

The Return on Investment Associated with a High Risk Case Management Pilot Program for Medicare Beneficiaries with Medigap Coverage

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Objectives

- Evaluate a High Risk Case Management (HRCM) program consisting of both face-to-face and telephonic services provided by nurses and social workers to improve care coordination for those with multiple chronic conditions.
- Estimate the return on investment (ROI) associated with participation in a HRCM program for Medicare beneficiaries with an AARP[®] Medicare Supplement Insurance (i.e. Medigap) plan.

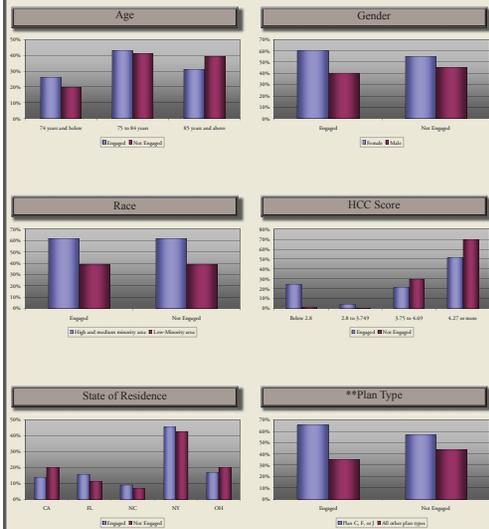
Population Studied

- About 2.9 million people are covered by an AARP Medicare Supplement Insurance (i.e. Medigap) plan insured by UnitedHealthcare insurance company (for New York residents, UnitedHealthcare Insurance Company of New York).
 - These plans are offered in all 50 states, Washington DC, and various US territories.
- The HRCM program is currently being piloted in five states.
 - Target markets included parts of California, Florida, New York, North Carolina, and Ohio.
- The program began in December 2008 and is ongoing.
 - This research covers the first year of the program.
- Qualified members were identified between December 1, 2008 to December 31, 2009. In addition, they:
 - Had a Hierarchical Condition Category (HCC) score greater than 3.74 or
 - Had a HCC score below 3.74 and were referred to the program through the Nurse Health Line or Health Risk Assessment process.
- Cohort Assignment:** Sample members were categorized into one of two groups:
 - The first group consisted of 676 members (11% of those who qualified, excluding outliers) who were engaged in a HRCM program and utilized the HRCM services. We refer to these as Engaged Participants.
 - The second group consisted of 5,654 members (89% of those who qualified, excluding outliers) who did not utilize those services. We refer to these as Not Engaged Members.

Methods

- Time Periods:** An Engaged Participant's index date is the date he or she began active participation in the program. A Not Engaged Member's index date is the date he or she was identified as a candidate for the program.
 - The pre-index period was the 12 months prior to the index date.
 - The post-index period was of variable length and lasted from the index date until the member successfully completed or withdrew from the program, was no longer insured, or until June 30, 2010, whichever occurred first. The average duration was about 11.5 months for each group.
- Statistical Analyses:** Three sets of analyses were performed.
 - Analysis One:** Logistic regression analysis was used to estimate the likelihood of participation in the HRCM program controlling for demographic, socioeconomic, and clinical characteristics. Results from this analysis were used to produce propensity score weights for subsequent analyses.
 - Analysis Two:** A propensity score weighted Generalized Linear Model was utilized to estimate the savings associated with participating in the HRCM program. The Generalized Linear Model analysis adjusted for demographics, socioeconomic, and clinical differences between the Engaged Participants and Not Engaged Members.
 - Analysis Three:** The ROI estimate was generated to estimate the financial impact of participating in the HRCM program. The ROI ratio was calculated as the total savings associated with engagement in the program divided by total costs associated with that engagement.
 - Savings were estimated using a difference-in-difference (DID) approach. Specifically, differences in health care expenditures between the pre-index and post-index periods were compared between the Engaged Participants and the Not Engaged Members. Savings were estimated as the difference over time for Engaged Participants minus the difference over time for Not Engaged Members.
 - Health care expenditures in the analysis were estimated by combining in-patient, out-patient, and pharmaceutical claims for each payer (Medicare, Medigap, and member).

*Sample Characteristics of Engaged Participants and Not Engaged Members



*Selected sample characteristics are shown above. Other variables were omitted for brevity.
 **Medigap plans C, F, and J are often considered near full first dollar coverage plans, while the rest of the plans insured by UnitedHealthcare constitute all other Medicare Supplement plan types.

Return on Investment

- Program Costs:** Total program costs (\$1,066,515) were divided by the number of Engaged Participants (n=676, excluding outliers) and their average length of participation (11.5 months) to estimate the average cost per engaged participant per month (\$137.19).
- Program Savings:** The Generalized Linear Model estimated savings to be \$299.35 per engaged participant per month after adjusting for demographic, socioeconomic, and clinical characteristics.
- ROI Ratio:** The resulting ROI was \$2.18. This was calculated as the per member monthly savings (\$299.35) divided by the per member monthly costs (\$137.19) of the program.
 - This implies that for every dollar invested in the program, \$2.18 were returned as savings.
 - As one might expect for the first year of a HRCM program, the number of Engaged Participants was small and these results were not statistically significant (p=0.65).
- Attribution of Savings:** The above savings were attributed to the percent of health care expenditures reimbursed by each payer (Medicare, Medigap, and member).
 - These savings primarily accrued to Medicare, which paid about 84% of the total health care expenditures.
 - To a lesser extent, savings accrued to the Medigap payer and to members, who paid 7% and 9% of total expenditures, respectively.
- Outlier Analysis:** To gauge the impact of the exclusion of outliers on these results, a sensitivity analysis that included outliers was performed.
 - The analysis included an additional 9 Engaged Participants and 280 Not Engaged Members.
 - When very low and very high-costing outliers were included in the analysis, the results yielded a lower ROI of \$1.06 in savings per dollar spent on the program (p=0.84).
 - Therefore, the analysis was sensitive to small numbers of people with either very low or very high medical expenditures.

Conclusions

- This is the first known HRCM program designed solely for Medigap members.
- The program was associated with high member satisfaction.
 - Almost all members (98%) were satisfied or very satisfied with the program, based on a member questionnaire (data not shown).
- While the ROI estimate was not statistically significant for the first year of the program, these results are encouraging.
 - As the program continues in its second year, continued member satisfaction, increased enrollment, and statistically significant savings are anticipated.