PROVEN

Real Engagement, Real Change, Real Outcomes

sharecare

OUR PROOF IS IN **THE RESEARCH.**

Created by digital health pioneer Jeff Arnold and world-renowned cardiothoracic surgeon Dr. Mehmet Oz, Sharecare is on a mission to provide a safe and secure experience to help people manage all their health in one place, whether they are a patient, employee, health plan member, or consumer. By simultaneously focusing on an individual's wellness, illness and lifestyle, we help people understand the full story of their health. And with a foundation of science, we've been building, implementing and enhancing a scalable solution that does just that. Sharecare provides each person - no matter where they are in their health journey – with a comprehensive and personalized health profile, where they can dynamically and easily connect to the information, evidence based programs and health professionals they need to live their healthiest, happiest and most productive life.

Want proof? Sharecare and external third-party researchers have published numerous peer-reviewed articles and reports showing the value and effectiveness of our approach. And based on all of this research, we continue to innovate.

So, as you review the findings in the pages that follow, gain confidence in knowing ***the proven value you seek, we deliver.***

2.2019

Peer-Reviewed Articles and Reports

Please see additional research articles at sharecare.com

ASSESSING HEALTH AND WELL-BEING

The World Health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Since 2008, Sharecare has produced the definitive measure of well-being in individuals, organizations and communities. The Gallup-Sharecare Well-Being Index® provides an in-depth, real-time view of well-being across the globe, giving organizations and governments unmatched insight into the health of their populations.

For more than three decades, Sharecare has been a thought leader in health and well-being – we understand the complexity of behavior change and have refined our understanding of what constitutes well-being and improved upon methodologies for measuring well-being over the years. This robust scientific foundation has helped guide the development and validation of solutions that deliver the best value to our health system, health plan and employer customers – solutions that effectively and efficiently change populations by respecting the multifaceted nature of the individual. We’ve taken our validated measure of well-being (the Well-Being 5 Assessment) and combined it with our powerful, scientifically-based RealAge® test (taken by more than 45M people), to show you the true age of the body you’re living in – the first step toward optimizing your health. RealAge questions have been optimized over the course of 24 years to ensure the highest statistical, scientific and clinical relevance in understanding an individual’s health.

This collection of articles includes peer-reviewed studies and white papers relating to assessing well-being.

FEATURED ARTICLES:

Prediction of Mortality Using On-Line, Self-Reported Health Data: Empirical Test of the RealAge Score

William R. Hobbs, James H. Fowler
Plos One, 2014

Abstract

Objective: We validate an online, personalized mortality risk measure called ‘‘RealAge’’ assigned to 30 million individuals over the past 10 years.

Methods: 188,698 RealAge survey respondents were linked to California Department of Public Health death records using a one-way cryptographic hash of first name, last name, and date of birth. 1,046 were identified as deceased. We used Cox proportional hazards models and receiver operating characteristic (ROC) curves to estimate the relative scales and predictive accuracies of chronological age, the RealAge score, and the Framingham ATP-III score for hard coronary heart disease (HCHD) in this data. To address concerns about selection and to examine possible heterogeneity, we compared the results by time to death at registration, underlying cause of death, and relative health among users.

Results: The RealAge score is accurately scaled (hazard ratios: age 1.076; RealAge-age 1.084) and more accurate than chronological age (age c-statistic: 0.748; RealAge c-statistic: 0.847) in predicting mortality from hard coronary heart disease following survey completion. The score is more accurate than the Framingham ATP-III score for hard coronary heart disease (c-statistic: 0.814), perhaps because self-reported cholesterol levels are relatively uninformative in the RealAge user sample. RealAge predicts deaths from malignant neoplasms, heart disease, and external causes. The score does not predict malignant neoplasm deaths when restricted to users with no smoking history, no prior cancer diagnosis, and no indicated health interest in cancer (p-value 0.820).

Conclusion: The RealAge score is a valid measure of mortality risk in its user population.

Key Takeaways:

- Using data from RealAge surveys and public death records from California, this study evaluated the strength of RealAge delta (the difference between RealAge and chronological age) as a predictor of mortality within 5 years.
- The results demonstrate that RealAge is a better predictor of mortality than chronological age indicating that health behaviors and conditions have a significant impact on mortality above and beyond age.
- RealAge outperformed other measured including the Framingham Adult Treatment Panel III (ATP-III), a model that predicts hard coronary heart disease in predicting mortality.

PDF available at:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3895041/pdf/pone.0086385.pdf

The Well-Being 5: Development and Validation of a Diagnostic Instrument to Improve Population Well-being

Sears, LE, Agrawal, S, Sidney, JA, Castle, PH, Rula, EY, Coberley, CR, Witters, D, Pope, JE, Harter, JK
Population Health Management, 2014

Abstract

Building upon extensive research from 2 validated well-being instruments, the objective of this research was to develop and validate a comprehensive and actionable well-being instrument that informs and facilitates improvement of well-being for individuals, communities, and nations. The goals of the measure were comprehensiveness, validity and reliability, significant relationships with health and performance outcomes, and diagnostic capability for intervention. For measure development and validation, questions from the Well-being Assessment and Wellbeing Finder were simultaneously administered as a test item pool to over 13,000 individuals across 3 independent samples. Exploratory factor analysis was conducted on a random selection from the first sample and confirmed in the other samples. Further evidence of validity was established through correlations to the established well-being scores from the Well-Being Assessment and Wellbeing Finder, and individual outcomes capturing health care utilization and productivity. Results showed the Well-Being 5 score comprehensively captures the known constructs within well-being, demonstrates good reliability and validity, significantly relates to health and performance outcomes, is diagnostic and informative for intervention, and can track and compare well-being over time and across groups. With this tool, well-being deficiencies within a population can be effectively identified, prioritized, and addressed, yielding the potential for substantial improvements to the health status, performance, and quality of life for individuals and cost savings for stakeholders.

Key Takeaways:

- The Well-Being 5 instrument combines the content, predictive capabilities, actionability and insights from millions of responses from two leading well-being instruments — the Healthways Well-being Assessment and the Gallup Well-being Finder — to most efficiently and effectively enable and inform business cost and performance management.
- The survey captures the five interrelated elements of well-being, which have demonstrated meaningful relationships to business and individual outcomes — physical, social, community, financial and purpose well-being.
- The Well-Being 5 instrument can be used to effectively predict future cost and performance issues, identify high risk individuals, direct policy, drive intervention programs, and track individual and population well-being over time.

PDF available at:
http://online.liebertpub.com/doi/pdfplus/10.1089/pop.2013.0119

UNDERSTANDING THE LINK

Most people want to feel good and be healthy, but there are so many obstacles and excuses that can get in the way. Behavior change is very personal, and taking the first step in any lifestyle change journey can be difficult. Lifestyle behaviors do not exist in a vacuum. For example, if an individual is obese due to struggles with stress management and emotional eating, coaching on weight management may fall on deaf ears until the emotional issues are addressed.

Sharecare provides each person – no matter where they are in the health journey – with a comprehensive and personalized health profile, where they can dynamically and easily connect to the information, evidence-based programs and health professionals they need to live their healthiest, happiest and most productive life. With award-winning and innovative frictionless technologies, scientifically validated clinical protocols and best-in-class coaching tools, Sharecare helps providers, employers and health plans effectively scale outcomes-based health and wellness solutions across their entire populations.

The research that follows highlights the associations between health and well-being to key outcomes such as healthcare costs, worker productivity, and health risks.

FEATURED ARTICLES:

What's Mine is Yours: Evaluation of Shared Well-Being Among Married Couples and the Dyadic Influence on Individual Well-Being Change

Jones A, Pope, JE, Coberley, CR,
Journal of Occupational and Environmental Medicine, 2017

Abstract

Objective: To evaluate the relationship between partner well-being and outcomes of chronically diseased individuals participating in an employer sponsored well-being improvement program.

Methods: Using the Actor Partner Interdependence Model, we evaluated whether prior partner well-being was associated with well-being change among 2,025 couples. Logistic regression models were then used to explore how spousal well-being risks relate to development and elimination of risks among program participants.

Results: High well-being partners were associated with positive well-being change. Specifically, the partner effect for spouses' high well-being on disease management participants was a 1.5 point higher well-being in the following time period ($p = 0.001$) while the partner effect of participants' high well-being on spouses was nearly 1.1 points ($p = 0.010$).

Conclusion: Well-being within couples is interdependent, and partner well-being is an important predictor of individual well-being change.

Key Takeaways:

- Using data on over 2,000 couples, this study evaluated the relationship between spouse well-being scores and the outcomes of chronically diseased individuals participating in an employer sponsored disease management program.
- The results demonstrate similarities in overall well-being and well-being domains among couples, specifically within domains more likely to be influenced by intra-household characteristics such as basic access, health behavior, and life evaluation.
- Having a spouse with high well-being was significantly associated with positive changes in well-being over time. Participants in the disease management program were estimated to have 1.5 points higher well-being in T2 if their spouse reported having high baseline well-being compared to participants with low well-being spouses.
- This research shows that employees and their spouses influence one another's well-being over time. Many employers already extend wellness benefits to spouses, but continue to take an individual-centric approach. A new opportunity is leveraging inter-spousal influence to create more efficient programs such that the benefit of a participating couple is greater than the sum of their individual outcomes.

PDF available at:
https://journals.lww.com/joem/Fulltext/2017/01000/What_s_Mine_is_Yours__Evaluation_of_Shared.6.aspx

Population Well-Being Measures Help Explain Geographic Disparities in Life Expectancy at the County Level

Arora, A., Spatz, E., Herrin, J., Riley, C., Roy, B., Kell, K., & Krumholz, H. M.
Health Affairs, 2016

Abstract

Objective: Geographic disparities in life expectancy are substantial and not fully explained by differences in race and socioeconomic status. To develop policies that address these inequalities, it is essential to identify other factors that account for this variation.

Methods: In this study we investigated whether population well-being – a comprehensive measure of physical, mental, and social health- helps explain geographic variation in life expectancy.

Results: At the county level, we found that for every 1-standard-deviation point (4.2-point) increase in the well-being score, life expectancy was 1.9 years higher for females and 2.6 years higher for males.

Conclusion: Life expectancy and well-being remained positively associated, even after race, poverty, and education were controlled for. In addition, well-being partially mediated the established associations of race, poverty, and education with life expectancy. These findings highlight well-being as an important metric of a population's health and longevity and as a promising focus for intervention.

Key Takeaways:

- This study investigated whether population well-being—a comprehensive measure of physical, mental, and social health—helps explain geographic variation in life expectancy.
- The results found that, at the county level, for every 1-standard-deviation (4.2-point) increase in the well-being score, life expectancy was 1.9 years higher for females and 2.6 years higher for males.
- Life expectancy and well-being remained positively associated, even after race, poverty, and education were controlled for.

PDF available at:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5150263/

Comparing the Contributions of Well-Being and Disease Status to Employee Productivity

Gandy, WM, Coberley, CR, Pope, JE, Wells, A, Rula, EY
Journal of Occupational and Environmental Medicine, 2014

Abstract

Objective: To compare employee overall well-being to chronic disease status, which has a long-established relationship to productivity, as relative contributors to on-the-job productivity.

Methods: Data from two annual surveys of three companies were used in longitudinal analyses of well-being as a predictor of productivity level and productivity change among 2629 employees with diabetes or without any chronic conditions.

Results: Well-being was the most significant predictor of productivity cross-sectionally in a model that included disease status and demographic characteristics. Longitudinally, changes in well-being contributed to changes in productivity above and beyond what could be explained by the presence of chronic disease or other fixed characteristics.

Conclusion: These findings support the use of well-being as the broader framework for understanding, explaining, and improving employee productivity in both the healthy and those w ith disease.

Key Takeaways:

- This study directly compared well-being to chronic disease status as predictors of worker productivity to determine the importance of well-being in the context of existing re- search on chronic conditions as a primary determinant of productivity.
- Results showed an individual's well-being is a stronger predictor of their productivity level than chronic disease status or other demographic characteristics.
- Over time, changes in well-being contributed significantly to changes in productivity above and beyond what could be explained by any individual characteristic, including fixed/stable factors such as disease status (any condition), age, gender, and socioeconomic status.
- When the non-diseased and diseased groups were evaluated separately, well-being was the strongest independent contributor to productivity in each group.
- This study supports that a well-being improvement strategy can benefit the productivity of an entire population — from the healthy to the diseased.

PDF available at:
http://journals.lww.com/joem/Abstract/2014/03000/Comparing_the_Contributions_of_Well_Being_and.3.aspx

Overall Well-Being as a Predictor of Healthcare, Productivity and Retention Outcomes in a Large Employer

Sears, LE, Shi,Y, Coberley, CR, Pope, JE
Population Health Management, 2013

Abstract

Employers struggle with the high cost of healthcare, lost productivity, and turnover in their workforce. The present study aims to understand association between overall well-being and these employer outcomes. In a sample of 11,700 employees who took the Well-being Assessment (WBA), we used multivariate linear and logistic regression to investigate overall well-being as a predictor of healthcare outcomes (total healthcare expenditure, emergency room visits and hospitalizations), productivity outcomes (unscheduled absence, short-term disability leave, presenteeism, job performance ratings), and retention outcomes (intention to stay, voluntary turnover, involuntary turnover). Testing this hypothesis both cross-sectionally and longitudinally, we investigated the association between baseline well-being and these outcomes in the following year and the relationship between change in overall well-being and change in these outcomes over 1 year. The results demonstrated that baseline overall well-being was a significant predictor of all outcomes in the following year when holding baseline employee characteristics constant. Change in overall well-being over 1 year was also significantly associated with the change in employer outcomes with one exception that the relationship to change in manager-rated job performance was marginally significant. The relationships between overall well-being and outcomes suggest that implementing a well-being improvement solution could have a significant bottom and top line impact on business performance.

Key Takeaways:

- Overall well-being significantly predicts healthcare, productivity and retention outcomes over time. Higher well-being during the baseline year was associated with lower health- care costs, better productivity, and higher likelihood of retention (staying with the employer) one year later.
- Well-being improved significantly over one year among this sample of employees in a well-being improvement program, with healthy behaviors of employees improving the most dramatically.
- Changes to overall well-being over one year are significantly related to changes in healthcare, productivity, and retention outcomes over one year. Those whose well-being increased tended to experience a decline in healthcare costs, improvement in productivity, and an increased likelihood of retention over the course of one year.

PDF available at:
http://online.liebertpub.com/doi/pdf/10.1089/pop.2012.0114

Presenteeism According to Healthy Behaviors, Physical Health, and Work Environment

Merrill RM, Aldana SG, Pope JE, Anderson DR, Coberley CR, Whitmer RW, HERO Research Subcommittee
Population Health Management, 2012

Abstract

The objective of this study is to identify the contribution that selected demographic characteristics, health behaviors, physical health outcomes, and workplace environmental factors have on presenteeism (on-the-job productivity loss attributed to poor health and other personal issues). Analyses are based on a cross-sectional survey administered to 3 geographically diverse US companies in 2010. Work-related factors had the greatest influence on presenteeism (e.g., too much to do but not enough time to do it, insufficient technological support/resources). Personal problems and financial stress/concerns also contributed substantially to presenteeism. Factors with less contribution to presenteeism included physical limitations, depression or anxiety, inadequate job training, and problems with supervisors and coworkers. Presenteeism was greatest for those ages 30–49, women, separated/divorced/widowed employees, and those with a high school degree or some college. Clerical/office workers and service workers had higher presenteeism. Managers and professionals had the highest level of presenteeism related to having too much to do but too little time to do it, and transportation workers had the greatest presenteeism because of physical health limitations. Lowering presenteeism will require that employers have realistic expectations of workers, help workers prioritize, and provide sufficient technological support. Financial stress and concerns may warrant financial planning services. Health promotion interventions aimed at improving nutrition and physical and mental health also may contribute to reducing presenteeism.

Key Takeaways:

- On-the-job productivity loss (presenteeism) in three employers was evaluated in relation to employee demographics and well-being factors including health behaviors, physical health, and workplace environment.
- Primary sources of presenteeism included work-related factors (having too much to do and not enough time, insufficient technological resources), personal problems and financial stress.
- Obesity and overweight BMI values, chronic condition diagnoses, and pain in the neck/ back or knee/leg were associated with the highest levels of presenteeism.
- Results support the need for health promotion and employer support as means to improve productivity.

PDF available at:
http://online.liebertpub.com/doi/pdfplus/10.1089/pop.2012.0003

Evaluation of the Relationship Between Individual Well-Being and Future Health Care Utilization and Cost

Harrison PL, Pope JE, Coberley CR, Rula EY
Population Health Management, 2012

Abstract

Escalating health care expenditures highlight the need to identify modifiable predictors of short-term utilization and cost. Thus, the predictive value of individual well-being scores was explored with respect to 1-year health care expenditures and hospital utilization among 2245 employees and members of a health plan who completed the Well-Being Assessment (WBA). The relationship between well-being scores and hospital admissions, emergency room (ER) visits, and medical and prescription expenditures 12-months post WBA was evaluated using multivariate statistical models controlling for participant characteristics and prior cost and utilization. An inverse relationship existed between well-being scores and all measured outcomes ($P \leq 0.01$). For every point increase in well-being on a 100-point scale, respondents were 2.2% less likely to have an admission, 1.7% less likely to have an ER visit, and 1.0% less likely to incur any health care costs. Among those who did incur cost, each point increase in well-being was associated with 1% less cost, and individuals with low well-being scores (≤50) had 2.7 times the median annual expenditure of individuals with high well-being (>75) ($5172 and $1885, respectively). Also, well-being proved lowest among respondents who incurred more than $20,000, and was highest among those who incurred ≤ $5000, with median scores of 71.1 and 80.3, respectively. These results indicate that individual well-being is a strong predictor of important near-term health care outcomes. Thus, well-being improvement efforts represent a promising approach to decrease future health care utilization and expenditures.

Key Takeaways:

- Individual well-being is a strong predictor of near-term health care outcomes.
- An inverse relationship was seen between well-being scores and utilization outcomes.
  - Each point increase in the well-being score was associated with 2.2% less likelihood in having a hospital admission, 1.7% less likelihood to have an ER visit, and 1.0% less likely to incur any health costs.
  - Among members incurring health care costs, each point increase in well-being score was associated with 1% less cost.
  - Well-being scores were lowest for members who had more than $20,000 in yearly health care costs, and highest for members who incurred $5,000 or less in yearly costs.
- Programs working to improve well-being represent a new and promising approach to help decrease future health care utilization and costs.

PDF available at:
www.sharecare.com

OPTIMIZING INTERVENTION USING DATA:

Even the most effective intervention can only have an impact if it reaches the right people. Sharecare's Advanced Analytics team is continually building and enhancing predictive models that have the purpose of identifying those individuals who will benefit from a given type or level of intervention. Given Sharecare's mission to improve the well-being of populations by providing a safe and secure experience to help people manage all of their health in one place, it is critical that the level and type of intervention is catered to the needs of the individual, and predictive models help achieve that goal. The papers in this section discuss the theory behind Sharecare's predictive models and demonstrate model validation and performance as well as the power behind program design.

FEATURED ARTICLES:

Well-Being and Employee Health — How Employees' Well-Being Scores Interact with Demographic Factors to Influence Risk of Hospitalization or an Emergency Room Visit

Gandy, WM, Coberley, C, Pope, JE, Rula, EY
Population Health Management, 2013

Abstract

The goal of this study was to determine the relationship between individual well-being and risk of a hospital event in the subsequent year. We hypothesized an inverse relationship in which low well-being predicts higher likelihood of hospital use. The study specifically sought to understand how well-being segments and demographic variables interact in defining risk of a hospital event (inpatient admission or emergency room visit) in an employed population. A retrospective study design was conducted with data from 8,835 employees who completed a Well-Being Assessment questionnaire based on the Gallup-Healthways Well-Being Index®. Cox proportional hazards models were used to examine the impact of Individual Well-Being Score (IWBS) segments and member demographics on hazard ratios (HRs) for a hospital event during the 12 months following assessment completion. Significant Main Effects were found for the influence of IWBS segments, gender, education and relationship status on hazard ratios of a hospital event, but not for age. However, further analysis revealed significant interactions between age and IWBS segments ($P=0.005$) and between age and gender ($P<0.0001$), indicating that the effects for IWBS segments and gender on HRs of a hospital event are mediated through their relationship with age. Overall, the strong relationship between low well-being and higher risk of an event in employees age 44 and older is mitigated in younger age groups. These results suggest that youth attenuates the risk engendered in poor well-being; therefore, methods to maintain or improve well-being as individuals age presents a strong opportunity for reducing hospital events.

Key Takeaways:

- In an employee population, well-being score segments were significantly predictive of risk for a hospital admission or an emergency room visit, and the level of risk imposed by lower well-being depended on the employee's age.
- Among young employees (< 44 years), those in the highest well-being segment had half the risk of a hospital event compared with those in the lowest well-being segment.
- Among the older employee group (≥45 years), those in the highest well-being segment were 64% less likely to have a hospital event compared with those in the lowest well-being segment.
- Results support the need for programs to maintain and improve well-being across all ages as a strategy to prevent hospital admissions and ER visits and avoid the associated healthcare and productivity costs.

PDF available at:
http://online.liebertpub.com/doi/pdfplus/10.1089/pop.2012.0120

Predicting Future Hospital Admissions: Can We Focus Intensive Readmission Avoidance Efforts More Effectively?

Hobgood, A, Zeng, H, Chyung, J
Outcomes & Insights, 2012

Abstract (abridged)

Readmission to the hospital after discharge represents a cause of distress for patients and significant unnecessary cost to the healthcare system, but identifying the admitted patients in greatest need of additional post-discharge support is a challenge. Healthways developed and evaluated two predictive models that each generate a Readmission Risk Index (RRI), a score that represents an individual's relative risk of 30-day readmission. One model incorporates both a patient's historical (prior year's claims) and current healthcare data (hcRRI). The other uses a patient's current healthcare data alone (cRRI) for use in settings in which historical claims are unavailable.

Both models represent useful tools to direct programs aimed at reducing readmissions through personalized interventions and each may be uniquely applicable to different settings based on the data availability. A primary advantage of using these models in the clinic or for managing the health of a larger population is to allow readmission-avoidance programs to be delivered at scale in a cost-effective manner. Identifying patients at highest risk for readmission allows care teams to direct limited resources most efficiently for the purpose of reducing 30-day readmissions. Effective programs guided by these models represent a significant step toward improving quality of care and containing healthcare costs.

Key Takeaways:

- Sharecare developed and validated two models that predict patients most likely to have a 30-day readmission.
- The models provide the opportunity to increase efficiency of intensive discharge support. For example, the hcRRI provides the opportunity to impact up to 52% of readmissions by delivering a program to only 30% of admitted patients.
- The models can be used during hospitalization for early intervention and provide flexibility for application in settings with varying data availability and with broad patient populations.

PDF available at:
www.sharecare.com

Predictive Modeling: The Application of a Customer-Specific Avoidable Cost Model in a Commercial Population

Hobgood, A, Hamlet, K, Bradley, C, Rula, EY, Coberley, C, Pope, JE
Outcomes & Insights, 2012

Abstract (abridged)

To improve quality of life and limit unnecessary medical expenses, total population health (TPH) offers a holistic approach that monitors the entire population (both diseased and non-diseased members) to deliver impactful, personalized interventions to members in greatest need. To better identify members with emerging health risks, Healthways developed an avoidable cost predictive model that specifically identifies the high-risk segment of the population likely to have near-term, costly yet avoidable inpatient events. This allows prioritization of these patients for personalized programs aimed at mitigating or managing their risk.

The custom-built model was constructed using neural networks based on historical member claims data from a specific customer. In an assessment of model performance, a superior capture rate of avoidable inpatient costs was observed with the avoidable cost model. Compared with a model developed to predict high-cost members in a diseased population, the avoidable cost model captured an additional $15 million in total avoidable inpatient costs. Optimal model performance was attributed both to customization of the model specific to the study population of interest and to the target variable of avoidable inpatient costs. Overall, these results demonstrate the success of the newly-developed avoidable cost model in identifying members for cost-effective interventions aimed at identifying and mitigating the factors likely to lead to a hospital admission.

Key Takeaways:

- Special predictive models are needed to support total population health, an approach that does not define individuals by disease, but provides the level and type of intervention appropriate to each person's individual needs.
- Prediction of future avoidable inpatient events allows programs to maximize value by focusing efforts where there is opportunity for impact.
- Compared to other high-cost predictive models for diseased populations, the avoidable cost model captured an additional $15 million in avoidable inpatient costs.

PDF available at:
www.sharecare.com

Impact of Predictive Model-Directed End-of-Life Counseling for Medicare Beneficiaries

Hamlet, KS, Hobgood, A, Hamar, GB, Dobbs, AC, Rula, EY, Pope, JE
American Journal of Preventive Medicine, 2011

Abstract

Objective: To validate a predictive model for identifying Medicare beneficiaries who need end-of-life care planning and to determine the impact on cost and hospice care of a telephonic counseling program utilizing this predictive model in 2 Medicare Health Support (MHS) pilots.

Study Design: Secondary analysis of data from 2 MHS pilot programs that used a randomized controlled design

Methods: A predictive model was developed using intervention group data (N = 43,497) to identify individuals at greatest risk of death. Model output guided delivery of a telephonic intervention designed to support educated end-of-life decisions and improve end-of-life provisions. Control group participants received usual care. As a primary outcome, Medicare costs in the last 6 months of life were compared between intervention group decedents (n = 3112) and control group decedents (n = 1630). Hospice admission rates and duration of hospice care were compared as secondary measures.

Results: The predictive model was highly accurate, and more than 80% of intervention group decedents were contacted during the 12 months before death. Average Medicare costs were $1913 lower for intervention group decedents compared with control group decedents in the last 6 months of life (P = .05), for a total savings of $5.95 million. There were no significant changes in hospice admissions or mean duration of hospice care.

Conclusion: Telephonic end-of-life counseling provided as an ancillary Medicare service, guided by a predictive model, can reach a majority of individuals needing support and can reduce costs by facilitating voluntary election of less intensive care.

Key Takeaways:

- A predictive model was developed and validated as a tool for identifying patients in greatest need of end-of-life counseling.
- In a randomized trial, model-directed end-of-life telephonic counseling was successfully delivered to 80% of Intervention group decedents.
- Costs in the last six months of life were significantly lower for the Intervention group than the Control group.
- Total savings attributed to the program were $5.95 million.

PDF available at:
www.sharecare.com

Maximizing Care Management Savings Through Advanced Total Population Targeting

Rula, EY, Hobgood, A, Hamlet, KS, Zeng, H, Montijo, MF
Outcomes & Insights, 2009

Abstract (abridged)

The increasing burden of chronic disease in the United States and other industrialized nations continues to drive healthcare costs to new heights. To reverse current trends, organizations are employing care management programs that target individuals with chronic conditions. The goal is to reduce costs and morbidity through better condition management. The challenge is to identify individuals for whom intervention can make a difference and find intervention opportunities at the right time: before adverse health outcomes escalate medical costs.

The dynamics of medical spending within a population can be counter intuitive. Spending is not solely driven by specific diagnoses, diseases, and clinical risks, nor by the same individuals from year to year. The potential for reducing costs varies among high-cost individuals. To effectively identify the appropriate individuals for an intervention, predictive models must take these dynamics into account.

Five principal rules govern healthcare costs within a total population and should guide the targeting of care management interventions. This document reviews these rules and outlines how Sharecare predictive modeling strategies segment the population for the most effective targeting of interventions and the greatest impact on healthcare expenditures.

Key Takeaways:

- Five percent of the population is responsible for more than half of spending.
- High-cost individuals vary by year; chronic disease and health risks are insufficient predictors of short-term costs.
- Not all cost is avoidable; greater value is derived by identifying individuals with mitigable risk.
- Sharecare predictive models are effective at identifying the members of a population with near-term, avoidable spending increases, providing the opportunity to intervene prior to cost escalation.

PDF available at:
www.sharecare.com

DELIVERING RESULTS

Assessing, monitoring and reporting outcomes are foundational to the delivery of our program. Behavior change and biometric outcomes are two measures we use to evaluate the success of the Sharecare platform. It is critical to demonstrate that the programs we offer produce the expected effect on targeted behaviors. Our goal is to drive sustained behavior change which leads to value for clients.

Reduction in healthcare utilization & cost and productivity improvement are two additional outcomes measures we evaluate to assess program effectiveness. Sharecare has long been a leader in helping organizations build cultures of health that address the different dimensions of well-being including physical, purpose, social, financial and community wellness. Research reveals that overall well-being has a direct relationship to health care cost measures and a significant correlation with measures of productivity, such as presenteeism and absenteeism. Higher well-being is associated with fewer unscheduled absences and improved job and team performance.

Below is our research highlighting proof that the Sharecare programs deliver outcomes.

FEATURED ARTICLES:

Behavior Change and Biometric Improvement

Healthcare Utilization and Cost

Productivity Improvement

Behavior Change and Biometric Improvement

Direct and Mediated Relationships Between Participation in a Telephonic Health Coaching Program and Health Behavior, Life Satisfaction, and Optimism

Sears LE, Coberley CR, Pope JE
Journal of Occupational and Environmental Medicine, 2016

Abstract

Objective: To study the direct and mediated effects of a telephonic health coaching program on changes to healthy behaviors, life satisfaction, and optimism.

Methods: This longitudinal correlational study of 4,881 individuals investigated simple and mediated relationships between participation in a telephonic health risk coaching program and outcomes from three annual Well-being Assessments.

Results: Program participation was directly related to improvements in healthy behaviors, life satisfaction and optimism, and indirect effects of coaching on these variables concurrently and over a one-year time lag were also supported.

Conclusion: Given previous research that improvements to life satisfaction, optimism and health behaviors are valuable for individuals, employers and communities, a clearer understanding of intervention approaches that may impact these outcomes simultaneously can drive greater program effectiveness and value on investment.

Key Takeaways:

- This paper provides a better understanding of the multiple mechanisms that are underlying the effects of a telephonic health coaching program and informs improvements that could increase the value of such programs.
- When participants are more engaged in telephonic health coaching, health behaviors, life satisfaction and optimism are more likely to improve compared to those who did not engage.
- Program-related improvements to health behavior explain subsequent improvements to global perceptions of well-being (life satisfaction and optimism) one year later.
- While also significant but slightly weaker, program-related improvements to these life perceptions explained a portion of the improvements observed in health behavior.

PDF available at:
https://journals.lww.com/joem/Abstract/2016/07000/Direct_and_Mediated_Relationships_Between.7.aspx

Effect of Comprehensive Lifestyle Changes on Telomerase Activity and Telomere Length in Men with Biopsy-Proven Low-Risk Prostate Cancer: 5-Year Follow-up of a Descriptive Pilot Study

Ornish D, Lin J, Chan JM, Epel E, Kemp C, Weidner G, Marlin R, Frenda SJ, Magbanua MJ, Daubenmier J, Estay I, Hills NK, Chainani-Wu N, Carroll PR, Blackburn EH,
The Lancet Oncology, 2013

Abstract

Background: Telomere shortness in human beings is a prognostic marker of ageing, disease, and premature morbidity. We previously found an association between 3 months of comprehensive lifestyle changes and increased telomerase activity in human immune-system cells. We followed up participants to investigate long-term effects.

Methods: This follow-up study compared 10 men and 25 external controls who had biopsy-proven low-risk prostate cancer and had chosen to undergo active surveillance. Eligible participants were enrolled between 2003 and 2007 from previous studies and selected according to the same criteria. Men in the intervention group followed a programme of comprehensive lifestyle changes (diet, activity, stress management, and social support), and the men in the control group underwent active surveillance alone. We took blood samples at 5 years and compared relative telomere length and telomerase enzymatic activity per viable cell with those at baseline, and assessed their relation to the degree of lifestyle changes.

Findings: Relative telomere length increased from baseline by a median of 0·06 telomere to single-copy gene ratio (T/S) units (IQR-0·05 to 0·11) in the lifestyle intervention group, but decreased in the control group (-0·03 T/S units, -0·05 to 0·03, difference p=0·03). When data from the two groups were combined, adherence to lifestyle changes was significantly associated with relative telomere length after adjustment for age and the length of follow-up (for each percentage point increase in lifestyle adherence score, T/S units increased by 0·07, 95% CI 0·02-0·12, p=0·005). At 5 years, telomerase activity had decreased from baseline by 0·25 (-2·25 to 2·23) units in the lifestyle intervention group, and by 1·08 (-3·25 to 1·86) units in the control group (p=0·64), and was not associated with adherence to lifestyle changes (relative risk 0·93, 95% CI 0·72-1·20, p=0·57).

Interpretations: Our comprehensive lifestyle intervention was associated with increases in relative telomere length after 5 years of follow-up, compared with controls, in this small pilot study. Larger randomized controlled trials are warranted to confirm this finding.

Key Takeaways:

- Comprehensive lifestyle changes, as defined by the Ornish program, were found to significantly increase telomere length over 5-years compared to a control group
- Telomere length is a molecular marker of aging; telomere shortening is associated with increased disease risk, including cardiovascular disease and cancer, and premature death
- Greater adherence to lifestyle changes were significantly associated with greater telomere length
- Overall, the Ornish comprehensive lifestyle intervention can decrease the aging process at the cellular level

PDF available at:
http://www.ornishspectrum.com/wp-content/uploads/Lancet_Lifestyle-changes-lengthen-telomeres.pdf

This research was in follow up to evaluation of telomerase activity in the GEMINAL study: Increased telomerase activity and comprehensive lifestyle changes: a pilot study. Ornish D, Lin J, Daubenmier J, Weidner G, Epel E, Kemp C, Magbanua MJ, Marlin R,Yglecias L, Carroll PR, Blackburn EH. Lancet Oncol. 2008 Nov;9(11):1048-57. The Lancet Oncology, 2013

Association between Frequency of Telephonic Contact and Clinical Testing for a Large, Geographically Diverse Diabetes Disease Management Population

Coberley CR, McGinnis M, Orr PM, Coberley SS, Hobgood A, Hamar B, Gandy B, Pope J, Hudson L, Hara P, Shurney D, Clarke JL, Crawford A, Goldfarb NI,
Disease Management, 2008

Abstract (abridged)

Diabetes disease management (DM) programs strive to promote healthy behaviors, including obtaining hemoglobin A1c (A1c) and low-density lipoprotein (LDL) tests as part of standards of care. The purpose of this study was to examine the relationship between frequency of telephonic contact and A1c and LDL testing rates. A total of 245,668 members continuously enrolled in diabetes DM programs were evaluated for performance of an A1c or LDL test during their first 12 months in the programs. The association between the number of calls a member received and clinical testing rates was examined. Members who received four calls demonstrated a 24.1% and 21.5% relative increase in A1c and LDL testing rates, respectively, compared to members who received DM mailings alone. Response to the telephonic intervention as part of the diabetes DM programs was influenced by member characteristics including gender, age, and disease burden. This study demonstrates a positive association between frequency of telephonic contact and increased performance of an A1c or LDL test in a large, diverse diabetes population participating in DM programs.

Key Takeaways:

- Hemoglobin A1c is an indicator of glycemic control in diabetes. A1c levels are associated with complications such as retinopathy, kidney failure and peripheral neuropathy.
- High LDL cholesterol is risk factor for cardiovascular disease, as is diabetes.
- Participation in telephonic disease management for patients with diabetes was associated with increased adherence to A1c and LDL testing, important standards of care.
- Clinical testing rates increased with an increasing number of successful calls to participants.
- Telephonic disease management can improve adherence to clinical testing, which should lead to improved clinical outcomes.

PDF available at:
www.sharecare.com

Impact of Telephonic Interventions on Glycosylated Hemoglobin and Low-Density Lipoprotein Cholesterol Testing

Coberley, C, Hamar, B, Gandy, B, Orr, P, Coberley, S, McGinnis, M, Hudson, L, Forman, S, Shurney, D, Pope, J
American Journal of Managed Care, 2007

Abstract (abridged)

Objective: To determine whether diabetes disease management (DM) programs are able to improve adherence to glycosylated hemoglobin (A1c) and low-density lipoprotein cholesterol (LDL-C) clinical testing in a nonadherent population and to quantify the efficacy of telephonic interventions in improving clinical testing rates.

Methods: A cohort of members with diabetes (n = 5640) was identified from among large- scale diabetes DM programs administered for 13 geographically diverse health plans. Members were defined by nonadherence at baseline to A1c and/or LDL-C testing, grouped together based on how long they had participated in the program, divided retrospectively into telephonically contacted and uncontacted groups, and analyzed in the subsequent 12-month implementation period for testing rates.

Results: Participation in diabetes DM programs was associated with improved A1c and LDL-C testing rates in previously nonadherent members. Calling nonadherent members improved A1c testing by 30.2% and LDL-C testing by 10.9% compared with testing rates for members who were not called. Members with high disease burden benefited even more from the diabetes intervention. Frequency of telephonic contacts demonstrated a linear relationship with improved rates of adherence to A1c and LDL-C testing guidelines.

Conclusion: Telephonic interventions as part of comprehensive DM programs are associated with improved disease-monitoring testing.

Key Takeaways:

- Hemoglobin A1c is an indicator of glycemic control in diabetes. A1c levels are associated with complications such as retinopathy, kidney failure and peripheral neuropathy.
- High LDL cholesterol is a risk factor for cardiovascular disease, as is diabetes.
- Telephonic disease management for patients with diabetes was associated with increased adherence to A1c and LDL testing.
- Clinical testing rates increased with an increasing number of successful calls to participants.

PDF available at:
www.sharecare.com

Intensive Lifestyle Changes for Reversal of Coronary Heart Disease

Ornish D, Scherwitz LW, Billings JH, Brown SE, Gould KL, Merritt TA, Sparler S, Armstrong WT, Ports TA, Kirkeeide RL, Hogeboom C, Brand RJ

Journal of the American Medical Association, 1998

Abstract

Context: The Lifestyle Heart Trial demonstrated that intensive lifestyle changes may lead to regression of coronary atherosclerosis after 1 year.

Objectivess: To determine the feasibility of patients to sustain intensive lifestyle changes for a total of 5 years and the effects of these lifestyle changes (without lipid-lowering drugs) on coronary heart disease.

Design: Randomized controlled trial conducted from 1986 to 1992 using a randomized invitational design.

Patients: Forty-eight patients with moderate to severe coronary heart disease were randomized to an intensive lifestyle change group or to a usual-care control group, and 35 completed the 5-year follow-up quantitative coronary arteriography.

Setting: Two tertiary care university medical centers.

Intervention: Intensive lifestyle changes (10% fat whole foods vegetarian diet, aerobic exercise, stress management training, smoking cessation, group psychosocial support) for 5 years.

Main Outcome Measures: Adherence to intensive lifestyle changes, changes in coronary artery percent diameter stenosis, and cardiac events.

Results: Experimental group patients (20 [71%] of 28 patients completed 5-year follow-up) made and maintained comprehensive lifestyle changes for 5 years, whereas control group patients (15 [75%] of 20 patients completed 5-year follow-up) made more moderate changes. In the experimental group, the average percent diameter stenosis at baseline decreased 1.75 absolute percentage points after 1 year (a 4.5% relative improvement) and by 3.1 absolute percentage points after 5 years (a 7.9% relative improvement). In contrast, the average percent diameter stenosis in the control group increased by 2.3 percent- age points after 1 year (a 5.4% relative worsening) and by 11.8 percentage points after 5 years (a 27.7% relative worsening) (P=.001 between groups. Twenty-five cardiac events occurred in 28 experimental group patients vs 45 events in 20 control group patients during the 5-year follow-up (risk ratio for any event for the control group, 2.47 [95% confidence interval, 1.48-4.20]).

Conclusions: More regression of coronary atherosclerosis occurred after 5 years than after 1 year in the experimental group. In contrast, in the control group, coronary atherosclerosis continued to progress and more than twice as many cardiac events occurred.

Key Takeaways:

- The Lifestyle Heart Trial evaluated whether intensive lifestyle changes could stop or reverse the progression of heart disease
- In the initial 1-year study (see below) 82% of the treatment group showed measurable reversal of heart disease, as assessed by severity of atherosclerosis
- This 5-year follow up demonstrated greater regression in atherosclerosis among treatment group members compared to the 1-year results
- Patients in the treatment group sustained significant weight loss and decrease in LDL cholesterol (without lipid-lowering drugs) over the 5-year period and reported a 72% reduction in angina frequency
- After 5-years the treatment group averaged fewer than half as many cardiac events than the usual-care control group (0.89 vs. 2.25 events per patient, respectively)

PDF available at:
http://www.ncbi.nlm.nih.gov/pubmed/9863851

This research was in follow up to the original Lifestyle Heart Trial study: Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. Ornish D, Brown SE, Scherwitz LW, Billings JH, Armstrong WT, Ports TA, McLanahan SM, Kirkeeide RL, Brand RJ, Gould KL. Lancet. 1990 Jul 21;336(8708):129-33.

Effects of Stress Management Training and Dietary Changes in Treating Ischemic Heart Disease

Ornish D, Scherwitz LW, Doody RS, Kesten D, McLanahan SM, Brown SE, DePuey E, Sonnemaker R, Haynes C, Lester J, McAllister GK, Hall RJ, Burdine JA, Gotto AM Jr.
Journal of the American Medical Association, 1983

Abstract (abridged)

Objective: The objective of this study is to evaluate the short-term effects of an intervention that consists of stress management training and dietary changes in patients with ischemic heart disease (IHD).

Method: We compared the cardiovascular status of 23 patients who received this intervention with a randomized control group of 23 patient who did not.

Results: After 24 days, patients in the experimental group demonstrated a 44% mean increase in duration of exercise, a 55% mean increase in total work performed, somewhat improved left ventricular regional wall motion during peak exercise, and a net change in the left ventricular ejection fraction from rest to maximum exercise of +6.4%. Also, we measured a 20.5% mean decrease in plasma cholesterol levels and a 91.0% mean reduction in frequency of anginal episodes.

Conclusion: In this selected sample, short-term improvements in cardiovascular status seem to result from these adjuncts to conventional treatments of IHD.

Key Takeaways:

- Patients that were part of a short-term 24 day heart disease treatment program that focused on stress management training and dietary changes displayed significant improvements in exercise ability and heart function, when compared to patients not in the program.
- Treated patients showed a 44% average increase in duration of exercise, a 55% average increase in total work performed, significant increase in heart ejection function, and a 91% average reduction in angina episode frequency.
- Stress management and dietary changes can have a significant positive impact on ischemic heart disease patients, over and above the benefits of conventional ischemic heart disease treatments.

PDF available at:
https://www.ncbi.nlm.nih.gov/pubmed/6336794

Healthcare Utilization and Cost

Effect of Post-Hospital Discharge Telephonic Intervention on Hospital Readmissions in a Privately Insured Population in Australia

James E. Pope, Andrew Cottrill, Scott Verrall, Shaun Larkin, Elizabeth Y. Rula, G. Brent Hamar and Carter Coberley
Australian Health Review, 2017

Abstract

Objective: The aim of the present study was to evaluate the effect of telephone support after hospital discharge to reduce early hospital readmission among members of the disease management program My Health Guardian (MHG) offered by the Hospitals Contribution Fund of Australia (HCF).

Method: A quasi-experimental retrospective design compared 28-day readmissions of patients with chronic disease between two groups: (1) a treatment group, consisting of MHG program members who participated in a hospital discharge (HODI) call; and (2) a comparison group of non-participating MHG members. Study groups were matched for age, gender, length of stay, index admission diagnoses and prior MHG program exposure. Adjusted incidence rate ratios (IRR) and odds ratios (OR) were estimated using zero-inflated negative binomial and logistic regression models respectively.

Results: The treatment group exhibited a 29% lower incidence of 28-day readmissions than the comparison group (adjusted IRR 0.71; 95% confidence interval (CI) 0.59–0.86). The odds of treatment group members being readmitted at least once within 28 days of discharge were 25% lower than the odds for comparison members (adjusted OR 0.75; 95% CI 0.63–0.89). Reduction in readmission incidence was estimated to avoid A$713 730 in cost.

Conclusion: The HODI program post-discharge telephonic support to patients recently discharged from a hospital effectively reduced the incidence and odds of hospital 28-day readmission in a diseased population.

Key Takeaways:

- High readmission rates are a recognised problem in Australia and contribute to the over 600 000 potentially preventable hospitalisations per year.
- The present study is the first study of a scalable intervention delivered to an Australian population with a wide variety of conditions for the purpose of reducing readmissions. The intervention reduced 28-day readmission incidence by 29%.
- The significant and sizable effect of the intervention support the delivery of telephonic support after hospital discharge as a scalable approach to reduce readmissions.

PDF available at:
http://www.publish.csiro.au/AH/AH16059

The Well-Being Valuation Model: A Method for Monetizing the Nonmarket Good of Individual Well-Being

Sidney, J. A., Jones, A., Coberley, C., Pope, J. E., & Wells, A.
Health Services and Outcomes Research Methodology, 2016

Abstract

Objective: The objective of this research is to advance the evaluation and monetization of well-being improvement programs, offered by population health management companies, by presenting a novel method that robustly monetizes the entirety of well-being improvement within a population.

Methods: This was achieved by utilizing two employers' well-being assessments with medical and pharmacy administrative claims (2010–2011) across a large national employer (n = 50,647) and regional employer (n = 6170) data sets. This retrospective study sought to monetize both direct and indirect value of well-being improvement across a population whose medical costs are covered by an employer, insurer, and/or government entity. Logistic regression models were employed to estimate disease incidence rates and input–output modelling was used to measure indirect effects of well-being improvement. These methodological components removed the burden of specifying an exhaustive number of regression models, which would be difficult in small populations.

Results: Members who improved their well-being were less likely to become diseased. This reduction saved, per avoided occurrence, US$3060 of total annual health care costs. Of the members who were diseased, improvement in well-being equated to annual savings of US$62 while non-diseased members saved US$26.

Conclusion: The method established here demonstrates the linkage between improved well-being and improved outcomes while maintaining applicability in varying populations.

Key Takeaways

- This study describes the development and application of a method for monetizing the nonmarket good of individual well-being to evaluate the value of improved health and well-being in two employer populations.
- The methodology captures four sources of value resulting from improvements in total population well-being: reduction in health care spend among the non-diseased, reduction in the likelihood of developing chronic disease, reduction in medical spend among newly diseased members, and reduction in spend among those with disease
- The estimated value of improved well-being was $38.59 per person per year (PPPY). The highest per person per year savings ($3059 PPPY) was derived from estimated reduction in incidence rate of chronic conditions although the contribution of savings from this source was only 17% of total estimated savings.

PDF available at:
https://link.springer.com/article/10.1007/s10742-016-0161-9

The Value of a Well-Being Improvement Strategy: Longitudinal Success across Subjective and Objective Measures Observed in a Firm Adopting a Consumer-Driven Health Plan

Guo, X, Coberley, CR, Pope, JE,Wells, A

Journal of Occupational and Environmental Medicine, 2015

Abstract

Objective: The objective of this study is to evaluate effectiveness of a firm's 5-year strategy toward improving well-being while lowering health care costs amidst a shift to a Consumer- Driven Health Plan.

Methods: Study population participated in a robust well-being improvement solution that included company sanctioned fitness activities, weight loss and tobacco cessation programs, online well-being improvement plans and resources, free membership at a national network of gyms, and health coaching—all of which were underscored by a purposeful and pervasive culture of well-being. Repeated measures statistical models were employed to test and quantify association between key demographic factors, employment type, year, individual wellbeing, and outcomes of health care costs, obesity, smoking, absence, and performance.

Results: Average individual well-being trended upward by 13.5% over 5 years, monthly allowed amount health care costs declined 5.2% on an average per person per year, and obesity and smoking rates declined by 4.8 and 9.7%, respectively, on average each year. The results show that individual well-being was significantly associated with each outcome and in the expected direction.

Conclusion: The firm's strategy was successful in driving statistically significant, longitudinal well-being, biometric and productivity improvements, and health care cost reduction.

Key Takeaways

- Study objective was to determine whether an employer could achieve positive health and productivity outcomes and reduced healthcare costs by coupling the well-being improvement offerings with a shift to a consumer-driven health plan (CDHP).
- Study outcomes include:
  - Average individual well-being increased by 9.8 points (or 13.5%) between 2009 and 2011 and higher score was maintained through 2013
  - Healthcare costs declined 21.5%, at an average annual rate of 5.2%, despite the national healthcare inflation trend over 5 years
  - Compared with 2009, smoking and obesity prevalence rates in 2013 were 36% and 18% lower, respectively
  - Absence declined by 4% on average each year, (2010-2013)
- Study findings suggest that a focus on well-being improvement is associated with healthcare cost reductions and improvements in productivity.

PDF available at:
www.sharecare.com

Long-Term Impact of a Chronic Disease Management Program on Hospital Utilization and Cost in an Australian Population with Heart Disease or Diabetes

Hamar, B, Coberley, CR, Pope, JE, Rula, EY
BMC Health Services Research, 2015

Abstract (abridged)

Background: To evaluate the longitudinal value of a chronic disease management program, My Health Guardian (MHG), in reducing hospital utilization and costs over 4 years.

Methods: The MHG program provides individualized support via telephonic nurse outreach and online tools for self-management, behavior change and well-being. A matched-cohort analysis retrospectively compared MHG participants with heart disease or diabetes (treatment, N = 4,948) to non-participants (comparison, N = 28,520) on utilization rates (hospital admission, readmission, total bed days) and hospital claims cost savings. Outcomes were adjusted for demographic, disease, and pre-program admissions or cost differences.

Results: Over 4 years, program participation resulted in significant reductions in hospital admissions (−11.4%, P < 0.0001), readmissions (−36.7%, P < 0.0001), and bed days (−17.2%, P < 0.0001). The effect size increased over time for admissions and bed days. The relative odds of any admission and readmission over the 4 years were 27% and 45% lower, respectively, in the treatment group. Cumulative program savings from reduced hospital claims was $3,549 over 4-years; savings values for each year were significant and increased with time (P = 0.003 to P < 0.0001).

Conclusion: Results demonstrate the longitudinal value of the MHG program in reducing hospital utilization and costs for individuals with heart disease or diabetes and demonstrate the increasing program effect with continued participation over time.

Key Takeaways

- This long-term study of a chronic disease management program in Australia found significant reductions in hospital utilization and claims costs for insured members with heart disease or diabetes in each of the 4 years of the program.
- Average per-member savings across the 4-year period totaled $3,549; savings in- creased over time.
- Hospital utilization was significantly reduced over the 4 years:
  - 11.4% reduction in hospital admissions
  - 36.7% reduction in readmissions
  - 17.2% reduction in hospital bed days
- The magnitude of program effect increased over time with respect to avoided admissions and bed days.
- Participants were 27% and 45% less likely to have any admission or readmission, respectively, over the 4-year study period than matched non-participants.
- Results from this study confirm and longitudinally extend previously published program utilization outcomes and add an evaluation of cost savings

PDF available at:
http://www.biomedcentral.com/1472-6963/15/174/abstract

Exploring Robust Methods for Evaluating Treatment and Comparison Groups in Chronic Care Management Programs

Wells, AR, Hamar, B, Bradley, C, Gandy, WM, Harrison, PL, Sidney, JA, Coberley, CR, Rula, EY, Pope, JE
Population Health Management, 2012

Abstract

Evaluation of chronic care management (CCM) programs is necessary to determine the behavioral, clinical, and financial value of the programs. Financial outcomes of members who are exposed to interventions (treatment group) typically are compared to those not exposed (comparison group) in a quasi-experimental study design. However, because member assignment is not randomized, outcomes reported from these designs may be biased or inefficient if study groups are not comparable or balanced prior to analysis. Two matching techniques used to achieve balanced groups are Propensity Score Matching (PSM) and Coarsened Exact Matching (CEM). Unlike PSM, CEM has been shown to yield estimates of causal (program) effects that are lowest in variance and bias for any given sample size. The objective of this case study was to provide a comprehensive comparison of these 2 matching methods within an evaluation of a CCM program administered to a large health plan during a 2-year time period. Descriptive and statistical methods were used to assess the level of balance between comparison and treatment members pre- matching. Compared with PSM, CEM retained more members, achieved better balance between matched members, and resulted in a statistically insignificant Wald test statistic for group aggregation. In terms of program performance, the results showed an overall higher medical cost savings among treatment members matched using CEM compared with those matched using PSM (-$25.57 versus -$19.78, respectively). Collectively, the results suggest CEM is a viable alternative, if not the most appropriate matching method, to apply when evaluating CCM program performance.

Key Takeaways:

- Two statistical methods, both using comparison groups, evaluated chronic care management programs.
- Both methods found significant savings, but the newer CEM method provided a more accurate measurement of savings.
- CEM provides objective parameters to assess the overall quality of matched groups, contributing to a more balanced comparative outcomes analysis.

PDF available at:
http://online.liebertpub.com/doi/pdfplus/10.1089/pop.2011.0104

The Impact of a Proactive Chronic Care Management Program on Hospital Admission Rates in a German Health Insurance Society

Hamar, B, Wells, A, Gandy, W, Haaf, A, Coberley, C, Pope, JE, Rula EY
Population Health Management, 2010

Abstract

Hospital admissions are the source of significant health care expenses, although a large proportion of these admissions can be avoided through proper management of chronic disease. In the present study, we evaluate the impact of a proactive chronic care management program for members of a German insurance society who suffer from chronic disease. Specifically, we tested the impact of nurse-delivered care calls on hospital admission rates. Study participants were insured individuals with coronary artery disease, heart failure, diabetes, or chronic obstructive pulmonary disease who consented to participate in the chronic care management program. Intervention (n=17,319) and Comparison (n=5668) groups were defined based on records of participating (or not participating) in telephonic interactions. Changes in admission rates were calculated from the year prior to (Base) and year after program commencement. Comparative analyses were adjusted for age, sex, region of residence, and disease severity (stratification of 3 [least severe] to 1 [most severe]). Overall, the admission rate in the Intervention group decreased by 6.2% compared with a 14.9% increase in the Comparison group ($P<0.001$). The overall decrease in admissions for the Intervention group was driven by risk stratification levels 2 and 1, for which admissions decreased by 8.2% and 14.2% compared to Comparison group increases of 12.1% and 7.9%, respectively. Additionally, Intervention group admissions decreased as the number of calls increased ($P=0.004$), indicating a dose-response relationship. These findings indicate that proactive chronic care management care calls can help reduce hospital admissions among German health insurance members with chronic disease.

Key Takeaways:

- This study of a Sharecare chronic care management program in Germany found that the program significantly reduced hospital admission rates.
- The admission rate in the Intervention group decreased by 6.2% compared with a 14.9% increase in the Comparison group.
- Intervention group admissions decreased as the number of calls increased, indicating a dose-response relationship.
- Proactive care management was effective at helping German health plan members better manage their chronic conditions to avoid inpatient hospital admissions.

PDF available at:
www.sharecare.com

The Impact of Post-Discharge Telephonic Follow-Up on Hospital Readmissions

Harrison, PL, Hara, PA, Pope, JE,Young, MC, Rula, EY
Population Health Management, 2011

Abstract

Recurrent hospitalizations are responsible for considerable health care spending, although prior studies have shown that a substantial proportion of readmissions are preventable through effective discharge planning and patient follow-up after the initial hospital visit. This retrospective cohort study was undertaken to determine whether telephonic outreach to ensure patient understanding of and adherence to discharge orders following a hospitalization is effective at reducing hospital readmissions within 30 days after discharge. Claims data were analyzed from 30,272 members of a commercial health plan who were discharged from a hospital in 2008 to determine the impact of telephonic intervention on the reduction of 30-day readmissions. Members who received a telephone call within 14 days of discharge and were not readmitted prior to that call comprised the intervention group; all other members formed the comparison group. Multiple logistic regression was used to determine the impact of the intervention on 30-day readmissions, after adjusting for covariates. Results demonstrated that older age, male sex, and increased initial hospitalization length of stay were associated with an increased likelihood of readmission ($P < 0.001$). Receipt of a discharge call was associated with reduced rates of readmission; intervention group members were 23.1% less likely than the comparison group to be readmitted within 30 days of hospital discharge ($P=0.043$). These findings indicate that timely discharge follow-up by telephone to supplement standard care is effective at reducing near-term hospital readmissions and, thus, provides a means of reducing costs for health plans and their members.

Key Takeaways:

- The study tested whether telephonic outreach from a nurse — ensuring understanding of and adherence to discharge orders — reduced 30-day readmissions.
- Patients who received a call from a Sharecare nurse within 14 days after discharge from the hospital were 23.1% less likely than the comparison group to have a 30-day readmission.
- Timely telephonic follow-up after hospital discharge provides an effective way to improve quality measures and reduce the burden of readmissions.

PDF available at:
www.sharecare.com

Productivity Improvement

Well-Being Improvement in a Mid-Size Employer: Changes in Well-Being, Productivity, Health Risk and Perceived Employer Support after Implementation of a Well-Being Improvement Strategy

Hamar, B, Coberley, C, Pope, J, Rula, E

Journal of Occupational and Environmental Medicine, 2015

Abstract

Objective: To evaluate employee well-being change and associated change in productivity, health risk including biometrics, and workplace support over two years after implementation of a well-being improvement strategy.

Methods: Case study evaluation of well-being, productivity (presenteeism, absenteeism and job performance), health risk, and employer support across three measurements spanning two years. Employer well-being was compared to an independent sample of workers in the community.

Results: Well-being and job performance increased and presenteeism and health risk decreased significantly over the two years. Employee well-being started lower and increased to exceed community worker averages, approaching significance. Well-being improvement was associated with higher productivity across all measures. Increases in employer support for well-being were associated with improved well-being and productivity.

Conclusion: This employer's well-being strategy, including a culture supporting well-being, was associated with improved health and productivity.

Key Takeaways

- Participating employees showed significant improvements in well-being that were associated with productivity improvement. For every 1-point increase in well-being score, employee's presenteeism and absenteeism decreased by approximately 3.5% and self- reported job performance improved by 5%, on average.
- Participating employees' overall well-being scores improved more than 7 points on average to surpass employees in the surrounding community, whose scores improved less than 0.5 points.
- Participating employees also displayed *significant absolute improvements in*:
  - All six domains making up the WB score. Healthy behaviors improved dramatically (+17.9 pts). Basic access improved the least (+2.5pts)
  - Presenteeism. On-the-job productivity loss decreased by 3.8pts (a 21% decrease from baseline average)
  - Job Performance. Increased by 2% relative to starting score.
  - Health Risks (including biometrics). The low risk group (0-2 risks) increased from 54% to 67%.
  - Employer Support for Well-Being.
- This is the first study to show that workplace support/culture can positively contribute to program outcomes. Employees reported a stronger sense of employer support over time that was significantly linked to improved well-being and productivity.
- This case study provides evidence that participants in Sharecare programs experience improved well-being, health, and work productivity over 2 program years.

PDF available at:
http://journals.lww.com/joem/Abstract/2015/04000/Well_Being_Improvement_in_a_Midsize_Employer_.4.aspx

Well-Being, Health, and Productivity Improvement After an Employee Well-Being Intervention in Large Retail Distribution Centers

Rajaratnam, AS, Sears, LE, Shi,Y, Coberley, CR, Pope, JE
Journal of Occupational and Environmental Medicine, 2014

Abstract

Objective: To evaluate changes in well-being, biometric indicators of health, and productivity after a well-being intervention.

Methods: Biometric and self-reported outcomes were assessed among 677 retail distribution center employees before and after a six-month well-being intervention.

Results: Despite lower well-being at baseline compared with an independent random sample of workers, program participants' well-being, productivity, body mass index, systolic blood pressure and total cholesterol improved significantly after the intervention, whereas the decline in diastolic blood pressure was not significant. Moreover, participants' specific transition across well-being segments over the intervention period demonstrated more improvement than decline.

Conclusion: There is evidence that programs designed to improve well-being within a workforce can be used to significantly and positively impact employee health and productivity, which should result in reduced healthcare costs, improved employee productivity and increased overall profitability.

Key Takeaways

- For six months, employees working in retail distribution centers participated in a well- being improvement intervention.
- Prior to the intervention, the participants had significantly more challenges pertaining to well-being, physical health and socioeconomic status compared with employees in the surrounding community.
- Nevertheless, well-being, biometric indicators of health, and presenteeism improved significantly for program participants after the six-month intervention.
- Specifically, significant improvements were observed for overall well-being, life evaluation, emotional health, physical health, healthy behaviors, basic access, body mass index, systolic blood pressure and total cholesterol, whereas the reductions in diastolic blood pressure and Work Environment scores were not significant.

PDF available at:
http://journals.lww.com/joem/Abstract/2014/12000/Well_%20Being,_Health,_and_Productivity_Improvement.10.aspx

SHARECARE BY THE NUMBERS

The effectiveness behind our products lies in the research and engineering that makes them possible. The variety of offerings provides proven ways to help you live a healthier life.

45M+
RealAge Tests Taken

1.1M
Providers

100M
Consumers Reached Each Month

3M+
Americans Positively Impacted By the Blue Zones Project

30Y+
Disease Management and Chronic Care Experience

42
Blue Zone Communities

35Y+
of research by Dr. Dean Ornish proving that the progression of heart disease can be reversed

5,000
Hospital & Practice Partners

30+
Ornish Lifestyle Medicine Sites

6B
Health Data Points

sharecare

Stay in touch.

404.671.4000
sharecare.com
info@sharecare.com

255 East Paces Ferry Rd, NE,
Suite 700
Atlanta, GA 30305