Evidence Base for Collaborative Care

Financing and Payment Models, including Cost-Effectiveness

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1. Jacob V, Chattopadhay SK, Sipe TA, et al. Economics of Collaborative Care for management of depressive disorders: a community guide systematic review. Am J Prev Med. 2012;42:539-549.

Summary: A systematic review of 30 studies on economic outcomes, with most studies showing positive results regarding averted healthcare or productivity loss, and reduced healthcare utilization or enhanced productivity.

Scientific Abstract:
Context: Major depressive disorders are frequently underdiagnosed and undertreated. Collaborative Care models developed from the Chronic Care Model during the past 20 years have improved the quality of depression management in the community, raising intervention cost incrementally above usual care. This paper assesses the economic efficiency of collaborative care for management of depressive disorders by comparing its economic costs and economic benefits to usual care, as informed by a systematic review of the literature.
Evidence acquisition: The economic review of collaborative care for management of depressive disorders was conducted in tandem with a review of effectiveness, under the guidance of the Community Preventive Services Task Force, a nonfederal, independent group of public health leaders and experts. Economic review methods developed by the Guide to Community Preventive Services were used by two economists to screen, abstract,

adjust, and summarize the economic evidence of collaborative care from societal and other perspectives. An earlier economic review that included eight RCTs was included as part of the evidence. The present economic review expanded the evidence with results from studies published from 1980 to 2009 and included both RCTs and other study designs.
Evidence synthesis: In addition to the eight RCTs included in the earlier review, 22 more studies of collaborative care that provided estimates for economic outcomes were identified, 20 of which were evaluations of actual interventions and two of which were based on models. Of seven studies that measured only economic benefits of collaborative care in terms of averted healthcare or productivity loss, four found positive economic benefits due to intervention and three found minimal or no incremental benefit. Of five studies that measured both benefits and costs, three found lower collaborative care cost because of reduced healthcare utilization or enhanced productivity, and one found the same for a subpopulation of the intervention group. One study found that willingness to pay for collaborative care exceeded program costs. Among six cost-utility studies, five found collaborative care was cost effective. In two modeled studies, one showed cost effectiveness based on comparison of $/disability-adjusted life-year to annual per capita income; the other demonstrated cost effectiveness based on the standard threshold of $50,000/quality-adjusted life year, unadjusted for inflation. Finally, six of eight studies in the earlier review reported that interventions were cost effective on the basis of the standard threshold.
Conclusions: The evidence indicates that collaborative care for management of depressive disorders provides good economic value.

2. Lee CM, Scheuter C, Rochlin D, et al. A budget impact analysis of the Collaborative Care model for treating opioid use disorder in primary care. J Gen Intern Med. 2019;34:1693-1694.

Summary: The authors analyzed data from the SUMMIT clinical trial (4.5 Watkins, et al) and found the the costs of Collaborative Care are likely to be offset by savings if 25% of patients with opioid use disorder (one of the target conditions in the clinical trial) receive treatment in a panel size of about 85, while achieving better patient outcomes.

Scientific Abstract (adapted from text):
We performed a budget impact analysis on the expected increases in the expenditure of a health care system after the adoption CoCM to address OUD. We estimated 1-year costs and savings using published literature and structured interviews with content experts. Treatment effects were derived from an RCT. The simulation model estimated that the cost per patient treated with a panel size of 85 was $2547 (SD $190; 95% CI $2173–$2918). With a panel size of 85, the program would approximately breakeven but would have about a 14% chance of spending more than $200 per patient, balanced by a 14% chance of gaining more than $200 per patient. If the panel size is expanded to 120, cost per patient treated declines to $2145 (SD $141; 95% CI $1867–$2421), suggesting a likely positive balance. Our analysis suggests that the costs of a CoCM program are likely to be offset by savings if 25% of OUD patients receive treatment in a panel size of about 85, while achieving better patient outcomes.

3. Carlo AD, Corage Baden A, McCarty RL, et al. Early health system experiences with collaborative care (CoCM) billing codes: a qualitative study of leadership and support staff. J Gen Intern Med 2019; 34:2150–2158.

Summary: The authors interviewed clinicians and payers and found workflow changes necessary for Collaborative Care billing were significant barriers for which some clinics found creative solutions including blended Collaborative Care and fee for service billing.

Scientific Abstract:
Background: Although collaborative care (CoCM) is an evidence-based and widely adopted model, reimbursement challenges have limited implementation efforts nationwide. In recent years, Medicare and other payers have activated CoCM-specific codes with the primary aim of facilitating financial sustainability.
Objective: To investigate and describe the experiences of early adopters and explorers of Medicare's CoCM codes.
Design and participants: Fifteen interviews were conducted between October 2017 and May 2018 with 25 respondents representing 12 health care organizations and 2 payers. Respondents included dually boarded medicine/psychiatry physicians, psychiatrists, primary care physicians (PCPs), psychologists, a registered nurse, administrative staff, and billing staff.
Approach: A semi-structured interview guide was used to address health care organization characteristics, CoCM services, patient consent, CoCM operational components, and CoCM billing processes. All interviews were recorded, transcribed, coded, and analyzed using a content analysis approach conducted jointly by the research team.
Key results: Successful billing required buy-in from key, interdisciplinary stakeholders. In planning for CoCM billing implementation, several organizations hired licensed clinical social workers (LICSWs) as behavioral health care managers to maximize billing flexibility. Respondents reported a number of consent-related difficulties, but these were not primary barriers. Workflow changes required for billing the CoCM codes (e.g., tracking cumulative treatment minutes, once-monthly code entry) were described as arduous, but also stimulated creative solutions. Since CoCM codes incorporate the work of the psychiatric consultant into one payment to primary care, organizations employed strategies such as inter-departmental ledger transfers. When challenges arose from variations in the local payer mix, some organizations billed CoCM codes exclusively, while others elected to use a mixture of CoCM and traditional fee-for-service (FFS) codes. For most organizations, it was important to demonstrate financial sustainability from the CoCM codes.
Conclusions: With deliberate planning, persistence, and widespread organizational buy-in, successful utilization of newly available FFS CoCM billing codes is achievable.

4. Carlo AD, Drake L, Ratzliff ADH, et al. Sustaining the Collaborative Care Model (CoCM): Billing newly available CoCM CPT Codes in an academic primary care system. Psychiatr Serv. 2020;71:972-974.

Summary: This report describes the strategy one clinic system (14 clinics) used to effectively implement use of the Collaborative Care CPT codes to move the practice to financial sustainability.

Scientific Abstract:
Novel Current Procedural Terminology (CPT) codes specific to the collaborative care model (CoCM) offer advantages over traditional billing options, but their uptake may require considerable billing and clinical workflow adjustments. This column presents a case study addressing the challenges of using these codes within the University of Washington Neighborhood Clinics (UWNC), an academically affiliated primary care clinic system in western Washington State. The UWNC experience thus far demonstrates that CoCM CPT codes can successfully be used in a large academic primary care system to help move this evidence-based service model toward financial sustainability.

5. Unützer J, Chan YF, Hafer E, et al. Quality improvement with pay-for-performance incentives in integrated behavioral health care. Am J Public Health. 2012;102:e41-45.

Summary: The authors analyzed data from a Washington state-wide Collaborative Care program reaching 7941 patients with depressive symptoms from approximately 100 community health clinics. Quality of Collaborative Care was assessed by whether the care manager contacted the patient within 2 and 4 weeks after initial assessment, whether participants had psychiatric consultation case review, and total number of care manager contacts, with 25% of clinic reimbursement being linked to benchmarks for these metrics. The authors analyzed data before and after pay-for-performance (P4P) was put into place, and found that after P4P was instituted, patients were considerably more likely to experience significant improvement in depression severity, and the time to improvement was significantly reduced, compared to before P4P. The median time patients experienced depression improvement decreased from 64 weeks pre-P4P to 25 weeks post P4P.

Scientific Abstract:

Objectives: We evaluated a quality improvement program with a pay-for-performance (P4P) incentive in a population-focused, integrated care program for safety-net patients in 29 community health clinics.
Methods: We used a quasi-experimental design with 1673 depressed adults before and 6304 adults after the implementation of the P4P program. Survival analyses examined the time to improvement in depression before and after implementation of the P4P program, with adjustments for patient characteristics and clustering by health care organization.
Results: Program participants had high levels of depression, other psychiatric and substance abuse problems, and social adversity. After implementation of the P4P incentive program, participants were more likely to experience timely follow-up, and the time to depression improvement was significantly reduced. The hazard ratio for achieving treatment response was 1.73 (95% confidence interval=1.39, 2.14) after the P4P program implementation compared with pre-program implementation.
Conclusions: Although this quasi-experiment cannot prove that the P4P initiative directly caused improved patient outcomes, our analyses strongly suggest that when key quality indicators are tracked and a substantial portion of payment is tied to such quality indicators, the effectiveness of care for safety-net populations can be substantially improved.

6. Grochtdreis T, Brettschneider C, Wedener A, et al. Cost-effectiveness of collaborative care for the treatment of depressive disorders in primary care: a systematic review. PLOS One. 2015. Doi:10.1371.

Summary: This *systematic review* addressed cost-effectiveness of Collaborative Care for individuals with depressive disorders in primary care. Nineteen studies were included in the review including 12 studies from the United States. Interpreting results of cost-effectiveness analyses includes nuances of 1) considering the context of a clinical trial and usual absence of cost of conducting the trial in the analysis, 2) variable duration of cost-effectiveness (i.e. over 6 months, duration of trial, 1 year after the trial, etc.) and 3) variability in cost perspective, (person, health plan, society, etc). In this review, 5 studies used a societal view of costs, 11 studies used health care perspective, and 3 studies used both. Effectiveness was defined as depression free days in over half of studies, and as quality adjusted life years in all but one of the other studies. The authors discussed how studies with longer time horizons showed lower costs per effectiveness unit. Only two studies included indirect costs of patient productivity loss due to depression. Other cost-effectiveness studies (summarized in the systematic review) of Collaborative Care clinical trials have shown the cost of Collaborative Care varies widely from less than to more than usual care. In practice, start-up and implementation costs of Collaborative Care are not typically included in cost effectiveness analyses and can limit clinics' adoption of Collaborative Care. Additional details of two cost-effectiveness analyses are below.

Scientific Abstract:

Background: For the treatment of depressive disorders, the framework of collaborative care has been recommended, which showed improved outcomes in the primary care sector. Yet, an earlier literature review did not find sufficient evidence to draw robust conclusions on the cost-effectiveness of collaborative care.
Purpose: To systematically review studies on the cost-effectiveness of collaborative care, compared with usual care for the treatment of patients with depressive disorders in primary care.
Methods: A systematic literature search in major databases was conducted. Risk of bias was assessed using the Cochrane Collaboration's tool. Methodological quality of the articles was assessed using the Consensus on Health Economic Criteria (CHEC) list. To ensure comparability across studies, cost data were inflated to the year 2012 using country-specific gross domestic product inflation rates, and were adjusted to international dollars using purchasing power parities (PPP).
Results: In total, 19 cost-effectiveness analyses were reviewed. The included studies had sample sizes between n = 65 to n = 1,801, and time horizons between six to 24 months. Between 42% and 89% of the CHEC quality criteria were fulfilled, and in only one study no risk of bias was identified. A societal perspective was used by five studies. Incremental costs per depression-free day ranged from dominance to US$PPP 64.89, and incremental costs per QALY from dominance to US$PPP 874,562.
Conclusion: Despite our review improved the comparability of study results, cost-effectiveness of collaborative care compared with usual care for the treatment of patients with depressive disorders in primary care is ambiguous depending on willingness to pay. A still considerable uncertainty, due to inconsistent methodological quality and results among included studies, suggests further cost-effectiveness analyses using QALYs as effect measures and a time horizon of at least 1 year.

7. Katon W, Russo J, Lin EHB, et al. Cost-effectiveness of a multicondition collaborative care intervention: a randomized controlled trial. Arch Gen Psychiatry. 2012;69:506-514.

Summary: This study analyzed data from a randomized controlled trial occurring in an integrated healthcare system comparing 12 months of care with multicondition collaborative care for individuals with depression and diabetes and/or cardiovascular disease, compared to usual care, in primary care. This cost effectiveness analysis included a total of a 24 month observation period. Individuals randomized to treatment with collaborative care were found to have 114 additional depression free days (effectiveness) and $594 lower outpatient healthcare costs (cost).

Scientific Abstract:
Context: Patients with depression and poorly controlled diabetes mellitus, coronary heart disease (CHD), or both have higher medical complication rates and higher health care costs, suggesting that more effective care management of psychiatric and medical disease control might also reduce medical service use and enhance quality of life.
Objective: To evaluate the cost-effectiveness of a multicondition collaborative treatment program (TEAMcare) compared with usual primary care (UC) in outpatients with depression and poorly controlled diabetes or CHD.
Design: Randomized controlled trial of a systematic care management program aimed at improving depression scores and hemoglobin A(1c) (HbA(1c)), systolic blood pressure (SBP), and low-density lipoprotein cholesterol (LDL-C) levels.
Setting: Fourteen primary care clinics of an integrated health care system.
Patients: Population-based screening identified 214 adults with depressive disorder and poorly controlled diabetes or CHD.

Intervention: Physician-supervised nurses collaborated with primary care physicians to provide treatment of multiple disease risk factors.
Main outcome measures: Blinded assessments evaluated depressive symptoms, SBP, and HbA(1c) at baseline and at 6, 12, 18, and 24 months. Fasting LDL-C concentration was assessed at baseline and at 12 and 24 months. Health plan accounting records were used to assess medical service costs. Quality-adjusted life-years (QALYs) were assessed using a previously developed regression model based on intervention vs UC differences in HbA(1c), LDL-C, and SBP levels over 24 months.
Results: Over 24 months, compared with UC controls, intervention patients had a mean of 114 (95% CI, 79 to 149) additional depression-free days and an estimated 0.335 (95% CI, -0.18 to 0.85) additional QALYs. Intervention patients also had lower mean outpatient health costs of $594 per patient (95% CI, -$3241 to $2053) relative to UC patients.
Conclusions: For adults with depression and poorly controlled diabetes, CHD, or both, a systematic intervention program aimed at improving depression scores and HbA(1c), SBP, and LDL-C levels seemed to be a high-value program that for no or modest additional cost markedly improved QALYs.

8. Simon GE, Katon W, Lin EHB, et al. Cost-effectiveness of systematic depression treatment among people with diabetes mellitus. Arch Gen Psychiatry. 2007;64:65-72.

Summary: This study included an analysis of data from a randomized controlled trial occurring in an integrated healthcare system comparing 12 months of care with collaborative care for individuals with depression and diabetes, compared to usual care, in primary care. This analysis included a 24 month observation period. Individuals randomized to treatment with collaborative care were found to have 61 more depression free days (effectiveness) and about $300 lower outpatient healthcare costs (cost).

Scientific Abstract:
Context: Depression co-occurring with diabetes mellitus is associated with higher health services costs, suggesting that more effective depression treatment might reduce use of other medical services.
Objective: To evaluate the incremental cost and cost-effectiveness of a systematic depression treatment program among outpatients with diabetes.
Design: Randomized controlled trial comparing systematic depression treatment program with care as usual.
Setting: Primary care clinics of group-model prepaid health plan.
Patients: A 2-stage screening process identified 329 adults with diabetes and current depressive disorder.
Intervention: Specialized nurses delivered a 12-month, stepped-care depression treatment program beginning with either problem-solving treatment psychotherapy or a structured antidepressant pharmacotherapy program. Subsequent treatment (combining psychotherapy and medication, adjustments to medication, and specialty referral) was adjusted according to clinical response.
Main outcome measures: Depressive symptoms were assessed by blinded telephone assessments at 3, 6, 12, and 24 months. Health service costs were assessed using health plan accounting records.
Results: Over 24 months, patients assigned to the intervention accumulated a mean of 61 additional days free of depression (95% confidence interval [CI], 11 to 82 days) and had outpatient health services costs that averaged $314 less (95% CI, $1007 less to $379 more) compared with patients continuing in usual care. When an additional day free of depression is valued at $10, the net economic benefit of the intervention is $952 per patient treated (95% CI, $244 to $1660).

Conclusions: For adults with diabetes, systematic depression treatment significantly increases time free of depression and appears to have significant economic benefits from the health plan perspective. Depression screening and systematic depression treatment should become routine components of diabetes care.