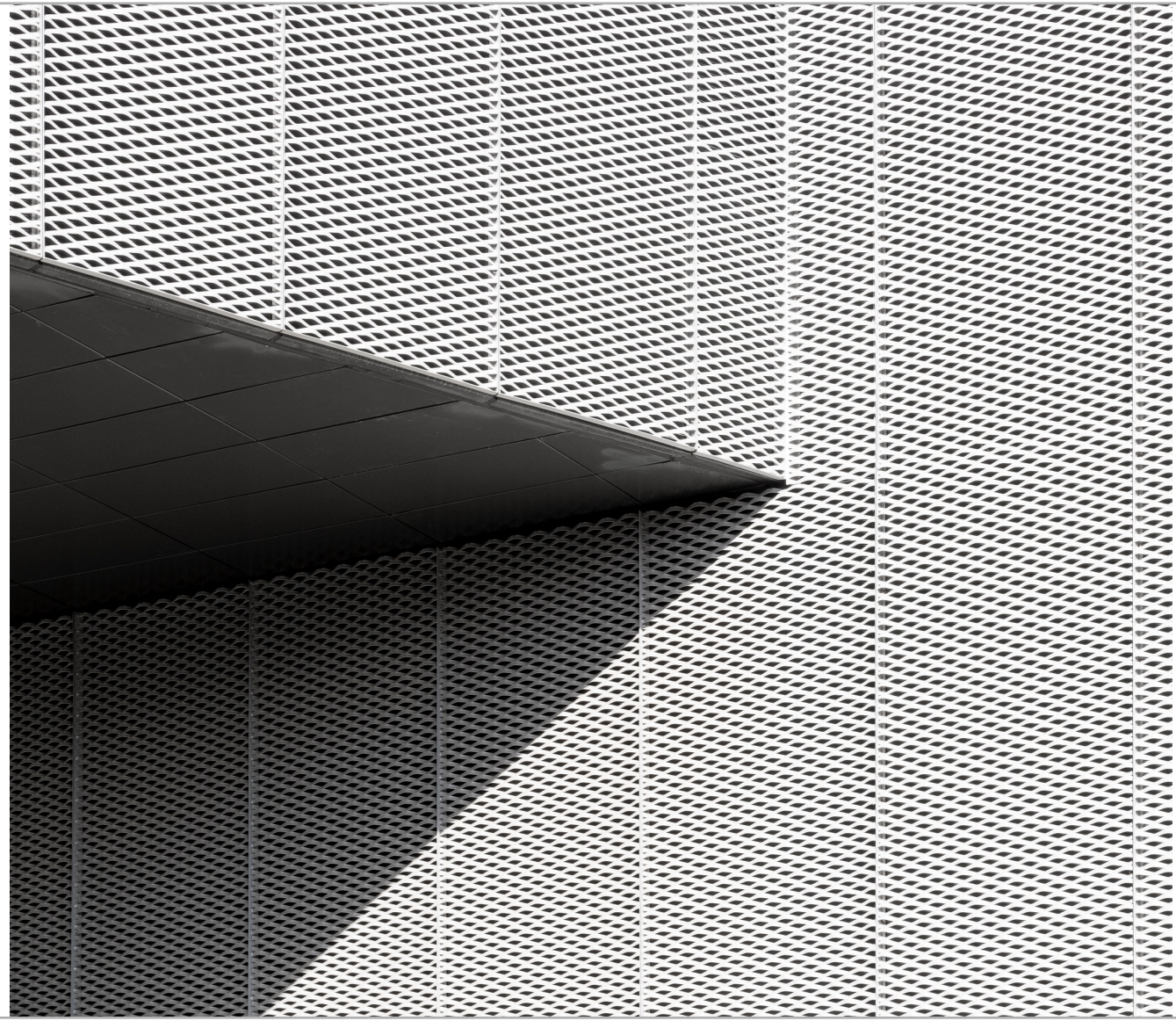
Structured Family Caregiving Outcomes Analysis

On Behalf of Careforth

December 2023

ATI Advisory



ABOUT THIS WORK

- ATI Advisory quantified the impact of Careforth's Structured Family Caregiving (SFC) program on consumer outcomes to demonstrate the strength of the programs for policymakers as they seek approaches that support aging in place, address direct care workforce shortages, and better support family caregivers.

Goal: to determine the association between Careforth's SFC program and outcomes

- Conducted a propensity score model (PSM) and a regression analysis to compare the probability of adverse health outcomes between the Careforth intervention group and the Medicare Current Beneficiary Survey (MCBS) control group
- Leveraged 2019, 2020 and 2021 MCBS data to create the control group
- Outcomes analyzed: ED visits, inpatient admissions, 30-day readmissions, injurious falls & any falls

SFC OUTCOMES: 2019 – 2021 SURVEY YEARS

- This table presents the differences in the probability of having 1+ outcome event in a year for Careforth consumers, compared against the MCBS control group (after adjusting for covariates)
- An asterisk indicates results are statistically significant at the 5% level
- Results for inpatient admissions and 30-day readmissions were not statistically significant

Event	Differences in Probability of Having 1+ Event in Year (compared against MCBS)	p-value	Statistically Significant
1+ ED Visits	-20.6%*	0.0010	Yes
1+ Injurious Falls	-45.5%*	<0.0001	Yes
1+ Falls – Any Type	-45.0%*	<0.0001	Yes
1+ IP Admissions	+7.8%	0.0858	No
1+ 30-Day Readmissions	+6.6%	0.3107	No

→ A negative value indicates the outcome has a **LOWER** probability of occurring among Careforth consumers, when compared against the MCBS control group.

→ Sample interpretation: "the probability of a Careforth consumer having at least 1 ED visit in a year is 21% lower than for similar dual eligible individuals in the MCBS control group (statistical significance observed at the 5% level)."

Notes: 1) This analyzes the probability of one or more events occurring per person per year; 2) Only MCBS control group Fee-For-Service (FFS) beneficiaries were included for the ED, IP Admissions, and Readmissions analyses because outcomes for the MCBS population are based on FFS claims; 3) ***1+ Falls – Any Type*** includes both injurious and non-injurious falls.

Appendix

Careforth SFC Outcomes Analysis

DETAILED METHODS: DATA SOURCES

→ Survey respondents from the MCBS are compared against Careforth consumers to examine the association between Careforth's SFC program participation and outcomes (ED visits, inpatient admissions, 30-day readmissions, injurious falls & any falls).

CAREFORTH SFC	MCBS
• Consumer data from 2019, 2020 & 2021 which includes demographic and clinical variables such as chronic conditions and (I)ADLs • Outcomes variables including ED visits, inpatient admissions, 30-day readmissions, injurious falls and any falls	• 2019, 2020 & 2021 MCBS Survey, linked to Medicare fee-for-service (FFS) claims, are used to create a control group for the SFC Consumer Utilization Outcome analysis • Administered annually by the Centers for Medicare & Medicaid Services (CMS), primarily by telephone, to approximately 14,000 Medicare (and dual-eligible) beneficiaries in Medicare FFS and Medicare Advantage • Results are weighted to represent the national Medicare population • Survey includes demographic, social determinants of health, functional limitations and linked to Medicare FFS claims

ATI took the following steps to ensure a balanced comparison between Careforth consumers and the MCBS control group:

1

Reduced confounding differences through Propensity Score Model weighting

- The goal of propensity score model weighting is to construct a look-alike comparison using the analysis-eligible MCBS population. ATI aimed to reduce differences in key clinical variables, like (I)ADLs and chronic conditions.
- Starting with all available person-level variables, ATI iterated through many models that removed and added variables in order to achieve the most balanced cohorts. ATI identified the model that resulted in an MCBS control group that was as clinically and demographically similar to the Careforth group as possible.
- Propensity scores were transformed into weights, which scaled up the representation of MCBS respondents who are more similar to Careforth consumers, and scaled down the representation of MCBS respondents who were less similar.[1]
- Using a process called “propensity score trimming,” ATI removed outlier MCBS cases with weights that fell outside the weight distribution observed among Careforth consumers.

At this point, the Careforth and the MCBS control group were optimally balanced, though some differences remained

2

Adjusted for remaining confounders and analyzed the difference in outcomes probability

- For each variable that remained different, ATI tested whether the variable correlated with each outcome in a statistically significant way. Each outcome’s final regression model adjusted for variables with significant correlation to the outcome.
- Final regression models for each outcome estimated the association between Careforth SFC program participation and outcomes.

[1] This weighting process uses the multiplicative inverse of the propensity scores produced by the final propensity score model, called “inverse probability of treatment weighting” (IPTW).

CHALLENGES AND LIMITATIONS

- ATI used the MCBS to conduct the SFC consumer outcomes analysis. Though the MCBS is an ideal source for the control group for many reasons (individual level data, dual-eligibility flags, multiple demographic and utilization characteristics, etc.), it also presents limitations:
  - Because the MCBS is a nationally-representative sample of individuals, the SFC consumer outcomes analysis could not be conducted at a geographic level more granular than nationally; as a result, conclusions cannot be drawn at a state-level
  - ATI attempted to control for the fact that individuals sampled for the MCBS generally had lower functional need than Careforth SFC consumers (which targets a higher-need group of individuals), but there are still unmeasurable random effects that may explain differences in the probability of adverse events between the Careforth population and the MCBS control group
  - Analysis findings are not necessarily generalizable to the overall Careforth population as the Careforth population for this analysis was limited to consumers with no missing demographic or utilization data, who are dually eligible and either (1) had reported difficulty with at least 3 ADLs or (2) had a combination of Alzheimer's Disease or dementia diagnosis and reported difficulty with at least 1 IADL
  - Outcomes, such as ED visits, were identified using Medicare FFS claims, and thus analyses of these outcomes were limited to only Medicare FFS beneficiaries
  - All Careforth utilization data is self-reported, and MCBS utilization data is drawn from claims and self-reported data, depending on the outcome
  - The sample size of the MCBS control group was small. We used standard statistical procedures to quantify the impact of this limitation for each outcome analyzed
  - It is not possible to know if a beneficiary in the MCBS control group was also a Careforth consumer; if there is overlap in the cohorts, it would bias the results towards having no difference in outcomes between the two populations
  - There may be recall bias, where Careforth consumers report their outcomes as they occurred, compared to MCBS survey respondents where interviewees are recalling a past event
  - Results regarding inpatient admissions and 30-day readmissions were not significant; further analysis is needed to understand the association between Careforth's SFC program and these outcomes
- SFC Consumers above age 89 were given an age of 90 in the data, consistent with HIPAA standards for deidentification, which can mask key differences in outcomes and experiences for this older population

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INFO@ATIADVISORY.COM / ATIADVISORY.COM / LINKEDIN