	21.8	22.0	21.4	20.8	22.3	20.4	21.2	22.2	21.0
Outpatient Surgeries	69.7	66.5	60.3	60.6	67.4	66.6	68.2	67.4	68.3	67.9	65.0	63.4
All PS Orthopedic Surgeries ^a	6.0	5.5	5.8	5.3	5.3	5.8	6.0	5.8	5.1	5.7	5.2	5.1
Inpatient PS Orthopedic Surgeries	5.5	4.8	5.1	4.8	4.7	4.9	5.3	5.4	4.6	5.2	4.5	4.6
Outpatient PS Orthopedic Surgeries	0.5	0.6	0.8	0.6	0.6	0.9	0.7	0.5	0.5	0.6	0.7	0.5
All PS Cardiac Surgeries	5.6	5.3	5.5	5.8	5.7	5.5	6.0	5.8	5.0	4.4	5.2	4.8
Inpatient PS Cardiac Surgeries	2.6	2.6	2.8	3.1	2.7	2.5	2.7	3.1	2.2	1.7	2.4	2.2
Outpatient PS Cardiac Surgeries	3.2	3.0	3.0	3.2	3.3	3.3	3.7	2.9	3.0	2.9	3.1	2.9

^aPS= Preference-sensitive

Appendix Table B-31: Quarterly Resource Use Rate (Number of Beneficiaries with Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Health Service Use Rate per 1,000 Beneficiaries												
ER Visits	160.4	160.7	67.5	67.6	67.3	67.8	66.3	67.2	65.6	67.0	61.5	62.9
All Inpatient Admissions	117.8	121.2	56.9	57.7	55.9	57.7	49.5	52.0	46.4	48.0	46.6	47.9
Unplanned Inpatient Admissions	102.5	105.1	49.1	50.1	49.4	51.1	43.3	45.5	40.4	42.0	40.1	40.9
All Surgeries	122.8	124.6	49.7	51.4	46.1	46.3	44.3	46.9	43.0	44.2	40.8	41.3
Inpatient Surgeries	58.7	59.8	22.8	23.4	21.4	22.3	19.0	21.0	17.9	18.4	14.1	15.0
Outpatient Surgeries	73.9	75.5	28.7	29.8	26.0	25.8	26.6	27.5	26.5	27.2	27.7	27.5
All PS Orthopedic Surgeries ^a	29.6	29.7	10.0	10.0	9.1	9.2	8.5	8.9	7.5	7.6	7.1	6.7
Inpatient PS Orthopedic Surgeries	27.2	27.4	9.2	9.1	8.4	8.4	7.8	8.1	6.7	6.8	6.3	6.0
Outpatient PS Orthopedic Surgeries	2.6	2.5	0.8	0.9	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.7
All PS Cardiac Surgeries	26.4	26.4	8.4	8.8	7.9	7.8	7.1	8.4	6.1	7.1	6.3	6.9
Inpatient PS Cardiac Surgeries	18.8	18.8	5.5	5.8	5.4	5.4	4.9	5.7	3.6	4.4	4.0	4.2
Outpatient PS Cardiac Surgeries	8.6	9.0	3.1	3.2	2.8	2.6	2.4	3.0	2.6	2.9	2.4	3.0

^aPS= Preference-sensitive

Appendix Table B-32: Quarterly Resource Use Rate (Number of Beneficiaries with Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervent.	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Health Service Use Rate per 1,000 Beneficiaries												
ER Visits	57.3	58.4	59.2	62.4	60.1	62.3	55.1	56.5	25.1	25.3	5.8	5.8
All Inpatient Admissions	44.2	45.4	41.9	44.1	42.3	41.6	41.7	42.6	44.6	45.7	39.0	41.6
Unplanned Inpatient Admissions	38.3	40.2	36.6	39.0	36.5	36.7	36.4	37.4	40.1	41.3	34.7	36.9
All Surgeries	39.9	40.1	38.3	39.5	37.9	37.8	41.1	41.0	51.6	50.7	54.4	54.7
Inpatient Surgeries	17.3	17.6	17.3	17.4	16.1	15.6	10.4	10.4	3.7	3.9	3.9	3.8
Outpatient Surgeries	24.0	23.9	22.6	23.6	23.0	23.2	31.5	31.3	48.3	47.4	51.0	51.5
All PS Orthopedic Surgeries ^a	7.0	7.4	7.6	7.1	6.3	6.1	5.3	4.8	3.1	2.8	3.5	2.9
Inpatient PS Orthopedic Surgeries	6.6	6.9	7.1	6.6	5.9	5.5	4.8	4.4	2.6	2.5	3.1	2.7
Outpatient PS Orthopedic Surgeries	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.4	0.2
All PS Cardiac Surgeries	5.9	6.3	6.0	6.6	5.7	5.7	4.6	4.7	3.9	3.6	4.3	3.9
Inpatient PS Cardiac Surgeries	3.8	4.3	4.1	4.5	3.8	3.7	2.8	2.8	1.9	1.9	2.2	1.9
Outpatient PS Cardiac Surgeries	2.3	2.3	2.0	2.3	2.1	2.2	1.9	2.0	2.0	1.8	2.2	2.1

^aPS= Preference-sensitive

Appendix Table B-33: Quarterly Resource Use Rate (Number of Beneficiaries with Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Texas MA ITT Analysis Cohort, Q1 to Q3

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Health Service Use Rate per 1,000 Beneficiaries								
ER Visits	214.6	217.1	85.4	85.7	83.8	84.8	85.6	88.1
All Inpatient Admissions	137.9	137.9	50.2	49.6	52.1	51.9	56.6	58.8
Unplanned Inpatient Admissions	116.1	116.1	42.4	41.7	44.4	44.1	49.4	51.5
All Surgeries	147.1	145.0	44.1	44.7	47.0	47.6	41.7	42.0
Inpatient Surgeries	70.9	71.1	21.1	20.0	21.1	21.0	19.6	18.9
Outpatient Surgeries	89.6	87.3	24.4	26.0	27.6	28.2	23.2	24.2
All PS Orthopedic Surgeries ^a	30.6	30.1	7.2	7.7	7.8	7.9	4.9	5.9
Inpatient PS Orthopedic Surgeries	27.5	27.5	6.1	6.6	6.8	6.9	4.3	5.2
Outpatient PS Orthopedic Surgeries	3.3	2.8	1.1	1.2	0.9	1.0	0.6	0.7
All PS Cardiac Surgeries	28.9	28.1	7.0	6.8	7.2	7.1	5.9	6.0
Inpatient PS Cardiac Surgeries	16.1	16.8	3.7	3.6	3.8	3.6	3.0	3.1
Outpatient PS Cardiac Surgeries	14.6	13.1	3.7	3.5	3.7	3.7	3.1	3.2

^aPS= Preference-sensitive

Appendix Table B-34: Quarterly Resource Use Rate (Number of Beneficiaries with Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Texas MA ITT Analysis Cohort, Q4 to Q6

Measures	Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Health Service Use Rate per 1,000 Beneficiaries						
ER Visits	86.4	85.5	85.4	85.0	82.7	83.1
All Inpatient Admissions	57.6	57.2	54.0	52.9	50.1	50.1
Unplanned Inpatient Admissions	49.6	49.8	46.9	44.7	46.7	46.9
All Surgeries	46.5	46.1	43.8	44.7	45.7	46.3
Inpatient Surgeries	21.2	20.0	19.6	20.5	18.6	19.4
Outpatient Surgeries	26.7	27.6	25.6	26.1	28.6	28.3
All PS Orthopedic Surgeries ^a	6.2	5.9	5.7	6.5	7.1	7.2
Inpatient PS Orthopedic Surgeries	5.6	5.1	5.2	5.9	6.1	6.4
Outpatient PS Orthopedic Surgeries	0.6	0.8	0.5	0.6	0.9	0.9

Measures	Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
All PS Cardiac Surgeries	7.1	6.5	5.9	6.8	6.8	6.7
Inpatient PS Cardiac Surgeries	3.6	3.0	2.8	3.0	3.1	3.0
Outpatient PS Cardiac Surgeries	3.8	3.9	3.3	4.0	4.1	3.9

^aPS= Preference-sensitive

Appendix Table B-35: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Health Service Use Rate per 1,000 Beneficiaries														
ER Visits	391.7	399.0	105.0	106.6	107.5	114.6	101.1	110.1	101.8	104.0	111.8	116.3	115.0	117.6
All Inpatient Admissions	320.0	330.1	94.9	102.2	91.7	95.7	91.0	94.4	94.9	95.0	97.3	94.5	87.1	88.0
Unplanned Inpatient Admissions	263.1	276.1	81.2	88.5	77.8	81.9	76.0	79.7	81.1	81.3	83.7	80.9	72.8	74.9
Hospital Days	1,629.3	1,707.0	525.5	560.9	507.3	511.0	516.4	538.3	550.8	584.2	540.0	524.8	496.4	481.8
All Surgeries	396.9	400.7	105.0	105.3	104.9	106.7	110.6	111.9	100.1	102.1	111.3	109.0	107.3	106.8
Inpatient Surgeries	86.0	85.8	21.9	23.6	22.5	23.7	23.7	23.5	23.6	23.5	23.0	22.7	22.3	22.0
Surgical Hospital Days	496.7	515.2	135.0	157.9	141.4	142.8	154.4	155.3	156.9	162.2	150.8	145.4	142.4	139.4
Outpatient Surgeries	310.9	314.8	83.1	81.7	82.4	83.0	86.9	88.4	76.5	78.6	88.4	86.3	85.0	84.8
All PS Orthopedic Surgeries ^a	25.5	24.6	5.8	5.2	5.7	5.8	6.8	6.2	5.8	5.7	5.8	5.3	5.8	5.7
Inpatient PS Orthopedic Surgeries	22.5	22.1	5.1	4.8	4.9	4.9	6.3	5.5	5.2	5.1	5.1	4.7	5.3	5.0
PS Orthopedic Surgery Hospital Days	91.9	85.6	20.2	18.6	21.2	20.2	30.2	22.6	21.7	23.0	22.6	18.0	23.5	22.5
Outpatient PS Orthopedic Surgeries	3.0	2.5	0.7	0.4	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.7
All PS Cardiac Surgeries	25.5	24.6	6.1	6.9	6.4	6.4	6.3	5.7	5.6	5.6	6.0	6.3	6.1	6.1
Inpatient PS Cardiac Surgeries	12.0	11.3	2.9	3.3	3.2	3.1	3.0	2.4	2.8	2.5	2.7	2.7	2.7	2.6
PS Cardiac Surgery Hospital Days	66.6	74.5	15.0	17.3	17.2	18.8	17.8	15.3	16.7	16.4	23.4	19.0	17.1	16.1
Outpatient PS Cardiac Surgeries	13.5	13.3	3.2	3.6	3.3	3.3	3.3	3.2	2.9	3.1	3.4	3.5	3.4	3.5

^aPS= Preference-sensitive

Appendix Table B-36: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervent.	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Mean Number of Events per 1,000 Beneficiaries												
ER Visits	107.9	110.8	112.9	114.7	118.4	119.6	121.3	123.5	114.9	114.3	115.0	114.5
All Inpatient Admissions	90.8	95.6	96.8	101.2	95.0	97.6	89.4	88.3	88.9	94.3	96.5	97.1
Unplanned Inpatient Admissions	76.2	81.8	83.4	87.6	81.2	84.4	76.6	75.0	78.3	83.4	85.7	86.6
Hospital Days	491.7	525.4	544.3	587.6	522.1	544.9	485.6	501.1	491.5	520.2	537.6	542.6
All Surgeries	115.6	111.5	101.6	102.6	113.0	113.4	114.1	115.6	114.6	113.8	111.7	109.2
Inpatient Surgeries	22.9	22.2	22.6	22.9	22.9	22.4	22.0	23.3	21.5	22.5	23.1	21.8
Surgical Hospital Days	144.4	141.9	151.1	156.8	147.3	140.9	135.6	141.4	143.5	138.1	142.0	130.8
Outpatient Surgeries	92.7	89.3	78.9	79.8	90.1	90.9	92.0	92.2	93.2	91.3	88.6	87.4
All PS ^a Orthopedic Surgeries	6.1	5.5	5.9	5.5	5.4	5.9	6.2	5.9	5.1	5.8	5.3	5.1
Inpatient PS Orthopedic Surgeries	5.5	4.9	5.1	4.9	4.8	5.0	5.5	5.5	4.6	5.2	4.6	4.6
PS Orthopedic Surgery Hospital Days	23.5	22.3	21.7	21.9	19.3	21.2	21.8	24.9	19.6	19.7	17.3	16.9
Outpatient PS Orthopedic Surgeries	0.5	0.6	0.8	0.6	0.6	0.9	0.7	0.5	0.5	0.6	0.7	0.5
All PS Cardiac Surgeries	6.0	5.7	5.8	6.3	6.1	6.0	6.4	6.1	5.3	4.6	5.6	5.1
Inpatient PS Cardiac Surgeries	2.7	2.7	2.8	3.1	2.8	2.7	2.7	3.2	2.3	1.7	2.4	2.2
PS Cardiac Surgery Hospital Days	16.9	15.7	18.2	22.3	16.6	18.2	16.6	17.7	13.8	9.1	17.8	12.9
Outpatient PS Cardiac Surgeries	3.3	3.0	3.0	3.2	3.4	3.3	3.7	2.9	3.0	2.9	3.2	3.0

^aPS= Preference-sensitive

Appendix Table B-37: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Mean Number of Events per 1,000 Beneficiaries												
ER Visits	165.4	167.9	81.6	81.9	81.6	81.1	80.7	82.0	80.3	81.1	75.3	76.6
All Inpatient Admissions	174.9	180.3	73.0	74.8	72.1	74.2	63.5	67.0	59.0	61.3	59.8	61.3
Unplanned Inpatient Admissions	150.4	154.5	62.0	64.0	63.1	64.4	55.0	58.1	50.7	52.9	51.0	51.7
Hospital Days	857.2	894.7	386.9	400.5	381.9	384.1	349.0	382.7	322.9	339.8	322.6	340.0
All Surgeries	172.8	174.4	59.0	60.6	55.2	55.6	52.0	56.2	51.2	53.6	49.8	50.4
Inpatient Surgeries	73.7	74.1	25.3	26.1	23.6	24.8	21.1	23.5	19.8	20.7	15.9	16.7
Surgical Hospital Days	377.8	385.7	146.4	152.9	138.1	141.9	126.4	142.9	116.2	125.9	92.9	103.9
Outpatient Surgeries	99.1	100.4	33.7	34.5	31.6	30.8	30.9	32.8	31.4	32.9	33.9	33.7
All PS ^a Orthopedic Surgeries	37.7	37.4	10.9	11.0	9.9	10.1	9.2	9.8	8.3	8.4	8.1	7.5
Inpatient PS Orthopedic Surgeries	35.0	34.9	10.1	10.0	9.2	9.3	8.5	9.0	7.6	7.6	7.3	6.8
PS Orthopedic Surgery Hospital Days	147.4	150.5	44.7	43.8	40.6	39.6	37.5	39.4	33.2	36.1	35.2	35.0
Outpatient PS Orthopedic Surgeries	2.6	2.5	0.8	1.0	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.7
All PS Cardiac Surgeries	32.3	32.6	9.4	9.7	8.7	8.7	7.7	9.4	6.6	7.7	7.0	7.5
Inpatient PS Cardiac Surgeries	23.4	23.4	6.2	6.4	5.8	6.1	5.4	6.4	4.0	4.8	4.5	4.5
PS Cardiac Surgery Hospital Days	114.3	117.6	32.7	37.8	33.9	31.5	28.5	34.8	21.6	28.2	26.7	28.1
Outpatient PS Cardiac Surgeries	8.9	9.3	3.1	3.3	2.8	2.6	2.4	3.0	2.6	2.9	2.4	3.0

^aPS= Preference-sensitive

Appendix Table B-38: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervent.	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Mean Number of Events per 1,000 Beneficiaries												
ER Visits	68.4	70.5	73.2	77.3	73.3	77.0	68.2	68.7	28.4	29.0	7.3	7.3
All Inpatient Admissions	56.7	57.9	53.1	56.6	54.1	53.2	53.1	54.6	55.8	58.2	49.2	52.9
Unplanned Inpatient Admissions	48.5	50.6	45.8	49.4	46.2	46.3	45.8	47.3	49.4	52.2	43.5	46.8
Hospital Days	312.5	317.1	301.3	316.2	304.8	309.6	301.6	306.4	302.7	314.6	278.8	303.8
All Surgeries	48.3	48.5	46.7	48.4	45.6	44.8	49.2	49.5	64.3	63.9	69.2	69.2
Inpatient Surgeries	19.5	19.4	19.3	19.6	17.8	17.3	11.6	11.7	4.5	5.0	5.1	5.1
Surgical Hospital Days	116.2	115.3	116.6	118.5	103.9	111.7	65.2	64.2	28.9	27.7	31.0	29.6
Outpatient Surgeries	28.8	29.0	27.4	28.8	27.8	27.5	37.6	37.8	59.8	58.9	64.1	64.1
All PS ^a Orthopedic Surgeries	8.0	8.1	8.3	8.1	6.9	6.6	5.9	5.4	3.4	3.3	4.2	3.8
Inpatient PS Orthopedic Surgeries	7.5	7.5	7.9	7.6	6.4	6.0	5.4	5.0	3.0	3.0	3.8	3.6
PS Orthopedic Surgery Hospital Days	37.6	36.8	38.3	36.5	28.8	30.5	26.5	24.4	20.1	16.3	24.0	20.2
Outpatient PS Orthopedic Surgeries	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.4	0.2
All PS Cardiac Surgeries	6.6	7.1	6.6	7.4	6.3	6.3	5.1	5.2	4.3	4.1	4.8	4.5
Inpatient PS Cardiac Surgeries	4.4	4.7	4.6	5.1	4.1	4.0	3.2	3.2	2.3	2.2	2.6	2.4
PS Cardiac Surgery Hospital Days	28.0	28.8	28.3	32.0	24.7	25.0	20.5	18.7	14.2	12.4	14.2	14.2
Outpatient PS Cardiac Surgeries	2.3	2.3	2.0	2.3	2.2	2.2	1.9	2.0	2.0	1.9	2.2	2.1

^aPS= Preference-sensitive

**Appendix Table B-39: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries)
for Participants and Controls, Welvie Texas MA ITT Analysis Cohort, Q1 to Q3**

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Mean Number of Events per 1,000 Beneficiaries								
ER Visits	268.0	273.6	112.1	112.0	109.9	111.9	109.4	114.0
All Inpatient Admissions	218.6	221.2	66.2	64.5	70.0	68.1	76.0	80.0
Unplanned Inpatient Admissions	183.3	185.3	55.7	54.2	59.8	57.4	66.2	69.7
Hospital Days	1,164.7	1,185.6	364.7	375.1	407.8	406.9	443.9	495.1
All Surgeries	205.4	206.8	50.5	50.8	55.3	54.6	47.7	47.7
Inpatient Surgeries	87.9	90.7	22.9	21.4	23.2	22.5	20.7	20.4
Surgical Hospital Days	507.2	524.0	150.0	151.8	155.1	150.3	148.2	155.4
Outpatient Surgeries	117.5	116.1	27.6	29.4	32.1	32.2	27.0	27.3
All PS ^a Orthopedic Surgeries	36.6	37.4	7.5	7.9	8.4	8.2	4.9	6.0
Inpatient PS Orthopedic Surgeries	33.2	34.5	6.4	6.8	7.5	7.2	4.3	5.3
PS Orthopedic Surgery Hospital Days	153.7	157.5	29.4	32.0	37.3	34.7	17.4	27.0
Outpatient PS Orthopedic Surgeries	3.4	2.9	1.1	1.2	0.9	1.0	0.6	0.7
All PS Cardiac Surgeries	34.0	33.9	7.5	7.4	7.7	7.6	6.1	6.4
Inpatient PS Cardiac Surgeries	19.0	20.5	3.8	3.8	4.0	3.8	3.0	3.2
PS Cardiac Surgery Hospital Days	106.0	115.8	23.7	27.9	26.4	24.3	19.4	31.1
Outpatient PS Cardiac Surgeries	15.0	13.4	3.7	3.6	3.7	3.8	3.1	3.2

^aPS= Preference-sensitive

Appendix Table B-40: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Welvie Texas MA ITT Analysis Cohort, Q4 to Q6

Measures	Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Mean Number of Events per 1,000 Beneficiaries						
ER Visits	110.1	111.2	112.1	109.6	108.3	107.4
All Inpatient Admissions	78.3	76.5	73.1	68.6	65.5	66.0
Unplanned Inpatient Admissions	66.6	65.7	62.8	57.7	61.0	61.7
Hospital Days	486.5	468.5	445.2	407.2	397.4	393.5
All Surgeries	53.5	53.4	52.1	51.9	53.9	54.9
Inpatient Surgeries	23.2	21.7	21.6	21.9	20.2	21.3
Surgical Hospital Days	175.2	158.5	159.9	151.7	147.1	150.3
Outpatient Surgeries	30.4	31.7	30.5	30.0	33.7	33.6
All PS ^a Orthopedic Surgeries	6.5	6.2	6.1	6.7	7.5	7.7
Inpatient PS Orthopedic Surgeries	5.9	5.4	5.6	6.2	6.6	6.8
PS Orthopedic Surgery Hospital Days	28.7	23.7	30.0	29.3	31.9	33.3
Outpatient PS Orthopedic Surgeries	0.6	0.8	0.5	0.6	0.9	0.9
All PS Cardiac Surgeries	7.4	7.0	6.3	7.1	7.4	7.2
Inpatient PS Cardiac Surgeries	3.6	3.1	3.0	3.1	3.3	3.2
PS Cardiac Surgery Hospital Days	27.4	21.0	24.7	20.2	24.1	20.3
Outpatient PS Cardiac Surgeries	3.8	3.9	3.3	4.1	4.1	4.0

^aPS= Preference-sensitive

B.4 Medical Expenditures

Appendix Table B-41: Cumulative and Yearly DiD Estimates of Expenditures per 1,000 Beneficiaries, Welvie Ohio FFS ITT Analysis Cohort

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>Number of Participant Beneficiaries</i>	58,582	58,582	55,044	51,471
Total Medicare Parts A and B Expenditures	38,469.21	-117,240.63	45,152.07	126,381.97
<i>90% Confidence Interval</i>	(-445,147.1 522,085.6)	(-321,029.5 86,548.2)	(-161,121.4 251,425.5)	(-79,933.1 332,697.1)
<i>80% Confidence Interval</i>	(-338,329.8 415,268.3)	(-276,018.3 41,537.0)	(-115,561.4 205,865.5)	(-34,363.9 287,127.8)
<i>P-Value</i>	0.896	0.344	0.719	0.314
Inpatient Expenditures	-50,072.31	-87,436.90	8,787.77	36,644.50
<i>90% Confidence Interval</i>	(-347,603.5 247,458.9)	(-215,075.6 40,201.8)	(-119,082.1 136,657.7)	(-89,829.2 163,118.2)
<i>80% Confidence Interval</i>	(-281,887.2 181,742.6)	(-186,883.8 12,010.0)	(-90,839.3 108,414.8)	(-61,894.7 135,183.7)
<i>P-Value</i>	0.782	0.260	0.910	0.634
Outpatient ER Expenditures	-8,854.65	-9,753.10	-132.46	1,781.27
<i>90% Confidence Interval</i>	(-35,209.8 17,500.5)	(-20,728.1 1,221.9)	(-11,973.3 11,708.4)	(-9,643.0 13,205.5)
<i>80% Confidence Interval</i>	(-29,388.7 11,679.4)	(-18,304.0 -1,202.2)	(-9,358.0 9,093.1)	(-7,119.7 10,682.2)
<i>P-Value</i>	0.581	0.144	0.985	0.798
Outpatient Non-ER Expenditures	79,642.03	25,581.48	14,009.53	41,042.09
<i>90% Confidence Interval</i>	(-20,826.5 180,110.6)	(-15,423.2 66,586.1)	(-28,070.7 56,089.8)	(-1,949.5 84,033.6)
<i>80% Confidence Interval</i>	(1,364.2 157,919.9)	(-6,366.4 57,529.4)	(-18,776.4 46,795.4)	(7,546.2 74,538.0)
<i>P-Value</i>	0.192	0.305	0.584	0.116
Physician and Ancillary Service Expenditures	-1,763.50	-10,773.02	1,864.64	8,389.47
<i>90% Confidence Interval</i>	(-96,458.0 92,931.0)	(-49,804.1 28,258.1)	(-37,660.6 41,389.9)	(-31,507.5 48,286.5)
<i>80% Confidence Interval</i>	(-75,542.7 72,015.7)	(-41,183.2 19,637.2)	(-28,930.6 32,659.9)	(-22,695.4 39,474.3)
<i>P-Value</i>	0.976	0.650	0.938	0.729
Skilled Nursing Facility Expenditures	65,765.44	-533.29	42,283.58	25,736.69
<i>90% Confidence Interval</i>	(-90,655.3 222,186.1)	(-65,033.7 63,967.1)	(-24,536.1 109,103.3)	(-41,221.7 92,695.0)
<i>80% Confidence Interval</i>	(-56,106.3 187,637.2)	(-50,787.3 49,720.8)	(-9,777.5 94,344.7)	(-26,432.4 77,905.8)
<i>P-Value</i>	0.489	0.989	0.298	0.527
Durable Medical Equipment Expenditures	-19,120.68	629.93	-5,890.19	-14,864.56**
<i>90% Confidence Interval</i>	(-48,489.3 10,247.9)	(-10,929.3 12,189.2)	(-17,579.9 5,799.5)	(-26,635.9 -3,093.3)
<i>80% Confidence Interval</i>	(-42,002.6 3,761.2)	(-8,376.2 9,636.1)	(-14,998.0 3,217.6)	(-24,035.9 -5,693.2)
<i>P-Value</i>	0.284	0.929	0.407	0.038
Home Health Expenditures	-28,827.85	4,693.88	-21,645.65*	-13,036.46

Measures (2011 USD)	Full Intervention Period^a	Total Year 1^b	Total Year 2	Total Year 3
<i>90% Confidence Interval</i>	(-78,240.8 20,585.1)	(-15,383.4 24,771.2)	(-42,524.3 -767.0)	(-34,742.0 8,669.0)
<i>80% Confidence Interval</i>	(-67,326.9 9,671.2)	(-10,948.9 20,336.7)	(-37,912.8 -5,378.5)	(-29,947.8 3,874.9)
<i>P-Value</i>	0.337	0.701	0.088	0.323
Hospice Expenditures	7,240.02	-36,291.78*	6,717.33	41,887.00**
<i>90% Confidence Interval</i>	(-68,138.1 82,618.1)	(-68,863.5 -3,720.1)	(-25,643.8 39,078.5)	(9,301.8 74,472.2)
<i>80% Confidence Interval</i>	(-51,489.1 65,969.2)	(-61,669.3 -10,914.2)	(-18,496.2 31,930.8)	(16,498.9 67,275.1)
<i>P-Value</i>	0.874	0.067	0.733	0.034
Total Surgery Expenditures	-17,065.58	-52,389.36	2,076.14	39,192.24
<i>90% Confidence Interval</i>	(-241,764.5 207,633.4)	(-147,614.9 42,836.2)	(-94,283.1 98,435.4)	(-53,965.0 132,349.4)
<i>80% Confidence Interval</i>	(-192,134.8 158,003.7)	(-126,582.3 21,803.6)	(-73,000.0 77,152.3)	(-33,389.1 111,773.6)
<i>P-Value</i>	0.901	0.366	0.972	0.489
Inpatient Surgery Expenditures	-21,130.79	-51,581.48	1,766.18	34,257.77
<i>90% Confidence Interval</i>	(-232,747.9 190,486.3)	(-141,775.2 38,612.3)	(-89,206.2 92,738.5)	(-53,166.9 121,682.4)
<i>80% Confidence Interval</i>	(-186,007.6 143,746.0)	(-121,854.0 18,691.0)	(-69,112.9 72,645.3)	(-33,857.2 102,372.8)
<i>P-Value</i>	0.870	0.347	0.975	0.519
Episode-Based Inpatient Surgery Expenditures	-48,040.12	-60,909.35	-6,295.73	24,725.80
<i>90% Confidence Interval</i>	(-270,355.9 174,275.6)	(-155,388.3 33,569.6)	(-101,645.6 89,054.1)	(-67,499.7 116,951.3)
<i>80% Confidence Interval</i>	(-221,252.6 125,172.3)	(-134,520.6 12,701.9)	(-80,585.5 67,994.0)	(-47,129.7 96,581.3)
<i>P-Value</i>	0.722	0.289	0.914	0.659
Outpatient Surgery Expenditures	4,131.02	432.32	-362.66	4,311.28
<i>90% Confidence Interval</i>	(-57,668.6 65,930.6)	(-24,391.8 25,256.4)	(-26,358.1 25,632.7)	(-22,026.5 30,649.0)
<i>80% Confidence Interval</i>	(-44,018.8 52,280.8)	(-18,908.8 19,773.5)	(-20,616.4 19,891.1)	(-16,209.2 24,831.7)
<i>P-Value</i>	0.912	0.977	0.982	0.788
PS ^d Orthopedic Surgery Expenditures	8,064.96	-241.71	18,292.35	-10,646.17
<i>90% Confidence Interval</i>	(-73,922.5 90,052.5)	(-33,421.4 32,937.9)	(-14,797.1 51,381.8)	(-43,836.4 22,544.0)
<i>80% Confidence Interval</i>	(-55,813.8 71,943.7)	(-26,092.9 25,609.5)	(-7,488.6 44,073.3)	(-36,505.6 15,213.3)
<i>P-Value</i>	0.871	0.990	0.363	0.598
Inpatient PS Orthopedic Surgery Expenditures	12,880.04	1,835.95	17,435.71	-6,949.35
<i>90% Confidence Interval</i>	(-57,623.0 83,383.1)	(-26,702.3 30,374.2)	(-10,993.2 45,864.7)	(-35,458.0 21,559.3)
<i>80% Confidence Interval</i>	(-42,050.9 67,811.0)	(-20,399.0 24,070.9)	(-4,714.1 39,585.5)	(-29,161.2 15,262.5)
<i>P-Value</i>	0.764	0.916	0.313	0.688
Outpatient PS Orthopedic Surgery Expenditures	-3,421.87	-1,620.29	-377.52	-1,409.71
<i>90% Confidence Interval</i>	(-7,938.5 1,094.7)	(-3,380.6 140.0)	(-2,313.5 1,558.5)	(-3,437.0 617.6)

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>80% Confidence Interval</i>	(-6,940.9 97.2)	(-2,991.8 -248.8)	(-1,885.9 1,130.9)	(-2,989.2 169.8)
<i>P-Value</i>	0.213	0.130	0.748	0.253
PS Cardiac Surgery Expenditures	-29,315.75	-13,874.95	-24,551.34	10,689.85
<i>90% Confidence Interval</i>	(-129,446.7 70,815.2)	(-55,040.0 27,290.1)	(-66,756.5 17,653.8)	(-30,371.0 51,750.7)
<i>80% Confidence Interval</i>	(-107,330.6 48,699.1)	(-45,947.8 18,197.9)	(-57,434.5 8,331.9)	(-21,301.8 42,681.5)
<i>P-Value</i>	0.630	0.579	0.339	0.668
Inpatient PS Cardiac Surgery Expenditures	-21,411.80	-9,827.23	-20,142.61	9,820.13
<i>90% Confidence Interval</i>	(-109,853.9 67,030.3)	(-46,211.4 26,556.9)	(-57,422.4 17,137.2)	(-26,501.1 46,141.4)
<i>80% Confidence Interval</i>	(-90,319.5 47,495.9)	(-38,175.1 18,520.7)	(-49,188.3 8,903.1)	(-18,478.8 38,119.0)
<i>P-Value</i>	0.690	0.657	0.374	0.657
Outpatient PS Cardiac Surgery Expenditures	-6,642.56	-3,613.02	-2,485.10	-331.96
<i>90% Confidence Interval</i>	(-21,594.8 8,309.7)	(-9,579.6 2,353.6)	(-8,475.4 3,505.2)	(-6,709.5 6,045.6)
<i>80% Confidence Interval</i>	(-18,292.3 5,007.2)	(-8,261.8 1,035.7)	(-7,152.3 2,182.1)	(-5,300.9 4,637.0)
<i>P-Value</i>	0.465	0.319	0.495	0.932

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table B-42: Cumulative and Yearly DiD Estimates of Expenditures per 1,000 Beneficiaries, Welvie Ohio MA ITT Analysis Cohort

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	97,380	97,380	91,230
Total Medical Expenditures	-235,622.33	-169,539.47**	-30,776.37
<i>90% Confidence Interval</i>	(-471,440.3 195.6)	(-283,470.0 -55,609.0)	(-140,558.3 79,005.6)
<i>80% Confidence Interval</i>	(-422,734.9 -40,843.3)	(-262,587.5 -80,040.5)	(-129,308.2 51,011.1)
<i>P-Value</i>	0.100	0.014	0.645
Inpatient Expenditures	-97,544.25	-73,415.10	10,682.47
<i>90% Confidence Interval</i>	(-252,124.2 57,035.6)	(-148,792.5 1,962.3)	(-60,735.7 82,100.7)
<i>80% Confidence Interval</i>	(-217,981.8 22,893.3)	(-132,143.8 -14,686.4)	(-44,961.5 66,326.4)
<i>P-Value</i>	0.299	0.109	0.806
Outpatient ER Expenditures	-12,244.70	-6,939.01	-7,010.07

Measures (2011 USD)	Full Intervention Period^a	Total Year 1^b	Total Year 2
<i>90% Confidence Interval</i>	(-30,575.1 6,085.7)	(-15,569.7 1,691.7)	(-15,901.9 1,881.8)
<i>80% Confidence Interval</i>	(-26,526.4 2,037.1)	(-13,663.4 -214.6)	(-13,937.9 -82.2)
<i>P-Value</i>	0.272	0.186	0.195
Outpatient Non-ER Expenditures	-34,732.38	-38,988.11**	-2,212.62
<i>90% Confidence Interval</i>	(-92,575.5 23,110.7)	(-66,407.8 -11,568.4)	(-28,436.9 24,011.7)
<i>80% Confidence Interval</i>	(-79,799.6 10,334.8)	(-60,351.6 -17,624.6)	(-22,644.7 18,219.5)
<i>P-Value</i>	0.323	0.019	0.890
Physician and Ancillary Service Expenditures	-36,285.64	-28,078.34	-12,938.16
<i>90% Confidence Interval</i>	(-96,029.7 23,458.4)	(-56,747.9 591.2)	(-41,151.7 15,275.4)
<i>80% Confidence Interval</i>	(-82,833.9 10,262.6)	(-50,415.6 -5,741.1)	(-34,920.1 9,043.8)
<i>P-Value</i>	0.318	0.107	0.451
Skilled Nursing Facility Expenditures	-49,093.21	-20,551.04	-18,988.42
<i>90% Confidence Interval</i>	(-99,761.0 1,574.6)	(-43,585.9 2,483.8)	(-42,058.9 4,082.0)
<i>80% Confidence Interval</i>	(-88,569.9 -9,616.5)	(-38,498.2 -2,603.9)	(-36,963.3 -1,013.6)
<i>P-Value</i>	0.111	0.142	0.176
Home Health Expenditures	-6,958.40	-2,922.21	831.84
<i>90% Confidence Interval</i>	(-26,138.1 12,221.2)	(-11,780.1 5,935.7)	(-8,111.3 9,775.0)
<i>80% Confidence Interval</i>	(-21,901.8 7,985.0)	(-9,823.7 3,979.3)	(-6,136.0 7,799.7)
<i>P-Value</i>	0.551	0.587	0.878
Total Surgery Expenditures	-137,886.40**	-96,727.13***	-38,560.27
<i>90% Confidence Interval</i>	(-253,032.8 -22,740.0)	(-154,206.5 -39,247.8)	(-91,996.2 14,875.7)
<i>80% Confidence Interval</i>	(-227,600.2 -48,172.6)	(-141,510.9 -51,943.4)	(-80,193.7 3,073.2)
<i>P-Value</i>	0.049	0.006	0.235
Inpatient Surgery Expenditures	-79,511.10	-54,980.16*	-26,724.81
<i>90% Confidence Interval</i>	(-184,595.3 25,573.1)	(-108,045.8 -1,914.5)	(-75,645.8 22,196.2)
<i>80% Confidence Interval</i>	(-161,385.1 2,362.9)	(-96,325.1 -13,635.2)	(-64,840.5 11,390.9)
<i>P-Value</i>	0.213	0.088	0.369
Episode-Based Inpatient Surgery Expenditures	-81,921.91	-56,035.70*	-26,508.73
<i>90% Confidence Interval</i>	(-187,532.4 23,688.5)	(-109,300.5 -2,770.9)	(-75,728.2 22,710.7)
<i>80% Confidence Interval</i>	(-164,206.0 362.1)	(-97,535.8 -14,535.6)	(-64,857.0 11,839.5)
<i>P-Value</i>	0.202	0.084	0.376
Outpatient Surgery Expenditures	-51,559.65**	-36,687.55***	-9,826.31
<i>90% Confidence Interval</i>	(-90,135.4 -12,983.9)	(-54,592.7 -18,782.4)	(-27,330.8 7,678.2)
<i>80% Confidence Interval</i>	(-81,615.1 -21,504.2)	(-50,638.0 -22,737.1)	(-23,464.5 3,811.9)
<i>P-Value</i>	0.028	<0.001	0.356
PS ^d Orthopedic Surgery Expenditures	15,169.82	525.07	13,963.48
<i>90% Confidence Interval</i>	(-29,211.3 59,551.0)	(-20,825.5 21,875.6)	(-5,872.3 33,799.2)

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>80% Confidence Interval</i>	(-19,408.8 49,748.4)	(-16,109.7 17,159.9)	(-1,491.1 29,418.1)
<i>P-Value</i>	0.574	0.968	0.247
Inpatient PS Orthopedic Surgery Expenditures	16,417.26	1,787.62	13,847.34
<i>90% Confidence Interval</i>	(-20,373.7 53,208.3)	(-15,929.8 19,505.0)	(-2,677.6 30,372.2)
<i>80% Confidence Interval</i>	(-12,247.6 45,082.2)	(-12,016.5 15,591.7)	(972.3 26,722.4)
<i>P-Value</i>	0.463	0.868	0.168
Outpatient PS Orthopedic Surgery Expenditures	-2,090.83	-947.25	-1,301.39
<i>90% Confidence Interval</i>	(-5,127.2 945.5)	(-2,272.5 378.0)	(-2,815.0 212.2)
<i>80% Confidence Interval</i>	(-4,456.5 274.9)	(-1,979.8 85.3)	(-2,480.7 -122.1)
<i>P-Value</i>	0.257	0.240	0.157
PS Cardiac Surgery Expenditures	-7,823.26	-10,666.49	-11,019.13
<i>90% Confidence Interval</i>	(-63,781.0 48,134.5)	(-37,461.9 16,128.9)	(-36,492.2 14,453.9)
<i>80% Confidence Interval</i>	(-51,421.5 35,775.0)	(-31,543.5 10,210.5)	(-30,865.9 8,827.7)
<i>P-Value</i>	0.818	0.513	0.477
Inpatient PS Cardiac Surgery Expenditures	-3,392.62	-6,121.51	-8,354.30
<i>90% Confidence Interval</i>	(-50,440.4 43,655.2)	(-28,678.6 16,435.6)	(-29,815.6 13,107.0)
<i>80% Confidence Interval</i>	(-40,048.9 33,263.6)	(-23,696.4 11,453.4)	(-25,075.4 8,366.8)
<i>P-Value</i>	0.906	0.655	0.522
Outpatient PS Cardiac Surgery Expenditures	-5,967.15	-3,839.30	-2,790.20
<i>90% Confidence Interval</i>	(-16,962.9 5,028.6)	(-8,753.6 1,075.0)	(-7,511.8 1,931.4)
<i>80% Confidence Interval</i>	(-14,534.2 2,599.9)	(-7,668.2 -10.4)	(-6,468.9 888.5)
<i>P-Value</i>	0.372	0.199	0.331

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table B-43: Cumulative and Yearly DiD Estimates of Expenditures per 1,000 Beneficiaries, Welvie Texas MA ITT Analysis Cohort

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
<i>Number of Participant Beneficiaries</i>	63,979	63,979

Measures (2011 USD)	Full Intervention Period^a	Total Year 1^b
Total Medical Expenditures	84,409.51	-9,928.12
<i>90% Confidence Interval</i>	(-144,707.2 313,526.2)	(-181,224.8 161,368.5)
<i>80% Confidence Interval</i>	(-118,679.9 273,865.3)	(-158,079.7 133,590.4)
<i>P-Value</i>	0.545	0.924
Inpatient Expenditures	118,820.90	20,440.13
<i>90% Confidence Interval</i>	(-42,930.8 280,572.6)	(-101,750.4 142,630.7)
<i>80% Confidence Interval</i>	(-7,204.4 244,846.2)	(-74,762.0 115,642.2)
<i>P-Value</i>	0.227	0.783
Outpatient ER Expenditures	5,274.39	-2,884.26
<i>90% Confidence Interval</i>	(-13,210.0 23,758.8)	(-16,553.1 10,784.6)
<i>80% Confidence Interval</i>	(-9,127.3 19,676.1)	(-13,534.1 7,765.5)
<i>P-Value</i>	0.639	0.729
Outpatient Non-ER Expenditures	15,214.00	3,759.47
<i>90% Confidence Interval</i>	(-37,801.8 68,229.8)	(-35,118.2 42,637.1)
<i>80% Confidence Interval</i>	(-26,092.1 56,520.1)	(-26,531.2 34,050.1)
<i>P-Value</i>	0.637	0.874
Physician and Ancillary Service Expenditures	17,693.76	23,271.25
<i>90% Confidence Interval</i>	(-41,114.9 76,502.4)	(-20,056.0 66,598.5)
<i>80% Confidence Interval</i>	(-28,125.7 63,513.2)	(-10,486.2 57,028.7)
<i>P-Value</i>	0.621	0.377
Skilled Nursing Facility Expenditures	-32,106.72	-31,962.73*
<i>90% Confidence Interval</i>	(-71,445.1 7,231.7)	(-60,958.2 -2,967.2)
<i>80% Confidence Interval</i>	(-62,756.4 -1,457.1)	(-54,553.9 -9,371.5)
<i>P-Value</i>	0.179	0.070
Home Health Expenditures	-21,807.24	-13,660.83
<i>90% Confidence Interval</i>	(-57,089.8 13,475.3)	(-39,787.2 12,465.6)
<i>80% Confidence Interval</i>	(-49,296.9 5,682.4)	(-34,016.6 6,695.0)
<i>P-Value</i>	0.309	0.390
Total Surgery Expenditures	119,704.8	61,455.2
<i>90% Confidence Interval</i>	(-5,428.4 244,838.0)	(-31,976.5 154,886.9)
<i>80% Confidence Interval</i>	(34,094.2 215,909.7)	(4,074.8 140,042.9)
<i>P-Value</i>	0.116	0.279
Inpatient Surgery Expenditures	125,001.96*	72,058.83
<i>90% Confidence Interval</i>	(8,323.2 241,680.8)	(-15,197.8 159,315.4)
<i>80% Confidence Interval</i>	(39,551.8 222,373.6)	(6,747.8 143,327.2)
<i>P-Value</i>	0.078	0.174
Episode-Based Inpatient Surgery Expenditures	130,962.7*	75,037.5

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
<i>90% Confidence Interval</i>	(13,638.1 248,287.3)	(-12,611.4 162,686.4)
<i>80% Confidence Interval</i>	(-30,958.0 27,884.7)	(-29,688.4 13,784.2)
<i>P-Value</i>	0.066	0.159
Outpatient Surgery Expenditures	-1,536.62	-7,952.12
<i>90% Confidence Interval</i>	(-39,298.5 36,225.3)	(-35,850.4 19,946.2)
<i>80% Confidence Interval</i>	(-42,349.6 30,556.4)	(-31,621.3 21,407.3)
<i>P-Value</i>	0.947	0.639
PS ^d Orthopedic Surgery Expenditures	-5,896.61	-5,107.03
<i>90% Confidence Interval</i>	(-52,683.5 40,890.3)	(-39,137.8 28,923.7)
<i>80% Confidence Interval</i>	(-34,074.4 27,536.5)	(-25,727.4 19,002.5)
<i>P-Value</i>	0.836	0.805
Inpatient PS Orthopedic Surgery Expenditures	-3,268.95	-3,362.47
<i>90% Confidence Interval</i>	(-42,807.4 36,269.5)	(-32,067.6 25,342.6)
<i>80% Confidence Interval</i>	(-5,120.6 -991.8)	(-4,320.7 -1,304.1)
<i>P-Value</i>	0.892	0.847
Outpatient PS Orthopedic Surgery Expenditures	-3,056.18*	-2,812.39**
<i>90% Confidence Interval</i>	(-5,705.8 -406.5)	(-4,748.3 -876.5)
<i>80% Confidence Interval</i>	(10,812.0 95,178.3)	(1,076.8 65,333.1)
<i>P-Value</i>	0.058	0.017
PS Cardiac Surgery Expenditures	52,995.15	33,204.94
<i>90% Confidence Interval</i>	(-1,146.4 107,136.7)	(-8,031.1 74,441.0)
<i>80% Confidence Interval</i>	(15,215.5 88,611.6)	(3,770.6 60,103.5)
<i>P-Value</i>	0.107	0.185
Inpatient PS Cardiac Surgery Expenditures	51,913.55*	31,937.05
<i>90% Confidence Interval</i>	(4,812.1 99,015.0)	(-4,214.2 68,088.3)
<i>80% Confidence Interval</i>	(-15,306.5 -1,766.7)	(-9,640.6 150.3)
<i>P-Value</i>	0.070	0.146
Outpatient PS Cardiac Surgery Expenditures	-8,536.60	-4,745.15
<i>90% Confidence Interval</i>	(-17,225.7 152.5)	(-11,028.4 1,538.1)
<i>80% Confidence Interval</i>	(-15,306.5 -1,766.7)	(-9,640.6 150.3)
<i>P-Value</i>	0.106	0.214

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table B-44: Cumulative and Yearly DiD Estimates of Expenditures per 1,000 Beneficiaries, Welvie Ohio FFS IV Analysis Cohort

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>Number of Participant Beneficiaries</i>	1,133	1,133	1,113	1,074
Total Medicare Parts A and B Expenditures	2,491,027	-6,090,575	2,305,484	6,672,395
<i>90% Confidence Interval</i>	(-23,105,702 28,087,755)	(-16,878,625 4,697,474)	(-8,615,104 13,226,072)	(-4,249,948 17,594,738)
<i>80% Confidence Interval</i>	(-17,452,102 22,434,155)	(-14,495,847 2,314,697)	(-6,203,052 10,814,020)	(-1,837,509 15,182,298)
<i>P-Value</i>	0.873	0.353	0.728	0.315
Inpatient Expenditures	-2,388,847.5	-4,534,220.0	408,732.1	1,934,936.6
<i>90% Confidence Interval</i>	(-18,132,639 13,354,944)	(-11,290,506 2,222,066)	(-6,361,710 7,179,174)	(-4,761,447 8,631,320)
<i>80% Confidence Interval</i>	(-17,452,102 22,434,155)	(-14,495,847 2,314,697)	(-6,203,052 10,814,020)	(-1,837,509 15,182,298)
<i>P-Value</i>	0.803	0.270	0.921	0.635
Outpatient ER Expenditures	-444,812.70	-514,522.03	-6,465.24	94,689.63
<i>90% Confidence Interval</i>	(-1,840,380.6 950,755.2)	(-1,096,043.3 66,999.3)	(-633,155.6 620,225.1)	(-509,939.4 699,318.7)
<i>80% Confidence Interval</i>	(-1,532,138.8 642,513.4)	(-967,601.6 -61,442.5)	(-494,737.2 481,806.8)	(-376,393.8 565,773.1)
<i>P-Value</i>	0.600	0.146	0.986	0.797
Outpatient Non-ER Expenditures	4,222,212.4	1,346,075.6	734,876.6	2,171,184.5
<i>90% Confidence Interval</i>	(-1,097,198.1 9,541,623)	(-824,969.3 3,517,121)	(-1,491,808.2 2,961,562)	(-104,605.8 4,446,975)
<i>80% Confidence Interval</i>	(77,710.6 8,366,714)	(-345,446.3 3,037,598)	(-999,995.9 2,469,749)	(398,052.5 3,944,317)
<i>P-Value</i>	0.192	0.308	0.587	0.117
Physician and Ancillary Service Expenditures	-56,010.3	-554,947.1	86,790.3	443,193.2
<i>90% Confidence Interval</i>	(-5,068,141 4,956,120)	(-2,620,670 1,510,776)	(-2,005,168 2,178,749)	(-1,668,923 2,555,309)
<i>80% Confidence Interval</i>	(-3,961,102 3,849,081)	(-2,164,410 1,054,516)	(-1,543,113 1,716,694)	(-1,202,416 2,088,802)
<i>P-Value</i>	0.985	0.659	0.946	0.730
Skilled Nursing Facility Expenditures	3,536,600.47	-3,276.03	2,231,087.18	1,345,646.25
<i>90% Confidence Interval</i>	(-4,745,096 11,818,297)	(-3,417,788 3,411,236)	(-1,306,812 5,768,987)	(-2,198,861 4,890,153)
<i>80% Confidence Interval</i>	(-2,915,901.5 9,989,102)	(-2,663,617.8 2,657,066)	(-525,389.4 4,987,564)	(-1,415,978.5 4,107,271)
<i>P-Value</i>	0.482	0.999	0.300	0.532
Durable Medical Equipment Expenditures	-1,044,485.64	30,206.46	-313,746.18	-787,043.24**

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>90% Confidence Interval</i>	(-2,599,029 510,057.7)	(-581,725 642,137.9)	(-932,552 305,059.6)	(-1,410,061 -164,025.3)
<i>80% Confidence Interval</i>	(-2,255,673.9 166,702.7)	(-446,566.5 506,979.4)	(-795,875.1 168,382.7)	(-1,272,454.0 -301,632.5)
<i>P-Value</i>	0.269	0.935	0.404	0.038
Home Health Expenditures	-1,560,645.8	244,106.0	-1,144,083.5*	-686,673.2
<i>90% Confidence Interval</i>	(-4,177,967.0 1,056,675.4)	(-818,846.5 1,307,058.5)	(-2,249,436.1 -38,730.9)	(-1,835,598.0 462,251.5)
<i>80% Confidence Interval</i>	(-3,599,874 478,582.5)	(-584,070 1,072,282.1)	(-2,005,295 -282,872.3)	(-1,581,833 208,486.2)
<i>P-Value</i>	0.327	0.706	0.089	0.326
Hospice Expenditures	516,827.8	-1,926,063.9*	353,502.8	2,219,783.7**
<i>90% Confidence Interval</i>	(-3,471,422.8 4,505,078.4)	(-3,649,701.9 -202,425.8)	(-1,359,358.3 2,066,363.8)	(494,990.8 3,944,576.6)
<i>80% Confidence Interval</i>	(-2,590,530.0 3,624,185.7)	(-3,268,998.6 -583,129.2)	(-981,035.3 1,688,040.8)	(875,949.2 3,563,618.2)
<i>P-Value</i>	0.831	0.066	0.734	0.034
Total Surgery Expenditures	-713,876.16	-2,715,034.67	73,999.57	2,077,312.76
<i>90% Confidence Interval</i>	(-12,602,151 11,174,399)	(-7,754,466 2,324,397)	(-5,028,461 5,176,460)	(-2,854,612 7,009,238)
<i>80% Confidence Interval</i>	(-9,976,364 8,548,612)	(-6,641,397 1,211,327)	(-3,901,470 4,049,469)	(-1,765,288 5,919,914)
<i>P-Value</i>	0.921	0.376	0.981	0.488
Inpatient Surgery Expenditures	-922,295.35	-2,668,291.76	70,078.42	1,815,937.85
<i>90% Confidence Interval</i>	(-12,117,244 10,272,653)	(-7,441,180 2,104,596)	(-4,747,367 4,887,524)	(-2,812,612 6,444,487)
<i>80% Confidence Interval</i>	(-9,644,594 7,800,003)	(-6,386,983 1,050,399)	(-3,683,329 3,823,486)	(-1,790,295 5,422,170)
<i>P-Value</i>	0.892	0.358	0.981	0.519
Episode-Based Inpatient Surgery Expenditures	-2,354,219.9	-3,165,367.0	-360,803.3	1,311,475.9
<i>90% Confidence Interval</i>	(-14,116,170 9,407,730)	(-8,165,516 1,834,782)	(-5,409,892 4,688,285)	(-3,571,128 6,194,080)
<i>80% Confidence Interval</i>	(-11,518,285 6,809,844.9)	(-7,061,123 730,389.1)	(-4,294,690 3,573,083.2)	(-2,492,698 5,115,649.5)
<i>P-Value</i>	0.742	0.298	0.906	0.659
Outpatient Surgery Expenditures	208,580.26	17,847.86	-30,172.86	228,129.58
<i>90% Confidence Interval</i>	(-3,064,206 3,481,366)	(-1,296,808 1,332,504)	(-1,406,062 1,345,717)	(-1,165,961 1,622,220)
<i>80% Confidence Interval</i>	(-2,341,339.1 2,758,500)	(-1,006,437.3 1,042,133)	(-1,102,166.9 1,041,821)	(-858,045.6 1,314,305)
<i>P-Value</i>	0.917	0.982	0.971	0.788
PS ^d Orthopedic Surgery Expenditures	401,041.72	-16,204.94	962,184.83	-567,043.57
<i>90% Confidence Interval</i>	(-3,938,742 4,740,825)	(-1,774,567 1,742,158)	(-789,816 2,714,186)	(-2,323,739 1,189,652)

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2	Total Year 3
<i>80% Confidence Interval</i>	(-2,980,205.2 3,782,288.6)	(-1,386,194.4 1,353,784.5)	(-402,848.1 2,327,217.8)	(-1,935,734.0 801,646.8)
<i>P-Value</i>	0.879	0.988	0.366	0.595
Inpatient PS Orthopedic Surgery Expenditures	659,006.36	94,635.07	917,047.19	-371,356.67
<i>90% Confidence Interval</i>	(-3,072,885 4,390,897)	(-1,417,865 1,607,135)	(-588,230 2,422,324)	(-1,880,247 1,137,534)
<i>80% Confidence Interval</i>	(-2,248,614.6 3,566,627.3)	(-1,083,796.2 1,273,066.3)	(-255,756.4 2,089,850.8)	(-1,546,975.6 804,262.3)
<i>P-Value</i>	0.771	0.918	0.316	0.686
Outpatient PS Orthopedic Surgery Expenditures	-181,317.63	-86,773.95	-20,007.93	-74,369.25
<i>90% Confidence Interval</i>	(-420,796.3 58,161.1)	(-180,032.1 6,484.2)	(-122,610.2 82,594.4)	(-181,649.1 32,910.6)
<i>80% Confidence Interval</i>	(-367,902.2 5,266.9)	(-159,434.0 -14,113.9)	(-99,948.3 59,932.4)	(-157,954.0 9,215.5)
<i>P-Value</i>	0.213	0.126	0.748	0.254
PS Cardiac Surgery Expenditures	-1,492,572.8	-713,269.5	-1,308,672.0	574,742.9
<i>90% Confidence Interval</i>	(-6,791,104 3,805,958)	(-2,891,795 1,465,256)	(-3,543,037 925,693)	(-1,598,143 2,747,629)
<i>80% Confidence Interval</i>	(-5,620,807 2,635,661.3)	(-2,410,620 984,080.8)	(-3,049,528 432,184.4)	(-1,118,213 2,267,699.2)
<i>P-Value</i>	0.643	0.590	0.335	0.664
Inpatient PS Cardiac Surgery Expenditures	-1,085,056.1	-502,040.6	-1,074,520.2	528,155.7
<i>90% Confidence Interval</i>	(-5,765,011 3,594,898.5)	(-2,427,357 1,423,275.6)	(-3,048,146 899,105.2)	(-1,393,929 2,450,240.0)
<i>80% Confidence Interval</i>	(-4,731,340.0 2,561,227.7)	(-2,002,108.4 998,027.2)	(-2,612,227.0 463,186.7)	(-969,394.1 2,025,705.5)
<i>P-Value</i>	0.703	0.668	0.371	0.651
Outpatient PS Cardiac Surgery Expenditures	-344,967.49	-190,158.83	-131,476.62	-17,775.57
<i>90% Confidence Interval</i>	(-1,136,792.9 446,857.9)	(-506,135.2 125,817.6)	(-448,500.1 185,546.8)	(-355,295.4 319,744.3)
<i>80% Confidence Interval</i>	(-961,900.8 271,965.9)	(-436,344.9 56,027.2)	(-378,478.5 115,525.2)	(-280,746.7 245,195.6)
<i>P-Value</i>	0.474	0.322	0.495	0.931

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table B-45: Cumulative and Yearly DiD Estimates of Expenditures per 1,000 Beneficiaries, Welvie Ohio MA IV Analysis Cohort

Measures (2011 USD)	Full Intervention Period^a	Total Year 1^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	3,919	3,919	3,823
Total Medical Expenditures	-5,941,032.0	-4,377,358.2**	-772,758.6
<i>90% Confidence Interval</i>	(-11,985,887 103,822.8)	(-7,302,403 -1,452,313.3)	(-3,591,689 2,046,171.5)
<i>80% Confidence Interval</i>	(-10,650,748 -1,231,316)	(-6,656,343 -2,098,374)	(-2,969,066 1,423,549)
<i>P-Value</i>	0.106	0.014	0.652
Inpatient Expenditures	-2,471,283.3	-1,894,626.6	284,213.2
<i>90% Confidence Interval</i>	(-6,435,431 1,492,864.6)	(-3,829,746 40,492.3)	(-1,549,622 2,118,048.0)
<i>80% Confidence Interval</i>	(-5,559,862 617,295.4)	(-3,402,332 -386,921.2)	(-1,144,579 1,713,005.3)
<i>P-Value</i>	0.305	0.107	0.799
Outpatient ER Expenditures	-306,048.30	-177,934.41	-179,093.00
<i>90% Confidence Interval</i>	(-776,511.5 164,414.9)	(-399,729.4 43,860.6)	(-407,534.4 49,348.4)
<i>80% Confidence Interval</i>	(-672,599.4 60,502.8)	(-350,741.1 -5,127.7)	(-357,078.1 -1,107.9)
<i>P-Value</i>	0.285	0.187	0.197
Outpatient Non-ER Expenditures	-846,462.19	-1,001,671.92**	-53,800.67
<i>90% Confidence Interval</i>	(-2,329,809.6 636,885.3)	(-1,706,064.2 -297,279.6)	(-727,357.1 619,755.8)
<i>80% Confidence Interval</i>	(-2,002,179.8 309,255.4)	(-1,550,483.7 -452,860.1)	(-578,587.4 470,986.0)
<i>P-Value</i>	0.348	0.019	0.895
Physician and Ancillary Service Expenditures	-903,912.1	-724,230.0	-330,940.5
<i>90% Confidence Interval</i>	(-2,434,236.6 626,412.4)	(-1,460,194.1 11,734.1)	(-1,055,274.1 393,393.1)
<i>80% Confidence Interval</i>	(-2,096,230.8 288,406.6)	(-1,297,640.3 -150,819.8)	(-895,289.1 233,408.1)
<i>P-Value</i>	0.331	0.106	0.452
Skilled Nursing Facility Expenditures	-1,264,956.7	-537,348.2	-487,292.6
<i>90% Confidence Interval</i>	(-2,564,853.7 34,940.3)	(-1,128,759.0 54,062.6)	(-1,079,639.5 105,054.3)
<i>80% Confidence Interval</i>	(-2,277,742.9 -252,170.5)	(-998,132.9 -76,563.5)	(-948,806.7 -25,778.5)
<i>P-Value</i>	0.109	0.135	0.176
Home Health Expenditures	-179,973.53	-75,383.26	22,249.58
<i>90% Confidence Interval</i>	(-672,384.7 312,437.7)	(-302,890.5 152,124.0)	(-207,342.4 251,841.5)
<i>80% Confidence Interval</i>	(-563,624.9 203,677.8)	(-252,640.6 101,874.0)	(-156,631.9 201,131.1)
<i>P-Value</i>	0.548	0.586	0.873
Total Surgery Expenditures	-3,460,499.9*	-2,490,716.9***	-984,048.2
<i>90% Confidence Interval</i>	(-6,405,850.4 -515,149.4)	(-3,966,549.1 -1,014,884.6)	(-2,356,362.2 388,265.7)
<i>80% Confidence Interval</i>	(-5,755,305.0 -1,165,695)	(-3,640,579.1 -1,340,855)	(-2,053,256.5 85,160)
<i>P-Value</i>	0.053	0.006	0.238
Inpatient Surgery Expenditures	-1,989,585.5	-1,416,315.7*	-678,502.2
<i>90% Confidence Interval</i>	(-4,676,445.3 697,274.3)	(-2,778,825.2 -53,806.1)	(-1,934,872.7 577,868.4)
<i>80% Confidence Interval</i>	(-4,082,993.3 103,822.3)	(-2,477,885.1 -354,746.3)	(-1,657,375.7 300,371.4)
<i>P-Value</i>	0.223	0.087	0.374

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
Episode-Based Inpatient Surgery Expenditures	-2,052,161.6	-1,443,695.4*	-672,753.1
90% Confidence Interval	(-4,752,554.9 648,231.8)	(-2,811,323.0 -76,067.7)	(-1,936,740.0 591,233.8)
80% Confidence Interval	(-4,156,113.7 51,790.6)	(-2,509,252.4 -378,138.4)	(-1,657,560.7 312,054.5)
P-Value	0.211	0.083	0.381
Outpatient Surgery Expenditures	-1,299,570.61**	-943,876.44***	-253,657.74
90% Confidence Interval	(-2,289,042.2 -310,099.0)	(-1,403,639.9 -484,113.0)	(-703,176.9 195,861.4)
80% Confidence Interval	(-2,070,495.6 -528,645.6)	(-1,302,091.1 -585,661.8)	(-603,890.7 96,575.2)
P-Value	0.031	<0.001	0.353
PS ^d Orthopedic Surgery Expenditures	391,354.56	11,636.38	359,967.47
90% Confidence Interval	(-744,451.2 1,527,160.3)	(-536,239.3 559,512.1)	(-149,568.0 869,502.9)
80% Confidence Interval	(-493,583.5 1,276,292.6)	(-415,228.9 438,501.7)	(-37,025.9 756,960.8)
P-Value	0.571	0.972	0.245
Inpatient PS Orthopedic Surgery Expenditures	422,090.43	44,172.21	356,672.30
90% Confidence Interval	(-519,491.7 1,363,672.6)	(-410,453.5 498,797.9)	(-67,825.1 781,169.7)
80% Confidence Interval	(-311,522.6 1,155,703.5)	(-310,039.4 398,383.8)	(25,934.5 687,410.1)
P-Value	0.461	0.873	0.167
Outpatient PS Orthopedic Surgery Expenditures	-52,532.51	-24,128.44	-33,341.67
90% Confidence Interval	(-130,476.0 25,410.9)	(-58,171.6 9,914.7)	(-72,167.6 5,484.2)
80% Confidence Interval	(-113,260.4 8,195.4)	(-50,652.4 2,395.6)	(-63,592.0 -3,091.3)
P-Value	0.268	0.244	0.158
PS Cardiac Surgery Expenditures	-185,756.7	-283,412.3	-279,353.2
90% Confidence Interval	(-1,617,786.9 1,246,273.6)	(-971,154.4 404,329.9)	(-933,568.8 374,862.4)
80% Confidence Interval	(-1,301,491.6 929,978.3)	(-819,251.4 252,426.9)	(-789,070.9 230,364.5)
P-Value	0.831	0.498	0.482
Inpatient PS Cardiac Surgery Expenditures	-78,333.92	-165,617.05	-211,942.57
90% Confidence Interval	(-1,282,329.0 1,125,661.2)	(-744,574.9 413,340.8)	(-763,123.7 339,238.6)
80% Confidence Interval	(-1,016,400.3 859,732.4)	(-616,699.4 285,465.3)	(-641,383.2 217,498.1)
P-Value	0.915	0.638	0.527
Outpatient PS Cardiac Surgery Expenditures	-148,643.61	-98,520.12	-70,825.60
90% Confidence Interval	(-430,640.5 133,353.3)	(-224,601.1 27,560.8)	(-192,116.9 50,465.7)
80% Confidence Interval	(-368,355.3 71,068.1)	(-196,753.3 -286.9)	(-165,327.1 23,675.9)
P-Value	0.386	0.199	0.337

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.
^dPS = Preference Sensitive.

Appendix Table B-46: Cumulative and Yearly DiD Estimates of Expenditures per 1,000 Beneficiaries, Welvie Texas MA IV Analysis Cohort

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,630	2,630
Total Medical Expenditures	2,383,169.4	-351,863.5
<i>90% Confidence Interval</i>	(-4,057,070.3 8,823,409)	(-5,175,112.8 4,471,386)
<i>80% Confidence Interval</i>	(-2,634,601.9 7,400,941)	(-4,109,792.2 3,406,065)
<i>P-Value</i>	0.543	0.904
Inpatient Expenditures	3,397,160.7	557,063.9
<i>90% Confidence Interval</i>	(-1,151,232.5 7,945,554)	(-2,889,011.3 4,003,139)
<i>80% Confidence Interval</i>	(-146,620 6,940,941)	(-2,127,870 3,241,998)
<i>P-Value</i>	0.219	0.790
Outpatient ER Expenditures	152,417.60	-85,452.24
<i>90% Confidence Interval</i>	(-366,380.0 671,215.2)	(-469,170.9 298,266.4)
<i>80% Confidence Interval</i>	(-251,792.2 556,627.4)	(-384,418.2 213,513.7)
<i>P-Value</i>	0.629	0.714
Outpatient Non-ER Expenditures	412,083.59	82,307.75
<i>90% Confidence Interval</i>	(-1,075,401.0 1,899,568)	(-1,007,649.1 1,172,265)
<i>80% Confidence Interval</i>	(-746,857.3 1,571,024.5)	(-766,908.2 931,523.7)
<i>P-Value</i>	0.649	0.901
Physician and Ancillary Service Expenditures	474,326.6	647,318.1
<i>90% Confidence Interval</i>	(-1,178,244.8 2,126,898.1)	(-569,968.5 1,864,604.7)
<i>80% Confidence Interval</i>	(-813,238.1 1,761,891.4)	(-301,104.0 1,595,740.2)
<i>P-Value</i>	0.637	0.382
Skilled Nursing Facility Expenditures	-900,262.24	-910,275.39*
<i>90% Confidence Interval</i>	(-2,006,755.1 206,230.7)	(-1,725,483.5 -95,067.3)
<i>80% Confidence Interval</i>	(-1,762,361.9 -38,162.6)	(-1,545,426.9 -275,123.9)
<i>P-Value</i>	0.181	0.066
Home Health Expenditures	-621,356.0	-391,377.8
<i>90% Confidence Interval</i>	(-1,612,932.1 370,220.1)	(-1,126,090.5 343,334.9)
<i>80% Confidence Interval</i>	(-1,393,920.7 151,208.8)	(-963,813.1 181,057.4)
<i>P-Value</i>	0.303	0.381
Total Surgery Expenditures	3,383,100	1,724,351
<i>90% Confidence Interval</i>	(-132,746.6 6,898,947)	(-905,479.7 4,354,182)
<i>80% Confidence Interval</i>	(643,805.4 6,122,395)	(-324,623.8 3,773,326)
<i>P-Value</i>	0.113	0.281
Inpatient Surgery Expenditures	3,538,902*	2,038,355
<i>90% Confidence Interval</i>	(259,655.1 6,818,148)	(-418,980.0 4,495,690)
<i>80% Confidence Interval</i>	(983,948.8 6,093,855)	(123,776.4 3,952,934)
<i>P-Value</i>	0.076	0.172
Episode-Based Inpatient Surgery Expenditures	3,704,939*	2,119,340
<i>90% Confidence Interval</i>	(407,446.7 7,002,432)	(-349,044.0 4,587,724)

Measures (2011 USD)	Full Intervention Period^a	Total Year 1^b
<i>80% Confidence Interval</i>	(1,135,770.4 6,274,109)	(196,152.8 4,042,527)
<i>P-Value</i>	0.065	0.158
Outpatient Surgery Expenditures	-49,749.15	-238,866.64
<i>90% Confidence Interval</i>	(-1,108,883.2 1,009,384.8)	(-1,021,425.9 543,692.6)
<i>80% Confidence Interval</i>	(-874,950.1 775,451.8)	(-848,580.5 370,847.2)
<i>P-Value</i>	0.938	0.616
PS ^d Orthopedic Surgery Expenditures	-141,218.3	-122,196.5
<i>90% Confidence Interval</i>	(-1,455,093.7 1,172,657.1)	(-1,077,873.0 833,480.0)
<i>80% Confidence Interval</i>	(-1,164,895.5 882,458.8)	(-866,790.9 622,397.8)
<i>P-Value</i>	0.860	0.833
Inpatient PS Orthopedic Surgery Expenditures	-70,236.77	-75,754.27
<i>90% Confidence Interval</i>	(-1,180,836.8 1,040,363.2)	(-881,988.2 730,479.6)
<i>80% Confidence Interval</i>	(-935,536.4 795,062.8)	(-703,913.7 552,405.2)
<i>P-Value</i>	0.917	0.877
Outpatient PS Orthopedic Surgery Expenditures	-85,806.03*	-80,044.49**
<i>90% Confidence Interval</i>	(-160,175.2 -11,436.9)	(-134,319.7 -25,769.3)
<i>80% Confidence Interval</i>	(-143,749.1 -27,862.9)	(-122,331.8 -37,757.1)
<i>P-Value</i>	0.058	0.015
PS Cardiac Surgery Expenditures	1,497,102.5	938,327.7
<i>90% Confidence Interval</i>	(-27,234.4 3,021,439)	(-227,712.9 2,104,368)
<i>80% Confidence Interval</i>	(309,448.9 2,684,756)	(29,832.8 1,846,823)
<i>P-Value</i>	0.106	0.186
Inpatient PS Cardiac Surgery Expenditures	1,467,124.7*	902,439.9
<i>90% Confidence Interval</i>	(140,136.3 2,794,113)	(-121,337.4 1,926,217)
<i>80% Confidence Interval</i>	(433,230.9 2,501,019)	(104,786.3 1,700,093)
<i>P-Value</i>	0.069	0.147
Outpatient PS Cardiac Surgery Expenditures	-243,026.2	-135,270.2
<i>90% Confidence Interval</i>	(-487,091.2 1,038.9)	(-311,605.0 41,064.6)
<i>80% Confidence Interval</i>	(-433,184.1 -52,868.2)	(-272,657.6 2,117.2)
<i>P-Value</i>	0.101	0.207

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table B-47: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Ohio FFS ITT Analysis Cohort

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>Number of Participant Beneficiaries</i>	58,582	57,711	56,851	55,987	55,044	54,177	53,341	52,424	51,471	50,679	49,929	49,150
Total Medicare Parts A and B Expenditures	-99.47*	-51.54	-69.15	30.16	34.08	12.63	-31.87	-99.34*	4.76	21.26	-34.54	-16.40
<i>90% Confidence Interval</i>	(-188,-11)	(-139,35)	(-157,18)	(-58,118)	(-54,122)	(-72,98)	(-118,54)	(-191,-8)	(-80,90)	(-64,106)	(-122,53)	(-106,73)
<i>80% Confidence Interval</i>	(-168,-31)	(-119,16)	(-137,-1)	(-39,99)	(-34,103)	(-54,79)	(-99,35)	(-170,-28)	(-62,71)	(-45,88)	(-102,33)	(-86,54)
<i>P-Value</i>	0.063	0.330	0.193	0.574	0.524	0.807	0.543	0.073	0.927	0.681	0.514	0.764
Inpatient Expenditures	-81.83**	-26.81	-39.30	31.52	29.37	24.78	-31.21	-52.08	5.11	10.87	-35.08	19.13
<i>90% Confidence Interval</i>	(-136,-28)	(-81,27)	(-93,14)	(-22,85)	(-24,83)	(-27,76)	(-83,21)	(-109,5)	(-45,55)	(-40,62)	(-88,18)	(-36,75)
<i>80% Confidence Interval</i>	(-124,-40)	(-69,15)	(-81,2)	(-10,73)	(-12,71)	(-15,65)	(-72,9)	(-96,-8)	(-34,44)	(-29,50)	(-76,6)	(-24,62)
<i>P-Value</i>	0.013	0.414	0.228	0.336	0.364	0.427	0.323	0.132	0.867	0.724	0.275	0.570
Outpatient ER Expenditures	-3.41	-3.18	-0.64	-2.58	1.43	-3.49	-2.16	1.38	-2.79	1.90	3.77	-2.73
<i>90% Confidence Interval</i>	(-8,1)	(-7,1)	(-5,4)	(-8,3)	(-4,7)	(-9,2)	(-7,3)	(-4,7)	(-8,2)	(-3,7)	(-1,9)	(-8,2)
<i>80% Confidence Interval</i>	(-7,0)	(-6,0)	(-4,3)	(-7,1)	(-3,6)	(-7,0)	(-6,2)	(-3,5)	(-7,1)	(-2,6)	(0,8)	(-6,1)
<i>P-Value</i>	0.196	0.213	0.824	0.411	0.654	0.259	0.478	0.660	0.360	0.516	0.206	0.350
Outpatient Non-ER Expenditures	11.96	6.36	-4.87	7.81	2.21	-4.65	18.72*	-10.28	6.43	11.48	3.31	3.42
<i>90% Confidence Interval</i>	(-6,30)	(-12,24)	(-23,13)	(-10,26)	(-17,21)	(-23,13)	(0,37)	(-28,7)	(-12,25)	(-7,30)	(-15,22)	(-15,22)
<i>80% Confidence Interval</i>	(-2,26)	(-8,20)	(-19,9)	(-6,22)	(-13,17)	(-19,9)	(4,33)	(-24,3)	(-8,21)	(-3,26)	(-11,18)	(-11,18)
<i>P-Value</i>	0.266	0.560	0.662	0.478	0.848	0.673	0.099	0.334	0.564	0.315	0.768	0.766
Physician and Ancillary Service Expenditures	-11.41	-7.28	-5.51	3.80	2.53	5.10	-8.37	-10.31	-3.31	5.56	-3.13	-6.28
<i>90% Confidence Interval</i>	(-29,6)	(-24,10)	(-23,11)	(-13,21)	(-15,20)	(-12,22)	(-25,9)	(-27,7)	(-20,14)	(-12,23)	(-20,14)	(-24,12)
<i>80% Confidence Interval</i>	(-25,2)	(-21,6)	(-19,8)	(-9,17)	(-11,16)	(-8,18)	(-22,5)	(-24,3)	(-16,10)	(-8,19)	(-16,10)	(-20,8)
<i>P-Value</i>	0.289	0.481	0.594	0.713	0.812	0.618	0.422	0.320	0.748	0.592	0.760	0.564
Skilled Nursing Facility Expenditures	-16.09	-2.71	-8.22	14.79	12.56	4.00	7.37	-5.04	15.54	1.09	6.64	-28.09*
<i>90% Confidence Interval</i>	(-43,11)	(-29,23)	(-35,19)	(-12,42)	(-15,40)	(-23,31)	(-20,34)	(-34,24)	(-12,43)	(-26,28)	(-21,34)	(-56,0)
<i>80% Confidence Interval</i>	(-37,5)	(-23,18)	(-29,13)	(-6,36)	(-9,34)	(-17,25)	(-14,28)	(-28,18)	(-6,37)	(-20,22)	(-15,28)	(-50,-6)
<i>P-Value</i>	0.323	0.863	0.614	0.366	0.451	0.806	0.654	0.776	0.346	0.948	0.690	0.098
Durable Medical Equipment Expenditures	2.52	-1.04	0.67	-2.91	-2.05	-2.28	-4.02	-4.50	-5.00	-4.85	-5.09*	-5.07

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>90% Confidence Interval</i>	(-3,8)	(-6,4)	(-5,6)	(-8,2)	(-7,3)	(-7,3)	(-9,1)	(-10,1)	(-10,0)	(-10,0)	(-10,0)	(-10,0)
<i>80% Confidence Interval</i>	(-2,7)	(-5,3)	(-3,5)	(-7,1)	(-6,2)	(-6,1)	(-8,0)	(-8,-1)	(-9,-1)	(-9,-1)	(-9,-1)	(-9,-1)
<i>P-Value</i>	0.434	0.747	0.834	0.343	0.506	0.436	0.188	0.143	0.112	0.108	0.090	0.101
Home Health Expenditures	3.44	0.06	7.66	-4.54	-4.23	-7.92	-6.77	-2.46	-6.26	-5.50	-1.54	2.62
<i>90% Confidence Interval</i>	(-5,12)	(-9,9)	(-1,16)	(-13,4)	(-13,5)	(-17,1)	(-16,2)	(-12,7)	(-16,3)	(-15,4)	(-11,8)	(-7,12)
<i>80% Confidence Interval</i>	(-3,10)	(-7,7)	(1,14)	(-11,2)	(-11,3)	(-15,-1)	(-14,0)	(-10,5)	(-14,1)	(-13,2)	(-9,6)	(-5,10)
<i>P-Value</i>	0.508	0.991	0.138	0.401	0.432	0.141	0.215	0.659	0.272	0.326	0.787	0.645
Hospice Expenditures	-3.97	-15.95*	-18.26**	-16.79**	-7.90	-3.45	-4.55	-15.50*	-4.46	0.88	-3.28	0.74
<i>90% Confidence Interval</i>	(-20,12)	(-31,-1)	(-33,-3)	(-31,-3)	(-22,6)	(-18,11)	(-19,9)	(-29,-2)	(-18,9)	(-13,14)	(-17,10)	(-12,14)
<i>80% Confidence Interval</i>	(-16,8)	(-28,-4)	(-30,-7)	(-28,-6)	(-19,3)	(-14,8)	(-15,6)	(-26,-5)	(-15,6)	(-10,11)	(-14,7)	(-9,11)
<i>P-Value</i>	0.678	0.083	0.043	0.050	0.353	0.689	0.593	0.058	0.579	0.916	0.694	0.926
Total Surgery Expenditures	-53.55**	-11.42	-14.08	13.92	22.60	-1.71	5.79	-33.92	11.36	4.36	11.46	23.44
<i>90% Confidence Interval</i>	(-94,-13)	(-50,27)	(-53,25)	(-25,53)	(-17,62)	(-39,36)	(-33,45)	(-77,9)	(-25,48)	(-34,42)	(-27,50)	(-16,63)
<i>80% Confidence Interval</i>	(-85,-22)	(-42,19)	(-45,16)	(-17,44)	(-8,54)	(-31,28)	(-25,36)	(-68,0)	(-17,40)	(-25,34)	(-18,41)	(-7,54)
<i>P-Value</i>	0.030	0.627	0.553	0.559	0.349	0.940	0.808	0.196	0.606	0.850	0.623	0.326
Inpatient Surgery Expenditures	-54.68**	-13.64	-12.50	16.47	10.64	5.31	-1.94	-24.24	13.28	-2.65	3.25	27.38
<i>90% Confidence Interval</i>	(-93,-16)	(-50,23)	(-49,24)	(-21,53)	(-27,48)	(-30,41)	(-39,35)	(-65,17)	(-20,47)	(-38,33)	(-33,39)	(-9,64)
<i>80% Confidence Interval</i>	(-85,-25)	(-42,15)	(-41,16)	(-12,45)	(-18,40)	(-22,33)	(-30,27)	(-56,8)	(-13,39)	(-30,25)	(-25,31)	(-1,56)
<i>P-Value</i>	0.020	0.540	0.576	0.464	0.639	0.804	0.930	0.332	0.516	0.902	0.882	0.220
Episode-Based Inpatient Surgery Expenditures	-53.94**	-16.15	-20.81	16.23	11.71	8.17	-13.31	-27.08	12.05	-6.46	-4.29	28.02
<i>90% Confidence Interval</i>	(-94,-14)	(-54,22)	(-59,18)	(-23,55)	(-27,51)	(-29,45)	(-52,25)	(-70,16)	(-24,48)	(-44,31)	(-42,34)	(-11,67)
<i>80% Confidence Interval</i>	(-85,-23)	(-46,14)	(-51,9)	(-14,47)	(-19,42)	(-21,37)	(-43,17)	(-60,6)	(-16,40)	(-36,23)	(-34,25)	(-2,58)
<i>P-Value</i>	0.027	0.487	0.374	0.496	0.623	0.717	0.569	0.298	0.580	0.777	0.853	0.233
Outpatient Surgery Expenditures	1.83	2.83	-0.84	-3.63	10.78*	-6.97	6.03	-8.45	-1.73	6.37	6.79	-4.00
<i>90% Confidence Interval</i>	(-8,11)	(-7,12)	(-11,10)	(-14,7)	(0,21)	(-18,4)	(-5,17)	(-19,2)	(-13,9)	(-5,18)	(-4,18)	(-15,7)
<i>80% Confidence Interval</i>	(-6,9)	(-5,10)	(-9,7)	(-12,4)	(2,19)	(-15,1)	(-3,15)	(-17,0)	(-10,7)	(-2,15)	(-2,15)	(-13,5)
<i>P-Value</i>	0.754	0.628	0.895	0.567	0.097	0.28	0.372	0.185	0.792	0.350	0.302	0.548
PS ^a Orthopedic Surgery Expenditures	2.22	-2.38	5.16	-5.68	9.13	4.39	6.07	-0.42	-0.39	4.92	-7.70	-3.81
<i>90% Confidence Interval</i>	(-9,14)	(-15,10)	(-9,19)	(-20,9)	(-4,22)	(-9,18)	(-7,19)	(-14,14)	(-14,13)	(-9,19)	(-21,6)	(-17,9)

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<i>80% Confidence Interval</i>	(-7,11)	(-12,7)	(-6,16)	(-17,6)	(-1,19)	(-6,15)	(-4,16)	(-11,10)	(-11,10)	(-6,16)	(-18,3)	(-14,6)
<i>P-Value</i>	0.752	0.752	0.546	0.519	0.239	0.584	0.443	0.960	0.961	0.563	0.350	0.633
Inpatient PS Orthopedic Surgery Expenditures	2.14	-1.56	5.37	-4.37	8.46	4.38	6.44	-0.76	1.02	4.65	-5.58	-3.39
<i>90% Confidence Interval</i>	(-8,12)	(-12,9)	(-7,17)	(-17,8)	(-2,19)	(-7,16)	(-5,18)	(-13,11)	(-10,12)	(-7,17)	(-17,6)	(-15,8)
<i>80% Confidence Interval</i>	(-6,10)	(-10,7)	(-4,15)	(-14,5)	(0,17)	(-4,13)	(-2,15)	(-10,9)	(-8,10)	(-5,14)	(-15,3)	(-12,5)
<i>P-Value</i>	0.721	0.808	0.465	0.568	0.203	0.524	0.341	0.917	0.882	0.523	0.429	0.620
Outpatient PS Orthopedic Surgery Expenditures	0.35	-0.55	-0.86*	-0.67*	-0.08	-0.08	-0.27	-0.10	-0.98*	0.18	-0.79	-0.01
<i>90% Confidence Interval</i>	(0,1)	(-1,0)	(-2,0)	(-1,0)	(-1,1)	(-1,1)	(-1,0)	(-1,1)	(-2,0)	(-1,1)	(-2,0)	(-1,1)
<i>80% Confidence Interval</i>	(0,1)	(-1,0)	(-1,0)	(-1,0)	(-1,1)	(-1,0)	(-1,0)	(-1,1)	(-2,0)	(0,1)	(-2,0)	(-1,1)
<i>P-Value</i>	0.313	0.231	0.066	0.099	0.864	0.858	0.565	0.867	0.081	0.721	0.160	0.982
PS Cardiac Surgery Expenditures	-21.53**	0.52	10.86	-2.98	-6.19	0.90	-3.38	-20.37*	-8.43	-3.38	6.84	11.25
<i>90% Confidence Interval</i>	(-38,-5)	(-17,18)	(-5,27)	(-19,13)	(-24,11)	(-16,17)	(-20,13)	(-39,-2)	(-26,9)	(-20,13)	(-9,23)	(-5,27)
<i>80% Confidence Interval</i>	(-34,-9)	(-13,14)	(-2,23)	(-16,10)	(-20,7)	(-12,14)	(-16,9)	(-35,-6)	(-22,5)	(-16,9)	(-6,19)	(-1,24)
<i>P-Value</i>	0.032	0.960	0.261	0.764	0.560	0.928	0.731	0.066	0.424	0.735	0.478	0.248
Inpatient PS Cardiac Surgery Expenditures	-17.81**	0.96	8.81	-1.36	-4.49	0.81	-3.48	-17.66*	-7.70	-4.56	6.55	10.13
<i>90% Confidence Interval</i>	(-33,-3)	(-14,16)	(-5,23)	(-16,13)	(-20,11)	(-14,15)	(-18,11)	(-34,-2)	(-23,8)	(-19,10)	(-8,21)	(-4,24)
<i>80% Confidence Interval</i>	(-29,-6)	(-11,13)	(-2,20)	(-13,10)	(-17,8)	(-10,12)	(-15,8)	(-30,-5)	(-20,4)	(-16,7)	(-4,18)	(-1,21)
<i>P-Value</i>	0.047	0.918	0.297	0.876	0.632	0.927	0.688	0.072	0.408	0.606	0.443	0.239
Outpatient PS Cardiac Surgery Expenditures	-2.16	-0.29	1.01	-1.77	-0.89	-0.72	0.67	-0.74	-0.14	1.58	-0.21	0.12
<i>90% Confidence Interval</i>	(-4,0)	(-2,2)	(-1,3)	(-4,1)	(-3,2)	(-3,2)	(-2,3)	(-3,2)	(-3,2)	(-1,4)	(-3,2)	(-2,3)
<i>80% Confidence Interval</i>	(-4,0)	(-2,1)	(-1,3)	(-4,0)	(-3,1)	(-3,1)	(-1,2)	(-3,1)	(-2,2)	(-1,4)	(-2,2)	(-2,2)
<i>P-Value</i>	0.121	0.827	0.477	0.254	0.541	0.632	0.629	0.608	0.928	0.357	0.896	0.938

* Statistically significant at the ten percent level.
** Statistically significant at the five percent level.
^aPS = Preference-sensitive.

Appendix Table B-48: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Ohio MA ITT Analysis Cohort

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>Number of Participant Beneficiaries</i>	97,380	96,492	95,477	92,080	91,230	90,076	89,069	82,860	81,907	79,501	78,171
Total Medical Expenditures	-17.27	-23.70	-71.81**	-55.82*	-28.26	3.18	-14.14	22.18	-9.94	7.56	-35.92
<i>90% Confidence Interval</i>	(-68,34)	(-75,27)	(-121,-23)	(-105,-7)	(-76,20)	(-44,51)	(-60,32)	(-26,70)	(-56,37)	(-34,49)	(-78,6)
<i>80% Confidence Interval</i>	(-57,23)	(-63,16)	(-110,-33)	(-94,-18)	(-66,9)	(-34,40)	(-50,22)	(-15,59)	(-46,26)	(-25,40)	(-68,-3)
<i>P-Value</i>	0.579	0.444	0.017	0.059	0.332	0.913	0.613	0.444	0.725	0.765	0.158
Inpatient Expenditures	-2.74	-9.93	-44.90**	-15.79	-2.09	3.92	-4.92	21.68	-3.11	-6.40	-30.68*
<i>90% Confidence Interval</i>	(-36,30)	(-44,24)	(-77,-12)	(-47,16)	(-33,29)	(-27,35)	(-34,24)	(-9,52)	(-35,29)	(-37,24)	(-61,-1)
<i>80% Confidence Interval</i>	(-29,23)	(-37,17)	(-70,-20)	(-40,9)	(-26,22)	(-20,28)	(-27,17)	(-2,46)	(-28,22)	(-30,17)	(-54,-7)
<i>P-Value</i>	0.892	0.633	0.023	0.410	0.911	0.837	0.778	0.246	0.872	0.728	0.093
Outpatient ER Expenditures	-3.75*	0.29	-0.93	-1.89	-3.83	1.05	-2.13	-0.24	0.12	1.73	2.06
<i>90% Confidence Interval</i>	(-7,0)	(-3,4)	(-4,3)	(-6,2)	(-8,0)	(-3,5)	(-6,2)	(-4,4)	(-4,4)	(-2,5)	(-1,5)
<i>80% Confidence Interval</i>	(-7,-1)	(-2,3)	(-4,2)	(-5,1)	(-7,-1)	(-2,4)	(-5,1)	(-3,3)	(-3,3)	(-1,4)	(0,5)
<i>P-Value</i>	0.095	0.892	0.666	0.440	0.101	0.635	0.374	0.924	0.961	0.406	0.298
Outpatient Non-ER Expenditures	-14.10*	-4.29	-6.59	-11.28	-7.03	1.33	3.20	1.39	1.23	5.09	-0.15
<i>90% Confidence Interval</i>	(-26,-2)	(-16,7)	(-19,5)	(-24,1)	(-19,5)	(-9,12)	(-8,14)	(-11,13)	(-10,13)	(-5,15)	(-10,10)
<i>80% Confidence Interval</i>	(-24,-5)	(-13,5)	(-16,3)	(-21,-2)	(-16,2)	(-7,10)	(-5,12)	(-8,11)	(-8,10)	(-3,13)	(-8,8)
<i>P-Value</i>	0.057	0.541	0.368	0.136	0.322	0.838	0.629	0.848	0.863	0.410	0.981
Physician and Ancillary Service Expenditures	-2.79	-8.72	-8.89	-11.38	-9.11	-0.92	-5.91	-3.55	-4.56	-0.32	1.68
<i>90% Confidence Interval</i>	(-16,11)	(-21,4)	(-21,3)	(-24,1)	(-22,4)	(-13,11)	(-18,6)	(-16,8)	(-15,6)	(-9,8)	(-7,11)
<i>80% Confidence Interval</i>	(-13,8)	(-18,1)	(-19,1)	(-21,-2)	(-19,1)	(-10,8)	(-16,4)	(-13,6)	(-13,4)	(-7,6)	(-5,9)
<i>P-Value</i>	0.734	0.248	0.237	0.132	0.238	0.899	0.433	0.627	0.486	0.952	0.761
Skilled Nursing Facility Expenditures	4.91	0.02	-11.24**	-13.74**	-5.06	-3.96	-1.53	-2.75	-1.27	4.91	-8.74
<i>90% Confidence Interval</i>	(-5,15)	(-10,10)	(-21,-2)	(-23,-4)	(-15,4)	(-14,6)	(-11,8)	(-12,7)	(-10,8)	(-4,14)	(-17,0)
<i>80% Confidence Interval</i>	(-3,13)	(-7,7)	(-18,-4)	(-21,-6)	(-13,2)	(-11,4)	(-9,6)	(-10,4)	(-8,6)	(-2,12)	(-16,-2)
<i>P-Value</i>	0.422	0.997	0.046	0.017	0.384	0.500	0.796	0.626	0.813	0.363	0.101

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
Home Health Expenditures	0.39	-1.95	-0.13	-0.75	-0.09	1.45	-2.08	3.15	-2.53	0.33	-1.12
<i>90% Confidence Interval</i>	(-3,4)	(-6,2)	(-4,4)	(-5,3)	(-4,4)	(-3,5)	(-6,2)	(-1,7)	(-6,1)	(-4,4)	(-5,3)
<i>80% Confidence Interval</i>	(-3,3)	(-5,1)	(-3,3)	(-4,2)	(-3,3)	(-2,5)	(-5,1)	(0,6)	(-6,1)	(-3,3)	(-4,2)
<i>P-Value</i>	0.867	0.416	0.956	0.752	0.969	0.550	0.374	0.181	0.293	0.888	0.655
Total Surgery Expenditures	-24.34	-3.57	-35.23**	-23.73	-17.52	-0.20	2.02	-1.91	9.19	0.26	4.20
<i>90% Confidence Interval</i>	(-50,1)	(-28,21)	(-59,-11)	(-48,1)	(-39,4)	(-24,24)	(-20,24)	(-24,21)	(-8,26)	(-12,13)	(-9,17)
<i>80% Confidence Interval</i>	(-44,-4)	(-23,15)	(-54,-16)	(-43,-4)	(-34,-1)	(-19,19)	(-15,19)	(-19,16)	(-4,23)	(-9,10)	(-6,14)
<i>P-Value</i>	0.121	0.809	0.016	0.114	0.172	0.989	0.879	0.888	0.382	0.972	0.595
Inpatient Surgery Expenditures	-12.22	0.71	-26.55*	-10.64	-13.16	-5.23	1.57	3.79	8.69	-2.62	4.61
<i>90% Confidence Interval</i>	(-36,12)	(-22,23)	(-49,-4)	(-33,12)	(-32,6)	(-28,17)	(-18,21)	(-17,24)	(-6,24)	(-12,7)	(-6,15)
<i>80% Confidence Interval</i>	(-31,6)	(-17,18)	(-44,-9)	(-28,7)	(-28,2)	(-23,12)	(-14,17)	(-12,20)	(-3,20)	(-10,5)	(-4,13)
<i>P-Value</i>	0.398	0.959	0.051	0.443	0.254	0.701	0.897	0.760	0.341	0.659	0.481
Episode-Based Inpatient Surgery Expenditures	-12.71	0.79	-26.21*	-11.59	-13.17	-5.83	2.50	3.81	8.14	-2.69	3.92
<i>90% Confidence Interval</i>	(-37,11)	(-22,23)	(-49,-4)	(-34,11)	(-32,6)	(-28,17)	(-17,23)	(-17,24)	(-7,23)	(-13,7)	(-7,15)
<i>80% Confidence Interval</i>	(-31,6)	(-17,18)	(-44,-9)	(-29,6)	(-28,2)	(-23,12)	(-13,18)	(-12,20)	(-4,20)	(-10,5)	(-5,12)
<i>P-Value</i>	0.381	0.954	0.055	0.405	0.258	0.672	0.837	0.759	0.374	0.656	0.553
Outpatient Surgery Expenditures	-10.74**	-4.01	-7.74*	-10.84**	-3.01	4.15	0.22	-4.06	0.20	2.55	-0.36
<i>90% Confidence Interval</i>	(-19,-3)	(-11,3)	(-15,-1)	(-18,-3)	(-10,4)	(-3,11)	(-7,7)	(-12,3)	(-7,8)	(-4,9)	(-7,6)
<i>80% Confidence Interval</i>	(-17,-5)	(-10,2)	(-13,-2)	(-17,-5)	(-9,3)	(-1,10)	(-5,6)	(-10,2)	(-6,6)	(-3,8)	(-5,5)
<i>P-Value</i>	0.025	0.364	0.077	0.019	0.508	0.331	0.960	0.373	0.966	0.536	0.927
PS ^a Orthopedic Surgery Expenditures	4.09	-0.52	-2.66	-0.12	3.76	1.64	3.40	6.31	4.16	-2.06	-0.57
<i>90% Confidence Interval</i>	(-6,14)	(-9,8)	(-11,6)	(-9,8)	(-4,11)	(-7,10)	(-5,12)	(-2,15)	(-3,11)	(-7,3)	(-5,4)
<i>80% Confidence Interval</i>	(-3,12)	(-7,6)	(-9,4)	(-7,7)	(-2,10)	(-5,8)	(-3,10)	(0,13)	(-1,10)	(-6,2)	(-4,3)
<i>P-Value</i>	0.489	0.923	0.611	0.981	0.412	0.747	0.500	0.209	0.330	0.487	0.844
Inpatient PS Orthopedic Surgery Expenditures	3.90	0.24	-2.23	0.14	3.55	2.39	3.36	5.67	4.00	-1.83	-0.57

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
<i>90% Confidence Interval</i>	(-4,12)	(-7,8)	(-9,5)	(-7,7)	(-3,10)	(-5,9)	(-4,10)	(-1,13)	(-2,10)	(-6,2)	(-5,3)
<i>80% Confidence Interval</i>	(-2,10)	(-5,6)	(-8,3)	(-5,6)	(-1,8)	(-3,8)	(-2,9)	(0,11)	(-1,9)	(-5,1)	(-4,2)
<i>P-Value</i>	0.429	0.957	0.606	0.974	0.354	0.574	0.426	0.178	0.272	0.460	0.811
Outpatient PS Orthopedic Surgery Expenditures	-0.56*	-0.32	0.10	-0.18	-0.21	-0.64	-0.39	-0.17	-0.36	0.20	0.23
<i>90% Confidence Interval</i>	(-1,0)	(-1,0)	(-1,1)	(-1,0)	(-1,0)	(-2,0)	(-1,0)	(-1,0)	(-1,0)	(0,1)	(0,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,0)	(0,1)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(-1,0)	(0,1)	(0,1)
<i>P-Value</i>	0.074	0.270	0.799	0.552	0.542	0.241	0.161	0.653	0.343	0.509	0.440
PS Cardiac Surgery Expenditures	-1.73	11.65	-4.94	-16.51***	-2.71	-1.94	-13.41**	7.84	9.71**	1.98	4.71
<i>90% Confidence Interval</i>	(-13,10)	(0,23)	(-16,6)	(-27,-6)	(-13,7)	(-13,9)	(-23,-4)	(-3,19)	(2,17)	(-3,7)	(-1,11)
<i>80% Confidence Interval</i>	(-11,7)	(3,21)	(-13,3)	(-25,-8)	(-11,5)	(-11,7)	(-21,-6)	(-1,16)	(4,16)	(-2,6)	(0,9)
<i>P-Value</i>	0.803	0.102	0.453	0.010	0.658	0.773	0.023	0.231	0.036	0.548	0.195
Inpatient PS Cardiac Surgery Expenditures	-0.21	10.27*	-3.13	-13.82***	-0.49	-2.89	-11.19**	6.43	7.75*	1.26	3.76
<i>90% Confidence Interval</i>	(-10,9)	(0,20)	(-12,6)	(-23,-5)	(-9,8)	(-12,6)	(-19,-3)	(-3,15)	(1,14)	(-3,6)	(-1,9)
<i>80% Confidence Interval</i>	(-8,7)	(3,18)	(-10,4)	(-21,-7)	(-7,6)	(-10,4)	(-18,-5)	(-1,13)	(3,13)	(-2,5)	(0,8)
<i>P-Value</i>	0.971	0.090	0.570	0.010	0.924	0.611	0.024	0.243	0.052	0.636	0.208
Outpatient PS Cardiac Surgery Expenditures	-1.45	-0.26	-1.33	-0.80	-2.39**	0.29	-0.35	0.14	0.75	-0.02	0.22
<i>90% Confidence Interval</i>	(-4,1)	(-2,2)	(-3,0)	(-3,1)	(-4,-1)	(-2,2)	(-2,1)	(-2,2)	(-1,2)	(-2,2)	(-2,2)
<i>80% Confidence Interval</i>	(-3,0)	(-2,1)	(-3,0)	(-2,1)	(-4,-1)	(-1,2)	(-2,1)	(-1,2)	(-1,2)	(-1,1)	(-1,2)
<i>P-Value</i>	0.275	0.827	0.226	0.473	0.028	0.788	0.753	0.903	0.475	0.987	0.835

* Statistically significant at the ten percent level.
** Statistically significant at the five percent level.
*** Statistically significant at the one percent level.
^aPS = Preference-sensitive.

Appendix Table B-49: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Texas MA ITT Analysis Cohort

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	63,979	63,885	50,346	49,822	49,356	48,797
Total Medical Expenditures	13.88	15.80	-68.30	42.32	118.29**	27.67
<i>90% Confidence Interval</i>	(-55,83)	(-54,85)	(-161,24)	(-40,125)	(37,199)	(-49,105)
<i>80% Confidence Interval</i>	(-40,68)	(-38,70)	(-140,4)	(-22,106)	(55,181)	(-32,88)
<i>P-Value</i>	0.741	0.709	0.223	0.398	0.016	0.555
Inpatient Expenditures	5.60	14.37	-49.50	59.54*	112.39***	22.95
<i>90% Confidence Interval</i>	(-42,53)	(-31,60)	(-119,20)	(4,115)	(58,167)	(-27,73)
<i>80% Confidence Interval</i>	(-31,43)	(-21,50)	(-103,4)	(16,103)	(70,155)	(-16,62)
<i>P-Value</i>	0.847	0.604	0.240	0.080	<0.001	0.448
Outpatient ER Expenditures	1.00	-0.33	-2.51	0.01	5.00	6.37*
<i>90% Confidence Interval</i>	(-5,7)	(-6,5)	(-9,4)	(-6,6)	(-1,11)	(0,13)
<i>80% Confidence Interval</i>	(-3,5)	(-5,4)	(-8,2)	(-5,5)	(0,10)	(1,11)
<i>P-Value</i>	0.767	0.923	0.521	0.997	0.173	0.099
Outpatient Non-ER Expenditures	3.87	8.91	-3.66	-4.92	6.41	9.13
<i>90% Confidence Interval</i>	(-13,21)	(-8,26)	(-22,15)	(-24,14)	(-13,26)	(-10,29)
<i>80% Confidence Interval</i>	(-9,17)	(-5,22)	(-18,11)	(-19,10)	(-9,21)	(-6,24)
<i>P-Value</i>	0.707	0.397	0.744	0.666	0.582	0.439
Physician and Ancillary Service Expenditures	12.08	2.24	0.39	11.93	1.40	-2.45
<i>90% Confidence Interval</i>	(-6,30)	(-17,21)	(-21,22)	(-10,34)	(-21,24)	(-25,20)
<i>80% Confidence Interval</i>	(-2,26)	(-13,17)	(-17,17)	(-5,29)	(-16,19)	(-20,15)
<i>P-Value</i>	0.280	0.847	0.977	0.370	0.917	0.858
Skilled Nursing Facility Expenditures	-8.66	-2.00	-6.12	-15.98*	5.23	-3.58
<i>90% Confidence Interval</i>	(-20,2)	(-15,11)	(-20,8)	(-30,-2)	(-10,21)	(-18,11)
<i>80% Confidence Interval</i>	(-17,0)	(-12,8)	(-17,5)	(-27,-5)	(-7,17)	(-15,8)
<i>P-Value</i>	0.199	0.799	0.477	0.065	0.579	0.680
Home Health Expenditures	1.93	-5.47	-4.87	-6.36	-7.00	-1.11
<i>90% Confidence Interval</i>	(-9,13)	(-17,6)	(-19,9)	(-21,8)	(-21,7)	(-15,13)
<i>80% Confidence Interval</i>	(-7,11)	(-15,4)	(-16,6)	(-17,5)	(-18,4)	(-12,10)
<i>P-Value</i>	0.780	0.448	0.562	0.464	0.407	0.893
Total Surgery Expenditures	14.37	17.28	3.31	39.49	71.68***	16.80
<i>90% Confidence Interval</i>	(-22,51)	(-19,53)	(-45,52)	(-2,81)	(30,113)	(-22,56)
<i>80% Confidence Interval</i>	(-14,43)	(-11,45)	(-35,41)	(7,72)	(40,104)	(-14,47)
<i>P-Value</i>	0.515	0.431	0.911	0.121	0.004	0.481
Inpatient Surgery Expenditures	14.10	15.00	10.12	45.88*	65.55***	13.92
<i>90% Confidence Interval</i>	(-19,48)	(-18,48)	(-36,57)	(7,85)	(27,104)	(-22,50)
<i>80% Confidence Interval</i>	(-12,40)	(-11,41)	(-26,46)	(16,76)	(36,96)	(-14,42)

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>P-Value</i>	0.488	0.459	0.720	0.053	0.005	0.528
Episode-Based Inpatient Surgery Expenditures	15.17	16.64	10.07	45.41*	66.31***	15.94
<i>90% Confidence Interval</i>	(-18,49)	(-17,50)	(-36,57)	(6,85)	(28,105)	(-20,52)
<i>80% Confidence Interval</i>	(-11,41)	(-9,43)	(-26,46)	(15,76)	(36,96)	(-12,44)
<i>P-Value</i>	0.457	0.413	0.722	0.056	0.005	0.472
Outpatient Surgery Expenditures	2.25	1.29	-6.89	-5.16	6.84	2.53
<i>90% Confidence Interval</i>	(-9,14)	(-10,13)	(-19,5)	(-18,7)	(-5,19)	(-10,15)
<i>80% Confidence Interval</i>	(-7,11)	(-7,10)	(-16,3)	(-15,5)	(-3,16)	(-7,12)
<i>P-Value</i>	0.746	0.850	0.353	0.495	0.354	0.734
PS ^a Orthopedic Surgery Expenditures	-5.35	-6.18	-5.06	18.02*	-9.68	13.73
<i>90% Confidence Interval</i>	(-18,7)	(-20,8)	(-20,10)	(3,33)	(-24,5)	(-2,30)
<i>80% Confidence Interval</i>	(-15,4)	(-17,5)	(-17,7)	(6,30)	(-21,2)	(1,26)
<i>P-Value</i>	0.475	0.469	0.577	0.055	0.277	0.160
Inpatient PS Orthopedic Surgery Expenditures	-4.57	-5.06	-3.67	15.79**	-6.99	11.29
<i>90% Confidence Interval</i>	(-15,6)	(-17,7)	(-16,9)	(3,29)	(-19,5)	(-3,25)
<i>80% Confidence Interval</i>	(-13,4)	(-14,4)	(-13,6)	(6,26)	(-17,3)	(1,22)
<i>P-Value</i>	0.469	0.481	0.632	0.048	0.356	0.180
Outpatient PS Orthopedic Surgery Expenditures	-0.59	-0.31	-0.89**	-1.26**	-0.48	0.43
<i>90% Confidence Interval</i>	(-1,0)	(-1,0)	(-2,0)	(-2,0)	(-1,0)	(0,1)
<i>80% Confidence Interval</i>	(-1,0)	(-1,0)	(-1,0)	(-2,-1)	(-1,0)	(0,1)
<i>P-Value</i>	0.230	0.518	0.037	0.031	0.377	0.444
PS Cardiac Surgery Expenditures	-2.74	18.02**	-6.57	28.00***	9.87	12.34
<i>90% Confidence Interval</i>	(-17,12)	(3,33)	(-33,20)	(11,45)	(-7,27)	(-4,29)
<i>80% Confidence Interval</i>	(-14,8)	(7,29)	(-27,14)	(15,41)	(-3,23)	(-1,25)
<i>P-Value</i>	0.752	0.044	0.684	0.006	0.340	0.227
Inpatient PS Cardiac Surgery Expenditures	-1.68	16.32**	-5.55	26.30***	11.19	11.62
<i>90% Confidence Interval</i>	(-14,10)	(4,29)	(-30,19)	(12,40)	(-3,26)	(-3,26)
<i>80% Confidence Interval</i>	(-11,8)	(7,26)	(-25,14)	(15,37)	(0,23)	(0,23)
<i>P-Value</i>	0.819	0.032	0.710	0.002	0.207	0.181
Outpatient PS Cardiac Surgery Expenditures	-0.07	-1.33	-1.66	-2.13	-3.03*	-1.36
<i>90% Confidence Interval</i>	(-3,2)	(-4,1)	(-4,1)	(-5,1)	(-6,0)	(-5,2)
<i>80% Confidence Interval</i>	(-2,2)	(-3,1)	(-4,0)	(-4,0)	(-5,-1)	(-4,1)
<i>P-Value</i>	0.962	0.363	0.312	0.211	0.062	0.491

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aPS = Preference-sensitive.

Appendix Table B-50: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Ohio FFS IV Analysis Cohort, Q1 to Q6

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	1,133	1,132	1,127	1,116	1,113	1,104
Total Medicare Parts A and B Expenditures	-5,265.08*	-2,690.22	-3,571.74	1,549.57	1,726.45	634.94
<i>90% Confidence Interval</i>	(-9931,-599)	(-7231,1850)	(-8090,946)	(-2988,6088)	(-2727,6180)	(-3639,4909)
<i>80% Confidence Interval</i>	(-8900,-1630)	(-6228,848)	(-7092,-52)	(-1986,5085)	(-1743,5196)	(-2695,3965)
<i>P-Value</i>	0.063	0.330	0.193	0.574	0.524	0.807
Inpatient Expenditures	-4,331.45**	-1,399.60	-2,030.13	1,619.35	1,488.04	1,245.81
<i>90% Confidence Interval</i>	(-7193,-1470)	(-4218,1418)	(-4798,737)	(-1149,4387)	(-1209,4185)	(-1337,3828)
<i>80% Confidence Interval</i>	(-6561,-2102)	(-3595,796)	(-4186,126)	(-537,3776)	(-613,3589)	(-766,3258)
<i>P-Value</i>	0.013	0.414	0.228	0.336	0.364	0.427
Outpatient ER Expenditures	-180.62	-165.75	-33.06	-132.36	72.41	-175.38
<i>90% Confidence Interval</i>	(-410,49)	(-384,53)	(-278,212)	(-397,132)	(-193,338)	(-431,80)
<i>80% Confidence Interval</i>	(-360,-2)	(-336,5)	(-224,158)	(-339,74)	(-135,279)	(-375,24)
<i>P-Value</i>	0.196	0.213	0.824	0.411	0.654	0.259
Outpatient Non-ER Expenditures	632.83	331.85	-251.65	401.47	111.87	-233.66
<i>90% Confidence Interval</i>	(-303,1569)	(-605,1269)	(-1198,695)	(-530,1333)	(-848,1072)	(-1144,677)
<i>80% Confidence Interval</i>	(-97,1362)	(-398,1062)	(-989,486)	(-324,1127)	(-636,860)	(-943,476)
<i>P-Value</i>	0.266	0.560	0.662	0.478	0.848	0.673
Physician and Ancillary Service Expenditures	-603.92	-380.11	-284.41	195.13	127.98	256.62
<i>90% Confidence Interval</i>	(-1541,334)	(-1268,508)	(-1162,594)	(-678,1068)	(-758,1014)	(-591,1104)
<i>80% Confidence Interval</i>	(-1334,126)	(-1072,312)	(-968,400)	(-485,875)	(-562,818)	(-403,917)
<i>P-Value</i>	0.289	0.481	0.594	0.713	0.812	0.618
Skilled Nursing Facility Expenditures	-851.90	-141.71	-424.82	760.08	636.34	201.33
<i>90% Confidence Interval</i>	(-2270,566)	(-1496,1213)	(-1811,961)	(-622,2142)	(-752,2025)	(-1147,1550)
<i>80% Confidence Interval</i>	(-1956,253)	(-1197,914)	(-1505,655)	(-317,1837)	(-445,1718)	(-849,1252)
<i>P-Value</i>	0.323	0.863	0.614	0.366	0.451	0.806
Durable Medical Equipment Expenditures	133.39	-54.19	34.72	-149.53	-103.76	-114.66
<i>90% Confidence Interval</i>	(-147,414)	(-330,222)	(-238,308)	(-409,110)	(-360,153)	(-357,127)
<i>80% Confidence Interval</i>	(-85,352)	(-269,161)	(-178,248)	(-352,53)	(-304,96)	(-303,74)
<i>P-Value</i>	0.434	0.747	0.834	0.343	0.506	0.436
Home Health Expenditures	182.04	2.93	395.77	-233.36	-214.33	-398.11
<i>90% Confidence Interval</i>	(-271,635)	(-446,451)	(-43,835)	(-690,224)	(-663,234)	(-843,46)
<i>80% Confidence Interval</i>	(-171,535)	(-346,352)	(54,738)	(-589,123)	(-564,135)	(-745,-52)
<i>P-Value</i>	0.508	0.991	0.138	0.401	0.432	0.141

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
Hospice Expenditures	-210.02	-832.63*	-943.02**	-862.77**	-400.14	-173.25
<i>90% Confidence Interval</i>	(-1043,623)	(-1622,-44)	(-1709,-177)	(-1586,-140)	(-1108,308)	(-884,538)
<i>80% Confidence Interval</i>	(-859,439)	(-1447,-218)	(-1540,-347)	(-1426,-299)	(-952,151)	(-727,381)
<i>P-Value</i>	0.678	0.083	0.043	0.050	0.353	0.689
Total Surgery Expenditures	-2,834.43**	-595.85	-727.33	715.35	1,144.84	-86.15
<i>90% Confidence Interval</i>	(-4988,-681)	(-2611,1420)	(-2745,1290)	(-1299,2729)	(-866,3156)	(-1975,1802)
<i>80% Confidence Interval</i>	(-4512,-1157)	(-2166,975)	(-2299,844)	(-854,2285)	(-422,2712)	(-1558,1385)
<i>P-Value</i>	0.030	0.627	0.553	0.559	0.349	0.940
Inpatient Surgery Expenditures	-2,894.49**	-711.81	-645.43	846.10	538.99	267.05
<i>90% Confidence Interval</i>	(-4945,-844)	(-2620,1197)	(-2546,1255)	(-1056,2748)	(-1354,2432)	(-1504,2038)
<i>80% Confidence Interval</i>	(-4492,-1297)	(-2199,775)	(-2126,836)	(-636,2328)	(-936,2014)	(-1113,1647)
<i>P-Value</i>	0.020	0.540	0.576	0.464	0.639	0.804
Episode-Based Inpatient Surgery Expenditures	-2,855.24**	-842.87	-1,074.89	834.16	592.99	410.56
<i>90% Confidence Interval</i>	(-4985,-726)	(-2837,1152)	(-3065,915)	(-1180,2849)	(-1391,2577)	(-1454,2275)
<i>80% Confidence Interval</i>	(-4514,-1196)	(-2397,711)	(-2625,475)	(-735,2404)	(-953,2139)	(-1042,1863)
<i>P-Value</i>	0.027	0.487	0.374	0.496	0.623	0.717
Outpatient Surgery Expenditures	96.69	147.91	-43.19	-186.59	546.22*	-350.44
<i>90% Confidence Interval</i>	(-410,604)	(-354,650)	(-580,493)	(-723,349)	(5,1087)	(-884,183)
<i>80% Confidence Interval</i>	(-298,492)	(-243,539)	(-461,375)	(-604,231)	(125,968)	(-766,65)
<i>P-Value</i>	0.754	0.628	0.895	0.567	0.097	0.280
PS ^a Orthopedic Surgery Expenditures	117.62	-124.05	266.56	-291.96	462.28	220.86
<i>90% Confidence Interval</i>	(-496,731)	(-769,520)	(-460,993)	(-1037,453)	(-184,1109)	(-443,884)
<i>80% Confidence Interval</i>	(-360,595)	(-626,378)	(-299,832)	(-872,288)	(-41,966)	(-296,738)
<i>P-Value</i>	0.752	0.752	0.546	0.519	0.239	0.584
Inpatient PS Orthopedic Surgery Expenditures	113.53	-81.61	277.15	-224.41	428.61	220.31
<i>90% Confidence Interval</i>	(-410,637)	(-633,469)	(-347,902)	(-870,421)	(-125,982)	(-349,790)
<i>80% Confidence Interval</i>	(-294,521)	(-511,348)	(-209,764)	(-727,279)	(-3,860)	(-223,664)
<i>P-Value</i>	0.721	0.808	0.465	0.568	0.203	0.524
Outpatient PS Orthopedic Surgery Expenditures	18.51	-28.64	-44.53*	-34.60*	-4.00	-4.03
<i>90% Confidence Interval</i>	(-12,49)	(-68,11)	(-84,-5)	(-69,0)	(-42,34)	(-41,33)
<i>80% Confidence Interval</i>	(-5,42)	(-59,2)	(-76,-14)	(-62,-8)	(-34,26)	(-33,25)
<i>P-Value</i>	0.313	0.231	0.066	0.099	0.864	0.858
PS Cardiac Surgery Expenditures	-1,139.47**	27.05	560.76	-153.29	-313.76	45.34
<i>90% Confidence Interval</i>	(-2015,-264)	(-870,924)	(-261,1382)	(-992,685)	(-1199,571)	(-784,875)
<i>80% Confidence Interval</i>	(-1821,-457)	(-672,726)	(-79,1201)	(-807,500)	(-1003,376)	(-601,692)
<i>P-Value</i>	0.032	0.960	0.261	0.764	0.560	0.928

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
Inpatient PS Cardiac Surgery Expenditures	-942.67**	49.94	455.08	-70.00	-227.68	40.70
90% Confidence Interval	(-1723,-162)	(-745,845)	(-263,1173)	(-805,665)	(-1009,553)	(-689,770)
80% Confidence Interval	(-1551,-335)	(-570,670)	(-105,1015)	(-643,503)	(-836,381)	(-528,609)
P-Value	0.047	0.918	0.297	0.876	0.632	0.927
Outpatient PS Cardiac Surgery Expenditures	-114.21	-15.24	52.17	-91.20	-45.25	-36.15
90% Confidence Interval	(-235,7)	(-130,99)	(-69,173)	(-223,40)	(-167,77)	(-160,88)
80% Confidence Interval	(-209,-20)	(-104,74)	(-42,146)	(-194,11)	(-140,50)	(-133,61)
P-Value	0.121	0.827	0.477	0.254	0.541	0.632

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aPS = Preference-sensitive

Appendix Table B-51: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Ohio FFS IV Analysis Cohort, Q7 to Q12

Measures (2011 USD per Person)	Q7	Q8	Q9	Q10	Q11	Q12
Number of Participant Beneficiaries	1,092	1,085	1,074	1,063	1,053	1,041
Total Medicare Parts A and B Expenditures	-1,595.39	-4,920.07*	233.94	1,037.40	-1,676.48	-792.71
90% Confidence Interval	(-5913,2723)	(-9436,-405)	(-3954,4422)	(-3119,5193)	(-5904,2551)	(-5136,3551)
80% Confidence Interval	(-4960,1769)	(-8438,-1402)	(-3029,3497)	(-2201,4275)	(-4970,1617)	(-4177,2591)
P-Value	0.543	0.073	0.927	0.681	0.514	0.764
Inpatient Expenditures	-1,562.51	-2,579.46	251.14	530.33	-1,702.75	924.86
90% Confidence Interval	(-4164,1039)	(-5395,236)	(-2216,2718)	(-1942,3003)	(-4271,865)	(-1756,3606)
80% Confidence Interval	(-3589,464)	(-4773,-386)	(-1671,2173)	(-1396,2457)	(-3704,298)	(-1164,3014)
P-Value	0.323	0.132	0.867	0.724	0.275	0.570
Outpatient ER Expenditures	-108.20	68.57	-136.90	92.64	182.93	-131.76
90% Confidence Interval	(-359,143)	(-188,325)	(-383,109)	(-142,327)	(-55,421)	(-363,100)
80% Confidence Interval	(-304,87)	(-131,268)	(-329,55)	(-90,276)	(-3,368)	(-312,49)
P-Value	0.478	0.660	0.360	0.516	0.206	0.350
Outpatient Non-ER Expenditures	936.94*	-509.31	316.05	560.05	160.83	165.53
90% Confidence Interval	(3,1870)	(-1376,358)	(-584,1217)	(-357,1477)	(-737,1059)	(-748,1079)
80% Confidence Interval	(210,1664)	(-1185,166)	(-386,1018)	(-154,1274)	(-539,861)	(-546,877)
P-Value	0.099	0.334	0.564	0.315	0.768	0.766
Physician and Ancillary Service Expenditures	-418.78	-510.46	-162.61	271.06	-151.79	-303.59
90% Confidence Interval	(-1276,438)	(-1354,333)	(-994,669)	(-561,1103)	(-969,666)	(-1169,562)
80% Confidence Interval	(-1087,249)	(-1168,147)	(-811,486)	(-377,920)	(-789,485)	(-978,370)

Measures (2011 USD per Person)	Q7	Q8	Q9	Q10	Q11	Q12
<i>P-Value</i>	0.422	0.320	0.748	0.592	0.760	0.564
Skilled Nursing Facility Expenditures	368.86	-249.37	763.55	53.00	322.35	-1,357.82*
<i>90% Confidence Interval</i>	(-984,1722)	(-1693,1194)	(-569,2096)	(-1275,1381)	(-1007,1652)	(-2708,-7)
<i>80% Confidence Interval</i>	(-686,1423)	(-1374,875)	(-274,1802)	(-982,1088)	(-713,1358)	(-2410,-306)
<i>P-Value</i>	0.654	0.776	0.346	0.948	0.690	0.098
Durable Medical Equipment Expenditures	-201.27	-222.83	-245.53	-236.64	-247.14*	-245.14
<i>90% Confidence Interval</i>	(-453,50)	(-473,27)	(-500,9)	(-479,5)	(-487,-7)	(-491,1)
<i>80% Confidence Interval</i>	(-397,-5)	(-418,-28)	(-444,-47)	(-425,-48)	(-434,-60)	(-437,-54)
<i>P-Value</i>	0.188	0.143	0.112	0.108	0.090	0.101
Home Health Expenditures	-338.98	-121.82	-307.46	-268.46	-74.80	126.75
<i>90% Confidence Interval</i>	(-789,111)	(-576,332)	(-768,153)	(-718,182)	(-529,380)	(-326,579)
<i>80% Confidence Interval</i>	(-689,11)	(-475,232)	(-666,51)	(-619,82)	(-429,279)	(-226,479)
<i>P-Value</i>	0.215	0.659	0.272	0.326	0.787	0.645
Hospice Expenditures	-227.97	-767.75*	-219.15	42.71	-159.17	35.62
<i>90% Confidence Interval</i>	(-929,473)	(-1434,-101)	(-870,431)	(-622,707)	(-824,506)	(-592,663)
<i>80% Confidence Interval</i>	(-774,318)	(-1287,-248)	(-726,288)	(-475,560)	(-677,359)	(-453,525)
<i>P-Value</i>	0.593	0.058	0.579	0.916	0.694	0.926
Total Surgery Expenditures	289.79	-1,679.81	558.34	212.82	556.50	1,133.40
<i>90% Confidence Interval</i>	(-1667,2247)	(-3818,459)	(-1223,2340)	(-1642,2068)	(-1305,2418)	(-765,3032)
<i>80% Confidence Interval</i>	(-1235,1814)	(-3346,-14)	(-829,1946)	(-1233,1658)	(-894,2007)	(-346,2612)
<i>P-Value</i>	0.808	0.196	0.606	0.850	0.623	0.326
Inpatient Surgery Expenditures	-97.21	-1,200.58	652.54	-129.46	157.89	1,323.94
<i>90% Confidence Interval</i>	(-1928,1733)	(-3235,834)	(-1001,2306)	(-1854,1596)	(-1587,1903)	(-453,3101)
<i>80% Confidence Interval</i>	(-1523,1329)	(-2785,384)	(-636,1941)	(-1473,1215)	(-1202,1517)	(-60,2708)
<i>P-Value</i>	0.930	0.332	0.516	0.902	0.882	0.220
Episode-Based Inpatient Surgery Expenditures	-666.46	-1,341.39	592.13	-315.05	-208.28	1,354.47
<i>90% Confidence Interval</i>	(-2591,1258)	(-3461,778)	(-1166,2350)	(-2144,1514)	(-2058,1642)	(-515,3224)
<i>80% Confidence Interval</i>	(-2166,833)	(-2993,310)	(-777,1962)	(-1740,1110)	(-1650,1233)	(-102,2811)
<i>P-Value</i>	0.569	0.298	0.580	0.777	0.853	0.233
Outpatient Surgery Expenditures	301.75	-418.38	-85.10	311.05	329.69	-193.38
<i>90% Confidence Interval</i>	(-255,858)	(-938,101)	(-615,445)	(-237,859)	(-196,855)	(-723,336)
<i>80% Confidence Interval</i>	(-132,735)	(-823,-14)	(-498,328)	(-116,738)	(-80,739)	(-606,219)
<i>P-Value</i>	0.372	0.185	0.792	0.350	0.302	0.548
PS ^a Orthopedic Surgery Expenditures	304.04	-21.03	-19.18	240.22	-373.75	-184.13
<i>90% Confidence Interval</i>	(-347,955)	(-714,672)	(-667,629)	(-443,923)	(-1032,284)	(-818,450)
<i>80% Confidence Interval</i>	(-203,812)	(-561,519)	(-524,486)	(-292,772)	(-886,139)	(-678,310)

Measures (2011 USD per Person)	Q7	Q8	Q9	Q10	Q11	Q12
<i>P-Value</i>	0.443	0.960	0.961	0.563	0.350	0.633
Inpatient PS Orthopedic Surgery Expenditures	322.45	-37.70	50.34	227.08	-270.91	-163.84
<i>90% Confidence Interval</i>	(-234,879)	(-635,560)	(-507,608)	(-358,812)	(-834,292)	(-707,379)
<i>80% Confidence Interval</i>	(-111,756)	(-503,428)	(-384,485)	(-229,683)	(-710,168)	(-587,259)
<i>P-Value</i>	0.341	0.917	0.882	0.523	0.429	0.620
Outpatient PS Orthopedic Surgery Expenditures	-13.44	-4.95	-48.39*	8.71	-38.28	-0.53
<i>90% Confidence Interval</i>	(-52,25)	(-53,44)	(-94,-3)	(-31,49)	(-83,7)	(-40,39)
<i>80% Confidence Interval</i>	(-43,16)	(-43,33)	(-84,-13)	(-23,40)	(-73,-3)	(-31,30)
<i>P-Value</i>	0.565	0.867	0.081	0.721	0.160	0.982
PS Cardiac Surgery Expenditures	-169.27	-1,009.08*	-414.33	-165.12	332.10	544.03
<i>90% Confidence Interval</i>	(-980,641)	(-1913,-105)	(-1267,438)	(-969,639)	(-439,1103)	(-230,1318)
<i>80% Confidence Interval</i>	(-801,462)	(-1713,-305)	(-1078,250)	(-791,461)	(-268,933)	(-59,1147)
<i>P-Value</i>	0.731	0.066	0.424	0.735	0.478	0.248
Inpatient PS Cardiac Surgery Expenditures	-174.33	-874.49*	-378.57	-222.42	318.09	489.66
<i>90% Confidence Interval</i>	(-887,539)	(-1673,-76)	(-1131,374)	(-931,486)	(-364,1000)	(-194,1174)
<i>80% Confidence Interval</i>	(-730,381)	(-1497,-252)	(-965,208)	(-775,330)	(-213,850)	(-43,1023)
<i>P-Value</i>	0.688	0.072	0.408	0.606	0.443	0.239
Outpatient PS Cardiac Surgery Expenditures	33.54	-36.42	-7.01	77.01	-10.29	5.63
<i>90% Confidence Interval</i>	(-81,148)	(-153,80)	(-134,120)	(-61,215)	(-140,120)	(-114,125)
<i>80% Confidence Interval</i>	(-55,123)	(-127,55)	(-106,92)	(-30,184)	(-111,91)	(-87,99)
<i>P-Value</i>	0.629	0.608	0.928	0.357	0.896	0.938

* Statistically significant at the ten percent level.

*PS = Preference-sensitive

Appendix Table B-52: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Ohio MA IV Analysis Cohort, Q1 to Q6

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	3,919	3,917	3,913	3,832	3,823	3,805
Total Medical Expenditures	-443.55	-603.43	-1,811.16**	-1,387.59*	-697.57	77.85
<i>90% Confidence Interval</i>	(-1757,870)	(-1900,693)	(-3054,-568)	(-2598,-177)	(-1881,486)	(-1089,1245)
<i>80% Confidence Interval</i>	(-1467,580)	(-1614,407)	(-2780,-843)	(-2331,-445)	(-1620,225)	(-832,987)
<i>P-Value</i>	0.579	0.444	0.017	0.059	0.332	0.913
Inpatient Expenditures	-70.25	-252.88	-1,132.39**	-392.42	-51.72	95.99
<i>90% Confidence Interval</i>	(-921,781)	(-1124,619)	(-1953,-311)	(-1176,391)	(-809,705)	(-671,863)
<i>80% Confidence Interval</i>	(-733,593)	(-932,426)	(-1772,-493)	(-1003,218)	(-641,538)	(-502,694)
<i>P-Value</i>	0.892	0.633	0.023	0.410	0.911	0.837
Outpatient ER Expenditures	-96.34*	7.51	-23.53	-47.04	-94.47	25.70
<i>90% Confidence Interval</i>	(-191,-1)	(-83,98)	(-113,66)	(-147,53)	(-189,0)	(-63,115)
<i>80% Confidence Interval</i>	(-170,-22)	(-63,78)	(-93,46)	(-125,31)	(-168,-21)	(-44,95)
<i>P-Value</i>	0.095	0.892	0.666	0.440	0.101	0.635
Outpatient Non-ER Expenditures	-362.12*	-109.33	-166.20	-280.38	-173.56	32.68
<i>90% Confidence Interval</i>	(-676,-49)	(-403,185)	(-470,138)	(-590,29)	(-462,115)	(-231,296)
<i>80% Confidence Interval</i>	(-606,-118)	(-338,120)	(-403,71)	(-521,-39)	(-398,51)	(-172,238)
<i>P-Value</i>	0.057	0.541	0.368	0.136	0.322	0.838
Physician and Ancillary Service Expenditures	-71.57	-221.94	-224.26	-282.80	-224.83	-22.50
<i>90% Confidence Interval</i>	(-418,275)	(-538,94)	(-536,87)	(-592,26)	(-538,89)	(-315,270)
<i>80% Confidence Interval</i>	(-342,199)	(-468,24)	(-467,19)	(-523,-42)	(-469,19)	(-250,205)
<i>P-Value</i>	0.734	0.248	0.237	0.132	0.238	0.899
Skilled Nursing Facility Expenditures	126.05	0.53	-283.60**	-341.61**	-124.94	-96.95
<i>90% Confidence Interval</i>	(-132,384)	(-242,243)	(-518,-50)	(-578,-105)	(-361,111)	(-334,140)
<i>80% Confidence Interval</i>	(-75,327)	(-189,190)	(-466,-101)	(-526,-158)	(-309,59)	(-281,87)
<i>P-Value</i>	0.422	0.997	0.046	0.017	0.384	0.500
Home Health Expenditures	10.08	-49.65	-3.25	-18.71	-2.32	35.55
<i>90% Confidence Interval</i>	(-89,109)	(-150,51)	(-101,95)	(-116,79)	(-101,96)	(-62,133)
<i>80% Confidence Interval</i>	(-67,87)	(-128,29)	(-79,73)	(-94,57)	(-79,75)	(-41,112)
<i>P-Value</i>	0.867	0.416	0.956	0.752	0.969	0.550
Total Surgery Expenditures	-625.05	-91.01	-888.53**	-589.94	-432.43	-4.94
<i>90% Confidence Interval</i>	(-1287,37)	(-711,529)	(-1497,-280)	(-1204,24)	(-954,89)	(-594,584)
<i>80% Confidence Interval</i>	(-1141,-109)	(-574,392)	(-1362,-415)	(-1068,-112)	(-839,-26)	(-464,454)
<i>P-Value</i>	0.121	0.809	0.016	0.114	0.172	0.989
Inpatient Surgery Expenditures	-313.82	18.09	-669.61*	-264.45	-325.01	-128.13
<i>90% Confidence Interval</i>	(-925,297)	(-558,594)	(-1233,-106)	(-831,302)	(-794,144)	(-676,420)

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>80% Confidence Interval</i>	(-790,162)	(-431,467)	(-1109,-230)	(-706,177)	(-690,40)	(-555,299)
<i>P-Value</i>	0.398	0.959	0.051	0.443	0.254	0.701
Episode-Based Inpatient Surgery Expenditures	-326.38	20.16	-661.12*	-288.16	-325.20	-142.70
<i>90% Confidence Interval</i>	(-939,287)	(-558,598)	(-1227,-95)	(-857,281)	(-798,147)	(-697,411)
<i>80% Confidence Interval</i>	(-804,151)	(-430,470)	(-1102,-220)	(-731,155)	(-693,43)	(-574,289)
<i>P-Value</i>	0.381	0.954	0.055	0.405	0.258	0.672
Outpatient Surgery Expenditures	-275.98**	-102.06	-195.12*	-269.51**	-74.22	101.54
<i>90% Confidence Interval</i>	(-478,-74)	(-287,83)	(-377,-14)	(-458,-81)	(-259,110)	(-70,273)
<i>80% Confidence Interval</i>	(-433,-119)	(-246,42)	(-337,-54)	(-417,-122)	(-218,69)	(-32,235)
<i>P-Value</i>	0.025	0.364	0.077	0.019	0.508	0.331
PS ^a Orthopedic Surgery Expenditures	104.96	-13.17	-66.98	-3.09	92.92	40.14
<i>90% Confidence Interval</i>	(-144,354)	(-237,211)	(-283,149)	(-215,209)	(-93,279)	(-165,245)
<i>80% Confidence Interval</i>	(-89,299)	(-188,162)	(-236,102)	(-168,162)	(-52,238)	(-120,200)
<i>P-Value</i>	0.489	0.923	0.611	0.981	0.412	0.747
Inpatient PS Orthopedic Surgery Expenditures	100.10	6.03	-56.34	3.53	87.61	58.59
<i>90% Confidence Interval</i>	(-108,308)	(-180,192)	(-236,123)	(-172,179)	(-68,243)	(-113,230)
<i>80% Confidence Interval</i>	(-62,262)	(-139,151)	(-196,84)	(-134,141)	(-34,209)	(-75,192)
<i>P-Value</i>	0.429	0.957	0.606	0.974	0.354	0.574
Outpatient PS Orthopedic Surgery Expenditures	-14.35*	-8.27	2.51	-4.51	-5.30	-15.60
<i>90% Confidence Interval</i>	(-28,-1)	(-21,4)	(-14,19)	(-17,8)	(-20,9)	(-37,6)
<i>80% Confidence Interval</i>	(-25,-4)	(-18,1)	(-10,15)	(-14,5)	(-16,6)	(-33,1)
<i>P-Value</i>	0.074	0.270	0.799	0.552	0.542	0.241
PS Cardiac Surgery Expenditures	-44.34	296.55	-124.59	-410.39***	-66.84	-47.53
<i>90% Confidence Interval</i>	(-337,249)	(-2,595)	(-397,148)	(-673,-148)	(-316,182)	(-318,223)
<i>80% Confidence Interval</i>	(-273,184)	(64,529)	(-337,88)	(-615,-206)	(-261,127)	(-258,163)
<i>P-Value</i>	0.803	0.102	0.453	0.010	0.658	0.773
Inpatient PS Cardiac Surgery Expenditures	-5.37	261.47*	-78.93	-343.58***	-12.08	-70.73
<i>90% Confidence Interval</i>	(-251,240)	(8,515)	(-307,149)	(-564,-123)	(-221,197)	(-299,158)
<i>80% Confidence Interval</i>	(-197,186)	(64,459)	(-257,99)	(-516,-172)	(-175,151)	(-249,107)
<i>P-Value</i>	0.971	0.090	0.570	0.010	0.924	0.611
Outpatient PS Cardiac Surgery Expenditures	-37.17	-6.56	-33.54	-19.84	-58.90**	7.20
<i>90% Confidence Interval</i>	(-93,19)	(-56,43)	(-79,12)	(-65,26)	(-103,-15)	(-37,51)
<i>80% Confidence Interval</i>	(-81,6)	(-45,32)	(-69,2)	(-55,16)	(-93,-25)	(-27,42)
<i>P-Value</i>	0.275	0.827	0.226	0.473	0.028	0.788

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aPS = Preference-sensitive.

Appendix Table B-53: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie Ohio MA IV Analysis Cohort, Q7 to Q11

Measures (2011 USD per Person)	Q7	Q8	Q9	Q10	Q11
<i>Number of Participant Beneficiaries</i>	3,794	3,582	3,572	3,482	3,444
Total Medical Expenditures	-343.42	531.13	-235.87	178.57	-839.53
<i>90% Confidence Interval</i>	(-1459,773)	(-611,1673)	(-1340,868)	(-802,1159)	(-1817,138)
<i>80% Confidence Interval</i>	(-1213,526)	(-359,1421)	(-1096,624)	(-585,943)	(-1601,-78)
<i>P-Value</i>	0.613	0.444	0.725	0.765	0.158
Inpatient Expenditures	-119.57	519.25	-73.73	-151.19	-717.08*
<i>90% Confidence Interval</i>	(-818,579)	(-217,1256)	(-828,681)	(-865,563)	(-1420,-14)
<i>80% Confidence Interval</i>	(-664,425)	(-55,1093)	(-661,514)	(-707,405)	(-1265,-169)
<i>P-Value</i>	0.778	0.246	0.872	0.728	0.093
Outpatient ER Expenditures	-51.66	-5.66	2.79	40.87	48.08
<i>90% Confidence Interval</i>	(-147,44)	(-103,92)	(-91,96)	(-40,122)	(-28,124)
<i>80% Confidence Interval</i>	(-126,23)	(-82,70)	(-70,76)	(-22,104)	(-11,107)
<i>P-Value</i>	0.374	0.924	0.961	0.406	0.298
Outpatient Non-ER Expenditures	77.67	33.27	29.25	120.38	-3.43
<i>90% Confidence Interval</i>	(-187,342)	(-252,319)	(-249,307)	(-120,361)	(-242,235)
<i>80% Confidence Interval</i>	(-128,284)	(-189,256)	(-187,246)	(-67,308)	(-189,182)
<i>P-Value</i>	0.629	0.848	0.863	0.410	0.981
Physician and Ancillary Service Expenditures	-143.50	-84.98	-108.36	-7.57	39.18
<i>90% Confidence Interval</i>	(-445,158)	(-373,203)	(-364,148)	(-212,197)	(-173,251)
<i>80% Confidence Interval</i>	(-378,91)	(-309,139)	(-308,91)	(-167,152)	(-126,204)
<i>P-Value</i>	0.433	0.627	0.486	0.952	0.761
Skilled Nursing Facility Expenditures	-37.07	-65.93	-30.25	116.04	-204.28
<i>90% Confidence Interval</i>	(-273,199)	(-288,156)	(-240,180)	(-94,326)	(-409,0)
<i>80% Confidence Interval</i>	(-221,147)	(-239,107)	(-194,133)	(-47,279)	(-364,-45)
<i>P-Value</i>	0.796	0.626	0.813	0.363	0.101
Home Health Expenditures	-50.57	75.39	-59.96	7.84	-26.14
<i>90% Confidence Interval</i>	(-144,43)	(-17,168)	(-154,34)	(-83,99)	(-122,70)
<i>80% Confidence Interval</i>	(-123,22)	(3,148)	(-133,13)	(-63,79)	(-101,49)
<i>P-Value</i>	0.374	0.181	0.293	0.888	0.655
Total Surgery Expenditures	48.97	-45.86	218.06	6.12	98.12
<i>90% Confidence Interval</i>	(-482,579)	(-583,491)	(-192,628)	(-285,297)	(-205,401)
<i>80% Confidence Interval</i>	(-364,462)	(-464,372)	(-102,538)	(-220,233)	(-138,334)
<i>P-Value</i>	0.879	0.888	0.382	0.972	0.595
Inpatient Surgery Expenditures	38.10	90.85	206.20	-61.87	107.75
<i>90% Confidence Interval</i>	(-445,522)	(-398,580)	(-150,562)	(-292,169)	(-144,359)

Measures (2011 USD per Person)	Q7	Q8	Q9	Q10	Q11
<i>80% Confidence Interval</i>	(-339,415)	(-290,472)	(-71,484)	(-241,118)	(-88,304)
<i>P-Value</i>	0.897	0.760	0.341	0.659	0.481
Episode-Based Inpatient Surgery Expenditures	60.83	91.30	193.23	-63.50	91.68
<i>90% Confidence Interval</i>	(-425,547)	(-399,581)	(-165,551)	(-298,171)	(-163,346)
<i>80% Confidence Interval</i>	(-318,439)	(-290,473)	(-86,472)	(-246,119)	(-106,290)
<i>P-Value</i>	0.837	0.759	0.374	0.656	0.553
Outpatient Surgery Expenditures	5.23	-97.23	4.64	60.36	-8.45
<i>90% Confidence Interval</i>	(-167,178)	(-277,82)	(-172,182)	(-100,221)	(-160,143)
<i>80% Confidence Interval</i>	(-129,139)	(-237,43)	(-133,143)	(-65,185)	(-126,109)
<i>P-Value</i>	0.96	0.373	0.966	0.536	0.927
PS ^a Orthopedic Surgery Expenditures	82.60	151.06	98.82	-48.60	-13.29
<i>90% Confidence Interval</i>	(-119,284)	(-47,349)	(-68,266)	(-164,66)	(-125,98)
<i>80% Confidence Interval</i>	(-74,239)	(-3,305)	(-31,229)	(-138,41)	(-100,73)
<i>P-Value</i>	0.500	0.209	0.330	0.487	0.844
Inpatient PS Orthopedic Surgery Expenditures	81.55	135.69	94.85	-43.19	-13.43
<i>90% Confidence Interval</i>	(-87,250)	(-30,302)	(-47,237)	(-139,53)	(-106,79)
<i>80% Confidence Interval</i>	(-50,213)	(6,265)	(-16,206)	(-118,32)	(-85,58)
<i>P-Value</i>	0.426	0.178	0.272	0.460	0.811
Outpatient PS Orthopedic Surgery Expenditures	-9.59	-3.97	-8.59	4.63	5.42
<i>90% Confidence Interval</i>	(-21,2)	(-19,11)	(-23,6)	(-7,16)	(-6,17)
<i>80% Confidence Interval</i>	(-18,-1)	(-15,7)	(-20,3)	(-4,14)	(-4,14)
<i>P-Value</i>	0.161	0.653	0.343	0.509	0.440
PS Cardiac Surgery Expenditures	-325.70**	187.75	230.58**	46.69	110.12
<i>90% Confidence Interval</i>	(-561,-90)	(-70,445)	(49,412)	(-81,174)	(-30,250)
<i>80% Confidence Interval</i>	(-509,-142)	(-13,389)	(89,372)	(-53,146)	(1,219)
<i>P-Value</i>	0.023	0.231	0.036	0.548	0.195
Inpatient PS Cardiac Surgery Expenditures	-271.75**	154.06	184.04*	29.87	87.93
<i>90% Confidence Interval</i>	(-470,-74)	(-63,371)	(28,340)	(-74,134)	(-27,203)
<i>80% Confidence Interval</i>	(-426,-118)	(-15,323)	(62,306)	(-51,111)	(-2,177)
<i>P-Value</i>	0.024	0.243	0.052	0.636	0.208
Outpatient PS Cardiac Surgery Expenditures	-8.60	3.41	17.90	-0.40	5.20
<i>90% Confidence Interval</i>	(-54,36)	(-43,50)	(-23,59)	(-41,40)	(-36,46)
<i>80% Confidence Interval</i>	(-44,26)	(-33,39)	(-14,50)	(-32,31)	(-27,37)
<i>P-Value</i>	0.753	0.903	0.475	0.987	0.835

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aPS = Preference-sensitive.

**Appendix Table B-54: Quarterly DiD Estimates of Expenditures per Beneficiary, Welvie
Texas MA IV Analysis Cohort**

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>Number of Participant Beneficiaries</i>	2,630	2,630	2,210	2,199	2,191	2,172
Total Medical Expenditures	389.72	442.86	-1,788.64	1,102.98	3,067.50**	716.49
<i>90% Confidence Interval</i>	(-1552,2331)	(-1506,2392)	(-4205,628)	(-1043,3249)	(965,5170)	(-1279,2712)
<i>80% Confidence Interval</i>	(-1123,1902)	(-1076,1961)	(-3671,94)	(-569,2775)	(1429,4706)	(-838,2271)
<i>P-Value</i>	0.741	0.709	0.223	0.398	0.016	0.555
Inpatient Expenditures	157.06	402.88	-1,296.46	1,551.98*	2,914.49***	594.24
<i>90% Confidence Interval</i>	(-1179,1493)	(-876,1681)	(-3111,518)	(96,3008)	(1509,4320)	(-694,1883)
<i>80% Confidence Interval</i>	(-884,1198)	(-593,1399)	(-2710,117)	(418,2686)	(1820,4009)	(-410,1598)
<i>P-Value</i>	0.847	0.604	0.240	0.080	<0.001	0.448
Outpatient ER Expenditures	27.99	-9.14	-65.63	0.37	129.61	164.83*
<i>90% Confidence Interval</i>	(-128,184)	(-165,147)	(-234,103)	(-158,159)	(-27,286)	(1,329)
<i>80% Confidence Interval</i>	(-93,149)	(-131,112)	(-197,65)	(-123,124)	(8,252)	(37,293)
<i>P-Value</i>	0.767	0.923	0.521	0.997	0.173	0.099
Outpatient Non-ER Expenditures	108.76	249.72	-95.90	-128.19	166.11	236.38
<i>90% Confidence Interval</i>	(-367,584)	(-235,734)	(-580,388)	(-616,360)	(-331,663)	(-266,739)
<i>80% Confidence Interval</i>	(-262,479)	(-128,627)	(-473,281)	(-508,252)	(-221,553)	(-155,628)
<i>P-Value</i>	0.707	0.397	0.744	0.666	0.582	0.439
Physician and Ancillary Service Expenditures	339.12	62.67	10.11	310.98	36.24	-63.36
<i>90% Confidence Interval</i>	(-177,855)	(-473,598)	(-562,582)	(-260,882)	(-538,611)	(-645,519)
<i>80% Confidence Interval</i>	(-63,741)	(-355,480)	(-436,456)	(-134,756)	(-411,484)	(-517,390)
<i>P-Value</i>	0.280	0.847	0.977	0.370	0.917	0.858
Skilled Nursing Facility Expenditures	-243.16	-56.10	-160.17	-416.62*	135.56	-92.78
<i>90% Confidence Interval</i>	(-555,68)	(-418,305)	(-531,210)	(-788,-46)	(-266,537)	(-462,277)
<i>80% Confidence Interval</i>	(-486,-1)	(-338,226)	(-449,128)	(-706,-128)	(-178,449)	(-381,195)
<i>P-Value</i>	0.199	0.799	0.477	0.065	0.579	0.680
Home Health Expenditures	54.27	-153.39	-127.61	-165.73	-181.57	-28.84
<i>90% Confidence Interval</i>	(-265,373)	(-486,179)	(-490,234)	(-538,206)	(-542,178)	(-382,324)
<i>80% Confidence Interval</i>	(-194,303)	(-413,106)	(-410,154)	(-456,124)	(-462,99)	(-304,246)
<i>P-Value</i>	0.780	0.448	0.562	0.464	0.407	0.893
Total Surgery Expenditures	403.29	484.28	86.78	1,029.24	1,858.90***	435.12
<i>90% Confidence Interval</i>	(-615,1422)	(-527,1496)	(-1190,1364)	(-62,2121)	(789,2929)	(-581,1451)
<i>80% Confidence Interval</i>	(-390,1197)	(-304,1272)	(-908,1082)	(179,1880)	(1025,2693)	(-356,1226)
<i>P-Value</i>	0.515	0.431	0.911	0.121	0.004	0.481
Inpatient Surgery Expenditures	395.66	420.55	265.10	1,195.79*	1,699.98***	360.55
<i>90% Confidence Interval</i>	(-543,1335)	(-513,1354)	(-951,1482)	(180,2211)	(703,2697)	(-579,1300)
<i>80% Confidence Interval</i>	(-336,1127)	(-307,1148)	(-683,1213)	(405,1987)	(923,2477)	(-371,1092)

Measures (2011 USD per Person)	Q1	Q2	Q3	Q4	Q5	Q6
<i>P-Value</i>	0.488	0.459	0.720	0.053	0.005	0.528
Episode-Based Inpatient Surgery Expenditures	425.88	466.32	263.83	1,183.76*	1,719.54***	412.74
<i>90% Confidence Interval</i>	(-515,1367)	(-471,1404)	(-955,1483)	(165,2203)	(717,2722)	(-531,1356)
<i>80% Confidence Interval</i>	(-308,1159)	(-264,1197)	(-686,1214)	(390,1978)	(938,2501)	(-322,1148)
<i>P-Value</i>	0.457	0.413	0.722	0.056	0.005	0.472
Outpatient Surgery Expenditures	63.14	36.14	-180.58	-134.62	177.50	65.63
<i>90% Confidence Interval</i>	(-257,384)	(-279,351)	(-500,139)	(-459,190)	(-137,492)	(-253,384)
<i>80% Confidence Interval</i>	(-187,313)	(-209,281)	(-430,69)	(-387,118)	(-68,423)	(-182,314)
<i>P-Value</i>	0.746	0.850	0.353	0.495	0.354	0.734
PS ^a Orthopedic Surgery Expenditures	-150.28	-173.20	-132.62	469.65*	-251.04	355.47
<i>90% Confidence Interval</i>	(-496,195)	(-566,220)	(-524,258)	(67,872)	(-631,129)	(-61,772)
<i>80% Confidence Interval</i>	(-420,119)	(-479,133)	(-437,172)	(156,783)	(-547,45)	(31,680)
<i>P-Value</i>	0.475	0.469	0.577	0.055	0.277	0.160
Inpatient PS Orthopedic Surgery Expenditures	-128.40	-141.80	-95.99	411.49**	-181.35	292.30
<i>90% Confidence Interval</i>	(-420,163)	(-473,189)	(-426,234)	(69,754)	(-505,142)	(-66,651)
<i>80% Confidence Interval</i>	(-356,99)	(-400,116)	(-353,161)	(145,678)	(-433,71)	(13,571)
<i>P-Value</i>	0.469	0.481	0.632	0.048	0.356	0.180
Outpatient PS Orthopedic Surgery Expenditures	-16.59	-8.60	-23.32**	-32.96**	-12.44	11.17
<i>90% Confidence Interval</i>	(-39,6)	(-31,13)	(-42,-5)	(-58,-8)	(-36,11)	(-13,35)
<i>80% Confidence Interval</i>	(-34,1)	(-26,8)	(-38,-9)	(-52,-13)	(-30,6)	(-8,30)
<i>P-Value</i>	0.230	0.518	0.037	0.031	0.377	0.444
PS Cardiac Surgery Expenditures	-76.84	505.17**	-172.11	729.79***	255.99	319.44
<i>90% Confidence Interval</i>	(-477,324)	(93,917)	(-869,524)	(297,1162)	(-185,697)	(-116,755)
<i>80% Confidence Interval</i>	(-389,235)	(184,826)	(-715,370)	(393,1067)	(-88,600)	(-20,659)
<i>P-Value</i>	0.752	0.044	0.684	0.006	0.340	0.227
Inpatient PS Cardiac Surgery Expenditures	-47.29	457.34**	-145.30	685.57***	290.11	300.93
<i>90% Confidence Interval</i>	(-387,292)	(107,808)	(-787,496)	(318,1054)	(-88,668)	(-69,671)
<i>80% Confidence Interval</i>	(-312,217)	(184,730)	(-645,355)	(399,972)	(-4,585)	(12,589)
<i>P-Value</i>	0.819	0.032	0.710	0.002	0.207	0.181
Outpatient PS Cardiac Surgery Expenditures	-2.05	-37.25	-43.54	-55.60	-78.60*	-35.22
<i>90% Confidence Interval</i>	(-73,69)	(-105,30)	(-114,27)	(-129,18)	(-148,-9)	(-119,49)
<i>80% Confidence Interval</i>	(-58,54)	(-90,15)	(-99,12)	(-113,1)	(-133,-25)	(-101,30)
<i>P-Value</i>	0.962	0.363	0.312	0.211	0.062	0.491

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aPS = Preference-sensitive.

Appendix Table B-55: Welvie Total Medicare Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Total Medicare Parts A and B Expenditures														
Mean	\$8,289	\$8,636	\$2,386	\$2,572	\$2,348	\$2,459	\$2,436	\$2,569	\$2,377	\$2,407	\$2,486	\$2,510	\$2,365	\$2,410
Median	\$2,150	\$2,245	\$327	\$344	\$325	\$338	\$379	\$387	\$215	\$222	\$328	\$344	\$338	\$344
90th percentile	\$23,654	\$24,915	\$5,467	\$6,004	\$5,104	\$5,556	\$5,372	\$5,632	\$5,283	\$5,579	\$5,652	\$5,816	\$5,152	\$5,380
99th percentile	\$81,726	\$85,440	\$35,082	\$36,765	\$35,342	\$35,632	\$35,610	\$36,808	\$37,476	\$36,646	\$36,508	\$35,689	\$35,92	\$34,70

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Appendix Table B-56: Welvie Total Medicare Expenditures by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Total Medicare Parts A and B Expenditures												
Mean	\$2,450	\$2,534	\$2,358	\$2,509	\$2,427	\$2,472	\$2,400	\$2,426	\$2,434	\$2,518	\$2,382	\$2,450
Median	\$397	\$400	\$238	\$245	\$350	\$360	\$366	\$373	\$414	\$427	\$256	\$260
90th percentile	\$5,556	\$5,850	\$5,511	\$5,990	\$5,610	\$5,894	\$5,379	\$5,574	\$5,412	\$5,802	\$5,670	\$5,730
99th percentile	\$35,095	\$34,833	\$35,640	\$37,646	\$35,885	\$35,542	\$35,190	\$34,223	\$36,032	\$35,695	\$35,671	\$36,242

Appendix Table B-57: Welvie Total Medicare Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Total Medical Expenditures												
Mean	\$4,197	\$4,320	\$1,723	\$1,771	\$1,593	\$1,647	\$1,496	\$1,599	\$1,427	\$1,516	\$1,494	\$1,555
Median	\$832	\$837	\$228	\$230	\$152	\$156	\$155	\$157	\$134	\$136	\$161	\$168
90th percentile	\$10,579	\$10,958	\$3,154	\$3,311	\$2,837	\$3,004	\$2,647	\$2,787	\$2,450	\$2,624	\$2,540	\$2,715
99th percentile	\$52,653	\$54,880	\$28,670	\$29,149	\$27,554	\$28,674	\$26,212	\$27,969	\$25,743	\$26,655	\$26,298	\$27,407

Appendix Table B-58: Welvie Total Medicare Expenditures by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Total Medicare Parts A and B Expenditures												
Mean	\$1,356	\$1,388	\$1,326	\$1,374	\$1,309	\$1,321	\$1,232	\$1,275	\$1,019	\$1,038	\$967	\$1,022
Median	\$97	\$100	\$97	\$100	\$90	\$94	\$94	\$101	\$49	\$54	\$56	\$59
90th percentile	\$2,204	\$2,252	\$2,182	\$2,294	\$2,068	\$2,130	\$1,919	\$1,974	\$1,465	\$1,465	\$1,390	\$1,454
99th percentile	\$25,012	\$26,107	\$24,513	\$25,085	\$24,454	\$24,817	\$23,142	\$24,024	\$20,004	\$20,460	\$18,880	\$19,958

Appendix Table B-59: Welvie Total Medicare Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q1 to Q3

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Total Medical Expenditures								
Mean	\$5,571	\$5,659	\$1,704	\$1,712	\$1,832	\$1,835	\$1,846	\$1,945
Median	\$1,336	\$1,338	\$225	\$227	\$255	\$261	\$224	\$232
90th percentile	\$14,091	\$14,436	\$3,162	\$3,139	\$3,366	\$3,423	\$3,389	\$3,621
99th percentile	\$63,458	\$64,775	\$27,725	\$27,755	\$29,842	\$29,913	\$30,156	\$30,326

Appendix Table B-60: Welvie Total Medicare Expenditures by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q4 to Q6

Measures (2011 USD)	Q4		Q5		Q6	
	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Total Medical Expenditures						
Mean	\$1,941	\$1,937	\$1,911	\$1,835	\$1,808	\$1,824
Median	\$233	\$241	\$217	\$224	\$244	\$248
90th percentile	\$3,725	\$3,790	\$3,561	\$3,446	\$3,390	\$3,358
99th percentile	\$30,947	\$31,039	\$30,754	\$30,232	\$29,062	\$28,854

Appendix Table B-61: Welvie Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Inpatient Expenditures														
Mean	\$2,510	\$2,584	\$754	\$854	\$761	\$794	\$775	\$823	\$828	\$805	\$803	\$784	\$739	\$724
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$8,012	\$8,067	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$39,434	\$40,532	\$17,911	\$19,642	\$18,653	\$18,743	\$19,127	\$19,472	\$19,888	\$19,465	\$18,886	\$18,293	\$18,83	\$17,89
Outpatient ER Expenditures														
Mean	\$207	\$211	\$56	\$60	\$58	\$62	\$62	\$63	\$64	\$68	\$74	\$73	\$69	\$73
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$570	\$585	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$2,996	\$3,082	\$1,312	\$1,433	\$1,349	\$1,426	\$1,427	\$1,471	\$1,520	\$1,619	\$1,698	\$1,658	\$1,628	\$1,654
Outpatient Non-ER Expenditures														
Mean	\$1,332	\$1,376	\$352	\$351	\$347	\$350	\$358	\$373	\$333	\$335	\$367	\$373	\$356	\$370
Median	\$261	\$266	\$12	\$13	\$8	\$10	\$24	\$26	\$0	\$0	\$18	\$21	\$15	\$16
90th percentile	\$2,832	\$3,011	\$700	\$722	\$658	\$707	\$700	\$741	\$600	\$625	\$724	\$757	\$710	\$745
99th percentile	\$20,495	\$20,446	\$6,808	\$6,521	\$6,765	\$6,682	\$6,765	\$6,862	\$6,512	\$6,553	\$6,713	\$6,719	\$6,694	\$6,846

Appendix Table B-62: Welvie Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Inpatient Expenditures												
Mean	\$746	\$785	\$789	\$851	\$760	\$762	\$724	\$721	\$739	\$784	\$805	\$799
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$18,229	\$18,142	\$18,190	\$19,488	\$18,667	\$18,519	\$17,462	\$17,690	\$18,671	\$19,037	\$19,227	\$18,977
Outpatient ER Expenditures												
Mean	\$67	\$69	\$70	\$69	\$69	\$72	\$71	\$70	\$70	\$66	\$64	\$67
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$1,607	\$1,654	\$1,635	\$1,569	\$1,601	\$1,676	\$1,665	\$1,558	\$1,614	\$1,546	\$1,479	\$1,493
Outpatient Non-ER Expenditures												
Mean	\$381	\$372	\$318	\$337	\$368	\$369	\$377	\$373	\$371	\$374	\$348	\$351
Median	\$26	\$25	\$0	\$0	\$23	\$22	\$22	\$22	\$30	\$33	\$4	\$3
90th percentile	\$757	\$764	\$599	\$654	\$738	\$763	\$753	\$782	\$751	\$764	\$670	\$684
99th percentile	\$6,968	\$6,721	\$6,325	\$6,400	\$6,739	\$6,715	\$6,585	\$6,582	\$6,647	\$6,711	\$6,499	\$6,560

Appendix Table B-63: Welvie Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Inpatient Expenditures												
Mean	\$1,382	\$1,431	\$624	\$639	\$620	\$642	\$539	\$596	\$507	\$536	\$526	\$542
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$3,268	\$3,444	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$26,644	\$28,025	\$15,682	\$16,102	\$15,508	\$15,804	\$13,844	\$15,338	\$13,500	\$13,938	\$13,874	\$14,515
Outpatient ER Expenditures												
Mean	\$149	\$151	\$57	\$61	\$57	\$57	\$58	\$59	\$60	\$63	\$59	\$64
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$333	\$338	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$2,749	\$2,769	\$1,484	\$1,550	\$1,480	\$1,515	\$1,594	\$1,631	\$1,620	\$1,674	\$1,620	\$1,732
Outpatient Non-ER Expenditures												
Mean	\$727	\$756	\$271	\$292	\$239	\$251	\$245	\$260	\$241	\$261	\$249	\$264
Median	\$81	\$81	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$1,518	\$1,575	\$514	\$544	\$422	\$436	\$446	\$462	\$426	\$445	\$455	\$482
99th percentile	\$11,143	\$11,646	\$4,828	\$5,456	\$4,569	\$4,690	\$4,455	\$4,902	\$4,244	\$4,913	\$4,614	\$5,122

Appendix Table B-64: Welvie Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Inpatient Expenditures												
Mean	\$500	\$512	\$458	\$477	\$474	\$465	\$472	\$488	\$462	\$478	\$407	\$444
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$13,627	\$13,367	\$12,328	\$13,385	\$12,947	\$12,786	\$13,346	\$12,922	\$12,367	\$12,569	\$11,193	\$12,005
Outpatient ER Expenditures												
Mean	\$59	\$59	\$63	\$66	\$61	\$63	\$57	\$58	\$40	\$40	\$34	\$32
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$1,757	\$1,750	\$1,879	\$1,947	\$1,753	\$1,855	\$1,727	\$1,754	\$1,473	\$1,400	\$1,369	\$1,341
Outpatient Non-ER Expenditures												
Mean	\$210	\$215	\$217	\$222	\$220	\$226	\$218	\$223	\$187	\$187	\$195	\$200
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$327	\$339	\$350	\$367	\$346	\$356	\$338	\$346	\$315	\$314	\$377	\$384
99th percentile	\$4,163	\$4,239	\$4,210	\$4,323	\$4,269	\$4,523	\$4,207	\$4,272	\$3,721	\$3,661	\$3,536	\$3,570

Appendix Table B-65: Welvie Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q1 to Q3

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Inpatient Expenditures								
Mean	\$1,786	\$1,855	\$565	\$577	\$606	\$607	\$683	\$754
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$4,343	\$4,408	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$32,895	\$35,000	\$14,423	\$13,945	\$15,476	\$15,477	\$17,082	\$17,414
Outpatient ER Expenditures								
Mean	\$235	\$239	\$76	\$76	\$76	\$78	\$73	\$78
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$542	\$559	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$3,859	\$3,999	\$1,806	\$1,774	\$1,837	\$1,855	\$1,696	\$1,824
Outpatient Non-ER Expenditures								
Mean	\$854	\$855	\$263	\$259	\$279	\$270	\$243	\$248
Median	\$2	\$4	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$1,692	\$1,695	\$327	\$331	\$353	\$361	\$292	\$298
99th percentile	\$14,389	\$14,216	\$6,434	\$5,866	\$6,508	\$6,036	\$6,390	\$6,344

Appendix Table B-66: Welvie Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q4 to Q6

Measures (2011 USD)	Q4		Q5		Q6	
	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Inpatient Expenditures						
Mean	\$719	\$686	\$701	\$620	\$598	\$606
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$18,109	\$17,250	\$17,029	\$16,429	\$15,682	\$15,133
Outpatient ER Expenditures						
Mean	\$76	\$78	\$77	\$74	\$80	\$76
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$1,817	\$1,854	\$1,857	\$1,756	\$1,901	\$1,878
Outpatient Non-ER Expenditures						
Mean	\$259	\$266	\$266	\$262	\$283	\$275
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$330	\$337	\$327	\$323	\$352	\$365
99th percentile	\$7,025	\$7,155	\$7,181	\$6,757	\$7,382	\$7,134

Appendix Table B-67: Welvie Expenditures for Other Settings in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Physician and Ancillary Service Expenditures														
Mean	\$2,246	\$2,278	\$601	\$621	\$589	\$601	\$633	\$643	\$527	\$527	\$606	\$606	\$589	\$588
Median	\$1,174	\$1,197	\$195	\$203	\$202	\$208	\$245	\$247	\$120	\$124	\$195	\$202	\$205	\$207
90th percentile	\$5,070	\$5,126	\$1,489	\$1,544	\$1,468	\$1,482	\$1,552	\$1,548	\$1,375	\$1,380	\$1,547	\$1,498	\$1,459	\$1,460
99th percentile	\$17,002	\$16,754	\$6,080	\$6,347	\$5,888	\$5,927	\$5,843	\$6,106	\$5,889	\$5,859	\$6,061	\$6,013	\$5,851	\$5,492
Skilled Nursing Facility Expenditures														
Mean	\$984	\$1,094	\$290	\$334	\$279	\$305	\$297	\$328	\$320	\$330	\$319	\$331	\$298	\$317
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$26,953	\$28,297	\$12,293	\$13,762	\$12,024	\$12,696	\$12,024	\$13,447	\$13,270	\$13,127	\$13,231	\$13,592	\$12,538	\$13,042
Durable Medical Equipment Expenditures														
Mean	\$239	\$244	\$61	\$59	\$55	\$57	\$52	\$53	\$47	\$50	\$51	\$53	\$50	\$52
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$578	\$589	\$148	\$142	\$123	\$119	\$94	\$91	\$68	\$69	\$82	\$81	\$85	\$81
99th percentile	\$3,432	\$3,436	\$900	\$904	\$794	\$867	\$828	\$852	\$765	\$786	\$813	\$859	\$847	\$875
Home Health Expenditures														
Mean	\$469	\$469	\$132	\$129	\$130	\$130	\$132	\$126	\$136	\$142	\$138	\$142	\$132	\$140
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$9,858	\$10,137	\$4,070	\$3,981	\$4,006	\$3,980	\$3,930	\$3,833	\$4,191	\$4,220	\$4,089	\$4,204	\$4,115	\$4,154
Hospice Expenditures														
Mean	\$285	\$364	\$135	\$158	\$125	\$156	\$121	\$154	\$116	\$144	\$122	\$142	\$127	\$142

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$4,417	\$10,283	\$5,901	\$8,390	\$4,701	\$8,065	\$4,346	\$7,601	\$4,366	\$6,893	\$4,727	\$6,650	\$5,169	\$6,488

Appendix Table B-68: Welvie Expenditures for Other Settings in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis, Q7 to Q12

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Physician and Ancillary Service Expenditures												
Mean	\$634	\$647	\$526	\$543	\$594	\$603	\$605	\$604	\$631	\$637	\$535	\$544
Median	\$252	\$252	\$131	\$136	\$205	\$210	\$218	\$221	\$263	\$268	\$139	\$142
90th percentile	\$1,543	\$1,578	\$1,368	\$1,407	\$1,495	\$1,497	\$1,488	\$1,499	\$1,525	\$1,521	\$1,385	\$1,412
99th percentile	\$5,747	\$5,915	\$5,795	\$5,834	\$5,862	\$5,842	\$5,922	\$5,626	\$5,749	\$5,830	\$5,756	\$5,705
Skilled Nursing Facility Expenditures												
Mean	\$304	\$317	\$344	\$368	\$314	\$319	\$299	\$316	\$298	\$312	\$305	\$355
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$12,903	\$13,076	\$13,964	\$14,432	\$12,941	\$13,129	\$12,412	\$13,001	\$12,623	\$12,775	\$12,250	\$14,249
Durable Medical Equipment Expenditures												
Mean	\$50	\$54	\$45	\$49	\$50	\$55	\$50	\$55	\$50	\$55	\$42	\$47
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$90	\$90	\$68	\$75	\$88	\$85	\$92	\$92	\$88	\$96	\$66	\$64
99th percentile	\$852	\$862	\$778	\$803	\$827	\$922	\$832	\$922	\$796	\$872	\$755	\$783

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
Home Health Expenditures												
Mean	\$136	\$143	\$145	\$147	\$148	\$154	\$141	\$146	\$147	\$150	\$153	\$152
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$4,097	\$4,200	\$4,251	\$4,150	\$4,184	\$4,348	\$4,214	\$4,392	\$4,206	\$4,329	\$4,282	\$4,335
Hospice Expenditures												
Mean	\$126	\$141	\$116	\$139	\$119	\$132	\$127	\$135	\$123	\$133	\$123	\$129
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$5,267	\$6,445	\$4,170	\$5,961	\$4,509	\$5,828	\$5,169	\$5,918	\$4,433	\$5,541	\$5,550	\$6,152

Appendix Table B-69: Welvie Expenditures for Other Settings in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis, Q1 to Q5

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Physician and Ancillary Service Expenditures												
Mean	\$1,368	\$1,402	\$556	\$567	\$477	\$493	\$468	\$485	\$440	\$458	\$470	\$486
Median	\$558	\$562	\$173	\$176	\$114	\$118	\$117	\$117	\$98	\$100	\$119	\$126
90th percentile	\$3,224	\$3,234	\$1,261	\$1,286	\$1,103	\$1,124	\$1,074	\$1,104	\$1,000	\$1,036	\$1,073	\$1,101
99th percentile	\$11,737	\$12,132	\$6,087	\$6,456	\$5,887	\$6,113	\$5,656	\$5,956	\$5,627	\$5,709	\$5,723	\$5,841
Skilled Nursing Facility Expenditures												
Mean	\$349	\$357	\$136	\$133	\$119	\$121	\$106	\$120	\$101	\$117	\$107	\$115
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
99th percentile	\$11,326	\$11,545	\$5,649	\$5,645	\$4,526	\$4,805	\$3,906	\$4,590	\$3,708	\$4,377	\$3,989	\$4,417
Home Health Expenditures												
Mean	\$176	\$174	\$68	\$67	\$69	\$70	\$66	\$66	\$65	\$66	\$68	\$68
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$4,569	\$4,497	\$2,346	\$2,330	\$2,426	\$2,421	\$2,335	\$2,304	\$2,330	\$2,335	\$2,348	\$2,344

Appendix Table B-70: Welvie Expenditures for Other Settings in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis, Q6 to Q11

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Physician and Ancillary Service Expenditures												
Mean	\$397	\$404	\$403	\$416	\$385	\$396	\$327	\$338	\$167	\$173	\$178	\$179
Median	\$74	\$76	\$73	\$76	\$69	\$70	\$67	\$73	\$2	\$5	\$10	\$20
90th percentile	\$903	\$906	\$930	\$956	\$879	\$893	\$735	\$750	\$349	\$353	\$370	\$376
99th percentile	\$5,329	\$5,311	\$5,221	\$5,353	\$5,080	\$5,199	\$3,959	\$4,077	\$1,978	\$2,087	\$1,993	\$2,033
Skilled Nursing Facility Expenditures												
Mean	\$107	\$114	\$104	\$108	\$94	\$101	\$87	\$92	\$92	\$90	\$80	\$90
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$4,023	\$4,470	\$3,851	\$3,999	\$3,524	\$3,899	\$3,179	\$3,470	\$3,695	\$3,731	\$2,821	\$3,508
Home Health Expenditures												
Mean	\$67	\$66	\$62	\$64	\$61	\$57	\$59	\$62	\$58	\$58	\$61	\$62
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$2,362	\$2,329	\$2,240	\$2,276	\$2,202	\$2,186	\$2,129	\$2,239	\$2,129	\$2,122	\$2,204	\$2,212

Appendix Table B-71: Welvie Expenditures for Other Settings in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis, Q1 to Q3

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Physician and Ancillary Service Expenditures								
Mean	\$1,949	\$1,961	\$573	\$564	\$616	\$617	\$589	\$593
Median	\$925	\$923	\$171	\$171	\$194	\$196	\$170	\$174
90th percentile	\$4,386	\$4,486	\$1,323	\$1,325	\$1,412	\$1,406	\$1,329	\$1,347
99th percentile	\$15,770	\$16,737	\$6,293	\$6,041	\$6,946	\$6,699	\$6,758	\$6,827
Skilled Nursing Facility Expenditures								
Mean	\$237	\$237	\$84	\$92	\$108	\$110	\$112	\$118
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$8,801	\$8,306	\$1,028	\$1,474	\$2,707	\$2,983	\$3,165	\$4,661
Home Health Expenditures								
Mean	\$461	\$468	\$137	\$137	\$140	\$147	\$138	\$146
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$747	\$831	\$96	\$107	\$126	\$144	\$113	\$138
99th percentile	\$9,178	\$8,841	\$3,190	\$3,082	\$3,156	\$3,209	\$3,086	\$3,279

Appendix Table B-72: Welvie Expenditures for Other Settings in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis, Q4 to Q6

Measures (2011 USD)	Q4		Q5		Q6	
	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Physician and Ancillary Service Expenditures						
Mean	\$622	\$616	\$593	\$597	\$602	\$611
Median	\$177	\$181	\$162	\$167	\$186	\$187
90th percentile	\$1,436	\$1,410	\$1,361	\$1,349	\$1,364	\$1,365
99th percentile	\$7,178	\$7,177	\$6,923	\$6,949	\$6,653	\$7,019
Skilled Nursing Facility Expenditures						
Mean	\$112	\$129	\$123	\$118	\$104	\$108
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$3,498	\$5,192	\$4,220	\$3,957	\$2,222	\$2,378
Home Health Expenditures						
Mean	\$141	\$149	\$140	\$148	\$129	\$132
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$110	\$143	\$117	\$142	\$110	\$119
99th percentile	\$3,224	\$3,250	\$3,164	\$3,287	\$2,858	\$2,903

Appendix Table B-73: Welvie Total Inpatient, Outpatient, and Episode Based Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Total Surgery Expenditures														
Mean	\$1,807	\$1,817	\$468	\$524	\$484	\$492	\$514	\$524	\$519	\$505	\$520	\$498	\$487	\$488
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$4,786	\$4,534	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$29,222	\$29,129	\$11,931	\$13,563	\$12,541	\$12,688	\$13,378	\$13,729	\$13,870	\$13,259	\$13,593	\$13,134	\$12,542	\$13,072
Inpatient Surgery Expenditures														
Mean	\$1,232	\$1,234	\$322	\$377	\$338	\$346	\$358	\$364	\$374	\$356	\$356	\$344	\$335	\$327
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$27,198	\$27,180	\$10,139	\$12,235	\$10,992	\$11,607	\$12,105	\$12,063	\$12,410	\$11,821	\$11,960	\$11,821	\$11,311	\$11,028
Episode-Based Inpatient Surgery Expenditures														
Mean	\$1,306	\$1,300	\$343	\$395	\$357	\$366	\$375	\$387	\$399	\$379	\$377	\$361	\$359	\$346
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$28,293	\$28,367	\$10,846	\$12,731	\$11,903	\$12,319	\$12,332	\$12,766	\$13,202	\$12,500	\$12,556	\$12,214	\$12,090	\$11,865
Outpatient Surgery Expenditures														
Mean	\$471	\$478	\$120	\$120	\$120	\$118	\$128	\$131	\$119	\$125	\$136	\$127	\$124	\$133
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$1,212	\$1,241	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$8,012	\$8,465	\$2,802	\$2,904	\$2,880	\$2,816	\$3,019	\$3,101	\$2,919	\$3,059	\$3,219	\$3,044	\$3,139	\$3,156

Appendix Table B-74: Welvie Total Inpatient, Outpatient, and Episode Based Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Total Surgery Expenditures												
Mean	\$505	\$498	\$484	\$520	\$485	\$476	\$490	\$489	\$486	\$481	\$479	\$464
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$12,907	\$12,507	\$12,568	\$14,233	\$12,941	\$12,533	\$12,477	\$12,470	\$12,850	\$12,051	\$12,605	\$12,069
Inpatient Surgery Expenditures												
Mean	\$338	\$336	\$345	\$368	\$331	\$317	\$322	\$325	\$326	\$327	\$336	\$314
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$11,481	\$11,011	\$11,401	\$12,022	\$11,262	\$11,181	\$11,158	\$11,192	\$11,140	\$11,108	\$11,124	\$10,917
Episode-Based Inpatient Surgery Expenditures												
Mean	\$351	\$358	\$362	\$385	\$352	\$336	\$343	\$347	\$346	\$352	\$358	\$332
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$12,056	\$11,481	\$11,942	\$12,268	\$11,850	\$11,447	\$11,497	\$11,851	\$11,820	\$11,596	\$11,970	\$11,307
Outpatient Surgery Expenditures												
Mean	\$137	\$133	\$115	\$126	\$127	\$132	\$138	\$135	\$131	\$127	\$118	\$124
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$3,116	\$3,194	\$2,937	\$3,063	\$3,064	\$3,134	\$3,206	\$3,209	\$3,055	\$3,105	\$2,884	\$2,929

Appendix Table B-75: Welvie Total Inpatient, Outpatient, and Episode Based Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Total Surgery Expenditures												
Mean	\$1,170	\$1,181	\$473	\$500	\$441	\$449	\$393	\$435	\$377	\$408	\$324	\$349
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$2,396	\$2,439	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$22,363	\$22,661	\$11,819	\$12,387	\$11,554	\$11,767	\$10,684	\$11,432	\$10,440	\$10,862	\$9,391	\$9,810
Inpatient Surgery Expenditures												
Mean	\$706	\$711	\$297	\$310	\$289	\$289	\$247	\$277	\$232	\$247	\$170	\$187
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$19,327	\$19,641	\$10,731	\$10,932	\$10,644	\$10,623	\$10,154	\$10,424	\$9,723	\$9,826	\$5,108	\$7,450
Episode-Based Inpatient Surgery Expenditures												
Mean	\$711	\$714	\$298	\$312	\$290	\$290	\$249	\$278	\$233	\$249	\$171	\$188
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$19,529	\$19,770	\$10,740	\$10,961	\$10,659	\$10,629	\$10,156	\$10,433	\$9,724	\$9,832	\$5,199	\$7,515
Outpatient Surgery Expenditures												
Mean	\$347	\$354	\$131	\$143	\$115	\$122	\$112	\$122	\$111	\$125	\$119	\$125
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$720	\$744	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$6,526	\$6,732	\$2,887	\$3,179	\$2,782	\$2,830	\$2,583	\$2,801	\$2,604	\$2,840	\$2,764	\$2,845

Appendix Table B-76: Welvie Total Inpatient, Outpatient, and Episode Based Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Total Surgery Expenditures												
Mean	\$356	\$365	\$342	\$348	\$328	\$337	\$236	\$234	\$102	\$108	\$109	\$108
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$10,248	\$10,455	\$10,106	\$10,437	\$10,102	\$9,842	\$6,996	\$6,774	\$2,430	\$2,497	\$2,453	\$2,495
Inpatient Surgery Expenditures												
Mean	\$225	\$236	\$209	\$211	\$201	\$200	\$115	\$110	\$15	\$21	\$24	\$20
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$9,697	\$9,770	\$9,275	\$9,581	\$9,247	\$8,409	\$0	\$0	\$0	\$0	\$0	\$0
Episode-Based Inpatient Surgery Expenditures												
Mean	\$225	\$237	\$211	\$212	\$202	\$200	\$115	\$110	\$16	\$21	\$24	\$20
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$9,697	\$9,793	\$9,303	\$9,584	\$9,262	\$8,409	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient Surgery Expenditures												
Mean	\$102	\$101	\$103	\$106	\$100	\$108	\$101	\$104	\$83	\$84	\$82	\$85
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$2,585	\$2,474	\$2,592	\$2,569	\$2,417	\$2,588	\$2,405	\$2,558	\$2,157	\$2,178	\$2,110	\$2,261

Appendix Table B-77: Welvie Total Inpatient, Outpatient, and Episode Based Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q1 to Q3

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Total Surgery Expenditures								
Mean	\$1,548	\$1,603	\$472	\$471	\$486	\$483	\$483	\$498
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$3,243	\$3,338	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$27,601	\$28,226	\$12,419	\$11,859	\$12,642	\$12,204	\$13,431	\$12,714
Inpatient Surgery Expenditures								
Mean	\$959	\$1,013	\$295	\$294	\$307	\$305	\$326	\$333
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$23,805	\$25,082	\$10,810	\$10,515	\$11,130	\$10,774	\$11,411	\$10,732
Episode-Based Inpatient Surgery Expenditures								
Mean	\$970	\$1,027	\$295	\$295	\$308	\$305	\$326	\$334
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$24,600	\$25,488	\$10,828	\$10,518	\$11,134	\$10,774	\$11,424	\$10,746
Outpatient Surgery Expenditures								
Mean	\$468	\$471	\$141	\$140	\$141	\$141	\$124	\$132
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$988	\$969	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$9,107	\$9,392	\$3,337	\$3,283	\$3,398	\$3,305	\$3,046	\$3,217

Appendix Table B-78: Welvie Total Inpatient, Outpatient, and Episode Based Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q4 to Q6

Measures (2011 USD)	Q4		Q5		Q6	
	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Total Surgery Expenditures						
Mean	\$515	\$498	\$507	\$463	\$462	\$473
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$13,467	\$13,140	\$12,615	\$13,078	\$12,712	\$12,740
Inpatient Surgery Expenditures						
Mean	\$345	\$320	\$341	\$301	\$289	\$301
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$11,229	\$10,964	\$10,805	\$11,083	\$10,623	\$10,410
Episode-Based Inpatient Surgery Expenditures						
Mean	\$346	\$322	\$343	\$303	\$291	\$302
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$11,262	\$10,971	\$10,870	\$11,150	\$10,673	\$10,420
Outpatient Surgery Expenditures						
Mean	\$136	\$142	\$133	\$128	\$139	\$138
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$3,312	\$3,488	\$3,271	\$3,002	\$3,332	\$3,287

Appendix Table B-79: Welvie Orthopedic Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Total PS^a Orthopedic Surgery Expenditures														
Mean	\$323	\$317	\$67	\$63	\$69	\$70	\$88	\$81	\$74	\$78	\$74	\$64	\$76	\$70
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$12,039	\$12,006	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Orthopedic Surgery Expenditures														
Mean	\$270	\$267	\$56	\$53	\$57	\$58	\$74	\$68	\$62	\$66	\$62	\$53	\$64	\$59
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$10,219	\$10,219	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Orthopedic Surgery Expenditures														
Mean	\$6	\$5	\$1	\$1	\$2	\$2	\$1	\$2	\$1	\$1	\$2	\$1	\$1	\$1
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-80: Welvie Orthopedic Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Total PS^a Orthopedic Surgery Expenditures												
Mean	\$76	\$68	\$73	\$72	\$66	\$66	\$76	\$70	\$65	\$72	\$60	\$64
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Orthopedic Surgery Expenditures												
Mean	\$64	\$57	\$61	\$61	\$55	\$54	\$63	\$59	\$54	\$60	\$50	\$54
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Orthopedic Surgery Expenditures												
Mean	\$1	\$1	\$2	\$1	\$1	\$2	\$2	\$1	\$1	\$2	\$1	\$1
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-81: Welvie Orthopedic Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Total PS^a Orthopedic Surgery Expenditures												
Mean	\$189	\$187	\$82	\$77	\$66	\$66	\$61	\$63	\$56	\$55	\$42	\$38
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$11,454	\$11,459	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Orthopedic Surgery Expenditures												
Mean	\$151	\$151	\$67	\$63	\$53	\$53	\$49	\$51	\$45	\$45	\$34	\$30
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$9,560	\$9,546	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Orthopedic Surgery Expenditures												
Mean	\$5	\$4	\$1	\$2	\$1	\$1	\$2	\$1	\$1	\$1	\$1	\$1
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-82: Welvie Orthopedic Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Total PS^a Orthopedic Surgery Expenditures												
Mean	\$53	\$51	\$51	\$47	\$48	\$41	\$34	\$30	\$4	\$6	\$5	\$5
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Orthopedic Surgery Expenditures												
Mean	\$44	\$42	\$42	\$39	\$39	\$34	\$29	\$25	\$3	\$5	\$4	\$4
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Orthopedic Surgery Expenditures												
Mean	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$0
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-83: Welvie Orthopedic Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q1 to Q3

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Total PS^a Orthopedic Surgery Expenditures								
Mean	\$281	\$289	\$67	\$74	\$80	\$88	\$64	\$73
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$12,616	\$12,602	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Orthopedic Surgery Expenditures								
Mean	\$228	\$236	\$53	\$60	\$65	\$72	\$53	\$60
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$10,468	\$10,470	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Orthopedic Surgery Expenditures								
Mean	\$6	\$5	\$2	\$2	\$2	\$2	\$1	\$1
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-84: Welvie Orthopedic Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q4 to Q6

Measures (2011 USD)	Q4		Q5		Q6	
	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Total PS^a Orthopedic Surgery Expenditures						
Mean	\$79	\$65	\$63	\$76	\$82	\$73
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Orthopedic Surgery Expenditures						
Mean	\$65	\$52	\$53	\$63	\$68	\$61
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Orthopedic Surgery Expenditures						
Mean	\$1	\$2	\$1	\$1	\$2	\$2
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-85: Welvie Cardiac Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q1 to Q6

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5		Q6	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Interven	Controls
<i>Number of Beneficiaries</i>	58,582	49,195	58,582	49,195	57,711	48,254	56,851	47,469	55,987	46,662	55,044	45,750	54,177	44,902
Total PS^a Cardiac Surgery Expenditures														
Mean	\$300	\$284	\$67	\$84	\$82	\$76	\$77	\$63	\$71	\$71	\$73	\$75	\$76	\$70
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$10,943	\$10,781	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Cardiac Surgery Expenditures														
Mean	\$232	\$220	\$52	\$67	\$66	\$61	\$60	\$48	\$56	\$54	\$58	\$59	\$59	\$54
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$9,807	\$9,530	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Cardiac Surgery Expenditures														
Mean	\$40	\$38	\$8	\$10	\$9	\$8	\$10	\$8	\$9	\$10	\$9	\$9	\$9	\$10
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$1,791	\$1,792	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-86: Welvie Cardiac Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio FFS ITT Analysis Cohort, Q7 to Q12

Measures (2011 USD)	Q7		Q8		Q9		Q10		Q11		Q12	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	53,341	44,193	52,424	43,385	51,471	42,496	50,679	41,757	49,929	41,091	49,150	40,414
Total PS^a Cardiac Surgery Expenditures												
Mean	\$68	\$65	\$72	\$86	\$71	\$73	\$73	\$70	\$62	\$50	\$69	\$53
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Cardiac Surgery Expenditures												
Mean	\$53	\$52	\$57	\$69	\$54	\$57	\$56	\$55	\$49	\$38	\$54	\$40
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Cardiac Surgery Expenditures												
Mean	\$9	\$7	\$8	\$9	\$10	\$10	\$10	\$9	\$8	\$8	\$8	\$8
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-87: Welvie Cardiac Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q1 to Q5

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4		Q5	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	97,380	94,915	97,380	94,915	96,492	94,059	95,477	93,045	92,080	89,750	91,230	88,894
Total PS^a Cardiac Surgery Expenditures												
Mean	\$191	\$205	\$68	\$73	\$73	\$65	\$55	\$63	\$40	\$60	\$43	\$49
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$2,585	\$2,833	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Cardiac Surgery Expenditures												
Mean	\$136	\$147	\$50	\$53	\$56	\$48	\$41	\$47	\$28	\$45	\$31	\$34
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Cardiac Surgery Expenditures												
Mean	\$34	\$34	\$10	\$12	\$9	\$9	\$7	\$9	\$7	\$8	\$7	\$9
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-88: Welvie Cardiac Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Ohio MA ITT Analysis Cohort, Q6 to Q11

Measures (2011 USD)	Q6		Q7		Q8		Q9		Q10		Q11	
	Intervention	Controls										
<i>Number of Beneficiaries</i>	90,076	87,518	89,069	86,556	82,860	80,581	81,907	79,640	79,501	77,232	78,171	75,732
Total PS^a Cardiac Surgery Expenditures												
Mean	\$50	\$56	\$37	\$53	\$53	\$48	\$27	\$21	\$8	\$9	\$11	\$10
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Cardiac Surgery Expenditures												
Mean	\$36	\$42	\$26	\$39	\$39	\$35	\$18	\$14	\$2	\$3	\$5	\$3
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Cardiac Surgery Expenditures												
Mean	\$7	\$7	\$7	\$8	\$8	\$8	\$7	\$6	\$6	\$6	\$6	\$6
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-89: Welvie Cardiac Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q1 to Q3

Measures (2011 USD)	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	63,979	63,759	63,979	63,759	63,885	63,654	50,346	50,476
Total PS^a Cardiac Surgery Expenditures								
Mean	\$232	\$262	\$64	\$74	\$77	\$67	\$67	\$82
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$4,458	\$6,044	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Cardiac Surgery Expenditures								
Mean	\$161	\$192	\$46	\$55	\$57	\$49	\$49	\$64
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Cardiac Surgery Expenditures								
Mean	\$46	\$40	\$12	\$10	\$11	\$11	\$10	\$10
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$1,957	\$1,886	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

Appendix Table B-90: Welvie Cardiac Surgery Expenditures in the Baseline Period and by Quarter Following Enrollment, Texas MA ITT Analysis Cohort, Q4 to Q6

Measures (2011 USD)	Q4		Q5		Q6	
	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	49,822	49,956	49,356	49,449	48,797	48,926
Total PS^a Cardiac Surgery Expenditures						
Mean	\$82	\$63	\$66	\$65	\$72	\$68
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0
Inpatient PS Cardiac Surgery Expenditures						
Mean	\$61	\$44	\$48	\$46	\$51	\$49
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0
Outpatient PS Cardiac Surgery Expenditures						
Mean	\$11	\$11	\$10	\$11	\$13	\$13
Median	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$0	\$0	\$0	\$0	\$0	\$0

^aPS = Preference-sensitive

APPENDIX C: RESULTS FOR WELVIE (MA IDR DATA AND WELVIE PROVIDED MA DATA COMPARISON)

This section presents results for the Medicare Advantage (MA) Ohio and Texas cohorts of the Welvie program using MA claims data from CMS’s Integrated Data Repository (IDR) and compares them with results produced using MA claims data provided by the awardee. Due to limitations of the MA IDR data, additional cohort restrictions were applied to the MA Ohio and MA Texas cohorts for comparison purposes. First, due to insufficient data in the pre-enrollment period, the MA Ohio analytic cohorts were only required to have two quarters of complete claims data in this period to be included in the analyses. Second, analyses of MA Ohio and MA Texas cohorts using MA IDR data do not include beneficiaries who switched between Medicare FFS and MA to account for potential discrepancies between the IDR data used for MA beneficiaries and the Common Working File (CWF) data used for FFS beneficiaries. To ensure results from the MA IDR data and the Welvie-provided MA data are comparable, these restrictions were also applied to the MA Ohio and MA Texas analytic cohorts for analyses using Welvie-provided MA data. Thus, the results from the analysis using Welvie-provided MA data presented in this Appendix differ from results presented in Section 2 as well as Appendix B. Furthermore, due to the limitations of the MA data in the IDR, results for ER visits and outpatient surgeries are not available for the MA IDR cohorts and thus not reported below for either analysis.

The following tables provide the baseline demographic and health characteristics for intervention and comparison group beneficiaries in the Welvie MA Ohio and Texas cohorts based on IDR MA data. Subsequent tables provide mortality, readmissions, health service utilization, and expenditure results for these cohorts using both IDR MA data and Welvie-provided MA data. The analyses used claims data through December 2015 wherever possible; however, for the MA Ohio analysis using Welvie-provided data, claims data were only available through September 2015. Findings from these respective data sources are presented in separate tables so they can be compared.

C.1 Demographic and Health Characteristics

The tables below show that the randomized intervention and control groups had similar demographic and health characteristics prior to Welvie program enrollment. These statistics were calculated using IDR MA data.

**Appendix Table C-1: Welvie Baseline Demographic and Health Characteristics, Ohio MA
ITT Analysis Cohort (IDR MA Data)**

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
<i>Number of Beneficiaries</i>	82,708	80,972		
Average Age (Years)	74.65	74.72	-0.07	0.01
Age under 65	0%	0%	0%	0.01
Gender				
Male	43%	43%	0%	0.00
Female	57%	57%	0%	0.00
Race				
White	91%	91%	0%	0.01
Black	7%	7%	0%	0.01
Other	2%	2%	0%	0.00
Dual Eligible	6%	6%	0%	0.00
Medicare Eligibility				
Disabled	10%	11%	-1%	0.02
ESRD	0%	0%	0%	0.00
Aged	90%	89%	1%	0.02
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name				
Any targeted diagnosis	81%	81%	0%	0.01
Knee diagnosis	14%	14%	0%	0.01
Hip diagnosis	12%	12%	0%	0.00
Back diagnosis	20%	20%	0%	0.00
Heart diagnosis	27%	27%	0%	0.01
Evaluation and Management (E&M) Visits				
E&M Visits: 0	17%	17%	0%	0.01
E&M Visits: 1-5	64%	64%	0%	0.01
E&M Visits: 6-10	16%	16%	0%	0.00
E&M Visits: 11-15	3%	3%	0%	0.00
E&M Visits: 16+	1%	1%	0%	0.00
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 SNF Stays (Prior Year)	98%	98%	0%	0.00
1 SNF Stay (Prior Year)	1%	1%	0%	0.00
2+ SNF Stays (Prior Year)	1%	1%	0%	0.00
<i>IP Stay before study enrollment</i>				
0 IP Stays (1Q Prior)	95%	95%	0%	0.00
1 IP Stay (Prior Year)	4%	4%	0%	0.00
2+ IP Stays (Prior Year)	1%	1%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
0 IP Stays (Prior Year)	92%	91%	0%	0.01
1 IP Stay (Prior Year)	6%	7%	0%	0.01
2+ IP Stays (Prior Year)	2%	2%	0%	0.01
Frailty Measures				
Charlson Score	0.18	0.19	-0.01	0.01
Area Deprivation Index (ADI)	100.42	100.45	-0.03	0.00
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)				
Acute cerebrovascular disease (IP)	0%	0%	0%	0.01
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%	0%	0.00
AMI (IP)	0%	0%	0%	0.01
AMI (IP, 30 days prior)	0%	0%	0%	0.01
Cerebrovascular disease	10%	10%	0%	0.01
Parkinson's disease and multiple sclerosis	1%	1%	0%	0.00
Asthma	16%	16%	0%	0.00
Coagulation and hemorrhagic disorders	3%	3%	0%	0.00
Congestive heart failure (All Settings)	8%	8%	0%	0.00
Congestive heart failure (IP)	1%	1%	0%	0.00
Coronary atherosclerosis	20%	20%	0%	0.01
Dementia	5%	5%	0%	0.01
Diabetes mellitus without complication	29%	29%	0%	0.00
Diabetes mellitus with complications	12%	12%	0%	0.00
Cardiac dysrhythmias, arrest and ventricular fibrillation	20%	20%	0%	0.00
Fluid and electrolyte disorders	9%	9%	0%	0.00
Gastrointestinal hemorrhage (All Settings)	3%	3%	0%	0.01
Gastrointestinal hemorrhage (IP)	0%	0%	0%	0.01
Other heart disease	37%	37%	0%	0.00
Heart valve disorders	10%	9%	0%	0.01
Hepatitis	0%	0%	0%	0.00
Hypertension with complications	8%	8%	0%	0.00
Stomach, pancreas and lung cancer	1%	1%	0%	0.00
Peri- endo- and myocarditis	3%	3%	0%	0.00
Disorders of nervous system	6%	6%	0%	0.00
Other cancers	11%	12%	0%	0.00
Paralysis	1%	1%	0%	0.01
Pneumonia	6%	6%	0%	0.00
Pneumonia (IP, 30 days prior)	0%	0%	0%	0.01
Pulmonary heart disease	3%	3%	0%	0.01
Renal failure	9%	9%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Respiratory failure (IP)	0%	0%	0%	0.00
Respiratory failure (IP, 30 days prior)	0%	0%	0%	0.01
Rheumatoid arthritis and related disease	2%	2%	0%	0.00
Septicemia	1%	1%	0%	0.01
Shock	0%	0%	0%	0.00
Tuberculosis	0%	0%	0%	0.00
Procedures (2Q Pre-Enrollment)				
Bypass and PTCA (IP)	1%	1%	0%	0.00
Heart valve procedures (IP)	0%	0%	0%	0.00
Hemodialysis	0%	0%	0%	0.00
Peritoneal dialysis	0%	0%	0%	0.00
Procedures on vessels of head and neck (IP)	2%	2%	0%	0.00
Radiology and chemotherapy	2%	2%	0%	0.00
Respiratory intubation and mechanical ventilation	1%	1%	0%	0.00
Blood transfusion	2%	2%	0%	0.02
Blood transfusion (IP)	1%	1%	0%	0.01
Transportation	0.05	0.05	0.00	0.00

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

Appendix Table C-2: Welvie Baseline Demographic and Health Characteristics, Texas MA ITT Analysis Cohort (IDR MA Data)

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
<i>Number of Beneficiaries</i>	48,932	48,946		
Average Age (Years)	70.50	70.51	-0.01	0.00
Age under 65	18%	18%	0%	0.00
Gender				
Male	46%	46%	1%	0.01
Female	54%	54%	-1%	0.01
Race				
White	84%	84%	0%	0.00
Black	10%	10%	0%	0.00
Other	6%	6%	0%	0.01
Dual Eligible	7%	7%	0%	0.00
Medicare Eligibility				
Disabled	28%	28%	0%	0.00
ESRD	0%	0%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Aged	72%	72%	0%	0.00
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name				
Any targeted diagnosis	91%	91%	0%	0.01
Knee diagnosis	21%	21%	0%	0.00
Hip diagnosis	20%	20%	0%	0.00
Back diagnosis	35%	34%	0%	0.01
Heart diagnosis	34%	34%	0%	0.01
Evaluation and Management (E&M) Visits				
E&M Visits: 0	8%	8%	0%	0.01
E&M Visits: 1-5	41%	41%	0%	0.00
E&M Visits: 6-10	28%	29%	0%	0.01
E&M Visits: 11-15	13%	13%	0%	0.00
E&M Visits: 16+	9%	9%	0%	0.00
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 SNF Stays (Prior Year)	99%	99%	0%	0.00
1 SNF Stay (Prior Year)	1%	1%	0%	0.00
2+ SNF Stays (Prior Year)	0%	0%	0%	0.01
<i>IP Stay before study enrollment</i>				
0 IP Stays (1Q Prior)	96%	96%	0%	0.01
1 IP Stay (Prior Year)	4%	4%	0%	0.01
2+ IP Stays (Prior Year)	1%	1%	0%	0.01
0 IP Stays (Prior Year)	88%	88%	0%	0.00
1 IP Stay (Prior Year)	9%	9%	0%	0.00
2+ IP Stays (Prior Year)	3%	3%	0%	0.00
ER Visits (Pre-Enrollment Quarter)				
ER Visits: 0	98%	99%	0%	0.01
ER Visits: 1	1%	1%	0%	0.01
ER Visits: 2+	0%	0%	0%	0.00
Frailty Measures				
Charlson Score	0.17	0.16	0.01	0.01
Area Deprivation Index (ADI)	103.23	103.27	-0.04	0.00
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)				
Acute cerebrovascular disease (IP)	0%	0%	0%	0.01
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%	0%	0.01
AMI (IP)	0%	0%	0%	0.00
AMI (IP, 30 days prior)	0%	0%	0%	0.00
Cerebrovascular disease	13%	13%	0%	0.01
Parkinson's disease and multiple sclerosis	2%	2%	0%	0.01
Asthma	21%	21%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Coagulation and hemorrhagic disorders	3%	3%	0%	0.00
Congestive heart failure (All Settings)	10%	10%	0%	0.01
Congestive heart failure (IP)	1%	1%	0%	0.00
Coronary atherosclerosis	23%	23%	0%	0.00
Dementia	5%	5%	0%	0.01
Diabetes mellitus without complication	36%	36%	0%	0.00
Diabetes mellitus with complications	18%	18%	0%	0.01
Cardiac dysrhythmias, arrest and ventricular fibrillation	21%	21%	0%	0.00
Fluid and electrolyte disorders	11%	11%	0%	0.00
Gastrointestinal hemorrhage (All Settings)	4%	4%	0%	0.00
Gastrointestinal hemorrhage (IP)	0%	0%	0%	0.01
Other heart disease	42%	42%	0%	0.00
Heart valve disorders	11%	11%	0%	0.00
Hepatitis	1%	1%	0%	0.00
Hypertension with complications	15%	15%	0%	0.00
Stomach, pancreas and lung cancer	1%	1%	0%	0.01
Peri- endo- and myocarditis	4%	3%	0%	0.02
Disorders of nervous system	11%	12%	0%	0.01
Other cancers	11%	11%	0%	0.00
Paralysis	1%	1%	0%	0.01
Pneumonia	8%	8%	0%	0.01
Pneumonia (IP, 30 days prior)	0%	0%	0%	0.01
Pulmonary heart disease	3%	2%	0%	0.01
Renal failure	12%	12%	0%	0.00
Respiratory failure (IP)	0%	0%	0%	0.00
Respiratory failure (IP, 30 days prior)	0%	0%	0%	0.01
Rheumatoid arthritis and related disease	4%	4%	0%	0.01
Septicemia	2%	2%	0%	0.01
Shock	0%	0%	0%	0.00
Tuberculosis	0%	0%	0%	0.00
Procedures (Pre-Enrollment Year)				
Bypass and PTCA (IP)	1%	1%	0%	0.00
Heart valve procedures (IP)	0%	0%	0%	0.01
Hemodialysis	0%	0%	0%	0.01
Peritoneal dialysis	0%	0%	0%	0.01
Procedures on vessels of head and neck (IP)	2%	2%	0%	0.01
Radiology and chemotherapy	2%	2%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Respiratory intubation and mechanical ventilation	1%	1%	0%	0.01
Blood transfusion	2%	2%	0%	0.00
Blood transfusion (IP)	1%	1%	0%	0.01
Transportation	0.10	0.10	0.00	0.01

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

The following tables provide pre-enrollment demographic and health characteristics of the Welvie decision aid users in the Ohio MA and Texas MA cohorts who were included in the IV analyses of program effects.

Appendix Table C-3: Welvie Baseline Demographic and Health Characteristics, IV Analysis Cohorts (IDR MA Data)

Characteristics	Ohio MA	Texas MA
Number of Beneficiaries	3,572	2,079
Average Age (Years)	72.05	66.66
Age under 65	2%	31%
Gender		
Male	47%	44%
Female	53%	56%
Race		
White	91%	84%
Black	6%	12%
Other	3%	5%
Dual Eligible	6%	10%
Medicare Eligibility		
Disabled	0%	40%
ESRD	89%	0%
Aged	0%	60%
Potential Risk Indicators for Preference Sensitive Surgeries Targeted by Program Name		
Any targeted diagnosis	82%	95%
Knee diagnosis	14%	28%
Hip diagnosis	13%	25%
Back diagnosis	22%	43%
Heart diagnosis	25%	33%
Evaluation and Management (E&M) Visits		

Characteristics	Ohio MA	Texas MA
E&M Visits: 0	15%	5%
E&M Visits: 1-5	64%	37%
E&M Visits: 6-10	16%	31%
E&M Visits: 11-15	3%	14%
E&M Visits: 16+	1%	12%
Resource Use per Beneficiary (Pre-Enrollment Year)		
0 SNF Stays (Prior Year)	99%	99%
1 SNF Stay (Prior Year)	1%	1%
2+ SNF Stays (Prior Year)	0%	0%
0 IP Stays (1Q Prior)	97%	96%
1 IP Stay (Prior Year)	3%	3%
2+ IP Stays (Prior Year)	0%	1%
0 IP Stays (Prior Year)	94%	87%
1 IP Stay (Prior Year)	5%	9%
2+ IP Stays (Prior Year)	1%	3%
ER Visits (Pre-Enrollment Quarter)		
ER Visits: 0	99%	99%
ER Visits: 1	1%	1%
ER Visits: 2+	0%	0%
Frailty Measures		
Charlson Score	2.42	2.46
Area Deprivation Index (ADI)	99.57	102.78
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)		
Acute cerebrovascular disease (IP)	0%	0%
Acute cerebrovascular disease (IP, 30 days prior)	0%	0%
AMI (IP)	0%	0%
AMI (IP, 30 days prior)	0%	0%
Cerebrovascular disease	9%	12%
Parkinson's disease and multiple sclerosis	1%	2%
Asthma	15%	22%
Coagulation and hemorrhagic disorders	3%	3%
Congestive heart failure (All Settings)	5%	9%
Congestive heart failure (IP)	0%	0%
Coronary atherosclerosis	20%	21%
Dementia	2%	2%
Diabetes mellitus without complication	29%	35%
Diabetes mellitus with complications	11%	17%

Characteristics	Ohio MA	Texas MA
Cardiac dysrhythmias, arrest and ventricular fibrillation	20%	21%
Fluid and electrolyte disorders	7%	10%
Gastrointestinal hemorrhage (All Settings)	3%	4%
Gastrointestinal hemorrhage (IP)	0%	0%
Other heart disease	37%	42%
Heart valve disorder	9%	12%
Hepatitis	1%	2%
Hypertension with complications	7%	13%
Stomach, pancreas and lung cancer	1%	1%
Peri- endo- and myocarditis	2%	4%
Disorders of nervous system	5%	13%
Other cancers	13%	12%
Paralysis	0%	1%
Pneumonia	5%	7%
Pneumonia (IP, 30 days prior)	0%	0%
Pulmonary heart disease	2%	3%
Renal failure	8%	11%
Respiratory failure (IP)	0%	0%
Respiratory failure (IP, 30 days prior)	0%	0%
Rheumatoid arthritis and related disease	2%	5%
Septicemia	1%	1%
Shock	0%	0%
Tuberculosis	0%	0%
Procedures (2Q Pre-Enrollment for Ohio MA and Pre-Enrollment Year for Texas MA)		
Bypass and PTCA (IP)	8%	6%
Heart valve procedures (IP)	3%	2%
Hemodialysis	0%	0%
Peritoneal dialysis	0%	0%
Procedures on vessels of head and neck (IP)	24%	18%
Radiology and chemotherapy	2%	1%
Respiratory intubation and mechanical ventilation	0%	1%
Blood transfusion	1%	2%
Blood transfusion (IP)	13%	12%
Transportation	0.03	0.09
HCC Risk Score	0.79	1.04

C.2 Mortality and Readmissions

Mortality and readmissions results for MA Ohio and MA Texas beneficiaries derived from MA IDR data and Welvie-provided MA data are presented in the tables below. Mortality and readmissions estimates calculated using MA IDR data and Welvie-provided data are similar and are consistent with the findings presented in Section 2 for both cohorts; there were generally negative difference estimates for the MA Ohio cohort and inconclusive results for the MA Texas cohort using both data sources. However, the MA IDR and Welvie-provided data sources do not identify hospital admissions in the same manner and thus the estimated readmissions rates may not be directly comparable.

Appendix Table C-4: Aggregate Mortality: Cumulative and Yearly Differences After Welvie Enrollment, Ohio and Texas MA Cohorts, IDR MA Data

Medicare Cohort	Full Intervention Period ^a	Year 1 ^b	Year 2
Medicare Advantage Ohio			
<i>Number of Participants</i>	82,708	82,708	77,651
<i>Difference</i>	-129.07	-67.34	9.08
<i>90% Confidence Interval</i>	(-350.0 91.8)	(-201.3 66.7)	(-122.7 140.9)
<i>80% Confidence Interval</i>	(-301.2 43.0)	(-171.7 37.1)	(-93.6 111.8)
<i>P-Value</i>	0.336	0.408	0.910
Medicare Advantage Texas			
<i>Number of Participants</i>	48,932	48,932	
<i>Difference</i>	11.80	-17.25	
<i>90% Confidence Interval</i>	(-85.7 109.3)	(-91.1 56.6)	
<i>80% Confidence Interval</i>	(-64.2 87.8)	(-74.8 40.3)	
<i>P-Value</i>	0.842	0.701	

^aResults are cumulative across all available quarters. The “full intervention period” refers to eleven quarters following program enrollment for MA beneficiaries in Ohio and six quarters following program enrollment for MA beneficiaries in Texas.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThis estimate represents difference in the number of deaths between participants and controls during the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015 and Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-5: Aggregate Mortality: Cumulative and Yearly Differences After Welvie Enrollment, Ohio and Texas MA Cohorts, Welvie-Provided MA Data

Medicare Cohort	Full Intervention Period ^a	Year 1 ^b	Year 2
Medicare Advantage Ohio			
<i>Number of Participants</i>	82,709	82,709	77,652
<i>Difference</i>	-129.21	-66.39	9.04
<i>90% Confidence Interval</i>	(-350.1 91.7)	(-200.4 67.6)	(-122.8 140.9)
<i>80% Confidence Interval</i>	(-301.3 42.9)	(-170.8 38.0)	(-93.7 111.7)
<i>P-Value</i>	0.336	0.415	0.910
Medicare Advantage Texas			
<i>Number of Participants</i>	48,933	48,933	
<i>Difference</i>	11.83	-17.23	
<i>90% Confidence Interval</i>	(-85.7 109.4)	(-91.1 56.6)	
<i>80% Confidence Interval</i>	(-64.2 87.8)	(-74.8 40.3)	
<i>P-Value</i>	0.842	0.701	

^aResults are cumulative across all available quarters. The “full intervention period” refers to eleven quarters following program enrollment for MA beneficiaries in Ohio and six quarters following program enrollment for MA beneficiaries in Texas.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThis estimate represents difference in the number of deaths between participants and controls during the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015 and Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-6: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, MA Ohio Cohort, IDR MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	82,708	82,708	77,651
30-Day Hospital Readmissions Following All Inpatient Admissions:			
<i>Difference^c</i>	-225.98**	-61.19	-66.80
<i>90% Confidence Interval</i>	(-404.0 -47.9)	(-170.4 48.0)	(-173.8 40.2)
<i>80% Confidence Interval</i>	(-364.7 -87.3)	(-146.3 23.9)	(-150.1 16.5)
<i>P-Value</i>	0.037	0.357	0.304
Inpatient Surgery Admissions			
<i>Difference</i>	-88.04	-23.43	-53.71
<i>90% Confidence Interval</i>	(-179.6 3.5)	(-79.8 32.9)	(-108.2 0.8)
<i>80% Confidence Interval</i>	(-159.4 -16.7)	(-67.3 20.5)	(-96.2 -11.2)
<i>P-Value</i>	0.114	0.494	0.105

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
Inpatient Preference Sensitive Orthopedic Surgery Admissions			
<i>Difference</i>	-34.38*	-4.50	-18.31
<i>90% Confidence Interval</i>	(-68.6 -0.2)	(-25.5 16.5)	(-38.7 2.1)
<i>80% Confidence Interval</i>	(-61.0 -7.7)	(-20.8 11.8)	(-34.2 -2.4)
<i>P-Value</i>	0.098	0.724	0.140
Inpatient Preference Sensitive Cardiac Surgery Admissions			
<i>Difference</i>	-25.59	-18.07	-6.49
<i>90% Confidence Interval</i>	(-61.5 10.3)	(-40.9 4.7)	(-27.9 14.9)
<i>80% Confidence Interval</i>	(-53.5 2.4)	(-35.8 -0.3)	(-23.2 10.2)
<i>P-Value</i>	0.241	0.192	0.618
30-Day Hospital Unplanned Readmissions Following All Inpatient Admissions:			
<i>Difference</i>	-242.15**	-66.90	-83.13
<i>90% Confidence Interval</i>	(-416.5 -67.8)	(-173.8 40.0)	(-187.6 21.4)
<i>80% Confidence Interval</i>	(-378.0 -106.3)	(-150.2 16.4)	(-164.5 -1.7)
<i>P-Value</i>	0.022	0.303	0.191

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Appendix Table C-7: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, MA Ohio Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	82,709	82,709	77,652
30-Day Hospital Readmissions Following All Inpatient Admissions:			
<i>Difference^c</i>	-134.24	-42.11	-0.49
<i>90% Confidence Interval</i>	(-298.4 29.9)	(-150.7 66.5)	(-95.6 94.6)
<i>80% Confidence Interval</i>	(-262.1 -6.4)	(-126.7 42.5)	(-74.6 73.6)
<i>P-Value</i>	0.178	0.524	0.993
Inpatient Surgery Admissions			
<i>Difference</i>	-74.22	-38.79	-27.78

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>90% Confidence Interval</i>	(-149.2 0.8)	(-95.5 17.9)	(-74.1 18.5)
<i>80% Confidence Interval</i>	(-132.7 -15.8)	(-83.0 5.4)	(-63.9 8.3)
<i>P-Value</i>	0.104	0.261	0.324
Inpatient Preference Sensitive Orthopedic Surgery Admissions			
<i>Difference</i>	-25.31	-14.82	-10.62
<i>90% Confidence Interval</i>	(-51.2 0.6)	(-34.5 4.9)	(-26.7 5.5)
<i>80% Confidence Interval</i>	(-45.5 -5.1)	(-30.1 0.5)	(-23.2 1.9)
<i>P-Value</i>	0.108	0.216	0.278
Inpatient Preference Sensitive Cardiac Surgery Admissions			
<i>Difference</i>	-19.35	-14.53	-0.95
<i>90% Confidence Interval</i>	(-48.7 10.0)	(-36.6 7.5)	(-18.9 17.0)
<i>80% Confidence Interval</i>	(-42.2 3.5)	(-31.7 2.7)	(-14.9 13.0)
<i>P-Value</i>	0.278	0.279	0.930
30-Day Hospital Unplanned Readmissions Following All Inpatient Admissions:			
<i>Difference</i>	-157.42	-33.84	-28.18
<i>90% Confidence Interval</i>	(-318.1 3.3)	(-140.3 72.6)	(-121.0 64.7)
<i>80% Confidence Interval</i>	(-282.6 -32.2)	(-116.8 49.1)	(-100.5 44.2)
<i>P-Value</i>	0.107	0.601	0.618

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Appendix Table C-8: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, MA Texas Cohort, IDR MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	48,932	48,932
30-Day Hospital Readmissions Following:		
All Inpatient Admissions		
<i>Difference^c</i>	64.26	44.83
<i>90% Confidence Interval</i>	(-30.1 158.7)	(-33.2 122.9)
<i>80% Confidence Interval</i>	(-9.3 137.8)	(-16.0 105.6)
<i>P-Value</i>	0.263	0.345

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
Inpatient Surgery Admissions		
<i>Difference</i>	58.68**	36.29
<i>90% Confidence Interval</i>	(9.6 107.7)	(-4.7 77.3)
<i>80% Confidence Interval</i>	(20.5 96.9)	(4.3 68.2)
<i>P-Value</i>	0.049	0.145
Inpatient Preference Sensitive Orthopedic Surgery Admissions		
<i>Difference</i>	11.67	11.02
<i>90% Confidence Interval</i>	(-7.0 30.3)	(-5.1 27.1)
<i>80% Confidence Interval</i>	(-2.9 26.2)	(-1.5 23.6)
<i>P-Value</i>	0.304	0.260
Inpatient Preference Sensitive Cardiac Surgery Admissions		
<i>Difference</i>	-2.28	-6.17
<i>90% Confidence Interval</i>	(-20.8 16.2)	(-22.2 9.9)
<i>80% Confidence Interval</i>	(-16.7 12.1)	(-18.7 6.3)
<i>P-Value</i>	0.839	0.527
30-Day Hospital Unplanned Readmissions Following:		
All Inpatient Admissions		
<i>Difference</i>	44.63	30.41
<i>90% Confidence Interval</i>	(-47.5 136.7)	(-45.7 106.5)
<i>80% Confidence Interval</i>	(-27.1 116.4)	(-28.9 89.7)
<i>P-Value</i>	0.426	0.511

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-9: Aggregate Inpatient Readmissions: Cumulative and Yearly Differences After Welvie Enrollment, MA Texas Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	48,933	48,933
30-Day Hospital Readmissions Following:		
All Inpatient Admissions		

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Difference^c</i>	98.46	64.38
<i>90% Confidence Interval</i>	(-3.4 200.3)	(-20.7 149.5)
<i>80% Confidence Interval</i>	(19.1 177.8)	(-1.9 130.7)
<i>P-Value</i>	0.112	0.213
Inpatient Surgery Admissions		
<i>Difference</i>	57.06*	25.86
<i>90% Confidence Interval</i>	(4.1 110.0)	(-19.2 70.9)
<i>80% Confidence Interval</i>	(15.8 98.3)	(-9.2 60.9)
<i>P-Value</i>	0.076	0.345
Inpatient Preference Sensitive Orthopedic Surgery Admissions		
<i>Difference</i>	2.35	6.36
<i>90% Confidence Interval</i>	(-17.3 22.0)	(-10.8 23.5)
<i>80% Confidence Interval</i>	(-12.9 17.6)	(-7.0 19.7)
<i>P-Value</i>	0.844	0.543
Inpatient Preference Sensitive Cardiac Surgery Admissions		
<i>Difference</i>	-1.63	-8.15
<i>90% Confidence Interval</i>	(-23.2 20.0)	(-27.0 10.7)
<i>80% Confidence Interval</i>	(-18.5 15.2)	(-22.8 6.5)
<i>P-Value</i>	0.901	0.477
30-Day Hospital Unplanned Readmissions Following:		
All Inpatient Admissions		
<i>Difference</i>	89.68	60.10
<i>90% Confidence Interval</i>	(-10.2 189.6)	(-23.0 143.2)
<i>80% Confidence Interval</i>	(11.8 167.5)	(-4.7 124.9)
<i>P-Value</i>	0.140	0.234

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

^cThe estimate represents the difference in the number of beneficiaries with at least one readmission for every beneficiary who has an inpatient admission, as compared between the intervention and control groups during the relevant year in the intervention period.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

C.3 Health Service Resource Use

Resource use results for MA Ohio and MA Texas beneficiaries derived from IDR MA data and Welvie-provided MA data are presented in the tables below. The overall conclusions derived from ITT analyses using each of the two data sources were reliably similar although estimated effect sizes differed by measure. Overall conclusions across the two different data sources were also similar in the IV analysis.

Appendix Table C-10: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio ITT Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	82,708	82,708	77,651
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-361.52	-263.46	-89.57
<i>90% Confidence Interval</i>	(-1,067.7 344.6)	(-575.2 48.3)	(-383.7 204.6)
<i>80% Confidence Interval</i>	(-911.7 188.7)	(-506.3 -20.6)	(-318.8 139.6)
<i>P-Value</i>	0.400	0.164	0.616
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-2,346.45	-1,531.06	-1,016.39
<i>90% Confidence Interval</i>	(-7,902.9 3,210.0)	(-4,206.1 1,144.0)	(-3,305.1 1,272.3)
<i>80% Confidence Interval</i>	(-6,675.6 1,982.7)	(-3,615.3 553.1)	(-2,799.6 766.8)
<i>P-Value</i>	0.487	0.346	0.465
Inpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	130.01	27.48	77.77
<i>90% Confidence Interval</i>	(-217.7 477.8)	(-126.9 181.8)	(-66.9 222.4)
<i>80% Confidence Interval</i>	(-140.9 400.9)	(-92.8 147.7)	(-34.9 190.5)
<i>P-Value</i>	0.539	0.770	0.376
Preference Sensitive Orthopedic Surgery Hospital Days			
<i>Difference-in-Difference</i>	167.88	146.16	122.98
<i>90% Confidence Interval</i>	(-1,200.5 1,536.3)	(-462.7 755.0)	(-443.6 689.5)
<i>80% Confidence Interval</i>	(-898.3 1,234.1)	(-328.2 620.6)	(-318.4 564.4)
<i>P-Value</i>	0.840	0.693	0.721
Inpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	200.00	59.41	50.39
<i>90% Confidence Interval</i>	(-53.6 453.6)	(-51.9 170.8)	(-54.8 155.6)
<i>80% Confidence Interval</i>	(2.4 397.6)	(-27.4 146.2)	(-31.6 132.3)
<i>P-Value</i>	0.195	0.380	0.431

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
Inpatient Preference Sensitive Cardiac Surgical Hospital Days			
<i>Difference-in-Difference</i>	1,323.20	309.05	333.77
<i>90% Confidence Interval</i>	(-596.9 3,243.3)	(-542.6 1,160.7)	(-471.4 1,139.0)
<i>80% Confidence Interval</i>	(-172.8 2,819.2)	(-354.5 972.6)	(-293.6 961.1)
<i>P-Value</i>	0.257	0.551	0.495

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Appendix Table C-11: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio ITT Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	82,709	82,709	77,652
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-544.75	-338.51*	-126.41
<i>90% Confidence Interval</i>	(-1,254.2 164.7)	(-659.1 -17.9)	(-412.9 160.1)
<i>80% Confidence Interval</i>	(-1,097.5 8.0)	(-588.3 -88.7)	(-349.7 96.8)
<i>P-Value</i>	0.207	0.082	0.468
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-3,333.47	-1,787.07	-1,373.63
<i>90% Confidence Interval</i>	(-9,152.0 2,485.1)	(-4,497.8 923.6)	(-3,745.6 998.3)
<i>80% Confidence Interval</i>	(-7,866.9 1,199.9)	(-3,899.1 324.9)	(-3,221.7 474.4)
<i>P-Value</i>	0.346	0.278	0.341
Inpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	56.17	7.25	59.53
<i>90% Confidence Interval</i>	(-277.1 389.4)	(-144.1 158.6)	(-74.4 193.5)
<i>80% Confidence Interval</i>	(-203.5 315.8)	(-110.7 125.2)	(-44.8 163.9)
<i>P-Value</i>	0.782	0.937	0.465
Preference Sensitive Orthopedic Surgery Hospital Days			
<i>Difference-in-Difference</i>	-463.98	-136.51	-135.48
<i>90% Confidence Interval</i>	(-1,768.5 840.5)	(-733.8 460.7)	(-659.5 388.5)
<i>80% Confidence Interval</i>	(-1,480.3 552.4)	(-601.9 328.8)	(-543.8 272.8)
<i>P-Value</i>	0.559	0.707	0.671
Inpatient Preference Sensitive Cardiac Surgeries			

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Difference-in-Difference</i>	126.60	25.52	26.26
<i>90% Confidence Interval</i>	(-131.2 384.4)	(-89.3 140.4)	(-77.5 130.0)
<i>80% Confidence Interval</i>	(-74.2 327.4)	(-64.0 115.0)	(-54.6 107.1)
<i>P-Value</i>	0.419	0.715	0.677
Inpatient Preference Sensitive Cardiac Surgical Hospital Days			
<i>Difference-in-Difference</i>	1,268.11	382.90	305.95
<i>90% Confidence Interval</i>	(-658.1 3,194.3)	(-492.9 1,258.7)	(-496.7 1,108.6)
<i>80% Confidence Interval</i>	(-267.4 187.5)	(-144.4 54.4)	(-118.7 63.2)
<i>P-Value</i>	0.279	0.472	0.531

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Appendix Table C-12: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio ITT Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	82,708	82,708	77,651
Inpatient Admissions			
<i>Difference-in-Difference</i>	-103.68	-103.20	-113.49
<i>90% Confidence Interval</i>	(-1,633.7 1,426.4)	(-781.7 575.3)	(-754.7 527.8)
<i>80% Confidence Interval</i>	(-1,295.8 1,088.4)	(-631.9 425.5)	(-613.1 386.1)
<i>P-Value</i>	0.911	0.802	0.771
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	-374.17	-85.27	-264.52
<i>90% Confidence Interval</i>	(-1,760.0 1,011.6)	(-700.4 529.9)	(-845.8 316.7)
<i>80% Confidence Interval</i>	(-1,453.9 705.6)	(-564.5 394.0)	(-717.4 188.4)
<i>P-Value</i>	0.657	0.820	0.454
Hospital Days			
<i>Difference-in-Difference</i>	-2,353.79	-1,009.92	-1,546.60
<i>90% Confidence Interval</i>	(-13,301.7 8,594.1)	(-6,026.3 4,006.5)	(-6,181.9 3,088.7)
<i>80% Confidence Interval</i>	(-10,883.6 6,176.1)	(-4,918.4 2,898.5)	(-5,158.1 2,064.9)
<i>P-Value</i>	0.724	0.741	0.583

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015

Appendix Table C-13: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio ITT Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	82,709	82,709	77,652
Inpatient Admissions			
<i>Difference-in-Difference</i>	-247.64	-83.27	-19.27
<i>90% Confidence Interval</i>	(-1,785.6 1,290.3)	(-772.5 605.9)	(-645.8 607.2)
<i>80% Confidence Interval</i>	(-1,445.9 950.6)	(-620.2 453.7)	(-507.4 468.9)
<i>P-Value</i>	0.791	0.842	0.960
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	-522.21	-96.75	-190.06
<i>90% Confidence Interval</i>	(-1,905.7 861.3)	(-718.2 524.7)	(-753.9 373.8)
<i>80% Confidence Interval</i>	(-1,600.2 555.7)	(-581.0 387.5)	(-629.4 249.3)
<i>P-Value</i>	0.535	0.798	0.579
Hospital Days			
<i>Difference-in-Difference</i>	-536.10	580.98	-102.38
<i>90% Confidence Interval</i>	(-11,681.2 10,609.0)	(-4,501.8 5,663.8)	(-4,688.6 4,483.9)
<i>80% Confidence Interval</i>	(-9,219.6 8,147.4)	(-3,379.1 4,541.1)	(-3,675.6 3,470.9)
<i>P-Value</i>	0.937	0.851	0.971

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015

Appendix Table C-14: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas ITT Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	48,932	48,932
Inpatient Surgeries		
<i>Difference-in-Difference</i>	114.13	134.13
<i>90% Confidence Interval</i>	(-116.3 344.6)	(-39.9 308.2)
<i>80% Confidence Interval</i>	(-65.4 293.7)	(-1.5 269.7)
<i>P-Value</i>	0.415	0.205
Surgical Hospital Days		
<i>Difference-in-Difference</i>	655.26	445.67
<i>90% Confidence Interval</i>	(-1,410.7 2,721.3)	(-1,128.0 2,019.3)

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>80% Confidence Interval</i>	(-954.4 2,264.9)	(-780.4 1,671.8)
<i>P-Value</i>	0.602	0.641
Inpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	6.62	9.97
<i>90% Confidence Interval</i>	(-104.2 117.4)	(-73.2 93.1)
<i>80% Confidence Interval</i>	(-79.7 93.0)	(-54.8 74.8)
<i>P-Value</i>	0.922	0.844
Preference Sensitive Orthopedic Surgery Hospital Days		
<i>Difference-in-Difference</i>	-236.91	-117.82
<i>90% Confidence Interval</i>	(-814.8 341.0)	(-547.1 311.4)
<i>80% Confidence Interval</i>	(-687.2 213.3)	(-452.3 216.6)
<i>P-Value</i>	0.500	0.652
Inpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	69.51	86.78**
<i>90% Confidence Interval</i>	(-9.6 148.6)	(27.3 146.3)
<i>80% Confidence Interval</i>	(7.9 131.1)	(40.4 133.1)
<i>P-Value</i>	0.148	0.016
Inpatient Preference Sensitive Cardiac Surgical Hospital Days		
<i>Difference-in-Difference</i>	279.48	329.25
<i>90% Confidence Interval</i>	(-429.5 988.5)	(-251.6 910.1)
<i>80% Confidence Interval</i>	(-272.9 831.9)	(-123.3 781.8)
<i>P-Value</i>	0.517	0.351

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-15: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas ITT Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	48,933	48,933
Inpatient Surgeries		
<i>Difference-in-Difference</i>	157.68	183.75
<i>90% Confidence Interval</i>	(-99.2 414.5)	(-10.8 378.3)

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>80% Confidence Interval</i>	(-42.5 357.8)	(32.2 335.3)
<i>P-Value</i>	0.313	0.120
Surgical Hospital Days		
<i>Difference-in-Difference</i>	719.81	726.53
<i>90% Confidence Interval</i>	(-1,967.6 3,407.2)	(-1,321.2 2,774.3)
<i>80% Confidence Interval</i>	(-1,374.0 2,813.7)	(-868.9 2,322.0)
<i>P-Value</i>	0.660	0.560
Inpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	-48.90	-36.21
<i>90% Confidence Interval</i>	(-172.4 74.6)	(-129.2 56.7)
<i>80% Confidence Interval</i>	(-145.1 47.3)	(-108.6 36.2)
<i>P-Value</i>	0.515	0.522
Preference Sensitive Orthopedic Surgery Hospital Days		
<i>Difference-in-Difference</i>	-522.23	-348.80
<i>90% Confidence Interval</i>	(-1,170.7 126.3)	(-841.2 143.6)
<i>80% Confidence Interval</i>	(-1,027.5 -17.0)	(-732.5 34.9)
<i>P-Value</i>	0.185	0.244
Inpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	108.95*	103.65**
<i>90% Confidence Interval</i>	(17.2 200.6)	(34.3 173.0)
<i>80% Confidence Interval</i>	(37.5 180.4)	(49.6 157.7)
<i>P-Value</i>	0.051	0.014
Inpatient Preference Sensitive Cardiac Surgical Hospital Days		
<i>Difference-in-Difference</i>	729.29	528.38
<i>90% Confidence Interval</i>	(-115.1 1,573.6)	(-139.7 1,196.5)
<i>80% Confidence Interval</i>	(71.4 1,387.1)	(7.9 1,048.9)
<i>P-Value</i>	0.155	0.193

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-16: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas ITT Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	48,932	48,932
Inpatient Admissions		
<i>Difference-in-Difference</i>	236.87	24.18
<i>90% Confidence Interval</i>	(-253.1 726.8)	(-350.2 398.5)
<i>80% Confidence Interval</i>	(-144.8 618.6)	(-267.5 315.8)
<i>P-Value</i>	0.426	0.915
Unplanned Inpatient Admissions		
<i>Difference-in-Difference</i>	113.56	-58.12
<i>90% Confidence Interval</i>	(-329.2 556.3)	(-396.8 280.5)
<i>80% Confidence Interval</i>	(-231.4 458.5)	(-322.0 205.7)
<i>P-Value</i>	0.673	0.778
Hospital Days		
<i>Difference-in-Difference</i>	1,448.59	-470.97
<i>90% Confidence Interval</i>	(-2,444.8 5,342.0)	(-3,481.3 2,539.3)
<i>80% Confidence Interval</i>	(-1,584.8 4,482.0)	(-2,816.4 1,874.4)
<i>P-Value</i>	0.541	0.797

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-17: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas ITT Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	48,933	48,933
Inpatient Admissions		
<i>Difference-in-Difference</i>	496.54	239.39
<i>90% Confidence Interval</i>	(-114.5 1,107.6)	(-231.7 710.4)
<i>80% Confidence Interval</i>	(20.4 972.6)	(-127.6 606.4)
<i>P-Value</i>	0.181	0.403
Unplanned Inpatient Admissions		
<i>Difference-in-Difference</i>	472.91	220.87
<i>90% Confidence Interval</i>	(-89.8 1,035.6)	(-212.7 654.5)
<i>80% Confidence Interval</i>	(34.5 911.3)	(-117.0 558.7)
<i>P-Value</i>	0.167	0.402

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
Hospital Days		
<i>Difference-in-Difference</i>	904.80	-1,331.98
<i>90% Confidence Interval</i>	(-3,882.7 5,692.3)	(-5,037.5 2,373.5)
<i>80% Confidence Interval</i>	(-2,825.3 4,634.9)	(-4,219.0 1,555.1)
<i>P-Value</i>	0.756	0.554

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-18: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA IV Analysis Ohio Cohort, IDR MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	3,572	3,572	3,488
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-383.34	-277.59	-95.75
<i>90% Confidence Interval</i>	(-1,150.7 384.1)	(-606.1 51.0)	(-417.6 226.1)
<i>80% Confidence Interval</i>	(-981.2 214.6)	(-533.6 -21.6)	(-346.5 155.0)
<i>P-Value</i>	0.411	0.165	0.625
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-2,495.56	-1,613.30	-1,105.73
<i>90% Confidence Interval</i>	(-8,529.6 3,538.5)	(-4,435.2 1,208.6)	(-3,611.0 1,399.5)
<i>80% Confidence Interval</i>	(-7,196.8 2,205.7)	(-3,811.9 585.3)	(-3,057.6 846.2)
<i>P-Value</i>	0.496	0.347	0.468
Inpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	142.17	28.56	85.69
<i>90% Confidence Interval</i>	(-235.6 520.0)	(-134.1 191.2)	(-72.6 243.9)
<i>80% Confidence Interval</i>	(-152.2 436.5)	(-98.1 155.3)	(-37.6 209.0)
<i>P-Value</i>	0.536	0.773	0.373
Preference Sensitive Orthopedic Surgery Hospital Days			
<i>Difference-in-Difference</i>	171.30	150.92	134.40
<i>90% Confidence Interval</i>	(-1,316.1 1,658.7)	(-490.8 792.7)	(-485.7 754.5)
<i>80% Confidence Interval</i>	(-987.6 1,330.1)	(-349.1 650.9)	(-348.7 617.5)
<i>P-Value</i>	0.850	0.699	0.721
Inpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	218.79	61.45	55.60

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>90% Confidence Interval</i>	(-56.7 494.3)	(-55.9 178.8)	(-59.5 170.7)
<i>80% Confidence Interval</i>	(4.1 433.5)	(-30.0 152.9)	(-34.1 145.3)
<i>P-Value</i>	0.192	0.389	0.427
Inpatient Preference Sensitive Cardiac Surgical Hospital Days			
<i>Difference-in-Difference</i>	1,455.91	318.84	369.19
<i>90% Confidence Interval</i>	(-631.5 3,543.3)	(-578.7 1,216.4)	(-512.3 1,250.7)
<i>80% Confidence Interval</i>	(-170.5 3,082.3)	(-380.5 1,018.2)	(-317.6 1,056.0)
<i>P-Value</i>	0.251	0.559	0.491

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Appendix Table C-19: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio IV Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participants</i>	3,571	3,571	3,487
Inpatient Surgeries			
<i>Difference-in-Difference</i>	-582.70	-356.78*	-136.08
<i>90% Confidence Interval</i>	(-1,352.3 186.9)	(-694.5 -19.1)	(-449.7 177.5)
<i>80% Confidence Interval</i>	(-1,182.3 16.9)	(-619.9 -93.7)	(-380.4 108.3)
<i>P-Value</i>	0.213	0.082	0.475
Surgical Hospital Days			
<i>Difference-in-Difference</i>	-3,580.91	-1,890.14	-1,497.12
<i>90% Confidence Interval</i>	(-9,890.1 2,728.3)	(-4,746.7 966.4)	(-4,093.4 1,099.1)
<i>80% Confidence Interval</i>	(-8,496.6 1,334.8)	(-4,115.8 335.5)	(-3,519.9 525.7)
<i>P-Value</i>	0.351	0.276	0.343
Inpatient Preference Sensitive Orthopedic Surgeries			
<i>Difference-in-Difference</i>	60.85	7.29	65.47
<i>90% Confidence Interval</i>	(-300.6 422.3)	(-152.1 166.7)	(-81.1 212.0)
<i>80% Confidence Interval</i>	(-220.8 342.5)	(-116.9 131.5)	(-48.7 179.7)
<i>P-Value</i>	0.782	0.940	0.462
Preference Sensitive Orthopedic Surgery Hospital Days			
<i>Difference-in-Difference</i>	-511.29	-146.01	-149.08

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>90% Confidence Interval</i>	(-1,926.2 903.6)	(-775.2 483.2)	(-722.7 424.5)
<i>80% Confidence Interval</i>	(-1,613.7 591.1)	(-636.2 344.2)	(-596.0 297.8)
<i>P-Value</i>	0.552	0.703	0.669
Inpatient Preference Sensitive Cardiac Surgeries			
<i>Difference-in-Difference</i>	138.98	25.61	29.15
<i>90% Confidence Interval</i>	(-140.7 418.7)	(-95.4 146.6)	(-84.4 142.7)
<i>80% Confidence Interval</i>	(-78.9 356.9)	(-68.6 119.9)	(-59.3 117.6)
<i>P-Value</i>	0.414	0.728	0.673
Inpatient Preference Sensitive Cardiac Surgical Hospital Days			
<i>Difference-in-Difference</i>	1,385.18	395.60	337.18
<i>90% Confidence Interval</i>	(-704.2 3,474.6)	(-527.1 1,318.3)	(-541.5 1,215.9)
<i>80% Confidence Interval</i>	(-242.7 3,013.1)	(-323.3 1,114.5)	(-347.4 1,021.8)
<i>P-Value</i>	0.276	0.481	0.528

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015.

Appendix Table C-20: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio IV Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	3,572	3,572	3,488
Inpatient Admissions			
<i>Difference-in-Difference</i>	-102.39	-108.12	-121.38
<i>90% Confidence Interval</i>	(-1,765.2 1,560.5)	(-823.3 607.1)	(-823.1 580.4)
<i>80% Confidence Interval</i>	(-1,398.0 1,193.2)	(-665.3 449.1)	(-668.1 425.4)
<i>P-Value</i>	0.919	0.804	0.776
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	-403.88	-88.75	-287.93
<i>90% Confidence Interval</i>	(-1,910.1 1,102.3)	(-737.1 559.6)	(-924.1 348.2)
<i>80% Confidence Interval</i>	(-1,577.4 769.6)	(-593.9 416.4)	(-783.6 207.7)
<i>P-Value</i>	0.659	0.822	0.457
Hospital Days			
<i>Difference-in-Difference</i>	-2,536.75	-1,085.01	-1,677.46
<i>90% Confidence Interval</i>	(-14,432.3 9,358.8)	(-6,373.8 4,203.8)	(-6,751.0 3,396.1)

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>80% Confidence Interval</i>	(-11,804.9 6,731.4)	(-5,205.7 3,035.7)	(-5,630.4 2,275.5)
<i>P-Value</i>	0.726	0.736	0.587

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015

Appendix Table C-21: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Ohio IV Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	3,571	3,571	3,487
Inpatient Admissions			
<i>Difference-in-Difference</i>	-270.32	-88.24	-18.20
<i>90% Confidence Interval</i>	(-1,940.5 1,399.9)	(-814.3 637.8)	(-703.7 667.3)
<i>80% Confidence Interval</i>	(-1,571.6 1,031.0)	(-653.9 477.4)	(-552.3 515.9)
<i>P-Value</i>	0.790	0.842	0.965
Unplanned Inpatient Admissions			
<i>Difference-in-Difference</i>	-574.96	-102.53	-206.96
<i>90% Confidence Interval</i>	(-2,077.6 927.7)	(-757.2 552.2)	(-823.9 410.0)
<i>80% Confidence Interval</i>	(-1,745.7 595.8)	(-612.6 407.6)	(-687.6 273.7)
<i>P-Value</i>	0.529	0.797	0.581
Hospital Days			
<i>Difference-in-Difference</i>	-649.35	597.31	-98.23
<i>90% Confidence Interval</i>	(-12,752.9 11,454.2)	(-4,758.2 5,952.8)	(-5,117.6 4,921.2)
<i>80% Confidence Interval</i>	(-10,079.6 8,780.9)	(-3,575.3 4,769.9)	(-4,009.0 3,812.5)
<i>P-Value</i>	0.930	0.854	0.974

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year period.

Note: Welvie delivered its HCIA intervention to Ohio MA beneficiaries from September 2012 to December 2015

Appendix Table C-22: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas IV Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	2,079	2,079

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
Inpatient Surgeries		
<i>Difference-in-Difference</i>	133.44	157.48
<i>90% Confidence Interval</i>	(-139.3 406.2)	(-47.1 362.1)
<i>80% Confidence Interval</i>	(-79.1 346.0)	(-1.9 316.9)
<i>P-Value</i>	0.421	0.205
Surgical Hospital Days		
<i>Difference-in-Difference</i>	781.02	530.27
<i>90% Confidence Interval</i>	(-1,667.6 3,229.6)	(-1,322.5 2,383.1)
<i>80% Confidence Interval</i>	(-1,126.7 2,688.8)	(-913.3 1,973.8)
<i>P-Value</i>	0.600	0.638
Inpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	8.75	12.73
<i>90% Confidence Interval</i>	(-122.4 139.9)	(-85.0 110.4)
<i>80% Confidence Interval</i>	(-93.4 110.9)	(-63.4 88.9)
<i>P-Value</i>	0.913	0.830
Preference Sensitive Orthopedic Surgery Hospital Days		
<i>Difference-in-Difference</i>	-276.44	-133.63
<i>90% Confidence Interval</i>	(-961.1 408.2)	(-638.5 371.2)
<i>80% Confidence Interval</i>	(-809.9 257.0)	(-527.0 259.7)
<i>P-Value</i>	0.507	0.663
Inpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	81.34	102.05**
<i>90% Confidence Interval</i>	(-12.2 174.9)	(32.2 171.9)
<i>80% Confidence Interval</i>	(8.4 154.2)	(47.6 156.5)
<i>P-Value</i>	0.153	0.016
Inpatient Preference Sensitive Cardiac Surgical Hospital Days		
<i>Difference-in-Difference</i>	326.84	386.61
<i>90% Confidence Interval</i>	(-512.9 1,166.6)	(-298.3 1,071.5)
<i>80% Confidence Interval</i>	(-327.4 981.1)	(-147.0 920.2)
<i>P-Value</i>	0.522	0.353

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-23: Aggregate Surgery-Related Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas IV Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participants</i>	2,079	2,079
Inpatient Surgeries		
<i>Difference-in-Difference</i>	184.93	216.26
<i>90% Confidence Interval</i>	(-118.9 488.8)	(-12.3 444.8)
<i>80% Confidence Interval</i>	(-51.8 421.7)	(38.2 394.3)
<i>P-Value</i>	0.317	0.120
Surgical Hospital Days		
<i>Difference-in-Difference</i>	858.44	867.31
<i>90% Confidence Interval</i>	(-2,322.0 4,038.9)	(-1,540.1 3,274.7)
<i>80% Confidence Interval</i>	(-1,619.6 3,336.4)	(-1,008.4 2,743.0)
<i>P-Value</i>	0.657	0.553
Inpatient Preference Sensitive Orthopedic Surgeries		
<i>Difference-in-Difference</i>	-56.68	-41.51
<i>90% Confidence Interval</i>	(-202.7 89.4)	(-150.7 67.7)
<i>80% Confidence Interval</i>	(-170.5 57.1)	(-126.6 43.5)
<i>P-Value</i>	0.523	0.532
Preference Sensitive Orthopedic Surgery Hospital Days		
<i>Difference-in-Difference</i>	-612.45	-404.41
<i>90% Confidence Interval</i>	(-1,379.7 154.8)	(-983.0 174.2)
<i>80% Confidence Interval</i>	(-1,210.2 -14.6)	(-855.2 46.4)
<i>P-Value</i>	0.189	0.250
Inpatient Preference Sensitive Cardiac Surgeries		
<i>Difference-in-Difference</i>	128.45*	122.06**
<i>90% Confidence Interval</i>	(20.0 236.9)	(40.6 203.5)
<i>80% Confidence Interval</i>	(43.9 213.0)	(58.6 185.5)
<i>P-Value</i>	0.051	0.014
Inpatient Preference Sensitive Cardiac Surgical Hospital Days		
<i>Difference-in-Difference</i>	862.66	621.51
<i>90% Confidence Interval</i>	(-137.2 1,862.5)	(-165.3 1,408.3)
<i>80% Confidence Interval</i>	(83.7 1,641.7)	(8.5 1,234.5)
<i>P-Value</i>	0.156	0.194

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-24: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas IV Analysis Cohort, IDR MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,079	2,079
Inpatient Admissions		
<i>Difference-in-Difference</i>	282.15	26.93
<i>90% Confidence Interval</i>	(-297.7 862.0)	(-413.2 467.0)
<i>80% Confidence Interval</i>	(-169.6 733.9)	(-316.0 369.8)
<i>P-Value</i>	0.423	0.920
Unplanned Inpatient Admissions		
<i>Difference-in-Difference</i>	135.72	-70.18
<i>90% Confidence Interval</i>	(-388.3 659.7)	(-468.3 328.0)
<i>80% Confidence Interval</i>	(-272.5 544.0)	(-380.4 240.0)
<i>P-Value</i>	0.670	0.772
Hospital Days		
<i>Difference-in-Difference</i>	1,741.22	-562.24
<i>90% Confidence Interval</i>	(-2,869.0 6,351.4)	(-4,103.9 2,979.4)
<i>80% Confidence Interval</i>	(-1,850.7 5,333.2)	(-3,321.6 2,197.2)
<i>P-Value</i>	0.534	0.794

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015.

Appendix Table C-25: Aggregate Resource Use: Cumulative and Yearly DiD Estimates, Welvie MA Texas IV Analysis Cohort, Welvie-Provided MA Data

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,079	2,079
Inpatient Admissions		
<i>Difference-in-Difference</i>	588.18	279.76
<i>90% Confidence Interval</i>	(-134.8 1,311.1)	(-274.0 833.5)
<i>80% Confidence Interval</i>	(24.9 1,151.4)	(-151.7 711.2)
<i>P-Value</i>	0.181	0.406
Unplanned Inpatient Admissions		
<i>Difference-in-Difference</i>	559.62	257.43
<i>90% Confidence Interval</i>	(-106.2 1,225.4)	(-252.4 767.2)
<i>80% Confidence Interval</i>	(40.9 1,078.4)	(-139.8 654.6)

Measures	Full Intervention Period ^a (6 quarters)	Year 1 ^b
<i>P-Value</i>	0.167	0.406
Hospital Days		
<i>Difference-in-Difference</i>	1,117.68	-1,566.05
<i>90% Confidence Interval</i>	(-4,547.1 6,782.4)	(-5,922.6 2,790.5)
<i>80% Confidence Interval</i>	(-3,295.9 5,531.3)	(-4,960.4 1,828.3)
<i>P-Value</i>	0.746	0.554

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program.

Note: Welvie delivered its HCIA intervention to Texas MA beneficiaries from May 2014 to December 2015

C.4 Medical Expenditures

Expenditure results for MA Ohio and MA Texas beneficiaries derived from the IDR MA data and Welvie-provided MA data are presented in the tables below. Similar to health service resource use outcomes, the results from the analyses were generally similar between the two data sources in both the ITT and IV analyses.

Appendix Table C-26: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Ohio MA ITT Analysis Cohort, IDR MA Data

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	82,708	82,708	77,651
Total Medical Expenditures	-11,892,299	-7,567,377	-5,768,114
<i>90% Confidence Interval</i>	(-38,727,624 14,943,027)	(-19,626,989 4,492,235)	(-17,011,219 5,474,992)
<i>80% Confidence Interval</i>	(-32,800,453 9,015,856)	(-16,963,359 1,828,604)	(-14,527,933 2,991,705)
<i>P-Value</i>	0.466	0.302	0.399
Inpatient Expenditures	-4,465,610	-2,722,679	-2,002,728
<i>90% Confidence Interval</i>	(-22,285,228 13,354,007)	(-10,812,079 5,366,720)	(-9,447,941 5,442,485)
<i>80% Confidence Interval</i>	(-18,349,374 9,418,153)	(-9,025,357 3,579,999)	(-7,803,502 3,798,046)
<i>P-Value</i>	0.680	0.580	0.658
Outpatient ER Expenditures	247,089.9	-302,108.4	310,331.6
<i>90% Confidence Interval</i>	(-1,769,704.8 2,263,884.7)	(-1,188,155.6 583,938.9)	(-566,105.8 1,186,769.0)
<i>80% Confidence Interval</i>	(-1,324,251.4 1,818,431.2)	(-992,452.6 388,235.9)	(-372,525.3 993,188.5)
<i>P-Value</i>	0.840	0.575	0.560
Outpatient Non-ER Expenditures	-4,704,622.8	-3,210,702.5	-2,138,712.5
<i>90% Confidence Interval</i>	(-12,131,953 2,722,707.5)	(-6,467,116 45,710.7)	(-5,192,348 914,923.2)
<i>80% Confidence Interval</i>	(-10,491,464 1,082,218.4)	(-5,747,865 -673,539.7)	(-4,517,886 240,460.7)
<i>P-Value</i>	0.297	0.105	0.249
Physician and Ancillary Service Expenditures	-233,816.7	-671,975.7	-773,418.7
<i>90% Confidence Interval</i>	(-7,299,759.5 6,832,126)	(-3,792,396.6 2,448,445)	(-3,736,037.9 2,189,201)
<i>80% Confidence Interval</i>	(-5,739,090.8 5,271,457)	(-3,103,183.1 1,759,232)	(-3,081,678.3 1,534,841)
<i>P-Value</i>	0.957	0.723	0.668
Skilled Nursing Facility Expenditures	-3,211,355.9	-758,396.4	-1,944,176.1
<i>90% Confidence Interval</i>	(-8,088,258 1,665,546.6)	(-2,883,082 1,366,289.4)	(-3,946,116 57,764.1)

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>80% Confidence Interval</i>	(-7,011,087 588,375.5)	(-2,413,799 897,005.9)	(-3,503,944 -384,408.4)
<i>P-Value</i>	0.279	0.557	0.110
Home Health Expenditures	-295,707.5	-361,425.1	324,145.7
<i>90% Confidence Interval</i>	(-2,031,329.3 1,439,914.2)	(-1,163,977.2 441,126.9)	(-409,971.9 1,058,263.3)
<i>80% Confidence Interval</i>	(-1,647,979.1 1,056,564.0)	(-986,715.9 263,865.7)	(-247,825.9 896,117.3)
<i>P-Value</i>	0.779	0.459	0.468
Inpatient Surgery Expenditures	-7,357,036.3	-3,641,439.7	-4,283,309.1
<i>90% Confidence Interval</i>	(-19,621,973 4,907,900.2)	(-9,244,909 1,962,029.4)	(-9,419,297 852,678.7)
<i>80% Confidence Interval</i>	(-16,912,992 2,198,919.5)	(-8,007,260 724,380.1)	(-8,284,901 -281,717.0)
<i>P-Value</i>	0.324	0.285	0.170
Episode-Based Inpatient Surgery Expenditures	-6,239,986.7	-3,402,867.5	-3,765,431.5
<i>90% Confidence Interval</i>	(-18,697,505 6,217,532)	(-9,099,792 2,294,057)	(-8,986,875 1,456,012)
<i>80% Confidence Interval</i>	(-15,945,988 3,466,015.1)	(-7,841,501 1,035,765.9)	(-7,833,604 302,741.3)
<i>P-Value</i>	0.410	0.326	0.236
Inpatient PS Orthopedic Surgery Expenditures	604,982.6	246,131.0	304,838.5
<i>90% Confidence Interval</i>	(-3,940,628 5,150,593)	(-1,773,923 2,266,185)	(-1,626,077 2,235,754)
<i>80% Confidence Interval</i>	(-2,936,630 4,146,595)	(-1,327,749 1,820,011)	(-1,199,592 1,809,269)
<i>P-Value</i>	0.827	0.841	0.795
Inpatient PS Cardiac Surgery Expenditures	4,771,731.8	1,349,286.2	919,329.6
<i>90% Confidence Interval</i>	(-801,866.4 10,345,330)	(-1,115,628.7 3,814,201)	(-1,436,952.3 3,275,612)
<i>80% Confidence Interval</i>	(429,185.3 9,114,278)	(-571,198.1 3,269,771)	(-916,515.7 2,755,175)
<i>P-Value</i>	0.159	0.368	0.521

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-27: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Ohio MA ITT Analysis Cohort, Welvie-Provided MA Data

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	82,709	82,709	77,652
Total Medical Expenditures	-8,919,682	-6,448,181	-1,291,349
<i>90% Confidence Interval</i>	(-36,899,558 19,060,193)	(-19,153,999 6,257,636)	(-12,757,337 10,174,639)
<i>80% Confidence Interval</i>	(-30,719,588 12,880,223)	(-16,347,640 3,451,277)	(-10,224,822 7,642,123)
<i>P-Value</i>	0.600	0.404	0.853
Inpatient Expenditures	-3,301,462.2	-2,173,226.7	876,433.1
<i>90% Confidence Interval</i>	(-21,824,088 15,221,164)	(-10,645,023 6,298,570)	(-6,665,528 8,418,395)
<i>80% Confidence Interval</i>	(-17,732,959 11,130,035)	(-8,773,841 4,427,387)	(-4,999,720 6,752,587)
<i>P-Value</i>	0.769	0.673	0.848
Outpatient ER Expenditures	-237,699.4	-345,374.9	-129,445.2
<i>90% Confidence Interval</i>	(-2,378,704 1,903,305.2)	(-1,303,683 612,933.1)	(-1,048,457 789,566.4)
<i>80% Confidence Interval</i>	(-1,905,816.1 1,430,417.3)	(-1,092,019.5 401,269.7)	(-845,472.8 586,582.5)
<i>P-Value</i>	0.855	0.553	0.817
Outpatient Non-ER Expenditures	-3,952,254.4	-3,148,702.4	-939,889.8
<i>90% Confidence Interval</i>	(-11,127,036 3,222,527.4)	(-6,334,990 37,585.6)	(-3,837,258 1,957,478.2)
<i>80% Confidence Interval</i>	(-9,542,328 1,637,819.2)	(-5,631,229 -666,176.1)	(-3,197,310 1,317,530.9)
<i>P-Value</i>	0.365	0.104	0.594
Physician and Ancillary Service Expenditures	3,321,180.7	644,640.9	927,991.7
<i>90% Confidence Interval</i>	(-4,199,888.7 10,842,250)	(-2,728,234.3 4,017,516)	(-2,186,634.2 4,042,618)
<i>80% Confidence Interval</i>	(-2,538,695.3 9,181,057)	(-1,983,260.7 3,272,543)	(-1,498,700.6 3,354,684)
<i>P-Value</i>	0.468	0.753	0.624
Skilled Nursing Facility Expenditures	-4,495,997	-1,048,029	-2,319,384*
<i>90% Confidence Interval</i>	(-9,626,256 634,261.3)	(-3,282,051 1,185,992.1)	(-4,373,067 -265,700.5)
<i>80% Confidence Interval</i>	(-8,493,126 -498,869.1)	(-2,788,618 692,559.4)	(-3,919,466 -719,301.6)
<i>P-Value</i>	0.149	0.440	0.063
Home Health Expenditures	-460,467.2	-449,711.1	233,082.1
<i>90% Confidence Interval</i>	(-2,511,567.3 1,590,632.9)	(-1,366,509.8 467,087.7)	(-623,259.2 1,089,423.4)
<i>80% Confidence Interval</i>	(-2,058,536.8 1,137,602.4)	(-1,164,014.7 264,592.5)	(-434,117.4 900,281.6)

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>P-Value</i>	0.712	0.420	0.654
Inpatient Surgery Expenditures	-6,925,373.7	-3,959,181.5	-2,391,210.5
<i>90% Confidence Interval</i>	(-19,671,056 5,820,308)	(-9,918,583 2,000,220)	(-7,604,206 2,821,785)
<i>80% Confidence Interval</i>	(-16,855,892 3,005,144.3)	(-8,602,318 683,955.3)	(-6,452,802 1,670,380.7)
<i>P-Value</i>	0.371	0.274	0.451
Episode-Based Inpatient Surgery Expenditures	-6,925,373.7	-3,959,181.5	-2,391,210.5
<i>90% Confidence Interval</i>	(-19,671,056 5,820,308)	(-9,918,583 2,000,220)	(-7,604,206 2,821,785)
<i>80% Confidence Interval</i>	(-16,855,892 3,005,144.3)	(-8,602,318 683,955.3)	(-6,452,802 1,670,380.7)
<i>P-Value</i>	0.371	0.274	0.451
Inpatient PS Orthopedic Surgery Expenditures	1,992,828.7	549,206.3	1,231,916.5
<i>90% Confidence Interval</i>	(-2,269,212.0 6,254,869)	(-1,405,935.0 2,504,348)	(-506,120.6 2,969,954)
<i>80% Confidence Interval</i>	(-1,327,846.7 5,313,504)	(-974,099.1 2,072,512)	(-122,236.9 2,586,070)
<i>P-Value</i>	0.442	0.644	0.244
Inpatient PS Cardiac Surgery Expenditures	5,188,276	1,572,882	1,415,596
<i>90% Confidence Interval</i>	(-497,421.2 10,873,972)	(-997,432.1 4,143,197)	(-912,998.8 3,744,190)
<i>80% Confidence Interval</i>	(758,389.9 9,618,161)	(-429,721.7 3,575,486)	(-398,677.6 3,229,869)
<i>P-Value</i>	0.133	0.314	0.317

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-28: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Texas MA ITT Analysis Cohort, IDR MA Data

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
<i>Number of Participant Beneficiaries</i>	48,932	48,932
Total Medical Expenditures	7,271,881	2,793,054
<i>90% Confidence Interval</i>	(-1,626,740.4 16,170,502)	(-3,987,483.5 9,573,591)
<i>80% Confidence Interval</i>	(338,715.6 14,205,046)	(-2,489,852.8 8,075,961)
<i>P-Value</i>	0.179	0.498

Measures (2011 USD)	Full Intervention Period^a	Total Year 1^b
Inpatient Expenditures	4,364,099	1,365,919
<i>90% Confidence Interval</i>	(-1,686,848.7 10,415,048)	(-3,280,602.3 6,012,441)
<i>80% Confidence Interval</i>	(-350,363.8 9,078,563)	(-2,254,315.9 4,986,155)
<i>P-Value</i>	0.235	0.629
Outpatient ER Expenditures	-165,336.8	-273,826.3
<i>90% Confidence Interval</i>	(-968,612.9 637,939.4)	(-882,414.2 334,761.7)
<i>80% Confidence Interval</i>	(-791,191.7 460,518.2)	(-747,994.2 200,341.6)
<i>P-Value</i>	0.735	0.459
Outpatient Non-ER Expenditures	1,970,796	786,161
<i>90% Confidence Interval</i>	(-515,920.2 4,457,512)	(-1,085,162.5 2,657,485)
<i>80% Confidence Interval</i>	(33,325.7 3,908,266)	(-671,839.6 2,244,162)
<i>P-Value</i>	0.192	0.490
Physician and Ancillary Service Expenditures	2,548,683.1	1,839,975.4
<i>90% Confidence Interval</i>	(-703,074.7 5,800,441)	(-618,618.4 4,298,569)
<i>80% Confidence Interval</i>	(15,147.4 5,082,219)	(-75,583.9 3,755,535)
<i>P-Value</i>	0.197	0.218
Skilled Nursing Facility Expenditures	-678,547.4	-404,150.5
<i>90% Confidence Interval</i>	(-1,375,468.6 18,373.7)	(-935,055.6 126,754.5)
<i>80% Confidence Interval</i>	(-1,221,538.2 -135,556.6)	(-817,793.5 9,492.5)
<i>P-Value</i>	0.109	0.211
Home Health Expenditures	-590,662.8*	-378,323.9
<i>90% Confidence Interval</i>	(-1,148,486.6 -32,838.9)	(-794,404.3 37,756.5)
<i>80% Confidence Interval</i>	(-1,025,279.0 -156,046.6)	(-702,503.8 -54,144.0)
<i>P-Value</i>	0.082	0.135
Inpatient Surgery Expenditures	3,948,586	3,214,088
<i>90% Confidence Interval</i>	(-447,732.0 8,344,903)	(-151,738.8 6,579,914)
<i>80% Confidence Interval</i>	(523,291.3 7,373,880)	(591,677.9 5,836,497)
<i>P-Value</i>	0.140	0.116
Episode-Based Inpatient Surgery Expenditures	4,376,418.1	3,494,033.8*
<i>90% Confidence Interval</i>	(-108,724.7 8,861,561)	(57,294.3 6,930,773)
<i>80% Confidence Interval</i>	(881,917.6 7,870,919)	(816,373.7 6,171,694)
<i>P-Value</i>	0.108	0.094
Inpatient PS Orthopedic Surgery Expenditures	232,747.6	351,908.2
<i>90% Confidence Interval</i>	(-1,388,932.7 1,854,428.0)	(-870,578.4 1,574,394.8)
<i>80% Confidence Interval</i>	(-1,030,749.0 1,496,244.3)	(-600,565.4 1,304,381.8)
<i>P-Value</i>	0.813	0.636

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
Inpatient PS Cardiac Surgery Expenditures	909,466.4	1,279,164.2
<i>90% Confidence Interval</i>	(-1,132,415.9 2,951,348.8)	(-400,757.9 2,959,086.4)
<i>80% Confidence Interval</i>	(-681,421.3 2,500,354.2)	(-29,710.2 2,588,038.7)
<i>P-Value</i>	0.464	0.210

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-29: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Texas MA ITT Analysis Cohort, Welvie-Provided MA Data

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
<i>Number of Participant Beneficiaries</i>	48,933	48,933
Total Medical Expenditures	5,196,721.6	-985,205.4
<i>90% Confidence Interval</i>	(-6,148,871 16,542,314)	(-9,754,397 7,783,986)
<i>80% Confidence Interval</i>	(-3,642,948 14,036,391)	(-7,817,528 5,847,118)
<i>P-Value</i>	0.451	0.853
Inpatient Expenditures	4,339,011.5	-220,530.3
<i>90% Confidence Interval</i>	(-3,709,745 12,387,768)	(-6,501,830 6,060,770)
<i>80% Confidence Interval</i>	(-1,932,000 10,610,023)	(-5,114,467 4,673,407)
<i>P-Value</i>	0.375	0.954
Outpatient ER Expenditures	262,076.4	-157,316.3
<i>90% Confidence Interval</i>	(-657,395.4 1,181,548.1)	(-858,002.4 543,369.8)
<i>80% Confidence Interval</i>	(-454,309.9 978,462.6)	(-703,240.5 388,607.9)
<i>P-Value</i>	0.639	0.712
Outpatient Non-ER Expenditures	1,763,188.4	575,733.4
<i>90% Confidence Interval</i>	(-885,435.8 4,411,813)	(-1,432,727.2 2,584,194)
<i>80% Confidence Interval</i>	(-300,428.9 3,826,806)	(-989,114.6 2,140,581)
<i>P-Value</i>	0.274	0.637
Physician and Ancillary Service Expenditures	1,338,455	1,203,009
<i>90% Confidence Interval</i>	(-1,609,204 4,286,114)	(-1,046,459 3,452,476)
<i>80% Confidence Interval</i>	(-958,148.7 3,635,059)	(-549,614.2 2,955,631)
<i>P-Value</i>	0.455	0.379

Measures (2011 USD)	Full Intervention Period ^a	Total Year 1 ^b
Skilled Nursing Facility Expenditures	-1,769,405	-1,706,290**
90% Confidence Interval	(-3,574,587 35,777.5)	(-3,100,883 -311,698.1)
80% Confidence Interval	(-3,175,873 -362,936.7)	(-2,792,856 -619,724.4)
P-Value	0.107	0.044
Home Health Expenditures	-572,836.0	-599,980.3
90% Confidence Interval	(-2,412,417 1,266,745.2)	(-2,012,559 812,598.6)
80% Confidence Interval	(-2,006,105.3 860,433.3)	(-1,700,560.1 500,599.5)
P-Value	0.609	0.485
Inpatient Surgery Expenditures	4,491,532	2,915,369
90% Confidence Interval	(-1,364,941 10,348,005)	(-1,616,021 7,446,760)
80% Confidence Interval	(-71,409.9 9,054,474)	(-615,164.2 6,445,903)
P-Value	0.207	0.290
Episode-Based Inpatient Surgery Expenditures	4,491,532	2,915,369
90% Confidence Interval	(-1,364,941 10,348,005)	(-1,616,021 7,446,760)
80% Confidence Interval	(-71,409.9 9,054,474)	(-615,164.2 6,445,903)
P-Value	0.207	0.290
Inpatient PS Orthopedic Surgery Expenditures	-414,166.5	-360,707.9
90% Confidence Interval	(-2,362,818 1,534,485)	(-1,838,759 1,117,343)
80% Confidence Interval	(-1,932,415.6 1,104,082.7)	(-1,512,299.1 790,883.3)
P-Value	0.727	0.688
Inpatient PS Cardiac Surgery Expenditures	2,430,680*	1,825,675
90% Confidence Interval	(58,876.7 4,802,484)	(-76,222.3 3,727,573)
80% Confidence Interval	(582,741.6 4,278,619)	(343,853.6 3,307,497)
P-Value	0.092	0.114

* Statistically significant at the ten percent level.

**Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-30: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Ohio MA IV Analysis Cohort, IDR MA Data

Measures (2011 USD per Person)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
Number of Participant Beneficiaries	3,572	3,572	3,488

Measures (2011 USD per Person)	Full Intervention Period^a (11 quarters)	Year 1^b	Year 2
Total Medical Expenditures	-12,613,321	-8,009,013	-6,222,223
<i>90% Confidence Interval</i>	(-41,766,834 16,540,192)	(-20,719,980 4,701,954)	(-18,526,682 6,082,237)
<i>80% Confidence Interval</i>	(-35,327,640 10,100,998)	(-17,912,484 1,894,458)	(-15,808,972 3,364,526)
<i>P-Value</i>	0.477	0.300	0.406
Inpatient Expenditures	-4,743,292.3	-2,884,792.4	-2,147,031.1
<i>90% Confidence Interval</i>	(-24,101,449 14,614,864)	(-11,411,082 5,641,497)	(-10,294,881 6,000,819)
<i>80% Confidence Interval</i>	(-19,825,775 10,339,190)	(-9,527,864 3,758,279)	(-8,495,249 4,201,187)
<i>P-Value</i>	0.687	0.578	0.665
Outpatient ER Expenditures	300,760.7	-312,256.8	343,533.7
<i>90% Confidence Interval</i>	(-1,892,515.3 2,494,036.6)	(-1,246,234.0 621,720.4)	(-616,420.7 1,303,488.1)
<i>80% Confidence Interval</i>	(-1,408,082.1 2,009,603.4)	(-1,039,944.6 415,431.0)	(-404,393.7 1,091,461.1)
<i>P-Value</i>	0.822	0.582	0.556
Outpatient Non-ER Expenditures	-4,987,151.6	-3,385,871.2	-2,323,737.8
<i>90% Confidence Interval</i>	(-13,057,272 3,082,969)	(-6,818,562 46,820)	(-5,666,586 1,019,110)
<i>80% Confidence Interval</i>	(-11,274,809 1,300,505.4)	(-6,060,377 - 711,365.3)	(-4,928,244 280,768.9)
<i>P-Value</i>	0.309	0.105	0.253
Physician and Ancillary Service Expenditures	-186,497.2	-716,612.3	-834,142.1
<i>90% Confidence Interval</i>	(-7,864,686 7,491,692)	(-4,005,547 2,572,322)	(-4,075,604 2,407,320)
<i>80% Confidence Interval</i>	(-6,168,789.2 5,795,795)	(-3,279,113.4 1,845,889)	(-3,359,656.0 1,691,372)
<i>P-Value</i>	0.968	0.720	0.672
Skilled Nursing Facility Expenditures	-3,501,319.2	-811,340.9	-2,118,432.6
<i>90% Confidence Interval</i>	(-8,797,399 1,794,760.5)	(-3,050,281 1,427,598.9)	(-4,308,829 71,964.1)
<i>80% Confidence Interval</i>	(-7,627,644 625,005.0)	(-2,555,762 933,079.9)	(-3,825,032 - 411,833.2)
<i>P-Value</i>	0.277	0.551	0.112
Home Health Expenditures	-312,725.3	-379,996.4	358,347.9
<i>90% Confidence Interval</i>	(-2,196,534.3 1,571,083.8)	(-1,226,103.8 466,111.0)	(-445,017.0 1,161,712.8)
<i>80% Confidence Interval</i>	(-1,780,453.7 1,155,003.2)	(-1,039,222.4 279,229.6)	(-267,576.2 984,272.0)
<i>P-Value</i>	0.785	0.460	0.463
Inpatient Surgery Expenditures	-7,864,514.7	-3,835,318.5	-4,663,496.0

Measures (2011 USD per Person)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>90% Confidence Interval</i>	(-21,190,165 5,461,135.0)	(-9,742,258 2,071,621.1)	(-10,283,835 956,842.5)
<i>80% Confidence Interval</i>	(-18,246,902 2,517,872.5)	(-8,437,581 766,943.7)	(-9,042,459 - 284,532.8)
<i>P-Value</i>	0.332	0.286	0.172
Episode-Based Inpatient Surgery Expenditures	-6,638,924	-3,582,285	-4,097,158
<i>90% Confidence Interval</i>	(-20,173,219 6,895,371)	(-9,587,791 2,423,222)	(-9,811,024 1,616,709)
<i>80% Confidence Interval</i>	(-17,183,872 3,906,024.2)	(-8,261,343 1,096,774.1)	(-8,548,991 354,675.8)
<i>P-Value</i>	0.420	0.327	0.238
Inpatient PS Orthopedic Surgery Expenditures	650,658.5	251,387.5	337,936.5
<i>90% Confidence Interval</i>	(-4,287,686 5,589,003)	(-1,876,888 2,379,663)	(-1,773,635 2,449,508)
<i>80% Confidence Interval</i>	(-3,196,944 4,498,261)	(-1,406,812 1,909,587)	(-1,307,248 1,983,121)
<i>P-Value</i>	0.828	0.846	0.792
Inpatient PS Cardiac Surgery Expenditures	5,238,749	1,399,018	1,019,059
<i>90% Confidence Interval</i>	(-818,015.4 11,295,513)	(-1,198,818.6 3,996,855)	(-1,559,236.9 3,597,355)
<i>80% Confidence Interval</i>	(519,754.0 9,957,743)	(-625,029.2 3,423,066)	(-989,763.5 3,027,882)
<i>P-Value</i>	0.155	0.376	0.516

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-31: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Ohio MA IV Analysis Cohort, Welvie-Provided MA Data

Measures (2011 USD per Person)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
<i>Number of Participant Beneficiaries</i>	3,571	3,571	3,487
Total Medical Expenditures	-9,523,321	-6,838,922	-1,353,219
<i>90% Confidence Interval</i>	(-39,896,214 20,849,571)	(-20,225,370 6,547,525)	(-13,898,871 11,192,434)
<i>80% Confidence Interval</i>	(-33,187,693 14,141,050)	(-17,268,679 3,590,834)	(-11,127,888 8,421,451)

Measures (2011 USD per Person)	Full Intervention Period^a (11 quarters)	Year 1^b	Year 2
<i>P-Value</i>	0.606	0.401	0.859
Inpatient Expenditures	-3,595,859.6	-2,315,232.9	981,291.6
<i>90% Confidence Interval</i>	(-23,706,903 16,515,184)	(-11,240,507 6,610,042)	(-7,271,253 9,233,836)
<i>80% Confidence Interval</i>	(-19,264,937 12,073,218)	(-9,269,164 4,638,699)	(-5,448,497 7,411,080)
<i>P-Value</i>	0.769	0.670	0.845
Outpatient ER Expenditures	-229,801.5	-360,298.3	-136,971.8
<i>90% Confidence Interval</i>	(-2,555,633.2 2,096,030.2)	(-1,370,367.6 649,771.1)	(-1,142,835.1 868,891.6)
<i>80% Confidence Interval</i>	(-2,041,922.1 1,582,319.2)	(-1,147,271.6 426,675.1)	(-920,668.1 646,724.6)
<i>P-Value</i>	0.871	0.557	0.823
Outpatient Non-ER Expenditures	-4,184,038.4	-3,317,041.2	-1,019,963.8
<i>90% Confidence Interval</i>	(-11,975,033 3,606,956.2)	(-6,675,701 41,618.8)	(-4,190,508 2,150,580.6)
<i>80% Confidence Interval</i>	(-10,254,221 1,886,143.9)	(-5,933,867 - 700,215.1)	(-3,490,224 1,450,296.2)
<i>P-Value</i>	0.377	0.104	0.597
Physician and Ancillary Service Expenditures	3,668,204.3	671,447.5	1,023,587.7
<i>90% Confidence Interval</i>	(-4,494,227.5 11,830,636)	(-2,881,885.6 4,224,781)	(-2,383,765.0 4,430,940)
<i>80% Confidence Interval</i>	(-2,691,375.1 10,027,784)	(-2,097,054.0 3,439,949)	(-1,631,176.3 3,678,352)
<i>P-Value</i>	0.460	0.756	0.621
Skilled Nursing Facility Expenditures	-4,920,035	-1,122,063	-2,525,562*
<i>90% Confidence Interval</i>	(-10,490,862 650,792.6)	(-3,475,372 1,231,245.4)	(-4,772,254 - 278,870.7)
<i>80% Confidence Interval</i>	(-9,260,423 - 579,647.1)	(-2,955,592 711,465.5)	(-4,276,023 - 775,101.9)
<i>P-Value</i>	0.146	0.433	0.064
Home Health Expenditures	-489,389.5	-472,416.0	258,187.8
<i>90% Confidence Interval</i>	(-2,717,825.2 1,739,046.2)	(-1,438,699.2 493,867.2)	(-678,720.2 1,195,095.8)
<i>80% Confidence Interval</i>	(-2,225,626.2 1,246,847.2)	(-1,225,274.3 280,442.3)	(-471,783.5 988,159.1)
<i>P-Value</i>	0.718	0.421	0.650
Inpatient Surgery Expenditures	-7,433,767.4	-4,183,789.9	-2,603,274.6
<i>90% Confidence Interval</i>	(-21,253,006 6,385,471)	(-10,462,596 2,095,016)	(-8,308,512 3,101,963)
<i>80% Confidence Interval</i>	(-18,200,723 3,333,188.3)	(-9,075,784 708,203.7)	(-7,048,385 1,841,835.6)
<i>P-Value</i>	0.376	0.273	0.453

Measures (2011 USD per Person)	Full Intervention Period ^a (11 quarters)	Year 1 ^b	Year 2
Episode-Based Inpatient Surgery Expenditures	-7,433,767.4	-4,183,789.9	-2,603,274.6
<i>90% Confidence Interval</i>	(-21,253,006 6,385,471)	(-10,462,596 2,095,016)	(-8,308,512 3,101,963)
<i>80% Confidence Interval</i>	(-18,200,723 3,333,188.3)	(-9,075,784 708,203.7)	(-7,048,385 1,841,835.6)
<i>P-Value</i>	0.376	0.273	0.453
Inpatient PS Orthopedic Surgery Expenditures	2,158,982.7	573,368.2	1,347,271.1
<i>90% Confidence Interval</i>	(-2,463,147.1 6,781,113)	(-1,485,481.6 2,632,218)	(-554,673.8 3,249,216)
<i>80% Confidence Interval</i>	(-1,442,248.2 5,760,214)	(-1,030,739.4 2,177,476)	(-134,587.5 2,829,130)
<i>P-Value</i>	0.442	0.647	0.244
Inpatient PS Cardiac Surgery Expenditures	5,665,357	1,631,270	1,557,536
<i>90% Confidence Interval</i>	(-502,215.6 11,832,930)	(-1,076,548.5 4,339,088)	(-990,864.0 4,105,936)
<i>80% Confidence Interval</i>	(860,028.4 10,470,686)	(-478,467.4 3,741,007)	(-427,993.9 3,543,066)
<i>P-Value</i>	0.131	0.322	0.315

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-32: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Texas MA IV Analysis Cohort, IDR MA Data

Measures (2011 USD per Person)	Full Intervention Period ^a (11 quarters)	Year 1 ^b
<i>Number of Participant Beneficiaries</i>	2,079	2,079
Total Medical Expenditures	8,645,790	3,272,818
<i>90% Confidence Interval</i>	(-1,890,034.9 19,181,615)	(-4,701,267.5 11,246,903)
<i>80% Confidence Interval</i>	(437,033.6 16,854,547)	(-2,940,015.6 9,485,651)
<i>P-Value</i>	0.177	0.500
Inpatient Expenditures	5,208,708	1,612,765
<i>90% Confidence Interval</i>	(-1,957,900 12,375,315)	(-3,855,205 7,080,734)
<i>80% Confidence Interval</i>	(-374,996.9 10,792,413)	(-2,647,483.7 5,873,013)
<i>P-Value</i>	0.232	0.628
Outpatient ER Expenditures	-194,011.2	-324,386.6
<i>90% Confidence Interval</i>	(-1,144,450.1 756,427.7)	(-1,039,578.8 390,805.7)

Measures (2011 USD per Person)	Full Intervention Period^a (11 quarters)	Year 1^b
<i>80% Confidence Interval</i>	(-934,524.8 546,502.4)	(-881,612.9 232,839.7)
<i>P-Value</i>	0.737	0.456
Outpatient Non-ER Expenditures	2,331,334.7	908,758.4
<i>90% Confidence Interval</i>	(-610,568.1 5,273,238)	(-1,289,283.3 3,106,800)
<i>80% Confidence Interval</i>	(39,215.7 4,623,454)	(-803,797.5 2,621,314)
<i>P-Value</i>	0.192	0.496
Physician and Ancillary Service Expenditures	3,013,259.0	2,162,906.4
<i>90% Confidence Interval</i>	(-834,567.2 6,861,085)	(-725,548.2 5,051,361)
<i>80% Confidence Interval</i>	(15,309.7 6,011,208)	(-87,569.6 4,413,382)
<i>P-Value</i>	0.198	0.218
Skilled Nursing Facility Expenditures	-803,059.8	-472,913.8
<i>90% Confidence Interval</i>	(-1,627,887.7 21,768.0)	(-1,097,008.3 151,180.7)
<i>80% Confidence Interval</i>	(-1,445,706.3 -160,413.3)	(-959,163.3 13,335.7)
<i>P-Value</i>	0.109	0.213
Home Health Expenditures	-703,749.0*	-448,884.4
<i>90% Confidence Interval</i>	(-1,363,913.1 -43,585.0)	(-937,624.7 39,855.8)
<i>80% Confidence Interval</i>	(-1,218,101.3 -189,396.7)	(-829,675.7 -68,093.2)
<i>P-Value</i>	0.080	0.131
Inpatient Surgery Expenditures	4,681,063.1	3,801,425.8
<i>90% Confidence Interval</i>	(-524,224.0 9,886,350)	(-158,249.6 7,761,101)
<i>80% Confidence Interval</i>	(625,478.0 8,736,648)	(716,331.7 6,886,520)
<i>P-Value</i>	0.139	0.114
Episode-Based Inpatient Surgery Expenditures	5,185,638	4,128,221*
<i>90% Confidence Interval</i>	(-124,766.6 10,496,043)	(85,143.8 8,171,297)
<i>80% Confidence Interval</i>	(1,048,153.0 9,323,123)	(978,146.1 7,278,295)
<i>P-Value</i>	0.108	0.093
Inpatient PS Orthopedic Surgery Expenditures	288,127.2	430,451.2
<i>90% Confidence Interval</i>	(-1,631,075 2,207,329.7)	(-1,006,566 1,867,468.5)
<i>80% Confidence Interval</i>	(-1,207,177.2 1,783,431.7)	(-689,169.2 1,550,071.7)
<i>P-Value</i>	0.805	0.622
Inpatient PS Cardiac Surgery Expenditures	1,058,036.3	1,501,406.8
<i>90% Confidence Interval</i>	(-1,358,211.7 3,474,284.3)	(-478,083.3 3,480,897.0)
<i>80% Confidence Interval</i>	(-824,530.3 2,940,602.8)	(-40,869.5 3,043,683.1)
<i>P-Value</i>	0.471	0.212

* Statistically significant at the ten percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

Appendix Table C-33: Aggregate Expenditures: Cumulative and Yearly DiD Estimates, Welvie Texas MA IV Analysis Cohort, Welvie-Provided MA Data

Measures (2011 USD per Person)	Full Intervention Period ^a (11 quarters)	Year 1 ^b
Number of Participant Beneficiaries	2,079	2,079
Total Medical Expenditures	6,224,272	-1,192,674
90% Confidence Interval	(-7,200,431 19,648,975)	(-11,504,051 9,118,703)
80% Confidence Interval	(-4,235,290 16,683,835)	(-9,226,557 6,841,209)
P-Value	0.446	0.849
Inpatient Expenditures	5,210,381	-258,980
90% Confidence Interval	(-4,314,186 14,734,948)	(-7,649,281 7,131,321)
80% Confidence Interval	(-2,210,476 12,631,238)	(-6,016,971 5,499,011)
P-Value	0.368	0.954
Outpatient ER Expenditures	314,256.0	-189,373.3
90% Confidence Interval	(-773,427.0 1,401,939.1)	(-1,012,586.5 633,839.8)
80% Confidence Interval	(-533,188.3 1,161,700.4)	(-830,761.8 452,015.1)
P-Value	0.635	0.705
Outpatient Non-ER Expenditures	2,086,005.4	659,849.2
90% Confidence Interval	(-1,046,180.4 5,218,191)	(-1,698,309.5 3,018,008)
80% Confidence Interval	(-354,368.3 4,526,379)	(-1,177,458.4 2,497,157)
P-Value	0.273	0.645
Physician and Ancillary Service Expenditures	1,576,368.4	1,414,385.4
90% Confidence Interval	(-1,910,738 5,063,475)	(-1,227,950 4,056,721)
80% Confidence Interval	(-1,140,533.9 4,293,271)	(-644,332.3 3,473,103)
P-Value	0.457	0.379
Skilled Nursing Facility Expenditures	-2,091,414.91	-2,015,321.66**
90% Confidence Interval	(-4,226,997 44,167.6)	(-3,653,585 -377,058.4)
80% Confidence Interval	(-3,755,307.1 -427,522.7)	(-3,291,738.5 -738,904.9)
P-Value	0.107	0.043
Home Health Expenditures	-675,937.58	-708,717.42
90% Confidence Interval	(-2,852,568.0 1,500,692.9)	(-2,368,897.3 951,462.5)
80% Confidence Interval	(-2,371,811.4 1,019,936.2)	(-2,002,210.1 584,775.3)
P-Value	0.609	0.483
Inpatient Surgery Expenditures	5,336,043	3,446,846
90% Confidence Interval	(-1,592,385 12,264,471)	(-1,881,233 8,774,926)
80% Confidence Interval	(-62,089.8 10,734,176)	(-704,409.5 7,598,102)

Measures (2011 USD per Person)	Full Intervention Period^a (11 quarters)	Year 1^b
<i>P-Value</i>	0.205	0.287
Episode-Based Inpatient Surgery Expenditures	5,336,043	3,446,846
<i>90% Confidence Interval</i>	(-1,592,385 12,264,471)	(-1,881,233 8,774,926)
<i>80% Confidence Interval</i>	(-62,089.8 10,734,176)	(-704,409.5 7,598,102)
<i>P-Value</i>	0.205	0.287
Inpatient PS Orthopedic Surgery Expenditures	-467,929.5	-405,130.9
<i>90% Confidence Interval</i>	(-2,772,599 1,836,740.5)	(-2,141,608 1,331,346.5)
<i>80% Confidence Interval</i>	(-2,263,562 1,327,703.5)	(-1,758,069 947,807.3)
<i>P-Value</i>	0.738	0.701
Inpatient PS Cardiac Surgery Expenditures	2,874,391.3*	2,147,690.8
<i>90% Confidence Interval</i>	(67,425.1 5,681,358)	(-92,193.7 4,387,575)
<i>80% Confidence Interval</i>	(687,405.3 5,061,377)	(402,534.0 3,892,848)
<i>P-Value</i>	0.092	0.115

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the SDM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cDenominator is subset to beneficiaries enrolled in Medicare Part D.

^dPS = Preference Sensitive.

APPENDIX D: RESULTS FOR PHARM2PHARM

The following tables provide the baseline demographic and health characteristics; mortality and readmission rates; health service utilization; and medication adherence rates results for the intervention group and comparison group beneficiaries in the Pharm2Pharm cohort who were enrolled in Medicare Parts A, B, and D (Medicare FFS) or Medicare Advantage and Part D (MA).

D.1 Demographic and Health Characteristics

Appendix Table D-1: Pharm2Pharm Baseline Demographic and Health Characteristics, Medicare FFS Beneficiaries

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Number of Beneficiaries	307	307		
Average Age (Years)⁺	74.28	74.36	-0.07	0.01
Age under 65⁺	12%	12%	0%	0.00
Gender				
Male ⁺	46%	46%	0%	0.00
Female	54%	54%	0%	0.00
Race				
White ⁺	35%	31%	4%	0.09
Black or Other	65%	69%	-4%	0.09
Dual Eligible⁺	17%	16%	1%	0.03
Medicare Eligibility				
Disabled ⁺	19%	21%	-1%	0.03
ESRD	4%	3%	1%	0.07
Aged ⁺	77%	77%	0%	0.00
Area Deprivation Index (ADI)⁺	101.04	100.26	0.78	0.06
Evaluation and Management (E&M) Visits				
E&M Visits: 0	2%	2%	0%	0.02
E&M Visits: 1-5 ⁺	14%	12%	2%	0.06
E&M Visits: 6-10 ⁺	19%	19%	0%	0.01
E&M Visits: 11-15 ⁺	27%	31%	-4%	0.08
E&M Visits: 16 ⁺	38%	37%	2%	0.03
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 SNF Stays (Prior Year)	89%	89%	0%	0.00
1 SNF Stay (Prior Year) ⁺	8%	7%	0%	0.01
2+ SNF Stays (Prior Year) ⁺	3%	4%	0%	0.02
0 IP Stays (1Q Prior)	0%	0%	0%	0.00
1 IP Stay (Prior Year) ⁺	74%	74%	0%	0.00

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
2+ IP Stays (Prior Year) ⁺	26%	26%	0%	0.00
0 IP Stays (Prior Year)	0%	0%	0%	0.00
1 IP Stay (Prior Year) ⁺	52%	49%	3%	0.07
2+ IP Stays (Prior Year) ⁺	48%	51%	-3%	0.07
ER Visits (Pre-Enrollment Quarter)				
ER Visits: 0	69%	69%	0%	0.01
ER Visits: 1 ⁺	20%	21%	-1%	0.02
ER Visits: 2 ⁺	11%	10%	2%	0.05
Medical Cost per Beneficiary				
Cost (4Q Prior) ⁺	\$3,756	\$4,395	-639	0.08
Cost (3Q Prior) ⁺	\$4,534	\$3,758	776	0.10
Cost (2Q Prior) ⁺	\$4,753	\$4,529	224	0.03
Cost (1Q Prior) ⁺	\$15,453	\$15,189	264	0.02
IP Cost (Prior Year)	\$14,732	\$13,364	1,368	0.08
IP Cost (1Q Prior) ⁺	\$10,278	\$9,686	593	0.05
Frailty Measures				
Home Oxygen ⁺	13%	13%	0%	0.00
Urinary Catheter	4%	3%	0%	0.02
Wheelchair Use	1%	1%	0%	0.03
Walker Use	4%	6%	-2%	0.09
Charlson Score	3.32	3.20	0.12	0.05
Drug History (Pre-Enrollment Year)				
Antidiabetics ⁺	29%	30%	-1%	0.02
Insulin ⁺	28%	30%	-2%	0.05
SSRIs and SNRIs ⁺	23%	24%	-1%	0.02
Other Antidepressants ⁺	14%	17%	-3%	0.09
Statins ⁺	80%	78%	2%	0.06
Thiazide ⁺	32%	31%	0%	0.01
Calcium channel blockers ⁺	53%	51%	2%	0.03
Beta blockers ⁺	75%	71%	4%	0.09
ACE inhibitors ⁺	48%	42%	6%	0.11
ARBs ⁺	45%	47%	-2%	0.05
Antihypertensives ⁺	22%	19%	3%	0.08
Antineoplastics ⁺	10%	9%	1%	0.03
Corticosteroids ⁺	49%	51%	-2%	0.05
Cardiotonics ⁺	12%	11%	1%	0.03
Antiarrhythmics ⁺	13%	12%	1%	0.03
Vasopressors ⁺	4%	3%	1%	0.05

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Antiasthmatics ⁺	47%	50%	-4%	0.08
Antianxiety Agents ⁺	22%	22%	-1%	0.02
Antipsychotics ⁺	8%	9%	-1%	0.04
Anticoagulants ⁺	33%	34%	-1%	0.03
Insulin ⁺	26%	27%	0%	0.01
Nitrates ⁺	27%	25%	1%	0.03
Loop diuretics ⁺	50%	48%	2%	0.04
Potassium sparing diuretics ⁺	7%	5%	3%	0.11
Fibric acid derivatives ⁺	7%	6%	0%	0.01
Platelet aggregation inhibitors ⁺	29%	31%	-2%	0.04
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Year)				
Acute cerebrovascular disease (IP)	5%	5%	0%	0.02
Acute cerebrovascular disease (IP, 30 days prior)	3%	3%	0%	0.02
AMI (IP)	13%	9%	4%	0.12
AMI (IP, 30 days prior)	9%	7%	3%	0.11
Cerebrovascular disease ⁺	39%	36%	3%	0.07
Parkinson's disease and multiple sclerosis	2%	3%	-2%	0.11
Asthma	53%	57%	-4%	0.07
Coagulation and hemorrhagic disorders ⁺	19%	13%	6%	0.16
Congestive heart failure (All Settings) ⁺	49%	47%	2%	0.05
Congestive heart failure (IP)	12%	14%	-2%	0.06
Coronary atherosclerosis ⁺	66%	62%	4%	0.07
Dementia ⁺	11%	11%	1%	0.02
Diabetes mellitus without complication ⁺	74%	76%	-1%	0.03
Diabetes mellitus with complications ⁺	50%	49%	1%	0.03
Cardiac dysrhythmias, arrest and ventricular fibrillation ⁺	73%	71%	2%	0.05
Fluid and electrolyte disorders ⁺	60%	59%	1%	0.03
Gastrointestinal hemorrhage (All Settings) ⁺	18%	20%	-2%	0.06
Gastrointestinal hemorrhage (IP)	5%	5%	0%	0.00
Other heart disease ⁺	93%	92%	1%	0.02
Heart valve disorder ⁺	46%	45%	1%	0.01
Hepatitis ⁺	5%	4%	1%	0.05
Hypertension with complications ⁺	62%	66%	-4%	0.09
Stomach, pancreas and lung cancer ⁺	4%	3%	1%	0.06
Peri- endo- and myocarditis ⁺	30%	26%	4%	0.09
Disorders of nervous system ⁺	25%	26%	-1%	0.02
Other cancers ⁺	22%	19%	3%	0.07
Paralysis ⁺	6%	7%	-1%	0.04

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Pneumonia ⁺	53%	57%	-4%	0.09
Pneumonia (IP, 30 days prior)	5%	5%	0%	0.00
Pulmonary heart disease	25%	25%	0%	0.01
Renal failure	58%	62%	-4%	0.08
Respiratory failure (IP) ⁺	3%	2%	1%	0.04
Respiratory failure (IP, 30 days prior)	3%	2%	1%	0.04
Rheumatoid arthritis and related disease ⁺	3%	3%	0%	0.00
Septicemia ⁺	18%	17%	1%	0.03
Shock ⁺	5%	4%	0%	0.02
Tuberculosis ⁺	0%	0%	0%	0.00
Procedures (Pre-Enrollment Year)				
Bypass and PTCA (IP) ⁺	9%	8%	2%	0.06
Heart valve procedures (IP) ⁺	3%	2%	0%	0.02
Hemodialysis ⁺	15%	15%	1%	0.02
Peritoneal dialysis ⁺	16%	14%	2%	0.06
Procedures on vessels of head and neck (IP)	21%	20%	1%	0.02
Radiology and chemotherapy	4%	4%	0%	0.02
Respiratory intubation and mechanical ventilation ⁺	12%	13%	-1%	0.04
Blood transfusion ⁺	14%	14%	0%	0.00
Blood transfusion (IP) ⁺	11%	10%	1%	0.02
Transportation ⁺	55%	60%	-5%	0.11
HCC Risk Score	3.11	3.08	3%	0.02
Comorbidity Categories (Pre-Enrollment Quarter)				
Depression	7%	8%	-1%	0.02
AIDS HIV	0%	0%	0%	0.00
Alcohol Abuse	3%	1%	2%	0.13
Cardiac Arrhythmias	62%	55%	7%	0.15
Congestive Heart Failure	47%	43%	4%	0.08
Chronic Pulmonary Disease	53%	56%	-2%	0.05
Coagulopathy	12%	9%	3%	0.09
Deficiency Anemia	22%	22%	0%	0.00
Diabetes Complicated	35%	32%	4%	0.08
Diabetes Uncomplicated	59%	55%	3%	0.07
Dementia	5%	5%	-1%	0.03
Drug Abuse	4%	2%	1%	0.08
Fluid and Electrolyte Disorders	49%	45%	4%	0.07
Hypothyroidism	18%	16%	3%	0.07
Hypertension Complicated	37%	39%	-2%	0.04

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Hypertension Uncomplicated	87%	85%	2%	0.05
Liver Disease	9%	8%	1%	0.05
Lymphoma	1%	1%	0%	0.03
Metastatic Cancer	1%	5%	-4%	0.23
Myocardial Infarction	31%	24%	7%	0.15
Obesity	21%	16%	6%	0.14
Other Neurological Disorders	14%	15%	-1%	0.04
Paralysis	4%	4%	0%	0.02
Peptic Ulcer Disease Excluding Bleeding	4%	4%	1%	0.03
Peripheral Vascular Disorders	28%	23%	4%	0.10
Psychosis	3%	3%	0%	0.02
Pulmonary Circulation Disorders	4%	6%	-2%	0.11
Renal Failure	48%	49%	-1%	0.01
Rheumatoid Arthritis Collagen Vascular Disease	7%	5%	2%	0.10
Solid Tumor Without Metastasis	13%	11%	3%	0.08
Valvular Disease	35%	30%	5%	0.10
Weight Loss	6%	9%	-3%	0.11

[†]Denotes characteristic used for matching.

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

Appendix Table D-2: Pharm2Pharm Baseline Demographic and Health Characteristics, MA Beneficiaries

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
<i>Number of Beneficiaries</i>	489	489		
Average Age (Years)⁺	73.51	73.56	-0.06	0.01
Age under 65⁺	14%	14%	0%	0.00
Gender				
Male ⁺	42%	42%	0%	0.00
Female	58%	58%	0%	0.00
Race				
White ⁺	33%	33%	0%	0.00
Black or Other	67%	67%	0%	0.00
Dual Eligible	36%	37%	0%	0.01
Medicare Eligibility				
Disabled ⁺	28%	27%	1%	0.02
ESRD	1%	0%	1%	0.07
Aged ⁺	71%	72%	-2%	0.04
Area Deprivation Index (ADI)⁺	100.72	101.18	-0.46	0.04
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 IP Stays (1Q Prior)	0%	0%	0%	0.00
1 IP Stay (Prior Year)	75%	75%	0%	0.01
2+ IP Stays (Prior Year) ⁺	25%	25%	0%	0.01
0 IP Stays (Prior Year)	0%	0%	0%	0.00
1 IP Stay (Prior Year)	54%	56%	-1%	0.03
2+ IP Stays (Prior Year) ⁺	46%	44%	1%	0.03
Drug History (Pre-Enrollment Year)				
Antidiabetics	32%	28%	4%	0.08
Insulin ⁺	34%	37%	-3%	0.06
SSRIs and SNRIs ⁺	20%	22%	-2%	0.05
Other Antidepressants ⁺	19%	19%	0%	0.01
Statins ⁺	79%	79%	0%	0.00
Thiazide ⁺	37%	37%	0%	0.00
Calcium channel blockers ⁺	53%	57%	-4%	0.07
Beta blockers ⁺	75%	75%	0%	0.00
ACE inhibitors ⁺	55%	59%	-4%	0.07
ARBs ⁺	40%	37%	4%	0.08
Antihypertensives ⁺	22%	24%	-1%	0.03
Antineoplastics ⁺	8%	8%	0%	0.00
Corticosteroids ⁺	50%	48%	2%	0.04
Cardiotonics ⁺	18%	17%	1%	0.03
Antiarrhythmics ⁺	12%	12%	0%	0.01

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Vasopressors ⁺	1%	1%	0%	0.02
Antiasthmatics	51%	51%	0%	0.00
Antianxiety Agents ⁺	22%	22%	0%	0.00
Antipsychotics ⁺	7%	6%	1%	0.04
Anticoagulants ⁺	36%	34%	1%	0.03
Insulin ⁺	25%	24%	1%	0.01
Nitrates ⁺	31%	28%	3%	0.07
Loop diuretics ⁺	59%	62%	-3%	0.05
Potassium sparing diuretics ⁺	12%	10%	2%	0.06
Fibric acid derivatives ⁺	6%	4%	2%	0.10
Platelet aggregation inhibitors ⁺	32%	29%	3%	0.06
Risk Adjustment Processing System (RAPS) V21 Hierarchical Condition Categories				
HCC1 HIV/AIDS	0%	0%	0%	0.09
HCC2 SEPTICEMIA, SEPSIS, SYSTEMIC INFLAM RESPONSE SYNDROME/SHOCK ⁺	4%	6%	-1%	0.05
HCC6 OPPORTUNISTIC INFECTIONS	0%	0%	0%	0.04
HCC8 METASTATIC CANCER AND ACUTE+ LEUKEMIA	0%	0%	0%	0.09
HCC9 LUNG AND OTHER SEVERE CANCERS ⁺	1%	1%	0%	0.00
HCC10 LYMPHOMA AND OTHER CANCERS	1%	1%	-1%	0.06
HCC11 COLORECTAL, BLADDER, AND OTHER CANCERS ⁺	1%	1%	0%	0.00
HCC12 BREAST, PROSTATE, AND OTHER CANCERS AND TUMORS ⁺	3%	4%	-1%	0.05
HCC17 DIABETES WITH ACUTE COMPLICATIONS ⁺	2%	1%	1%	0.07
HCC18 DIABETES WITH CHRONIC COMPLICATIONS ⁺	31%	34%	-2%	0.05
HCC19 DIABETES WITHOUT COMPLICATION ⁺	24%	21%	2%	0.06
HCC21 PROTEIN-CALORIE MALNUTRITION ⁺	0%	1%	0%	0.03
HCC22 MORBID OBESITY ⁺	7%	7%	0%	0.00
HCC23 OTHER SIGNIFICANT ENDOCRINE AND METABOLIC DISORDERS	5%	7%	-1%	0.06
HCC27 END-STAGE LIVER DISEASE	1%	0%	0%	0.06
HCC28 CIRRHOSIS OF LIVER	1%	1%	0%	0.02
HCC29 CHRONIC HEPATITIS ⁺	1%	1%	0%	0.04
HCC33 INTESTINAL OBSTRUCTION/PERFORATION	2%	2%	0%	0.02
HCC34 CHRONIC PANCREATITIS	1%	0%	0%	0.06
HCC35 INFLAMMATORY BOWEL DISEASE	1%	0%	0%	0.06

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
HCC39 BONE/JOINT/MUSCLE INFECTIONS/NECROSIS	1%	1%	0%	0.02
HCC40 RHEUMATOID ARTHRITIS AND INFLAM CONNECTIVE TISSUE DISEASE	6%	6%	0%	0.01
HCC46 SEVERE HEMATOLOGICAL DISORDERS	1%	1%	0%	0.00
HCC47 DISORDERS OF IMMUNITY	2%	1%	1%	0.05
HCC48 COAGULATION DEFECTS & OTH SPECIFIED HEMATOLOGICAL DISORDRS+	5%	6%	-1%	0.04
HCC51 DEMENTIA WITH COMPLICATIONS+	0%	0%	0%	0.00
HCC52 DEMENTIA WITHOUT COMPLICATION+	3%	1%	2%	0.12
HCC54 DRUG/ALCOHOL PSYCHOSIS	0%	1%	-1%	0.14
HCC55 DRUG/ALCOHOL DEPENDENCE	3%	3%	-1%	0.04
HCC57 SCHIZOPHRENIA	1%	1%	0%	0.04
HCC58 MAJOR DEPRESSIVE, BIPOLAR, AND PARANOID DISORDERS+	4%	5%	-1%	0.03
HCC70 QUADRIPLÉGIA	0%	0%	0%	0.09
HCC71 PARAPLEGIA	0%	0%	0%	0.09
HCC72 SPINAL CORD DISORDERS/INJURIES	0%	0%	0%	0.09
HCC73 AMYOTROPHIC LATERAL SCLEROSIS & OTH MOTOR NEURON DISEASE	0%	0%	0%	0.06
HCC74 CEREBRAL PALSY	0%	0%	0%	0.06
HCC75 POLYNEUROPATHY	11%	14%	-3%	0.10
HCC76 MUSCULAR DYSTROPHY	0%	0%	0%	0.06
HCC77 MULTIPLE SCLEROSIS+	0%	0%	0%	0.00
HCC78 PARKINSONS AND HUNTINGTONS DISEASES+	1%	0%	1%	0.13
HCC79 SEIZURE DISORDERS AND CONVULSIONS+	3%	3%	0%	0.01
HCC80 COMA, BRAIN COMPRESSION/ANOXIC DAMAGE	0%	0%	0%	0.00
HCC82 RESPIRATOR DEPENDENCE/TRACHEOSTOMY STATUS	0%	0%	0%	0.09
HCC83 RESPIRATORY ARREST	0%	0%	0%	0.00
HCC84 CARDIO-RESPIRATORY FAILURE AND SHOCK+	6%	6%	0%	0.01
HCC85 CONGESTIVE HEART FAILURE+	37%	35%	2%	0.03
HCC86 ACUTE MYOCARDIAL INFARCTION	6%	6%	0%	0.01
HCC87 UNSTABLE ANGINA & OTH ACUTE ISCHEMIC HEART DISEASE+	4%	5%	-1%	0.05
HCC88 ANGINA PECTORIS+	6%	5%	0%	0.02

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
HCC96 SPECIFIED HEART ARRHYTHMIAS+	31%	30%	2%	0.04
HCC99 CEREBRAL HEMORRHAGE+	1%	1%	0%	0.00
HCC100 ISCHEMIC OR UNSPECIFIED STROKE	7%	7%	0%	0.01
HCC103 HEMIPLEGIA/HEMIPARESIS	4%	3%	1%	0.06
HCC104 MONOPLÉGIA, OTHER PARALYTIC SYNDROMES	0%	1%	-1%	0.11
HCC106 ATHEROSCLEROSIS OF EXTREMITIES W/ULCERATION OR GANGRENE	1%	1%	0%	0.02
HCC107 VASCULAR DISEASE WITH COMPLICATIONS	3%	4%	-1%	0.05
HCC108 VASCULAR DISEASE	18%	20%	-2%	0.06
HCC110 CYSTIC FIBROSIS	0%	0%	0%	0.00
HCC111 CHRONIC OBSTRUCTIVE PULMONARY DISEASE+	26%	24%	2%	0.04
HCC112 FIBROSIS OF LUNG AND OTHER CHRONIC LUNG DISORDERS	2%	1%	1%	0.11
HCC114 ASPIRATION AND SPECIFIED BACTERIAL PNEUMONIAS+	2%	2%	0%	0.01
HCC115 PNEUMOCOCCAL PNEUMONIA, EMPYEMA, LUNG ABSCESS	1%	1%	0%	0.05
HCC122 PROLIFERATIVE DIABTIC RETINOPATHY & VITREOUS HEMORR	2%	5%	-2%	0.12
HCC124 EXUDATIVE MACULAR DEGENERATION	2%	2%	0%	0.00
HCC134 DIALYSIS STATUS+	4%	2%	1%	0.07
HCC135 ACUTE RENAL FAILURE+	9%	7%	2%	0.06
HCC136 CHRONIC KIDNEY DISEASE, STAGE 5+	2%	2%	0%	0.01
HCC137 CHRONIC KIDNEY DISEASE, SEVERE (STAGE 4)+	4%	2%	1%	0.07
HCC138 CHRONIC KIDNEY DISEASE, MODERATE (STAGE 3)+	12%	15%	-2%	0.07
HCC139 CHRONIC KIDNEY DIS, MILD OR UNSPEC (STG 1-2 OR UNSPEC)	8%	7%	1%	0.02
HCC140 UNSPECIFIED RENAL FAILURE	1%	0%	1%	0.09
HCC141 NEPHRITIS	0%	1%	-1%	0.09
HCC157 PRESS ULCER OF SKN W/NECROSIS THR TO MUSCLE,TENDON, BONE	0%	0%	0%	0.00
HCC158 PRESSURE ULCER OF SKIN WITH FULL THICKNESS SKIN LOSS	0%	0%	0%	0.06
HCC159 PRESSURE ULCER OF SKIN WITH PARTIAL THICKNESS SKIN LOSS	0%	0%	0%	0.09

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
HCC160 PRESSURE PRE-ULCER SKIN CHANGES OR UNSPECIFIED STAGE	0%	1%	-1%	0.11
HCC161 CHRONIC ULCER OF SKIN, EXCEPT PRESSURE	3%	4%	-2%	0.10
HCC162 SEVERE SKIN BURN OR CONDITION	0%	0%	0%	0.00
HCC166 SEVERE HEAD INJURY	0%	0%	0%	0.06
HCC167 MAJOR HEAD INJURY	1%	0%	0%	0.05
HCC169 VERTEBRAL FRACTURES WITHOUT SPINAL CORD INJURY	1%	2%	-1%	0.05
HCC170 HIP FRACTURE/DISLOCATION	1%	1%	-1%	0.06
HCC173 TRAUMATIC AMPUTATIONS AND COMPLICATIONS	1%	0%	1%	0.16
HCC176 COMPLICATIONS OF SPECIFIED IMPLANTED DEVICE OR GRAFT	3%	2%	0%	0.01
HCC186 MAJOR ORGAN TRANSPLANT OR REPLACEMENT STATUS	0%	0%	0%	0.09
HCC188 ARTIFICIAL OPENINGS FOR FEEDING OR ELIMINATION	1%	1%	0%	0.00
HCC189 AMPUTATION STATUS, LOWER LIMB/AMPUTATION COMPLICATIONS	2%	1%	1%	0.07

[†]Denotes characteristic used for matching.

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.1 or greater is treated as an indicator of a substantial difference between the two groups.

D.2 Mortality and Readmissions

Appendix Table D-3: Cumulative and Yearly Mortality and Readmissions per 1,000 Beneficiaries, Differences after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
Number of Participants	796	796	564
Mortality			
<i>Difference^c</i>	23.79	-21.21	70.66***
<i>90% Confidence Interval</i>	(-33.4 81.0)	(-60.8 18.4)	(33.8 107.5)
<i>80% Confidence Interval</i>	(-20.8 68.3)	(-52.0 9.6)	(41.9 99.4)
<i>P-Value</i>	0.494	0.378	0.002
30-Day Hospital Readmissions Following All Inpatient Admissions			
<i>Difference</i>	-11.26	-81.49	178.98
<i>90% Confidence Interval</i>	(-327.9 305.4)	(-277.8 114.8)	(-80.5 438.5)
<i>80% Confidence Interval</i>	(-258.0 235.4)	(-234.4 71.4)	(-23.2 381.2)
<i>P-Value</i>	0.953	0.495	0.257
30-Day Hospital Unplanned Readmissions Following All Inpatient Admission			
<i>Difference</i>	-36.32	-89.92	156.49
<i>90% Confidence Interval</i>	(-350.4 277.8)	(-285.3 105.5)	(-97.9 410.9)
<i>80% Confidence Interval</i>	(-281.1 208.4)	(-242.2 62.3)	(-41.7 354.7)
<i>P-Value</i>	0.849	0.449	0.312

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the MM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

^cThe “difference” estimate represents the difference in the number of deaths per 1,000 beneficiaries or the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

Appendix Table D-4: Quarterly Difference in Mortality per 1,000 Beneficiaries after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<i>Number of Participant Beneficiaries</i>	796	749	707	660	564	453	350	273
<i>Difference^a</i>	-43.97***	13.98	-3.56	17.58*	18.36*	21.18**	-5.65	40.29***
<i>90% Confidence Interval</i>	(-66.4 -21.5)	(-4.7 32.7)	(-22.6 15.5)	(0.1 35.1)	(0.4 36.4)	(4.8 37.5)	(-23.0 11.7)	(19.0 61.6)
<i>80% Confidence Interval</i>	(-61.4 -26.5)	(-0.6 28.6)	(-18.4 11.3)	(4.0 31.2)	(4.3 32.4)	(8.4 33.9)	(-19.2 7.9)	(23.7 56.9)
<i>P-Value</i>	0.001	0.219	0.759	0.098	0.094	0.033	0.593	0.002

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aThe “difference” estimate represents the difference in the number of deaths per 1,000 beneficiaries between the intervention group and control group in the relevant quarter of the intervention period. There were no deaths in the intervention or control groups prior to program enrollment as beneficiaries were required to be alive on program start date to be included in the study.

Appendix Table D-5: Quarterly Difference in Readmissions per 1,000 IP Admissions after Pharm2Pharm Enrollment, Medicare FFS and MA Combined Cohort

Measures	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<i>Number of Participant Beneficiaries</i>	796	749	707	660	564	453	350	273
30-Day Hospital Readmissions per 1,000 Beneficiaries Following all Inpatient Admissions	217	136	140	113	86	67	56	40
<i>Difference^a</i>	13.31	-32.17	-72.35	-6.46	57.66	16.25	-37.61	180.00*
<i>90% Confidence Interval</i>	(-67.4 94.0)	(-144.8 80.5)	(-178.5 33.8)	(-104.1 91.2)	(-56.2 171.5)	(-106.6 139.1)	(-171.6 96.3)	(19.9 340.1)
<i>80% Confidence Interval</i>	(-49.6 76.2)	(-120.0 55.6)	(-155.1 10.4)	(-82.6 69.6)	(-31.0 146.4)	(-79.5 112.0)	(-142.0 66.8)	(55.3 304.7)
<i>P-Value</i>	0.786	0.639	0.262	0.913	0.405	0.828	0.644	0.064
30-Day Hospital Unplanned Readmissions per 1,000 Beneficiaries Following any Inpatient Admission	217	136	140	113	86	67	56	40
<i>Difference</i>	16.64	-46.87	-72.35	-6.46	57.66	1.33	-55.47	195.00**
<i>90% Confidence Interval</i>	(-63.3 96.6)	(-158.9 65.2)	(-178.5 33.8)	(-104.1 91.2)	(-56.2 171.5)	(-120.0 122.7)	(-187.4 76.5)	(48.6 341.4)
<i>80% Confidence Interval</i>	(-45.7 79.0)	(-134.2 40.4)	(-155.1 10.4)	(-82.6 69.6)	(-31.0 146.4)	(-93.2 95.9)	(-158.3 47.3)	(80.9 309.1)
<i>P-Value</i>	0.732	0.491	0.262	0.913	0.405	0.986	0.489	0.028

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

^aThe “difference” estimate represents the difference in the number of beneficiaries with at least one readmission for every 1,000 beneficiaries who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

Appendix Table D-6: Quarterly Mortality and Readmissions per 1,000 Beneficiaries for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort, Q1 to Q4

Measures	Q1		Q2		Q3		Q4	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	796	796	749	689	707	635	660	574
All-Cause Mortality per 1,000 Beneficiaries	59.0	103.0	56.1	42.1	45.3	48.8	45.5	27.9
30-Day Hospital Readmission per 1,000 Beneficiaries Following any Inpatient Admissions	267.3	254.0	264.7	296.9	185.7	258.1	168.1	174.6
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following any Inpatient Admission	262.7	246.0	250.0	296.9	185.7	258.1	168.1	174.6

Appendix Table D-7: Quarterly Mortality and Readmissions per 1,000 Beneficiaries for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort, Q5 to Q8

Measures	Q5		Q6		Q7		Q8	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Beneficiaries</i>	564	496	453	419	350	351	273	273
All-Cause Mortality per 1,000 Beneficiaries	42.6	24.2	33.1	11.9	17.1	22.8	44.0	3.7
30-Day Hospital Readmission per 1,000 Beneficiaries Following any Inpatient Admissions	220.9	163.3	194.0	177.8	196.4	234.0	300.0	120.0
30-day Hospital Unplanned Readmission per 1,000 Beneficiaries, Following any Inpatient Admission	220.9	163.3	179.1	177.8	178.6	234	275	80

D.3 Health Service Resource Use

Appendix Table D-8: Cumulative and Yearly DiD Estimates of Resource Use per 1,000 Beneficiaries, Pharm2Pharm Medicare FFS and MA Combined Cohort

Measures (Number of Events or Days)	Full Intervention Period ^a	Total Year 1 ^b	Total Year 2
<i>Number of Participant Beneficiaries</i>	796	796	564
Inpatient Admissions	672.17***	431.43***	166.79*
<i>90% Confidence Interval</i>	(438.0 906.3)	(295.9 566.9)	(20.3 313.3)
<i>80% Confidence Interval</i>	(489.7 854.6)	(325.9 537.0)	(52.7 280.9)
<i>P-Value</i>	<0.001	<0.001	0.061
Unplanned Inpatient Admissions	384.46***	278.07***	39.80
<i>90% Confidence Interval</i>	(157.4 611.5)	(147.1 409.1)	(-102.4 182.0)
<i>80% Confidence Interval</i>	(207.5 561.4)	(176.0 380.1)	(-71.0 150.6)
<i>P-Value</i>	0.005	<0.001	0.645
Hospital Days	3,451.91**	2,474.47***	396.90
<i>90% Confidence Interval</i>	(1,010.9 5,892.9)	(1,006.3 3,942.7)	(-1,195.1 1,988.9)
<i>80% Confidence Interval</i>	(1,550.1 5,353.8)	(1,330.5 3,618.4)	(-843.5 1,637.3)
<i>P-Value</i>	0.020	0.006	0.682

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

*** Statistically significant at the one percent level.

^aResults are cumulative across all available quarters.

^bYear 1 refers to the one-year period after a beneficiary's enrollment in the program, Year 2 refers to the subsequent one-year periods for a given beneficiary. Since beneficiaries enroll in the MM programs on a rolling basis, the intervention period is defined at the beneficiary-level and not based on calendar quarters or years.

Appendix Table D-9: Quarterly DiD Estimates of Resource Use (Number of Events or Days Per 1,000 Beneficiaries), Pharm2Pharm Medicare FFS and MA Combined Cohort

Measures (Number of Events or Days per 1,000 Beneficiaries)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<i>Number of Participant Beneficiaries</i>	796	749	707	660	564	453	350	273
Inpatient Admissions	144.35***	120.50***	116.75***	61.28*	81.86**	35.34	11.50	101.65**
<i>90% Confidence Interval</i>	(82,206)	(61,180)	(61,173)	(6,116)	(26,138)	(-31,102)	(-62,85)	(24,180)
<i>80% Confidence Interval</i>	(96,193)	(74,167)	(73,160)	(18,104)	(38,126)	(-17,87)	(-46,69)	(41,162)
<i>P-Value</i>	<0.001	<0.001	<0.001	0.067	0.016	0.384	0.798	0.032
Unplanned Inpatient Admissions	103.43***	69.74**	70.66**	23.92	42.01	-13.29	-27.65	56.78
<i>90% Confidence Interval</i>	(43,164)	(13,126)	(16,126)	(-29,77)	(-13,97)	(-78,52)	(-98,43)	(-19,133)
<i>80% Confidence Interval</i>	(56,151)	(26,114)	(28,113)	(-17,65)	(-1,85)	(-64,37)	(-83,28)	(-3,116)
<i>P-Value</i>	0.005	0.042	0.034	0.457	0.212	0.736	0.521	0.221
Hospital Days	367.97	1,181.86**	624.56**	190.89	306.48	-41.82	-101.69	391.03
<i>90% Confidence Interval</i>	(-246,982)	(270,2094)	(165,1084)	(-315,696)	(-161,774)	(-947,863)	(-988,785)	(-316,1098)
<i>80% Confidence Interval</i>	(-110,846)	(471,1892)	(266,983)	(-203,585)	(-58,671)	(-747,663)	(-793,589)	(-160,942)
<i>P-Value</i>	0.324	0.033	0.025	0.535	0.281	0.939	0.850	0.363

* Statistically significant at the ten percent level.
 ** Statistically significant at the five percent level.
 *** Statistically significant at the one percent level.

Appendix Table D-10: Quarterly Resource Use Rate (Number of Beneficiaries with Event per 1,000 Beneficiaries) for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort, Q1 to Q4

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	796	796	796	796	749	689	707	635	660	574
Health Service Use Rate per 1,000 Beneficiaries										
All Inpatient Admissions	1,000.0	1,000.0	290.2	178.8	193.6	106.3	210.7	105.7	181.8	118.5
Unplanned Inpatient Admissions	983.7	914.4	266.3	165.0	184.2	100.4	200.8	99.4	175.8	109.8

Appendix Table D-11: Quarterly Resource Use Rate (Number of Beneficiaries with Event per 1,000 Beneficiaries) for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort, Q5 to Q8

Measures	Q5		Q6		Q7		Q8	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	564	496	453	419	350	351	273	273
Health Service Use Rate per 1,000 Beneficiaries								
All Inpatient Admissions	161.3	100.8	163.4	107.4	160.0	136.8	150.2	91.6
Unplanned Inpatient Admissions	156.0	98.8	152.3	105.0	151.4	128.2	150.2	91.6

Appendix Table D-12: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort, Q1 to Q4

Measures	Baseline Period (Year Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	796	796	796	796	749	689	707	635	660	574
Mean Number of Events per 1,000 Beneficiaries										
All Inpatient Admissions	1,864.3	1,780.9	409.5	244.3	289.7	152.8	277.2	146.7	230.3	156.8
Unplanned Inpatient Admissions	1,767.6	1,560.5	380.7	225.4	267.0	144.1	263.1	140.4	218.2	141.1
Hospital Days	10,528.9	9,508.8	2,674.6	2,051.6	2,499.3	1,000.0	1,777.9	872.2	1,480.3	1,048.8

Appendix Table D-13: Quarterly Resource Use (Number of Events per 1,000 Beneficiaries) for Participants and Controls, Pharm2Pharm Medicare FFS and MA Combined Cohort, Q5 to Q8

Measures	Q5		Q6		Q7		Q8	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Beneficiaries</i>	564	496	453	419	350	351	273	273
Mean Number of Events per 1,000 Beneficiaries								
All Inpatient Admissions	216.3	121.0	203.1	157.5	200.0	188.0	205.1	117.2
Unplanned Inpatient Admissions	211.0	114.9	189.8	150.4	185.7	170.9	201.5	113.6
Hospital Days	1,315.6	760.1	1,585.0	1,348.4	1,551.4	1,492.9	1,424.9	912.1

D.4 Medication Adherence

Appendix Table D-14: Average Proportion of Days Covered (PDC) by Medication Type, Pharm2Pharm Medicare FFS and MA Combined Cohort

Measures	Baseline Period (Year Prior to Enrollment)		Intervention Period (1 st Year Post Enrollment)		Baseline Period (for 2 nd Year Post Enrollment)		Intervention Period (2 nd Year Post Enrollment)	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
Beta Blockers								
<i>Number of Eligible Beneficiaries</i>	326	250	326	250	133	116	133	116
Mean	83.04	84.26	82.61	85.77	83.85	82.48	85.14	81.05
Median	90.28	91.97	90.47	92.68	89.90	91.97	92.59	90.05
25th percentile	75.14	75.55	72.62	79.18	78.49	71.82	76.54	68.47
75th percentile	98.07	98.21	97.59	98.83	97.18	97.98	98.21	96.66
90th percentile	100.00	100.00	100.00	100.00	99.72	100.00	100.00	100.00
99th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Calcium Channel Blockers								
<i>Number of Eligible Beneficiaries</i>	188	182	188	182	82	82	82	82
Mean	85.11	86.62	80.85	85.02	87.28	85.54	84.34	85.27
Median	93.66	93.74	90.00	92.92	94.69	93.47	93.05	94.25
25th percentile	79.95	78.72	72.21	78.72	84.69	75.00	76.15	79.71
75th percentile	98.74	99.10	97.69	98.83	99.39	98.86	98.83	98.30
90th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
99th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Diabetes Medication								
<i>Number of Eligible Beneficiaries</i>	120	85	120	85	46	42	46	42
Mean	87.35	85.52	85.77	86.31	87.33	82.61	88.55	85.55
Median	94.14	94.51	94.19	93.31	93.58	94.80	96.68	94.55
25th percentile	82.20	79.49	80.94	78.03	81.21	65.97	76.92	74.79
75th percentile	98.99	99.42	99.69	99.38	98.82	97.77	100.00	97.78
90th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
99th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
RAS Antagonists								
<i>Number of Eligible Beneficiaries</i>	316	289	316	289	121	130	121	130
Mean	84.69	86.88	83.42	86.43	85.50	87.40	84.43	89.98
Median	93.58	93.75	91.37	94.68	93.81	94.63	93.96	96.79
25th percentile	77.09	80.84	77.07	81.43	80.12	80.90	75.07	87.33
75th percentile	98.55	98.63	98.30	99.43	98.13	99.05	99.44	99.10
90th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
99th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Statins								

Measures	Baseline Period (Year Prior to Enrollment)		Intervention Period (1 st Year Post Enrollment)		Baseline Period (for 2 nd Year Post Enrollment)		Intervention Period (2 nd Year Post Enrollment)	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Eligible Beneficiaries</i>	386	330	386	330	157	154	157	154
Mean	83.95	84.52	84.10	85.27	84.62	83.27	84.09	85.53
Median	91.47	91.57	90.95	92.68	91.57	89.24	91.92	93.92
25th percentile	76.95	75.22	76.68	76.90	76.95	70.54	78.80	74.85
75th percentile	97.20	97.67	97.73	98.75	97.13	97.53	97.46	98.93
90th percentile	99.72	100.00	100.00	100.00	99.41	99.71	100.00	100.00
99th percentile	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

APPENDIX E: RESULTS FOR HEARTSTRONG

The following tables provide the baseline demographic and health characteristics; mortality and readmission rates; health service utilization; medical expenditures, and medication adherence rates for the intervention group and comparison group enrollees in the HeartStrong mixed payer cohort who were enrolled in commercial insurance plans, Medicare Advantage, or Medicaid.

E.1 Demographic and Health Characteristics

Appendix Table E-1: HeartStrong Baseline Demographic and Health Characteristics, Mixed Payer Cohort

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
<i>Number of Enrollees</i>	658	314		
Average Age (Years)	60.77	60.33	0.44%	0.04
Age under 65	60%	65%	-6%	0.11
Gender				
Male	66%	60%	5%	0.11
Female	34%	40%	-5%	0.11
Evaluation and Management (E&M) Visits				
E&M Visits: 0	4%	3%	1%	0.06
E&M Visits: 1-5	80%	81%	0%	0.01
E&M Visits: 6-10	15%	15%	0%	0.00
E&M Visits: 11-15	1%	2%	-1%	0.10
E&M Visits: 16+	0%	0%	0%	0.07
Resource Use per Beneficiary (Pre-Enrollment Year)				
0 IP Stays (1Q Prior)	0%	0%	0%	0.00
1 IP Stay (Prior Year)	66%	66%	-1%	0.02
2+ IP Stays (Prior Year)	34%	34%	1%	0.02
0 IP Stays (Prior Year)	0%	0%	0%	0.00
1 IP Stay (Prior Year)	66%	66%	-1%	0.02
2+ IP Stays (Prior Year)	34%	34%	1%	0.02
ER Visits (Pre-Enrollment Quarter)				
ER Visits: 0	74%	76%	-1%	0.03
ER Visits: 1	18%	17%	1%	0.04
ER Visits: 2+	7%	7%	0%	0.00
Medical Cost per Beneficiary				
Cost (1Q Prior)	\$33,202	\$34,465	-1,263	0.04
IP Cost (Prior Year)	\$29,996	\$30,975	-979	0.04
IP Cost (1Q Prior)	\$29,996	\$30,975	-979	0.04

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Frailty Measures				
Charlson Score	2.73	2.74	-0.01	0.00
Drug History (Pre-Enrollment Quarter)				
Antidiabetics	24%	24%	0%	0.01
Insulin	18%	15%	3%	0.09
SSRIs and SNRIs	25%	24%	1%	0.01
Other Antidepressants	18%	15%	2%	0.06
Statins	95%	94%	1%	0.04
Thiazide	26%	29%	-3%	0.06
Calcium channel blockers	31%	29%	2%	0.05
Beta blockers	94%	93%	1%	0.06
ACE inhibitors	64%	61%	3%	0.05
ARBs	25%	25%	0%	0.01
Antihypertensives	11%	10%	1%	0.04
Antineoplastics	2%	2%	1%	0.04
Corticosteroids	29%	33%	-3%	0.07
Cardiotonics	4%	2%	1%	0.09
Antiarrhythmics	7%	6%	1%	0.05
Vasopressors	1%	2%	0%	0.02
Antiasthmatics	26%	28%	-1%	0.03
Antianxiety Agents	24%	21%	3%	0.07
Antipsychotics	4%	5%	-1%	0.05
Anticoagulants	13%	11%	2%	0.07
Insulin	19%	21%	-1%	0.04
Nitrates	54%	57%	-3%	0.07
Loop diuretics	29%	29%	-1%	0.01
Potassium sparing diuretics	10%	9%	0%	0.01
Fibric acid derivatives ⁺	7%	9%	-2%	0.07
Platelet aggregation inhibitors ⁺	85%	84%	1%	0.03
Healthcare Cost and Utilization Project (HCUP) Diagnosis Categories (Pre-Enrollment Quarter)				
Acute cerebrovascular disease (IP)	2%	2%	0%	0.00
Acute cerebrovascular disease (IP, 30 days prior)	1%	0%	0%	0.06
AMI (IP)	100%	100%	0%	0.00
AMI (IP, 30 days prior)	24%	16%	9%	0.22
Cerebrovascular disease	19%	18%	2%	0.05
Parkinson's disease and multiple sclerosis	1%	1%	0%	0.02
Asthma	31%	30%	1%	0.02
Coagulation and hemorrhagic disorders	6%	5%	1%	0.05

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Congestive heart failure (All Settings)	36%	32%	4%	0.08
Congestive heart failure (IP)	15%	13%	2%	0.06
Coronary atherosclerosis	99%	99%	0%	0.03
Dementia	2%	1%	1%	0.08
Diabetes mellitus without complication	49%	46%	3%	0.06
Diabetes mellitus with complications	30%	28%	2%	0.03
Cardiac dysrhythmias, arrest and ventricular fibrillation	60%	58%	2%	0.03
Fluid and electrolyte disorders	25%	27%	-2%	0.06
Gastrointestinal hemorrhage (All Settings)	7%	8%	-1%	0.03
Gastrointestinal hemorrhage (IP)	4%	3%	0%	0.03
Other heart disease	100%	100%	0%	0.00
Heart valve disorder	32%	35%	-3%	0.06
Hepatitis	2%	4%	-1%	0.09
Hypertension with complications	30%	30%	0%	0.00
Stomach, pancreas and lung cancer	1%	0%	1%	0.08
Peri- endo- and myocarditis	20%	17%	3%	0.08
Disorders of nervous system	12%	9%	4%	0.12
Other cancers	11%	9%	2%	0.06
Paralysis	1%	1%	0%	0.02
Pneumonia	23%	26%	-3%	0.08
Pneumonia (IP, 30 days prior)	1%	2%	-1%	0.10
Pulmonary heart disease	7%	6%	1%	0.02
Renal failure	22%	21%	1%	0.02
Respiratory failure (IP)	7%	6%	1%	0.04
Respiratory failure (IP, 30 days prior)	1%	1%	0%	0.02
Rheumatoid arthritis and related disease	4%	3%	0%	0.03
Septicemia	2%	2%	1%	0.03
Shock	5%	4%	1%	0.03
Tuberculosis	1%	0%	0%	0.04
Procedures (Pre-Enrollment Quarter)				
Bypass and PTCA (IP)	75%	71%	4%	0.09
Heart valve procedures (IP)	6%	5%	0%	0.01
Hemodialysis	1%	2%	-1%	0.06
Peritoneal dialysis	1%	1%	0%	0.04
Procedures on vessels of head and neck (IP)	69%	64%	5%	0.10
Radiology and chemotherapy	1%	1%	0%	0.02
Respiratory intubation and mechanical ventilation	5%	4%	0%	0.02
Blood transfusion ⁺	3%	5%	-2%	0.13

Characteristics	Intervention Group	Control Group	Percent Difference	Standardized Mean Difference ^a
Blood transfusion (IP)	3%	5%	-2%	0.13
Transportation	5%	7%	2%	0.09
Comorbidity Categories (Pre-Enrollment Quarter)				
Depression	8%	8%	1%	0.02
AIDS HIV	0%	0%	0%	0.00
Alcohol Abuse	3%	3%	0%	0.02
Cardiac Arrhythmias	52%	49%	3%	0.06
Congestive Heart Failure	39%	35%	4%	0.08
Chronic Pulmonary Disease	28%	28%	0%	0.00
Coagulopathy	5%	3%	2%	0.09
Deficiency Anemia	6%	7%	-1%	0.03
Diabetes Complicated	16%	16%	0%	0.01
Diabetes Uncomplicated	41%	40%	1%	0.03
Dementia	1%	0%	0%	0.04
Drug Abuse	5%	4%	0%	0.02
Fluid and Electrolyte Disorders	19%	23%	-4%	0.10
Hypothyroidism	12%	13%	-1%	0.03
Hypertension Complicated	19%	18%	1%	0.03
Hypertension Uncomplicated	87%	87%	0%	0.01
Liver Disease	5%	4%	1%	0.06
Lymphoma	1%	2%	-1%	0.11
Metastatic Cancer	0%	1%	0%	0.06
Myocardial Infarction	100%	100%	0%	0.00
Obesity	26%	27%	-2%	0.04
Other Neurological Disorders	6%	3%	3%	0.13
Paralysis	1%	1%	0%	0.04
Peptic Ulcer Disease Excluding Bleeding	1%	1%	0%	0.02
Peripheral Vascular Disorders	17%	15%	2%	0.04
Psychosis	2%	1%	1%	0.08
Pulmonary Circulation Disorders	3%	2%	1%	0.06
Renal Failure	15%	15%	0%	0.01
Rheumatoid Arthritis Collagen Vascular Disease	4%	5%	-1%	0.05
Solid Tumor Without Metastasis	4%	4%	0%	0.01
Valvular Disease	27%	32%	-5%	0.11
Weight Loss	2%	3%	-1%	0.06

^aStandardized mean difference is an effect size measure used in the above table to identify substantial differences between the intervention and control groups; a standardized mean difference of 0.10 or greater may indicate a substantial difference along a given dimension between the two groups.

E.2 Mortality and Readmissions

Appendix Table E-2: Quarterly Difference in In-Hospital Mortality per 1,000 Enrollees after HeartStrong Enrollment, Mixed Payer Cohort

Measures	Q1	Q2	Q3	Q4
Number of Participant Enrollees	658	598	546	508
In-Hospital Mortality				
<i>Difference^a</i>	1.37	-8.78	3.45	3.60
<i>90% Confidence Interval</i>	(-5.4 8.2)	(-21.0 3.5)	(-5.3 12.2)	(-5.9 13.1)
<i>80% Confidence Interval</i>	(-3.9 6.7)	(-18.3 0.7)	(-3.4 10.3)	(-3.8 11.0)
<i>P-Value</i>	0.739	0.238	0.517	0.534

^aThe “difference” estimate represents the difference in the number of in-hospital deaths per 1,000 enrollees between the intervention group and control group in the relevant quarter of the intervention period.

Appendix Table E-3: Quarterly Difference in Readmissions per 1,000 IP Admissions after HeartStrong Enrollment, Mixed Payer Cohort

Measures	Q1	Q2	Q3	Q4
Number of Participant Enrollees with an Inpatient Admission	76	53	56	37
30-Day Hospital Readmissions per 1,000 Enrollees Following all Inpatient Admissions				
<i>Difference^a</i>	64.94	-13.89	-125.78	30.27
<i>90% Confidence Interval</i>	(-96.7 226.6)	(-196.5 168.7)	(-304.6 53.1)	(-154.6 215.1)
<i>80% Confidence Interval</i>	(-61.0 190.9)	(-156.2 128.4)	(-265.1 13.6)	(-113.7 174.3)
<i>P-Value</i>	0.509	0.900	0.247	0.788

^aThe “difference” estimate represents the difference in the number of enrollees with at least one readmission for every 1,000 enrollees who have at least one inpatient admission, as compared between the intervention and control groups during the relevant quarter in the intervention period.

Appendix Table E-4: Quarterly Mortality and Readmissions per 1,000 Enrollees for Participants and Controls, HeartStrong Mixed Payer Cohort

Measures	Q1		Q2		Q3		Q4	
	Intervention	Controls	Intervention	Controls	Intervention	Controls	Intervention	Controls
<i>Number of Enrollees</i>	658	314	598	290	546	258	508	234
In-Hospital Mortality per 1,000 Enrollees	4.6	3.2	5.0	13.8	7.3	3.9	7.9	4.3
30-Day Hospital Readmission per 1,000 Enrollees Following any Inpatient Admissions	355.3	290.3	277.8	291.7	178.6	304.3	270.3	240.0

E.3 Health Service Resource Use

Appendix Table E-5: Quarterly Difference Estimates of Resource Use (Number of Events or Days Per 1,000 Enrollees), HeartStrong Mixed Payer Cohort

Measures (Number of Events or Days)	Q1	Q2	Q3	Q4
Number of Participant Enrollees	658	598	546	508
ER Visits	-54.25	-54.49	26.24	76.42
90% Confidence Interval	(-144.9 36.4)	(-164.3 55.4)	(-66.0 118.5)	(-18.0 170.8)
80% Confidence Interval	(-124.9 16.4)	(-124.9 16.4)	(-124.9 16.4)	(-124.9 16.4)
P-Value	0.325	0.415	0.640	0.183
Inpatient Admissions	-5.40	45.30	-81.91	-36.12
90% Confidence Interval	(-145.3 134.5)	(-55.4 146.0)	(-265.5 101.7)	(-106.6 34.3)
80% Confidence Interval	(-114.4 103.6)	(-33.2 123.8)	(-224.9 61.1)	(-91.0 18.8)
P-Value	0.949	0.459	0.463	0.399
Hospital Days	224.09	197.02	148.99	-235.56
90% Confidence Interval	(-266.6 714.8)	(-249.7 643.7)	(-234.5 532.5)	(-695.8 224.7)
80% Confidence Interval	(-158.2 606.4)	(-151.0 545.1)	(-149.8 447.8)	(-594.2 123.1)
P-Value	0.453	0.468	0.523	0.400
Acute Cardiac Hospital Days	278.34	218.08	120.03	-89.49
90% Confidence Interval	(-46.3 603.0)	(-12.1 448.3)	(-205.9 446.0)	(-472.5 293.5)
80% Confidence Interval	(25.4 531.3)	(38.7 397.5)	(-133.9 374.0)	(-387.9 208.9)
P-Value	0.158	0.119	0.545	0.701
Acute Cardiac Events	-94.43	58.37	3.28	-3.67
90% Confidence Interval	(-225.1 36.3)	(-29.5 146.3)	(-96.7 103.2)	(-88.5 81.2)
80% Confidence Interval	(-196.3 7.4)	(-10.1 126.8)	(-74.6 81.1)	(-69.8 62.4)
P-Value	0.235	0.275	0.957	0.943
Non-AMI Cardiac Hospital Days	232.03	122.97	-20.70	-111.77
90% Confidence Interval	(-198.0 27.8)	(-45.6 122.6)	(-105.0 87.2)	(-98.2 64.6)
80% Confidence Interval	(-3.7 467.8)	(-43.5 289.5)	(-168.6 127.2)	(-409.2 185.6)
P-Value	0.207	0.344	0.858	0.630
Acute Non-AMI Cardiac Events	-85.09	38.51	-8.90	-16.77
90% Confidence Interval	(-70.5 534.6)	(-90.7 336.7)	(-210.5 169.1)	(-493.5 269.9)
80% Confidence Interval	(-173.1 2.9)	(-27.0 104.1)	(-83.8 66.0)	(-80.2 46.6)
P-Value	0.215	0.452	0.879	0.735
AMI Hospital Days	116.14	119.05*	136.13	14.69
90% Confidence Interval	(-23.1 255.4)	(11.7 226.4)	(-92.2 364.4)	(-34.4 63.8)
80% Confidence Interval	(7.6 224.7)	(35.4 202.7)	(-41.8 314.0)	(-23.6 53.0)
P-Value	0.170	0.068	0.327	0.623
Acute AMI Events	-11.59	19.34	15.21	8.16
90% Confidence Interval	(-56.8 33.6)	(-7.6 46.3)	(-11.2 41.6)	(-17.2 33.5)
80% Confidence Interval	(-46.8 23.6)	(-1.7 40.4)	(-5.3 35.8)	(-11.6 27.9)
P-Value	0.673	0.238	0.343	0.596

* Statistically significant at the ten percent level.

Appendix Table E-6: Quarterly Resource Use Rate (Number of Enrollees with Event per 1,000 Enrollees) for Participants and Controls, HeartStrong Mixed Payer Cohort

Measures	Baseline Period (Quarter Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Enrollees</i>	658	314	658	314	598	290	546	258	508	234
Health Service Use Rate per 1,000 Enrollees										
ER Visits	256.8	242.0	142.9	165.6	138.8	182.8	150.2	170.5	149.6	94.0
All Inpatient Admissions	1,000.0	1,000.0	145.9	146.5	113.7	124.1	120.9	116.3	96.5	132.5
Acute Cardiac Events	1,000.0	1,000.0	153.5	178.3	145.5	141.4	128.2	127.9	104.3	119.7
Acute Non-AMI Cardiac Events	527.4	541.4	141.3	175.2	138.8	137.9	120.9	120.2	94.5	115.4
Acute Myocardial Infarction	1,000.0	1,000.0	31.9	25.5	23.4	24.1	23.8	23.3	17.7	17.1

Appendix Table E-7: Quarterly Resource Use (Number of Events per 1,000 Enrollees) for Participants and Controls, HeartStrong Mixed Payer Cohort

Measures	Baseline Period (Quarter Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Enrollees</i>	658	314	658	314	598	290	546	258	508	234
Mean Number of Events per 1,000 Enrollees										
ER Visits	417.9	372.6	235.6	289.8	255.9	310.3	282.1	255.8	255.9	179.5
All Inpatient Admissions	1,538.0	1,512.7	313.1	318.5	262.5	217.2	208.8	290.7	147.6	183.8
Hospital Days	4,348.0	4,417.2	975.7	751.6	762.5	565.5	637.4	488.4	431.1	666.7
Acute Cardiac Hospital Days	4,237.1	4,210.2	740.1	461.8	528.4	310.3	468.9	348.8	372.0	461.5
Acute Cardiac Events	1,653.5	1,589.2	310.0	404.5	286.0	227.6	243.6	240.3	192.9	196.6
Non-AMI Cardiac Hospital Days	1,690.0	1,777.1	642.9	410.8	426.4	303.4	289.4	310.1	332.7	444.4
Acute Non-AMI Cardiac Events	835.9	808.9	281.2	366.2	259.2	220.7	219.8	228.7	171.3	188.0
AMI Hospital Days	3,820.7	3,665.6	202.1	86.0	163.9	44.8	225.3	89.1	53.1	38.5
Acute AMI Events	1,218.8	1,175.2	42.6	54.1	43.5	24.1	38.5	23.3	29.5	21.4

E.4 Medical Expenditures

Appendix Table E-8: Quarterly Difference Estimates of Expenditures per Beneficiary, HeartStrong Mixed Payer Cohort

Measures (USD)	Q1	Q2	Q3	Q4
<i>Number of Participant Enrollees^a</i>	410	392	367	349
Total Medical and Drug Expenditures	-2,260.62	-1,306.93	-2,437.27*	-1,662.21
<i>90% Confidence Interval</i>	(-7,729.0 3,207.8)	(-3,513.0 899.2)	(-4,763.5 -111.1)	(-3,871.8 547.4)
<i>80% Confidence Interval</i>	(-6,521.2 2,000.0)	(-3,025.8 411.9)	(-4,249.7 -624.9)	(-3,383.7 59.3)
<i>P-Value</i>	0.497	0.330	0.085	0.216
<i>Number of Participant Enrollees</i>	658	598	546	508
Total Medical Expenditures	-628.55	12.76	-868.91	-648.15
<i>90% Confidence Interval</i>	(-4,212.5 2,955.4)	(-1,432.8 1,458.3)	(-2,443.4 705.6)	(-2,189.6 893.3)
<i>80% Confidence Interval</i>	(-3,420.9 2,163.8)	(-1,113.5 1,139.1)	(-2,095.7 357.8)	(-1,849.1 552.8)
<i>P-Value</i>	0.773	0.988	0.364	0.489
Inpatient Expenditures	-420.25	441.65	595.60	-283.49
<i>90% Confidence Interval</i>	(-3,870.1 3,029.6)	(-667.1 1,550.4)	(-313.9 1,505.1)	(-1,182.1 615.1)
<i>80% Confidence Interval</i>	(-3,108.1 2,267.6)	(-422.2 1,305.5)	(-113.0 1,304.2)	(-983.6 416.6)
<i>P-Value</i>	0.841	0.512	0.281	0.604
Outpatient ER Expenditures	-90.52	-149.38	-54.26	63.70
<i>90% Confidence Interval</i>	(-233.2 52.2)	(-343.6 44.8)	(-263.9 155.4)	(-90.6 218.0)
<i>80% Confidence Interval</i>	(-201.7 20.6)	(-300.7 1.9)	(-217.6 109.1)	(-56.5 183.9)
<i>P-Value</i>	0.297	0.206	0.670	0.497
Outpatient Non-ER Expenditures	-117.78	-279.51	-1,410.25*	-428.37
<i>90% Confidence Interval</i>	(-1,043.4 807.9)	(-1,055.7 496.7)	(-2,617.2 -203.3)	(-1,612.1 755.4)
<i>80% Confidence Interval</i>	(-839.0 603.4)	(-884.3 325.2)	(-2,350.6 -469.9)	(-1,350.6 493.9)
<i>P-Value</i>	0.834	0.554	0.055	0.552
Acute Cardiac Events Expenditures	-240.31	190.48	255.17	-176.82
<i>90% Confidence Interval</i>	(-1,298.7 818.1)	(-427.9 808.8)	(-175.9 686.2)	(-610.4 256.7)
<i>80% Confidence Interval</i>	(-1,064.9 584.3)	(-291.3 672.2)	(-80.7 591.0)	(-514.6 161.0)
<i>P-Value</i>	0.709	0.612	0.330	0.502
Acute Non-AMI Cardiac Events Expenditures	-356.56	-86.03	43.41	-295.09
<i>90% Confidence Interval</i>	(-1,349.8 636.7)	(-581.5 409.4)	(-299.9 386.8)	(-711.2 121.0)
<i>80% Confidence Interval</i>	(-1,130.4 417.3)	(-472.0 300.0)	(-224.1 310.9)	(-619.3 29.1)
<i>P-Value</i>	0.555	0.775	0.835	0.243
Acute AMI Expenditures	134.67	213.76	213.59	41.30
<i>90% Confidence Interval</i>	(-162.1 431.4)	(-78.9 506.5)	(-24.4 451.6)	(-134.6 217.2)
<i>80% Confidence Interval</i>	(-96.5 365.9)	(-14.3 441.8)	(28.1 399.0)	(-95.7 178.3)
<i>P-Value</i>	0.455	0.230	0.140	0.699

* Statistically significant at the ten percent level.

^aInsurer A enrollees were excluded from the Total Medical and Drug Costs outcome due to the exclusion of beneficiary co-pay from the drug costs reported in the data for this insurer.

Appendix Table E-9: HeartStrong Total Medical Expenditures in the Baseline Period and by Quarter Following Enrollment, Mixed Payer Cohort

Measures (USD)	Baseline Period (Quarter Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Enrollees</i>	410	201	410	201	392	190	367	174	349	161
Total Medical and Drug Expenditures										
Mean	\$28,849	\$29,552	\$8,422	\$10,682	\$5,849	\$7,156	\$5,014	\$7,451	\$4,578	\$6,240
Median	\$22,581	\$22,962	\$2,374	\$2,865	\$1,710	\$2,162	\$1,470	\$2,137	\$1,399	\$1,526
90th percentile	\$51,000	\$53,319	\$22,305	\$17,478	\$13,218	\$17,474	\$10,501	\$18,702	\$10,922	\$15,801
99th percentile	\$130,298	\$115,142	\$77,754	\$142,007	\$60,894	\$66,974	\$54,789	\$68,128	\$45,706	\$45,831
<i>Number of Enrollees</i>	658	314	658	314	598	290	546	258	508	234
Total Medical Expenditures										
Mean	\$33,202	\$34,465	\$7,109	\$7,738	\$4,589	\$4,576	\$3,983	\$4,852	\$3,725	\$4,373
Median	\$24,957	\$25,710	\$1,502	\$1,810	\$821	\$878	\$639	\$859	\$672	\$552
90th percentile	\$63,067	\$62,725	\$15,754	\$16,234	\$12,205	\$9,423	\$9,577	\$15,055	\$7,601	\$11,947
99th percentile	\$141,696	\$161,105	\$83,666	\$49,455	\$53,719	\$50,093	\$53,060	\$58,374	\$54,152	\$44,077

Appendix Table E-10: HeartStrong Inpatient and Outpatient Expenditures in the Baseline Period and by Quarter Following Enrollment, Mixed Payer Cohort

Measures (USD)	Baseline Period (Quarter Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent	Controls	Intervent	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Enrollees</i>	658	314	658	314	598	290	546	258	508	234
Inpatient Expenditures										
Mean	\$29,996	\$30,975	\$3,687	\$4,107	\$2,434	\$1,993	\$2,078	\$1,482	\$1,494	\$1,777
Median	\$21,466	\$21,880	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$56,926	\$57,882	\$7,422	\$2,455	\$4,857	\$4,084	\$1,628	\$1,645	\$0	\$3,644
99th percentile	\$135,413	\$136,088	\$58,221	\$40,053	\$45,084	\$36,202	\$40,413	\$31,000	\$41,330	\$28,250
Outpatient ER Expenditures										
Mean	\$443	\$518	\$249	\$339	\$226	\$375	\$327	\$381	\$256	\$192
Median	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$1,215	\$1,313	\$543	\$1,213	\$528	\$784	\$688	\$759	\$543	\$0
99th percentile	\$6,292	\$7,578	\$3,897	\$4,221	\$4,830	\$4,962	\$6,293	\$9,222	\$4,005	\$5,206
Outpatient Non-ER Expenditures										

Measures (USD)	Baseline Period (Quarter Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent	Controls	Intervent	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
Mean	\$2,763	\$2,972	\$3,174	\$3,292	\$1,929	\$2,209	\$1,578	\$2,988	\$1,976	\$2,404
Median	\$1,141	\$1,218	\$1,132	\$1,113	\$622	\$673	\$504	\$554	\$550	\$514
90th percentile	\$6,020	\$4,955	\$5,827	\$7,715	\$3,790	\$4,857	\$3,541	\$3,887	\$3,673	\$3,957
99th percentile	\$27,986	\$28,944	\$38,099	\$24,708	\$23,314	\$16,615	\$13,543	\$53,411	\$30,078	\$23,464

Appendix Table E-11: HeartStrong Acute Cardiac, Non-AMI Cardiac, and AMI Expenditures in the Baseline Period and by Quarter Following Enrollment, Mixed Payer Cohort

Measures (USD)	Baseline Period (Quarter Prior to Enrollment)		Q1		Q2		Q3		Q4	
	Intervent.	Controls	Intervent	Controls	Intervent.	Controls	Intervent.	Controls	Intervent.	Controls
<i>Number of Enrollees</i>	658	314	658	314	598	290	546	258	508	234
Acute Cardiac Events Expenditures										
Mean	\$28,271	\$29,232	\$1,455	\$1,696	\$1,247	\$1,057	\$985	\$730	\$537	\$714
Median	\$20,862	\$20,611	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$54,429	\$53,830	\$1,153	\$1,825	\$954	\$651	\$653	\$954	\$11	\$200
99th percentile	\$123,576	\$133,735	\$39,987	\$29,981	\$31,634	\$27,136	\$25,111	\$15,762	\$14,539	\$19,694
Acute Non-AMI Cardiac Events Expenditures										
Mean	\$4,580	\$5,171	\$1,138	\$1,494	\$870	\$956	\$666	\$623	\$412	\$707
Median	\$1,587	\$1,617	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$11,341	\$11,858	\$772	\$1,660	\$871	\$651	\$512	\$679	\$3	\$200
99th percentile	\$41,826	\$60,876	\$32,990	\$25,653	\$19,358	\$25,069	\$17,553	\$15,416	\$11,915	\$19,694
Acute AMI Expenditures										
Mean	\$24,842	\$24,910	\$345	\$210	\$404	\$190	\$330	\$117	\$136	\$95
Median	\$18,437	\$17,897	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90th percentile	\$48,389	\$46,085	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
99th percentile	\$113,265	\$108,821	\$7,385	\$8,963	\$13,255	\$9,344	\$12,950	\$3,122	\$3,774	\$395

E.5 Medication Adherence

Appendix Table E-12: Average Proportion of Days Covered (PDC) by Medication Type, HeartStrong Mixed Payer Cohort

Measures	Intervention Period (Year Following Program Enrollment)	
	Intervention	Controls
Beta Blockers		
<i>Number of Eligible Enrollees</i>	403	184
Mean	84.32	84.07
Median	93.80	94.87
25th percentile	76.92	75.22
75th percentile	99.43	99.15
90th percentile	100.00	100.00
99th percentile	100.00	100.00
Platelet Blockers		
<i>Number of Eligible Enrollees</i>	234	105
Mean	78.36	78.76
Median	89.00	88.24
25th percentile	62.13	65.93
75th percentile	98.00	98.24
90th percentile	100.00	100.00
99th percentile	100.00	100.00
Statins		
<i>Number of Eligible Enrollees</i>	432	192
Mean	84.41	84.27
Median	93.33	93.72
25th percentile	78.74	75.88
75th percentile	99.11	98.84
90th percentile	100.00	100.00
99th percentile	100.00	100.00

APPENDIX F: META-EVALUATION MEASURES

F.1 Quarterly Baseline and Intervention Period Trends

Appendix Table F-1: Baseline and Intervention Meta-Evaluation Measure Trends: Total Medical Expenditures per Patient

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Intervention Group																
Welvie Ohio FFS (1C1CMS330984)																
Spending Rate	\$1,945	\$1,955	\$2,149	\$2,239	\$2,386	\$2,348	\$2,436	\$2,377	\$2,486	\$2,365	\$2,450	\$2,358	\$2,427	\$2,400	\$2,434	\$2,382
Standard Deviation	\$5,949	\$6,035	\$6,681	\$7,373	\$7,163	\$7,449	\$7,199	\$7,718	\$7,602	\$7,191	\$7,100	\$7,369	\$7,143	\$7,089	\$7,052	\$7,348
Unique Patients	58,582	58,582	58,582	58,582	58,582	57,711	56,851	55,987	55,044	54,177	53,341	52,424	51,471	50,679	49,929	49,150
Welvie Ohio MA (1C1CMS330984)																
Spending Rate	\$222	\$1,105	\$1,392	\$1,478	\$1,723	\$1,593	\$1,496	\$1,427	\$1,494	\$1,356	\$1,326	\$1,309	\$1,232	\$1,019	\$967	No data
Standard Deviation	\$2,049	\$4,353	\$5,066	\$5,488	\$6,153	\$6,043	\$5,709	\$5,525	\$5,594	\$5,423	\$5,345	\$5,262	\$4,902	\$4,360	\$4,288	No data
Unique Patients	97,380	97,380	97,380	97,380	97,380	96,492	95,477	92,080	91,230	90,076	89,069	82,860	81,907	79,501	78,171	No data
Welvie Texas MA (1C1CMS330984)																
Spending Rate	\$1,261	\$1,311	\$1,362	\$1,637	\$1,704	\$1,832	\$1,846	\$1,941	\$1,911	\$1,808						
Standard Deviation	\$5,027	\$5,655	\$5,400	\$6,171	\$6,386	\$6,468	\$7,085	\$7,027	\$7,456	\$6,350						
Unique Patients	63,979	63,979	63,979	63,979	63,979	63,885	50,346	49,822	49,356	48,797						
HeartStrong Mixed Payer (Commercial, Medicare Advantage, Medicaid) ^a (1C1CMS331009)																
Spending Rate				\$33,202	\$7,109	\$4,589	\$3,983	\$3,725								
Standard Deviation				\$27,312	\$18,957	\$11,217	\$11,864	\$10,944								
Unique Patients				658	658	598	546	508								
Control Group																
Welvie Ohio FFS (1C1CMS330984)																

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Spending Rate	\$2,070	\$1,997	\$2,196	\$2,373	\$2,572	\$2,459	\$2,569	\$2,407	\$2,510	\$2,410	\$2,534	\$2,509	\$2,472	\$2,426	\$2,518	\$2,450
Standard Deviation	\$6,422	\$6,134	\$6,713	\$7,577	\$7,888	\$7,526	\$7,807	\$7,536	\$7,488	\$7,195	\$7,469	\$8,096	\$7,075	\$7,033	\$7,337	\$7,508
Unique Patients	49,195	49,195	49,195	49,195	49,195	48,254	47,469	46,662	45,750	44,902	44,193	43,385	42,496	41,757	41,091	40,414
Welvie Ohio MA (1C1CMS330984)																
Spending Rate	\$217	\$1,143	\$1,451	\$1,509	\$1,771	\$1,647	\$1,599	\$1,516	\$1,555	\$1,388	\$1,374	\$1,321	\$1,275	\$1,038	\$1,022	
Standard Deviation	\$2,082	\$4,493	\$5,613	\$5,358	\$6,256	\$6,330	\$6,185	\$5,981	\$5,684	\$5,708	\$5,315	\$5,392	\$5,377	\$4,429	\$4,510	
Unique Patients	94,915	94,915	94,915	94,915	94,915	94,059	93,045	89,750	88,894	87,518	86,556	80,581	79,640	77,232	75,732	
Welvie Texas MA (1C1CMS330984)																
Spending Rate	\$1,296	\$1,358	\$1,343	\$1,662	\$1,712	\$1,835	\$1,945	\$1,937	\$1,835	\$1,824						
Standard Deviation	\$5,509	\$5,502	\$5,285	\$6,211	\$6,704	\$6,720	\$8,916	\$6,950	\$6,262	\$6,504						
Unique Patients	63,759	63,759	63,759	63,759	63,759	63,654	50,476	49,956	49,449	48,926						
HeartStrong Mixed Payer Cohort ^a (1C1CMS331009)																
Spending Rate				\$34,465	\$7,738	\$4,576	\$4,851	\$4,372								
Standard Deviation				\$31,916	\$36,334	\$12,771	\$13,043	\$12,272								
Unique Patients				314	314	290	258	234								

^aThe evaluation of the HeartStrong program required enrollees to have continuous enrollment in a medical and drug insurance plan for only one quarter prior to their entry into the HeartStrong intervention.

Appendix Table F-2: Baseline & Intervention Meta-Evaluation Measure Trends: Inpatient Admissions per 1,000 Enrollees

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Intervention Group																
Pharm2Pharm FFS & MA (1C1CMS331061)																
Admit Rate	120.6	133.2	165.8	1000	290.2	193.6	210.7	181.8	161.3	163.4	160	150.2				
Standard Deviation	11.5	12.0	13.2	0.0	16.1	14.4	15.3	15.0	15.5	17.4	19.6	21.6				

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Unique Patients	796	796	796	796	796	749	707	660	564	453	350	273				
Welvie Ohio FFS (1C1CMS330984)																
Admit Rate	60.3	58.4	64.0	70.3	72.6	69.3	70.6	71.7	73.7	66.9	70.6	74.3	72.7	69.1	68.6	74.2
Standard Deviation	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2
Unique Patients	58582	58582	58582	58582	58582	57711	56851	55987	55044	54177	53341	52424	51471	50679	49929	49150
Welvie Ohio MA (1C1CMS330984)																
Admit Rate	8.0	38.2	46.1	49.1	56.9	55.9	49.5	46.4	46.6	44.2	41.9	42.3	41.7	44.6	39	
Standard Deviation	0.3	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
Unique Patients	97380	97380	97380	97380	97380	96492	95477	92080	91230	90076	89069	82860	81907	79501	78171	
Welvie Texas MA (1C1CMS330984)																
Admit Rate	39.1	38.3	43.9	50.3	50.2	52.1	56.6	57.6	54.0	50.1						
Standard Deviation	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0						
Unique Patients	63979	63979	63979	63979	63979	63885	50346	49822	49356	48797						
HeartStrong Mixed Payer ^a Cohort (1C1CMS331009)																
Admit Rate				1,000.0	145.9	113.7	120.9	96.5								
Standard Deviation				0.0	13.8	13.0	14.0	13.1								
Unique Patients				658	658	598	546	508								
Control Group																
Pharm2Pharm FFS & MA (1C1CMS331061)																
Admit Rate	107.1	120.9	142.3	1000	178.8	106.3	105.7	118.5	100.8	107.4	136.8	91.6				
Standard Deviation	11.0	11.6	12.4	0.0	13.6	11.8	12.2	13.5	13.5	15.1	18.3	17.5				
Unique Patients	794	794	794	794	794	687	634	574	496	419	351	273				
Welvie Ohio FFS (1C1CMS330984)																

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Admit Rate	62.8	59.2	63.9	73.9	78.0	72.4	71.4	72.2	72.6	68.3	73.0	77.9	75.0	68.4	72.3	74.7
Standard Deviation	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.3	1.3
Unique Patients	49195	49195	49195	49195	49195	48254	47469	46662	45750	44902	44193	43385	42496	41757	41091	40414
Welvie Ohio MA (1C1CMS330984)																
Admit Rate	6.9	40.1	48.5	49.0	57.7	57.7	52	48	47.9	45.4	44.1	41.6	42.6	45.7	41.6	
Standard Deviation	0.3	0.6	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	
Unique Patients	94915	94915	94915	94915	94915	94059	93045	89750	88894	87518	86556	80581	79640	77232	75732	
Welvie Texas MA (1C1CMS330984)																
Admit Rate	41.0	40.2	42.5	49.2	49.6	51.9	58.8	57.2	52.9	50.1						
Standard Deviation	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0						
Unique Patients	63759	63759	63759	63759	63759	63654	50476	49956	49449	48926						
HeartStrong Mixed Payer ^a Cohort (1C1CMS331009)																
Admit Rate				1,000.0	146.5	124.1	116.3	132.5								
Standard Deviation				0.0	20.0	19.4	20.0	21.2								
Unique Patients				314	314	290	258	234								

^aThe evaluation of the HeartStrong program required enrollees to have continuous enrollment in a medical and drug insurance plan for only one quarter prior to their entry into the HeartStrong intervention.

Appendix Table F-3: Baseline & Intervention Meta-Evaluation Measure Trends: 30-Day Hospital Readmissions per 1,000 Admissions

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Intervention Group																
Pharm2Pharm FFS & MA (1C1CMS331061)																
Readmit Rate	170.2	188.7	160.3	253.8	267.3	264.7	185.7	168.1	220.9	194	196.4	300				
Standard Deviation	38.8	38.0	32.1	15.5	30.0	37.8	32.9	35.2	44.7	48.3	53.1	72.5				
Total Admissions	94	106	131	792	217	136	140	113	86	67	56	40				
Welvie Ohio FFS (1C1CMS330984)																
Readmit Rate	137.9	154.6	141.8	164.8	178.1	194.6	173.2	191.8	193.9	173.6	172.6	184.4	176.4	178.4	179.5	174.8
Standard Deviation	5.8	6.2	5.7	5.8	6.0	6.4	6.1	6.3	6.3	6.4	6.3	6.3	6.3	6.6	6.7	6.4
Total Admissions	3510	3409	3731	4089	4122	3875	3885	3859	3909	3513	3627	3742	3629	3403	3309	3518
Welvie Ohio MA (1C1CMS330984)																
Readmit Rate	102.8	137.2	133.4	159.9	159.9	174.3	163.8	162.5	158	170.9	165.6	171.2	151.5	161.7	158.6	
Standard Deviation	16.0	6.1	5.3	5.6	5.2	5.4	5.7	6.0	5.9	6.3	6.5	6.7	6.5	6.5	7.0	
Total Admissions	360	3222	4056	4360	5027	4876	4225	3835	3760	3534	3254	3114	3076	3197	2724	
Welvie Texas MA (1C1CMS330984)																
Readmit Rate	127.2	128.8	145.8	142	165.3	171	181.5	183.5	178.4	166.2						
Standard Deviation	7.2	7.3	6.9	6.3	6.7	6.7	7.4	7.4	7.7	7.7						
Total Admissions	2138	2128	2585	3078	3030	3146	2694	2708	2489	2311						
HeartStrong Mixed Payer Cohort (1C1CMS331009) ^a																
Readmit Rate				199.1	355.3	277.8	178.6	270.3								
Standard Deviation				15.6	54.9	61.0	51.2	73.0								
Total Admissions				658	76	54	56	37								

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Control Group																
Pharm2Pharm FFS & MA (1C1CMS331061)																
Readmit Rate	202.4	95.7	160.7	190.7	254	296.9	258.1	174.6	163.3	177.8	234	120				
Standard Deviation	43.8	30.3	34.7	14.0	38.8	57.1	55.6	47.8	52.8	57.0	61.8	65.0				
Total Admissions	84	94	112	792	126	64	62	63	49	45	47	25				
Welvie Ohio FFS (1C1CMS330984)																
Readmit Rate	148.7	144.8	149.3	182.6	184.6	186.3	197.1	191	182.4	178.9	187.1	183.9	182.8	169.1	183.5	187.5
Standard Deviation	6.4	6.5	6.4	6.4	6.4	6.7	7.0	6.9	6.8	7.0	7.0	6.8	7.0	7.1	7.2	7.2
Total Admissions	3074	2900	3121	3619	3684	3377	3268	3236	3191	2980	3116	3257	3090	2767	2872	2923
Welvie Ohio MA (1C1CMS330984)																
Readmit Rate	160	137.6	140	164	160.8	164.9	172.9	166.2	162.8	167.2	167.7	167.2	159.7	171	169.2	
Standard Deviation	21.2	6.0	5.4	5.7	5.2	5.3	5.8	6.0	6.0	6.3	6.5	6.8	6.6	6.7	7.0	
Total Admissions	300	3335	4165	4262	4944	4893	4320	3881	3783	3516	3345	3002	3056	3204	2837	
Welvie Texas MA (1C1CMS330984)																
Readmit Rate	137.4	127.6	143	165.8	148.2	168.5	195.3	181.4	171.9	167.2						
Standard Deviation	7.3	7.0	7.0	6.8	6.5	6.7	7.5	7.4	7.6	7.8						
Total Admissions	2241	2249	2483	2997	3017	3139	2821	2685	2455	2302						
HeartStrong Mixed Payer Cohort (1C1CMS331009) ^a																
Readmit Rate				214.1	290.3	291.7	304.3	240.0								
Standard Deviation				23.2	81.5	92.8	95.9	85.4								
Total Admissions				313	31	24	23	25								

^aThe evaluation of the HeartStrong program required enrollees to have continuous enrollment in a medical and drug insurance plan for only one quarter prior to their entry into the HeartStrong intervention.

Appendix Table F-4: Baseline & Intervention Meta-Evaluation Measure Trends: ER Visits per 1,000 Enrollees

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Intervention Group																
Welvie Ohio FFS (1C1CMS330984)																
ER Rate	79.4	81.9	79.2	83.6	86.3	88.2	83.9	83.3	91.8	92.9	88.5	92.2	96.3	97.1	92.6	93.9
Standard Deviation	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
Unique Patients	58582	58582	58582	58582	58582	57711	56851	55987	55044	54177	53341	52424	51471	50679	49929	49150
Welvie Ohio MA (1C1CMS330984)																
ER Rate	11.7	49.4	64.2	66.7	67.5	67.3	66.3	65.6	61.5	57.3	59.2	60.1	55.1	25.1	5.8	
Standard Deviation	0.3	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.3	
Unique Patients	97380	97380	97380	97380	97380	96492	95477	92080	91230	90076	89069	82860	81907	79501	78171	
Welvie Texas MA (1C1CMS330984)																
ER Rate	66.4	66.2	71.6	80.4	85.4	83.8	85.6	86.4	85.4	82.7						
Standard Deviation	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.3	1.3	1.2						
Unique Patients	63979	63979	63979	63979	63979	63885	50346	49822	49356	48797						
HeartStrong Mixed Payer Cohort (1C1CMS331009) ^a																
ER Rate				256.8	142.9	138.8	150.2	149.6								
Standard Deviation				17.0	13.6	14.1	15.3	15.8								
Unique Patients				658	658	598	546	508								
Control Group																
Welvie Ohio FFS (1C1CMS330984)																
ER Rate	79.9	83.8	77.9	85.7	86.3	92.2	89.2	84.5	94.4	93.5	89.1	93.2	96.3	98.9	92.1	93.3
Standard Deviation	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.4
Unique Patients	49195	49195	49195	49195	49195	48254	47469	46662	45750	44902	44193	43385	42496	41757	41091	40414

Description	Baseline Period (Year Prior to Enrollment)				Intervention Period											
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Welvie Ohio MA (1C1CMS330984)																
ER Rate	10.8	48.4	63.6	70.1	67.6	67.8	67.2	67	62.9	58.4	62.4	62.3	56.5	25.3	5.8	
Standard Deviation	0.3	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.6	0.3	
Unique Patients	94915	94915	94915	94915	94915	94059	93045	89750	88894	87518	86556	80581	79640	77232	75732	
Welvie Texas MA (1C1CMS330984)																
ER Rate	66.9	66.9	72.3	82.2	85.7	84.8	88.1	85.5	85	83.1						
Standard Deviation	1.0	1.0	1.0	1.1	1.1	1.1	1.3	1.3	1.3	1.2						
Unique Patients	63759	63759	63759	63759	63759	63654	50476	49956	49449	48926						
HeartStrong Mixed Payer Cohort (1C1CMS331009) ^a																
ER Rate				242.0	165.6	182.8	170.5	94.0								
Standard Deviation				24.2	21.0	22.7	23.4	19.1								
Unique Patients				314	314	290	258	234								

^aThe evaluation of the HeartStrong program required enrollees to have continuous enrollment in a medical and drug insurance plan for only one quarter prior to their entry into the HeartStrong intervention.

F.2 Program Effect Estimates

F.2.1 Quarterly Results

Appendix Table F-5: DiD Meta-Evaluation Measure Estimates: Effects on Total Medical Expenditures per Beneficiary

Description	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Welvie Ohio FFS (1C1CMS330984)	-99.47*	-51.54	-69.15	30.16	34.08	12.63	-31.87	-99.34*	4.76	21.26	-34.54	-16.40
90% Confidence Interval	(-188,-11)	(-139,35)	(-157,18)	(-58,118)	(-54,122)	(-72,98)	(-118,54)	(-191,-8)	(-80,90)	(-64,106)	(-122,53)	(-106,73)
80% Confidence Interval	(-168,-31)	(-119,16)	(-137,-1)	(-39,99)	(-34,103)	(-54,79)	(-99,35)	(-170,-28)	(-62,71)	(-45,88)	(-102,33)	(-86,54)
P-Value	0.063	0.330	0.193	0.574	0.524	0.807	0.543	0.073	0.927	0.681	0.514	0.764
Welvie Ohio MA (1C1CMS330984)	-17.27	-23.70	-71.81**	-55.82*	-28.26	3.18	-14.14	22.18	-9.94	7.56	-35.92	
90% Confidence Interval	(-68,34)	(-75,27)	(-121,-23)	(-105,-7)	(-76,20)	(-44,51)	(-60,32)	(-26,70)	(-56,37)	(-34,49)	(-78,6)	
80% Confidence Interval	(-57,23)	(-63,16)	(-110,-33)	(-94,-18)	(-66,9)	(-34,40)	(-50,22)	(-15,59)	(-46,26)	(-25,40)	(-68,-3)	
P-Value	0.579	0.444	0.017	0.059	0.332	0.913	0.613	0.444	0.725	0.765	0.158	
Welvie Texas MA (1C1CMS330984)	13.88	15.80	-68.30	42.32	118.29**	27.67						
90% Confidence Interval	(-55,83)	(-54,85)	(-161,24)	(-40,125)	(37,199)	(-49,105)						
80% Confidence Interval	(-40,68)	(-38,70)	(-140,4)	(-22,106)	(55,181)	(-32,88)						
P-Value	0.741	0.709	0.223	0.398	0.016	0.555						

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

Appendix Table F-6: Single Difference Meta-Evaluation Measure Estimates: Effects on Total Medical Expenditures per Beneficiary

Description	Q1	Q2	Q3	Q4
HeartStrong Mixed Payer Cohort (1C1CMS331009)	-628.55	12.76	-868.91	-648.15
<i>90% Confidence Interval</i>	(-4,212.5 2,955.4)	(-1,432.8 1,458.3)	(-2,443.4 705.6)	(-2,189.6 893.3)
<i>80% Confidence Interval</i>	(-3,420.9 2,163.8)	(-1,113.5 1,139.1)	(-2,095.7 357.8)	(-1,849.1 552.8)
<i>P-Value</i>	0.773	0.988	0.364	0.489

Appendix Table F-7: DiD Meta-Evaluation Measure Estimates: Inpatient Admissions per 1,000 Enrollees

Description	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Pharm2Pharm FFS & MA (1C1CMS331061)	144.35***	120.50***	116.75***	61.28*	81.86**	35.34	11.50	101.65**				
<i>90% Confidence Interval</i>	(82,206)	(61,180)	(61,173)	(6,116)	(26,138)	(-31,102)	(-62,85)	(24,180)				
<i>80% Confidence Interval</i>	(96,193)	(74,167)	(73,160)	(18,104)	(38,126)	(-17,87)	(-46,69)	(41,162)				
<i>P-Value</i>	<0.001	<0.001	<0.001	0.067	0.016	0.384	0.798	0.032				
Welvie Ohio FFS (1C1CMS330984)	-4.77*	-2.44	-1.52	1.64	4.54*	0.79	-3.28	-2.80	-1.03	2.57	-3.69	1.34
<i>90% Confidence Interval</i>	(-9,0)	(-7,2)	(-6,3)	(-3,6)	(0,9)	(-4,5)	(-8,1)	(-7,2)	(-6,4)	(-2,7)	(-8,1)	(-3,6)
<i>80% Confidence Interval</i>	(-8,-1)	(-6,1)	(-5,2)	(-2,5)	(1,8)	(-3,4)	(-7,0)	(-6,1)	(-5,3)	(-1,6)	(-7,0)	(-2,5)
<i>P-Value</i>	0.080	0.362	0.568	0.544	0.094	0.762	0.225	0.313	0.710	0.335	0.178	0.631
Welvie Ohio MA (1C1CMS330984)	-0.43	-0.97	-2.45	-1.16	-0.38	0.07	-2.14	2.26	-0.21	-1.37	-2.95*	
<i>90% Confidence Interval</i>	(-3,2)	(-4,2)	(-5,0)	(-4,1)	(-3,2)	(-2,3)	(-5,0)	(0,5)	(-3,2)	(-4,1)	(-6,0)	
<i>80% Confidence Interval</i>	(-3,2)	(-3,1)	(-4,0)	(-3,1)	(-2,2)	(-2,2)	(-4,0)	(0,4)	(-2,2)	(-3,1)	(-5,-1)	
<i>P-Value</i>	0.796	0.558	0.123	0.455	0.810	0.965	0.156	0.147	0.895	0.390	0.057	
Welvie Texas MA (1C1CMS330984)	2.36	2.58	-3.33	2.54	5.76**	0.65						
<i>90% Confidence Interval</i>	(-1,6)	(-1,6)	(-8,1)	(-2,7)	(2,10)	(-3,5)						
<i>80% Confidence Interval</i>	(0,5)	(0,6)	(-7,0)	(-1,6)	(2,9)	(-2,4)						
<i>P-Value</i>	0.283	0.259	0.231	0.355	0.025	0.787						

* Statistically significant at the ten percent level.
 ** Statistically significant at the five percent level.
 *** Statistically significant at the one percent level.

Appendix Table F-8: Single Difference Meta-Evaluation Measure Estimates: Inpatient Admissions per 1,000 Enrollees

Description	Q1	Q2	Q3	Q4
HeartStrong Mixed Payer Cohort (1C1CMS331009)	-5.40	45.30	-81.91	-36.12
<i>90% Confidence Interval</i>	(-145.3 134.5)	(-55.4 146.0)	(-265.5 101.7)	(-106.6 34.3)
<i>80% Confidence Interval</i>	(-114.4 103.6)	(-33.2 123.8)	(-224.9 61.1)	(-91.0 18.8)
<i>P-Value</i>	0.949	0.459	0.463	0.399

Appendix Table F-9: DiD Meta-Evaluation Measure Estimates: 30-Day Hospital Readmissions per 1,000 Admissions

Description	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Pharm2Pharm FFA & MA (1C1CMS331061)	13.31	-32.17	-72.35	-6.46	57.66	16.25	-37.61	180.00*				
<i>90% Confidence Interval</i>	(-67.4 94.0)	(-144.8 80.5)	(-178.5 33.8)	(-104.1 91.2)	(-56.2 171.5)	(-106.6 139.1)	(-171.6 96.3)	(19.9 340.1)				
<i>80% Confidence Interval</i>	(-49.6 76.2)	(-120.0 55.6)	(-155.1 10.4)	(-82.6 69.6)	(-31.0 146.4)	(-79.5 112.0)	(-142.0 66.8)	(55.3 304.7)				
<i>P-Value</i>	0.786	0.639	0.262	0.913	0.405	0.828	0.644	0.064				
Welvie Ohio FFS (1C1CMS330984)	-6.51	8.32	-23.83***	0.78	11.52	-5.22	-14.50	0.48	-6.49	9.24	-3.99	-12.66
<i>90% Confidence Interval</i>	(-20.9 7.9)	(-6.9 23.5)	(-39.0 -8.6)	(-14.6 16.2)	(-3.8 26.8)	(-20.8 10.4)	(-30.0 0.9)	(-14.8 15.8)	(-22.0 9.0)	(-6.7 25.2)	(-20.2 12.2)	(-28.5 3.2)
<i>80% Confidence Interval</i>	(-17.7 4.7)	(-3.5 20.2)	(-35.7 -12.0)	(-11.2 12.8)	(-0.4 23.5)	(-17.4 6.9)	(-26.5 -2.5)	(-11.4 12.4)	(-18.5 5.6)	(-3.2 21.7)	(-16.6 8.6)	(-25.0 -0.3)
<i>P-Value</i>	0.456	0.368	0.010	0.933	0.216	0.583	0.122	0.959	0.490	0.340	0.685	0.189
Welvie Ohio MA (1C1CMS330984)	-0.86	9.39	-9.13	-3.74	-4.86	3.68	-2.07	3.94	-8.19	-9.32	-10.60	
<i>90% Confidence Interval</i>	(-13.0 11.2)	(-3.1 21.9)	(-22.4 4.2)	(-17.6 10.1)	(-18.8 9.0)	(-11.0 18.4)	(-17.2 13.0)	(-11.8 19.7)	(-23.4 7.0)	(-24.6 6.0)	(-26.9 5.7)	
<i>80% Confidence Interval</i>	(-10.3 8.6)	(-0.3 19.1)	(-19.5 1.2)	(-14.6 7.1)	(-15.7 6.0)	(-7.8 15.1)	(-13.8 9.7)	(-8.3 16.2)	(-20.1 3.7)	(-21.3 2.6)	(-23.3 2.1)	
<i>P-Value</i>	0.906	0.216	0.259	0.657	0.566	0.681	0.821	0.681	0.376	0.317	0.285	
Welvie Texas MA (1C1CMS330984)	17.19*	2.49	-13.81	2.15	6.49	-1.08						
<i>90% Confidence Interval</i>	(1.8 32.6)	(-13.1 18.1)	(-31.1 3.5)	(-15.1 19.5)	(-11.3 24.3)	(-19.1 17.0)						
<i>80% Confidence Interval</i>	(5.2 29.2)	(-9.7 14.6)	(-27.3 -0.3)	(-11.3 15.6)	(-7.4 20.3)	(-15.1 13.0)						
<i>P-Value</i>	0.066	0.793	0.190	0.838	0.548	0.921						

* Statistically significant at the ten percent level.
 ** Statistically significant at the five percent level.
 *** Statistically significant at the one percent level.

Appendix Table F-10: Single Difference Meta-Evaluation Measure Estimates: 30-Day Hospital Readmissions per 1,000 Admissions

Description	Q1	Q2	Q3	Q4
HeartStrong Mixed Payer Cohort (1C1CMS331009)	64.94	-13.89	-125.78	30.27
<i>90% Confidence Interval</i>	(-96.7 226.6)	(-196.5 168.7)	(-304.6 53.1)	(-154.6 215.1)
<i>80% Confidence Interval</i>	(-61.0 190.9)	(-156.2 128.4)	(-265.1 13.6)	(-113.7 174.3)
<i>P-Value</i>	0.509	0.900	0.247	0.788

Appendix Table F-11: DiD Meta-Evaluation Measure Estimates: ER Visits per 1,000 Enrollees

Description	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Welvie Ohio FFS (1C1CMS330984)	0.23	-4.95*	-6.82**	-0.23	-2.77	-1.14	-1.17	-0.83	-0.04	-1.39	1.50	1.42
<i>90% Confidence Interval</i>	(-4,5)	(-10,0)	(-11,-2)	(-5,4)	(-8,2)	(-6,4)	(-6,4)	(-6,4)	(-5,5)	(-7,4)	(-4,7)	(-4,6)
<i>80% Confidence Interval</i>	(-3,4)	(-9,-1)	(-10,-3)	(-4,3)	(-7,1)	(-5,3)	(-5,3)	(-5,3)	(-4,4)	(-5,3)	(-2,5)	(-3,5)
<i>P-Value</i>	0.934	0.088	0.015	0.934	0.352	0.710	0.692	0.782	0.989	0.657	0.624	0.643
Welvie Ohio MA (1C1CMS330984)	0.40	1.21	-0.63	-0.05	-0.57	-1.37	-3.16*	-2.60	0.60	0.34	0.90	
<i>90% Confidence Interval</i>	(-2,3)	(-2,4)	(-3,2)	(-3,3)	(-3,2)	(-4,1)	(-6,0)	(-6,0)	(-2,3)	(-2,2)	(-1,2)	
<i>80% Confidence Interval</i>	(-2,3)	(-1,3)	(-3,2)	(-2,2)	(-3,2)	(-3,1)	(-5,-1)	(-5,0)	(-2,3)	(-1,2)	(0,2)	
<i>P-Value</i>	0.811	0.478	0.714	0.975	0.739	0.389	0.067	0.145	0.727	0.775	0.300	
Welvie Texas MA (1C1CMS330984)	1.52	-0.59	-3.35	0.22	3.73	2.17						
<i>90% Confidence Interval</i>	(-3,6)	(-5,4)	(-9,2)	(-5,5)	(-2,9)	(-3,8)						
<i>80% Confidence Interval</i>	(-2,5)	(-4,3)	(-7,1)	(-4,4)	(0,8)	(-2,6)						
<i>P-Value</i>	0.602	0.838	0.293	0.946	0.248	0.509						

* Statistically significant at the ten percent level.

** Statistically significant at the five percent level.

Appendix Table F-12: Single Difference Meta-Evaluation Measure Estimates: ER Visits per 1,000 Enrollees

Description	Q1	Q2	Q3	Q4
HeartStrong Mixed Payer (1C1CMS331009)	-54.25	-54.49	26.24	76.42
<i>90% Confidence Interval</i>	(-144.9 36.4)	(-164.3 55.4)	(-66.0 118.5)	(-18.0 170.8)
<i>80% Confidence Interval</i>	(-124.9 16.4)	(-140.1 31.1)	(-45.6 98.1)	(2.9 150.0)
<i>P-Value</i>	0.325	0.415	0.640	0.183

F.2.2 Cumulative Results

Appendix Table F-13: Meta-Measures: Summative Effect Sizes

ID	Awardee	Measure	Effect Size	90% Confidence Interval	80% Confidence Interval	Number of Baseline Quarters	Number of Intervention Quarters	Unique IG Benes	Unique CG Benes	Estimation Method	Calendar or Program Exposure Based Quarter? ^c
1C1CMS331061	University of Hawaii, Combined FFS and MA	IP Admissions (Per 1,000 Beneficiaries)	672.17***	(438.0 906.3)	(489.7 854.6)	4	8	796	796	DiD (matched controls) ^a	Program Exposure-Based
	University of Hawaii, Combined FFS and MA	IP Readmissions (Per 1,000 Beneficiaries)	-11.26	(-327.9 305.4)	(-258.0 235.4)	4	8	796	796	DiD (matched controls) ^a	Program Exposure-Based
1C1CMS330984	Welvie LLC, Ohio FFS	Total Medical Costs (Per 1,000 Beneficiaries)	\$38,469.21	(-445,147.1 522,085.6)	(-338,329.8 415,268.3)	4	12	58,582	49,195	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Ohio FFS	IP Admissions (Per 1,000 Beneficiaries)	-0.14	(-25.3 25.1)	(-19.8 19.5)	4	12	58,582	49,195	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Ohio FFS	IP Readmissions (Per 1,000 Beneficiaries)	-42.75	(-96.2 10.7)	(-84.4 -1.1)	4	12	58,582	49,195	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Ohio FFS	ER Visits (Per 1,000 Beneficiaries)	-13.26	(-40.5 14.0)	(-34.5 8.0)	4	12	58,582	49,195	DiD (randomized controls)	Program Exposure-Based

ID	Awardee	Measure	Effect Size	90% Confidence Interval	80% Confidence Interval	Number of Baseline Quarters	Number of Intervention Quarters	Unique IG Benes	Unique CG Benes	Estimation Method	Calendar or Program Exposure Based Quarter?*
1C1CMS330984	Welvie LLC, Ohio MA	Total Medical Costs (Per 1,000 Beneficiaries)	-\$235,622.33	(-471,440.3 195.6)	(-419,354.7 -51,889.9)	4	11	97,380	94,915	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Ohio MA	IP Admissions (Per 1,000 Beneficiaries)	-7.79	(-20.9 5.4)	(-18.0 2.5)	4	11	97,380	94,915	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Ohio MA	IP Readmissions (Per 1,000 Beneficiaries)	-25.75	(-72.8 21.3)	(-62.4 10.9)	4	11	97,380	94,915	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Ohio MA	ER Visits (Per 1,000 Beneficiaries)	-6.49	(-20.6 7.6)	(-17.5 4.5)	4	11	97,380	94,915	DiD (randomized controls)	Program Exposure-Based
1C1CMS330984	Welvie LLC, Texas MA	Total Medical Costs (Per 1,000 Beneficiaries)	\$84,409.51	(-144,707.2 313,526.2)	(-94,101.7 262,920.7)	4	6	63,979	63,759	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Texas MA	IP Admissions (Per 1,000 Beneficiaries)	9.91	(-2.4 22.2)	(0.3 19.5)	4	6	63,979	63,759	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Texas MA	IP Readmissions (Per 1,000 Beneficiaries)	15.45	(-25.7 56.6)	(-16.6 47.5)	4	6	63,979	63,759	DiD (randomized controls)	Program Exposure-Based
	Welvie LLC, Texas MA	ER Visits (Per 1,000 Beneficiaries)	4.75	(-10.9 20.4)	(-7.5 17.0)	4	6	63,979	63,759	DiD (randomized controls)	Program Exposure-Based

ID	Awardee	Measure	Effect Size	90% Confidence Interval	80% Confidence Interval	Number of Baseline Quarters	Number of Intervention Quarters	Unique IG Benes	Unique CG Benes	Estimation Method	Calendar or Program Exposure Based Quarter? ^c
(1C1CMS331009)	HeartStrong Mixed Payer Cohort	Total Medical Costs (Per 1,000 Enrollees)	-1,209,638.63	(-3,977,436.7 1,558,159.4)	(-3,366,107.7 946,830.4)	1	4	658	314	Single Difference (randomized controls) ^b	Program Exposure-Based
	HeartStrong Mixed Payer Cohort	IP Admissions (Per 1,000 Enrollees)	-39.54	(-192.6 113.5)	(-158.8 79.7)	1	4	658	314	Single Difference (randomized controls) ^b	Program Exposure-Based
	HeartStrong Mixed Payer Cohort	IP Readmission (Per 1,000 Enrollees)	-1.74	(-21.6 18.1)	(-17.2 13.8)	1	4	658	314	Single Difference (randomized controls) ^b	Program Exposure-Based
	HeartStrong Mixed Payer Cohort	ER Visits (Per 1,000 Enrollees)	-15.13	(-127.9 97.6)	(-103.0 72.7)	1	4	658	314	Single Difference (randomized controls) ^b	Program Exposure-Based

*** Statistically significant at the one percent level.

^aFor the DiD estimates, Acumen first calculated average changes in health outcomes, quality of care, health service use, and medical expenditures for intervention group beneficiaries in the period after program enrollment compared with the pre-enrollment period, and then calculated the corresponding changes for comparison groups over the same period. For each outcome measure, Acumen subtracted the average change in the comparison group from that in the intervention group to obtain the DiD estimate.

^bTo obtain single difference estimates, Acumen compared health outcomes, quality of care, health service use, and medical expenditures between intervention and control groups in the period after program enrollment.

^cThis column denotes whether the quarterly results were compiled using calendar time, where all patients were present during the same chronological period, or a program exposure-based time, where program exposure begins when a patient first becomes eligible for care or enrolls.

APPENDIX G: COMPARISON GROUP MATCHING METHODOLOGY

This appendix describes the technical details of the matching methodology, summarized in Section 1.2.3, to construct comparison groups for the analysis of the Pharm2Pharm program.¹⁹ The analysis estimated program effects by comparing health and resource use outcomes between treated beneficiaries and matched comparison beneficiaries. The matching model thus aimed to identify comparison beneficiaries who were, based on their observable characteristics, as likely to be targeted by the intervention as the treated beneficiaries, and who were also very similar along various dimensions related to their demographic and clinical profiles.

The matching model estimated the probability that a beneficiary i will enroll in the intervention given observed characteristics (or covariates) X_i . This probability is the propensity score. That is, if enrollment $D_i = 1$ for beneficiaries in the intervention group, and $D_i = 0$ for beneficiaries in the comparison group who do not receive an intervention, the propensity score is $\Pr(D_i=1 | X_i)$. The propensity score was estimated using logistic regression, as per the following model:

$$\Pr(D_i = 1 | X_i) = \frac{e^{\lambda X_i}}{1 + e^{\lambda X_i}}$$

where X_i is a vector representing binary and continuous terms of the X covariates, and λ represents a vector of estimation parameters (including a constant).

Once the propensity score was estimated for both intervention group beneficiaries and potential controls, Acumen matched beneficiaries using both the propensity score and the values of characteristics believed to be particularly important for predicting analysis outcomes. This ensures that covariate balance is achieved over a large variety of health-related variables, while also ensuring particularly close matches on critical covariates like age, baseline Medicare costs, and hospitalizations.

The general matching process was as follows. Matching was performed separately for the Medicare FFS and MA intervention cohorts. Each intervention group beneficiary was first matched to a set of control group beneficiaries using exact matching on highly important categorical variables, especially important health utilization covariates like the presence of a recent hospitalization, and sociodemographic characteristics such as gender and an indicator variable for age under sixty-five. Among control beneficiaries who exactly matched on these variables, caliper matching was used to select control beneficiaries with propensity scores within 0.2 standard deviations of the propensity score from the intervention beneficiary. These

¹⁹ As described in Section 1.2.3., Welvie and HeartStrong were implemented as randomized controlled trials and their analysis did not require comparison group matching.

beneficiaries form a pool of potential matches. Finally, each intervention beneficiary was matched to a control beneficiary (from within the pool of potential matches) who was the closest on a variety of key continuous variables, such as age and inpatient cost. To gauge similarity in these characteristics, the Mahalanobis distance measure, a summary measure of differences, was employed.²⁰

Thus, each intervention beneficiary was matched to a control beneficiary who was highly similar on a variety of important characteristics. Intervention group beneficiaries without a matched comparison group member were excluded from the analysis.

²⁰ The Mahalanobis distance measure is a multi-dimensional generalization of the concept of standardized distance from the mean, or the number of standard deviations an observation is from the mean. The Mahalanobis distance accounts for both the variance of each individual measure and the correlations between them by applying a transformation that produces a set of standardized, uncorrelated variables, which can then be weighted equally in the measure of distance.