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Care Coaching
An Alternative Approach to Managing Comorbid Depression

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ABSTRACT

Purpose and Objectives: The management of chronic medical conditions is very costly because of poor response to evidence-based treatment plans. Behavioral health disorders have been shown to impact one's inability to adhere to treatment protocols, thus worsening the course of the comorbid state. Traditional management methods have been unsuccessful in diminishing the costs associated with increased utilization of healthcare services that result from poor adherence to treatment plans and treatment failures that ultimately produce poor clinical outcomes. This article examines the use of an alternative approach on an identified high-risk population of individuals with the primary goal of promoting patient-centric self-efficacy and optimal patient care, thereby improving clinical outcomes resulting in a reduction of overall healthcare utilization.

Primary Practice Setting: Care coaches, in collaboration with primary care physicians, engaged in telephonic consultation with identified participants from one regional health plan to validate and modify treatment plans in order to conform to evidence-based guidelines.

Findings/Conclusions: The approach used in this study demonstrated improved clinical outcomes through decreases in acute care facility admissions, lengths of stay in acute care facilities, and emergency department visits. In addition, a positive return on investment is presented as evidence of the efficacy of this alternative approach.

Implications for Case Management Practice: Predictive modeling and risk stratification methodologies are useful in the identification of individuals at risk for treatment failure and poor outcomes. Individuals who suffer from multiple comorbidities with identified psychosocial issues/barriers have increased health risks and costs that are far greater than those who do not appear to have associated psychopathology or psychosocial factors. Examining the use of the study protocol from a lifetime perspective can further reduce costs in the future and still show a positive return on investment.

Key words: *behavioral health, care coaching, chronic illness, comorbid depression, depression, disease management, predictive modeling*

Chronic medical conditions are the most prevalent, costly, and preventable health problems facing Americans today (Hogan, 2003). Many individuals suffering from chronic conditions, such as asthma, congestive heart failure, and diabetes mellitus do not always appear to be responding to evidence-based treatment plans. This ultimately results in increased costs and major physical limitations associated with suffering and disability (Faulkner, 2003; Tu, 2004). Traditional disease management models separating mind and body have also failed to address the problems these individuals experience as a result of their chronic conditions. This is evidenced by the increasing utilization of acute care services (Levant, 2007; Wiecha & Pollard, 2004). Along with this, there has been a notable rise in the demand for behavioral health services, particularly for individuals suffering from depressive disorders, among other mental health disorders (Maciejewski et al., 2007). Behavioral health disorders such as depression have been shown to impact one's inability to adhere to treatment protocols, thus worsening the course of the chronic comorbid state (Ciechanowski, Katon, & Russo, 2000;

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Traditional disease management models separating mind and body have also failed to address the problems these individuals experience as a result of their chronic conditions.

DiMatteo, Lepper, & Croghan, 2000). Recently expanding research focusing on utilization and outcomes demonstrates that chronic conditions demand drastically different approaches for decreased utilization and successful outcomes.

This article examines the use of one such approach on an identified high-risk population of individuals from one regional health plan. The goal of the intervention was to promote patient-centric self-efficacy and optimal patient care, thereby improving clinical outcomes resulting in a reduction of overall healthcare utilization. Predictive modeling technology was used to filter for the presence of both diagnosed and undiagnosed depression within the health plan population as a comorbidity to a chronic medical condition. A positive return on investment (ROI) is presented as evidence of the efficacy of this unique approach in the management of depressive disorders. A reduction of healthcare costs is also demonstrated through the control of utilization of acute care and emergency department (ED) services by this population.

Background

There is significant evidence supporting the link between behavior and chronic illness (Jarret, Yee, & Banks, 2007). Despite this and with behavioral health disorders such as depression that have been shown to impact one's inability to adhere to treatment protocols, thus worsening the course of the comorbid state, the behavioral mechanisms that drive decisions related to chronic disease management are not clearly understood (Ciechanowski et al., 2000; DiMatteo et al., 2000). Medical providers may not always fully comprehend why their patients do not respond to traditional management, despite efforts to educate and motivate them. These individuals may have subclinical forms of behavioral health disorders and/or psychosocial barriers that may never evolve to definitive forms of psychopathology. Subclinical factors, including personality style, coping skills, and depressive/anxious characteristics, tend to be barriers with respect to change, adherence, and understanding of healthcare conditions.

A different approach to the identification and management of depression was developed to demonstrate its impact on overall conditions including chronic comorbid medical conditions. The process addresses fundamental shortcomings inherent in conventional treatment protocols that have traditionally been used in varied populations. In addition, this perspective focuses on comprehensive patient-centric behavioral healthcare coordination and behavioral interventions, utilizing evidence-based guidelines and strategies. It is based on an evaluative model that incorporates an assessment of current and prospective risks (high cost, high utilization, and maladaptive behaviors) of a defined population, as well as individual psychosocial barriers at the participant level. The program is designed to generate an individualized care–coaching plan based on the risks and barriers identified. Patient-centric goals are identified and interventions are then implemented with longitudinal metrics to determine both progress and eventual outcomes (Falloon & Fadden, 1995; Shepherd, 1990). This study demonstrates the impact of a depression-focused management program and its positive impact on overall medical costs and utilization, relative to the chronic medical conditions that were comorbid to the population (Levant, 2004).

Efficacy and Return on Investment

Multiple conditions are associated with greater healthcare utilization and expenditures. Scarce resources underscore the need to identify interventions and services that can provide increased benefits with lower costs. ROI has been accepted as a way to demonstrate efficacy, particularly in disease management programs (Toney, 2007). While the ideal is to increase engagement in interventions that encourage optimal health behaviors by the target populations (members of a health plan), a significant goal is to prevent increase in utilization. Interventions reducing utilization of acute care and ED services can be cost-effective, even when not showing a positive ROI (no net savings). This is the case for most medical and surgical interventions (Sackett, Pope, & Erdley, 2004). Such interventions not only improve health but may also increase costs. In contrast to many of these interventions, the protocol used in this study meets the level of effectiveness required at a low implementation cost to show positive ROI. The study protocol's approach/interventions were investigated on expectations of ROI.

Methods and Interventions

The time frame for this study included a 12-month participation period (August 2006–July 2007) and a

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12-month reference–base period preceding participation (May 2005–April 2006). The 3-month interval between these periods was utilized for participant outreach, engagement, and enrollment into the program. Predictive modeling and risk stratification tools were used in a nonexperimental setting to identify participants for the intervention from the total health plan membership. Based on claims data, a target population was identified that met preliminary eligibility criteria including

- risk-level thresholds indicative of current and prospective high-risk scenarios;
- the presence of definitive depressive disorders; and
- suspicion of undiagnosed depression based on a number of proprietary filters and algorithms.

The final sample of participants was then identified from the target population through an outreach campaign. This campaign included an initial mailing followed by a telephonic introduction to, and engagement in, the program. Verbal consent to participate was voluntary, yet required. Further inclusion criteria for participation in the study cohort included at least 6 months of eligibility during the reference base period and at least 6 months of participation during the measurement period. Each of the 3,305 participants in the final study sample was assigned to a dedicated care coach. The care coaches are licensed mental health counselors and registered nurses with experience in psychopathology and behavior modification. They are supported by a team of physicians and psychologists, who foster a collaborative relationship and engage in a therapeutic collaborative process while providing consultation to attending practitioners.

Once enrolled, each participant was screened for behavioral health conditions as well as psychosocial issues such as anxiety, affective disorders, and chemical dependency alone or as comorbidities to other medical conditions. All of these conditions can have a significant negative effect on total healthcare costs. Each participant was then assigned individualized goals and specific interventions were adapted and coordinated to address the participant's evolving needs. The individualized goals were participant-defined and included remembering to take medication on a daily basis, keeping doctor's appointments, losing weight, and increasing physical activity on a daily basis among many other personalized objectives. The interventions used to assist the participants in reaching their goals are evidence based and geared toward increasing participant motivation. In addition, the nine-item depression scale of the Patient Health Questionnaire (PHQ-9) was used to measure depression severity on a longitudinal basis. Items of PHQ-9 are based on the diagnostic criteria for major depressive disorders as published in the fourth edition of the *Diagnostic Statistics Manual of Mental Disorders* (*DSM-IV*). The tool is used to identify depression and to track the severity of depression over time (Kroenke, Spitzer, & Williams, 2001).

The primary orientation of the intervention was to educate and motivate participants to achieve sustained behavior change in order to help them adhere to their prescriptions or treatment plans and become increasingly self-managed in directing their healthcare. One-to-one relationships were established between the care coaches and participants. The coaches assisted primary care providers (PCPs) in identifying targeted psychosocial issues through regular reports and metrics as well as through clinical alert notification and physician-to-physician telephonic consultation by a team of collaborating program physician medical directors. The purpose of the consultation was to validate the treatment and potentially assist the attending physician in modifying the treatment plan to conform to evidence-based guidelines. Desired outcomes for each participant were individually defined at the intervention's inception, thereby driving its execution.

Because the study protocol is driven by outcomes, it was developed to measure and report key relevant metrics to demonstrate the program's impact. For individual members, this includes behavior modification milestones and achievement of "graduation" criteria. The graduation criteria include the following: the achievement of at least 75% of an individual's assigned goals; at least three months of consistent adherence to prescribed treatment plans; and assurance of an evidence-based treatment plan (through the review by the study protocol, psychiatric, and primary care medical directors). Across the population, this provides reporting on the activity and progress for every aspect of targeted interventions.

Results

The management of one health plan's members for the reporting period August 2006 through July 2007 was reviewed. Three key utilization metrics were identified. Specifically, these were

a. acute care facility admissions;
b. average length of stay, measured in hospital days; and
c. visits to the ED.

Predictive modeling and risk stratification were used to identify eligible members from the health plan. There were a total of 3,305 participants in the program during the reporting period. The analysis of the study protocol's success in this population was based on an estimate of gross savings for the 12-month period reviewed, as compared with the prior 12-month base period (May 2005–April 2006).

Data are reported on a per-thousand basis over a 12-month period from August 2006 through July 2007. The period between May 2006 and July 2006 is considered the enrollment/engagement period during which members of the high-risk group were contacted for consent to enroll in the program. The annual report includes clinical improvements around depression. A case study is presented to illustrate this program's success as experienced by the individual participants (Box 1). The health plan's actuarial validation of the results is provided (Table 1).

On average, admissions were reduced from 44.91 to 23.66. Average length of stay was also reduced from 276.15 to 146.59 and ED visits went from 71.90 to 53.05. When associating these results with claims data during this period, there were considerable costs savings to the health plan, as compared with claims costs from the "base" period. The program had a positive net ROI of 3.84 during the time period reviewed and for which data are available.

TABLE 1
Results Validated by the Health Plan's Independent Actuarial Services

	Start	End
Measurement	August 1, 2006	July 31, 2007
Average enrollment	3,305 participants	3,305 participants
Admits/1000	44.91	23.66
ALOS (days/1000)	267.15	146.59
ED visit (visits/1000)	71.90	53.05
ROI		3.84

Note. ALOS = average length of stay; ED = emergency department; ROI = return on investment.

LIMITATIONS

Return on investment focuses on costs and compares the medical and other costs saved by an intervention with the cost of its implementation. *Cost-effectiveness*

BOX 1

Mrs. R Case Study

Mrs. R is a 56-year-old widow who enrolled in the program in April 2007. Her eligibility for the program was identified because of her diagnosis of depression. She reports additional diagnoses of hypothyroidism, possible fibromyalgia, and unspecified neck/back pain. She also has a history of endometriosis. At enrollment, Mrs. R reported multiple psychosocial stressors involving her relationships with her friends and family. She reports caring for her mother with Alzheimer's disease for over 3 years, difficulty adjusting to her 32-year-old niece and her two dogs moving in with her, and worries about her daughter who is currently going through divorce proceedings. Her PHQ–9 score at enrollment was 14. She complained of feeling fatigued, chronically worried, and sad. Her physical complaints also included neck and shoulder tightness and weight gain. She reported adherence to a prescription regimen of Armour Thyroid 30 mg each day and an Estraderm patch. She indicated a history of treatment with a medication for depression and worries that she will need to restart this medication. She also reports a history of therapy treatment but does not feel ready to return to therapy at this time.

Mrs. R's goal at enrollment was "to do more things for self, to find things that bring joy and do those things at least once each week."

Interventions: Coaching interventions with Mrs. R focus on improved self-care and condition-specific education about depression and hypothyroidism. The coach sent her personal health information sheets related to depression triggers, treatment options, and support groups.

At the 8th month of enrollment in the program Mrs. R's PHQ–9 score decreased to 2 (from 14). She has restarted her depression medication and, while she decided against participating in therapy, Mrs. R has engaged in other healthy activities, including exercise, yoga, and massage therapy. She has also reinstated her psychiatric care with her doctor. Mrs. R has lost 31 lb through better nutrition and exercise. She has joined a support group focused on codependency and has been practicing setting boundaries with her friends and family. She revealed that her boyfriend abuses drugs and she is exploring Al Anon support groups. She no longer mentions any complaint of neck, shoulder, or back pain.

Mrs. R states on December 1, 2007, "Talking to you has really helped me evaluate things more. I feel stronger since we started talking. I appreciate all of your help. You do not tell me what to do, but you help me to figure out what I need to do for myself. I did not realize all the things I did accomplish over these months until we talked about it."

The primary orientation of the intervention was to educate and motivate participants to achieve sustained behavior change to help them adhere to their prescriptions or treatment plans and become increasingly self-managed in directing their healthcare.

calculates the net change in costs associated with an intervention relative to health benefits gained. Certainly, the examination of such an intervention on a select population can demonstrate effectiveness. However, if the goal is to establish evidence that contributes significantly to methodology regarding predictive modeling and risk stratification, experimental conditions should be established and rigorous statistical analyses should be conducted. This initiative was conducted in nonexperimental conditions. The health plan's immediate concern was to maximize the potential for cost savings via targeting of higher risk members. Assignment of members to the study protocol was not randomized; there was no degree of control established in that the goal was to enroll as many members as possible. Finally, one of the main challenges in this study was in controlling for all of the possible variables in the target population. Each member in the targeted group was subject to similar healthcare benefit limits, utilization and case management programs, pharmacy benefits, and provider networks.

Pursuant to this, further development and expansion of the care coaching model should be investigated with respect to the management of those medical conditions in addition to management of the underlying depression. It also appears that the behavioral interventions and recognition of psychosocial issues may be the key to the reported outcomes and, as such, should remain the foundation of an expanded program.

Summary

The prevalence of chronic conditions in the United States is increasing, as are the healthcare costs associated with managing chronic illnesses. Existing research demonstrates that the focus has been on quantifying excess medical expenditures paid by the federal and state governments in an effort to contain these ever-increasing costs (Finkelstein & Trogdon, 2008). Private industry has also been challenged by similar concerns. The protocol for this study was developed in an effort to contain the complex problem of increasing costs by providing a unique approach to managing comorbid depression. Ultimately, efficacy is determined by evaluation of the utilization parameters of acute care facility admissions, lengths of stay in acute care facilities, and ED visits, along with a demonstration of positive ROI. The intervention demonstrated reductions in all three key utilization parameters and a positive ROI of 3.84 over the 12-month period for which data were reported. Extrapolation from these results reveals continued potential decreases in utilization and potential increases in ROI in subsequent years. Given the nonrandomization assignment of the population to the intervention, the substantial value of the program in terms of costs savings and improved clinical outcomes appears to be evident. The protocol used in the intervention is a program that can provide a significant cost return to health plans and improvement of clinical outcomes for higher risk participating members.

On the Horizon

The protocol used in this study will continue to be monitored for savings. The application of other statistical measures and a report of statistical significance would be helpful in establishing efficacy to utilize the program in other health plans and agencies. By managing depression through the use of behavioral health techniques, this study has demonstrated a positive ROI on the management of comorbid medical conditions. Further study will continue in the direction of managing medical conditions. Expanding this study to include participants from other health plans and other geographic regions might also validate the ROI potential of the study protocol. Temporal considerations are also important. Consider that individuals who suffer from multiple comorbidities with identified psychosocial issues/barriers have increased health risks and costs that are far greater than those who do not appear to have associated psychopathology or psychosocial factors. Examining the use of the study protocol from a lifetime perspective can further reduce costs in the future and still show a positive ROI. Finally, the literature bears out the inconsistency in economic analysis of ROI (Price, Pfoutz, & Chang, 2001; Sackett et al., 2004; Stone, Curran, & Bakken, 2002; Tu, 2004). An effort to bring consistency to this approach is needed to demonstrate efficacy in the management of chronic disease.

References

Ciechanowski, P. S., Katon, W. J., & Russo, J. E. (2000). Depression and diabetes: Impact of depressive symptoms on adherence, function, and costs. *Archives of Internal Medicine, 160,* 3278–3285.

DiMatteo, M. R., Lepper, H. S., & Croghan, T. W. (2000). Depression is a risk factor for noncompliance

with medical treatment: Meta-analysis of the effects of anxiety and depression on patient adherence. *Archives of Internal Medicine, 160*, 2101–2107.

Faulkner, L. (2003). *Disease management: The new tool for cost containment and quality care*. Issue Brief. Washington, DC: NGA Center for Best Practices.

Falloon, R. H., & Fadden, G. (1995). *Integrated mental health care: A comprehensive, community-based approach*. New York: Cambridge University Press.

Finkelstein, E. A., & Trogdon, J. G. (2008). Public health interventions for addressing childhood overweight: Analysis of the business case. *American Journal of Public Health, 98*(3), 411–415.

Hogan, M. F. (2003). The president's New Freedom Commission: Recommendations to transform mental health care in America. *Psychiatric Services, 54*(11), 1467–1474.

Jarret, E. M., Yee, B., & Banks, M. E. (2007). Benefits of comprehensive health care for improving health outcomes in women. *Professional Psychology: Research and Practice, 38*(3), 305–313.

Kroenke, K., Spitzer, R., & Williams, W. (2001). The PHQ–9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*, 606–616.

Levant, R. (2004). 21st century psychology: Toward a biopsychosocial model. *Psychotherapy Bulletin, 39*(2), 8–11.

Levant, R. (2007). Commentary: Health care for the whole person. *Professional Psychology: Research and Practice, 38*(3), 276–277.

Maciejewski, M. L., Perkins, M., Li, Y. F., Chapko, M., Fortney, J. C., & Liu, C. F. (2007). Utilization and expenditures of veterans obtaining primary care in community clinics and VA medical centers: An observational cohort study. *BMC Health Services Research, 7*(56), 1–8.

Price, S., Pfoutz, S., & Chang, C. (2001). *Economics and nursing critical professional issues*. Philadelphia: FA Davis.

Sackett, K., Pope, R., & Erdley, W. (2004). Demonstrating a positive return on investment for a prenatal program at a managed care organization: An economic analysis. *Journal of Perinatal Neonatal Nursing, 18*(2), 117–127.

Shepherd, M. (1990). *Conceptual issues in psychological medicine*. London: Tavistock.

Stone, P. W., Curran, C. R., & Bakken, S. (2002). Economic evidence for evidence-based practice. *Journal of Nursing Scholarship, 34*(3), 277–282.

Toney, S. D. (2007). Shrinking health care disparities in women: The depression dilemma. *Journal of Managed Care Pharmacy, 13*(9)(Suppl. S-a), S16–S20.

Tu, H. T. (2004). *Rising health costs, medical debt & chronic conditions* (Issue Briefs, 88). Washington, DC: Center for Studying Health System Change.

Wiecha, J., & Pollard, T. (2004). The interdisciplinary eHealth team: Chronic care for the future. *Journal of Medical Internet Research, 6*(3), e22.

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