



White Paper

A proven personal health management service that targets employees & families with the greatest needs - and greatest potential for health and job improvement.

KnovaSolutions (Knova) is a person-to-person clinical prevention service offered through HCMS Group, LLC. Designed to deliver the right information at the right time, the service provides a cognitive and preventive service missing in the current healthcare delivery system that leads to real improvement in both the quality and cost of healthcare and health insurance. This paper will outline the methods for measuring cost savings for KnovaSolutions enrollees to-date. Other outcomes, including enrollment and persistency rates, will also be examined.

HOW KNOVA WORKS:

Candidates for Knova are identified through periodic analysis of health benefits claims data (including medical, pharmacy, disability and workers' compensation) as well as other health and job performance data. The service targets those individuals in the top 5% of costs, which typically account for 50% or more of costs for the entire company. Individuals new to the 5% each month are preferentially targeted to intervene as soon as possible during the early stages of a high-cost episode.

Once identified, candidates are oriented to the service through mailings and a subsequent telephonic outreach. Candidates that opt-in to the service receive one-on-one education and decision support from advanced practice nurses and clinical pharmacists via a virtual call center--- for both themselves and for their family members.

The Knova service is different than traditional disease-focused care management programs in a number of ways, but two are particularly important to mention now:

- Decision support is provided not only for health and disease conditions, but also for accompanying life issues such as finances, work, and family concerns.

- Decision support continues after the initial high-cost episode is over, significantly reducing the risk for a repeat episode.

SERVICE DELIVERY OUTCOMES

I. *Enrollment and Persistency*

Enrollment in KnovaSolutions is voluntary and begins with contact from the Knova clinical staff. On average 2/3rds of the target high risk employees are reached and of that group 80% choose to enroll in KnovaSolutions. Of those who enroll, 95% persist with the service after the 1st year, or until they leave their company.

II. *Member Satisfaction*

Satisfaction surveys are offered to all KnovaSolutions participants every six months and roughly 50% respond and service satisfaction is overwhelmingly positive.

- 100% were very satisfied with the value of the service and rated Knova staff as well qualified.
- 93% rated themselves as better able to make health decisions.

TOP 5%, 50% OF COST

The service targets individuals in the top 5% of costs, which typically account for 50% or more of costs for the entire company.

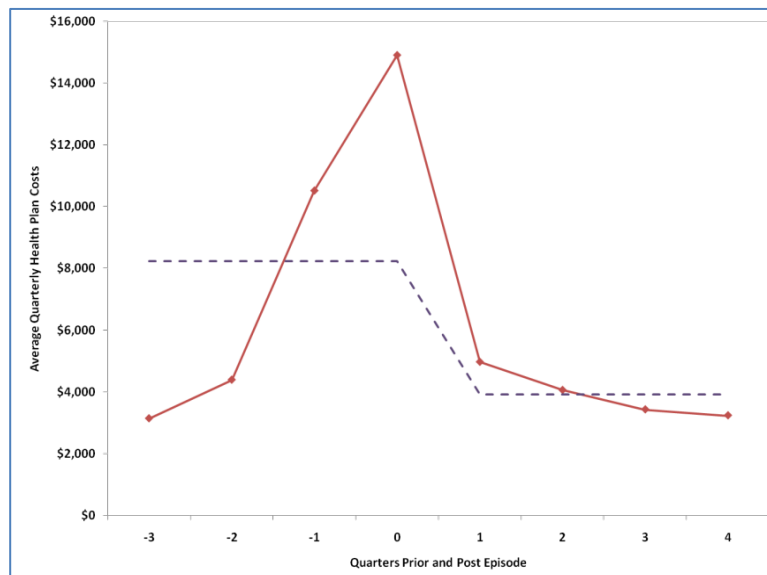
- 96% reported that the service helped them consider how their health affects other aspects of their life.
- 90% indicated the service filled an information need they were unable to meet elsewhere.
- 83% responded that the service helped them make the health decisions they wanted to make.
- 97% would recommend the service to others.

FINANCIAL OUTCOMES

I. Framework

In order to measure the efficacy of the program in terms of a cost savings, the incremental cost decrease of KnovaSolutions enrollees is compared to that of a comparison group. Given the episodic nature of health care costs, a comparison which looked only at the costs of the enrollees prior to and after their participation in the program would capture a naturally occurring drop in costs that takes place with or without program participation. In our cost savings methodology, we capture only the incremental cost reduction beyond the normal post-episode cost drop. Figure 1 shows average quarterly health plan costs both before and after a high-cost episode for a group of individuals who did not receive any program intervention. Costs naturally rises as individuals enter their episode, hit a peak, and then level-off as the episode concludes. The red line represents average costs per quarter and the dashed purple line represents a blended average for the pre period compared to a blended average for the post period. The drop in the purple line from pre to post is often reported as cost savings by traditional care management programs but it is actually naturally occurring even without intervention.

Figure 1: Average Quarterly Costs Before, During, and After an Episode



II. Comparison Group

The comparison group is defined from the HCMS Research Reference Database to include individuals with a high-cost episode that did not receive service from Knova. Specifically, individuals in the top 2.5% of costs are used for the comparison group to best match historical enrollment patterns for Knova. This is necessary for two reasons. One, some current Knova clients only enroll a portion of the 5% and the service targets higher cost individuals first. Two, higher cost individuals (in the top half of the 5%) are more likely to opt-in than lower cost individuals (in the bottom half of the 5%).

An index date is created for the comparison group to mirror the enrollment date that is used for Knova enrollees. Although an enrollment date is not available for the comparison group, a referral date can be calculated in the same way it is for Knova based on when an individual would have been referred if Knova was in place at the time of his or her episode. Subsequently, for Knova enrollees, the average time between referral date and enrollment date is calculated. This average “lag” is then added to the referral date for the comparison group to create a final index date that is comparable to an enrollment date.

III. Methods

Health plan costs are aggregated for the four quarters prior to (and including) each individual's enrollment date and used to calculate an average cost per quarter for the pre period. The same is done for the post period.

Costs are adjusted to 2010 values to reflect changes in utilization patterns, technology, diagnostic habits, and inflation.

Costs are also adjusted for the demographics and health status differences between the groups through the use of statistical regression analysis. The variables used for adjustment include age, gender, tenure (years with current employer), salary, and health status. Health status is measured with the HCMS Health and Utilization Index (HUI) which calculates a numeric health score for each individual based on their diagnostic and pharmacy utilization patterns.

Finally, to further equate the groups, the pre and post period costs for the comparison group are scaled in a way to make the pre period costs match the Knova group.

After adjustments, the percent change from the pre period to the post period is measured for each group. The additional decrease in the KNOVA group is attributed to the program and used to calculate an overall savings. Costs savings are annualized and compared against yearly enrollment fees.

IV. Results

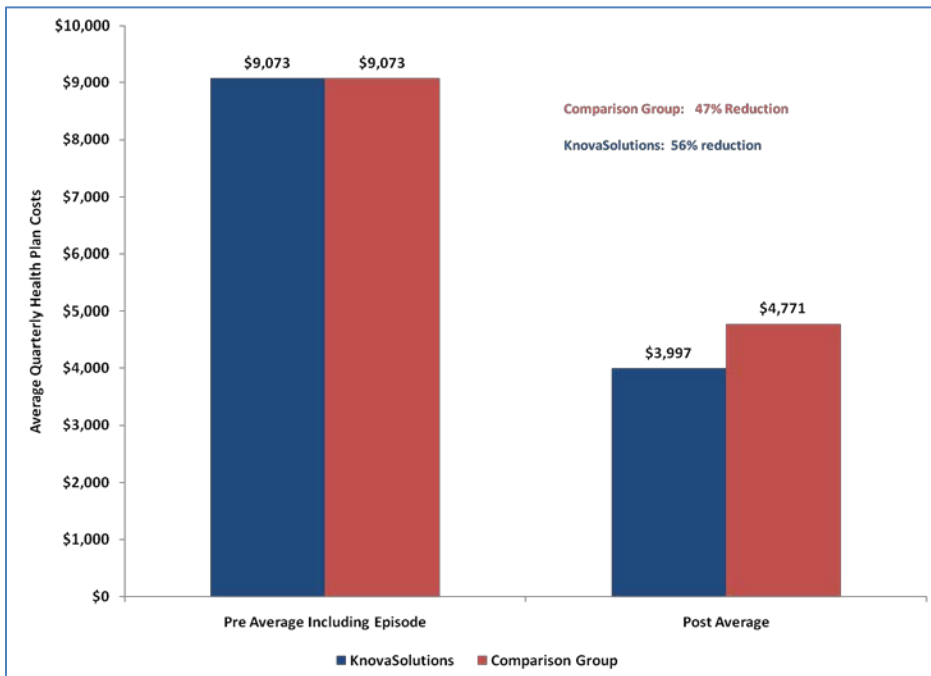
Figure 2 displays the difference in cost from the pre period to the post period for both groups. The 1,245 Knova enrollees in this study realized an average savings of nearly \$3,100 over the reduction seen in the comparison group.

Figure 3 shows an overall cost savings per person after subtracting program fees, resulting in a net savings of nearly 1,600 per member.

Figure 3: Net Cost Savings

KnovaSolutions Members Included in Analysis	1,245
Average Annual Savings per Member (vs. comparison group)	\$3,098
Per-Person Enrollment Costs	-\$1,500
Net Savings per Member	\$1,598

Figure 2: Pre and Post-Averages



CONCLUSIONS:

KnovaSolutions is a personal and effective service that addresses enrollees as a whole person, rather than focusing on one disease condition. This integrated approach has resulted in high levels on enrollment and persistency rates, and member satisfaction. Additionally, the service has achieved verifiable cost savings when rigorously analyzed against a comparison group.