

Reduction in Costs of Care in Patients with Crohn's Disease Using SonarMD Over Two Years

A Propensity Score Matched Cohort Analysis

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Background

SonarMD is a care coordination and specialty pharmacy optimization solution for high-beta conditions, starting with inflammatory bowel disease. The SonarMD program is centered upon patient engagement, accomplished through a web-based short message service (SMS) platform which regularly 'pings' patients with clinical questions they can respond to via text, email or phone call. Using those responses, SonarMD calculates a Sonar Score that correlates with symptom intensity. SonarMD tracks the score over time to determine which patients are at risk of deteriorating and works with the patient's care team to intervene when necessary. Additionally, it provides point-of-care clinical decision support to physicians through access to the American Gastroenterology Association's (AGA) Crohn's Disease (CD) and Ulcerative Colitis (UC) care pathways, to promote standardized risk-adjusted evidence-based care and minimize variability in care.

In this cohort study, we compared overall costs of care of patients with CD enrolled in the SonarMD program, with propensity score-matched patients with CD who were not enrolled in the platform, over a 24-month period.

Methods

The SonarMD program cohort included 176 patients with CD continuous enrollment in the program from 01/01/2016 to 12/31/2017. These study patients were matched with controls with CD not enrolled in the SonarMD program during the same time period. Matching was performed using propensity score based on age, sex, socioeconomic status, healthcare utilization in the preceding year (inpatient, emergency room [ER], outpatient costs) and insurance-attributed concurrent and prospective risk scores. Primary outcome of interest was difference in overall medical costs (inpatient/ER costs, outpatient costs). For a subset of patients, detailed pharmacological costs was available. Difference between groups was measured as difference of differences (DoD) in costs (costs at end of intervention—baseline costs, in intervention group and controls), using Wilcoxon signed-rank test.

Results

Over a two-year period, overall mean medical costs per member per month (PMPM) decreased from \$908 to \$760 (-12.4%) as compared to increase from \$1032 to \$1472 in controls (+42.5%), with mean DoD of \$551 (p=0.06). While rates of hospitalization declined by 16.7% in SonarMD patients, corresponding rates of hospitalization increased by 130.8% in control patients, corresponding to a mean difference in hospitalization costs of \$339 PMPM (p=0.08) and a difference of \$185 PMPM in outpatient, non-ER use (p=0.04). **Among a subset of patients who were engaged in the program (responded to 80% of monthly pings; n=126, 71.6%), mean difference in monthly medical costs was significantly lower than matched controls (\$543 PMPM, p=0.04).** This difference was attributed to decrease in rate of hospitalization in SonarMD patients (p=0.03), with an accompanying decline in costs of hospitalization (DoD, \$355 PMPM). For a subset of patients for whom pharmacological costs were available, total pharmacological costs were not different between SonarMD patients and controls (p=0.46) and overall costs of care were lower in SonarMD patients (DoD, \$-348 PMPM, p=0.14).

Conclusions

In this updated propensity score matched cohort analysis, participants in the SonarMD program, especially engaged patients, continue to demonstrate a trend towards lower medical costs, as compared to control patients. This is primarily attributed to lower rates and costs of hospitalization and outpatient, non-ER use, without any increase in pharmacological drug costs.



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